MINNESOTA POLLUTION CONTROL AGENCY

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December 20, 2018

Chad Konickson
U.S. Army Corps of Engineers
Regulatory Branch Chief
180 Fifth Street East, Suite 700
St. Paul, MN 55101-1678

Jennifer Saran
Poly Met Mining, Inc.
Environmental Permitting & Compliance Director
444 Cedar Street Suite 2060
St. Paul, MN 55101

RE: 1999-5528-JKA 401 Poly Met Mining, Inc.
St. Louis County, Minnesota
Section 401 Water Quality Certification

Dear Chad Konickson and Jennifer Saran:

This letter is submitted by the Minnesota Pollution Control Agency (MPCA) under authority of Section 401 of the Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.), Minn. Stat. ch. 115 and 116 and Minn. R. 7001.1400 to 7001.1470, 7050, 7052, and 7053 in response to the request for Section 401 Water Quality Certification by Poly Met Mining, Inc. (PolyMet or Permittee) for the NorthMet Project (Project).

Section 401 of the CWA requires that before a federal permit may be issued for an activity potentially discharging into Waters of the United States, the applicant must provide to the federal permitting agency a Certification (or waiver of certification) from the State in which the discharge originates that the discharge will comply with State water quality standards. Any conditions included in a State certification then become conditions of the federal permit. Section 401 does not limit the MPCA to review of discharges solely within Waters of the United States, but rather opens the project to review of impacts to all areas subject to applicable State water law. Here, all waters impacted by the project are considered Waters of the United States.

PolyMet proposes to impact 127 wetlands, covering a total of 928.16 acres, in the development of the Project's proposed mine and processing facilities. Direct impacts from excavation and/or fill are proposed for 901.23 acres of wetlands, and an additional 26.93 acres would become fragmented wetlands (the remnants of a directly-impacted wetland). PolyMet has proposed to mitigate these impacts through the purchase of credits from the Superior Mitigation Bank, located in Bank Service Area 1 in the St. Louis River watershed, consistent with U.S. Army Corps of Engineers (USACE) Final St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota (2009).

The project is located near Babbitt and Hoyt Lakes, in St. Louis County, Minnesota in the following sections: Sections 5 and 6, Township 58 North, Range 14 West; Sections 1, 2, 3, 4, 9, 10, 11, 12, 15, 16, 17, and 18, Township 59 North, Range 13 West; Sections 2, 3, 4, 5, 8, 9, 10, 13, 14, 15, 16, 17, 18, 20, 23, 24, 29, and 32, Township 59 North, Range 14 West; and Sections 32, 33, and 34, Township 60 North, Range 14 West.

Decision:
The MPCA has examined the Project Revised Wetland Permit Application dated August 19, 2013, the Final Environmental Impact Statement dated November 2015, the NorthMet Project Wetland Replacement Plan dated December 2017, the Antidegradation Assessment – NorthMet Project Section 401 Certification dated December 2017, the USACE Proposed NorthMet Mining Site Wetland Review dated December 13, 2018, and other information furnished by PolyMet that is relevant to water quality considerations. The MPCA has determined there is reasonable assurance that the activities proposed in the Revised Wetland Permit application, the impacts of which were addressed in the Final Environmental Impact Statement, will be conducted in a manner that will not violate applicable water standards, and certifies the project with the following conditions:

1. **Water Quality Monitoring (to address potential Air Deposition)**
    A. To provide data regarding methylmercury concentrations, the permittee must begin monitoring as follows:
        1. Wetlands, monthly May to October as follows:
            a. Conduct baseline monitoring for not less than two years, and continue until the commencement of project mining operations. Operations are defined as production blasting within the open pit.
            b. Sample for the following parameters:
                - Temperature
                - pH
                - Dissolved oxygen
                - Specific conductivity
                - Total mercury (EPA Method 1631E/1669) – filtered
                - Methylmercury (EPA Method 1630/1669) – filtered
                - Base cations (Ca2+, Mg2+, Na+, K+)
                - Dissolved organic carbon
                - Sulfate
                - Total alkalinity
            c. Sample surficial groundwater from within 22 wetland hydrology monitoring locations:
                - Mine Site wells 31, 33-39, 13, 47, 26, 4A, 4
                - Dunka Road wells 40-42
                - Plant Site wells TB9-TB14
        2. Streams, quarterly as follows:
            a. Conduct monitoring upon issuance of all state permits for the Project or upon commencement of Project construction, whichever is sooner, and continue monitoring through one year after cessation of project mining operations.
            b. Sample for the following parameters:
                - Total mercury (EPA Method 1631E/1669) – filtered
                - Methylmercury (EPA Method 1630/1669) – filtered
            c. Sample surface water at the following locations:
                - SW402 (also known as PM-2/SW002)
                - SW413 (also known as SW004c)
                - SW005 (also known as PM-13/SW005)
                - SW008 (also known as PM-12.2)
                - SW020 (also known as PM-7/SD026)

B. To provide data regarding copper and cobalt concentrations in the Wetland of Interest (as identified in PolyMet's Cross-Media Analysis to Assess Potential Effects on Water Quality from Project-Related Deposition of Sulfur and Metal Air Emissions dated October 31, 2017), the permittee must begin monitoring immediately upon issuance of all state permits for the Project or upon commencement of Project construction, whichever is sooner, and continue monitoring through one year after cessation of all project mining operations as follows:
   1. Wetland of Interest, once every other month:
      a. Sample for the following parameters:
         - Sulfate
         - Copper
         - Cobalt
         - Hardness
      b. At two locations within the Wetland of Interest; ideal monitoring locations will have defined channel, flow and access; the permittee must provide final sampling coordinates to the MPCA with first sampling results; monitoring sites must be located:
         - West of existing well 36 in the northern end of the wetland (closest to Mine Site source of dust) as proposed in the Wetland of Interest (Mine Site), Proposed Wetland of Interest Water Quality Monitoring Locations memo dated June 20, 2018; and
         - At the southern end of the wetland near its outlet to downstream wetland complexes as proposed in the Wetland of Interest (Mine Site), Proposed Wetland of Interest Water Quality Monitoring Locations memo dated June 20, 2018.

C. To provide data regarding arsenic and cobalt concentrations for comparison to class 2Bd water quality standards in Colby Lake, the permittee must begin monitoring immediately as directed in the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit for the Project, through one year beyond cessation of all project mining operations as follows:
   1. Streams, monthly:
      a. Sample for the following parameters:
         - Arsenic
         - Cobalt
      b. Sample surface water at the following location:
         - Partridge River at location SW413 (also known as SW004c)

D. To ensure data usability and quality:
   1. Total mercury samples must be analyzed using EPA Method 1631E with clean sample collection techniques per Method 1669, as updated. Should another mercury analytical method that has a reportable quantitation level of <0.5 ng/L that allows for low-level sample characterization be approved by the EPA and certified by an MPCA-recognized accreditation body, the method may be used in place of EPA Methods 1631E/1669. [Minn. R. 7001.0150 subp. 2]
   2. Methylmercury samples must be analyzed using EPA Method 1630 with clean sample collection techniques per Method 1669, as updated. Should another methylmercury analytical method that has a reportable quantification level of 0.05 ng/L that allows for low-level sample characterization be approved by the EPA and certified by an MPCA-recognized accreditation body, the method may be used in place of EPA Methods 1630/1669. [Minn. R. 7001.0150 subp. 2]

3. Metals samples must be collected using clean sample collection techniques per EPA Method 1669, as updated. Individual metal concentrations must be determined by USEPA Method 200.8, as updated (or an equivalent approved method).
4. For all laboratory results, a laboratory certified by the Minnesota Department of Health and/or registered by the MPCA must conduct analyses required by this certification.
5. For all field results, industry standard field sampling, collection and analysis protocols must be consistently used. Field analysts must be trained and experienced in field data collection. The permittee must monitor in accordance with written Standard Operating Procedures (SOPs), which must be reviewed and approved (including any modifications to previously approved SOPs) by the MPCA. Copies of the MPCA-approved SOPs must be immediately available to field analysts. All field instrumentation and ancillary equipment must be properly calibrated and maintained in accordance with manufacturer's specifications. At a minimum, field instruments must be inspected and calibrated weekly and calibration results documented. All water sample handling and laboratory analytical results must comply with Minn. R. 4740.2010, and Minn. R. 4740.2050 to 4740.2120.
6. The permittee must follow EPA Method 1669, as updated, for all sample collection, which includes collection specifications for quality assurance/quality control samples.
7. Sampling shall occur at the designated monitoring stations including when this requires removing ice to sample the water. Should a station be completely frozen or dry, reasonable attempts should be made to return to check for water throughout a designated sampling period.

2. Wetland Hydrology Monitoring

A. The permittee must continue monitoring wetland hydrology at existing locations in accordance with the Monitoring Plan for Potential Indirect Wetland Impacts dated December 2017.
   1. Monitoring extending through commencement of project construction is considered baseline, against which future data can be compared.
   2. For each individual monitoring well location, inundation/depth to the water table during the growing season must remain within the minimum/maximum brackets documented by baseline monitoring well data when placed in context of hydrological conditions. Deviations from baseline monitoring well data meeting one or both of the following criteria must be evaluated by the MPCA to determine whether adaptive management, increased monitoring, and/or additional compensatory mitigation, as applicable, are triggered:
      a. Frequency equal to or exceeding two growing seasons,
      b. Duration equal to or exceeding fourteen consecutive days
   3. Wetland boundaries must be evaluated as outlined in the Monitoring Plan for Potential Indirect Wetland Impacts dated December 2017.

3. Wetland Vegetation Monitoring

A. The permittee must conduct wetland vegetation monitoring in accordance with the Monitoring Plan for Potential Indirect Wetland Impacts dated December 2017.
   1. Monitoring extending through commencement of project construction will be considered baseline, against which future data can be compared.

4. Reporting

A. The permittee must submit annual reporting to the MPCA based on the above (Conditions 1-3) wetland and stream monitoring as follows:
   1. Submitted by March 31 for each preceding calendar year (or partial calendar year) starting the year after construction activities begin.
   2. Each annual report must contain the following for all active monitoring sites identified above:
      a. Raw data in Microsoft Excel (or a comparable tabular spreadsheet format, as approved by the MPCA) for each active monitoring site;
      b. Documentation of any hydrologic conditions that prevented collection of any required sample [Minn. R. 7001.0150, Subp. 2(B)];
      c. A description of any work near monitoring sites that could impact monitoring results;
      d. Shapefiles of mine progression, current well and vegetation sampling locations (well, vegetation plot, and wetland unique identifiers must be included in the shapefile's attribute table);
      e. A description of any proposed monitoring sites including narrative of wetland community condition/integrity and observed indicators of wetland stress including presence of nonnative species, presence of additional facultative or non-wetland plant species, evidence of stressed or dying vegetation, evidence of sediment or air particulate deposition, or changes in hydrology indicators;
      f. Analysis of data including any statistical assumptions and methodologies;
      g. Identification, interpretation, explanation and significance of data trends or abnormalities; and
      h. Conclusions regarding monitoring results and recommendations for any necessary adaptive management, which could include additional monitoring locations and/or frequencies and mitigation (either treatment, or, in the case of physical alterations, potential compensatory mitigation) methods (collectively hereafter "adaptive management").
         - The MPCA will review and approve or disapprove recommendations for adaptive management in writing.
            - If approved, the permittee must implement the proposed strategy in accordance with the schedule provided in the written approval from the MPCA.
            - If the proposed adaptive management strategy is disapproved by the MPCA, the permittee must provide a modified plan addressing the MPCA comments within 30 days of receipt of such comments.
   3. Wetland indirect impact data must be accompanied by local precipitation data. Local precipitation data must either be meteorological data collected by the permittee at the Project site, or from the local precipitation values estimated from data collected at Hoyt Lakes or Babbitt measurement stations.
   4. Reports on water quality from streams and the Wetland of Interest must include a comparison of measured values to baseline values. A discussion should also be included that qualitatively compares the measured values to the results in the Cross-Media Analysis (Barr, October 2017) for parameters included in that analysis.

B. Adaptive management
   1. Deviations from baseline monitoring conditions will be evaluated by the MPCA to determine whether adaptive management measures may be triggered.

2. If there are surface water conditions exhibiting deviations from baseline conditions that are attributable to Project factors, then MPCA and USACE may require adaptive management. The scope and timing of adaptive management will depend on the extent of deviation from baseline conditions and the potential cause(s) of the deviation.

C. Should monitoring data indicate that the Project has caused or contributed to a violation of a water quality standard contained in Minn. R. chs. 7050 and 7052, the permittee must report to the MPCA as follows: a violation that could endanger human health or the environment must be reported within 24 hours; other violations must be reported within 30 days. Also, within 30 days of discovery of a violation, the permittee must submit to the MPCA for review and approval an adaptive management plan to monitor and remedy the cause of the violation.

1. The permittee must implement the proposed adaptive management strategy upon the schedule included in the written approval from the MPCA. If the adaptive management strategy is disapproved by the MPCA, the permittee must provide a modified plan addressing the MPCA comments within 30 days of receipt of such comments.

5. Stream Hydrology Monitoring

A. The permittee must conduct stream monitoring in accordance with the requirements of the Department of Natural Resources Water Appropriation Permits for the Project.

B. If monitoring indicates an increase or decrease in annual average hydrology of 20% or greater from existing conditions in Unnamed Creek, Trimble Creek, Unnamed (Mud Lake) Creek, or Second Creek at the Plant Site (conditions before the implementation of the existing tailings basin pumpback systems), the permittee must submit to the MPCA the stream hydrology data, along with an analysis of whether the existing and beneficial uses of the stream(s) have been affected, and a proposal for mitigation, as appropriate, to address any loss of existing use(s).

6. Compensatory Mitigation

A. This certification prohibits the loss of existing uses resulting from physical alterations to a surface water unless appropriately replaced through mitigation. To ensure compliance with Minn. R. 7050.0186 and 7050.0265, the permittee must provide compensatory mitigation for all permanent direct and indirect surface water impacts. Wetland impacts must be mitigated in accordance with USACE's Final St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota (2009). The MPCA understands that wetland mitigation for the Project will occur through PolyMet's purchase of wetland mitigation bank credits from the Superior Mitigation Bank, located in Bank Service Area #1, in the St. Louis River Watershed.

B. Any deviations from the proposed Wetland Replacement Plan dated December 2017 must be approved by the MPCA in writing.

C. The MPCA must be notified within 30 days of changes in replacement credits currently available to PolyMet.

7. Standard Conditions

A. The permittee must inform all employees and/or contractor(s) who will be performing this project's construction activities of the need to comply with all conditions of this Section 401 Water Quality Certification from the MPCA.

B. The MPCA must be notified within 30 days of a violation of this certification, such as unauthorized direct or indirect impacts to state jurisdictional waters. The MPCA must be notified of any proposed additional water quality impacts this project may have, before they

occur, to determine if further review or modification of this certification is required. This includes any additional proposed surface water impacts resulting from dredging, excavation, fill, additional structures, and temporary impacts not shown in the final plans or expressly authorized by the USACE Section 404 permit or the Section 401 Certification from the MPCA.

C. This certification includes and incorporates by reference the general conditions of Minn. R. 7001.0150, subp. 3 and 7001.1080 subp. 2 to 9.

D. If the Permittee wishes to modify any monitoring plans or procedures approved pursuant to this document, the permittee must obtain written approval from the MPCA.

Disclaimer:
The MPCA coordinates with several regulatory programs to review the impacts of mining operations. A Section 401 Certification does not release the applicant from obtaining all necessary federal, state, and local permits, nor does it limit more restrictive requirements set through any such program. It does not eliminate, waive, or vary the applicant's obligation to comply with all state water statutes and rules through the construction, installation, and operation of the project, including, but not limited to, the NPDES/SDS permitting program, and Minn. R. ch. 7050.

The MPCA decision is based, in part, on the applicant's representations that environmental review under the Minnesota Environmental Quality Board's rules, Minn. R. ch. 4410, is not needed, or that all necessary environmental reviews and related decisions have been completed. If environmental review for this project is needed and not complete, the MPCA does not have the legal authority to issue a Section 401 Certification. In that situation, the MPCA reserves the right to make a Section 401 Certification decision after completion of the environmental review process.

This letter does not release the applicant from any liability, penalty, or duty imposed by Minnesota or federal statutes, regulations, rules or local ordinances, and it does not convey a property right or an exclusive privilege.

If you have any questions or require additional information regarding this Certification, please contact the MPCA at 651-296-6300.

Sincerely,

John Linc Stine
Commissioner

JLS/MK:ds

Enclosures

cc: Peter Swenson, U.S. Environmental Protection Agency