NorthMet Project

Air Quality Management Plan - Plant

Version 7

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This document was prepared for Poly Met Mining Inc.
by Barr Engineering Co.

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Acronyms, Abbreviations and Units

Acronym, Abbreviation or Unit	Stands For
BACT	Best Available Control Technology
FEC	Fugitive Emission Control
FEIS	Final Environmental Impact Statement
FTB	Flotation Tailings Basin
HEPA	High-Efficiency Particulate Air
LTVSMC	LTV Steel Mining Company
MPCA	Minnesota Pollution Control Agency (the air permitting authority for the Project)
NSPS	New Source Performance Standards
PM	Particulate Matter
SAG	Semi-Autogenous Grinding
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
USEPA	U.S. Environmental Protection Agency
VMT	Vehicle Miles Traveled

1.0 Introduction

This document presents the air quality management plan for the Plant Site portion of the Poly Met Mining Inc. (PolyMet) NorthMet Project (Project). The plan describes how point and fugitive source emissions will be controlled and monitored. This document also includes mitigation measures that will be implemented at the Plant Site for mercury and Federal Class I Area visibility impacts.

1.1 Objective and Overview

The objective of the air quality management plan is to propose a framework designed to achieve compliance with anticipated air emissions permit conditions at the Plant Site (Process Plant and Flotation Tailings Basin (FTB)). This plan or a successor document will be updated after permit issuance to reflect the actual permit conditions.

1.2 Outline

The outline of this document is:

Section 2.0 Description of the air permitting approach.

Section 3.0 Description of the emission control systems for point and fugitive sources including a discussion of mitigation measures implemented at the Plant Site for mercury and Class I visibility impacts.

Section 4.0 Description of air quality modeling outcomes.

Section 5.0 Description of operating plans for emission controls and fugitive dust control.

Section 6.0 Description of air quality related monitoring.

Section 7.0 Description of air quality reporting and adaptive management.

This document is intended to evolve through the environmental review, permitting, operating, reclamation, and long-term closure phases of the Project. A Revision History is included at the end of the document.

2.0 Proposed Air Permitting Strategy

PolyMet is proposing to permit the Project as a synthetic minor source with respect to federal Prevention of Significant Deterioration (PSD) regulations and the 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants (NESHAPS). This section describes how PolyMet proposes to achieve synthetic minor status for the Project as a whole, including both Mine Site and Plant Site emissions. This discussion is included here, in the Air Quality Management Plan – Plant, because the majority of point source emissions and hazardous air pollutant (HAP) emissions occur at the Plant Site.

2.1 PSD Synthetic Minor Limits

As shown in Table 2-1 and in the updated Plant Site emission inventory provided for the FEIS (Reference (1)) and the latest Mine Site emission inventory (Reference (2)) the controlled potential emissions for all criteria pollutants are below their respective PSD major source levels. Because controlled potential emissions are below the PSD major source levels, additional limits are not needed to make the Project a synthetic minor source, beyond proper operation of the proposed pollution control equipment. Proper operation of the control equipment will be demonstrated through monitoring, as proposed in Section 6.0 and modified during the permitting process.

The limited controlled potential emissions shown in Table 2-1, take into account the 24-hour throughput limits proposed to reduce modeled impacts. The specific limits are shown in Table 2-2. These limits will become enforceable conditions in the air permit. The 24-hour limits further reduce Project emissions below the PSD major source levels for PM, PM_{10} and $PM_{2.5}$. Table 2-2, which presents the throughput limits also describes the monitoring proposed by PolyMet.

2.2 NESHAPS Synthetic Minor Limits

The controlled potential emissions of total hazardous air pollutants (HAP) is below the Part 63 NESHAPS major source level of 25 tons per year as shown in Table 2-1. The individual HAP with the highest controlled potential to emit for the Project is nickel. The controlled potential to emit for nickel is less than the major source level of 10 tons per year for individual HAPs. As with the PSD pollutants, proper operation of the proposed pollution control equipment will keep HAP emissions below the major source level. Proper operation of the control equipment will be demonstrated through monitoring, as proposed in Section 6.0 and modified during the permitting process.

Table 2-1 Total Project Emissions

Pollutant	Controlled Potential to Emit (PTE), (ton/yr)	Limited Controlled Potential to Emit (ton/yr)	PSD Major Source Threshold (ton/yr)	NESHAP Major Source Threshold (ton/yr)
PM10	197.13	171.16	250	NA
PM2.5	181.04	165.83	250	NA
SO2	7.79	7.79	250	NA
H2SO4/SO3	5.03	5.03	250	NA
Total PM	248.09	184.73	250	NA
NOx	94.06	94.06	250	NA
VOC	48.92	48.92	250	NA
Carbon Monoxide	106.49	106.49	250	NA
Pb	0.00	0.00	250	NA
Hydrogen Sulfide	1.88	1.88	250	NA
CS2	5.10	5.10	250	NA
TRS	6.98	6.98	250	NA
Fluorides (as F)	0.13	0.13	250	NA
Total HAPs	18.52	18.52	NA	25
Individual HAPs (Nickel)	5.36	5.36	NA	10

Table 2-2 Daily Throughput Limits Reducing PM Emissions

Process Equipment	Daily Limit	Units	Compliance Demonstration
Limestone Railcar Unload Baghouse	3,125	ton/day unloaded	Record daily quantity of limestone unloaded from railcars.
Limestone Reclaim	2,309	ton/day into reclaim chute	Record daily total of limestone added to reclaim system.
Limestone to Stockpile	3,125	ton/day unloaded	Record daily quantity of limestone unloaded from railcars.

3.0 Air Quality Management System Design

3.1 Point Sources

Point sources at the Plant Site include sources associated with the Beneficiation Plant, the Hydrometallurgical Plant, the Concentrate Dewatering/Storage Building, and unloading, storage, handling, and processing of limestone and other process consumables. A more detailed description of the Beneficiation and Hydrometallurgical processes is included in Reference (3).

3.1.1 Location of Point Sources

Large Figure 1 shows the location of the stacks for the Coarse Crusher, Drive House #1, Fine Crusher, Concentrator Building, Hydrometallurgical Plant and Concentrate Dewatering/Storage Buildings. Note: the stacks and vents in the figure are identified by the numbers used in the assessment of impacts for the Environmental Impact Statement (EIS) process; these stack/vent/emission unit numbers will be updated as necessary during the permitting process. Other process areas such as Limestone Preparation, Limestone Unloading, and support buildings are also shown in Large Figure 1. Large Figure 2 shows additional detail of the ambient air boundary and the location of the Cliffs Erie Pellet Yard, which is a nearby permitted emission source.

3.1.2 Emission Controls

3.1.2.1 Beneficiation Plant

Emission controls for Fine Particulate Matter ($PM_{2.5}$) that are consistent with the best controls currently used in the metallic ore processing industries will be applied to point sources in the crushing and grinding stages of the Beneficiation Plant.

Cartridge filter type emission controls will replace existing wet scrubber emission controls in the Coarse Crusher, Drive House #1, Fine Crusher, and Concentrator Buildings. Cartridge filter type emission controls in these areas will provide the same or better collection efficiency as baghouses. The cartridge type units are more readily adaptable to retrofit into the existing buildings, require less electric power than baghouse systems, and are easier to maintain. The existing baghouse systems in the Coarse Crusher Building rail car dumping areas will be upgraded with current technology baghouse components instead of cartridge filter systems because the volume of air to be controlled is too high for commercially available cartridge filter systems. In addition to replacing the existing controls, additional control equipment will be installed to provide improved emission control on the Tripper Cars that distribute crushed ore to the Fine Ore Bins.

The Beneficiation Plant design proposed for the Final Environmental Impact Statement includes the replacement of the existing Fine Crushing Lines, Rod Mills, and Ball Mills with a Semi-Autogenous Grinding (SAG) Mill and a new Ball Mill. The SAG Mill and Ball Mill are wet processes and are not potential sources of particulate emissions. Additional conveyors and

transfer points have been added to the flowsheet to bypass the Fine Crushing Lines and to deliver the ore from the Fine Ore Feeders to the SAG Mill. All transfer points handling dry ore will be enclosed and controlled by the same type of cartridge filter dust collector proposed for most existing sources. The Beneficiation Plant remains configured to process an average of 32,000 tons of ore per day.

In order to maintain operational flexibility and allow options for process optimization, PolyMet will maintain three of the seven fine crushing lines in the SAG Mill configuration along with the portion of the Coarse Ore Bin that feeds these crushers. Specifically, the East 1, West 1 and West 2 Fine Crushing Lines will continue to be included in the Emission Inventory, the air permit application, and any future modeling. The 2A Tripper Car and West Coarse Ore Bin will also be included.

Table 3-1 lists the emission controls in the Beneficiation Plant that will be used at the commencement of operations. Additional, redundant, operating equipment, with the same pollution controls, has been included in the emission inventory and modeling analyses completed to date and will be included in the air emission permit for the facility. This strategy accommodates the use of additional equipment during maintenance periods and avoids the need to evaluate multiple equipment configurations in the Beneficiation Plant.

Table 3-1 Beneficiation Plant Emission Controls

System	Equipment Served	Proposed Controls	Emission Unit (EU) Number	Control Equipment (CE) Number	Stack Vent (SV) Number
Coarse Crusher					
North rail dump	North 60” crusher	Upgraded baghouse	EU-xx	CE-xx	SV-xx
North crushing	North Distribution Box and 36” crushers	Cartridge	EU-xx	CE-xx	SV-xx
South rail dump	South 60” crusher	Upgraded baghouse	EU-xx	CE-xx	SV-xx
South crushing	South Distribution Box and 36” crushers	Cartridge	EU-xx	CE-xx	SV-xx
North pan feeders	North pan feeder aspiration	Cartridge	EU-xx	CE-xx	SV-xx
South pan feeders	South pan feeder aspiration	Cartridge	EU-xx	CE-xx	SV-xx

System	Equipment Served	Proposed Controls	Emission Unit (EU) Number	Control Equipment (CE) Number	Stack Vent (SV) Number
North pan feeder discharge	North transfer to conveyor 1A	Cartridge	EU-xx	CE-xx	SV-xx
North pan feeder discharge	North transfer to conveyor 1B	Cartridge	EU-xx	CE-xx	SV-xx
South pan feeder discharge	South transfer to conveyor 1A	Cartridge	EU-xx	CE-xx	SV-xx
South pan feeder discharge	South transfer to conveyor 1B	Cartridge	EU-xx	CE-xx	SV-xx
Drive House #1					
Conveyor Transfer Point	Conveyor 1A & 2A	Cartridge	EU-xx	CE-xx	SV-xx
Conveyor Transfer Point	Conveyor 1B & 2B	Cartridge	EU-xx	CE-xx	SV-xx
Fine Crusher					
Fine Crusher Bypass	Conveyor Transfer Chute - 2A and 2B to 4B/4A	Cartridge	EU-xx	CE-xx	SV-xx
2A tripper car dust collection (new)	2A tripper car	Cartridge	EU-xx	CE-xx	NA
West tripper car discharge bins	West coarse ore bins	Cartridge	EU-xx	CE-xx	SV-xx
West fine crushers 1 and conveyance	W1 crushing line	Cartridge	EU-xx	CE-xx	SV-xx
West fine crushers 2 and conveyance	W2 crushing line	Cartridge	EU-xx	CE-xx	SV-xx
East fine crusher 1 and conveyance	E1 crushing line	Cartridge	EU-xx	CE-xx	SV-xx

System	Equipment Served	Proposed Controls	Emission Unit (EU) Number	Control Equipment (CE) Number	Stack Vent (SV) Number
Concentrator					
Conveyor transfer point	Conveyor 4B and 5N (North Transfer Point)	Cartridge	EU-xx	CE-xx	SV-xx
Analytical lab	Analytical lab dust collection	Cartridge	EU-xx	CE-xx	SV-xx
5N tripper car dust collection (new)	5N tripper car	Cartridge	EU-xx	CE-xx	NA
North bin ventilation #1	North fine ore bins	1 of 8 cartridge	EU-xx	CE-xx	SV-xx
North bin ventilation #2	North fine ore bins	1 of 8 cartridge	EU-xx	CE-xx	SV-xx
North bin ventilation #3	North fine ore bins	1 of 8 cartridge	EU-xx	CE-xx	SV-xx
North bin ventilation #4	North fine ore bins	1 of 8 cartridge	EU-xx	CE-xx	SV-xx
North bin ventilation #5	North fine ore bins	1 of 8 cartridge	EU-xx	CE-xx	SV-xx
North bin ventilation #6	North fine ore bins	1 of 8 cartridge	EU-xx	CE-xx	SV-xx
North bin ventilation #7	North fine ore bins	1 of 8 cartridge	EU-xx	CE-xx	SV-xx
North bin ventilation #8	North fine ore bins	1 of 8 cartridge	EU-xx	CE-xx	SV-xx
Bin discharge conveyance section 1	North concentrator lines 1-2; Collection Belt to Transfer Belt; Transfer Belt to SAG Feed Belt	1 of 5 cartridge	EU-xx	CE-xx	SV-xx
Bin discharge conveyance section 2	North concentrator lines 3-5	1 of 5 cartridge	EU-xx	CE-xx	SV-xx

System	Equipment Served	Proposed Controls	Emission Unit (EU) Number	Control Equipment (CE) Number	Stack Vent (SV) Number
Bin discharge conveyance section 3	North concentrator lines 6-8	1 of 5 cartridge	EU-xx	CE-xx	SV-xx
Bin discharge conveyance section 4	North concentrator lines 9-11	1 of 5 cartridge	EU-xx	CE-xx	SV-xx
Bin discharge conveyance section 5	North concentrator lines 12-14	1 of 5 cartridge	EU-xx	CE-xx	SV-xx

The primary control equipment selected for the Beneficiation Plant (baghouses and cartridge filters) will be expected to reduce uncontrolled emissions by greater than 99%. The chosen technology performs comparably to equipment selected as BACT for fine particulates ($PM_{2.5}$) for other recent projects as demonstrated in the Emission Control Technology Review for NorthMet Project Processing Plant; Revised Addendum 1 (Reference (4)).

The Beneficiation Plant emission controls are dry collectors (i.e., water is not added to the exhaust gas) and, with the exception of the Tripper Car Dust Collectors, will use a mechanism to form a slurry from the collected particulates. That slurry will be added into the wet portion of the beneficiation process, which means that all particulates collected will be added back into the process and no solid waste disposal is required. Dust collected by the Tripper Car Dust Collectors will drop into the Fine Ore or Coarse Ore Storage Bins, so no solid waste will be generated by these units either. The bins will have dust collection systems that will capture any dust that becomes airborne.

The baghouse and cartridge media do require periodic replacement. Used bags and cartridges will be disposed of in an appropriate permitted off-site landfill.

3.1.2.2 Hydrometallurgical Plant

There will be two major emission points in the Hydrometallurgical Plant: an Autoclave Scrubber/Final Gas Scrubber Stack and a Plant Scrubber Stack (two stacks total).

Emissions from the Autoclave will be controlled by a venturi scrubber referred to as the Autoclave Scrubber followed by a packed bed scrubber referred to as the Final Gas Scrubber. The Final Gas Scrubber will also control emissions from the Iron and Aluminum Removal Tanks. The emissions from the other processing steps downstream of the Autoclave will be controlled with a separate packed bed scrubber referred to as the Plant Scrubber.

An Oxygen Plant will be constructed to provide pure oxygen to the Autoclave. The only potential direct emission sources associated with this operation are a natural gas fired nitrogen heater used for adsorber reactivation and an indirect contact cooling tower. A natural gas fired boiler will also be needed for Autoclave startup; it will only operate when the Autoclave is starting up. The natural gas fired emission sources in the Hydrometallurgical Plant (heater and boiler) will have inherently low emissions due to the fuel selected. The cooling tower will utilize drift eliminators and control dissolved solids in the cooling water to minimize condensable particulate emissions.

Table 3-2 lists the main emission points at the Hydrometallurgical Plant.

Table 3-2 Hydrometallurgical Plant Emission Controls

System	Equipment Served	Proposed Controls	Emission Unit (EU) Number	Control Equipment (CE) Number	Stack Vent (SV) Number
Autoclave Scrubber	Autoclave, and Associated Flash Vessel	Venturi Scrubber	EU-xx	CE-xx	NA
Final Gas Scrubber	Venturi Scrubber exhaust plus Iron and Aluminum Removal Tanks	Packed Bed Scrubber	EU-xx	CE-xx	SV-xx
Plant Scrubber	Additional processing steps downstream of Autoclave	Packed Bed Scrubber	EU-xx	CE-xx	SV-xx
Autoclave Startup	Autoclave Startup Boiler	Low emitting fuel (natural gas)	NA	NA	NA
Oxygen Plant	Oxygen Plant Regeneration Heater	Low emitting fuel (natural gas)	NA	NA	NA
Oxygen Plant	Cooling Tower	Drift eliminators	EU-xx	CE-xx	SV-xx

3.1.2.3 Concentrate Dewatering/Storage Building

Concentrate will be produced that will be shipped off-site. The concentrate must be dewatered, handled, stored, and loaded into railcars for shipping. The concentrate will be produced as a damp filter cake with target moisture content of 8-10%. Therefore, emissions from handling of this material are expected to be minimal. The concentrate will be stored in an enclosed storage

building prior to shipping. The concentrate will be loaded into covered railcars at an indoor loading station. Based on material moisture content and review of facilities processing similar material, a dedicated dust collection system is not expected to be needed for the concentrate storage and railcar loading operations. However, stacks are included in the Emission Inventory and impact assessments to ensure that worst case conditions are evaluated. In other words, if the material does not have sufficient moisture content to prevent dust from becoming airborne (i.e., there are potential particulate emissions), a capture and exhaust system with dust collection will be installed.

3.1.2.4 Limestone and Other Process Consumables Unloading/Storage/Handling

The dry process consumable with the highest annual usage and the greatest potential for dust generation is limestone. Limestone will be delivered by railcar to an enclosed unloading facility where it will be dumped into a hopper and then transferred by conveyor to an outdoor storage pile. Limestone will be reclaimed from the storage pile and fed to a hopper, which will feed a conveyor that transfers the limestone to a crusher. The crushed limestone will be mixed with water to form a slurry in the Limestone Mix Tank. Baghouses or similar performing control devices will be installed on the railcar unloading system and the Limestone Crusher. Transfer points in the limestone handling system before the Limestone Mix Tank will typically be enclosed, so dusting is expected to be minimal. Downstream of the Limestone Mix Tank, the limestone will be in slurry form and no dusting will occur.

Another dry process consumable that will be used in significant quantities is lime. Lime will be delivered by truck, transferred to a silo, transferred to a conveyor, and then added to the Lime Slaker where it will be mixed with water to form a slurry. Emissions from the Lime Silo will be controlled with a fabric filter or similar performing device. Emissions from the Lime Slaker will be controlled with a wet scrubber.

3.2 Fugitive Sources

Fugitive emission sources at the Plant Site include outdoor limestone handling sources and a storage pile, unpaved roads, wind erosion at the FTB and dust generated from the handling of construction material for the FTB dams and buttresses. Dust may also be generated from the handling of fill material as part of the construction of the East Dam Extension of the Flotation Tailings Basin Containment System and the handling of coal ash during the relocation of the Coal Ash Landfill.

Large Figure 2 shows the location of the modeled wind erosion sources for the erodible FTB beaches along with roads and material handling sources.

A Fugitive Emission Control Plan for the Plant (Attachment A) describes emission control procedures for fugitive sources such as unpaved road watering and minimization of drop heights. The Plan will be updated during the air permitting process.

3.3 Mitigations Included in Project

3.3.1 Class I Visibility

Modeling was performed for the Supplemental Draft Environmental Impact Statement (SDEIS) based on the current Project and modeling guidance. The following mitigations will be implemented due to concerns over potential impacts in Class I Areas:

- Emission control system exhaust will be recycled in the Coarse Crusher, Drive House #1, Fine Crusher, and Concentrator Buildings.
- Additional insulation will be installed in existing Coarse Crusher, Drive House #1, Fine Crusher, and Concentrator Buildings to reduce heating demand and therefore fuel usage and emission.
- Low NO_x natural gas space heaters will be used for the new and existing buildings where natural gas is available.
- Tier 4 compliant construction equipment will be specified for use at the FTB where it is currently available.

Modeling performed for the Supplemental Draft Environmental Impact Statement (SDEIS) indicates that with these mitigation measures the Project will show no adverse impacts in the Class I areas (Reference (5)). The mitigation measures adopted are described further below.

3.3.1.1 Recycling of Emission Control System Exhaust

The recycling of emission control exhaust will reduce the space heating requirements at the Plant Site as it allows for reuse of air that has already been heated. Emissions from space heating are of concern for Class I impacts, so reducing heating demand reduces potential impacts in Class I areas.

The exhaust from the emission controls utilizing cartridge type filtration for the Coarse Crusher, Drive House #1, Fine Crusher, and Concentrator Buildings will be recycled back into the buildings, where practical, reducing the amount of ambient makeup air drawn into the building. Any emission control system exhaust recycled back into a building will pass through a supplemental HEPA filter. Two potential suppliers of HEPA filters have been contacted. Both indicate that these filters are capable of achieving 99.97% efficiency on 0.3 micron particles. Recycling of emission control system exhaust is seasonally dependent for some collectors, while others will discharge back into the building year round.

Table 3-3 lists the emission controls in the Coarse Crusher, Drive House #1, Fine Crusher, and Concentrator Buildings. The “Could Vent Inside” column indicates where emission control exhaust will be recycled. Note that items in the “Equipment Served” column marked with * move within the buildings and did not have emission controls when operated by LTV Steel

Mining Company (LTVSMC). Out of necessity, any emission controls on these items will be vented inside the building via supplemental HEPA filters.

The supplemental HEPA filter system will have a continuous pressure drop monitor that indicates filter performance. If the pressure drop shows that performance is not to specification, an automated audible alarm will sound in the building and if the condition continues for an hour the equipment that is associated with the emission control system will automatically shut down or the recycled exhaust will automatically vent to the stack rather than being recycled.

Table 3-3 Emission Unit Venting in Beneficiation Plant

System	Equipment Served	Proposed Controls	Controls Equipment Must Vent Inside	Control Equipment Could Vent Inside
Coarse Crusher				
North rail dump	North 60” crusher	Upgraded baghouse	No	No
North crushing	North Distribution Box and 36” crushers	Cartridge	No	No
South rail dump	South 60” crusher	Upgraded baghouse	No	No
South crushing	South Distribution Box and 36” crushers	Cartridge	No	No
North pan feeders	North pan feeder aspiration	Cartridge with HEPA	No	Year-round
South pan feeders	South pan feeder aspiration	Cartridge with HEPA	No	Year-round
North pan feeder discharge	North transfer to conveyor 1A	Cartridge with HEPA	No	Year-round
North pan feeder discharge	North transfer to conveyor 1B	Cartridge with HEPA	No	Year-round
South pan feeder discharge	South transfer to conveyor 1A	Cartridge with HEPA	No	Year-round
South pan feeder discharge	South transfer to conveyor 1B	Cartridge with HEPA	No	Year-round

System	Equipment Served	Proposed Controls	Controls Equipment Must Vent Inside	Control Equipment Could Vent Inside
Drive House 1				
Conveyor Transfer Point	Conveyor 1A & 2A	Cartridge with HEPA	No	Heating season only
Conveyor Transfer Point	Conveyor 1B & 2B	Cartridge with HEPA	No	Heating season only
Fine Crusher				
Fine Crusher Bypass	Conveyor Transfer Chute - 2A and 2B to 4B/4A	Cartridge with HEPA	Yes	Year-round
2A tripper car dust collection	2A tripper car*	Cartridge with HEPA	Yes	Year-round
West tripper car discharge bins	West coarse ore bins	Cartridge with HEPA	No	Heating season only
West fine crushers 1 and conveyance	W1 crushing line	Cartridge with HEPA	No	Heating season only
West fine crushers 2 and conveyance	W2 crushing line	Cartridge with HEPA	No	Heating season only
East fine crusher 1 and conveyance	E1 crushing line	Cartridge with HEPA	No	Heating season only
Concentrator				
Conveyor transfer point	Conveyor 4B and 5N (North Transfer Point)	Cartridge	No	No
Analytical lab	Analytical lab dust collection	Cartridge	No	No
5N tripper car dust collection	5N tripper car*	Cartridge with HEPA	Yes	Year-round
North bin ventilation #1	North fine ore bins	1 of 8 cartridge with HEPA	No	Year-round
North bin ventilation #2	North fine ore bins	1 of 8 cartridge with HEPA	No	Year-round

System	Equipment Served	Proposed Controls	Controls Equipment Must Vent Inside	Control Equipment Could Vent Inside
North bin ventilation #3	North fine ore bins	1 of 8 cartridge with HEPA	No	Year-round
North bin ventilation #4	North fine ore bins	1 of 8 cartridge with HEPA	No	Year-round
North bin ventilation #5	North fine ore bins	1 of 8 cartridge with HEPA	No	Year-round
North bin ventilation #6	North fine ore bins	1 of 8 cartridge with HEPA	No	Year-round
North bin ventilation #7	North fine ore bins	1 of 8 cartridge with HEPA	No	Year-round
North bin ventilation #8	North fine ore bins	1 of 8 cartridge with HEPA	No	Year-round
Bin discharge conveyance section 1	North concentrator lines 1-2; Collection Belt to Transfer Belt; Transfer Belt to SAG Feed Belt	1 of 5 cartridge	No	No
Bin discharge conveyance section 2	North concentrator lines 3-5	1 of 5 cartridge	No	No
Bin discharge conveyance section 3	North concentrator lines 6-8	1 of 5 cartridge	No	No
Bin discharge conveyance section 4	North concentrator lines 9-11	1 of 5 cartridge	No	No
Bin discharge conveyance section 5	North concentrator lines 12-14	1 of 5 cartridge	No	No

3.3.1.2 Insulation of Existing Buildings

The design of the heating and ventilation system for the existing buildings will include adding additional insulation to reduce the size of the heaters required and actual fuel usage. This will result in a reduction in combustion pollutants from space heaters.

3.3.1.3 Low NO_x Space Heaters

Space heaters that utilize low NO_x burners will be installed in the existing and new buildings at the Plant Site where natural gas service is available. These buildings include: the Coarse Crusher Building, Drive House #1, the Fine Crusher Building, the Concentrator Building, the Flotation Building, the Reagent Building, the Concentrate Dewatering/Storage Building, the General Shops, the Rebuild Shop, the Main Warehouse, the Spares Warehouse, the Hydrometallurgical Building, and the Heating Plant.

Based on a comparison of the highest emission value obtained from manufacturer's literature for low NO_x space heaters to U.S. Environmental Protection Agency (USEPA) emission factors for standard burners, the percent reduction for the low NO_x burners is 68%. A reduction of 50% was used in the Plant Site modeling to allow flexibility in burner selection.

3.3.1.4 Tier 4 Construction Equipment

The modeling assumed that Tier 4 off-road trucks will be used for FTB construction along with a track dozer that meets interim Tier 4 standards. This equipment results in over 90% of the projected fuel consumption for FTB construction activities during the worst case year.

3.3.2 Mercury

New or modified sources of mercury must meet the requirements of the statewide mercury Total Maximum Daily Load (TMDL) if emissions are greater than three pounds per year. The initial emission inventory submitted for the Project showed mercury emissions below three pounds per year. However, when the calculations were modified to reflect a more conservative assessment of the available data, as requested by the Minnesota Pollution Control Agency (MPCA) (the air permitting authority for the Project) emissions were over three pounds per year. Therefore, it is assumed that the TMDL requirements for new or modified sources may have to be addressed for the Project. Stack tests will ultimately be used to assess the actual mercury emissions which will determine if the TMDL requirements apply.

Reference (6) identifies six mercury reduction plan elements that new or modified sources must consider. These are summarized in Table 3-4 along with an indication of how each step has been or will be addressed. MPCA has reviewed the NorthMet Project Proposed Action mercury emissions and has determined that the Proposed Action will not impede the reduction goals (Reference (7)). Therefore, no mercury minimization and mitigation plan will be required for the NorthMet Project Proposed Action.

Table 3-4 Mercury Plan Elements

Recommended Elements	How Addressed
Employ best mercury control available.	Version 2 of the Mercury Emission Control Technology Review for NorthMet Project Processing Plant was submitted in February of 2012 (Reference (8)) and subsequently approved by the reviewing agencies.
Complete environmental review.	A work plan for the assessment of local and cumulative impacts due to mercury air emissions has been submitted and approved. This evaluation is included in Reference (9).
Provide an assessment of whether the facility's additional emissions will impede progress in attaining TMDL goals.	This topic has been covered in a draft Mercury Equivalent Reduction Work Plan (Reference (10)) and has been reviewed by MPCA (Reference xx).
Arrange for a reduction from existing MN mercury air emission sources equal to the new actual emissions ("equivalent reductions").	Equivalent reductions are not required for the Project because of the MPCA determination that the Project will not impede the reduction goals.
If equivalent mercury air emissions cannot be identified, propose alternative mitigation strategies that demonstrate an environmental benefit related to mercury and are consistent with the TMDL objectives.	Not applicable
During permitting, submit a plan to MPCA describing the facility's specific plan for reductions.	Not applicable

4.0 Air Quality Modeling Outcomes

Air quality modeling is described and results presented in Reference (9). The following Sections summarize those results.

4.1 Class II – Modeling

Modeling demonstrated that the Project will not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS) or Minnesota Ambient Air Quality Standards (MAAQS) for PM_{10}, $PM_{2.5,}$ SO_2 and NO_2. A Class II increment evaluation was also conducted for PM_{10}, $SO_{2,}$ and NO_2, which showed that the project and nearby sources do not consume all of the available increment.

4.2 Class I - Modeling

The Plant Site was modeled along with the Mine Site to assess impacts in the nearby Class I Areas: the Boundary Waters Canoe Area Wilderness, Voyageurs National Park, Isle Royale National Park and the Rainbow Lake Wilderness Area. Class I increment consumption as well as the applicable Air Quality Related Values were evaluated at each Class I area. The modeling showed that the Project will cause no adverse impacts in the Class I areas.

4.3 Air Emissions Risk Analysis

An Air Emission Risk Analysis was conducted for the Plant Site. Inhalation based, acute, chronic non-cancer and chronic cancer risk was evaluated at the Plant Site boundary for an off-site worker. Multi-pathway risk for resident and farmer receptors was evaluated at the former LTVSMC boundary (nearest location where farms or residences could be located). The fish consumption pathway was also evaluated for Project mercury emissions for both recreational and subsistence fishers. Human health based risk was shown to meet guideline values.

4.4 Cumulative Mercury Deposition Modeling

Cumulative mercury deposition was evaluated for the Project and Mesabi Nugget. The cumulative mercury deposition effects on the concentration of mercury in the fish in the lakes evaluated was shown to be very small and not statistically significant compared to background levels.

5.0 Operating Plan

This section describes operating and maintenance procedures that will be implemented at the Plant Site to ensure that emissions are well controlled for both point and fugitive sources.

The subsections below provide a reasonable initial proposal for operating and maintenance requirements, based on knowledge of applicable regulations and professional experience and judgment. The final operating and maintenance requirements will be agreed upon between PolyMet and MPCA, the permitting authority, during the permitting process and include public comment where applicable.

5.1 Point Sources

5.1.1 Beneficiation Plant Sources (EU-xx through EU-xx)

The Control Equipment in the Beneficiation Plant will consist of baghouses and cartridge filter type emission controls (see Table 3-1 for details) collectively referred to below as fabric filters (CE-xx through CE-xx).

5.1.1.1 Operating

The Beneficiation Plant Fabric Filters must be operating correctly before ore is fed to the associated emission sources.

5.1.1.2 Maintenance

The following maintenance procedures will be implemented for the Beneficiation Plant Fabric Filters:

- Inspect monthly or as required by manufacturer specifications all components that are subject to wear or plugging for example: bearings, belts, fans, and ducts. Record the findings from the inspection and any corrective action resulting from the inspection.

- Inspect quarterly or as required by manufacturer specifications all components that are not subject to wear or plugging including structural components, housings and ducts. Record the findings from the inspection and any corrective action resulting from the inspection.

- Calibrate the pressure gauge(s) annually or as often as required by manufacturer specifications and record the calibrations and any corrective action resulting from the calibration.

- Corrective action will be taken as soon as possible if any of the following occur:

    - Parametric Monitoring (Section 6.4.1) indicates that a Beneficiation Plant Fabric Filter is not performing as designed.

- A Beneficiation Plant Fabric Filter or any of its components are found during the inspections to need repair.

The corrective action will consist of initiating a Maintenance Work Order or similar to repair the Beneficiation Plant Fabric Filter. A record of the maintenance performed on the fabric filter will be kept.

5.1.2 Hydrometallurgical Plant Sources and Lime Slaker (EU-xx, EU-xx, EU-xx, and EU-xx)

The control equipment in the Hydrometallurgical Plant (Autoclave and Hydrometallurgical Process Tanks) and on the Lime Slaker will consist of wet scrubbers (CE-xx, CE-xx, CE-xx and CE-xx).

5.1.2.1 Operating

The scrubbers must be operating correctly before feed material is routed to the associated emission sources.

5.1.2.2 Maintenance

The following maintenance procedures will be implemented for the scrubbers:

- Inspect quarterly or as required by manufacturing specifications all components that are not subject to wear or plugging including structural components, housings, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.

- Inspect monthly or as required by manufacturing specifications all components that are subject to wear or plugging for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts. Maintain a written record of the inspection and any action resulting from the inspection.

- Calibrate the pressure gauges and liquid flow meters annually or as often as required by manufacturer's specifications and maintain a written record of the calibration and any action resulting from the calibration.

- If applicable, (Plant Scrubber only if caustic is added) calibrate the pH meter annually or as often as required by manufacturer's specifications and maintain a written record of the calibration and any action resulting from the calibration.

- Corrective action will be taken as soon as possible if any of the following occur:

    - Parametric Monitoring (Sections 6.4.2, 6.4.3, and 6.4.4) indicates that a Hydrometallurgical Plant Scrubber is not performing as designed.

- A Hydrometallurgical Plant Scrubber or any of its components are found during the inspections to need repair.

The corrective action will consist of initiating a Maintenance Work Order or similar to repair the scrubber. A record of the maintenance performed on the scrubber will be kept.

5.1.3 Process Consumable Sources with Fabric Filters (EU-xx through EU-xx)

Emission sources related to process consumable handling, processing or storage requiring add-on control equipment that will not have exhaust streams saturated with water vapor will utilize fabric filters (baghouses or cartridge type emission controls) (CE-xx through CE-xx). These sources include the Flocculant Silos, Xanthate Collector Mix Tank, Lime Silo, Limestone Railcar Dump and the Limestone Crusher.

5.1.3.1 Operating

The process consumable source fabric filters must be operating correctly before feed material is routed to the associated emission sources.

5.1.3.2 Maintenance

The following maintenance procedures will be implemented for the process consumable source fabric filters:

- Inspect quarterly or as required by manufacturing specifications all components that are not subject to wear or plugging including structural components, housings, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.

- Inspect monthly or as required by manufacturing specifications all components that are subject to wear or plugging for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts. Maintain a written record of the inspection and any action resulting from the inspection.

- If applicable, calibrate the pressure gauge(s) annually or as often as required by manufacturer specifications and record the calibrations and any corrective action resulting from the calibration.

- Corrective action will be taken as soon as possible if any of the following occur:

    - Parametric Monitoring (Section 6.4.5) indicates that a process consumable source fabric filter is not performing as designed.

    - A process consumable source fabric filter or any of its components are found during the inspections to need repair.

The corrective action will consist of initiating a Maintenance Work Order or similar to repair the process consumable source fabric filter. A record of the maintenance performed on the fabric filter will be kept.

5.1.4 Oxygen Plant Cooling Tower (EU-xx)

The Oxygen Plant Cooling Tower will use drift eliminators to reduce condensable particulate emissions.

5.1.4.1 Operating

The drift eliminators must be in place before water is recirculated in the cooling tower and the fans are turned on.

5.1.4.2 Maintenance

The following maintenance procedures will be implemented for the drift eliminators:

- Inspect drift eliminators once per calendar month. Maintain a written record of the inspection and any action resulting from the inspection.
- Corrective action will be taken as soon as possible if a drift eliminator or any of its components are found during the inspections to need repair.

The corrective action will consist of initiating a Maintenance Work Order or similar to repair the drift eliminator. A record of the maintenance performed on the drift eliminator will be kept.

5.2 Fugitive Sources

Emissions from fugitive sources will be controlled through the implementation of the Plant Site Fugitive Emissions Control (FEC) Plan included as Attachment A. The final Plant Site FEC Plan will be agreed upon between PolyMet and MPCA during the permitting process and include public comment where applicable. The following is a brief summary of pollution control measures that will be undertaken:

- minimization of drop distances and use of other engineering controls
- watering of unpaved access and haul roads
- use of water sprays, if needed, to control dust from limestone handling sources
- minimization of erodible surface area through proper design, seeding, mulching and application of dust suppressants at the FTB
- natural moisture content and water application to minimize dust generation from handling of LTVSMC tailings, fill material and excavated coal ash

6.0 Monitoring

Monitoring will be conducted to verify compliance with the air emission permit. Specific monitoring requirements are dictated by applicable federal and state air quality rules, proposed synthetic minor limits and the proposed Plant Site Fugitive Emission Control Plan (Attachment A), along with any other requirements anticipated in the permit.

The subsections below provide a reasonable initial proposal for monitoring requirements, based on knowledge of applicable regulations and professional experience and judgment. The final operating and maintenance requirements will be agreed upon between PolyMet and MPCA, during the permitting process and include public comment where applicable.

6.1 Point Source Tons Processed or Operating Hours

PolyMet proposes to track emission source operating rates as shown in Table 6-1.

Table 6-1 Process Recordkeeping

Emission Units	Parameter	Frequency
All Crushing Plant Sources	Operating Hours	Daily
Primary Crusher Railcar Unloading	Quantity of ore unloaded	Daily
Autoclave	Fresh Solids Feed Rate	Daily
Limestone Railcar Unloading	Tons unloaded	Daily
Limestone Reclaim	Calculate total quantity of limestone loaded into reclaim chute based on slurry tank level downstream of the grinding operation	Daily
Sulfuric Acid Tank	Total loaded into tank	Daily
Hydrochloric Acid Tank	Total loaded into tank	Monthly
Lime Silo	Lime transferred to silo	Daily
Lime Slaker	Lime transferred to slaker	Daily
Limestone Crusher	Operating hours and quantity crushed	Daily
Concentrate Storage Areas (if dedicated ventilation needed)	Operating hours	Daily
Railcar Loading (if dedicated ventilation required)	Operating hours	Daily
Flocculent and CMC usage	Tons used	Monthly

6.2 Boiler/Heater/Stationary Engine Fuel Usage

PolyMet proposes that natural gas usage will be totaled each month based on fuel meters. The natural gas fired emission units are all similar enough that separate totals for individual emission units or groups of units are not necessary unless required by another regulation. The Autoclave Startup Boiler, for example, may require a separate natural gas usage total as it may be subject to 40 CFR Part 60 Subpart Dc. Also, the natural gas usage in the space heaters or building totals may be tracked separately to account for the use of low NOx burners in the heaters.

PolyMet proposes that monthly deliveries of propane to the Plant Site will be recorded based on vendor invoices and used to calculate emissions. Propane deliveries will be totaled for each month and emissions calculations will rely on published emission factors. Sight glasses or similar tank level indicators or fuel meters to measure actual propane consumption may be installed if tracking deliveries is not believed to produce accurate results.

PolyMet proposes that generator emission calculations will rely on operating hour information to calculate total fuel use. Monthly operating hours for the two existing backup generators, the Fire Pumps and the Waste Water Treatment Plant Generator will be recorded. Fuel use will be calculated assuming the engines operate at full capacity for all hours operated unless the operating capacity levels are recorded by an engine monitoring system. Emission will be calculated using published emission factors and/or manufacturer's data and certified emission rates.

PolyMet proposes that diesel fuel sulfur content for each delivery of fuel to be burned in the stationary engines will be recorded. The sulfur content will be used to show compliance with any applicable emission limits and to calculate monthly SO_x emissions for annual emission inventory purposes.

6.3 Stack Tests

Proposed stack testing is included with periodic monitoring described in Section 6.4.

6.4 Compliance Assurance Monitoring/Periodic Monitoring System

The sections below describe proposed monitoring for the various types of process equipment.

6.4.1 Crushing Plant

Large Table 1 summarizes proposed monitoring for the Crushing Plant.

6.4.2 Autoclaves

The Autoclave has an Autoclave Vent and Autoclave Flash Vessel vent that are routed to the Autoclave Scrubber which is a venturi scrubber. The Autoclave Scrubber outlet is routed to the Final Gas Scrubber which is a packed bed scrubber. The Iron and Aluminum Removal Tanks are also vented to the Final Gas Scrubber. There are no applicable New Source Performance

Standards (NSPS) or source-specific Minnesota standards of performance that apply to this process. Table 6-2 summarizes the proposed monitoring for the autoclave scrubbers.

Table 6-2 Proposed Monitoring for Autoclave Scrubbers

Scrubber Type	Control Equipment	NSPS Applies	CAM Applies	Proposed Stack Testing	Proposed Monitoring
Autoclave Scrubber	Venturi Scrubber	No	At permit renewal	Once at startup and once every five years; see below for pollutants	Continuous for pressure drop and scrubber liquid flow rate
Final Gas Scrubber	Wet Scrubber (packed bed)	No	At permit renewal	Once at startup and once every five years; see below for pollutants	Continuous for pressure drop and scrubber liquid flow rate

PolyMet proposes that the initial performance testing on the autoclave will be conducted for $PM/PM_{10}/PM_{2.5}$, HAP metals[1], sulfuric acid mist, SO_2, HCl/HF, total fluorides, VOC, CO, and reduced sulfur compounds. Due to the high projected moisture content of the stack gas, special consideration will have to be made when selecting stack test methods. The appropriate stack test methods will be agreed upon through the stack test approval process with the MPCA. Stack testing for some pollutants may not be technically feasible. Only the emission point for the Final Gas Scrubber will be tested. Based on the results of the initial performance test, PolyMet will propose the appropriate list of pollutants for the test after permit renewal. Pollutants found to be emitted at insignificant levels will be considered for removal from the stack test program.

PolyMet proposes that the appropriate operating range for the parameters will be determined during the stack test with consideration of manufacturer's recommendations.

6.4.3 Hydrometallurgical Processes

There is one additional pollution control device that controls emissions from the hydrometallurgical processes: the Plant Scrubber. No NSPS or Minnesota source-specific standards apply to the hydrometallurgical processes. The proposed monitoring for the scrubber is presented in Table 6-3.

[1] Antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, phosphorus and selenium.

Table 6-3 Proposed Monitoring for Hydrometallurgical Process Scrubber

Scrubber	Control Equipment	NSPS Applies	CAM Applies	Proposed Stack Testing	Proposed Monitoring
Plant Scrubber	Packed Bed Scrubber	No	At permit renewal	Once at startup and once every five years for sulfuric acid mist, SO_2, and reduced sulfur compounds	Continuous for pressure drop and scrubber liquid flow rate; daily for scrubber liquid pH

PolyMet proposes to test the Plant Scrubber for sulfuric acid mist and sulfur dioxide, most likely using Method 8. Reduced sulfur compound testing may be conducted with USEPA Method 16A for total reduced sulfur (40 CFR Part 60) or a method that collects gas samples in Tedlar bags or SUMMA canisters. Final test procedures will be agreed upon through the stack test plan approval process.

PolyMet proposes that the appropriate operating range for the parameters will be determined during the stack test with consideration of manufacturer's recommendations.

6.4.4 Integration with Plant Control System

The monitoring equipment described in Sections 6.4.1, 6.4.2, and 6.4.3 will also be connected to the plant control system and alarms will be generated if monitored parameters go outside their specified ranges.

Deviations from the operating parameter range will be logged along with the corrective action taken. PolyMet proposes that the following steps will be taken if a deviation from the control equipment parameters occurs:

- Maintenance personnel will confirm if monitoring equipment is working properly.
- Control equipment operation will be evaluated based on visual inspection of equipment, processing area and stack emissions.
- If control equipment is not operating properly, repairs will be made. A decision will be made on the need to shut down the process equipment associated with the control equipment based on the nature of the problem and the impact on indoor air quality and emissions.
- Records will be kept of all deviations and corrective actions taken.

- Notification to MPCA will be made if required by Minnesota Rules, part 7019.1000, subpart 1, 2 or 3.

6.4.5 Process Consumable Sources

There are several process consumable sources included at the Plant Site that vary widely in both the materials handled and throughput rates. This monitoring plan focuses on the sources with pollution control equipment and the sources with high throughput rates. Table 6-4 presents proposed monitoring for all control equipment associated with process consumable sources.

Table 6-4 Proposed Monitoring for Material Handling Sources with Pollution Control Equipment and Cooling Tower

Control Device Type	Control Equipment	NSPS Applies	CAM Applies	Proposed Stack Testing	Proposed Monitoring
Flocculant silo filters	Fabric filter or equivalent	No	No	None	Daily visual inspection of filter
Xanthate Collector Mix Tank Baghouse	Baghouse	No	No	Once for CS_2; future testing schedule proposed based on test results; test method proposed in test plan	Daily recording of baghouse pressure drop
Lime Silo Filter	Fabric filter or equivalent	No	No	None (emissions < 1 tpy w/ control; emissions only occur during silo filling)	Record pressure drop on days when silo is filled
Lime Slaker Scrubber	Wet scrubber	No	No	None (controlled emissions < 1tpy)	Record scrubber liquid flow rate and pressure drop daily

Control Device Type	Control Equipment	NSPS Applies	CAM Applies	Proposed Stack Testing	Proposed Monitoring
Limestone Railcar Dump Baghouse	Baghouse	No (railcar unloading not an affected source per Subpart OOO)	At permit renewal	Once for PM/PM_{10}/$PM_{2.5}$	Record baghouse pressure drop once per operating day
Limestone Crusher Baghouse	Baghouse	Yes	No	Once for PM/PM_{10}/$PM_{2.5}$	Record baghouse pressure drop once per operating day
Oxygen Plant Cooling Tower	Drift Eliminators	No	No	None	Monthly inspection of drift eliminator and determination of TDS content of recirculating water

PolyMet proposes that the flocculant silo filters will be inspected daily for tears, holes, or other signs of wear. The filters will also be checked for proper installation and alignment if applicable and checked for saturation. Filters not in suitable condition will be promptly repaired or replaced as recommended by the manufacturer.

PolyMet proposes that the Potassium amyl xanthate PAX Mix Tank Baghouse and the Lime Silo Filter pressure drop will be maintained within the manufacturer's recommended pressure drop.

PolyMet proposes that the Lime Slaker scrubber pressure drop and water flow rate will also be maintained within the manufacturer's recommended range.

PolyMet proposes that the appropriate pressure drop for the limestone railcar dump baghouse and the Limestone Crusher baghouse will be determined during the stack test. The stack test data along with the manufacturer's recommendations will be used to determine the appropriate operating range. PM, PM_{10}, and $PM_{2.5}$ emissions will be determined with Method 5 (40 CFR Part 60 Appendix A) and PM_{10}, $PM_{2.5}$ emission will either be determined by the Method 5 test with a Method 202 determination of condensable particulate matter (assuming all PM is PM_{10} and $PM_{2.5}$) or with other approved methods.

PolyMet proposes that records will be kept of the daily visual inspections and the daily control equipment parameter readings shown in Table 6-4. Deviations from the operating parameter

range will be logged along with the corrective action taken. The following steps will be taken if a deviation from the control equipment parameters occurs:

- Maintenance personnel will confirm if monitoring equipment is working properly.
- Control equipment operation will be evaluated based on visual inspection of equipment, processing area and stack emissions.
- If control equipment is not operating properly, repairs will be made. A decision will be made on the need to shut down the process equipment associated with the control equipment based on the nature of the problem and the impact on indoor air quality and emissions.
- Records will be kept of all deviations and corrective actions taken.
- Notification to MPCA will be made if required by Minnesota Rules, part 7019.1000, subpart 1, 2, or 3.

PolyMet proposes that a daily observation will be made of the limestone handling equipment not routed to a stack or vent to determine if excess dust is being generated. Records will be kept of the observations as well as the corrective action taken to address the dusty conditions. The performance test required by 40 CFR Part 60 Subpart 000 will be completed for all affected conveyor belt transfer points and storage bins. The exact points where a compliance demonstration is required until the final design is complete. Fugitive emissions from conveyor transfer points are limited to 10% opacity with compliance demonstrated with USEPA Method 9 (40 CFR Part 60 Appendix A). Compliance for affected sources located within a building can be demonstrated either by: meeting the limits for the individual units, whether vented to a stack or not; or by having no visible emissions other than through vents which meet the 0.022 gr/dscf and 7% opacity limits. USEPA Methods 5, 9 or 22 (40 CFR Part 60 Appendix A) are used as appropriate (Method 5 for PM gr/dscf limits, Method 9 for opacity limits and Method 22 for no visible emission limits). The final sources requiring testing and the appropriate test methods will be confirmed though the permitting and stack test approval processes.

The remaining solid material handling sources are insignificant in nature and PolyMet is not proposing any monitoring for these sources, other than keeping track of changes made to the design before permit issuance and the equipment configuration after construction to determine if any changes to the permit application or permit as appropriate is required and to address any necessary changes to the monitoring plan.

PolyMet proposes that records will also be kept of the contents of each tank and emissions will be reevaluated when any significant change in tank content occurs.

PolyMet proposes that records of the cooling tower drift eliminator inspections and total dissolved solids (TDS) concentrations will be kept.

6.5 Material Handling Tons and Rates for Fugitive Emissions

PolyMet proposes that quantities of LTVSMC tailings and other borrow materials used for FTB construction will be recorded monthly, along with the quantity of materials excavated and relocated from the former LTVSMC Coal Ash Landfill if applicable.

PolyMet propose that the quantity of liquid sulfur dioxide loaded into the storage tank will be recorded each time the tank is filled.

PolyMet proposes that recordkeeping described above for limestone point sources will be used to calculate annual emissions from Limestone fugitive sources.

6.6 Mobile Equipment

PolyMet proposes that vehicle miles traveled (VMT) for the haul trucks used for FTB construction will be recorded monthly. VMT for other PolyMet owned vehicles will be recorded monthly based on odometer readings. Additional requirements may be adopted per Attachment A, in which case this management plan will be updated.

6.7 Ambient Air Monitoring

Ambient monitoring has not been proposed to date at the Plant Site. This section will be updated in the future if ambient monitoring is proposed as part of Attachment A or for other reasons.

6.8 Other Monitoring

Additional monitoring is proposed in Attachment A including the following:

- The rate of water application to the FTB Construction Haul Roads and the total quantity of water applied in a 24-hr period will be recorded.
- The application of any chemical dust suppressants will be recorded.
- Any dusty conditions observed by equipment operators and other personnel will be recorded.
- Once per day during daylight hours a trained Visible Emission evaluator will make observations of the presence or absence of fugitive dust on each active FTB road with construction traffic. These observations will be recorded on a Fugitive Emission Observation Form.

7.0 Reporting and Adaptive Management

One time and periodic reporting will be required by the air emission permit. Specific reporting requirements are dictated by applicable federal and state air quality rules, Attachment A, and any other requirements anticipated in the permit.

The subsections below provide a reasonable initial proposal for reporting requirements, based on knowledge of applicable regulations and professional experience and judgment. The final operating and maintenance requirements will be agreed upon between PolyMet and MPCA, during the permitting process and include public comment where applicable.

7.1 General Reporting Requirements

This section lists reporting requirements that are included in all or nearly all Title V/Part 70 operating permits. These requirements include the following:

- reporting shutdowns, breakdowns and malfunctions as required by Minnesota Rules
- immediate reporting of deviations (when required by rule)
- completing semi-annual deviation reports
- completing annual compliance certifications
- completing notifications and reports required under NSPS and National Emission Standards for Hazardous Air Pollutants standards
- submitting stack test reports

7.2 Additional Reporting

Additional reporting requirements may include proposed revisions to FEC Plan.

7.3 Available Mitigations

Additional mitigations are available if necessary to achieve compliance, including the following:

- The Operating and Maintenance Plan for pollution control equipment can be revised.
- The FEC Plan can be revised.

Revision History

Date	Version	Description
08/03/2010	1	Initial release to provide requested information
10/04/2010	2	Internal version to update format
11/04/2010	3	Updated format for consistency with other plans, added Cooling Tower inadvertently left out of Version 1, moved mitigations from Section 5 to Section 2 and moved Mine Site mitigations to the Air Management Plan - Mine. Also incorporated more detailed information on worst case modeling inputs at the request of the Air Quality Work Group.
12/01/2010	4	Moved worst case modeling information to Air Data Package and added Attachment A (previously identified as Reference (2)).
11/30/2011	5	Updates to reflect current proposed project and additional information added on monitoring and mitigation for use in SDEIS preparation.
12/21/2012	6	Updates to reflect current project description. Addition of Section 4.0 Operating Plan.
12/05/2014	7	Updated to reflect changes to the Project Description for the FEIS, address comments received on the previous version and other minor changes.

List of References

1. **Barr Engineering Co.** Plant Site Air Emission Inventory; FEIS version 2.0. December 2 2014.

2. —. Mine Site Air Emission Inventory; SDEIS version 10.0. October 27, 2012.

3. **Poly Met Mining Inc.** NorthMet Project Project Description (v8). December 2014.

4. **Barr Engineering Company.** Emission Control Technology Review for NorthMet Project Processing Plant; Revised Addendum 1. February 2012.

5. —. Class I Area Air Dispersion Modeling (v2). May 2012.

6. **Minnesota Pollution Control Agency.** Guidelines for New and Modified Mercury Air Emission Sources. September 2009.

7. —. MPCA Determination Regarding PolyMet's Impact on the Reduction Goals within the Mercury TMDL Implementation Plan. March 2013.

8. **Barr Engineering Company.** Mercury Emission Control Technology Review for NorthMet Project Processing Plant (v2). February 2012.

9. **Poly Met Mining Inc.** NorthMet Project Air Data Package (v5). December 2014.

10. —. NorthMet Project Mercury Equivalent Reduction Work Plan (v2). January 2012.

List of Tables

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Large Tables

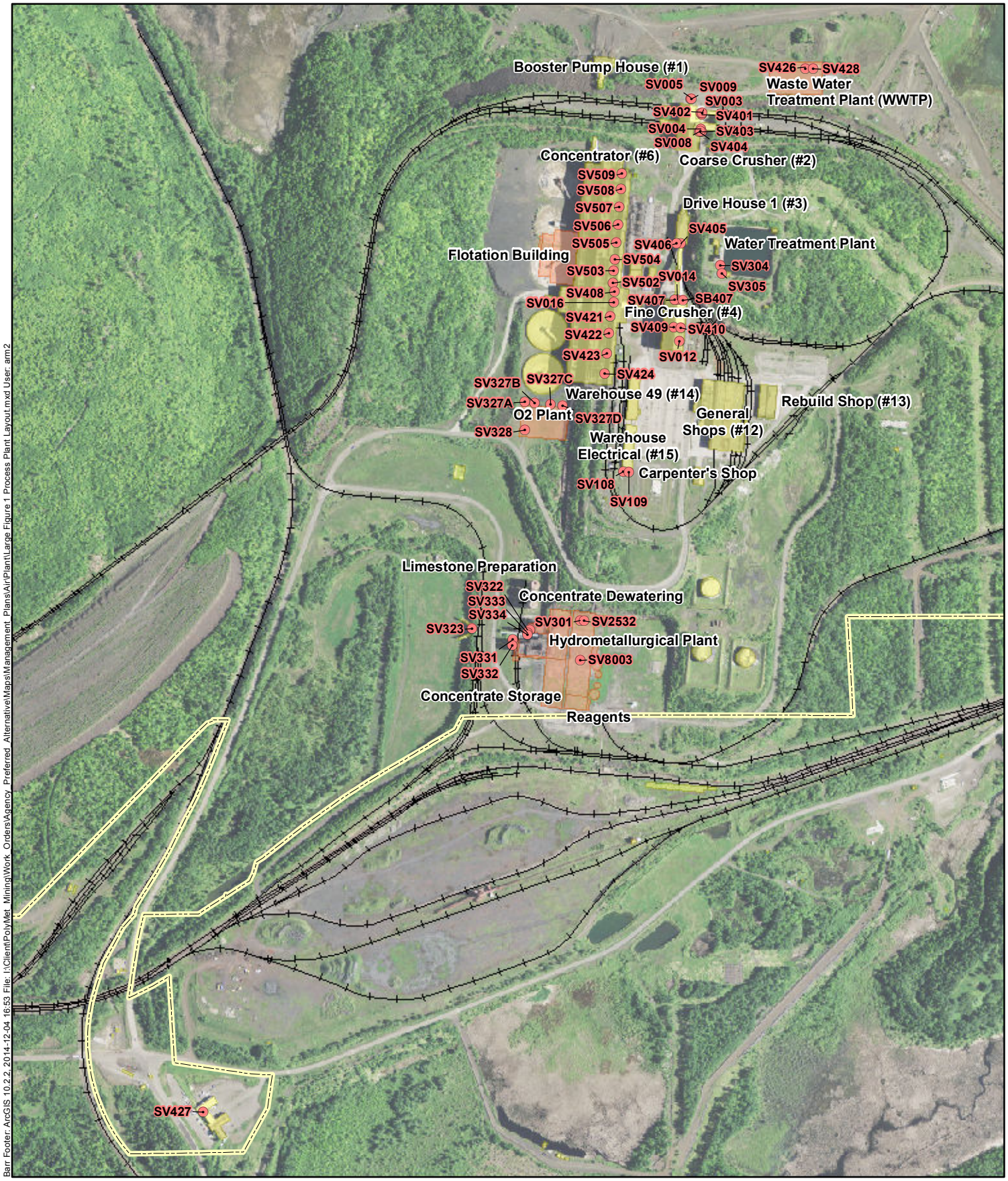
Large Table 1 Proposed Monitoring for Crushing Plant and Concentrate

Source Type	Control Equipment	NSPS Applies	CAM Applies	Proposed Stack Testing	Proposed Monitoring
60” Crushers	Baghouses	Only if modified or reconstructed	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; retest one unit at permit renewal (five years)	Continuous for pressure drop; filter media leak detection system
Distribution Boxes and 36” crushers & feeder & conveyor transfer	Cartridge Filters	Only if modified or reconstructed	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one of two at renewal (five years)	Continuous for pressure drop; filter media leak detection system
North and South Pan Feeders, North and South Pan Feeder Discharge to Conveyors 1A and 1B	Cartridge Filters with HEPA for indoor venting	Only if modified or reconstructed	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one of two pan feeders and one of two pan feeder discharges at renewal (five years)	Separate continuous readings for pressure drop for cartridge filter and HEPA when venting indoors; filter media leak detection system. Audible alarm on HEPA monitor
Drive House Transfer Points	Cartridge Filters with HEPA for indoor venting	Only if modified or reconstructed	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one of two at renewal (five years)	Separate continuous readings for pressure drop for cartridge filter and HEPA when venting indoors; filter media leak detection system. Audible alarm on HEPA monitor
Fine Crusher Bypass Transfer Points	Cartridge Filters with HEPA for indoor venting	Yes	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one of two at renewal (five years)	Separate continuous readings for pressure drop for cartridge filter and HEPA when venting indoors; filter media leak detection system. Audible alarm on HEPA monitor

Source Type	Control Equipment	NSPS Applies	CAM Applies	Proposed Stack Testing	Proposed Monitoring
Coarse Ore Storage	Cartridge Filters with HEPA for indoor venting	Only if modified or reconstructed	No	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one of two at renewal (five years)	Separate continuous readings for pressure drop for cartridge filter and HEPA when venting indoors; filter media leak detection system; audible alarm on HEPA monitor
2A Tripper Cars	Cartridge Filters plus HEPA (always vents indoors)	Only if modified or reconstructed	No	For PM/PM_{10}/$PM_{2.5}$ once after startup, test one of two at renewal (five years); Modification to standard testing procedures may be required for these sources.	Separate continuous readings for pressure drop for cartridge filter and HEPA; filter media leak detection system. Audible alarm on HEPA monitor
Fine Crushers	Cartridge Filters with HEPA for indoor venting	Only if modified or reconstructed	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one crusher at renewal (five years)	Separate continuous readings for pressure drop for cartridge filter and HEPA when venting indoors; filter media leak detection system. Audible alarm on HEPA monitor
North and South Transfer Points	Cartridge Filters with HEPA for indoor venting	Only if modified or reconstructed	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one transfer point at renewal (five years)	Separate continuous readings for pressure drop for cartridge filter and HEPA when venting indoors; filter media leak detection system; audible alarm on HEPA monitor

Source Type	Control Equipment	NSPS Applies	CAM Applies	Proposed Stack Testing	Proposed Monitoring
Tripper Cars 5N and 5S	Cartridge Filters plus HEPA (always vents indoors)	Only if modified or reconstructed	No	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one of two at renewal (five years); modification to standard test procedures may be required for these sources	Separate continuous readings for pressure drop for cartridge filter and HEPA; filter media leak detection system; audible alarm on HEPA monitor
Fine ore storage bin vents	Cartridge Filters plus HEPA (always vents indoors)	Only if modified or reconstructed	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; test one of eight at renewal (five years)	Separate continuous readings for pressure drop for cartridge filter and HEPA, filter media leak detection system; audible alarm on HEPA monitor
Fine ore feeders	Cartridge Filters	Only if modified or reconstructed	At permit renewal	For PM/PM_{10}/$PM_{2.5}$ once after startup; retest one unit at permit renewal (five years)	Continuous for pressure drop; filter media leak detection system
Transfer Points from Fine ore feeders to SAG Mill Conveyor	Cartridge Filters	Yes	No	For PM/PM_{10}/$PM_{2.5}$ once after startup; retest one unit at permit renewal (five years)	Continuous for pressure drop; filter media leak detection system
Concentrate Silo Bin Vents	Fabric filter or equivalent (if dedicated ventilation needed)	Yes	No	Once for PM	Record pressure drop once per operating day
Concentrate Railcar Loading	Fabric filter or equivalent (if dedicated ventilation needed)	Yes	No	Once for PM	Record pressure drop once per operating day

Large Figures



Barr Footer: ArcGIS 10.2.2, 2014-12-04 16:53 File: I:\Client\PolyMet_Mining\Work_Orders\Agency_Preferred_Alternative\Maps\Management_Plans\Air\Plant\Large Figure 1 Process Plant Layout.mxd User: arm2

Point Sources

Ambient Air Boundary

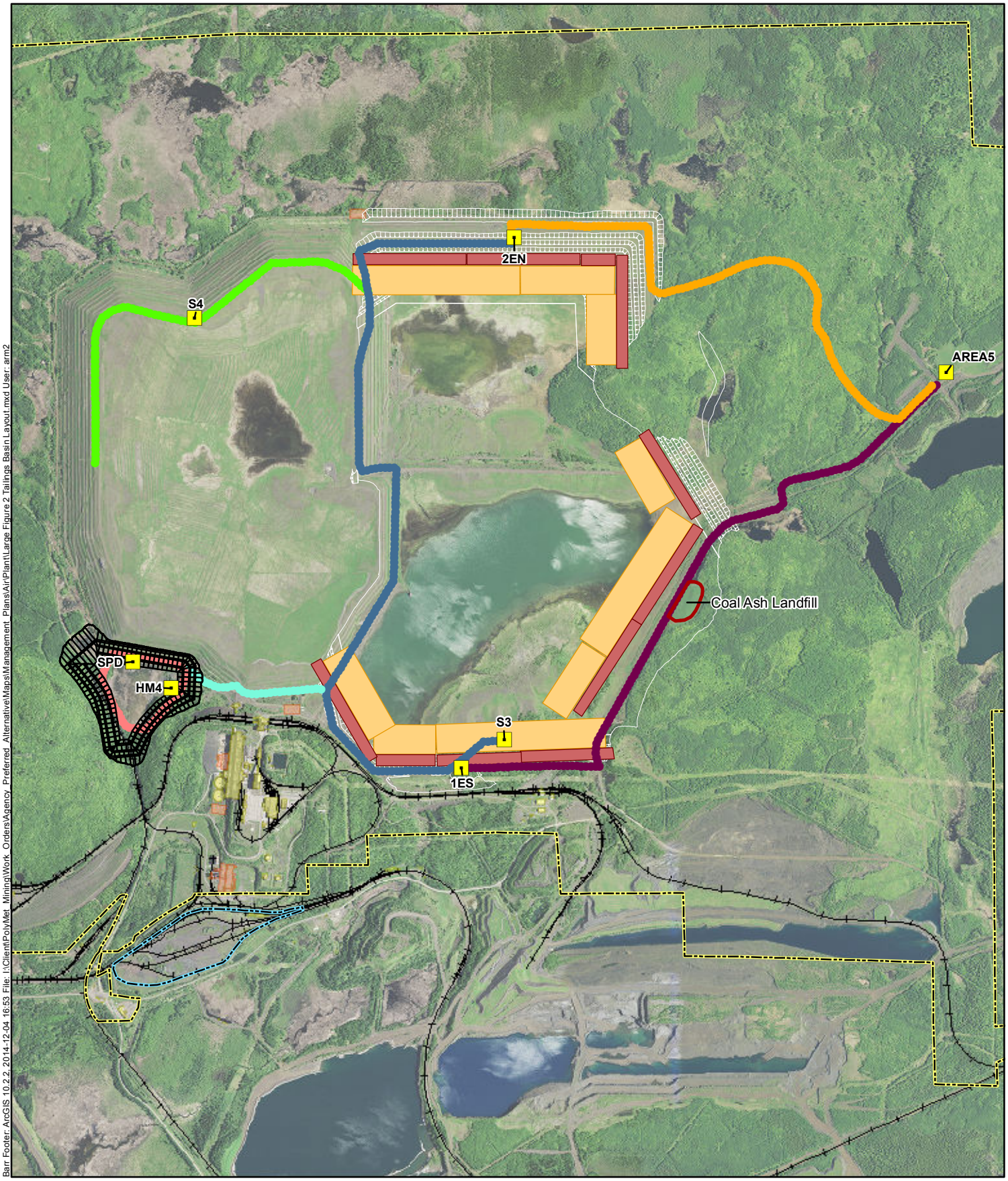
Existing Buildings

New Buildings

0 300 600 1,200

Feet

Large Figure 1
PROCESS PLANT LAYOUT
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, Minnesota



Barr Footer: ArcGIS 10.2.2, 2014-12-04 16:53 File: I:\Client\PolyMet_Mining\Work_Orders\Agency_Preferred_Alternative\Maps\Management_Plans\Air\Plant\Large Figure 2 Tailings Basin Layout.mxd User: arm2

- Tailings Handling
- LTV Coarse
- PMET Bulk
- Ambient Air Boundary
- Cliffs Erie Pellet Yard
- Existing Buildings
- New Buildings
- HydroMet Cell Road
- Tailings Haul Road I
- Tailings Haul Road J
- Tailings Haul Road N
- Tailings Haul Road W
- Tailings WWTP Road

N

0 1,250 2,500 5,000

Feet

Large Figure 2
TAILINGS BASIN LAYOUT
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, Minnesota

Attachment A

PolyMet Standard Procedure – Plant Site Fugitive Emission Control (FEC) Plan (ER08)

Hoyt Lakes, Minnesota **STANDARD PROCEDURE**
PLANT SITE FUGITIVE EMISSION CONTROL (FEC) PLAN

General Manager's Approval _____ Manager's Approval _____ Initiator _____	Date Effective 12/05/14	SP Number ER08

History:

2/15/07 Preliminary version to support Detailed Project Description
12/20/12 Version 2: Minor edits before submittal with version 6 of the Air Quality Management Plan – Plant
09/10/13 Version 3: edited for air permitting discussion
11/06/14 Version 4: edited for inclusion in NorthMet Project FEIS
12/05/14 Version 5: edited for management plan to address comments received

1.0 Introduction

Poly Met Mining Inc. (PolyMet) expects to be issued an Air Emissions Operating Permit (air emission permit) upon completion of environmental review and processing of an Air Emissions Permit Application (permit application) for its NorthMet Project (Project). The proposed project consists of the operation of a base and precious metals mine and processing plant located at Hoyt Lakes, Minnesota. This Fugitive Emission Control (FEC) Plan covers activities at the Plant Site. This version of the FEC Plan reflects PolyMet's current proposal and includes incorporation of comments received from MPCA. The plan will be finalized as part of the air permitting process.

Note:

This preliminary document is written to apply to the operating and fully staffed facility. It is not intended to apply to the current non-operating situation. All of the referenced procedures and manuals do not yet exist.

2.0 Objectives

The objective of the FEC Plan is to outline the basic procedures to prevent or minimize the release of fugitive emissions according to the expected requirements of the anticipated air emission permit. The plan outlines the practices followed to control emissions, the methods used

to determine when emissions require corrective action, the procedures that will be employed to manage the emissions, and the recordkeeping used to demonstrate fugitive emission control. Note: 80% control for unpaved roads at the Plant Site was assumed in the modeling conducted for the Supplemental Draft Environmental Impact Statement (SDEIS). Consistent with MPCA guidance, Level III-A controls are proposed for the Plant Site roads to achieve an 80% reduction in fugitive dust emissions.

The fugitive emission sources outlined in the air permit application are discussed in the next section including a general description of each process involved and associated fugitive emission control procedures.

3.0 Fugitive Emission Sources

The following is an overview of the operation of the fugitive emission sources and the procedures used to control fugitive emissions.

3.1 Flotation Tailings Basin (FTB) Roads (Light Truck Traffic)

Controlling fugitive emissions from Flotation Tailings Basin (FTB) roads (FS016) is important for safety as well as the environment. Standard operating procedures in place to control these emissions are as follows:

1. If visible emissions are observed or reported by an equipment operator, the condition will be investigated. If it is determined that corrective action is needed, fugitive emission control measures will be initiated.

2. Fugitive emission control is achieved with the application of water and/or MPCA approved dust suppressants.

3. During the winter months, application of salts ($NaCl/CaCl_2$ $MgCl_2$), application of sand mixtures, scarification of the road surface, and/or application of new road material are used to enhance safety and control fugitive emissions from the roads (use of chemical dust suppressants would require MPCA Water Quality Division approval – salts such as those listed above are frequently approved and used at mines in Minnesota). Snow may also be applied on roads and under the right conditions, very light applications of water can be effective in freezing conditions.

Adequate watering and/or dust suppressant application capacity will be maintained to control emissions during typical summer months. New technologies for emission abatement will be evaluated for effectiveness and economic feasibility.

3.2 Limestone Unloading, Storage, Reclaim

Limestone will be delivered to the limestone storage yard where the limestone is inventoried before being added to the process. Transport to the yard is by railroad (enclosed dumping serviced by a fabric filter system and Stacker Conveyor). Transport from the yard to the process is by front end loader to a reclaim hopper (FS 025). In addition to weather conditions and moisture content of the limestone, procedures to reduce fugitive emissions are as follows:

1. Water may be applied to the storage piles via water monitors. Water can also be applied to conveyors via spray bars and racks. Water sprays may be used during limestone handling as a contingent measure for dust control. The purpose of water application is to reduce emissions.

2. The stacker is positioned to minimize drop distance

3. Dust suppressants that are determined to not adversely affect the environment or the process are applied.

4. A partial enclosure is installed around the reclaim hopper

5. Stopping of limestone stacking if higher wind conditions are causing fugitive emissions.

3.3 Flotation Tailings Basin (FTB)

Wind erosion is a primary factor in fugitive emissions from the FTB (FS032). Tailings are spigotted from the outside edges of the FTB across the beach area to the pond. The medium and coarse tailings are generally retained on the beach area, with the finest tailings generally flowing toward and into the pond. Standard operating procedures for the control of fugitive emissions are as follows:

1. Exterior slopes and beaches are contoured with a bulldozer as construction is completed, resulting in compaction.

2. Seeding for permanent cover is performed during the planting seasons (Spring and Fall). Seeding is completed by June 15th in the Spring and October 30th in the Fall.

3. During the freezing months, freshly deposited tailings freeze and are covered with snowfall. Road plowing and general traffic are limited to active areas during the cold weather months.

4. During freezing months, the number of active areas is minimized to decrease number of uncovered or unmulched beaches.

5. Water elevation is maintained to provide maximum inundated safe level coverage for interior slopes and beaches. A minimum of beach is maintained between the crest of the perimeter dam and the water's edge, with a minimum free board from the top of the perimeter dam and the water line. Those minimums are determined by dam safety requirements.

6. The uncontrolled areas of beaches are seeded if inactive for eight (8) months or longer, and mulched if inactive for two (2) to eight (8) months. MPCA approved dust suppressants that are determined to not adversely affect the environment or the process may be applied if uncontrolled areas of beaches are inactive for less than two (2) months. The time periods above may be altered by seasonal/climatic conditions and ability of tailings to support mulching seeding and mulching equipment.

7. The active FTB work area is kept wet by moisture from the wet tailings deposition, natural conditions (i.e. precipitation), and by capillary action (near the pond). The beach areas are accessed when conditions allow the beach to bear the weight of maintenance vehicles used to conduct additional emission control procedures, such as seeding, mulching, or applying water and/or dust suppressant on any eroding areas.

Dust suppressants approved by the MPCA, such as Lignosulfonate, Lignosulfonate-magnesium chloride mix, and Coherex, are also applied, as needed, for fugitive emission abatement. The natural conditions of the environment also provide emission control and affect when other forms of control need to be implemented. Equipment utilized for application of seeding and mulching include typical farm type equipment such as wheeled or tracked tractors. Other specialized equipment with low ground pressures, such as tracked or wheeled all-terrain vehicles may be utilized to mulch or seed areas that are difficult to access. Details on seeding and mulching are provided in the Reclamation Seeding and Mulching Procedure which is included as Appendix A to the *NorthMet Project Reclamation Plan*.

3.4 LTV Steel Mining Company (LTVSMC) Tailings/Offsite Borrow Handling (FS051)

LTV Steel Mining Company (LTVSMC) tailings will be used for dam construction at the FTB. Tailings will be excavated, loaded into trucks, and unloaded in the construction area. The majority of the in-place tailings will be damp, which will limit the potential for fugitive dust generation. Offsite borrow material will be used to construct the buttresses and for dam construction if the supply of LTVSMC tailings is not sufficient to construct all of the dams. Water can be applied as needed if the natural moisture is not sufficient.

3.5 LTVSMC Tailings/Offsite Borrow/Bentonite Hauling/Other Material Hauling (FS051, FS405)

LTVSMC tailings and offsite borrow material will be hauled from their present location to the site of dam and buttress construction. Bentonite will be hauled from the delivery location to the dam construction area. Typical dust control methods for unpaved roads including water application will be utilized to control fugitive dust. Construction will only occur during warmer months, so additional provisions for freezing conditions will not be necessary.

3.6 Bentonite Handling (FS404)

During FTB dam construction, the exterior face of the dams will be amended with a bentonite layer. Bentonite will be loaded into Tailings Basin construction trucks and unloaded at the dam construction location. The natural moisture content of bentonite will minimize the potential for dust generation.

3.7 Other Sources

Other sources of fugitive emissions include small truck traffic around the property. Water and or dust suppressants are applied as necessary to the service roads in and around the plant area and Tailings Basin roads as dictated by traffic and weather conditions. Other non-road sources of fugitive emissions are the movement and handling of non-tailings based materials in the

boundary of the Tailings Basin not related to the activities described previously, such as movement of the Closed Coal Ash Landfill materials. Water would be applied as necessary to working faces and access ramps.

4.0 Operating Practices and Control Measures

The operating practices and control measures that will be implemented and recorded for the significant fugitive emission sources described/summarized below.

4.1 Tailings Basin Roads – Light Truck Traffic (FS016)

Primary Control:	Water and/or dust suppressant application Rain during non-freezing conditions Snow during freezing conditions Road maintenance including grading
Contingent Control:	Other dust suppressant application
Practices:	Employees notify shift manager or appropriate personnel of fugitive emissions Daily visible emission checks Conduct road maintenance Use water trucks to apply water
Records:	Fugitive emissions reports including daily checks Dust suppressant application records

4.2 Limestone Unloading, Storage, Reclaim – Rail Haul (FS024, FS033, FS025 and FS034)

Primary Control:	Equipment Design Environmental conditions
Contingent Control:	Water application via water monitors or additional portable equipment during non-freezing months
Practices:	Minimize drop distances Conduct one daily observation/check
Records:	Number of railcar loads Fugitive emissions reports including daily checks

4.3 FTB Wind Erosion (FS032)

Primary Control:	Water and/or dust suppressant application Seeding and mulching

	Environmental conditions
Contingent Control:	Other dust suppressant application Beach area reduction Reduction of active deposition areas Application of wet tailings Application of mulch only
Practices:	Minimize exposed areas Conduct grading, compacting, seeding and mulching Daily visible emission checks
Records:	Seeding and mulching (location and application date) records Surveys or reports of FTB highlighting deposition and/or reduction Fugitive emissions reports including daily checks

4.4 LTVSMC Tailings/Offsite Borrow Loading and Unloading (FS051)

Primary Control:	Environmental conditions (damp material handled)
Contingent Control:	Water application via portable equipment
Practices:	Minimize drop distances Daily visible emission checks
Records:	Number of truck loads of tailings/offsite borrow Fugitive emissions reports including daily checks

4.5 LTVSMC Tailings/Offsite Borrow/Bentonite Haul/Other Material Haul (FS051, FS405)

Primary Control:	Water and/or dust suppressant application Environmental conditions
Contingent Control:	Other dust suppression application
Practices:	Employees notify shift manager or appropriate personnel of fugitive emissions Conduct road maintenance Use water trucks to apply water Operate only during construction season Daily visible emission checks
Records:	Fugitive emissions reports including daily checks

4.6 Bentonite Handling (FS404)

Primary Control:	Environmental conditions (natural moisture content)
Contingent Control:	Water application via portable Equipment
Practices:	Minimize drop distance Daily visible emission checks
Records:	Fugitive emissions reports including daily checks

4.7 General Small Truck Traffic

Primary Control:	Water and/or dust suppressant application Environmental conditions
Contingent Control:	Other dust suppression application
Practices:	Employees notify shift manager or appropriate personnel of fugitive emissions Conduct road maintenance Use water trucks to apply water
Records:	Fugitive emissions reports

5.0 Training

An integral part of the implementation of the FEC Plan is training the personnel involved in implementing the measures detailed in the plan.

At least two individuals (more if needed to assure daily coverage) will be trained to observe fugitive emissions sources and their control system(s). Personnel responsible for making these observations will be trained by a certified VE evaluator or will complete training to become a certified VE evaluator.

All equipment operators as well as Laborers, and Shift Supervisors, employed by PolyMet, who's job function includes work at the FTB, the Limestone Yard and/or frequent travel on unpaved roads will receive annual training specific to fugitive dust including training on the importance of eliminating fugitive emissions, methods used to control fugitive emissions, and the procedures and process for reporting and controlling fugitive emissions. PolyMet contractors and their employees will also be trained specific to their job duties if it involves work related to fugitive emission sources or control.

All managers and supervisors and those individuals trained as VE evaluators will receive annual training on the FEC Plan as a whole including importance of controlling fugitive emissions, the process for reporting and controlling fugitive emissions and associated record keeping.

Specific training will be given to each person as it pertains to their job. Records of their names, dates, and content of each training exercise will be kept. Each training exercise will cover at a minimum the following:

1. Employee responsibilities
2. Reporting
3. Record keeping
4. Corrective actions
5. Maintenance
6. Dust observation
7. Weather observations

The Plant Site supervisors and managers will be responsible for making sure that all employees understand their roles and responsibilities related to fugitive dust control and undertake them properly. If the supervisors observe indications that this is not the case, they will take appropriate action that may include additional training or individual counseling for employees. Records of any additional training given and the topics covered will be kept with the training records.

6.0 Records

The following records regarding fugitive emission controls will be maintained:

1. Commercial dust suppressant information (applications, permits, etc.)
2. Fugitive emission reports (visible emission observations, daily checks, corrective actions taken and any exceptions that occur)
3. Water truck logs
4. FTB records of deposition plans, records of mulching and seeding applications
5. Training records
6. MPCA Fugitive Emission Control Plan approval letter
7. Shift Reports (limestone delivery records, road watering records, dust suppressant application, etc.)
8. Air Emission Inventory Reports
9. Records of any NSPS required performance testing (limestone system)