

## General information

**Public comment period begins:** January 31, 2018

**Public comment period ends:** 4:30 p.m. on March 16, 2018

The Minnesota Pollution Control Agency (MPCA) Commissioner has made a preliminary determination to issue this permit for a term of approximately five years.

**Name and address of Permittee:**

Poly Met Mining, Inc  
6500 Country Road 666  
Hoyt Lakes, Minnesota 55750-0475

**Facility name and location:**

Poly Met Mining, Inc.  
6500 County Road 666  
Hoyt Lakes, Minnesota 55750  
St. Louis County

**MPCA contact:**

PolyMet Water Quality Permit Comment – 4<sup>th</sup> Floor  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, MN 55155-4194

Web Portal: <http://polymet.mn.gov/>

Phone: 651-757-2455 or 1-833-722-9016

A draft permit and fact sheet are available for review on the State web portal for the NorthMet Project at <http://polymet.mn.gov/>, the MPCA Public Notices webpage at <http://www.pca.state.mn.us/publicnotices>, or at the MPCA office address listed under the MPCA contact. The MPCA will mail or email a copy of the draft permit upon request. Comments, petitions, and other requests must be received at the MPCA in writing via the State web portal or by mail on or before the public comment period end date and time identified above.

**Watershed:** St. Louis River

**Receiving waters:** Unnamed wetlands in the headwater area of Unnamed Creek, Unnamed wetlands in the headwater area of Trimble Creek, and Second Creek

### Description of the NorthMet Project:

Poly Met Mining, Inc. (PolyMet) proposes to develop a copper-nickel-platinum-group elements (PGE) mine and associated processing facilities. The proposed mine and processing facilities, known as the NorthMet Project (Project), are described in detail in the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Application dated July 2016 and updated in October 2017. The Project is located south of the city of Babbitt and north of the city of Hoyt Lakes in St. Louis County, Minnesota.

The Project consists of the Mine Site, the Plant Site, and the Transportation and Utility Corridors that connect them. The Mine Site is a relatively undisturbed site that will be developed into an open pit mine and is located approximately six miles south of the city of Babbitt and two miles south of the Northshore Mining Company's active, open pit taconite mine (known as Northshore Mining's Peter Mitchell Mine). The Plant Site is located at the former LTV Steel Mining Company (LTVSMC) / Cliffs Erie, LLC (Cliffs Erie) taconite processing facility located approximately six miles north of the city of Hoyt Lakes and will include refurbished and new ore processing and waste disposal facilities. The Plant Site includes the Colby Lake Corridor, which contains an existing pipeline that will be refurbished as necessary and will supply water from Colby Lake to the Plant Site. The Mine Site and the Plant Site are connected by approximately 7- to 8-mile-long Transportation and Utility Corridors, which will include new and upgraded infrastructure to link activities at the Mine Site and Plant Site.

The Project is located in:

- Sections 1, 2, 3, 4, 9, 10, 11, 12, 15, 16, 17, and 18 of T59N, R13W;
- Sections 2, 3, 4, 5, 8, 9, 10, 11, 13, 14, 15, 16, 17, 23, and 24 of T59N, R14W; and
- Sections 32, 33, and 34 of T60N, R14W.

The Project configuration and design may change over time. Before any such changes are implemented, any necessary regulatory approvals will need to be obtained. The following facility description provides background on the Project as currently planned, with the information based primarily on the permit application.

### **Mine Site**

Development of the Mine Site for the Project will include construction of new facilities, including mine pits, ore handling facilities, waste rock stockpiles, an overburden storage area, mine water management systems, an Equalization Basin Area, and supporting infrastructure.

The Mine Site will include the following Project features:

- three mine pits (the East Pit, West Pit, and Central Pit)
- ore handling facilities, including an Ore Surge Pile (OSP) and a Rail Transfer Hopper
- Category 1, 2/3, and 4 Waste Rock Stockpiles and the OSP with engineered systems such as liners, covers, and a groundwater containment system, to manage precipitation that will run off of or percolate through the stored waste rock
- an Overburden Storage and Laydown Area (OSLA) to provide space to sort and store unsaturated mineral overburden and peat used for construction and reclamation
- mine water collection systems and an Equalization Basin Area to collect mine water from the mine pits, the stockpiles, the ore handling facilities, OSLA, construction areas, and the driving surface of haul roads
- a Central Pumping Station, Construction Mine Water Pumping Station, and Mine to Plant Pipelines (MPP) to transport mine water from the Mine Site to the Plant Site
- stormwater management systems

### **Mine Pits & Mine Pit Dewatering**

The Project will involve mining from three open pits, the East Pit, the West Pit and the Central Pit. Mining will begin in the East Pit in Mine Year 1 followed by mining in the West Pit. Mining from the West Pit is anticipated throughout the life of the mine. Each of the mine pits will require mine pit dewatering to remove groundwater and runoff from areas within the pits. This water will be directed to sumps within the pits where it will be collected and pumped to the equalization basins for further conveyance to the Wastewater Treatment System (WWTS) at the Plant Site.

### **Waste Rock Stockpiles**

- *Temporary Category 2/3 Waste Rock and Category 4 Waste Rock Stockpiles and Ore Surge Pile*  
The Category 2/3 Waste Rock Stockpile and the Category 4 Waste Rock Stockpile will temporarily store higher sulfur waste rock that may generate acidic leachate until the waste rock can be backfilled into the East and Central Mine Pits. The Ore Surge Pile will be used to temporarily store ore, with ore moving in and out as needed to meet mine and plant conditions. Each of these temporary features will include an engineered liner system consisting of a compacted foundation, an underdrain system (if needed), a geomembrane liner over a compacted soil liner and an overliner drainage layer. Drainage from each stockpile will be collected in a sump and pond system and will be conveyed to the equalization basins for further conveyance to the WWTS at the Plant Site for further treatment.
- *Permanent Category 1 Waste Rock Stockpile*  
The Category 1 Waste Rock Stockpile will be the only permanent waste rock stockpile on site. Category 1 waste rock is of lower sulfur content and is not expected to generate acidic leachate but may leach heavy metals. Drainage from the Category 1 Waste Rock Stockpile will be collected by 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. The drainage collected by the groundwater containment system will be conveyed to the equalization basins for further conveyance to the WWTS at the Plant Site for treatment.
- *Overburden Storage and Laydown Area (OSLA)*  
The OSLA is a temporary storage area for unsaturated overburden and peat that will be used in construction and reclamation. The OSLA will be graded and compacted to direct runoff to a collection pond from where it will be pumped to the Construction Mine Water Basin for further conveyance to the Flotation Tailings Basin (FTB) at the Plant Site via the MPP.

### **Mine Water Collection Systems**

Mine water will include water that has contacted surfaces disturbed by mining activities including the aforementioned mine pit dewatering and stockpile drainage as well as runoff contacting ore, waste rock and Mine Site haul road surfaces. Mine water will be intercepted throughout the Mine Site by ditches, dikes, stockpile liners, and the stockpile groundwater containment system and routed to the Equalization Basin Area where it will be kept segregated in ponds by waste strength as described in the Plant Site section below. There will be no discharge of mine water or other process wastewater to surface waters from the Mine Site.

Internal monitoring points, groundwater monitoring wells and piezometers, and surface water monitoring will be located at or near the Mine Site and are described in the Monitoring Summary section of the draft permit.

### **Plant Site**

The Plant Site is a developed site located at the former LTVSMC / Cliffs Erie taconite processing facility located approximately six miles north of the city of Hoyt Lakes and will include refurbished and new ore processing and waste disposal facilities. Plant Site features will include:

- Beneficiation Plant
- Flotation Tailings Basin (FTB) including Seepage Capture Systems
- Wastewater Treatment System (WWTS)
- Hydrometallurgical Plant
- Hydrometallurgical Residue Facility (HRF)
- Sewage Treatment System
- Other ancillary facilities (e.g., Colby Lake water pipeline).

### ***Beneficiation Plant and Flotation Tailings Basin***

The Beneficiation Plant will process ore to produce nickel and copper concentrates. Ore will be crushed at the Coarse Crusher Building, ground in the semi-autogenous grinding mill and ball mill at the Concentrator Building, and then sent to the Flotation Building. In flotation, the minerals containing base and precious metals will be separated from the tailings using a combination of flotation reagents.

The Beneficiation Plant will produce Flotation Tailings throughout the planned 20 years of ore processing. Flotation Tailings will be pumped as a slurry to the FTB, which will be constructed atop Cells 1E and 2E of the former LTVSMC tailings basin. Water from the Tailings Basin will be recycled back to the Beneficiation Plant and will not be directly discharged during operations.

### ***Flotation Tailings Basin***

The FTB is designed to contain Flotation Tailings generated over the planned 20 years of operation. The FTB will be constructed atop the existing LTVSMC tailings basin. The FTB Pond will receive water from the following sources during operations: process water/tailings slurry from the Beneficiation Plant, captured seepage from the FTB seepage capture systems, treated mine water, filter backwash and clean-in-place wastes from the WWTS, construction mine water/OSLA runoff from the Mine Site treated effluent from the Sewage Treatment System, and precipitation and runoff from within the FTB dams and tributary to the FTB Pond.

The FTB is designed and will be operated to prevent overflow of the system – there will be no direct discharge from the FTB Pond to any receiving waters. Pond water levels will be managed to maintain adequate freeboard by adjusting the relative amount of collected tailings basin seepage routed to the Pond and to the WWTS. Freeboard requirements and other terms relating to the operation of the FTB are established by the MDNR dam safety permit.

### ***FTB Seepage Capture Systems***

Historically, seepage from the LTVSMC tailings basin has occurred from water infiltrating through the tailings basin and migrating through the base or external dam faces. As part of the Project, PolyMet will construct seepage capture systems to collect seepage from the FTB. The FTB Seepage Containment System and the FTB South Seepage Management System (collectively known as the FTB seepage capture systems) will collect water seeping from the combined former LTVSMC basin and the FTB (collectively, the Tailings Basin) via surface or shallow groundwater flow.

Seepage from both the FTB Seepage Containment System and the FTB South Seepage Management System will be routed to the WWTS for treatment prior to discharge to the receiving waters or returned to the FTB Pond for reuse. The amount of seepage to be treated at the WWTS and discharged will depend on operational factors, precipitation, allowable discharge requirements of 40 CFR 440, and requirements of the MDNR water appropriation permit.

### ***Wastewater Treatment System (WWTS)***

The WWTS will be located at the Plant Site and will house the process equipment for two separate treatment trains known as the mine water treatment trains and the tailings basin seepage treatment train. The primary components of the WWTS for the Project will include the Equalization Basin Area located at the Mine Site, the Mine to Plant Pipelines (MPP), and the WWTS building and associated Pretreatment Basin.

The WWTS will treat mine water and tailings basin seepage. Mine water flows will be segregated based on projected water quality or waste strength and treated in two mine water treatment trains at the equalization basins. The mine water chemical precipitation train will treat high-concentration mine water and also treat WWTS membrane treatment concentrate. The mine water filtration train will treat low-concentration mine water using membrane separation. Separately, the WWTS will also treat tailings basin seepage using a combination of membrane separation treatment technologies (such as reverse osmosis and/or nanofiltration).

### ***Wastewater Treatment System Discharge***

The WWTS discharge from the tailings basin seepage treatment train (WWTS discharge) will be piped to maintain flows in Trimble Creek, Second Creek, and Unnamed Creek. Some seepage will be recycled directly to the FTB Pond for reuse. Effluent from mine water treatment trains (treated mine water) will be routed to the FTB Pond.

Treated tailings basin seepage will be routed to the Treated Water Storage Tank (SD001), where effluent water quality will be monitored. From there the effluent will be pumped to the individual surface water discharge outfalls located in the headwaters of each of the receiving surface waters. Outfalls SD002 and SD003 discharge to headwater wetlands of Unnamed Creek, Outfalls SD004 through SD010 are located in headwater wetlands of Trimble Creek, and Outfall SD011 is located in the headwater segment of Second Creek. The WWTS discharge will be distributed to these tributaries in proportion to the flow required to minimize hydrologic or ecologic impacts resulting from the reduction in available source water to the streams from installation of the FTB seepage capture systems. The flow rate to each outfall will be monitored in the distribution box where the treated effluent from SD001 is divided to the individual outfalls.

The wetland headwaters to Unnamed and Trimble Creeks are Class 2D, 3D, 4C, 5, and 6 waters under Minn. R. 7050.0425 and the headwater segment of Second Creek is a Class 2B, 3C, 4A, 4B, 5, and 6 water under Minn. R. 7050.0430. Approximate discharge rates from the WWTS to each of the individual outfalls are shown in Table 1 below.

**Table 1 - Proposed Discharge Rates**

Station ID	Discharge Flow Rate Average (MGD)		Discharge Flow Rate Maximum (MGD)		Discharge Frequency	Receiving Waters
	Mine Year 1 <sup>(1)</sup>	Mine Year 10 <sup>(2)</sup>	Mine Year 1 <sup>(1)</sup>	Mine Year 10 <sup>(2)</sup>		
SD002	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Unnamed Creek
SD003	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Unnamed Creek
SD004	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Trimble Creek
SD005	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Trimble Creek
SD006	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Trimble Creek
SD007	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Trimble Creek
SD008	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Trimble Creek
SD009	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Trimble Creek
SD010	0.24	0.39	0.29	0.57	Continuous	Wetlands in the headwater area of Trimble Creek
SD011	0.27	0.40	0.31	0.59	Continuous	Headwater segment of Second Creek

(1) Mine Year 1 will be the first year of discharge from the WWTS, and for the first 15 years of the Project, is expected to be the year of minimal discharge and loading from the WWTS.

(2) Mine Year 10 is expected to be the year of maximum discharge and maximum loading from the WWTS.

### ***Hydrometallurgical Plant/Hydrometallurgical Residue Facility***

The Hydrometallurgical Plant will process nickel concentrates from the Beneficiation Plant, extracting a copper concentrate, a mixed nickel-cobalt (Ni/Co) hydroxide, and a gold and platinum-group elements (Au/PGE) precipitate. The Hydrometallurgical Plant may not be built for several years after mining starts. Before the Hydrometallurgical Plant is built, the company will ship the nickel concentrates from the Beneficiation Plant directly to customers. The timing for construction of the Hydrometallurgical Plant will depend on customer requirements and overall Project economics.

The hydrometallurgical process will involve high pressure and temperature autoclave leaching followed by several solution purification steps. Inputs will include the nickel concentrates from the Beneficiation Plant, water from the HRF Pond and the Plant Reservoir, various process consumables, and chemical additives. Waste residues from the hydrometallurgical process will be pumped as a slurry for final disposal to the HRF.

The HRF will be constructed at the former LTVSMC Emergency Basin near the southwestern corner of the existing tailings basin and will be designed to permanently store residue from the hydrometallurgical process generated over the life of the Project. The HRF will function as a large-scale sedimentation basin. Residue will be pumped as slurry to the HRF, where it will settle out. A pond will be maintained within the HRF such that the solid fraction of the slurry (the Residue) settles out, while the majority of the liquid fraction is recovered by the return water system and pumped back to the Hydrometallurgical Plant for reuse.

The Hydrometallurgical Plant and HRF will operate as a closed-loop system with no discharge to the environment or to the FTB/WWTS system. The HRF is designed with a double liner with a Leakage Collection System between the two liners to prevent leakage to groundwater. Any leakage collected in the leakage collection system will be routed back to the HRF pond.

### **Transportation and Utility Corridors**

The Transportation and Utility Corridors provide connections between the Mine Site and the Plant Site for ore transport, vehicle traffic, mine water conveyance, and power transmission. These corridors include the existing Dunka Road and utility corridor and existing railroad corridor. A new segment of railroad corridor also will be utilized to construct the Railroad Connection Track for the Project. Runoff from the Transportation and Utility Corridors will be managed under the NPDES/SDS Construction Stormwater General Permit (MNR100001) and the NPDES/SDS Industrial Stormwater General Permit (MNR050000) and is not covered under the draft NPDES/SDS permit.

## Stormwater

The discharge and management of construction stormwater and industrial stormwater for the Project will be regulated under the NPDES/SDS Construction Stormwater General Permit (MNR100001) and the NPDES/SDS Industrial Stormwater General Permit (MNR050000) respectively. The draft NPDES/SDS permit for the Project does not include provisions regulating the direct discharge of stormwater to waters of the state.

The preliminary determination to issue this Wastewater draft permit is tentative.

## Procedure for public participation

As stated in Minn. R. chs. 7000 and 7001 interested persons may:

- (1) Submit written comments on the draft permit.
- (2) Petition the MPCA to hold a contested case hearing.

## Submitting written comments

To submit comments or petitions to the MPCA through the state web portal for the NorthMet Project, or by mail, you must state:

- (1) Your interest in the permit application or the draft permit.
- (2) The action you wish the MPCA to take, including specific references to the section of the draft permit you believe should be changed.
- (3) The reasons supporting your position, stated with sufficient specificity as to allow the MPCA to investigate the merits of the position.

## Public informational meeting

Public meetings on the draft water quality permit for the NorthMet Project will be held on:

- (1) Wednesday, February 7, 2018  
Mesabi East High School  
601 N 1st St W, Aurora, MN 55705  
4:00-9:00 p.m. open house  
6:00-9:00 p.m. public comment forum
- (2) Thursday, February 8, 2018  
Duluth Entertainment Convention Center (DECC)  
350 Harbor Drive, Duluth, MN 55802  
1:00-9:00 p.m. open house  
6:00-9:00 p.m. public comment forum

These public meetings are being held jointly with the Minnesota Department of Natural Resources on their draft permit to mine. During the open house, technical staff will be available to answer questions on the draft permit. PolyMet representatives will also be present. Comments on the draft permit will be accepted at these meetings. Stenographers will be available to record oral comments. In addition, comment boxes will be available for submitting written comments.

In case of a weather-related cancellation, the following alternative meeting dates have been established: (1) Wednesday, February 21, 2018, at the Mesabi East High School as a substitute for the February 7 meeting; and (2) Thursday, February 22, 2018, at the DECC as a substitute for the February 8 meeting. The MPCA will notify the public of any cancellations, time, or venue changes via the state's PolyMet email distribution list, press release, and/or social media.

## Contested Case Hearing

A contested case hearing is a formal proceeding before an administrative law judge empowered to advise the MPCA regarding issues of fact. As described in Minn. R. 7000.1800, persons who submit petitions for a contested case hearing must also state the issues they propose to address in a contested case hearing, the specific relief requested or resolution of the matter, and the reasons (which may be in the form of proposed findings) supporting an MPCA decision to hold a contested case hearing. Failure to comply with these rules exactly may result in a denial of the request. To the extent known, the petitioner may also submit a list of prospective witnesses to be called at a hearing, a proposed list of publications, references, or studies to be introduced at a hearing and the approximate time required for the petitioner to present the matter at a hearing. The decision whether to hold a contested case hearing will be made under Minn. R. 7000.1900.