NORTHMET PROJECT –
WATER APPROPRIATION PERMITS

FINDINGS OF FACT, CONCLUSIONS, AND ORDER OF COMMISSIONER

November 1, 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

BIF	Biwabik Iron Formation
BWCA	Boundary Waters Canoe Area Wilderness
CDSM	Cement Deep Soil Mixing
cfs	cubic feet per second
CWA	Clean Water Act
DEIS	Draft Environmental Impact Statement
DNR	Commissioner of the Minnesota Department of Natural Resources
EAW	Scoping Environmental Assessment Worksheet finalized on March 30, 2005
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EQB	Environmental Quality Board
EWR	Division of Ecological and Water Resources
FAW	Division of Fish and Wildlife
FEIS	Final Environmental Impact Statement
FTB	Flotation Tailings Basin
GLIFWC	Great Lakes Indian Fish and Wildlife Commission
gpm	gallons per minute
HRF	Hydrometallurgical Residue Facility
MERA	Minnesota Environmental Rights Act
MGD	Million gallons per day
MGY	Million gallons per year
MPARS	Minnesota Permitting and Reporting System
MPCA	Minnesota Pollution Control Agency
msl	mean sea level
NPDES	National Pollutant Discharge Elimination System
NSPS	New Sources Pollution Standards
PD	Project Description
QAPP	Quality Assurance Project Plan
ROD	Record of Decision
SDEIS	Supplemental Draft Environmental Impact Statement
SDS	State Disposal System
SEIS	Supplemental Environmental Impact Statement
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USFS	Unites States Forest Service
WWTF	Waste Water Treatment Facility
WWTS	Waste Water Treatment System

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

In the Matter of the Application for Water Appropriation Permits 2016-1363 (East Pit Dewatering), 2016-1364 (Central Pit Dewatering), 2016-1365 (West Pit Dewatering), 2016-1367 (Mine Processing and Mine Site Infrastructure), 2016-1369 (Mine Processing and Plant Site Infrastructure), and 2017-0260 (Colby Lake for Mine Processing Make Up Water)

FINDINGS OF FACT, CONCLUSIONS, AND ORDER OF COMMISSIONER

After review, due investigation, and consideration of comments, and based on the information and statements contained in the permit applications submitted by Poly Met Mining, Inc., the applicant's description of work proposed to be undertaken, and supplemental information in the administrative record contained within the MNDNR Permitting and Reporting System ("MPARS") or otherwise available to the Minnesota Department of Natural Resources, the Commissioner of the Minnesota Department of Natural Resources ("DNR") makes the following:

FINDINGS OF FACT

I. EXECUTIVE SUMMARY

1. Poly Met Mining, Inc. ("PolyMet") applied for six separate water appropriation permits as part of its proposed NorthMet mining project ("Project" or "NorthMet Project") located south of the city of Babbitt and north of the city of Hoyt Lakes in St. Louis County, Minnesota. The NorthMet Project seeks to develop a mine and associated processing facilities for the extraction of copper, nickel, and platinum group elements from the NorthMet Deposit within the Duluth Complex in Northeastern Minnesota. The Project underwent joint federal-state environmental review, which culminated in the DNR issuing an unchallenged Record of Decision ("ROD") deeming the Final Environmental Impact Statement ("FEIS") adequate in March 2016.

2. In general terms, PolyMet requests the identified water appropriation permits: (1) to conduct mine-pit dewatering in three mine pits in order to mine ore at the Mine Site; (2) to operate engineering controls at the Mine Site and Plant Site; (3) to construct buildings and other infrastructure that extend below the water table at the Mine Site and Plant Site; and (4) for mine-processing activities at the Plant Site. Application § 3.0.

3. Appropriation of water for the NorthMet Project will occur in four phases. The first phase of pre-operation construction, anticipated to last for 18-24 months, will include temporary dewatering for construction of infrastructure and engineering controls and for

overburden stripping in preparation for mining. The second phase will be operation and reclamation, anticipated to last approximately 20 years, which will include dewatering of the mine pits and dewatering for operation of engineering controls. The third phase, continued reclamation, will take place after the cessation of active mining activities and will include water appropriations from the mine pits for water-treatment purposes. The final phases of closure and post-closure maintenance may not require continued water appropriations. PolyMet's application details expected schedules and rates for appropriations from the pre-construction phase through the operations phase based on current estimates. Application § 1.0.

4. PolyMet's water appropriations will be subject to ongoing monitoring requirements. The applicable Monitoring Plans include groundwater monitoring to identify the effects of appropriations on groundwater levels in the surficial and bedrock aquifers, surface water monitoring to assess any potential changes related to groundwater withdrawals and associated discharges to surface water flow or basin water levels, macroinvertebrate monitoring and fish community monitoring. Appropriate adaptive management or mitigation strategies may be implemented to address any unacceptable impacts to resources in the event monitoring identifies impacts.

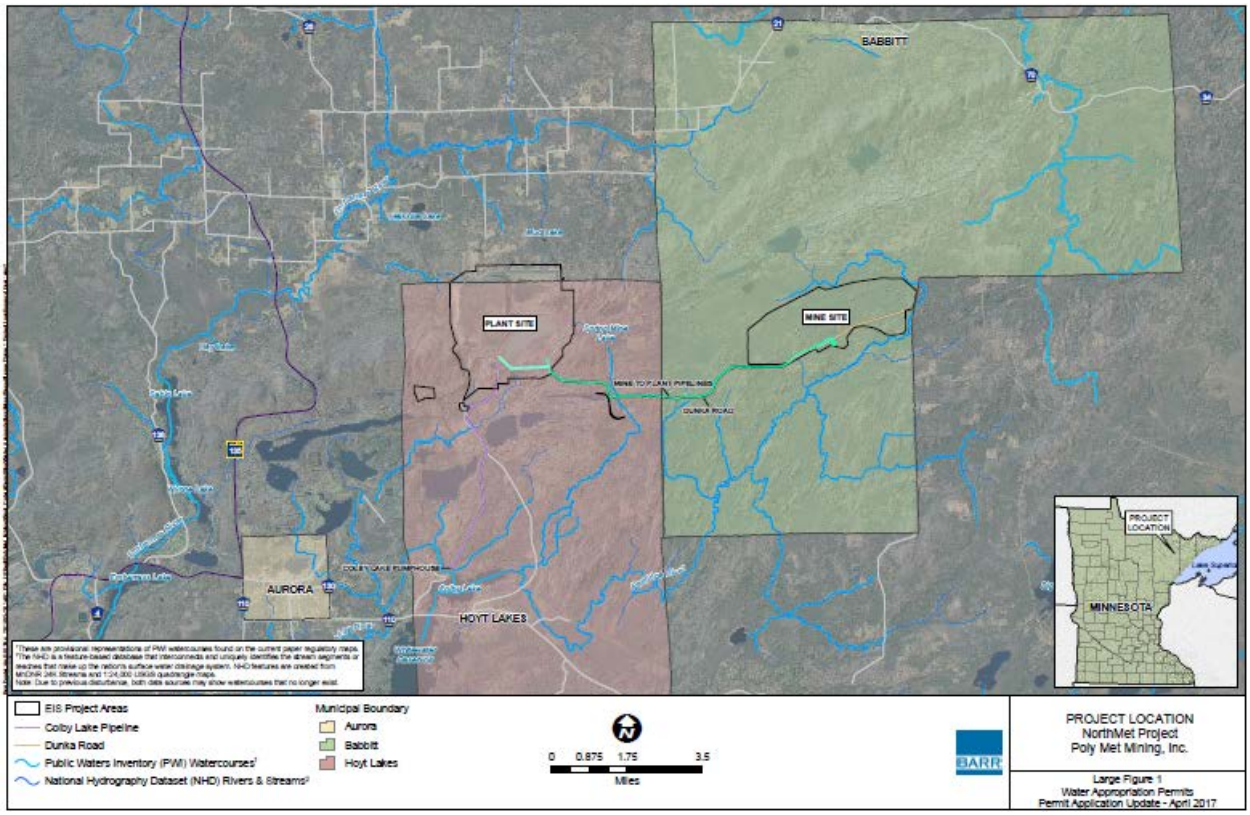
5. The permits that PolyMet seeks in this proceeding relate solely to the appropriation of water by PolyMet for the NorthMet Project. A multitude of other permits and regulatory requirements will also apply to the Project. Mining and reclamation of the mining area will occur under a Permit to Mine issued by the DNR under Chapter 6132 of the Minnesota Rules and the Minnesota Mineland Reclamation Act. *See* Minn. Stat. §§ 93.44-.51. Water- and air-quality issues associated with the NorthMet Project will be regulated by the Minnesota Pollution Control Agency ("MPCA") pursuant to National Pollutant Discharge Elimination System ("NPDES") and State Disposal System ("SDS") permits, and Air Emissions Permits. The Flotation Tailings Basin ("FTB") and Hydrometallurgical Residue Facility ("HRF") at the Plant Site are subject to regulation by the DNR under separate dam safety permits in addition to the Permit to Mine. Monitoring and mitigation for direct and indirect wetland impacts associated with operations at the NorthMet Project will be required under the Permit to Mine in accordance with the State Wetland Conservation Act and under a wetlands permit issued by the United States Army Corps of Engineers ("USACE") under section 404 of the Clean Water Act, 33 U.S.C. § 1344. Any take of a state-listed species resulting from the NorthMet Project will require a takings permit from the DNR. *See* FEIS Table 1.4-1.

6. As detailed below, the DNR has reviewed the record and concludes that PolyMet has met its burden of proof and is entitled to issuance of the requested permits, subject to the terms and conditions therein.

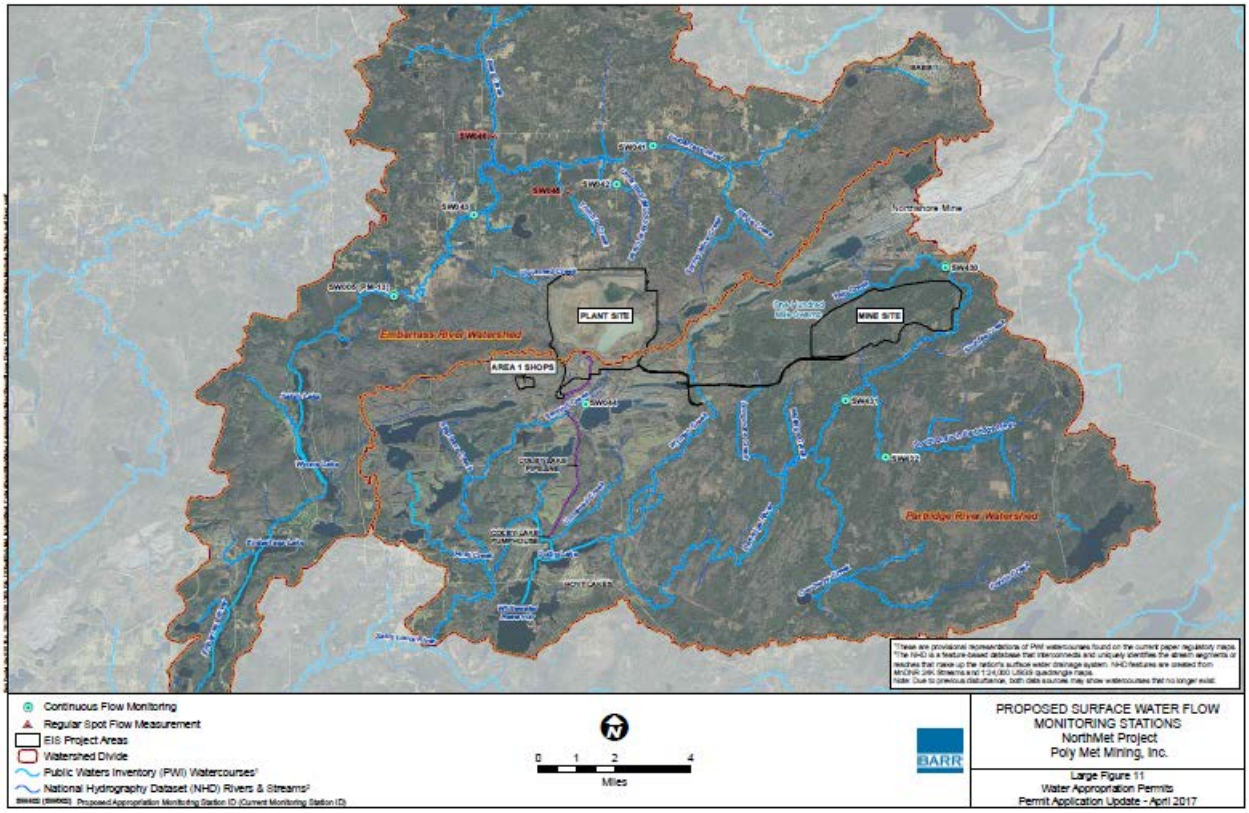
II. ENVIRONMENTAL SETTING OF THE MINE AND PLANT SITES

7. As shown below, the proposed NorthMet Project includes an open-pit mining area ("Mine Site") located approximately six miles south of Babbitt and two miles south of a currently operating open-pit taconite mine ("Peter Mitchell Mine"). Application Large Figure 1. Ore will not be processed at the Mine Site, but, rather, will take place at the former LTV Steel Mining Company's processing plant near Hoyt Lakes ("Plant Site"), approximately 8 miles from the Mine Site. The Mine Site and the Plant Site are connected by a Transportation and Utility

Corridor ("Corridor"), which includes a pipeline transporting water between the Plant and Mine Site. In addition, PolyMet proposes to appropriate make-up water for processing at the Plant Site with water from Colby Lake. Appropriated water will be re-used and recycled during processing activities. Excess water will be treated at a Waste Water Treatment System ("WWTS") at the Plant Site prior to any discharge. Application § 1.0.



8. Both the Plant Site and Mine Site are located in the St. Louis River Watershed, within the Lake Superior Basin. Surface water and surficial groundwater at the Mine Site flow to the Partridge River, while most flows at the Plant Site drain to the Embarrass River, with the exception of Second Creek which is part of the Partridge River watershed. The relevant watershed boundaries were illustrated in Large Figure 11 of the Application reproduced below.



9. A watershed is an area of land that is drained by a river and its tributaries into a body of water, or a common outlet. A watershed boundary, or divide, separates watersheds such that impacts to surface water resources in one watershed cannot affect surface water resources in another watershed. Both the Plant Site and the Mine Site are separated from the Rainy River Watershed by the Laurentian Divide. Yelp Creek and the Partridge River encircle the northern, eastern, and southern sides of the Mine Site. These streams create a hydrologic "sink" for sources of surface water originating at the Mine Site. Surface runoff or seepage leaving the Mine Site follows a gradient into Yelp Creek or the Partridge River. Because the watershed boundary or divide is, by definition, at a higher elevation than locations within the watershed, flow from features within the watershed flow away from the divide toward lower elevations. Since the watercourses at issue in the NorthMet Project are not part of the Rainy River Watershed within the Hudson Bay Basin, they do not flow to the Boundary Waters Canoe Area Wilderness ("BWCA"). *See* FEIS § 5.2.2.

10. Appropriations at the Mine Site will be drawn primarily from the surficial aquifer in unconsolidated deposits and from a bedrock aquifer. Depth to bedrock at the Mine Site ranges from 0 to approximately 60 feet. Application § 5.2.1. This bedrock is covered by surficial drift and the depth to groundwater is typically less than 10 feet. *Id.* Analysis to date has not identified preferential groundwater conduits within the surficial deposits at the Mine Site, but, rather, shows that groundwater flow paths are short because of the thin and discontinuous nature of the surficial aquifer. Monitoring-well data shows that groundwater elevations vary across the Mine Site and fluctuate seasonally, rising in the spring with the snowmelt and falling through the late summer to lows in the winter. *See* FEIS § 4.2.2.2.1. Field surveys have shown that a majority of wetlands at the Mine Site are largely perched wetlands, fed by direct precipitation,

with minimal hydraulic connection to the underlying groundwater. *See id.* § 4.2.3.1.2; Application § 5.2.1.1.

11. Limited appropriations at the Mine Site are anticipated to be drawn from the bedrock aquifer. The NorthMet Deposit is a mineral deposit located within the Duluth Complex near the eastern end of the Mesabi Iron Range. FEIS § 3.2.2.1.2. Underlying the Duluth Complex is the Virginia Formation, which in turn lies above the Biwabik Iron Formation ("BIF"). Application § 5.2.1.2. The Duluth Complex has hydraulic conductivity at least an order of magnitude lower than the Virginia Formation and the BIF. *Id.* Pit dewatering at the Mine Site will draw water from the Duluth Complex and the Virginia Formation bedrock units, which are not used for water supply in the area. *Id.* § 8.1.1, Reference (11). The mine pits will not extend into the BIF. *Id.* §§ 5.2.1.2, 8.1.1; *see also* Application – Reference (5) § 4.3.3.2, Reference (13) § 3.2.4.

12. Groundwater appropriations at the Plant Site will be drawn from the surficial aquifer in unconsolidated deposits and not from bedrock. Application § 5.2.2.2.1. These unconsolidated deposits include glacial till, reworked sediments, and peat deposits. *Id.* Other than at the southern side of the tailings basin, the depth to bedrock in the area surrounding the tailings basin ranges from 3.5 to 42.5 feet. *Id.* The basin abuts bedrock at its southern and much of its eastern side. The wetlands at the Plant Site between the tailings basin and the Embarrass River appear connected to the water table, and reflect some groundwater and surface water connection. *See* FEIS § 4.2.2.4.1.

13. As part of the NorthMet Project, PolyMet will install a seepage capture system to block seepage from the existing tailings basin at the Plant Site. Tailings basin seepage currently contributes water to certain wetlands and tributaries of the Embarrass River. Application § 5.2.2.3. In order to avoid impacts to the Embarrass River watershed, PolyMet has agreed to augment flows in to Trimble Creek, Unnamed Creek, Second Creek, and Unnamed (Mud Lake) Creek (collectively the "Embarrass River Tributaries"). *Id.* §§ 3.3, 6.2. PolyMet will augment streamflow in the Embarrass River Tributaries by discharging treating effluent from the WWTS and by diverting runoff that currently flows into the tailings basin via a drainage swale. *Id.* §§ 3.3, 7.5.2. The goal of this augmentation is to limit the change in average annual streamflow to +/- 20% of existing conditions. *Id.* § 3.3.; *see also* FEIS § 5.2.2.3.3. These discharges will occur under the terms of an NPDES/SDS permit issued by the MPCA. Application § 3.4.

III. ENVIRONMENTAL REVIEW OF THE PROPOSED NORTHMET PROJECT

A. History of Environmental Review Process

14. Joint federal-state environmental review of the proposed NorthMet Project began in 2004. At the outset of environmental review, the DNR and the USACE were co-lead agencies in preparing the EIS for the proposed NorthMet Project. The United States Forest Service ("USFS") initially participated in the environmental review process as a cooperating agency. The Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa and Grand Portage Band of Chippewa participated in the environmental review process as cooperating agencies. The Great Lakes Indian Fish & Wildlife Commission ("GLIFWC") and the 1854

Treaty Authority assisted the Bands in their roles as cooperating agencies throughout environmental review.

15. On May 30, 2005, the DNR and the USACE finalized a Scoping Environmental Assessment Worksheet ("EAW") and Draft Scoping Decision Document for the Project. A Notice of Availability of the Scoping EAW and Draft Scope was published in the EQB Monitor on June 6, 2005. This initiated a 30-day scoping period. A public scoping meeting was held in Hoyt Lakes on June 29, 2005. On July 1, 2005, USACE published a Notice of Intent to Prepare an EIS for the proposed NorthMet Mining Project in the Federal Register. On October 25, 2005, the DNR and the USACE issued a Final Scoping Decision Document for the proposed NorthMet Mining Project.

16. On April 24, 2006, the DNR published a Draft Environmental Impact Statement ("DEIS") preparation notice in the EQB Monitor. PolyMet submitted an initial Project Description ("PD") for the proposed NorthMet Mining Project on April 26, 2006. The PD was revised in January 2007 and a supplemental PD was submitted in July 2007. The PD was further revised through June 2009. On October 27, 2009, the DNR and the USACE issued the DEIS for the proposed NorthMet Mining Project. Notification of the publication of the DEIS was published in the EQB Monitor and the Federal Register on November 2 and November 6, 2009, respectively. This opened a 90-day public comment period on the DEIS. In addition, the DNR and the USACE convened a public meeting in Aurora and another in Blaine to gather public comments on the DEIS. The agencies received approximately 2,800 comments on the DEIS.

17. On February 18, 2010, the United States Environmental Protection Agency ("EPA") submitted comments on the DEIS and assigned it a rating of EU-3 (Environmentally Unsatisfactory – Inadequate Information). In mid-2010, the DNR, the USACE and the USFS determined that a land exchange proposed action should be included in environmental review of the proposed NorthMet Mining Project. The USFS thus joined the DNR and the USACE as a co-lead agency for environmental review purposes. The co-lead agencies then developed a Supplemental Draft EIS for the proposed NorthMet Mining Project. The EPA became a cooperating agency for development of the Supplemental Draft EIS in order to participate in the resolution of issues identified in its February 2010 comment letter.

18. On December 5, 2013, the DNR released the Supplemental Draft EIS for public comment. A 90-day public comment period ran from December 14, 2013 and closed on March 13, 2014. In addition, public meetings were held in Duluth, Aurora, and St. Paul in January 2014. Over 58,000 comments were submitted on the SDEIS.

19. On November 6, 2015, the co-lead agencies released the FEIS on the proposed NorthMet Mining Project. The FEIS responded to all substantive comments received during the public review of the DEIS and the SDEIS. In addition, the public had an additional opportunity to review and submit comments when the FEIS was issued.

20. On March 3, 2016, the DNR issued its ROD, which concluded that the FEIS was adequate under the Minnesota Environmental Policy Act. Notice of the ROD was published in the EQB Monitor on March 14, 2016. The ROD was not appealed, and it is no longer subject to judicial review. *See* Minn. Stat. § 116D.04, subd. 10 (certiorari review of an adequacy decision

must be initiated within 30 days of publication of notice of the final decision in the EQB Monitor).

21. On January 9, 2017, the USFS issued a Final Record of Decision authorizing a land exchange between PolyMet and the USFS for lands at the Mine Site. Pursuant to a land exchange agreement with the USFS dated August 31, 2017, PolyMet took fee title to the Mine Site on June 28, 2018. To date, the USACE has not issued a Final Record of Decision because it has yet to make a final decision on the federal wetlands permit.

22. The FEIS was included within PolyMet's Application as Reference 1. The environmental review documents, including the FEIS and state ROD are publicly available at: https://www.dnr.state.mn.us/input/environmentalreview/polymet/index.html and are incorporated by this reference.

B. Summary of Analysis within the FEIS

23. The purpose of the FEIS is to inform the public and decision-makers of the proposed actions, assess potential environmental consequences, identify potential mitigation measures and reasonable and feasible alternatives, and to address the no-action alternative. The FEIS analyzed existing conditions in the area of the NorthMet Project and its surrounding environment. The FEIS described in detail impacts, including cumulative and indirect impacts, on the natural and human environment from the NorthMet Project.

24. The FEIS analyzed data from groundwater, surface water, and water quality models in order to predict the hydrologic and water quality effects of the NorthMet Project. The FEIS evaluated the effects of the NorthMet Project Proposed Action on groundwater and surface water resources within the Partridge River Watershed near the Mine Site with the following modeling approaches: (1) MODFLOW for groundwater hydrologic modeling; (2) XP-SWMM for surface water hydrologic modeling; and (3) GoldSim for water quality modeling. *See* FEIS § 5.2.2.2.1. The FEIS acknowledged that the complex geology with the presence of bedrock, surficial deposits, and wetland soils limited the ability to accurately quantify drawdown at any specific location in the Mine Site. *Id.* § 5.2.2.3.2. In lieu of using MODFLOW to estimate drawdown resulting from the pits at the Mine Site, the FEIS used an analog approach, which was developed using available well data from the Canisteo Pit. *Id.* Similarly, the FEIS evaluated the effects of the Project on groundwater and surface water resources within the Embarrass River Watershed near the Plant Site with (1) MODFLOW; (2) GoldSim; and (3) compilation of streamflows for different watersheds based on Embarrass River Stream gauging data. *See Id.* § 5.2.2.2.1. The FEIS determined that, with the proposed engineering controls, the NorthMet Project would not cause any significant impacts on water quality and quantity.

25. The FEIS comprehensively analyzed groundwater and surface water hydrology and water quality within the Partridge River and Embarrass River watersheds that could be affected by the NorthMet Project. *See* FEIS §§ 4.2.2.2.1, 4.2.2.2.2, 4.2.2.4.1, 4.2.2.4.2. The FEIS similarly analyzed current conditions for wetlands, vegetation, wildlife, and aquatic species in and around the Project area. *Id.* § 4.2.3. The FEIS also evaluated the potential environmental consequences of the proposed NorthMet Project on the affected environment, including direct and indirect effects on water resources, wetlands, vegetation, wildlife, and aquatic species. *Id.*

§§ 5.2.2-5.2.6. In addition, the FEIS assessed the potential cumulative impacts of the proposed NorthMet Project at the resource level. *Id.* §§ 6.2.2-6.2.6.

26. The ROD concluded that the FEIS adequately analyzed significant environmental impacts associated with the NorthMet Project, appropriately presented alternatives and analyzed their impacts, and presented methods by which adverse environmental impacts associated with the Project could be mitigated.

C. Subsequent Environmental Review Needs Determinations

27. On December 30, 2016, PolyMet notified the DNR that it proposed to eliminate the cement deep soil mixing ("CDSM") zone from the Cell 2E North Dam of the FTB and replace it with increased buttressing to achieve the required stability for the FTB.

28. On March 21, 2017, the DNR determined that the elimination of the CDSM zone and increased buttressing proposed by PolyMet did not appear to result in substantial changes that affect the potential significant environmental effects of tailings management at the Plant Site. The DNR further determined that such changes did not appear to generate significant environmental effects that were not considered in the FEIS or affect the availability of prudent and feasible alternatives with lesser environmental effects. The DNR concluded that preparation of a supplemental EIS ("SEIS") was not warranted as a result of this change.

29. On March 27, 2017, PolyMet notified the DNR that it proposed to locate a combined waste water treatment system for both the Mine Site and Plant Site in a single building at the Plant Site. This proposed change would relocate the wastewater treatment facility ("WWTF") originally proposed for water treatment at the Mine Site. Mine water transfers were proposed to occur through a three-pipeline system along the Corridor rather than a single pipe as originally proposed. PolyMet did not propose any changes to the actual wastewater treatment processes from those evaluated in the FEIS. No change in the volume of wastewater to be treated and discharged was proposed.

30. On April 11, 2017, the DNR determined that the proposal to site the WWTS at the Plant Site did not appear to result in substantial changes that affect the potential significant adverse environmental effects of project-related wastewater management through operations, closure, and reclamation. The DNR further determined that such changes did not appear to generate significant environmental effects that were not considered in the FEIS or affect the availability of prudent and feasible alternatives with lesser environmental effects.

IV. APPLICATION AND COMMENT PROCESS

A. PolyMet Submits Applications for Water Appropriation Permits to the DNR

31. On July 11, 2016, PolyMet submitted a Water Appropriations Consolidated Permit Application – Individual Non-Irrigation to the DNR. This consolidated application contained five separate applications for individual water appropriation permits, along with supporting figures, tables, and technical information. PolyMet submitted multiple applications for separate water appropriation permits because Minn. R. 6115.0660, subp. 1 requires the submission of separate applications for "each surface or ground water source from which water

is proposed to be appropriated." PolyMet noted that the consolidated application was "based primarily on the extensive data collection and technical analyses conducted as part of the development of the [FEIS]," but expanded upon such information where necessary.

32. PolyMet continued to revise its applications through 2016 and early 2017. On April 14, 2017, PolyMet submitted a further updated consolidated permit application, identified as Water Appropriation Permit Applications, Individual Non-Irrigation, Version 5 (April 2017) ("Application") to the DNR.

33. The Application contained a brief description of the NorthMet Project; a statement of the overall project purpose and need, expected appropriation schedules and rates for water appropriations during various phases of the Project; a summary of statutory and regulatory requirements applicable to water appropriation permits under Minnesota law; a description of the Project's water management approach, including its strategies for water conservation and reuse; an identification of proposed locations of appropriation; a statement of justification for the individual permits at issue; a discussion of the analyses of the hydrogeology and hydrology of the water sources at issue; an explanation of the methodology used to calculate proposed pumping rates and quantities; a consideration of alternatives; analyses of applicable statutory and regulatory requirements; and a proposed monitoring plan. In addition, the Application included references to the FEIS, separate water management plans for the Mine Site and Plant Site, water modeling data packages, and hydrogeologic investigations of the Mine Site and Plant Site. In addition, the Application included figures showing relevant locations of appropriation and monitoring stations along with flow diagrams of water appropriations during various phases of the NorthMet Project. Similarly, the Application included tables detailing historic water-level records along with pumping estimation methods and assumptions. Additional tables described the purpose, type, and frequency of proposed monitoring and reporting.

34. Table 3-1 presented information related to each of the following six individual permit applications consolidated within the Application:

2016-1363 – East Pit Dewatering – for dewatering at the East Pit at the Mine Site;

2016-1364 – Central Pit Dewatering – for dewatering at the Central Pit at the Mine Site;

2016-1365 – West Pit Dewatering – for dewatering at the West Pit at the Mine Site;

2016-1367 – Mine Site Infrastructure – for construction and operation of infrastructure at the Mine Site;

2016-1369 – Plant Site Infrastructure – for construction and operation of infrastructure at the Plant Site; and

2017-0260 – Colby Lake – for withdrawal of water for use as make-up water at the Plant Site.[1]

[1] PolyMet's original consolidated application did not include an application to appropriate from Colby Lake.

Permits 2016-1363, 2016-1364, 2016-1365, and 2016-1367 are collectively referred to as the "Mine Site Permits."

35. The Application included completed application forms for each individual permit, and described the water conservation and reuse approach for the NorthMet Project as a whole. *See* Application § 3.2. PolyMet's proposed use of waters is detailed in separate project water management plans for the Mine Site and the Plant Site. Version 5, dated July 11, 2016, of each of these project water management plans was incorporated into the Application via reference and considered as part of the Application. *See* Application - References (2), (3). The water management strategy for the project is integrated across the Mine and Plant Sites in order to maximize water conservation and recycling of appropriated water for reuse. Application § 3.2. Water appropriated at the Mine Site will be routed to the Plant Site via the Mine-to-Plant Pipeline and will serve as process water. *Id.* In addition, seepage captured by the FTB seepage containment system will also be reused as process water. *Id.* This strategy of reuse and recycling of water at the Mine and Plant Sites will minimize the amount of make-up water appropriated from Colby Lake. PolyMet anticipates that this water management strategy will provide 88% to 98% of necessary process water, thereby limiting the amount of make-up water appropriated from Colby Lake. *Id.*

36. The Application detailed the anticipated pumping and appropriation schedules for each of the individual Permits. Application Table 5-1. This table shows that certain requested appropriations at the Mine Site and Plant Site will be temporary or intermittent. Application § 5.1. The Application noted that the anticipated discharge rate for streamflow augmentation was between approximately 1,700 and 3,200 gallons per minute ("gpm"). *Id.* §§ 3.4, 7.5.2. As described in the FEIS, this range is estimated to maintain streamflow in the Embarrass River Tributaries within a range of +/- 20% of existing conditions. FEIS Table 5.2-41.

37. In accordance with Minnesota Statutes § 103G.301, subd. 6 and Minnesota Rule 6115.0660, subp. 3.D, PolyMet served copies of each of the above consolidated permit applications upon the secretary of the Board of the North St. Louis County Soil and Water Conservation District, the mayor of the City of Hoyt Lakes, and the mayor of the City of Babbitt.

B. The Application Was Circulated for Comment to Government Entities

38. On or about April 13, 2017, the DNR requested comments on the Application from (1) the City of Babbitt; (2) the North St. Louis County Soil and Water Conservation District; (3) the USACE; (4) St. Louis County; (5) the DNR Division of Fish and Wildlife ("FAW"); (6) the DNR Division of Ecological and Water Resources ("EWR"); (7) the City of Hoyt Lakes, and (8) the USFS. *See* Minn. Stat. § 103G.301, subd. 7. In addition, the DNR requested comment on the Application from the following tribal nations: Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, and Grand Portage Band of Lake Superior Chippewa.[2]

[2] These tribal nations served as cooperating agencies during the environmental review of the NorthMet Project.

39. The City of Babbitt, the North St. Louis County Soil and Water Conservation District, the USACE, St. Louis County, the City of Hoyt Lakes, and the Bois Forte Band of Chippewa did not respond to the DNR's request for comments.

i. Comments from FAW

40. On May 12, 2017, FAW commented on the Application, but identified a specific focus on the proposed augmentation to the Embarrass River Tributaries at the Plant Site under Permit 2016-1369 and appropriations from Colby Lake under Permit 2017-0260 citing the potential impact to aquatic life and habitat. These comments acknowledged that the FEIS analyzed the anticipated fisheries, water quality, and stream-habitat impacts under these Permits. These comments further recognized that water quality concerns would be addressed through the MPCA's separate NPDES/SDS permitting and that the current expectation was that prior to discharge all appropriated waters would be treated at the WWTS.

41. FAW suggested that Permit 2017-0260 should be clarified to indicate that the maximum combined pumping rate at the pumphouses total 3,400 gpm. Permit 2017-0260 addresses this concern by specifying that that the total combined pumping rate for Pump #1 and Pump #2 is not to exceed 3,400 gpm. FAW noted that, consistent with the earlier FEIS evaluation of proposed appropriations from Colby Lake, pumping at a total maximum combined rate of 3,400 gpm (less than the 3,500 gpm analyzed in the FEIS) would result in lake level fluctuations on Colby Lake and Whitewater Reservoir similar to historic fluctuations and that fisheries and aquatic impacts should be minimal. The DNR concurs with this analysis.

42. FAW suggested that the maximum total discharge rate to Trimble Creek from all discharge locations be 2,066 gpm rather than 2,722 gpm in light of concerns that the higher discharge rate could have negative impacts to stream hydrology and stream stability. FAW similarly suggested that the maximum total discharge rate to Second Creek be 276 gpm rather than 433 gpm. In addition, FAW suggested clarifying that the cumulative maximum discharges should be the total for all discharge locations from all sources regardless of permit. FAW explained that the FEIS recognized that maintaining stream geomorphology within +/- 20% of its normal flow was important to maintain habitat and water quality for aquatic life and minimize impacts. The FEIS identified the minimum and maximum discharge rates that would keep the stream hydrology within this +/- 20% range. *See* FEIS Table 5.2.2-41. FAW suggested that discharge rates be set at those identified in the FEIS so as to avoid impacts. Permit 2016-1369 directly addresses this concern by including a condition requiring PolyMet to maintain the mean annual streamflow in Embarrass River Tributaries within +/-20% of existing conditions. Similarly, the relevant Monitoring Plans for the Mine Site Permits specifically include streamflow monitoring at multiple points along the Partridge River to monitor for any reduction in flow. The adaptive management condition of the Permits requires PolyMet and the DNR to develop and implement appropriate adaptive management or mitigation strategies in the event that monitoring data shows unacceptable impacts to flow that may be caused by the permitted appropriations. Permit conditions within the Mine Site Permits indicate that streamflow augmentation may be a required adaptive management strategy in the event that monitoring shows that baseflow in the Upper Partridge River is not maintained within +/- 20% of existing conditions.

43. FAW recommended that in addition to the monitoring required in the Application, PolyMet should add at least one fish community monitoring site on Unnamed Creek, Trimble Creek and Bear Creek (as a reference site). FAW did not suggest fish-community sampling at Second Creek as it does not have a history of sampling and is already heavily impacted by mining. FAW suggested that fish-community monitoring replicate the previous protocol and sites as in the FEIS. *See* FEIS 4-279, Table 4.2.6-13, Figure 4.2.6-1. The Monitoring Plan associated with Permit 2016-1369 requires annual macroinvertebrate surveys at locations on Unnamed Creek, Bear Creek, Second Creek, Unnamed (Mud Lake) Creek, and Trimble Creek. In addition, this Monitoring Plan requires biannual fish-community surveys at locations on Unnamed Creek, Bear Creek, and Trimble Creek. FAW concurred that such biannual testing would be protective and address the concern set forth in the comment.

ii. Comments from EWR

44. On May 15, 2017, EWR commented on the Application. These comments raised a concern that the NorthMet Project might take plants designated as endangered or threatened under state law and suggested that no appropriation be authorized until potential impacts to state-protected plants were resolved in accordance with the applicable requirements of state law. *See* Minn. Stat. § 84.0895; Minn. R. 6212.1800-.2300. The Permits specifically provide that they do not release PolyMet from any other permit requirements or obligation imposed under law, including, but not limited to, takings permits for state-listed species. PolyMet has applied for, and received, a takings permit from the DNR for state-listed plant species.

45. EWR also noted that the wood turtle population within the St. Louis River was extremely important on both a statewide and regional level. Due to concerns that water level increases on the St. Louis River between May and August could reduce available nesting habitat or inundate nests, EWR suggested that any proposed appropriation should minimize water level increases to the St. Louis River during the relevant time periods. As noted above in response to FAW's comments, the Permits require PolyMet to monitor the tributaries of the St. Louis River to ensure maintenance of streamflow within +/- 20% of existing conditions. Conditions within the Permits require adaptive management in the event that monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits. EWR concurred that such conditions would address the concern set forth in the comment

iii. Comments from the City of Aurora

46. On May 15, 2017, the DNR received a letter from the City of Aurora supporting the NorthMet Project and not making any substantive comments on the Application.

iv. Comments from USFS

47. On May 16, 2017, USFS submitted a comment letter referring to Permit Application 2016-1363. USFS commented that monitoring wells GW505 (OB-5) and GW504 (OB-4) should also monitor the surficial aquifer as well as the bedrock aquifer. USFS noted that information from these additional monitoring wells could help affirm assumptions in the FEIS. In addition, the USFS suggested installation of a monitoring well for the surficial aquifer at bedrock monitoring well site GW531. USFS noted that information from this well would be helpful in developing surficial system contours and gradients east-southeast of the East Pit. The

Monitoring Plan associated with the Mine Site Permits was amended to add surficial monitoring at GW531. After review, the DNR concluded that additional surficial monitoring at GW504 and GW505 was not necessary because sufficient monitoring data regarding the surficial aquifer will be generated at GW 430, GW 431, GW 470, GW 472, and GW 499.

48. USFS further recommended that dewatering discharge rates should be monitored using best available technology sufficient to allow the average daily flow to be computed for each discharge point. The Monitoring Plans associated with each of the Permits requires such monitoring with a flow meter and totalizer to accurately record instantaneous rates and total monthly volumes. Similarly, the Quality Assurance Project Plan ("QAPP") requires, unless otherwise noted in the applicable Monitoring Plan, that all installations be equipped with flow meters and totalizers or other DNR-approved technologies to record instantaneous rates and total monthly volumes of water appropriated and/or discharged. This information is sufficient to allow the average daily flow to be computed for each discharge point.

49. USFS noted that at the time of the letter, USFS continued to hold title to the Mine Site and noted that it retained riparian rights. USFS objected to issuance of any Mine Site Permits until the land exchange was completed. This concern was obviated by the completion of the land transfer in June 2018.

50. USFS commented that the effects analysis for air, cultural and water resources in the Application appeared to mirror that set forth in the FEIS.

v. Comments from the Fond du Lac and Grand Portage Bands

51. On May 15, 2017, the Fond du Lac and Grand Portage Bands ("Commenting Bands") submitted a comment letter on the Application.

52. The Commenting Bands noted that PolyMet had proposed a change to the NorthMet Project with the elimination of a Wastewater Treatment Facility ("WWTF") at the Mine Site and consolidation of treatment systems at the WWTS at the Plant Site. The Bands noted a concern that elimination of the WWTF at the Mine Site would limit PolyMet's ability to implement adaptive management strategies at the Mine Site, including augmentation of flow in the Upper Partridge River and surrounding wetlands. In addition, the Bands raised a specific concern that transport of untreated water via pipeline in the Mine-to-Plant Pipeline within the Corridor risked spills of untreated water to adjacent wetlands and tributaries of the Partridge River.

53. As noted in Section III.C above, the DNR previously reviewed the proposed changes to create an integrated WWTS facility and determined that the changes did not affect the potentially adverse effects to resources as evaluated in the FEIS, including evaluation of pipeline integrity relative to spillage potential. The DNR relies on this earlier analysis. In addition, the DNR notes that PolyMet has further refined its wastewater treatment proposal to implement additional measures to prevent potential spills to adjacent wetlands or tributaries to the Partridge River, and such additional measures will be required under the Permit to Mine. Contrary to the Commenting Bands' concerns, the elimination of the WWTF will not preclude augmentation for streamflow in the Upper Partridge River if necessary to maintain streamflow within +/-20% of existing conditions. Treated water can move from the Plant Site to Mine Site as needed and may

be used for augmentation purposes, if ultimately required as an adaptive management requirement under the Mine Site Permits.

54. The Commenting Bands noted concerns that flows in the Upper Partridge would be impacted after closure of the Peter Mitchell Mine and cited to a long-range hydrology study associated with that mining operation. The DNR notes that this study relates not to closure of the NorthMet Project, but a separate ferrous operation, with a current anticipated closure date of 2070, well after dewatering at the Mine Site is scheduled to be completed. Discharges from the Peter Mitchell Mine are anticipated to continue until this anticipated closure date. Application § 5.2.3.1. Mitigation for this loss of contributing watershed at closure of the Peter Mitchell Mine has already been required under the Permit to Mine associated with the Peter Mitchell Mine. As the FEIS noted, the proposed NorthMet Project is not anticipated to contribute measurably to the potential loss of flow resulting from the separate mining operations at the Peter Mitchell Mine. *See* FEIS §§ 5.2.2.3.2, 6.2.6.4.2, and Figure 5.2.2-29.

55. The Commenting Bands suggested that wetlands near the Mine Site may need augmentation. Analysis of the wetlands at the Mine Site, including years of wetland monitoring data, indicate that the wetlands are perched wetlands supported primarily by precipitation and local surface water runoff with low susceptibility to groundwater drawdown effects from mining operations. *Id.* § 4.2.3.1.2. Given this earlier analysis, augmentation of wetlands at the Mine Site is not reasonably anticipated. Mitigation under the state Wetland Conservation Act and the federal wetlands permit will be required for all wetland impacts associated with the Project.

56. The Commenting Bands suggested that treated water may be necessary to prevent a northward flowpath of groundwater from the Mine Site at closure. The FEIS and ROD noted that the DNR could not rule out the possibility that future operations at the Peter Mitchell Mine could induce northward groundwater flow from the Mine Site. *See, e.g.*, FEIS § 5.2.2.2.3; ROD at 78. While DNR does not believe it would be likely, the agency cannot rule out the possibility that future operations at the Peter Mitchell Mine could induce northward groundwater bedrock flow from the NorthMet Mine Site. This might happen if there is insufficient natural downward leakage into bedrock from the overlying wetlands between the Peter Mitchell Mine and the NorthMet Mine from surficial materials located between the proposed NorthMet Mine (during closure) and the Peter Mitchell Mine (in future operations and closure). If there is sufficient downward leakage, then there would be a groundwater flow divide between the two mines and no continuous one-way flow between the facilities. If natural leakage is insufficient to maintain a groundwater flow divide between the two facilities, then a northward groundwater flowpath is possible. The FEIS detailed specific monitoring requirements, including the expansion of the existing system of bedrock groundwater monitoring wells, in order to determine future bedrock flow direction immediately north of the proposed NorthMet pits at the Mine Site. FEIS § 5.2.2.3.6. The goal of such monitoring would be to determine whether additional engineering measures aimed at preventing such flow would be necessary. The FEIS detailed potential engineering controls and a variety of known mitigation strategies that could be successfully implemented in the event that monitoring data indicates northward flow; not all of these strategies would require additional discharge of treated water. FEIS § 5.2.2.3.5. The Mine Site Permits require monitoring of groundwater levels at GW 472, GW 473, GW 478, GW 479, GW 518, GW 519, GW 522, and GW 523 to address concerns related to the potential for northward groundwater flow from the Mine Site. In addition, the Permit to Mine specifically requires

PolyMet to monitor and report on the potential for current and future northward groundwater flow at the Mine Site and requires DNR-approved adaptive management or mitigation in the event that the DNR finds such flow to be possible. *See* Permit to Mine, Special Condition #66.

57. The Commenting Bands contended that the Application did not provide sufficient information on the treatment and discharge of water pumped out of the FTB Seepage Containment System and HRF foundation during construction. They also commented on PolyMet's proposed recycling of process water and noted a concern that such water may ultimately be discharged without appropriate treatment, thereby reducing the potential ecological benefits of recycling. Waters appropriated during the pre-operation construction phase will either be pumped to the Construction Mine Water Basin for subsequent transfer to the FTB or discharged under the requirements of a stormwater construction permit and an associated Stormwater Pollution Prevention Plan ("SWPPP") prepared in accordance with the MPCA's NPDES/SDS Construction Stormwater General Permit. Application §§ 3.4, 6.2, 8.1.2.3. In addition, PolyMet indicated in its application that it will use best management practices to avoid adverse effects to ecosystems from authorized off-site discharge during construction dewatering. *Id.* § 8.1.2.3. The DNR notes that any appropriation of water under the Permits is conditioned upon PolyMet having all required discharge authorizations. Discharge quality must meet applicable effluent limits and surface water quality standards, and violations of such requirements are subject to the regulatory jurisdiction of the MPCA. Application §§ 6.2, 8.1.3, Reference (5) § 6.5, Reference (6) § 6.7. In addition, discharge quantity must be managed to meet the discharge requirements of the New Source Pollution Standards ("NSPS") and to minimize ecologic and hydrologic impacts to the receiving waters under the Clean Water Act. *See* 40 C.F.R. § 440.104.

58. The Commenting Bands indicated a belief that PolyMet's proposed water appropriations violated the requirements of Minnesota Statutes § 103G.265, subd. 4. This statute imposes additional notice and legislative-approval requirements upon individual water appropriation permits that involve consumptive use of waters in excess of "5,000,000 gallons per day average in a 30-day period" in waters within the Great Lakes water basin.

59. In support of this comment, the Bands cited to Table 5-3 of the Application. As PolyMet noted in the Application, the rates detailed in this Table reflect maximum rates occurring in different time periods and, therefore, it is not appropriate to sum them for the purposes of determining the maximum rates and volume appropriated at a single time. Application at 26 n.(1). The appropriations under the Permits will fluctuate over the course of activities undertaken at the Mine and Plant Site. *See* Application Figure 8-1, Appendix C. Accordingly, summing maximum rates across all permits does not reasonably reflect the actual appropriations under the Permits. Indeed, the right to appropriate certain waters under the Permits for certain temporary purposes will cease when no longer necessary. Furthermore, many of the high-volume appropriations identified in the Application and the Permits are anticipated to be of limited duration. *Id.* § 8.2.2.2. Notably, the statute refers to consumptive use under a permit in excess of an average of 5 million gallons per day ("MGD") in a 30-day period and not merely to permit maximums. *See* Minn. Stat. § 103G.265, subd. 4. After review of the materials in the administrative record, and based upon its technical expertise, the DNR has concluded that the statutory threshold of § 103G.265, subd. 4 has not been met.

60. The Application details the anticipated consumptive uses of water at the Mine Site, the Plant Site, and from Colby Lake over the life of the NorthMet Project. None of the appropriations under the individual Permits at issue is anticipated to exceed the thresholds set forth in Minn. Stat. § 103G.265, subd. 4. The Bands commented on their belief that the appropriations for the NorthMet Project should be considered under a single permit and that there was no justification for multiple permits. Minnesota law is clear that separate applications and permits are required for appropriations from different water sources. *See* Minn. R. 6115.0660, subp. 1. Given the distances between the Mine Site, the Plant Site, and Colby Lake, PolyMet properly sought individual permits as detailed in the Application. *See* Application § 8.2.1.

61. The DNR further notes that the requirements of § 103G.265, subd. 4 were adopted in 1987. 1987 Minn. Laws ch. 159, § 5. Minnesota, along with Illinois, Indiana, Michigan, New York, Ohio, Pennsylvania, and Wisconsin, subsequently adopted and enacted into law the Great Lakes – St. Lawrence River Basin Water Resources Compact ("Compact") with the consent of Congress. *See* Minn. Stat. § 103G.801. PolyMet's proposed appropriations will not entail a "consumptive use" in excess of 5,000,000 gallons per day or greater average in any 90-day period under the Compact. The Compact defines "consumptive use" to mean "that portion of the water withdrawn or withheld from the basin that is lost or otherwise not returned to the basin due to evaporation, incorporation into products, or other processes." *See* Minn. Stat. § 103G.801, § 1.2. The vast majority of PolyMet's appropriations will be recycled or reused and subsequently discharged, after treatment, within the basin. Thus, these appropriations do not constitute consumptive use under this definition. Accordingly, the Application did not trigger the prior-notice provisions of the Compact. *See id* § 4.6. Provisions to the contrary in Minnesota Statutes § 103G.265, subd. 4 were repealed by the Compact. *See id.* § 9.1. (repealer of inconsistent acts).

62. Although not required, the DNR nonetheless provided courtesy notice of the Application to each member of the Great Lakes-St. Lawrence River Basin Compact Council and Regional Body on November 20, 2017. On December 15, 2017, the DNR received a single response to this notification. This response came from the Province of Quebec and merely thanked the DNR for the courtesy notification without providing any substantive comments on the Application.

63. The Commenting Bands disputed the surface water monitoring proposed in the Application, contending that spot flow monitoring of Trimble Creek and Bear Creek in 4 to 6 week intervals is inadequate. The Application explained that a 2016 field survey, which included DNR staff, determined that no feasible locations for permanent gauging stations were present at these streams. Application § 9.2. Flow monitoring is not feasible along Unnamed Creek and is unlikely to be accurate due to wetland vegetation and beaver activity. *Id.* The Bands indicated concerns that stream augmentation for the Embarrass River Tributaries would be unable to maintain average annual flow within +/- 20% of existing conditions in light of the lack of continuous stream gauging sites. Historic stream flow data was reviewed and analyzed throughout the course of the FEIS and provides the necessary baseline for existing conditions. The Monitoring Plan incorporated within Permit 2016-1369 requires manual streamflow monitoring at Trimble Creek and Unnamed Creek in 4 to 6 week intervals and additional monitoring during "seasons of interest" or "as needed during high and low flows." Conditions

within Permit 2016-1369 further require adaptive management in the event monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits. These conditions are sufficient to address the Bands' concerns related to the sufficiency of surface water monitoring of the Embarrass River Tributaries.

64. Finally, the Commenting Bands noted that the Application did not list the means of discharge or rates and requested that any permits include such information in order to assess augmentation plans. Attachment B to Permit 2016-1369 specifically identifies the initial permitted discharge locations for augmentation and conditions within the Permit require augmentation in order to maintain the mean annual streamflow to within +/-20% of existing conditions. The Permit further requires that stream augmentation of the Embarrass River Tributaries be equally distributed among each tributary's watershed.

C. Draft Permits Were Circulated for Public Comment

65. On August 11, 2017, the DNR posted draft Permits, associated draft Monitoring Plans, and a draft QAPP on the public NorthMet Project permitting website (https://www.dnr.state.mn.us/polymet/permitting/water_app.html) for a 30-day public comment period, which closed on September 12, 2017. That same day, the DNR issued a GovDelivery notice and press release notifying the public of this open comment period. Prior to this public comment period, the DNR had issued GovDelivery notices informing recipients of the Application and notifying of its availability on the permitting website.

66. The DNR received nearly 3,000 public comments on the draft permits. The vast majority of these comments were form letters. Form letters were identified when two or more unrelated individuals submitted identical or substantively identical submissions, or when a submission was determined to consist entirely (or nearly so) of text provided for the purpose of mass e-mailing. Within the form-letter submissions, there were numerous form-letter variants consisting of standard form-letter text that was altered through deletion or addition of sender-composed text.

67. Not all submissions contained substantive comments on the draft Permits. For example, many commenters offered opinions as to whether the NorthMet Project should or should not proceed, with minimal or no additional content relating to the draft Permits or to the appropriation of water for the Project.

68. Given the large number of submissions and individual comments received during this public-comment process, the DNR grouped similar comments into themes and considered those themes individually in lieu of responding to each individual comment. *See* Minn. R. 6115.0670, subp. 2.A.(8) (directing DNR's consideration of comments in review of applications for water appropriation permits). The DNR's consideration of the general themes identified in these comments is detailed in the attached Exhibit 1, which is incorporated herein by reference. Insofar as commenters raised issues related to the legal sufficiency of the Permits under applicable law, such legal requirements are addressed within these Findings of Fact and not separately set forth in Exhibit 1.

69. In addition to the general comments received from public commenters, the DNR also received comprehensive comments on the draft Permits from environmental groups and tribal entities. These comments raised and elaborated on the same concerns identified by many of the form-letter comments. The DNR reviewed and considered these comments and discusses them in greater detail below.

70. On August 31, 2017, the DNR received a written comment letter objecting to the draft Permits from WaterLegacy, a Minnesota non-profit organization.

71. On September 11, 2017, the DNR received a written comment letter objecting to the draft Permits from the Red Cliff Band of Lake Superior Chippewa Indians ("Red Cliff Band").

72. On September 12, 2017, the DNR received an additional comment letter from the Commenting Bands, raising many of the same concerns as those submitted in its earlier letter commenting on the Application.[3] The Commenting Bands opposed issuance of any Permits to PolyMet on the grounds that the Application and proposed appropriations do not satisfy the requirements of Minnesota law.

73. On September 12, 2017, the DNR received a letter from GLIFWC commenting on the draft Permits. GLIFWC noted that it was acting in coordination with its member tribes, including the Fond du Lac Band, in its review and comment.

74. On September 12, 2017, Friends of the Boundary Waters Wilderness, Center for Biological Diversity, Minnesota Center for Environmental Advocacy, Save Lake Superior Association, Save Our Sky Blue Waters, Sierra Club North Star Chapter, Wetland Action Group, Wilderness Watch, the Duluth League of Women Voters, and Friends of the Cloquet Valley State Forest (collectively "Consolidated Environmental Organizations") submitted a combined comment letter on the draft Permits.

D. Concerns Raised by Public Commenters

75. Many of the comments submitted to the DNR by the commenters identified above contained identical concerns with the Application and draft Permits. Because these commenters raised many of the same substantive concerns, the DNR responds to the substance of these comments in a thematic fashion rather than on a commenter-by-commenter basis.

76. The Red Cliff Band, Commenting Bands, WaterLegacy, and the Combined Environmental Organizations made numerous comments that the draft Permits did not contain determinations required under Minnesota Statutes §§ 103G.261, 103G.265, 103G.285, 103G.287, and 103G.297. The draft Permits circulated for public comment were not issued to PolyMet, and did not authorize any appropriations. The draft Permits did not reflect any decision by the DNR to authorize appropriations; they were circulated for the sole purpose of

[3] The Commenting Bands' comments regarding (1) the elimination of the WWTF at the Mine Site and development of the WWTS at the Plant Site and (2) claimed violation of notice requirements under § 103G.265 were a verbatim recitation of its May 2017 comments addressed in Section IV.B.v.

eliciting comment from the public. The required statutory determinations are set forth in the present Findings of Fact, Conclusions, and Order.

i. Concerns that the Modeling, Methodologies, and Analyses within the FEIS Were Inadequate and Requests for Additional Studies

77. Throughout their comments, the Red Cliff Band, Commenting Bands, WaterLegacy, and the Combined Environmental Organizations dispute the sufficiency of the modeling, methodologies, and analyses within the FEIS and include requests that the DNR require PolyMet to provide additional data prior to issuance of the Permits.[4] Many of these comments questioned the methodology of the hydrological analyses of the FEIS regarding changes in average flows to the Partridge River resulting from the Project. They suggested that additional baseline data and evidence establishing PolyMet's ability to comply with Permit conditions should be required before issuing any Permits to PolyMet. The Combined Environmental Organizations indicated a concern that the potential impacts of appropriations from Colby Lake had not been sufficiently analyzed within the FEIS.

78. As detailed in the FEIS, PolyMet conducted multiple aquifer tests at the Mine Site during the course of environmental review to analyze the hydraulic characteristics of the various geologic units in the Mine Site:

- Ten aquifer tests were conducted using borings in the surficial aquifer (including three borings that were turned into permanent monitoring wells);
- Ten aquifer performance tests were conducted using boreholes completed in the Duluth Complex bedrock;
- Four aquifer tests were conducted on the Virginia Formation bedrock;
- One long-term (30-day) aquifer test using bedrock well P-2, with water levels monitored in wetland piezometers located north of the pumping well; and
- Specific capacity tests were conducted using wells P-3 and P-4, which are open exclusively in the Virginia Formation.

FEIS at § 4.2.2.2.1. Similarly, the FEIS contains a comprehensive discussion of the hydrogeology and hydraulic conductivity at the Mine Site. *Id.*

79. The FEIS included description and analysis of the baseline surface water hydrology of the Upper Partridge River. FEIS § 4.2.2.2.2. This included the XP-SWMM hydrologic / hydraulic model predictions in order to estimate Partridge River flow. *Id.* This analysis included estimates of groundwater contribution to flow in the Upper Partridge River (groundwater baseflow). The FEIS also included modeling of groundwater flow systems using MODFLOW. *Id.* § 5.2.2.2.1. The FEIS further described anticipated effects of the NorthMet Project on groundwater and surface water hydrology within the Partridge River watershed, including Colby Lake. FEIS § 5.2.2.3.2. An analog method was developed to estimate potential

[4] None of these commenters sought judicial review of the sufficiency of the ROD assessing the adequacy of the FEIS. Any challenge to the adequacy and sufficiency of the FEIS is time-barred under applicable law. *See* Minn. Stat. § 116D.04, subd. 10. Subsequent permitting decisions cannot be used as disguised challenges to the environmental review process. *See In re Gourley Bros., LLC*, No. A13-2247 at *6 (Minn. Ct. App. Aug. 18, 2014).

indirect effects on surface water features and wetlands at the Mine Site resulting from drawdowns from dewatering. *Id.* The FEIS also addressed the environmental consequences of surface water appropriations on water levels within Colby Lake and Whitewater Reservoir, including wetlands, wild rice, and aquatic resources. *See id.* §§ 5.2.3, 5.2.6.2.1, 6.2.2.3.1, 6.2.6.

80. Given the comprehensive nature of the hydrologic testing, modeling, and analyses within the FEIS, the DNR concludes that the record contains studies sufficient to allow proper assessment of the effects of PolyMet's proposed appropriations, and, thus, additional analyses are not required at this time. *See* FEIS, Application - References (5)-(8). Baseline monitoring data continues to be gathered by PolyMet and additional monitoring requirements are imposed under the Permits. The water balance modeling within the FEIS has shown that PolyMet will have sufficient water to meet required streamflow augmentation requirements at the Embarrass River Tributaries. FEIS § 5.2.2.3.3, Table 5-2.41. The Permits recognize that additional studies and modeling may be required in the event that monitoring data appear to show adverse impacts to the resource from the permitted appropriations. In addition, the Permits recognize that models will continue to be updated as new data are collected in operations.

ii. Concerns Related to Water Quantity

81. The Red Cliff Band, Commenting Bands, WaterLegacy, and many public commenters challenged the volumes of water identified for appropriation in the draft Permits as inconsistent with the volumes analyzed in the FEIS. The Combined Environmental Organizations detailed a concern that the Permits do not impose requirements limiting maximum appropriations across the Permits to prevent simultaneous pumping at maximum rates and volumes.

82. GLIFWC challenged the lack of a detailed water budget for maximum flows within the Application and suggested that detailed water diagrams should be developed to indicate the flow between features under scenarios of maximum allowed daily pumping and the annual flows proposed in the draft Permits. Such information is not required, given that the maximum allowed daily pumping is not anticipated to occur simultaneously. In reviewing the Application, the DNR reviewed the P90 flows for each year of the anticipated mine life at the Plant Site, Mine Site, and each of the mine pits. The DNR reviewed this data to ensure consistency with the earlier analysis with the FEIS.

83. The appropriation rates and volumes authorized in the Permits fall within the range of what was analyzed in the FEIS, which determined that no significant impact would result from the appropriations. *See* FEIS §§ 5.2.2.3.2, 5.2.2.3.3. The vast majority of appropriations in the Permits was specifically evaluated in the GoldSim model within the FEIS. The GoldSim model results were used for the FEIS and those same rates were used in the Application. Though some sources were not included in the GoldSim model, and were not specifically evaluated under that model, the potential effects of PolyMet's water appropriations were evaluated in the FEIS. In the FEIS, Mine Site construction dewatering was evaluated by the XP-SWMM model and this modeling accounted for nearly all of the construction dewatering described in the Application.

84. The DNR issues water appropriation permits with a maximum annual authorized volume along with a maximum authorized pumping rate. The Permits do not authorize

continuous pumping at the maximum rate in excess of the maximum authorized annual volume. As shown in Figure 8-1 and detailed in Appendix C of the Application, peak flows for each installation will not occur simultaneously or continuously, so contrary to commenters' assertions, there is no need to analyze impacts of appropriating a total of 29,290 gpm for the Mine Site or 7,150 gpm for the Plant Site because simultaneous appropriations at those rates are not anticipated to occur. These comments improperly conflate appropriation rates with anticipated volumes and ignore the maximum volumes authorized in the Permits.

85. Maximum pumping rates cannot be used to determine total annual appropriation volumes because they occur in different time periods and cannot be summed. *See* Application Tables 5-4, 5-5. For example, if the maximum pumping rate authorized for each installation in Permit 2016-1367 were summed, the total pumping rate would be 23,010 gpm. However, this Permit authorizes a maximum volume of 1,200 MGY. If appropriation occurred constantly at the maximum pumping rate, the authorized volume would be reached after only 36 days of continuous pumping. *See also* Application Appendix C. Similarly, the total maximum rate should not be used to determine annual appropriation volume at the Plant Site under Permit 2016-1369, which authorizes a total annual volume of 675 MGY. If the maximum rate for each installation were summed, the total maximum pumping rate would be 7,150 gpm. If appropriation at each installation at the Plant Site occurred constantly at the maximum pumping rate, the maximum permitted volume would be reached after only 66 days of continuous pumping. Accordingly, continuous dewatering at the maximum summed rate is not an appropriate method of analyzing the potential impacts under the Permits. Indeed, the Permits specifically provide that certain authorizations for appropriations, such as for construction purposes, cease once the need for appropriation has been met. A high maximum pumping rate does not necessarily correspond to a high volume of appropriation throughout a given year.

iii. Concerns that the Permits Will Adversely Impact Wetlands at the Mine Site and Flows in the Upper Partridge River

86. The Red Cliff Band, Commenting Bands, WaterLegacy, and the Combined Environmental Organizations raised concerns that PolyMet's groundwater appropriations at the Mine Site would adversely affect wetlands and baseflow in the Upper Partridge River. GLIFWC identified similar concerns in its comment letter and suggested that monthly appropriation limits and streamflow augmentation should be required under the Mine Site Permits. These commenters argued that impacts to the Upper Partridge River did not meet sustainability requirements and, thus, were contrary to Minnesota law. *Citing* Minn. Stat. §§ 103G.285, subds. 2, 3, 103G.287, subds. 3, 5.

87. The Commenting Bands reiterated their earlier concerns that PolyMet's appropriations would have an ecological impact in the headwaters of the Upper Partridge River as a result of operations at the Peter Mitchell Mine. These concerns were previously addressed in Section IV.B.v above.

88. The Red Cliff Band, Commenting Bands, and WaterLegacy also argued that the Application and the Mine Site Permits are deficient for failing to include a protective elevation for the Upper Partridge River. Under applicable law, protective elevations relate to appropriations from water basins and are inapplicable to watercourses. *See* Minn. Stat.

§ 103G.285, subd. 3(b); *compare id.* § 103G.005, subd. 16 (defining "water basin") *with* § 103G.005, subd. 3 (defining "altered natural watercourse") *and* § 103G.005, subd. 13 (defining "natural watercourse"). Protective limits for appropriations from watercourses are set by flow rates, as it is not feasible to set an elevation limit to a watercourse. *See* Minn. Stat. § 103G.285, subd. 2.

89. Under Minnesota Statutes § 103G.285, subd. 2, if data are available, permits to appropriate water from natural and altered natural watercourses "must be limited so that consumptive appropriations are not made from the watercourses during periods of specified low flows" in order to "safeguard water availability for in-stream uses and for downstream higher priority users located reasonably near the site of appropriation." None of the Permits involves an appropriation from any watercourses, but commenters argue that this statutory requirement applies to the groundwater Permits. *See* Minn. Stat. § 103G.287, subd. 2.

90. Many of the concerns raised by these commenters are based upon the incorrect assumption that the maximum annual volume of appropriations will occur simultaneously under the Permits and during periods corresponding to low-flow conditions in the Upper Partridge River. In fact, maximum dewatering will occur during high precipitation periods, which correspond to high stream flows. For example, Table C-1 of the Application clearly states that maximum daily flow rates for certain Mine Site installations (such as the Category 1 Stockpile Groundwater Containment System operation that has a rate of 14,400 gpm) were based on pump capacity for installations that collect precipitation. Accordingly, appropriations at the maximum rate will not occur during low-flow periods, but rather during periods of heavy rainfall and/or snowmelt. Minimal dewatering will occur during low-flow conditions. Additionally, pumping at maximum pumping rates will only occur during limited periods of time, such as during high precipitation events and during short-term construction. The majority of appropriations for construction of infrastructure at the Mine Site are limited to short time intervals and will not occur continuously throughout the 20 years of operations. Similarly, dewatering activities will not occur simultaneously in each of the mine pits throughout the life of the Project. Permit 2016-1367's authorizations for temporary construction activities will cease upon completion of the necessary construction.

91. The DNR relies on the analysis within the FEIS of the Project's potential effects on surface water hydrology in the Partridge River Watershed and as detailed in the Application. *See* FEIS § 5.2.2.3.2; Table 5.2.2-25, Table 5.2.2-26; *see also* Application §§ 5.2.1.5, 7.5.1, 7.5.3.1, Reference (5) § 5.2.4.3, 6.4. Modeling conducted during environmental review predicted that the annual daily mean flow would change by 5% or less during operations and reclamation and return to within approximately 1% of existing flow conditions at closure. FEIS Figure 5.2.2-29. The FEIS specifically analyzed the potential effects of appropriation on baseflow in the Partridge River on habitat, and noted that there would be some gradual decrease in baseflow, and "but in the worst case only represents a 4 to 5 percent reduction and a 0.3 to 1.6 cfs reduction in absolute flow" at SW-002, SW-004 and SW-004a. FEIS § 5.2.6.2.1. The FEIS noted that "[m]ost of these changes in flow are too small to be measurable and, therefore, hydrologic alteration is not expected to degrade physical aquatic habitat by destabilizing the stream channel." *Id.* Similarly, the effects on seasonal flow "would be negligible, and, therefore, no adverse effects on aquatic habitat or species are anticipated." *Id.* In addition, streamflow monitoring is ongoing and collecting baseline data, and such data collection will

continue for the life of the Project. Analysis of the wetlands at the Mine Site, including years of wetland monitoring data, indicates that the wetlands are perched wetlands supported primarily by precipitation and local surface water runoff, with low susceptibility to groundwater drawdown effects from mining operations. *Id.* § 4.2.3.1.2. Given this earlier analysis, the DNR has concluded that additional evidence regarding potential impacts to Partridge River baseflow and wetlands does not need to be developed or submitted prior to issuance of the Permits.

92. In addition to the modeling and analysis within the FEIS rebutting the commenters' contentions that appropriations at the Mine Site will have adverse impacts on baseflow and the aquatic ecosystems in the Partridge River or wetlands at the Mine Site, these concerns are also addressed in the Application and in conditions within the Mine Site Permits. In the Application, PolyMet specifically agreed "to withstand the results of no appropriation if notified by the DNR that water appropriations within the watershed are being suspended in order to protect instream flows and/or basin water levels" for each of the Mine Site Permits. This requirement was reiterated in the contingency condition in the Permits. Similarly, the Permits contain a condition noting that the DNR "may require the suspension of appropriation during periods of low water in order to maintain minimum water levels within the basin/watercourse/watershed." The Monitoring Plans for the Mine Site Permits specifically include streamflow monitoring at multiple points along the Partridge River to monitor for any reduction in flow. The adaptive management condition of the Permits requires PolyMet and the DNR to develop and implement appropriate adaptive management or mitigation strategies in the event that monitoring data show unacceptable impacts to flow that may be caused by the permitted appropriations. Permit conditions have been revised to indicate that streamflow augmentation may be a required adaptive management strategy in the event that monitoring shows that baseflow in the Upper Partridge River is not maintained within +/- 20% of existing conditions. These Permit conditions serve to address the commenters' concerns that the requested appropriations will cause low flows in the Partridge River and affect in-stream uses. Finally, comprehensive wetland monitoring is required under the Permit to Mine and proposed Section 404 Permit. Mitigation will be required for wetland impacts under those permits in accordance with applicable law. As drafted, the Mine Site Permits resolve commenters' concerns and serve to satisfy the requirements of Minnesota Statutes § 103G.285, subd. 2.

93. The Combined Environmental Organizations averred that the Application for the Mine Site Permits was deficient because the claimed impacts to baseflow required submission of a contingency plan. *See* Minn. Stat. § 103G.285, subd. 6. Because PolyMet agreed to withstand the results of not being able to appropriate water if further appropriations are restricted due to low flows, there is just cause to waive the contingency-plan requirements of § 103G.285, subd. 6. *See* Minn. Stat. § 103G.285, subd. 1.

iv. Concerns that the Permits Are Inconsistent with the Water Allocation Priorities Set Forth in Minnesota Statutes § 103G.261

94. The Commenting Bands and WaterLegacy noted concerns that PolyMet's proposed water appropriations for the NorthMet Project involved a low-priority water use under Minnesota Statutes § 103G.261, and, as such, should not be permitted to dominate a watershed.[5]

95. Minnesota Statutes § 103G.261(a) identifies statutory priorities for the consumptive appropriation of water and directs the DNR to adopt rules for allocation of waters based on the identified priorities. The DNR has adopted these rules, which are set forth in Chapter 6115 of the Minnesota Rules. The statutory allocation priorities address issues of water allocation in the event of a limited supply or water shortage, and are used to resolve a water-use conflict. *See* Minn. R. 6115.0740, subp. 2.D (detailing analysis applicable to water-use conflicts "on the basis of existing priorities of use established by the legislature"). Currently there are no other higher-priority users that seek to use the waters that PolyMet would appropriate under the Permits. No public or private wells are known to exist in the vicinity of the Mine Site. Application §§ 5.2.1.2, 8.1.4. Approximately 38 residential wells are located in the area between the Plant Site and the Embarrass River, but the closest well is more than one mile from the Plant Site boundary. *Id.*; FEIS Figure 4.2.2-18. No long-term pumping is anticipated under Permit 2016-1369 and augmentation is required for the Embarrass River Tributaries. PolyMet's appropriations under Permit 2016-1369 are not anticipated to affect the availability of water in these wells. The City of Hoyt Lakes appropriates water from Colby Lake for municipal water supply, but Permit 2017-0260 requires ongoing monitoring to ensure that no interference or conflict with such municipal supply occurs. This Permit further contains a condition requiring reduction of appropriations by PolyMet in the event of an unremedied interference or conflict with this municipal water supply. In addition, each of the Permits contains conditions requiring that appropriations "cease immediately" in the event of a confirmed water-use conflict. These Permit conditions and record evidence address commenters' concerns under § 103G.261.

v. Concerns that the Permits Do Not Assure an Adequate Supply of Water Resources under Minnesota Statutes § 103G.265, subd. 1.

96. The Red Cliff Band, Commenting Bands, and Water Legacy argued that issuance of the Permits is inconsistent with Minnesota Statutes § 103G.265, subd. 1, which provides that the DNR must "develop and manage water resources to assure an adequate supply to meet long-range seasonal requirements for domestic, municipal, industrial, agricultural, fish and wildlife, recreational, power, navigation, and quality control purposes from waters of the state." Specifically, these commenters raised concerns that the DNR ensure an adequate supply of water for sustaining ecological communities and functions in the Embarrass and Partridge River watersheds.

97. The adequacy of supply of water resources for the NorthMet Project in both the Partridge River and Embarrass River watershed is well documented in both the FEIS and the Application. FEIS §§ 5.2.2.3.2, 5.2.2.3.3; Application §§ 8.1.1, 8.1.4, 8.2.3.2. Potential

[5] In their comment letters, WaterLegacy cited to "Minn. Stat. § 103G.261, subd. 5," and the Commenting Bands cited to "Minn. Stat. § 130G.261, subd. 5." No such statutory provisions exist. Given the substance of their arguments, the DNR assumes that these commenters intended to refer to Minnesota Statutes § 103G.261(a)(5).

drawdown effects on private or public wells associated with the proposed appropriations at the Mine Site and the Plant Site were evaluated and no impacts to private or public wells or water supplies are anticipated to occur. Application §§ 7.5.3.1, 7.5.3.2, 8.1.1, 8.1.4. Temporary construction dewatering at the Plant Site and dewatering at the Mine Site will have only localized effects on the surficial aquifer for a short period of time. *Id.*

98. Conditions within the Permits require adaptive management in the event monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits. Streamflow augmentation may be a required adaptive management strategy in the event that monitoring shows that baseflow in the Upper Partridge River is not maintained within +/- 20% of existing conditions. Permit 2016-1369 further includes a condition requiring PolyMet to maintain the mean annual streamflow in the Embarrass River Tributaries within +/-20% of existing conditions. In addition, Permit conditions direct that appropriations "must cease immediately" in the event of a confirmed water-use conflict. Permit conditions further provide that appropriations may be suspended during periods of low flow in order to maintain minimum water levels in the basin, watercourse, or watershed. Finally, PolyMet expressly agreed within the Application to withstand the results of no appropriation if notified by the DNR that water appropriations within the watershed are suspended to protect instream flows and/or basin water levels. The Permits, as conditioned upon ongoing monitoring in accordance with the applicable Monitoring Plans and the QAPP, assure adequate supply under § 103G.265, subd. 1.

vi. Concerns that the Permits Trigger the Notice Requirements of Minnesota Statutes § 103G.265, subd. 4

99. In their public-comment letter, the Commenting Bands again reiterated their concern that PolyMet's proposed appropriations triggered the notice provisions of Minnesota Statutes § 103G.265, subd. 4. Similar concerns were raised by the Red Cliff Band, WaterLegacy, and the Combined Environmental Organizations. These concerns are addressed in Section IV.B.v above.

vii. Concerns that Permit 2017-0260 Violate Applicable Law

100. The Combined Environmental Organizations argue that Permit 2017-0260 improperly allows an appropriation from a water basin in excess of the thresholds set forth in Minnesota Statutes § 103G.285, subd. 3(a). This statute provides, in relevant part, that "[p]ermits to appropriate water from water basins must be limited so that the collective annual withdrawals do not exceed a total volume of water amounting to one-half acre-foot per acre of water basin." In addition, they claim that appropriations from Colby Lake do not satisfy the order of priority set forth in Minnesota Rule 6115.0720, subp. 2.(B).

101. Appropriation of surface water from Colby Lake has long been permitted for mine processing purposes. In 1950, the Commissioner of Conservation (predecessor to the DNR) issued Permit 1949-0135 to Erie Mining Company. Permit 1949-0135 allowed Erie Mining Company to appropriate water from Colby Lake (then referred to as "Upper Partridge Lake") after establishing the water-level controls necessary to develop Whitewater Reservoir (then referred to as "Lower Partridge Lake") as a storage reservoir. Under Permit 1949-0135, Colby

Lake and Whitewater Reservoir were altered and established for the purpose of storing peak flows and flood flows for purposes of water conservation and contingency flow alternatives for appropriations of water for mine processing activities. In originally issuing Permit 1949-0135, the Commissioner of Conservation noted that use of this diversion works and reservoir system would allow capture of excess or flood waters from the drainage area and would not materially alter the natural levels or increase the natural fluctuation of Colby Lake. High flows in Colby Lake occurring during the spring runoff flow into Whitewater Reservoir through the diversion works structure where they are stored for later use as needed. The Commissioner of Conservation's permit findings are in MPARS and are incorporated herein by reference.

102. Protective elevations for Colby Lake (1439 ft msl) and Whitewater Reservoir (1410 ft msl and 1442 msl) were established in Permit 1949-0135 and these same elevations apply to any appropriations by PolyMet under conditions within Permit 2017-0260. As is presently allowed under Permit 1949-0135, if the water level in Colby Lake is below 1439 ft msl, appropriations from Colby Lake under Permit 2017-0260 are only permitted by transferring water to Colby Lake from Whitewater Reservoir at an equal or higher rate. These water-level requirements serve to ensure that water in Colby Lake is sufficient to meet instream flow needs on the Lower Partridge River and protect the level of the basin. As discussed in further detail in the FEIS, the history of appropriations from Colby Lake at the former LTV Mine Site, subject to the protective elevations of Permit 1949-0135, did not show a deleterious impact of these appropriations on the basin or downstream on the Partridge River. *See* Application §§ 5.2.3, 7.5.1; FEIS §§ 4.2.2.2.2, 5.2.2.3.2, Tables 4.2.2-16, 4.2.2-17. Permit 2017-0260 requires PolyMet to adhere to these same protective elevations. The FEIS concluded that appropriations from Colby Lake at an average pumping rate of 3,500 gpm were anticipated to have minimal hydrologic and hydraulic effects on Colby Lake. FEIS § 5.2.2.3.2. Under average flow conditions, drawdown at Colby Lake from pumping at an average rate of 3,500 gpm was modeled to be 0.01 feet, with an average annual water level fluctuation of about 3.6 feet compared to 3.9 feet without withdrawal. *Id.* At Whitewater Reservoir, drawdown was predicted to be about 0.4 feet with maximum annual fluctuations of 4.2 feet, compared to 2.9 feet without any withdrawal. *Id.* Accordingly, appropriations are expected to have minimal hydrologic and hydraulic effects on Colby Lake.

103. The applicable Monitoring Plan requires daily monitoring of lake levels in Colby Lake and Whitewater Reservoir on a year-round basis. In addition, Permit 2017-0260 requires PolyMet to develop a Colby Lake and Whitewater Reservoir Water Management Plan for the operation of the diversion works structure and management of water levels in Colby Lake and Whitewater Reservoir in consultation with the Permittees of Permit 1949-0135. Permit 2017-0260 further provides that at no point may the total annual appropriations combined with annual appropriations under 1949-0135 exceed 6.314 million gallons per year ("MGY"). The Colby Lake and Whitewater Reservoir Water Management Plan must include mechanisms to ensure compliance with this combined annual maximum. Permit 2017-0260 requires monitoring for impacts to public health, public safety, or the public interests in lands and waters resulting or potentially resulting from the permitted appropriations. In the event actual or potential impacts are identified through the required monitoring, the Permits require development and implementation of appropriate adaptive management or mitigation strategies.

104. Given the history of appropriations from Colby Lake, and the creation of Whitewater Reservoir for the express purpose of capturing excess flows for subsequent appropriation, the DNR concludes that there is just cause for waiving the appropriation limits on surface-water appropriations from water basins set forth in Minnesota Statutes § 103G.285, subds. 3(a), (b). *See* Minn. Stat. § 103G.285, subd. 1 ("The Commissioner may waive a limitation or requirement in subdivisions 2 to 6 for just cause.").

105. Minnesota Rule 6115.0720, subp. 2.B directs the DNR to base allocation of water for mining projects "on consideration of the legal requirements for water quality, the impact of the appropriation on those requirements," and an order of priority for water supply sources located within reasonable distance to the mining or processing site. The DNR considered the priority order of this Rule in reviewing the Application. PolyMet's appropriations under the Permits will come largely from runoff at the mining area associated with the NorthMet project, active mine pits, and, finally, from Colby Lake, with elevations maintained from waters in the Whitewater Reservoir, which was specifically established under Permit 1949-0135 as a reservoir associated with a former mining operation at the Plant Site. As detailed in ¶ 35 above, PolyMet anticipates that the vast majority (88%-98%) of necessary process water will be appropriated through this strategy of reuse and recycling, significantly limiting the amount of make-up water appropriated from Colby Lake. Application §§ 3.2, 7.6.

viii. Concerns that the Permits Violate the Sustainability Requirements of Minnesota Statutes § 103G.287

106. The Red Cliff Band, Commenting Bands, WaterLegacy, and the Combined Environmental Organizations argued in their comment letters that the Permits violated provisions of Minnesota Statutes § 103G.287, which governs groundwater appropriations.

107. These commenters each objected to the draft Permits on the grounds that they did not explicitly make determinations under Minnesota Statutes § 103G.287. The Red Cliff Band, Commenting Bands, and WaterLegacy further argued that the draft Permits failed to show consideration of the factors necessary to protect groundwater supplies. Under Minnesota Statutes § 103G.287, subd. 3, the DNR is authorized to establish water appropriation limits to protect groundwater resources. This statute provides that "[w]hen establishing water appropriation limits to protect groundwater resources, the [DNR] must consider the sustainability of the groundwater resource, including current and projected water levels, water quality, whether the use protects ecosystems, and the ability of future generations to meet their own needs." *Id.* The DNR's consideration of these statutory factors is set forth in the current decisional document rather than in the draft Permits, which were circulated for the purpose of soliciting public comment.

108. In support of their argument that the Permits did not satisfy the sustainability standard, the Commenting Bands and WaterLegacy claimed that there was insufficient information to support the limited potential for baseflow reduction to the Partridge River as determined by the FEIS and that PolyMet had failed to demonstrate that changes in flows would be less than 10% throughout the course of the NorthMet Project. Similarly, these commenters objected on the grounds that PolyMet failed to establish that it could meet the requirement under Permit 2016-1369 to maintain flows in the Embarrass River Tributaries within +/-20% of

existing conditions. The DNR's discussion in section IV.D.iii above directly addresses commenters' concerns related to claimed impacts to baseflow in the Upper Partridge River. The FEIS directly addressed the ability of streamflow augmentation to address impacts to the Embarrass River and wetlands at the Plant Site. *See* FEIS §§ 5.2.2.3.3, 5.2.3.2.4. Natural aquifer recharge will maintain saturation of the surficial aquifer. The FEIS determined that the Project was not expected to have a significant effect on groundwater hydrology. *Id.* §§ 5.2.2.3.2, 5.2.2.3.3. Groundwater and surface water monitoring required under the Monitoring Plan for Permit 2016-1369 will ensure that stream augmentation maintains surface flows within the required threshold. Furthermore, the adaptive management condition within the Permit require PolyMet and the DNR to develop and implement appropriate adaptive management or mitigation strategies in the event that monitoring data show unacceptable impacts to flow that may be caused by the permitted appropriations. In addition to the adaptive management requirements, Permit 2016-1369 provides that PolyMet may be required to develop a hydrologic model for the Embarrass River, if the DNR's review of data collected under the Monitoring Plan shows inconsistencies with the modeling conducted in environmental review or as part of the permitting process. If necessary, such a revised model would serve to ensure that ongoing monitoring is adequate to identify. If conditions warranted, the model could also be used to develop additional adaptive management or mitigation to address adverse impacts.

109. The Combined Environmental Organizations argued that the DNR could not determine that the proposed appropriations meet the sustainability standard of Minnesota Statutes § 103G.287, subd. 5. They predicate these arguments on assertions that drawdowns from water appropriations will impact wetlands at the Mine Site and the Plant Site, and appropriations at the Mine Site will impact baseflows, thereby harming the Partridge River ecosystem.

110. The Combined Environmental Organizations' comments appear to read § 103G.287, subd. 5 as imposing an absolute bar on any appropriation of water that might have wetland impacts, even if those impacts are mitigated in accordance with the wetland replacement requirements of applicable law. *See* Minn. Stat. § 103G.222, subd. 1(a) ("Wetlands must not be drained or filled, wholly or partially, unless replaced by actions that provide at least equal public value . . . ."). Wetland impacts at the Mine Site and the Plant Site, including any impacts arising from the appropriation of water under the Permits, will be subject to required mitigation under § 103G.222. PolyMet will be required to monitor for wetland impacts associated with the NorthMet Project. *See* Application § 8.1.2.1. Wetland mitigation in accordance with applicable law is sufficient to meet the sustainability standard of § 103G.287, subd. 5 by ensuring that there will be no net harm to wetland ecosystems in the state, since replacement must occur. The conditions of the Permits specifically recognize that all other permit requirements or obligations imposed by Minnesota or federal law, including those of the Wetland Conservation Act and Section 404 of the Clean Water Act, would apply. Adherence to these regulatory requirements satisfies the sustainability requirements of § 103G.287, subd. 5. *See* Minn. Stat. § 103A.211 ("The Water Law of this state is contained in many statutes that must be considered as a whole to systematically administer water policy for the public welfare."); *see also id.* § 103A.201, subd. 2(b)(4) ("…it is in the public interest to . . . replace wetland values where avoidance of activity is not feasible and prudent."). As detailed in sections IV.B.v and IV.D.iii above, analysis to date does not anticipate deleterious impacts to the Upper Partridge River baseflow or ecosystems from PolyMet's water appropriations. Streamflow augmentation may be a required

adaptive management strategy under the Mine Site Permits in the event that monitoring shows that baseflow in the Upper Partridge River is not maintained within +/- 20% of existing conditions.

111. The Combined Environmental Organizations also argue that the sustainability standard of § 103G.287, subd. 5 cannot be met by the Permits on the grounds that water will be degraded. This argument is predicated upon the assertion that the conclusions in the FEIS preclude the DNR from concluding that the appropriations will not degrade water in violation of the sustainability standard. The Combined Environmental Organizations also reiterated their prior comments on the sufficiency of the analyses contained within the FEIS. The thrust of these comments is aimed at claimed water quality violations that the commenters assert will arise from PolyMet's proposed mining and processing operations at the Mine and Plant Site, without reference to the appropriation of waters for such operations under the Permits. Essentially, these commenters argue that, even if PolyMet's appropriation and use of waters under the Permits meets applicable water quality standards and requirements under the federal Clean Water Act ("CWA"), such appropriation and use is nonetheless barred under § 103G.287 because the appropriated groundwater used by PolyMet will be changed from existing conditions. That these comments are aimed at water quality requirements is evidenced by the repeated citation to Rules adopted and enforced by the MPCA rather than the DNR. *See* Minn. R. ch. 7050 and 7060.

112. The MPCA is the state agency responsible for adopting and enforcing water quality standards in Minnesota under the CWA. *See In re Cities of Annandale and Maple Lake NPDES/SDS Permit Issuance for the Discharge of Treated Wastewater*, 731 N.W.2d 502, 510 (Minn. 2007) ("Under state and federal law, the MPCA is the Minnesota state agency charged with enforcing and administering the CWA and its attendant regulations."). The Proposed NorthMet Project is subject to the CWA and PolyMet has applied for required federal and state discharge permits, which are under the jurisdictional authority of the MPCA and not the DNR. To date, the MPCA has not issued any NPDES/SDS permits to PolyMet for the NorthMet Project, but in January and October 2018, the agency published draft NPDES/SDS permits for public comment. *See* https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51j.pdf (January 2018 version) and https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51z.pdf (October 2018 version). The draft NPDES/SDS permit would impose numerous requirements upon PolyMet and strictly control discharges from the Mine Site, Plant Site, and the Mine-to-Plant Pipeline. In addition to the specific requirements detailed below, the draft NPDES/SDS permit provides that "[e]xcept for discharges from outfalls specifically authorized by this permit, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited." (Draft NPDES/SDS Permit § 6.16.36).

113. A review of the potential discharge conditions that will be imposed upon PolyMet under the Draft NPDES/SDS Permit addresses the sustainability concerns raised by these commenters. For example, the Draft NPDES/SDS Permit imposes the following water collection and treatment requirements at the Mine Site:

- Collection of water sumped from the mine pits, including groundwater and runoff from areas within the pits, and treatment at the WWTS at the Plant Site.

- Collection of drainage from the temporary Category 2/3 Waste Rock Stockpiles, the Category 4 Waste Rock Stockpile, and the Ore Surge Pile, and treatment at the WWTS.
- Engineered liner systems consisting of a compacted foundation, an underdrain system (if needed), a geomembrane liner over a compacted soil liner and an overliner drainage layer for the temporary Category 2/3 Waste Rock Stockpiles, the Category 4 Waste Rock Stockpile, and the Ore Surge Pile.
- Collection of drainage from the permanent Category 1 Waste Rock Stockpile.
- A groundwater containment system that consists of a low permeability barrier with a collection system on the inward side that will be operated to maintain an inward hydraulic gradient for the Category 1 Waste Rock Stockpile.
- Collection of runoff from the Overburden Storage and Laydown Area.
- Collection systems for mine water, including water that has contacted surfaces disturbed by mining activities, including water from mine pit dewatering, stockpile drainage, and runoff contacting ore, waste rock and Mine Site haul road surfaces.
- Prohibition on discharge of mine water or other process wastewater to surface waters from the Mine Site.
- Comprehensive monitoring through internal monitoring points, groundwater monitoring wells and piezometers, and surface water monitoring located at or near the Mine Site including groundwater monitoring stations and surface water monitoring stations.

114. The Draft NPDES/SDS Permit further imposes the following water-collection and treatment requirements at the Plant Site:

- Construction of seepage capture systems to collect seepage from the tailings basin.
- Treatment of collected seepage prior to discharge.
- Operation of a FTB Seepage Containment System consisting of a low permeability barrier with a collection system on the inward side that will be operated to maintain an inward hydraulic gradient for the tailing basin.
- Maintenance of paired monitoring wells and paired piezometers, with one well or piezometer located along the exterior side of the containment system and one located along the interior side at the FTB Seepage Containment System.
- Operation of the WWTS at the Plant Site for treatment of collected water from the Mine Site and the Plant Site.
- Monitoring of effluent water quality prior to discharge for augmentation purposes to the Embarrass River Tributaries.
- Distribution of augmentation discharges in proportion to the flow required to minimize hydrological or ecological impacts to waters resulting from reduction in flow arising from installation and operation of the seepage capture system at the tailing basin.
- Operation of the Hydrometallurgical Residue Facility (HRF) as a closed system so that no water from the HRF will be released to the environment through overflow or outlet structures including a double liner to prevent leakage to groundwater.
- Comprehensive monitoring through groundwater and surface water monitoring stations.

115. In addition to the NPDES/SDS permit conditions identified above, the MPCA conducted a groundwater nondegradation evaluation of the potential effects of the Project on groundwater quality. *See* Draft NPDES/SDS Permit Attachment 4 – Groundwater Nondegradation Evaluation, https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51p.pdf. The MPCA concluded that "due to a combination of controls and mitigation measures (such as engineering controls, wastewater treatment and water monitoring activities) that are part of the Project design, the proposed Project satisfies the requirements under Minnesota Rules 7060 for protection of groundwater resources." In addition, the MPCA conducted an antidegradation assessment and review of the NorthMet Project. *See* Draft NPDES/SDS Permit Attachment 3 – Poly Met Mining, Inc. NPDES Antidegradation Review – Preliminary MPCA Determination, https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51n.pdf. The MPCA made a preliminary determination that the Project was "expected to satisfy the standards in Minn. R. 7050.0265[6] as well as to comply with all of the federal and state surface water pollution control statutes and rules administered" by the agency.

116. The Combined Environmental Organizations further argue that groundwater appropriated from the Mine Site will necessarily be degraded as a result of its use in the Proposed NorthMet Project, even after such water is treated and meets water quality standards. They argue that the act of dewatering and excavating the mine pit will put groundwater in the surficial aquifer in contact with high-sulfide and high-metal-content rock thereby violating the sustainability standard of § 103G.287, subd. 5. According to the Combined Environmental Organizations such actions necessarily "degrade" water "due to the inability of the treatment plant to return appropriated water to its original condition before discharge." This argument wholly ignores, that, in conjunction with the applicable water quality permits issued under the MPCA's jurisdictional authority, that "[t]here will be no direct discharge of mine water or other process wastewater to surface waters from the Mine Site." Draft NPDES/SDS Permit at 5 (emphasis original); *see also id.* at § 6.10.17.

117. The sweeping scope of the Combined Environmental Organizations' interpretation of the term "degrade" under. § 103G.287, subd. 5 would essentially preclude any mining or excavation activity in the State of Minnesota if such activity would result in any water having contact with mined ore, even if such water is handled in accordance with NPDES/SDS permit requirements and meets water quality requirements under applicable law. Such an interpretation is vastly overbroad, particularly in light of the stated legislative policy that "[i]t is the policy of the state to provide for the diversification of the state's mineral economy through long-term support of mineral exploration, evaluation, environmental research, development, production, and commercialization." Minn. Stat. § 93.001. Indeed, the expansive scope of the Combined Environmental Organizations' interpretation of "degrade" would essentially preclude any groundwater use in the state, including use for domestic or public water supply. In addition, accepting this interpretation would vitiate the MPCA's regulatory responsibilities to administer and enforce the CWA in Minnesota.

118. The MPCA, the state agency with enforcing the water quality rules cited by the Combined Environmental Organizations, has analyzed the potential degradation to waters associated with the Project. The Permits require "all required discharge authorizations from

[6] This Rule sets forth the antidegradation standards when changes in existing water quality are reasonably quantifiable.

local, state, or federal government units," and adherence to all other legal requirements, including compliance with applicable water quality requirements, including those conditions ultimately set forth by the MPCA in its NPDES/SDS permit. In addition, the Permit to Mine will impose financial-assurance requirements upon PolyMet to ensure funds are available for ongoing operations of necessary engineered controls and monitoring systems. Given these regulatory protections, the DNR concludes that PolyMet's proposed appropriation of water will not degrade water in violation of § 103G.287, subd. 5.

ix. Concerns that the Permits Violate Minnesota Statutes § 103G.297

119. The Red Cliff Band and WaterLegacy commented that the draft Permits did not meet the requirements of Minnesota law applicable to appropriations of water for mining operations under Minnesota Statutes § 103G.297, subds. 3(1) and 3(2).

120. Section 103G.297, subd. 3(1) provides in relevant part that water appropriation permits for mining purposes may only be granted upon a determination that the "waters will be necessary for the mining of substantial deposits of iron ore, taconite, copper, copper-nickel, or nickel, and that another feasible and economical method of mining is not reasonably available." Subdivision 3(2) requires a determination that the proposed appropriation of waters "will not substantially impair the interest of the public in lands or waters or the substantial beneficial public use of lands or waters except as expressly authorized in the permit and will not endanger public health or safety."

121. WaterLegacy predicated its comments relating to § 103G.297 upon its earlier comments that the volumes of water to be appropriated under the Permits differ from those analyzed in the FEIS, that the DNR has failed to assure an adequate supply of water resources, that the Permits fail to set required protective levels for the Upper Partridge River, and that PolyMet has failed to establish that it can meet the streamflow requirements of Permit 2016-1369. In addition, WaterLegacy argued that PolyMet failed to establish that the water appropriations were necessary for the mining of copper and nickel ores and suggested that discharge of treated water at the Mine Site could reduce impacts to the Upper Partridge River. Each of these concerns is separately addressed in Sections IV.D.ii, IV.D.iii, and IV.D.v above, in the FEIS, and in the relevant Permits and Monitoring Plans. *See* FEIS §§ 3.2.3, 5.2.10, 6.2.2; *see also* Application § 7.6.

122. The DNR concludes that appropriations of water under the terms and conditions of the Permits and in accordance with the applicable Monitoring Plans and QAPP satisfy the statutory requirements of § 103G.297, subd. 3.[7]

x. Concerns Relating to Public Accountability

123. The Red Cliff Band and WaterLegacy objected to the draft Permits on the grounds that they lack public accountability, do not require monthly reporting of monitoring results, and monitoring results would not be posted for public access or review. WaterLegacy

[7] In addition, WaterLegacy and the Commenting Bands disputed whether PolyMet had established whether appropriations for the wick drain system at the HRF were necessary under § 103G.297. This issue is not currently before the DNR because PolyMet has informed the DNR that it has withdrawn its request to appropriate water at the wick drains under Permit 2016-1369 at this time.

objected to the fact that the Permits do not require public notice or hearing opportunity in the event of any amendment, transfer, or assignment. WaterLegacy cited no statutory or regulatory requirements in support of these comments.

124. The Permits incorporate the required reporting requirements applicable to water appropriation permits are set forth in Minnesota law. *See* Minn. Stat. § 103G.281, subd. 3, Minn. R. 6115.0750, subp. 4. The monitoring and reporting requirements set forth in the Permits and Monitoring Plans are sufficient to meet the statutory and regulatory criteria. The QAPP specifically provides that the DNR may request data collected under the Monitoring Plan between reporting periods. The amendment, transfer or assignment requirements of water appropriation permits are set forth in statute and rule. *See* Minn. Stat. § 103G.281, Minn. R. 6115.0750, subps. 5, 6. The DNR notes that the public comment period provided on the draft Permits is not required by Minnesota law. Monitoring and permitting data held by the DNR is publicly available upon request in accordance with the Minnesota Government Data Practices Act.

125. The Combined Environmental Organizations requested that the DNR hold a contested case proceeding prior to issuance of the Permits. These commenters appropriately noted that the decision to hold such a hearing is discretionary with the DNR. *See* Minn. Stat. § 103G.311, subd. 4. The Combined Environmental Organizations are not granted the right to demand a contested case hearing. *See id.*, subd. 5 (identifying "the applicant, the managers of the watershed district, the board of supervisors of the soil and water conservation district, or the governing body of the municipality" as those authorized to demand a contested case hearing). The Combined Environmental Organizations also assert that they may have a right to a contested case hearing under the Minnesota Environmental Rights Act ("MERA") based upon submissions of affidavits asserting violations of Minnesota Statutes § 116B.09, subd. 1. This assertion of a contested case hearing right appears contrary to applicable law. *In re Solid Waste Permit for the NSP Red Wing Ash Disposal Facility*, 421 N.W.2d 398, 405 (Minn. Ct. App. 1988) ("These environmental acts [Environmental Rights Act and Environmental Policy Act] do not create a right to a contested case hearing . . . .").

xi. Concerns that the Permits Should Include Additional Conditions

126. GLIFWC suggested changes to the groundwater level monitoring requirements in the Mine Site Permits and urged the use of well nests, so that vertical gradients could be determined. GLIFWC suggested that three-member well nests be used, with two members in the bedrock at differing depths and one member in the surficial aquifer in order to provide vertical gradients both within the bedrock and between the bedrock and the surficial aquifer. In addition, GLIFWC suggested that installed wells should be sufficiently deep to represent general bedrock characteristics, and not simply the upper bedrock. GLIFWC also suggested additional monitoring of groundwater at the Plant Site, particularly close to the FTB to address potential hydrologic impacts on the aquifer and wetlands related to the seepage capture system. Finally GLIFWC commented that one monitoring well appeared to be missing from the draft Permits.

127. Currently, monitoring wells are adequate to monitor groundwater flow through the fracture zone. The Monitoring Plans for each Permit describe the frequency at which wells should be monitored. Monthly, year-round monitoring of groundwater wells is required under

the Permits. More frequent monitoring is not indicated, as water levels are not anticipated to fluctuate so rapidly as to warrant a change in frequency. Increased frequency of groundwater monitoring could be required under the Permits if indicated by the monitoring. Groundwater monitoring of water levels has been added as a requirement to the Monitoring Plan for Permit 2016-1369. This monitoring will require measurements from the wells around the FTB, inside and outside of the cutoff wall and monitoring of sumps on the capture system. Surface water monitoring is also required under Permit 2016-1369 to address potential effects on the tributaries and wetlands at the Plant Site. Requirements under the Monitoring Plan for Permit 2016-1369 have been added to collect down-hole geophysical logging, flow metering, and calipering to each installed bedrock well. This Monitoring Plan further provides that if this additional monitoring data shows a need to monitor bedrock wells at depth, then a packer will be installed that will allow for monitoring water levels in the upper and lower bedrock units.

128. The Commenting Bands and WaterLegacy each suggested that the Permits should include a condition requiring 90% capture efficiency at the groundwater seepage containment system at the FTB and at the Mine Site Category 1 waste rock stockpile.

129. The capture efficiency of the engineering controls required to be implemented for the NorthMet Project relates to water quality requirements enforced and regulated by the MPCA. Given the primacy of the MPCA's role in regulating the design and requirements of the engineering controls necessary to meet state water quality standards, it is not appropriate to impose engineering requirements implicating the MPCA's regulatory program in the Permits. Discharge quality must meet applicable effluent limits and surface water quality standards; violations of such requirements are subject to the regulatory jurisdiction of the MPCA. The Permits require PolyMet to adhere to all required discharge authorizations. *See* Application § 6.2.

130. The Red Cliff Band and WaterLegacy separately objected to the draft Permits on the grounds that they did not explicitly limit appropriations for the purpose of mining and did not include a provision requiring termination if the specific use was not continuously maintained. WaterLegacy argued that the Permits served to function as a transfer of public rights in public waters.

131. The Permits each indicate that they are granted for the purpose of mining and mine processing and all associated activities, including, but not limited to, construction, mine-pit dewatering, and dust control. In addition, each Permit includes a term provision whereby the Permits will terminate in the event that waters are not appropriated for a continuous period of ten years. The termination provision suggested by WaterLegacy is inconsistent with Minnesota laws governing water appropriation permits for mining projects. *See* Minn. Stat. § 103G.297, subd. 6(a). Finally, each of the Permits specifically provides that the permits "shall not be construed as establishing any priority of appropriation of waters of the state."

132. The Combined Environmental Organizations suggested that Permit 2016-1369 improperly failed to include an allocation for appropriation of waters from the toe of the tailings basin. At this time, PolyMet does not believe that additional appropriation amounts would be required for such appropriation. Because the DNR lacks information sufficient to determine whether reuse and recycling of water from the FTB will result in appropriations in excess of the

volumes authorized under the Permit, the DNR has revised Permit 2016-1369 to include a condition requiring PolyMet to report to the DNR in the event that monitoring data indicate that PolyMet may exceed its annual permitted volume. In no event may PolyMet's appropriations exceed the maximum annual volume authorized under the Permit.

V. ANALYSIS OF STATUTORY AND REGULATORY REQUIREMENTS

133. The purpose of Minnesota Rules 6115.0600 to 6115.0810 is to provide for the orderly and consistent review of applications for water appropriation permits in order to conserve and utilize the water resources of the state in the public interest. *See also* Minn. Stat. §§ 103G.101, 103G.255.

A. The Application is Complete and Contains All Required Information

134. PolyMet properly submitted separate applications for separate appropriations from each of the pits at the Mine Site, for appropriations at the Plant Site, and for appropriations from Colby Lake. *See* Minn. R. 6115.0660, subp. 1 ("Applications shall be submitted for each surface or ground water source from which water is proposed to be appropriated.").

135. All water appropriation permit applications must provide the information identified in Minnesota Statutes § 103G.301, subd. 1 and Minnesota Rule 6115.0660. In addition, applications for water appropriation permits for mining and processing metallic minerals must provide additional information under Minnesota Rule 6115.0720, subp. 1. *See also* Minn. Stat. § 103G.297, subd. 2. Unless otherwise waived by the DNR, applications for the appropriation of groundwater must include the information required by Minnesota Statutes § 103G.287, subd. 1(a).

136. The Application contains maps, plans, and specifications describing the proposed appropriation of waters as required by Minnesota Statutes § 103G.301, subd. 1(a)(1). The Application details the appropriations and changes to be made along with the waters of the state affected by the proposed appropriations. *See id.* § 103G.301, subd. 1(a)(2), (3). The Application contains analysis of the effects of the proposed appropriations may have on the environment pursuant to § 103G.301, subd. 1(b). Application §§ 6.2, 7.5.1-7.5.3, 8.1.2-8.1.4, 8.2.3.2, 8.3.3. The Application also details proposed monitoring for potential effects, which was refined during the course of DNR's review of the Application and public comments. Application §§ 9.0-9.5. Each of the Permits is conditioned upon adherence to a required Monitoring Plan and the QAPP. This information is in addition to the comprehensive environmental analysis of potential effects from the NorthMet Project completed during environmental review.

137. The Application contains completed water appropriation application forms. Minn. R. 6115.0600, subp. 3.A. PolyMet has paid all applicable fees associated with the Application. Minn. Stat. § 103G.301, subd. 2; Minn. R. 6115.0060, subp. 1, Minn. R. 6115.0660, subp. 3.B; *see also* Minn. Stat. § 103G.315, subd. 12. The Application contains aerial photographs, maps, and other descriptive data sufficient to show the location of area of proposed water use, the location of the proposed points of appropriations, the outline of the property owned or controlled by PolyMet in proximity to the areas of use, and the location of

test-hole borings. *See* Minn. R. 6115.0660, subp. 3.C.(1)-(4). Application Large Figures 1, 6-14, Reference (5) Attachment A, Reference (11) Attachment F.

138. As required by Minnesota Statutes § 103G.287, subd. 1(a)(1), (4) and Minnesota Rule 6115.0660, subp. 3.H, the Application and FEIS contain detailed information regarding the hydrogeology and hydrology including test-hole data, field investigations, aquifer test information, and hydrologic studies of the aquifers that will form the source of water for the requested appropriation. *See* Application §§ 5.2.1, 5.2.2, *see also* Reference (5) §§ 4.3.1-4.3.3.2, Large Figure 2, Attachment A (boring logs); Reference (10) §§ 4.3.1-4.3.3; FEIS §§ 4.2.2, 5.2.2. At the Mine Site, PolyMet has measured groundwater levels in at 21 locations in the surficial aquifer and at five locations in bedrock for years. Application § 5.2.1.3, Reference (5) Attachment B – Large Tables 1, 2, References (6)-(8); FEIS § 4.2.2.2.1. The comprehensive aquifer testing, monitoring, modeling, and analyses are adequate to provide the information necessary to assess or predict impacts to other wells, surface waters, and groundwater resources from the requested appropriations.

139. Pursuant to Minnesota Statutes § 103G.287, subd. 1(b), the DNR waives the requirements of § 103G.287, subd. 1(a)(1), (5), and 1(c) that PolyMet submit water well records for preliminary well assessment required under Minnesota Statutes § 103I.205, subd. 9 because the technical analysis required for a preliminary well assessment is duplicative of the comprehensive analysis of the Mine Site and Plant Site water resources undertaken in the course of environmental review.[8] The information in the Application and the FEIS is adequate to determine whether the proposed appropriation is sustainable to supply the needs of future generations and will not harm ecosystems, degrade water, or reduce water levels beyond the reach of public water supply and private domestic wells. Application § 8.1.1, 8.1.4; FEIS §§ 5.2.2.3.2, 5.2.2.3.3. Mine site pit dewatering will draw from the Duluth Complex and Virginia Formation bedrock units, which are not used for water supply. Application § 8.1.1, Reference (11).

140. As required by Minnesota Statutes § 103G.287, subd. 1(a)(2), the Application details the maximum daily, seasonal, and annual pumping rates and volumes for the groundwater appropriations requested by PolyMet. Application § 5.3.1.4, Tables 5-3-5-6, Appendix C.

141. As required by Minnesota Statutes § 103G.287, subd. 1(a)(3), the Application and the FEIS contain detailed information on groundwater quality and information on water treatment necessary for PolyMet's proposed appropriation and use of water at both the Plant Site and the Mine Site. *See* Application §§ 3.0, 3.2, 3.4, 6.2, § 7.5.2., 8.1.2.3, 8.1.3, Reference (5) § 6.3, Reference (10) § 6.5, FEIS §§ 4.2.2., 5.2.2. The MPCA will regulate the water quality of any discharges under an NPDES/SDS Permit and in accordance with the federal NSPS. *See* Application § 2.0. Any appropriation of water under the Permits is conditioned upon PolyMet having all required discharge authorizations. Discharge quality will meet applicable effluent limits and surface water quality standards. *Id.* at §§ 3.0, 6.2, 8.1.2.3, Reference (5) § 6.5, Reference (10) § 6.7. In addition, discharge quantity will be managed to meet the zero discharge

[8] The Mine Site Permits and Permit 2016-1369 require PolyMet to provide the DNR with the Minnesota Unique Well Numbers, well logs, and additional data completed during the well-installation process for each new well installed under the Permits.

requirements of the NSPS and to minimize ecological and hydrologic impacts to the receiving waters. *Id.*; *see also* 40 C.F.R. § 440.104.

142. As required by Minnesota Rule 6115.0660, subp. 2, PolyMet has submitted written evidence of ownership, control, or a license to use the land overlying or abutting the water sources that will provide appropriations under the Permits. Specifically, PolyMet has established it is the fee owner of the lands at the Mine Site pursuant to a land exchange agreement with the USFS that transferred the fee title to the Mine Site lands in June 2018. In addition, PolyMet established that it took fee title to the Plant Site, Corridor, and Colby Lake riparian access point on November 1, 2018.

143. Section 5 of the Application contains a statement of justification supporting the reasonableness and practicality of the proposed use of water for the NorthMet Project that contains the information required by Minn. R. 6115.0660, subp. 3.E. In addition, as discussed in greater detail above, modeling and analyses of the hydrology and hydraulics of the sources of appropriation were included within the FEIS. *See* FEIS §§ 4.2.2., 4.3.2, 5.2.2., 5.3.2, 6.2.2., 6.3.2. Additional technical documents supporting this statement of justification were appended as References to the Application.

144. Section 3 of the Application and the Plant Site and Mine Site Water Management Plans detail information on PolyMet's integrated water management strategy, including its proposed water storage facilities and capabilities along with its proposed reuse and conservation practices. *See* Minn. R. 6115.0660, subp. 3.F. As PolyMet explained in § 3.2 of the Application, the water management strategy for the Proposed NorthMet Project is integrated across the Mine Site and Plant Site in order to maximize water conservation and reuse of appropriated water. Water appropriated at the Mine Site will be used as make-up water at the Plant Site and process water will be recycled at the Plant Site. In addition, seepage at the Tailings Basin will be captured and reused as process water. This strategy of reuse and recycling of water serves to minimize the amount of make-up water that PolyMet will need to appropriate from Colby Lake.

145. As required by Minnesota Statutes § 103G.285, subd. 6 and Minnesota Rule 6115.0660, subp. 3.G(1), the Application for Permit 2017-0260 contains a contingency plan that describes the alternatives PolyMet will use if further appropriation is restricted due to low flows or low water levels in Colby Lake and Whitewater Reservoir. *See* Application § 5.2.3.2. Protective elevations for Colby Lake (1439 ft msl) and Whitewater Reservoir (1410 ft msl and 1422 ft msl) were established by the DNR in Permit 1949-0135 and these elevations apply to any appropriations by PolyMet under conditions within Permit 2017-0260. As is presently allowed under Permit 1949-0135, if the water level in Colby Lake is below 1439 ft msl, appropriations from Colby Lake under Permit 2017-0260 are only permitted by transferring water to Colby Lake from Whitewater Reservoir at an equal or higher rate. These water level requirements serve to ensure that water in Colby Lake is sufficient to meet instream flow needs on the Lower Partridge River and protect the level of the basin. This contingency plan is feasible, reasonable, and practical, as evidenced by its long-standing use under Permit 1949-0135. In the event that additional protective measures are required, PolyMet has agreed to withstand the results of no appropriation. *See* Minn. Stat. § 103G.285, subd. 6; Minn. R. 6115.0660, subp. 3.G. In addition, Permit 2017-0260 contains a condition requiring reduction of appropriations by PolyMet in the

event of an unremedied interference or conflict with the City of Hoyt Lakes' municipal water supply.

146. As required by Minn. R. 6115.0660, subp. 3.G(2), PolyMet explained in the Application that reasonable alternatives for appropriating water other than from Colby Lake were considered, including the use of water appropriated during high flows and levels and stored for later use and the use of groundwater. The DNR notes that the Whitewater Reservoir was established under Permit 1949-0135 for the express purpose of diverting high flows from Colby Lake for storage and later appropriation. Application §§ 2.3.2, 5.4.

147. Permit 2017-0260 contains conditions requiring appropriations from Colby Lake to follow the same elevation thresholds as those in Permit 1949-0135. In addition, Permit 2017-0260 requires PolyMet to develop a Colby Lake and Whitewater Reservoir Water Management Plan in consultation with the Permittees of Permit 1949-0135 for management of water levels in Colby Lake and Whitewater Reservoir. Such plan must be approved by the DNR prior to any appropriation of water under Permit 2017-0260.

148. Colby Lake and Whitewater Reservoir each have a surface area in excess of 500 acres, so Minnesota Statutes § 103G.285, subd. 4 and Minnesota Rule 6115.0660, subp. 3.G.(3) are inapplicable to PolyMet's Application for Permit 2017-0260. *See* Application § 5.2.3.1 (Colby Lake's surface area is approximately 539 acres and Whitewater Reservoir's surface area is approximately 1,210 acres).

149. The Application and the Plant Site and Mine Site Water Management Plans detail PolyMet's plans and specifications regarding withdrawal, use, storage, and disposal of waters of the state. *See* Minn. R. 6115.0720, subp. 1.A; Application §§ 6.2, 7.1, 7.2, References (5), (10). PolyMet provided details of the rates, volumes, sources of water to be appropriated and consumed in mine processing, including all losses, such as uncontrolled seepage, evaporation, plant losses, and discharge volumes. Minn. R. 6115.0720, subp. 1.B; Application § 7.2, Reference (3) § 2.1.1, Reference (5) § 6.1.2.4. In addition, the Application includes criteria used in estimating the proposed appropriation, distribution, and discharge based on climatic averages and extremes. Minn. R. 6115.0720, subp. 1.C; Application §§ 5.3.1, 7.3. The Application contains details of the sources, rates, and volumes of water released from the proposed mining operation. Minn. R. 6115.0720, subp. 1.D, Application §§ 3.4, 6.2, 7.3, Tables 5-4, 5-5, 6-1. In addition to the analyses conducted during the course of environmental review, the Application summarized the potential hydrologic and hydraulic impacts and effects of the operation on the watershed, including changes in basins, watercourses, and groundwater systems. Minn. R. 6115.0720, subp. 1.E, Application § 7.5; FEIS §§ 5.2.2.3.1, 5.2.2.3.2, 5.2.2.3.3

150. As outlined in ¶¶ 134-49, the Application is complete because all necessary and applicable information for evaluation has been provided by PolyMet or is otherwise available to the DNR. Sufficient hydrologic data are available to allow the DNR to adequately determine the effects of the proposed appropriation. *See* Minn. R. 6115.0670, subp. 3.C.(3). The information available to the DNR is adequate to determine whether the proposed appropriation volume and use of water is sustainable and protective of ecosystems, water quality, and the ability of future generations to meet their own needs.

B. Consideration of Factors in Minnesota Rule 6115.0670, subp. 2.A

151. Minnesota Rule 6115.0670, subp. 2.A details factors that the DNR must consider, if applicable, when considering an application for a water appropriation permit. The DNR's consideration of each of the applicable factors is set forth in greater detail below.

152. Minn. R. 6115.0670, subp. 2.A.(1): This rule requires the DNR to consider "the location and nature of the area involved, and the type of appropriation and its impact on the availability, distribution, and condition of water and related land resources in the area involved." The Project is located in a historic mining district with nearby taconite mines and processing facilities. The DNR's review of the Application and supporting information in the record regarding the proposed location and nature of the area associated with the proposed appropriations shows that these appropriations are unlikely to impact the availability, distribution, and condition of water and related land resources in the area involved. *See* Application §§ 5.2.1, 5.2.2, 5.2.3. The FEIS comprehensively analyzed the potential significant impacts of the NorthMet project as it relates to surrounding land and water use, water appropriations, and impacts to water resources. *See* FEIS §§ 4.2.1, 4.2.2, 4.3.1., 4.3.2, 5.2.1, 5.2.2., 5.3.1, 5.3.2, 6.2.1, 6.2.2, 6.3.1, 6.3.2. In addition, the Permits are conditioned upon adherence to applicable discharge requirements, including those requirements enforced by the MPCA under an NDPES/SDS permit. The Permits require monitoring for impacts to public health, public safety, or the public interests in lands and waters resulting or potentially resulting from the permitted appropriations. In the event actual or potential impacts are identified through the required monitoring, the Permits require development and implementation of appropriate adaptive management or mitigation strategies.

153. Minn. R. 6115.0670, subp. 2.A.(2): This rule requires the DNR to consider "the hydrology and hydraulics of the water resources involved and the capability of the resources to sustain the proposed appropriation based on existing and probable future use." The Application and supporting information in the record details the hydrology and hydraulics of the water resources involved. *See* Application § 5.2. The FEIS comprehensively analyzed the potential significant impacts of the NorthMet project as it relates to water appropriations and potential impacts to water resources. *See* FEIS §§, 4.2.2, 4.3.2, 5.2.2., 5.3.1, 5.3.2, 6.2.2, 6.3.2. The references appended to the Application detail the hydrogeologic units and field investigations performed for the Project. *See* Application References (6)-(8) (Hydrogeological Investigations); see also Application Reference (5) § 4.3. After review, the DNR concludes that the evidence in the record shows the capability of the resources to sustain the proposed appropriations based on existing and probable future use in the area. The Permits require monitoring for impacts to public health, public safety, or the public interests in lands and waters resulting or potentially resulting from the permitted appropriations. In the event actual or potential impacts are identified through the required monitoring, the Permits require development and implementation of appropriate adaptive management or mitigation strategies. Continued monitoring and reporting is required under the Permits even in the event of a period of temporary idle or shutdown of active mining operations. In addition, Permit 2017-0260 specifically requires monitoring for, and mitigation of, any interference or conflict with the City of Hoyt Lakes' municipal water supply. This Permit further requires reduction of appropriations in the event of an unremedied interference or conflict with the City's municipal water supply.

154. Minn. R. 6115.0670, subp. 2.A.(3): This rule requires the DNR to consider "the probable effects on the environment including anticipated changes in the resources, unavoidable detrimental effects, and alternatives to the proposed appropriation." The FEIS comprehensively analyzed the potential environmental effects of the NorthMet Project, including effects associated with its appropriation of water. The FEIS analyzed the anticipated changes in the resources, unavoidable detrimental effects, and alternatives to the proposed appropriations. FEIS §§ 3.2.3.3, 5.2.2, 6.2.2. The DNR relies on this environmental review analysis in its consideration of the Application. In addition, the Application details alternatives considered to the proposed appropriations. *See* Application § 5.4. As PolyMet notes, the purpose of the project requires the mining, construction, and operations of features below the water table, which necessarily require water appropriations. *Id.*

155. Minn. R. 6115.0670, subp. 2.A.(4): This rule requires the DNR to consider "the relationship, consistency, and compliance with existing federal, state, and local laws, rules, legal requirements, and water management plans." As detailed herein, including in Section II above, activities associated with the NorthMet Project are subject to oversight under numerous state and federal permitting programs. The Permits specifically note that their issuance does not release PolyMet from any additional permitting requirements imposed by applicable federal, state, or local law. The validity of the Permits is further conditioned upon PolyMet having "all required discharge authorizations from local, state, or federal government units." PolyMet has shown that the proposed appropriations are consistent with state, regional, and local water and related land resources management plans. *See* Minn. Stat. § 103G.271, subd. 2. The Application details consistency with the Minnesota Statewide Drought Plan, the St. Louis County Land Ordinance 27, the St. Louis County Comprehensive Water Management Plan and local water resources management plans for the cities of Aurora, Babbitt, and Hoyt Lakes. *See* Application §§ 8.3.1-8.3.3. The FEIS reviewed the proposed NorthMet Project for consistency with applicable land use plans. *See* FEIS § 5.2.1.

156. Minn. R. 6115.0670, subp. 2.A.(5): This rule requires the DNR to consider "the public health, safety, and welfare served or impacted by the proposed appropriation." The FEIS comprehensively discussed and analyzed the potential health and socioeconomic effects of the NorthMet Project, including effects associated with its appropriation of water. *See* FEIS §§ 4.2.10, 5.2.10, 6.2.10. The FEIS specifically analyzed potential human health impacts of the NorthMet Project, including effects to drinking water and food sources. *See* FEIS § 7.3.4. The DNR relies on this environmental review analysis in its consideration of the Application. In addition, the Permits require monitoring for impacts to public health, public safety, or the public interests in lands and waters resulting or potentially resulting from the permitted appropriations. In the event actual or potential impacts are identified through the required monitoring, the Permits require development and implementation of appropriate adaptive management or mitigation strategies. Continued monitoring and reporting is required under the Permits even in the event of a period of temporary idle or shutdown.

157. Minn. R. 6115.0670, subp. 2.A.(6): This rule requires the DNR to consider "the quantity, quality, and timing of any waters returned after use and the impact on the receiving waters involved." The FEIS comprehensively analyzed the potential significant impacts of the NorthMet project as it relates to water appropriations and potential impacts to water resources. *See* FEIS §§, 4.2.2, 4.3.2, 5.2.2., 5.3.1, 5.3.2, 6.2.2, 6.3.2. Waters appropriated during the pre-

operation construction phase will either be pumped to the Construction Mine Water Basin for subsequent transfer to the FTB or discharged under the requirements of a stormwater construction permit regulated by the MPCA and an associated SWPPP under the MPCA's NPDES/SDS Construction Stormwater General Permit. Application §§ 3.4, 6.2, 8.1.2.3. The DNR notes that any appropriation of water under the Permits is conditioned upon PolyMet having all required discharge authorizations. Discharge quality must meet applicable effluent limits and surface water quality standards, and violations of such requirements are subject to the regulatory jurisdiction of the MPCA. In addition, discharge quantity must be managed to meet the requirements of the NSPS and to minimize ecologic and hydrologic impacts to the receiving waters. *See* 40 C.F.R. § 440.104.

158. Minn. R. 6115.0670, subp. 2.A.(7): This rule requires the DNR to consider "the efficiency of use and intended application of water conservation practices." The Application details a project-based water management strategy that is integrated across the Mine and Plant Sites in order to maximize water conservation and recycling. *See* Application § 3.2; References (2), (3). To the extent possible, water appropriated for mining activities at the Mine Site will be used as process water at the Plant Site, thereby minimizing the amount of make-up water appropriated from Colby Lake under Permit 2017-0260. In addition, the Permits require PolyMet to employ "[a]ll practical and feasible water conservation methods and practices" in order "to promote sound water management and use the least amount of water necessary, such as reuse and recycling water, water-saving devices, and water storage."

159. Minn. R. 6115.0670, subp. 2.A.(8): This rule requires the DNR to consider "the comments of local and regional units of government, federal, and state agencies, private persons, and other affected or interested parties." The DNR's consideration of such comments is detailed in Sections IV.B and IV.D above.

160. Minn. R. 6115.0670, subp. 2.A.(9): This rule is inapplicable to the DNR's consideration of the Application because PolyMet does not propose any diversion of any waters to any place outside of the state.

161. Minn. R. 6115.0670, subp. 2.A.(10): This rule requires the DNR to consider "the economic benefits of the proposed appropriation based on supporting data when supplied by the applicant." The social and economic consequences of the NorthMet Project were detailed and analyzed in environmental review and referenced in the Application. *See* FEIS § 5.2.10; *see* ROD at 50 ("The Project implementation would increase local employment spending. Federal, state and local tax revenues would also increase."). The DNR relies on this earlier analysis and determinations in its consideration of the Application.

162. As outlined in ¶¶ 151-61, the DNR has considered each of the factors identified in Minnesota Rule 6115.0670, subp. 2.A.

C. Consideration of Permit 2017-0260 Under Minnesota Rule 6115.0670, subp. 2.C

163. Minnesota Rule 6115.0670, subp. 2.C details factors that the DNR must consider, if applicable, when considering an application for a water appropriation permit for appropriation of surface water from a basin. Permit 2017-0260 is the only permit sought in the Application

that seeks to appropriate surface water from a basin. The DNR's consideration of each of the applicable factors is set forth in greater detail below.

164. Minn. R. 6115.0670, subp. 2.C.(1), (2), (3) and (5): These rules require the DNR to consider "the total volume of water within the basin," "the slope of the littoral zone," "available facts on historic water levels of the basin and other relevant hydrologic factors," and "natural and artificial controls which affect the water levels of the basin." These items were comprehensively analyzed within the FEIS and prior to issuance of Permit 1949-0135. The DNR's consideration of these factors is detailed above in Section IV.D.vii.

165. Minn. R. 6115.0670, subp. 2.C.(4): This rule requires the DNR to consider the "cumulative long-range ecological effects of the proposed appropriation." The FEIS comprehensively analyzed the potential cumulative impacts of the NorthMet Project, including ecological effects related to appropriations from Colby Lake. *See* FEIS §§ 4.2.3-4.2.6, 5.2.3.-5.2.6, 6.2.2.3.1. As permitted, appropriations under Permit 2017-0260 are not anticipated to cause adverse long-term hydrologic or hydraulic effects, and, similarly, ecosystem effects are not anticipated from these appropriations. *See* Application § 8.1.2.2. Permit 2017-0260 requires monitoring for impacts to public health, public safety, or the public interests in lands and waters resulting or potentially resulting from the permitted appropriations. In the event actual or potential impacts are identified through the required monitoring, the Permit requires development and implementation of appropriate adaptive management or mitigation strategies. In addition, Permit 2017-0260 specifically requires monitoring for, and mitigation of, any interference or conflict with the City of Hoyt Lakes' municipal water supply. The Permit further requires reduction of appropriations in the event of an unremedied interference or conflict with the City's municipal water supply.

166. As outlined in ¶¶ 163-65, the DNR has considered each of the factors identified in Minnesota Rule 6115.0670, subp. 2.C.

D. Consideration of Groundwater Appropriations Under Minnesota Rule 6115.0670, subp. 2.D

167. Minnesota Rule 6115.0670, subp. 2.D details factors that the DNR must consider, if applicable, when considering an application for a water appropriation permit for appropriation of groundwater. Permits 2016-1363, 2016-1364, 2016-1365, 2016-1367, and 2016-1369 each involve groundwater appropriations. The DNR's consideration of each of the applicable factors is set forth in greater detail below.

168. Minn. R. 6115.0670, subps. 2.D.(1), (2), (4), and (5): These rules require the DNR to consider the "type and thickness of the aquifer," "the subsurface area of the aquifer," "existing water levels in the aquifer and projected water levels due to the proposed appropriation," and "other hydrologic and hydraulic characteristics of the aquifer involved." Hydrogeologic aquifer testing, modeling, and field investigations of these aquifers were described in detail in the FEIS and in Reference (5) of the Application and summarized in § 5.2 of the Application. *See* FEIS §§ 4.2.2.2.1, 4.2.2.4.1; *see also* Application § 8.1.1, Reference (5) - Attachment A (boring logs), Reference (5) - Attachment B Large Tables 1, 2 (water level records), References (6)-(8) (testing), Reference (10) - Attachment A (water level records),

Reference (11) (test hole locations, boring logs, testing results).

Water levels at the Mine Site will be drawn down due to mine pit dewatering. The potential drawdown extent was estimated and analyzed in the FEIS via the analog method. *See* FEIS § 5.2.2.3.2; *see also* Application § 7.5.3.1. This analysis identified the following potentially measurable drawdown at the Mine Site:

> 0-1,000 feet from the pit rim: measurable groundwater drawdown may occur
>
> 1,000-1,700 feet from the pit rim: groundwater drawdown may occur, but may be difficult to distinguish from natural variations in background water levels
>
> 1,700 to 3,200 feet from the pit rim: groundwater drawdown may occur, but would likely only occur under certain hydrogeologic conditions and may not be discernible from natural variability
>
> Beyond 3,200 feet from the pit: groundwater drawdown not anticipated

Id. at § 5.2.2.3.2. Consideration of potential impacts of groundwater drawdowns on wetlands at the Mine Site is set forth in Section IV.D.iii above. *See also* Application § 8.1.2.1. Water appropriations at the Plant Site are anticipated to have temporary and localized effects on the surficial aquifer. Application §§ 7.5.3.2, 8.1.2.1.

The Permits require monitoring for impacts to public health, public safety, or the public interests in lands and waters resulting or potentially resulting from the permitted appropriations. In the event actual or potential impacts are identified through the required monitoring, the Permits require development and implementation of appropriate adaptive management or mitigation strategies. Continued monitoring and reporting is required under the Permits even in the event of a period of temporary idle or shutdown. In addition, any impacts to wetlands, including indirect impacts, resulting from drawdown of groundwater levels due to water appropriations at the Mine Site or the Plant Site will be subject to additional monitoring and possible mitigation in accordance with applicable federal and state wetland requirements imposed under Section 404 of the Clean Water Act (federal) and the Wetland Conservation Act (state).

169. Minn. R. 6115.0670, subps. 2.D.(3) and (6): These rules require the DNR to consider the "area of influence of the proposed well(s)" and "probable interference with neighboring wells." There are no private wells in the surficial aquifer in the vicinity of the Mine Site. Application §§ 5.2.1.1, 8.1.1, 8.1.4. Similarly, there are no residential or community wells in the immediate vicinity of the Plant Site that are likely to be affected by appropriations under Permit 2016-1369. *Id.* §§ 5.2.1.2, 8.1.4.

170. As outlined in ¶¶ 167-69, the DNR has considered each of the factors identified in Minnesota Rule 6115.0670, subp. 2.D.

E. The Permits Authorizing Dewatering Satisfy Minnesota Rule 6115.0710

171. Minnesota Rule 6115.0710 details additional requirements and conditions for water appropriation permits for dewatering, i.e., for the purpose of removing excess water. *See* Minn. R. 6115.0670, subp. 5. The Mine Site Permits and Permit 2016-1369 each involve

potential dewatering. The DNR's consideration of each of the applicable factors is set forth in greater detail below.

172. The applicant for an appropriation permit involving dewatering "must show there is a reasonable necessity for such dewatering and the proposal is practical." Minn. R. 615.0710(A). PolyMet's proposed dewatering under the identified permits is necessary to construct and operate the NorthMet Project, including required environmental and engineering controls. Application § 5.0. PolyMet's proposed dewatering is practical and consistent with standard industry practice and in use at other mines within Minnesota. *See* Application §§ 5.3, 5.4, 6.1.

173. The applicant for an appropriation permit involving dewatering "must show that the excess water can be discharged without adversely affecting the public interest in the receiving waters, and that the carrying capacity of the outlet to which the waters are discharged is adequate." Minn. R. 6115.0710(B).

PolyMet detailed its dewatering plans within the Application. *See, e.g.*, Application § 6.2. As part of PolyMet's water reuse and conservation plans, most water appropriated from dewatering activities will be discharged to the FTB and recycled for use in mineral processing. *Id.* Indeed, the Project will meet more than 80% of its water demand using groundwater appropriated from dewatering activities necessary for conducting mining operations. *Id.* § 5.4.

Seepage from the FTB will be collected, treated, and discharged from the WWTS under the NPDES/SDS permit regulated by the MPCA. Under Permit 2016-1369, the discharge quantity will be managed for augmentation to the Embarrass River Tributaries, to maintain streamflow within +/-20% of existing conditions in order to avoid potential adverse ecologic and hydrologic impacts to these resources associated with operation of the FTB seepage capture systems. The discharge rate from the WWTS is expected to be between 1, 700 and 3,200 gpm, which is estimated to maintain 80% to 120% of existing streamflow conditions. Application § 3.4, FEIS Table 5.2.2-41. Waters appropriated during dewatering in the pre-operation construction phase will either be pumped to the Construction Mine Water Basin for subsequent transfer to the FTB or discharged under the requirements of a stormwater construction permit regulated by the MPCA and associated SWPPP under the MPCA's NPDES/SDS Construction Stormwater General Permit. Application § 6.2. The quantity and quality of waters discharged in accordance with these controls is not anticipated to negatively affect the public interest in the receiving waters.

The Permits require PolyMet to report all water movement on-site or discharged off-site in accordance with the required Monitoring Plans and QAPP. In addition, the Permits require monitoring for impacts to public health, public safety, or the public interests in lands and waters resulting or potentially resulting from the permitted appropriations. In the event actual or potential impacts are identified through the required monitoring, the Permits require development and implementation of appropriate adaptive management or mitigation strategies. Continued monitoring and reporting is required under the Permits even in the event of a period of temporary idle or shutdown.

174. PolyMet's proposed dewatering under the Permits, and subject to the conditions therein, is not prohibited by any existing law. *See* Minn. R. 6115.0710.C.

175. As outlined in ¶¶ 171-74, the DNR has considered each of the factors identified in Minnesota Rule 6115.0710.

F. The Permits Satisfy Minnesota Rule 6115.0720, subp. 2

176. Minnesota Rule 6115.0720, subp. 2 details considerations, in addition to those set forth in Minnesota Rule 6115.0670, that the Commissioner must analyze and evaluate when making decisions on appropriations for the mining and processing of metallic minerals. *See* Minn. R. 6115.0670, subp. 5.

177. Under Minnesota Rule 6115.0720, subp. 2.A, the DNR "shall direct the applicant to utilize available surplus waters from preexisting mining operation or facilities, whether owned or controlled by the applicant or others, whenever feasible and practical unless justification is provided on why such practice should not be allowed." PolyMet's water management plan, which will reuse and recycle surplus water generated from dewatering and waters collected through engineering controls, is consistent with this Rule. *See* Application § 7.6.

178. Minnesota Rule 6115.0720, subp. 2.B directs the DNR to base allocation of water "on consideration of legal requirements for water quality" and "the impact of the appropriation on those requirements." This rule further lists the order of priority of sources of water used for water appropriations for mining purposes. Adherence to applicable water quality requirements is required under the NPDES/SDS permit and no appropriation is permitted under the Permits without all required discharge authorizations. Appropriations under the Permit come largely from runoff at the mining area associated with the NorthMet project, active mine pits, and from Colby Lake, with elevations maintained from waters in the Whitewater reservoir, which was established under Permit 1949-0135 as a reservoir associated with a former mining operation at the Plant Site. These water sources satisfy the order of priority set forth in the Rule. *See* Minn. R. 6115.0720, subp. 2.B.(1)-(3); *see also* Section IV.D.vii above.

179. Minnesota Rule 6115.0720, subp. 2.C provides that "[i]f the disposal of excess water is necessary and if any mining operation in the area has caused or will cause a substantial reduction in watercourse flow, the [DNR] shall where feasible and practical require the permittee to discharge excess water in a manner that would restore the flow." In addition, "such action shall consider the existing and anticipated use of excess water by higher priority users and must be in compliance with appropriate rules of the [MPCA]." Permit 2016-1369 requires stream augmentation to maintain the mean annual streamflow of the Embarrass River Tributaries within +/-20% of existing conditions. The Monitoring Plans for the Mine Site Permits specifically include streamflow monitoring at multiple points along the Partridge River to monitor for any reduction in flow. The adaptive management condition of the Permits requires PolyMet and the DNR to develop and implement appropriate adaptive management or mitigation strategies in the event that monitoring data shows unacceptable impacts to flow that may be caused by the permitted appropriations. The Mine Site Permits indicate that streamflow augmentation may be a required adaptive management strategy in the event that monitoring shows that baseflow in the Upper Partridge River is not maintained within +/- 20% of existing conditions.

180. As outlined in ¶¶ 176-79, the DNR has considered each of the factors identified in Minnesota Rule 6115.0720, subp. 2.

G. The Permits Satisfy Minnesota Statutes § 103G.265, subd. 3

181. Under Minnesota Statutes § 103G.265, subd. 3, a water use permit "involving a consumptive use of more than 2,000,000 gallons per day average in a 30-day period, may not be granted or approved until a determination is made by the commissioner that the water remaining in the basin of origin will be adequate to meet the basin's water resources needs during the specified life of the consumptive use." In addition, if the appropriation involves groundwater, the consumptive use must meet the applicable standards of § 103G.287, subd. 5.

182. At times during the anticipated course of operations at the NorthMet Project, appropriations under Permits 2016-1363, 2016-1365, 2016-1367, and 2017-0260 may exceed the statutory threshold of 2 MGD. Application § 8.2.2.2; Appendix C Large Figures C-1, C-3, C-5. As detailed in Sections IV.D.iii, IV.D.v, V.B, V.C, and V.D above, appropriations under the Mine Site Permits or Permit 2017-0260 are not anticipated to negatively impact the availability of water near the Plant or Mine Site, the water resources are capable of sustaining the proposed appropriations, and water levels in Colby Lake and Whitewater Reservoir will be maintained within their historic elevations. *See also* Application §§ 8.1.1, 8.1.4, 8.2.3.2; FEIS § 6.2.2.3. As detailed in Section V.I below, the proposed consumptive use of groundwater meets the applicable standards of § 103G.287, subd. 5. Accordingly, the DNR determines that the water remaining in the basin of origin will be adequate to meet the basin's water resources needs during the specified life of the consumptive use under Permits 2016-1363, 2016-1365, 2016-1367, and 2017-0260.

183. As outlined in ¶¶ 181-82, the DNR has made the determinations required under Minnesota Statutes § 103G.265, subd. 3.

H. The Permits Satisfy Minnesota Statutes § 103G.285

184. Under Minnesota Statutes § 103G.285, subd. 2, "permits to appropriate water from natural and altered natural watercourses must be limited so that consumptive appropriations are not made from the watercourses during periods of specified low flows." PolyMet does not seek to appropriate any waters from any natural and altered natural watercourses. Streamflow augmentation of the Embarrass River Tributaries is required under Permit 2016-1369 to maintain existing conditions. As detailed herein, including in Section IV.D.iii above, the DNR believes the Permits "safeguard water availability for in-stream uses and for downstream high priority users located reasonably near the site of the appropriation."

185. As detailed herein, including in Section IV.D.vii above, the DNR finds just cause to waive the appropriation limits set forth in Minnesota Statutes § 103G.285, subd. 3(a) for appropriations under Permit 2017-0260. *See* Minn. Stat. § 103G.285, subd. 3 (authorizing waiver for just cause).

186. As detailed herein, including in Section IV.D.vii above, Permit 2017-0260 includes protection elevations for Colby Lake and Whitewater Reservoir as previously determined in proceedings for Permit 1949-0135. These protection elevations satisfy the requirements of Minnesota Statutes § 103G.285, subd. 3(b).

187. PolyMet does not seek to appropriate surface water from a water basin that is less than 500 acres or from a designated trout stream, so Minnesota Statutes § 103G.285, subds. 4 and 5 are inapplicable to DNR's consideration of the Application.

188. As detailed in ¶ 145 above, Permit 2017-0260 contains a contingency plan that describes the alternatives PolyMet will use if further appropriation is restricted due to low flows or water levels. *See* Minn. Stat. § 103G.285, subd. 6. This contingency plan is feasible and PolyMet further agreed within the Application to withstand the results of not being able to appropriate water. Application § 5.2.3.2. The Mine Site Permits and Permit 2016-1369 do not involve appropriations of surface waters, so § 103G.285, subd. 6 does not properly apply to these Permits. Even if the contingency plan submission requirements apply to these Permits, the DNR finds that there is just cause to waive these requirements for just cause as detailed in ¶ 93 above. *See* Minn. Stat. § 103G.285, subd. 1.

189. As outlined in ¶¶ 184-88, the DNR has considered the Application under Minnesota Statute § 103G.285 and the Permits satisfy the applicable statutory requirements.

I. The Permits Satisfy Minnesota Statutes § 103G.287

190. Minnesota Statutes § 103G.287, subd. 1 details the information that must be included in applications for groundwater appropriation permits. As detailed in Section V.A above, the Application contains the information required under Minnesota Statute § 103G.287, subd. 1.

191. Minnesota Statutes § 103G.285, subd. 2 provides that "[g]roundwater appropriations that will have negative impacts to surface waters are subject to the applicable provisions in section 103G.285." As detailed in Sections IV.D.iii and V.H above, the DNR has analyzed the potential impacts of groundwater appropriations under the Mine Site Permits on surface waters under Minnesota Statute § 103G.287, subd. 2. The Mine Site Permits indicate that streamflow augmentation may be a required adaptive management strategy in the event that monitoring shows that baseflow in the Upper Partridge River is not maintained within +/- 20% of existing conditions. Negative impacts to surface waters resulting from groundwater appropriations at the Plant Site are not anticipated, but augmentation of the Embarrass River Tributaries addresses any negative surface water impacts from the NorthMet Project and is required under Permit 2016-1369.

192. Under Minnesota Statutes § 103G.287, subd. 3, the DNR is authorized to establish water appropriation limits to protect groundwater resources. In establishing such limits, the DNR must "consider the sustainability of the groundwater resource, including the current and projected water levels, water quality, whether the use protects ecosystems, and the ability of future generations to meet their own needs." As detailed in Sections IV.D.iii, IV.D.v, IV.D.viii, and V.E above, the Permits contain water appropriation limits sufficient to protect groundwater resources in accordance with § 103G.287, subd. 3.

193. PolyMet does not seek to appropriate water from a designated groundwater management area, so Minnesota Statutes § 103G.287, subd. 4 is inapplicable to the DNR's consideration of the Application.

194. Under Minnesota Statutes § 103G.287, subd. 5, the DNR "may issue water-use permits for appropriation from groundwater only if the [DNR] determines that the groundwater use is sustainable to supply the needs of future generations and the proposed use will not harm ecosystems, degrade water, or reduce water levels beyond the reach of public water supply and private domestic wells . . . ." Sections IV.D.iii and IV.D.viii above detail how the Permits satisfy these sustainability requirements. Based upon the FEIS, the Application, the Permits as conditioned upon the Monitoring Plans and the QAPP, the DNR has determined that the PolyMet's proposed groundwater appropriations are sustainable to supply the needs of future generations. The appropriation of groundwater, under the conditions set forth in the Permits, will not harm ecosystems, degrade water, or reduce water levels beyond the reach of public water supplies and private domestic wells.

195. As outlined in ¶¶ 190-94, the DNR has reviewed the Application for compliance with Minnesota Statute § 103G.285 and determines that the Permits satisfy the applicable statutory requirements.

J. The Permits Satisfy Minnesota Statutes § 103G.293

196. Under Minnesota Statutes § 103G.293, water appropriation permits "must provide conditions on water appropriation consistent with the drought response plan" established by the DNR. Each of the Permits contains a condition requiring compliance with the statewide drought plan. *See also* Application § 8.3.1.

K. The Permits Satisfy Minnesota Statutes § 103G.297

197. The DNR has the authority to issue water appropriation permits for the appropriation of waters for the mining of copper, copper-nickel, and nickel under Minnesota Statute § 103G.297, subd. 1.

198. Minnesota Statutes § 103G.297, subd. 2 requires entities seeking to appropriate water for metallic mining purposes to submit an application in the form prescribed by the DNR. As detailed in Section V.A above, the Application satisfies this requirement.

199. Under Minnesota Statutes § 103G.297, subd. 3(1), water appropriation permits for metallic mining purposes may only be granted if the DNR determines that the proposed use of waters "will be necessary for the mining of substantial deposits of iron ore, taconite, copper, copper-nickel, or nickel, and that another feasible and economical method of mining is not reasonably available." The FEIS comprehensively analyzed proposed project alternatives, including an underground mining alternative. FEIS § 3.2.3, Appendix B. In light of the analysis of mining feasibility and alternatives undertaken in environmental review and as detailed in Section IV.D.ix above, the Permits satisfy the requirements of § 103G.297, subd. 3(1).

200. Under Minnesota Statutes § 103G.297, subd. 3(2), water appropriation permits for mining purposes may only be granted if the DNR determines that the proposed use of waters "will not substantially impair the interests of the public in land or waters or the substantial beneficial public use of lands or waters except as expressly authorized in the permit and will not endanger public health and safety." The DNR's consideration of the potential impacts of

appropriations under the Permits on land resources, water resources, health, and safety is detailed herein, including in Sections IV.D.ix and V.B-V.F above. Conditions within the Permits require adaptive management in the event that monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits. In light of the foregoing, the DNR concludes that the Permits satisfy the requirements of § 103G.297, subd. 3(2).

201. Under Minnesota Statutes § 103G.297, subd. 3(3), water appropriation permits for mining purposes may only be granted if the DNR determines that "the proposed mining operations will be in the public interest and the resulting public benefits warrants" the proposed appropriation of waters. The DNR's consideration of the public benefits of the NorthMet Project is detailed herein, including in Section V.B above. The FEIS discussed the socioeconomic impacts of the NorthMet Project, including the number of jobs potentially created by the Project. FEIS § 5.2.10.2.2. The Project advances the State's policy for mineral development. *See* Minn. Stat. § 93.001 ("It is the policy of the state to provide for the diversification of the state's mineral economy through long-term support of mineral exploration, evaluation, environmental research, development, production and commercialization."). Environmental impacts of the Project will be managed through engineering controls, monitoring, mitigation, and adaptive management under applicable permits, including the Permit to Mine (for mining and reclamation activities), the NDPES/SDS permit (for water quality and water discharges), and dam safety permits (for stability of the FTB and HRF). Conditions within the Permits require adaptive management in the event monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits. In light of the foregoing, the DNR concludes that the Permits satisfy the requirements of § 103G.297, subd. 3(2).

202. Operations authorized by the Permits are not anticipated to affect public or private property not owned by PolyMet, so Minnesota Statutes § 103G.297, subd. 4 is inapplicable to the Permits.

203. As required under Minnesota Statutes § 103G.297, subd. 5, each of the Permits contains a condition indicating that the state will not incur liability under the Permits.

204. The Permits are granted for a term the DNR finds reasonable and necessary for the completion of the proposed mining operations. Minn. Stat. § 103G.297, subd. 6(a). In accordance with the authority granted under § 103G.297, subd. 6, the Permits include conditions providing for termination in the event that waters are not appropriated for a continuous period of ten years. *See also* Minn. Stat. § 103G.315, sub. 14(b).

205. The Permits set forth conditions the DNR finds necessary to protect the public health, safety, and welfare under Minnesota Statutes § 103G.297, subd. 7. The Permits do not require PolyMet to furnish a bond for compliance because PolyMet will be subject to financial assurance requirements under the Permit to Mine.

206. The Permits may be modified or canceled in accordance with Minnesota Statutes § 103G.297, subd. 8. The DNR may immediately suspend appropriations under the Permits by

written order to PolyMet if suspension is necessary in an emergency, to protect the public health or safety or to protect interests in land or waters against imminent danger of substantial injury in any manner or to any extent not expressly authorized by the Permits, or to protect persons or property against the danger. *Id.*, subd. 8(a)(3). In such event, the DNR may require PolyMet to take any measures necessary to prevent or remedy the injury. *Id.*

207. As outlined in ¶¶ 197-206, the DNR has considered the Application under Minnesota Statute § 103G.297, and the Permits satisfy the applicable statutory requirements.

L. The Permits Satisfy Minnesota Rule 6115.0670, subp. 3

208. Issuing the Permits does not violate any of the limits imposed under Minnesota Rule 6115.0670, subp. 3.A. Subpart 3.A(1) is inapplicable because the Application does not involve an out-of-state diversion of waters. As detailed herein, the quantity of available waters of the state in the area involved are adequate to provide the amounts of water proposed to be appropriated. *Id.*, subp. 3.A.(2). As detailed herein, and based upon the FEIS, the Application, the Permits as conditioned upon the Monitoring Plans and the QAPP, the proposed appropriations under the Permits are reasonable, practical, adequately protect public safety and promote the public welfare. *Id.*, subp. 3.A.(3). The Permits are consistent with state, regional, and local water and related land resources management plans. There is no unresolved conflict between competing users for the waters involved. *Id.*, subp. 3.A.(5).

209. Minnesota Rule 6115.0670, subp. 3.B applies to approvals of a "surface water appropriation application." Permit 2017-0260 is the only Permit involving appropriations of surface water. This Permit involves an appropriation from a water basin, so 6115.0670, subps. 3.B.(1)-(3), which relate to appropriations from watercourses and trout streams, are inapplicable. As detailed herein, including in Section IV.D.vii above, Permit 2017-0260 includes protection elevations for Colby Lake and Whitewater Reservoir as previously determined in proceedings for Permit 1949-0135. These protection elevations satisfy the requirements of 6115.0670, subp. 3.A.(4)(a) and 3.A.(6).

210. As detailed herein, including in Section IV.D.vii above, the DNR has determined that implementation of the appropriation limits set forth in Rule 6115.0670, subp. 3.A.(4)(b) to Permit 2017-0260 is unnecessary and inapplicable, and there is just cause to waive these requirements as not reasonable, practical, or in the public interest under the authority granted to the DNR under 6115.0670, subp. 4.

211. As required by Minnesota Rule 6115.0670, subp. 3.C.(1), the amounts and timing of appropriations of waters under the Mine Site Permits and Permit 2016-1369 are limited to the safe yield of the aquifer to the maximum extent feasible and practical. Conditions within the Permits require adaptive management in the event monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits.

212. After the analysis and review of the record detailed herein, including in Section IV.D.iii above, the DNR has not found substantial evidence establishing a direct relationship of ground and surface waters exists such that appropriations under the Permits, subject to the

conditions therein, would have an adverse impact on surface waters through reduction of flows under Minnesota Rule 6115.0670, subp. 3.C.(2). PolyMet agreed within the Application to withstand the results of no appropriation in the event of notification from the DNR that appropriations within the watershed are being suspended in order to protect instream flows or basin water levels. The Permits contain a condition noting that the DNR "may require the suspension of appropriation during periods of low water in order to maintain minimum water levels within the basin/watercourse/watershed." Permit 2016-1369 requires monitoring and streamflow augmentation to maintain the Embarrass River Tributaries within +/- 20% of existing conditions. The Monitoring Plans for the Mine Site Permits specifically include streamflow monitoring at multiple points along the Partridge River to monitor for any reduction in flow. The adaptive management condition of the Permits requires PolyMet and the DNR to develop and implement appropriate adaptive management or mitigation strategies in the event that monitoring data shows unacceptable impacts to flow that may be caused by the permitted appropriations. Streamflow augmentation under the Mine Site Permits may be a required adaptive management strategy in the event that monitoring shows that baseflow in the Upper Partridge River is not maintained within +/- 20% of existing conditions.

213. After the analysis and review of the record detailed herein, the DNR concludes that sufficient hydrologic data are available to allow the DNR to determine the effects of PolyMet's proposed appropriations under the Mine Site Permits and Permit 2016-1369 in accordance with Minnesota Rule 6155.0670, subp. 3.C.(4). Conditions within these Permits require adaptive management in the event monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits.

214. As outlined in ¶¶ 208-13, the DNR has considered the Application under Minnesota Rule 6115.0670, subp. 3, and the Permits satisfy the applicable regulatory requirements.

M. The Permits Satisfy MERA

215. In conjunction with the comments submitted by the Combined Environmental Organizations, Friends of the Boundary Water Wilderness, Save Our Sky Blue Waters, Save Lake Superior Association, and Sierra Club North Star Chapter submitted affidavits seeking to intervene in this administrative proceeding under MERA. *See* Minn. Stat. § 116B.09.

216. MERA requires the DNR to consider whether the conduct that is to be permitted will result in "pollution, impairment or destruction of natural resources." Under MERA, no conduct that results in pollution, impairment, or destruction of natural resources shall be authorized unless there is no feasible and prudent alternative. Minn. Stat. § 116B.09, subd. 2; *see also* Minn. Stat. § 116D.04, subd. 6. "Pollution, impairment, or destruction" under MERA "is any conduct by any person which violates, or is likely to violate, any environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit of the state or any instrumentality, agency, or political subdivision thereof which was issued prior to the date of the alleged violation occurred or is likely to occur or any conduct which materially adversely affects or is likely to materially adversely affect the environment." *Id.*, § 116B.02, subd. 5.

217. In reviewing the administrative record, including the FEIS and the Application, the DNR considered the quality and severity of any adverse effects of the NorthMet Project on the natural resources that might be affected by PolyMet's proposed appropriations, including any potential long-term adverse effects to those resources, the types of resources at issue, the potential significant consequential effects of the proposed appropriations on other natural resources, and the direct and consequential impacts of the proposed appropriations on the affected resources. *See State ex rel Schaller v. County of Blue Earth*, 563 N.W.2d 260, 267 (Minn. 1997).

218. As detailed herein, including in Section V.A.-V.L above, appropriations under the Permits, subject to the conditions therein, will comply with all applicable state and federal environmental protection standards, including the requirements of Minnesota Statutes chapter 103G and Minnesota Rules chapter 6115 governing water appropriations.

219. The potential effects on natural resources resulting from the NorthMet Project and project alternatives were comprehensively analyzed within the FEIS. The Permits require PolyMet to secure all required discharge authorizations and comply with all other applicable legal requirements. Comprehensive monitoring is required under the Permits. Conditions within the Permits require adaptive management in the event monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits.

220. PolyMet's mining activities will be also subject to other state and federal requirements and must comply with all applicable environmental protection standards, including the requirements of the Permit to Mine and the requirements of an NPDES/SDS permit under the regulatory authority of the MPCA. Wetland mitigation for unavoidable wetland impacts will be required under an approved wetland replacement plan and under a federal wetlands permit issued by the USACE. Wetland monitoring will be required under these state and federal wetlands requirements. Water quality monitoring will be required by the MPCA.

221. Compliance with these regulatory requirements serves to ensure that the appropriation of waters under the Permits will not result in pollution, impairment, or destruction of natural resources.

222. As outlined in ¶¶ 215-21, the DNR has considered the proposed appropriations under the Permits in accordance with MERA, and determines that the Permits satisfy the applicable statutory requirements.

Based upon the above Findings of Fact, the DNR makes the following:

CONCLUSIONS

1. In order to "conserve and use water resources of the state in the best interests of its people and to promote the public health, safety, and welfare," it is the regulatory policy of the State to "control the appropriation and use of waters of the state." Minn. Stat. § 103A.201, subd. 1. The Legislature delegated the DNR the authority to develop a water resources conservation program for the state that includes the "conservation, allocation, and development

of waters of the state for the best interests of the people." Minn. Stat. § 103G.101, subd. 1. Similarly, the Legislature directed the DNR to adopt rules for the allocation of waters based on statutory water allocation priorities. Minn. Stat. § 103G.261.

2. The DNR has the authority to issue water appropriation permits in accordance with its general authority to administer "the use, allocation, and control of waters of the state." See Minn. Stat. § 103G.255(1). In addition, the DNR "may issue water-use permits for the diversion, drainage, control, or use of waters of the state for mining iron ore, taconite, copper, copper-nickel, or nickel . . . ." Minn. Stat. § 103G.297, subd. 1. The application requirements and proceedings related to water use permits for mining projects are subject to the applicable provisions of Chapter 103G of the Minnesota Statutes and Chapter 6115 of the Minnesota Rules. *See* Minn. Stat. § 103G.297, subd. 2(b); Minn. R. 6115.0610.

3. The DNR has the discretion to waive a hearing on a water appropriation permit application and order a permit to be issued or denied without a hearing. Minn. Stat. § 103G.311, subd. 4.

4. Minnesota Statutes § 103G.315, subd. 2 requires that the DNR make findings of fact on issues necessary for determination of the applications considered. Orders by the DNR must be based upon findings of fact made on substantial evidence. *Id*.

5. PolyMet's proposed appropriations of waters of the state requires water appropriation permits. Minn. Stat. § 103G.271, subd. 1; Minn. R. 6115.0620.

6. The DNR has the authority to impose conditions on any water appropriation permits it issues. Minn. Stat. § 103G.315, subd. 1; Minn. R. 6115.0670, subp. 3; *see also* Minn. Stat. § 103G.297, subd. 6.

7. If the DNR concludes that the plans of an applicant for a water appropriation permit are reasonable, practical, and will adequately protect public safety and promote the public welfare, then the DNR must grant the permit. Minn. Stat. § 103G.315, subd. 3.

8. The Application is complete and PolyMet has provided all information required for review under applicable statutes and rules. *See* Minn. Stat. §§ 103G.285, subd. 6, 103G.287, subd. 1(a), 103G.301, subd. 1, Minn. R. 6115.0660, 6115.0720, subp. 2.

9. PolyMet's proposed appropriation and use of waters from differing sources requires separate applications. Minn. R. 6115.0660, subp. 1.

10. Any application information required under Minnesota Statutes § 103G.287, subd. 1 not discussed herein is waived on the grounds that the information provided with the Application is adequate to determine whether the proposed appropriation of water is sustainable and will protect ecosystems, water quality, and the ability of future generations to meet their own needs. *See* Minn. Stat. § 103G.287, subd. 1(b).

11. Any information required by Minnesota Rule 6115.0660 and Minnesota Rules 6115.0680 to 6115.0720 not discussed herein are waived as unnecessary or inapplicable. *See* Minn. R. 6115.0660, subp. 4.

12. As detailed in the factual findings above, the DNR has reviewed and analyzed the record before the agency in connection with its consideration of applicable factors. *See* Minn. R. 6115.0670, subp. 2.

13. In accordance with Minnesota Rule 6115.0670, subp. 3.B.(4)(a), appropriations from Colby Lake under Permit 2017-0260 are subject to a protective elevation of 1439 ft msl, below which no appropriation is permitted unless replaced with an equal volume of water from Whitewater Reservoir.

14. The requirements of Minnesota Statutes § 103G.285, subd. 3(a) and Minnesota Rule 6115.0670, subp. 3.B.(4)(b) that collective maximum annual withdrawals from Colby Lake not exceed a total volume of water amounting to one-half acre-foot per acre of surface water basin are waived as unnecessary and inapplicable given the background of the creation of the reservoir, the history of appropriations under Permit 1949-0135, and prior agency determinations that appropriations from Colby Lake, subject to the protective elevations and requirements included within Permit 2017-0260, are reasonable, practical, and in the public interest. *See* Minn. Stat. § 103G.285, subd. 1; Minn. R. 6115.00670, subp. 4.

15. To the maximum extent feasible and practical, the amounts and timing of the water appropriation under Permits 2016-1363, 2016-1364, 2016-1365, 2016-1367, and 2016-1369, subject to the conditions therein, are limited to the safe yield of the aquifer. Minn. R. 6115.0670, subp. 3.C.(1).

16. There is not substantial evidence before the Commissioner that a direct relationship of ground and surface waters exist such that there would be adverse impact on the surface waters through reduction of flows or levels below protected flows or protection elevations such that the amount and timing of the proposed groundwater appropriations must be limited under Minnesota Rule 6115.0730, subp. 3.C.(2).

17. Sufficient hydrologic data are available to allow the DNR to adequately determine the effects of the proposed appropriations of groundwater under Permits 2016-1363, 2016-1364, 2016-1365, 2016-1367, and 2016-1369. Minn. R. 6115.0670, subp. 3.C.(3).

18. Any provision of Minnesota Rule 6115.0670, subp. 3 not expressly discussed herein is determined to be unnecessary or inapplicable, and such provisions are hereby waived in accordance with Minn. R. 6115.0670, subp. 4.

19. The water remaining in the basin of origin after PolyMet's proposed appropriation and use of waters under the Mine and Plant Site Permits will be adequate to meet the basin's water resources needs during the life of the proposed appropriations and the proposed appropriations meet the groundwater sustainability standards of Minnesota Statutes § 103G.287, subd. 5. *See* Minn. Stat. § 103G.265, subd. 3.

20. The Permits are consistent with state, regional, and local water and related land resources management plans. *See* Minn. Stat. § 103G.271, subd. 2; Minn. R. 6115.0670, subp. 3.A.(4).

21. The Permits are conditioned upon adherence to the applicable Monitoring Plans and the QAPP, and contain monitoring, measuring, and water-use reporting requirements consistent with applicable Minnesota law. *See* Minn. Stat. §§ 103G.275, subd. 2, 103G.281, subds. 1-3, 103G.282, subds. 1-3, Minn. R. 6115.0750, subps. 3, 4.

22. The Permits properly contain conditions authorizing the DNR to inspect any installation that appropriates or uses water in accordance with Minnesota Statutes § 103G.275, subd. 3.

23. Permit 2017-0260 is limited so that consumptive appropriations are not made from Colby Lake during periods of specified low flows. These limits safeguard water availability for in-stream uses and for downstream higher priority users located reasonably near the site of appropriation. *See* Minn. Stat. § 103G.285, subd. 2.

24. The streamflow monitoring and adaptive management requirements of the Permits serve to limit the possibility that any groundwater appropriations will adversely impact nearby surface waters and protect water availability for in-stream uses and for downstream higher priority users located reasonably near the site of appropriation. *See* Minn. Stat. §§ 103G.285, subd. 2, 103G.287, subd. 2.

25. PolyMet agreed in the Application to withstand the results of not being able to appropriate water under the Permits, and, thus, the requested appropriations satisfy Minnesota Statutes § 103G.287, subd. 6.

26. PolyMet's contingency plan for Permit 2017-0260 describes the alternatives PolyMet will use in the event that further appropriation under that Permit is restricted due to the flow of the stream or the level of a water basin. This contingency plan satisfies the requirements of Minnesota Statutes § 103G.287, subd. 6.

27. As detailed herein, PolyMet's proposed groundwater use is sustainable to supply the needs of future generations and is subject to all applicable permitting and regulatory requirements, including but not limited to the NPDES/SDS permit requirements under the MPCA's regulatory jurisdiction and the requirements of any Permit to Mine issued for the NorthMet Project. Any wetland impacts resulting from mining operations undertaken under the Permit to Mine, including impacts associated with the appropriation and use of water under the Permits, must be mitigated in accordance with the mining and reclamation plan approved by the DNR under the Permit to Mine. *See* Minn. Stat. § 103G.222, subd. 1. When appropriated and discharged in accordance with these requirements, and in compliance with the conditions of the Permits, the proposed appropriations will not harm ecosystems, degrade water, or reduce water levels beyond the reach of public water supply and private domestic wells. *See* Minn. Stat. § 103G.287, subd. 5.

28. The Permits contain "conditions on water appropriation consistent with the drought response plan" established in accordance with Minnesota Statutes § 103G.293.

29. Issuing the Permits, as conditioned upon ongoing monitoring in accordance with the applicable Monitoring Plans and the QAPP, is consistent with Minnesota Statutes

§ 103G.265, subd. 1, which requires the DNR to manage the state's water resources in a manner that assures "an adequate supply to meet long-range seasonal requirements for domestic, municipal, industrial, agricultural, fish and wildlife, recreational, power, navigation, and quality control purposes."

30. The Permits are granted in connection with a project that involves the mining, production, or beneficiation of copper, copper-nickel, and nickel, so are irrevocable for the term of the Permits, except for breach or nonperformance of any condition of the Permits by the PolyMet. Minn. Stat. § 103G.315, subd. 14. In accordance with the authority granted by Minnesota Statutes § 103G.315, subd. 14(b), the Permits impose a limitation to their term in the event that PolyMet fails to appropriate and use water for a continuous period of ten years absent a showing of good cause. *See also* Minn. Stat. § 103G.297, subd. 6.

31. The Application indicates that the Permits may involve the consumptive appropriation of more than a 2 MGD average in a 30-day period. After review of the Application and consideration of the record, the DNR concludes that the water remaining in the basin of origin will be adequate to meet the basin's water resources needs during the term of Permits 2016-1363, 2016-1365, 2016-1367, and 2017-0260. *See* Minn. Stat. § 103G.265, subd. 3.

32. The appropriation of waters under the Permits is necessary for the mining of substantial deposits of copper, copper-nickel, or nickel, and another feasible and economical method of mining is not reasonably available. *See* Minn. Stat. § 103G.297, subd. 3(1).

33. The proposed appropriation of waters under the Permits will not substantially impair the interests of the public in lands or waters or the substantial beneficial public use of lands or waters except as expressly authorized in the Permits and will not endanger public health and safety. *See* Minn. Stat. § 103G.297, subd. 3(2).

34. The proposed mining operations will be in the public interest and the resulting public benefits warrant the proposed appropriations of waters as conditioned by the Permits. Minn. Stat. § 103G.297, subd. 3(3).

35. The Permit includes conditions the DNR has deemed "necessary to protect the public health, safety, and welfare." Minn. Stat. § 103G.297, subd. 7.

36. PolyMet has shown that there is a reasonable necessity for dewatering under Permits 2016-1363, 2016-1364, 2016-1365, 2016-1367, and 2016-1369 and that its dewatering proposals are practical. Minn. R. 6115.0710.A. PolyMet has shown that the excess water can be discharged without adversely affecting the public interest in the receiving waters, and that the carrying capacity of the outlet to which waters are discharged is adequate. Minn. R. 6115.0710.B. The proposed dewatering under the Permits, in accordance with the conditions contained therein, is not prohibited by any existing law. See Minn. R. 6115.0710.C.

37. PolyMet has met its burden of proving by substantial evidence that the proposed project is reasonable, practical, and will adequately protect public safety and promote the public welfare. Minn. Stat. § 103G.315, subds. 2, 6(a).

38. The DNR concludes that the appropriation and use of water under the Permits, subject to the conditions contained therein, is reasonable, practical, and will adequately protect public safety and promote the public welfare. *See* Minn. R. 6115.0670, subp.3.A.(1). Accordingly, the application for the Permit must be granted. *See* Minn. Stat. § 103G.315, subds. 3, 5. The conditions, terms, and reservations included in the Permit are reasonably necessary for the safety and welfare of the people of the state. *Id.*, subd. 6(a).

39. Appropriations under the Permits, subject to the terms and conditions therein, will not result in pollution, impairment, or destruction of natural resources. *See* Minn. Stat. § 116B.02, subd. 5.

40. Any Findings of Fact that might properly be termed Conclusions and any Conclusions that might properly be termed Findings of Fact are hereby adopted as such.

Based upon the foregoing Findings of Fact and Conclusions, the DNR now enters the following:

ORDER

1. The DNR hereby waives any public hearing on the Application pursuant to Minnesota Statutes § 103G.311, subd. 4.

2. Based upon all the files, records, and proceedings in this matter and upon the DNR's Findings of Fact and Conclusions, Water Appropriation Permits 2016-1363, 2016-1364, 2016-1365, 2016-1367, 2016-1369 and 2017-0260 are hereby issued to Poly Met Mining, Inc. subject to the conditions set forth in the Permits and in the applicable Monitoring Plans and Quality Assurance Project Plan.

3. Pursuant to Minnesota Statute § 103G.311, subd. 6 and Minnesota Rule 6115.0670, subp. 3, PolyMet, the Board of Supervisors of the North St. Louis County Soil and Water Conservation District, or the governing bodies of the City of Hoyt Lakes and the City of Babbitt may file a demand for a hearing on the Application within 30 days after receiving mailed notice of this Order.

Approved and adopted this __1st___ day of ___November____, 2018

STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES

/s/ Tom Landwehr_____
TOM LANDWEHR
Commissioner
Minnesota Department of Natural Resources

EXHIBIT 1 - CONSIDERATION OF PUBLIC COMMENTS

A. Project-Based Concerns - Support or Opposition

Theme Statement: General statements in opposition or in support of the Proposed NorthMet Project without any reference to water appropriation, the draft Permits, the proposed Monitoring Plans, or the proposed QAPP. General statements in opposition to issuing water appropriation permits for a project involving a foreign-based corporation. General opposition to the project due to broad environmental concerns such as "pollution."

Consideration: The DNR acknowledges these commenters' support of and / or opposition to the Proposed NorthMet Project. Neither generalized support nor generalized opposition to a proposed project provide any basis under applicable statutes or rules to either deny or issue water appropriation permits. All discharges will meet applicable water quality standards and no water appropriation is authorized under the Permits until all required discharge authorizations are in place.

B. Boundary Waters Canoe Area Wilderness

Theme Statement: Concerns or objections on the basis of a belief that the NorthMet Project is either located in, or would negatively impact the Boundary Waters Canoe Area Wilderness. Concerns related to northward flow from the Mine Site.

Consideration: Both the Plant Site and Mine Site are located in the St. Louis River Watershed, within the Great Lakes Basin, and all water within the basin drains to Lake Superior. Surface water and surficial groundwater at the Mine Site flow to the Partridge River, while flows at the Plant Site drain to the Embarrass River, with the exception of Second Creek which is part of the Partridge River watershed. PolyMet will conduct monitoring to determine if there is northward groundwater flow from the Mine Site. The Permit to Mine requires adaptive management or mitigation in the event that the DNR determines northward flow is possible.

C. Wetlands

Theme Statement: Concerns relating to the potential impacts to wetlands and the ability of PolyMet to replace wetlands impacted by the proposed NorthMet Project.

Consideration: Wetland impacts associated with the proposed NorthMet Project will be regulated in accordance with the requirements of the Minnesota Wetland Conservation Act and Section 404 of the Clean Water Act. Wetland monitoring will occur and PolyMet will be required to mitigate any wetland impacts occurring at the Mine Site or the Plant Site in accordance with applicable state and federal law. PolyMet's proposed wetland replacement plan has been submitted to the DNR in conjunction with its application for a Permit to Mine. The United States Army Corps of Engineers is currently considering whether to issue a Section 404 Permit to PolyMet for the NorthMet Project.

D. Wildlife Impacts

Theme Statement: General concerns that the NorthMet Project may have an adverse impact on wildlife resources without specific reference to potential impacts arising from water appropriations. Concern that appropriations might have major effects on streamflow in the Embarrass River and adversely impact nesting wood turtles.

Consideration: The FEIS analyzed and assessed the potential environmental consequences of the NorthMet Project on the affected environment, including direct and indirect effects on wildlife and potential cumulative impacts. *See* FEIS §§ 5.2.5, 6.2.5. Permit 2016-1369 includes a condition requiring PolyMet to maintain the mean annual streamflow in the Embarrass River tributaries of Trimble Creek, Unnamed Creek, Second Creek, and Unnamed (Mud Lake) Creek in each stream within +/-20% of existing conditions so as to maintain habitat and minimize impacts. The Mine Site Permits require streamflow monitoring and adaptive management, including streamflow augmentation, may be required if monitoring shows adverse impacts to flows within the Upper Partridge River.

E. Financial Burden / Financial Assurance

Theme Statement: Questions regarding whether taxpayer funds might be required for environmental mitigation or remediation of the Project site in the future. Concerns that any financial assurance required for the NorthMet Project would be insufficient.

Consideration: These concerns were not specifically addressed to proposed water appropriations under the draft Permits, but rather to the NorthMet Project as a whole. Any Permit to Mine issued to PolyMet will require posting of financial assurance. *See* Minn. Stat. § 93.49, Minn. R. 6132.1200. Potential environmental impacts associated with the NorthMet Project would be managed through engineering controls, monitoring, mitigation, and adaptive management under applicable permits, including the Permit to Mine (for mining and reclamation activities), the NDPES/SDS permit (for water quality and water discharges), dam safety permits (for stability of the FTB and HRF). These statutory and regulatory requirements serve to protect against taxpayer liability in the future. The DNR had a 60-day public comment period on PolyMet's application for a Permit to Mine and draft special conditions, including those related to financial assurance.

F. Dam Safety

Theme Statement: Concerns related to long-term stability of the dams at the Plant Site.

Consideration: These concerns were not addressed specifically to the proposed water appropriations or to the draft Permits, but rather to the dam safety permits associated with the NorthMet Project. The DNR had a separate 30-day public comment period on draft dam safety permits to review public concerns. Any dam safety permits issued to PolyMet will have to meet applicable legal requirements.

G. Jobs vs. the Environment

Theme Statement: Concerns that the NorthMet Project would have short-term economic benefits but generate long-term environmental issues. Concerns that the NorthMet Project would negatively impact the recreation-based economy of Northeastern Minnesota.

Consideration: The FEIS discussed the socioeconomic impacts of the NorthMet Project, including the number of jobs potentially created by the Project. FEIS § 5.2.10.2.2. Environmental impacts would be managed through engineering controls, monitoring, mitigation, and adaptive management under applicable permits, including the Permit to Mine (for mining and reclamation activities), the NDPES/SDS permit (for water quality and water discharges), dam safety permits (for stability of the FTB and HRF). Conditions within the Permits require adaptive management in the event monitoring data and/or modeling results show unacceptable impacts to public health, public safety, or the public interests in lands and waters are being, or could potentially be, caused by appropriations under the Permits. In addition, appropriations "must cease immediately" in the event of a confirmed water-use conflict. Appropriations under the Permits may be suspended during period of low water in order to maintain minimum water levels in the basin, watercourse, or watershed.

H. Water Use Fees

Theme Statement: Concerns related to the water use fees associated with appropriations under the Permits given the water volumes at issue.

Consideration: Applicable water-use permit processing fees are prescribed by statute. *See* Minn. Stat. § 103G.271, subd. 6(a) ("[A] water-use permit processing fee must be prescribed by the commissioner in accordance with the schedule of fees in this subdivision for each water-use permit in force at any time during the year."). The applicable fees are "payable based on the amount of water appropriated during the year . . . ." *Id.*, subd. 6(c). In addition, for entities holding more than five permits, fees are set at a maximum of $300,000 per year. *Id.*, subd. 6(d). The DNR lacks the statutory authority to impose fees other than those permitted by statute. *See* Minn. Stat. § 16A.1283(a).

I. Great Lakes Compact

Theme Statement: Concerns that granting the Permits to PolyMet is inconsistent with the state's responsibility to provide notice to other states as it relates to waters appropriated from the Lake Superior Basin within the Great Lakes.

Consideration: PolyMet's proposed appropriations require separate applications for each water source, which is why PolyMet sought multiple water appropriation permits for the NorthMet Project. *See* Minn. R. 6115.0660, subp. 1. The proposed appropriations do not constitute a "consumptive use" in excess of 5,000,000 gallons per day under the Great Lakes Compact, and, thus, do not trigger any obligation under the Compact, which superseded the notice provisions of prior Minnesota law. *See* Minn. Stat. § 103G.801, § 9.1. The DNR nonetheless provided a courtesy notification of the Application to members of the Great-Lakes-St. Lawrence River

Basin Compact Council. No state or province provided any substantive comments or objections to the Application.

J. Environmental Review Based Concerns

Theme Statement: Questions of whether the proposed NorthMet Project had undergone environmental review. Concerns that the substance of the analysis and determinations previously made during the course of environmental review were inadequate or erroneous.

Consideration: The proposed NorthMet Project underwent joint federal-state environmental review as detailed in the DNR's findings of fact. Environmental review documentation remains available to the public online at: https://www.dnr.state.mn.us/input/environmentalreview/polymet/index.html. The DNR issued a Record of Decision deeming the FEIS adequate in March 2016. No one challenged the DNR's adequacy determination, and, thus, it is final under Minn. Stat. § 116D.04, subd. 10.

K. Potential Inconsistency with Environmental Review

Theme Statement: Concerns that the Project generally is inconsistent with the analysis set forth in the FEIS. Concerns that the proposed water appropriation volumes and sources were inconsistent with what was previously analyzed during the environmental review of the proposed NorthMet Project. Additional concerns relating to the elimination of the WWTF at the Mine Site and transportation of untreated water from the Mine Site via the Transportation and Utility Corridor between the Mine and Plant Sites. Similar concerns related to the modification of the Project to eliminate the CDSM Zone and increased buttressing for the Cell 2E North Dam at the Plant Site.

Consideration: In March and April 2017, the DNR reviewed the potential changes and determined that these changes did not appear to generate significant environmental effects that were not considered in the FEIS or affect the availability of prudent and feasible alternatives with lesser environmental effects. The DNR concluded that preparation of a SEIS was not warranted as a result of these changes.

L. Monitoring

Theme Statement: Concerns that rigorous monitoring be required in order to avoid potential negative impacts to the groundwater, surface water, and ecological resources. Concerns that the required monitoring should be more frequent or continuous. Concerns about the location of monitoring sites. Suggestions that the Permits should be subject to immediate termination or suspension in the event required for safety. Suggestions that the Permits should require water quality monitoring and reporting to the DNR. .

Consideration: Each Permit has an associated Monitoring Plan that requires adherence to the standards of the QAPP. The Monitoring Plans include monitoring of groundwater levels, pit and lake levels, streamflow, macroinvertebrate surveys, and fish communities. Adaptive management or mitigation is required in the event monitoring indicates unacceptable impacts to public health, public safety, or public interests in lands and waters are being, or could potentially

be, caused by appropriations under the Permits. Monitoring for water quality will be separately required by the MPCA under the NPDES/SDS permit.

M. Water Quality

Theme Statement: Concerns related to proposed water containment and water treatment systems associated with the NorthMet Project, including specific concerns relating to the migration of pollutants from the Mine Site and the Tailings Basin. Concerns that migrating pollutants will harm aquatic ecosystems, including wild rice. Concerns that the Permits do not address water quality standards or water-treatment requirements. Concerns that contact waters will require capture and treatment over the long term.

Consideration: The MPCA is the state agency responsible for adopting and enforcing water quality standards within the State. The MPCA will issue an NPDES/SDS permit governing the requirements of water collection and treatment and regulating any water quality for discharges from the NorthMet Project. Violations of permit requirements or water quality standards are subject to the regulatory jurisdiction of the MPCA.

N. Wild Rice

Theme Statement: Concerns that the NorthMet Project would adversely affect wild rice in the Lake Superior Watershed.

Consideration: The operations at the Mine Site and Plant Site as part of the Proposed NorthMet Project are designed to capture sulfates and metals with engineering controls and adaptive management. The potential direct and indirect impacts to water resources, including wild rice, from the Proposed NorthMet Project were extensively detailed in the FEIS. The MPCA will issue an NPDES/SDS permit governing the requirements of water collection and treatment and regulating any water quality for discharges from the NorthMet Project. Violations of permit requirements or water quality standards are subject to the regulatory jurisdiction of the MPCA.

O. Water Quantity

Theme Statement: Concerns related to the amounts of water authorized to be appropriated under the Permits. Concerns related to potential water scarcity.

Consideration: The FEIS analyzed the NorthMet Project's potential impact on water resources, including groundwater and surface waters. After review of the hydrologic testing and modeling, including years of monitoring data, the DNR believes that the water resources are capable of sustaining the proposed appropriations without adverse impact on supply. Appropriations under the Permits will not occur simultaneously and certain appropriations will be temporary or intermittent. The Permits require ongoing monitoring and reporting of water and lake levels. Appropriate adaptive management or mitigation strategies may be implemented to address any unacceptable impacts to resources in the event monitoring identifies impacts. The Permits include conditions allowing for suspension during periods of low water.