MINNESOTA POLLUTION CONTROL AGENCY

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Poly Met Mining, Inc. Antidegradation Review - Preliminary Determination for 401 Certification

Summary

Poly Met Mining, Inc. (PolyMet) submitted an application for a Clean Water Act Section 401 Water Quality Certification (401 Certification) and an antidegradation assessment for a proposed new discharge in connection with the company's proposed NorthMet Project (Project). Every new 401 Certification requires an antidegradation review. The purpose of an antidegradation review is to achieve and maintain the highest possible quality in surface waters of the state (Minn. R. 7050.0250).

Minnesota's antidegradation standards and requirements identified in Minnesota Rules (Minn. R.) parts 7050.0250 to 7050.0335 apply to new or expanded discharges of any pollutant to surface waters. Minnesota has additional antidegradation standards specific to the Lake Superior basin in Minn. R. parts 7052.0300 to 7052.0330 that apply to new or expanded discharges of bioaccumulative substances of immediate concern (BSICs) to outstanding international resource waters; or a new or expanded discharge, for which there is a control document of bioaccumulative chemicals of concern (BCCs) to high quality waters. In addition to the 401 Certification request, PolyMet has also applied for additional authorizations from the Minnesota Pollution Control Agency (MPCA) that trigger antidegradation requirements, including an individual National Pollution Discharge Elimination System (NPDES) wastewater permit and general NPDES permit coverage for industrial and construction stormwater.

Both the individual 401 Certification and the individual NPDES wastewater permit are subject to the antidegradation standards in Minn. R. 7050.0265. The antidegradation procedures applicable to individual 401 Certifications (Minn. R. 7050.0285) require applicants to submit the same information required for individual NPDES permits (Minn. R. 7050.0280, subp. 2) plus additional information addressing compensatory mitigation for physical alteration of surface waters. Because of the overlap in antidegradation requirements that apply to the individual 401 Certification and individual NPDES wastewater permit, the information and analyses provided by the applicant for the individual NPDES wastewater permit antidegradation assessment and the review and preliminary antidegradation determination for that permit also support the 401 Certification antidegradation review and preliminary determination.

This draft 401 Certification antidegradation determination below concurs with and incorporates by reference the preliminary individual NPDES antidegradation determination for the Project ("Poly Met Mining, Inc. NPDES Antidegradation Review – Preliminary MPCA Determination," hereafter referred to as "NPDES Antidegradation Determination") for the components addressed by Minn. R. 7050.0280, subp 2. The review below addresses the additional requirements specific to 401 Certifications identified in Minn. R. 7050.0285, "Procedures for Section 401 Certifications of Individual Federal Licenses and Permits," which include physical alteration and indirect impacts to surface waters, and associated mitigation requirements. The antidegradation assessment for 401 Certification ("Antidegradation

Assessment – NorthMet Project Section 401 Certification," December 2017, hereafter referred to as "401 Antidegradation Assessment") submitted by PolyMet can be found at https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51c.pdf.

PolyMet's submissions provided the MPCA with the necessary information to satisfy antidegradation standards in Minn. R. part 7050.0265 (see "Antidegradation Review" below). The submittals demonstrate that existing uses and the level of water quality necessary to protect such uses will be maintained and protected; that beneficial uses will be protected and the project will not permanently preclude attainment of water quality standards; and that degradation of high water quality in the area is unavoidable, will be prudently and feasibly minimized, and is necessary to accommodate important economic or social changes in the geographic area of the project. Because the project activities that are specifically addressed by the 401 Certification (physical alteration of and indirect impacts to surface waters, and associated mitigation) are not expected to result in a discharge of BSICs and BCCs in the Lake Superior basin, the 401 Certification antidegradation review did not include the procedures in Minn. R. part 7052.0300 to 7052.0330. The NPDES Antidegradation Determination did consider mercury, a BCC for the Lake Superior basin.

Background

The Project is located near the headwaters of the Partridge River and Embarrass River watersheds. The Partridge River and the Embarrass River are both tributary to the St. Louis River, which is located within the Lake Superior Basin. The Mine Site, a portion of the Plant Site, the Transportation and Utility Corridors (which includes Dunka Road, the Utility Corridor, and the Railroad Connection Corridor), and the Colby Lake Water Pipeline Corridor are located within the Upper Partridge River Watershed. The majority of the Plant Site is located in the Embarrass River Watershed. The nearest downstream restricted Outstanding Resource Value Water (ORVW) is Lake Superior. There are no downstream prohibited ORVWs. All wetlands that would be physically altered or indirectly impacted by the Project are Class 2D, 3D, 4C, 5, and 6 waters.

For the purposes of satisfying antidegradation requirements, the MPCA considered all physically altered surface waters to be of high quality within the meaning of Minn. R. ch. 7050. This ensured that the antidegradation review provided "tier 2" protection. "Tier 2" protection prohibits the lowering of high water quality unless lower water quality resulting from the proposed activity is necessary to accommodate important economic or social changes in the geographic area in which degradation of existing high water quality is anticipated. "Tier 3" protection requires the exceptional characteristics of outstanding resource waters be maintained. The 401 Certification antidegradation review evaluated "tier 3"protection for OIRWs and ORVWs, and found that the project activities uniquely addressed by the 401 Certification do not include discharges to OIRWs or ORVWs.

The remainder of this determination documents compliance with each subpart of the applicable antidegradation regulations included in Minn. R. part 7050.0265. The rule language of each subpart is followed by the MPCA's evaluation of how the Project will satisfy each requirement.

Antidegradation Review

Minn. R. 7050.0265, Subp. 1 – Scope.

This part applies to activities regulated by the following control documents:

> *D. section 401 certifications for new, reissued, or modified individual federal licenses and permits...*

PolyMet has applied for a new individual Section 404 permit from the United States Army Corps of Engineers (USACE), which triggered the need for a 401 Certification. Thus, the antidegradation standards of Minn. R. part 7050.0265 apply.

Minn. R. 7050.0265, Subp. 2 – Protecting existing uses.
The commissioner shall approve a proposed activity only when existing uses and the level of water quality necessary to protect existing uses are maintained and protected.

Compensatory mitigation addressing physical alterations to surface waters (see below) will provide for preservation of existing uses and the level of water quality necessary to protect such existing uses. The NPDES Antidegradation Determination addresses existing uses for other waters.
Minn. R. 7050.0265, Subp. 3 – Compensatory mitigation.

A. *The commissioner shall allow compensatory mitigation as a means to preserve an existing use when there is a physical alteration to a surface water only when all of the following conditions are met:*

   The proposed activity is expected to result in a physical alteration to a surface water (wetlands). PolyMet has proposed compensatory mitigation as a means to preserve existing uses.

   1) *Prudent and feasible alternatives are not available to avoid or minimize adverse impacts to the surface water;*

      PolyMet's 401 Antidegradation Assessment summarizes alternatives considered to avoid and minimize adverse impacts to surface waters; greater detail on this process is provided in the 401 Certification application and associated attachments, references and supplements.

      The project is highly location-dependent: the geology of the region dictates the general location and dimension of the mine pits for the project, as the ore can only be developed where the mineral resources exist. Complete avoidance of surface water impacts is not possible if the project is to be completed. However, PolyMet has minimized planned impacts, using the following general strategies:

      - minimize the footprint and optimize the placement of mining features, mainly at the Mine Site
      - maintain a smaller disturbance footprint by re-using existing infrastructure, mainly at the Plant Site, which is a brownfield area
      - utilize existing facilities and structures, to the extent practicable, to support ongoing activities
      - maintain future tailings disposal in a single location and within the existing watershed where the current facility is located
      - expand the existing tailings disposal site upward, to the extent geotechnically practicable, thus disturbing less surface area while allowing more material to be placed in the same footprint
      - divert runoff upgradient of facilities into undisturbed drainages
      - install culverts to facilitate flow across wetland areas and minimize hydrologic disturbances to wetland areas

- maintain surface water pollution protection plans (SWPPPs), using best management practices (BMPs), to minimize and control site erosion and reduce subsequent downstream sedimentation
- collect and treat runoff and other contact water
- implement interim, concurrent (as practicable), and permanent reclamation at areas within the Project

The steps above (described in greater detail in the project 401 Certification request and NPDES/SDS permit applications and associated attachments, references and supplements, including PolyMet's 401 Antidegradation Assessment) satisfied the MPCA that the proposed project has avoided and minimized adverse surface water impacts to the extent prudent and feasible, in accordance with Minn. R. part 7050.0265, subp. 3(A)(1).

2) *The mitigation is sufficient in quality and quantity to ensure replacement of the lost surface water;*

Implementation of Section 404 of the Clean Water Act (CWA) regarding compensatory mitigation is accomplished through rules and guidance regarding "crediting" criteria, which serve to evaluate the sufficiency of mitigation in replacing the waters impacted by a project. These crediting criteria establish ratios for how many acres of wetland must be restored for each acre that is impacted. In Minnesota, the USACE evaluates mitigation proposals using the "Final St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota," issued January 23, 2009, and which considers location, quality, and type of wetlands impacted. The proposed Project will directly (either through excavation/fill, or through fragmentation) impact approximately 930 acres of wetlands. PolyMet's 401 Antidegradation Assessment (Section 5.2.2) indicates that using USACE crediting rules, approximately 1,282 mitigation credits are required for the Project. This required quantity of wetland credits is sufficient to replace the loss of existing uses in the impacted wetlands. PolyMet's proposed wetland mitigation will be accomplished by purchasing all required compensatory mitigation credits from a wetland bank located in the same Bank Service Area (BSA 1) and major watershed (St. Louis River) where the Project impacts will occur. The majority of the credits are from in-kind mitigation, resulting from restoration of previously impacted wetlands in the St. Louis River watershed. Because PolyMet intends to purchase wetland mitigation credits prior to the start of construction, the compensatory mitigation will be completed prior to or concurrent with the actual physical alteration of wetlands. The mitigation meets the requirements of Minn. R. part 7050.0265, subparts 3(A)(2), (3), (4), and (5).

PolyMet will be required by the 401 Certification to monitor surrounding wetlands to determine whether indirect impacts will result from the Project. Any indirect impacts will require adaptive management or mitigation as necessary to ensure maintenance of beneficial uses as set forth in the 401 Certification.

3) *The mitigation is accomplished by*
   a) *Restoring a previously impacted surface water of the same type, or other type if required by statute; or*
   b) *When restoring is not a prudent or feasible alternative, establishing or enhancing a surface water of the same type, or other type if required by statute;*

   See discussion in (2) above.

4) *The mitigation occurs within the same watershed, to the extent prudent and feasible; and*

   See discussion in (2) above.

5) *The mitigation is completed before or concurrent with the actual physical alteration, to the extent prudent and feasible.*

   See discussion in (2) above.

Minn. R. 7050.0265, Subp. 4 - Protecting beneficial uses.
The commissioner shall not approve a proposed activity that would permanently preclude attainment of water quality standards.

PolyMet's antidegradation assessment and associated materials, as well as other supporting documentation developed by MCPA for the draft NPDES permit address protection of beneficial uses associated with wastewater and stormwater discharges from the Project. The wastewater and stormwater discharges from the Project sites will not permanently preclude attainment of water quality standards, as documented in the NPDES Antidegradation Determination. For activities involving the physical alteration of wetlands addressed in this determination, the MPCA's antidegradation review assumes that all such wetlands are high quality within the meaning of Minn. R. ch. 7050, which in effect equates existing uses ("those uses actually attained in the surface water on or after November 28, 1975," Minn. R. 7050.0255,
subp. 15) with beneficial uses ("a designated use described...for each surface water or segment thereof, whether or not the use is being attained," Minn. R. 7050.0255, subp. 4). Therefore, the beneficial uses of the physically altered wetlands are protected by means of compensatory mitigation, which also addresses existing uses, as discussed above.

Minn. R. 7050.0265 Subp. 5 – Protecting surface waters of high quality.

A. *The commissioner shall not approve a proposed activity when the commissioner makes a finding that prudent and feasible prevention, treatment, or loading offset alternatives exist that would avoid degradation of existing high water quality. When the commissioner finds that prudent and feasible prevention, treatment, or loading offset alternatives are not available to avoid degradation, a proposed activity shall be approved only when the commissioner makes a finding that degradation will be prudently and feasibly minimized.*

   See the discussion of minimizing degradation in subpart 3(A)(1) above. In addition, the MPCA has concluded no prudent and feasible alternatives exist to avoid degradation, and also concluded the degradation will be prudently and feasibly minimized.

B. *The commissioner shall approve a proposed activity only when the commissioner makes a finding that lower water quality resulting from the proposed activity is necessary to accommodate important economic or social changes in the geographic area in which degradation of existing high water quality is anticipated. The commissioner shall consider the following factors in determining the importance of economic or social changes:*

(1) economic gains or losses attributable to the proposed activity, such as changes in the number and types of jobs, median household income, productivity, property values, and recreational, tourism, and other commercial opportunities;

(2) contribution to social services;

(3) prevention or remediation of environmental or public health threats;

(4) trade-offs between environmental media; and

(5) the value of the water resource, including:

(a) the extent to which the resources adversely impacted by the proposed activity are unique or rare within the locality, state, or nation;

(b) benefits associated with high water quality for uses such as ecosystem services and high water quality preservation for future generations to meet their own needs; and

(c) factors, such as aesthetics, that cannot be reasonably quantified; and

(6) other relevant environmental, social, and economic impacts of the proposed activity.

The NPDES Antidegradation Determination addresses the requirements of Minn. R. part 7050.0265, subp. 5(B)(1)-(6). In addition, with respect to factor (5) and the value of the water resource, the proposed physical alteration of wetlands would occur in an area of the state where greater than 80% of pre-European settlement wetlands remain. Though all wetlands (in both "wetlands rich" and "wetlands poor" areas) are important to water quality, those impacted by the proposed activity are not generally considered rare within the local area or within the state. Additionally, because the project will be mitigated through the use of bank credits resulting from wetlands restoration within the same watershed, the benefits associated with high water quality and other factors, such as aesthetics that cannot be reasonably quantified, can reasonably be considered to be protected.

C. *A proposed activity that would result in degradation of existing high water quality shall be approved only if the commissioner determines that issuance of the control document will achieve compliance with all applicable state and federal surface water pollution control statutes and rules administered by the commissioner.*

The 401 Certification, individual NPDES, general NPDES, and other permits (including the CWA 404 permit) for the Project will ensure compliance with state and federal surface water pollution control statutes and regulations. The MPCA has reviewed the documentation regarding the expected effects of the project and anticipates that water quality standards will be met.

D. *The commissioner shall provide an opportunity for intergovernmental coordination and public participation before allowing degradation of existing high water quality.*

The Section 401 process involves collaboration with the USACE, Minnesota Department of Natural Resources, and United States Environmental Protection Agency. The MPCA has met with each of these agencies to discuss issues related to the Project. The MPCA plans to conduct intergovernmental consultation with Minnesota Tribal Nations prior to public notice of any draft permits and certifications. The MPCA has also shared quarterly regulatory progress reports, regularly updated its webpages as new project information became available, and will be hosting public meetings upon proposal of any draft permits and certifications.

In summary, the MPCA has determined that the proposed project meets the requirements of Minn. R. part 7050.0265, subp. 5, for high quality surface waters. The available information demonstrates that the expected economic and social benefits of the project outweigh the minimal degradation in receiving water quality that will occur. Upon review of the social and economic analysis, the MPCA has determined that the projected minimal degradation in water quality is necessary to accommodate the important economic and social development aspects of the project.

Protection of restricted outstanding resource value waters

Minn. R. 7050.0265, Subp. 6 – Protecting restricted outstanding resource value waters.
The commissioner shall restrict a proposed activity in order to preserve the existing water quality as necessary to maintain and protect the exceptional characteristics for which the restricted outstanding resource value waters identified under part 7050.0335, subparts 1 and 2, were designated.

The Project will not directly discharge to an ORVW and none of the wetlands that will be physically altered are on the list of designated ORVW identified under Minn. R. 7050.0335. The NPDES Antidegradation Determination indicates that the project will have no measurable effect on water quality in the St. Louis River at Scanlon, prior to the river's entry into Lake Superior, the nearest downstream restricted ORVW. The proposed activity is restricted as necessary to preserve water quality in Lake Superior. Therefore, the project will comply with the antidegradation standards in Minn. R. part 7050.0265, subp. 6.

Minn. R. 7050.0265, Subp. 7 – Protecting prohibited outstanding resource value waters.
The commissioner shall prohibit a proposed activity that results in a net increase in loading or other causes of degradation to prohibited outstanding resource value waters identified under part 7050.0335, subparts 3 and 4.

There are no downstream prohibited ORVWs.

Minn. R. 7050.0265, Subp. 8 – Protecting against impairments associated with thermal discharges.
When there is potential for water quality impairment associated with thermal discharges, the commissioner's allowance for existing water quality degradation shall be consistent with section 316 of the Clean Water Act, United States Code, title 33, section 1326. When a variance is granted under section 316(a) o the Clean Water Act, United States Code, title 33, section 1326, antidegradation standards under this part still apply.

There is no potential for water quality impairment associated with thermal discharges.

Conclusion

Based upon the review of the information provided in the 401 Antidegradation Assessment, as well as other reliable information available to the commissioner concerning the proposed activity, the MPCA has made a preliminary determination that the Project, as preliminarily certified, is expected to satisfy the standards in Minn. R. 7050.0265, as well as to comply with all of the federal and state surface water pollution control statutes and rules administered by the commissioner.

References

Minnesota Pollution Control Agency. Poly Met Mining, Inc. "Antidegradation Evaluation – Preliminary MPCA Determination." 2017.

Barr Engineering. "Antidegradation Assessment – NorthMet Project Section 401 Certification Prepared for Poly Met Mining, Inc. December 2017."

Barr Engineering. "Surface Water Antidegradation Evaluation – NorthMet Waste Water Treatment System (WWTS) Discharge Prepared for Poly Met Mining, Inc., Version 2, October 2017."