UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

The information underlined in the attachment to this letter was conveyed verbally to MPCA on April 5, 2018. This was read word for word to PCA participants Richard Clark, Mike Schmidt, Jeff Udd, and Stephanie Handeland. EPA participants Mark Compton, Kristan Skim, Barbara Wester, Candice Bever, Mark Ackerman & Kevin Pierard.

REPLY TO THE ATTENTION OF:

WN-15J

Jeff Udd
Metallic Mining Director
Minnesota Pollution Control Agency
525 Lake Avenue South, Suite 400
Duluth, MN 55802

4.5.18

Re: U.S. Environmental Protection Agency Review of the Public Notice Draft NPDES Permit, PolyMet Mining, Inc., NorthMet Project, Permit No. MN0071013

Dear Mr. Udd:

The U.S. Environmental Protection Agency (EPA) has reviewed the Public Notice Draft National Pollutant Discharge Elimination System (NPDES) Permit, fact sheet, and supporting documents for the proposed PolyMet Mining, Inc., NorthMet Project, Permit No. MN0071013 received from the Minnesota Pollution control Agency (MPCA) on January 17, 2018.

EPA would like to recognize the progress that has been made regarding the design of the NorthMet project over the duration of the environmental review process. PolyMet is proposing advanced water treatment and project design components that include a tailings basin seepage capture system. Specifically, as part of the NorthMet project, the proposed seepage capture system, as described in the fact sheet on pages 17 and 70, is designed to capture the existing discharge from the tailings basin owned by Cliffs Erie, LLC that currently discharges to receiving waters surrounding the basin. EPA would also like to note that the proposed water capture systems for the mine site, plant site, and other associated areas is designed to be integrated into the project's overall water management system. The advanced water treatment technology is a step forward toward protecting water quality and we commend both MPCA and PolyMet for their effort to require and utilize this technology.

Enclosed for your consideration are our comments on the Public Notice Draft Permit. We hope that these will be helpful to MPCA as it works to prepare a proposed permit. EPA will continue to work with MPCA in our review of the proposed permit for this facility to ensure the permit issued by MPCA is consistent with the Clean Water Act (CWA) and implementing regulations. Please note that the comments below are abbreviated, and additional details are included in the Enclosure to this letter.

1. **Water Quality Based Effluent Limitations** – The draft permit does not include water

quality based effluent limitations except as described in the fact sheet (p. 41) ~~for pH~~ or any other conditions that are as stringent as necessary to ensure compliance with the applicable water quality requirements of Minnesota, or of all affected States, as required of all state programs by CWA Section 402(b), 33 U.S.C. § 1342(b); and 40 C.F.R. §§ 122.4(d), 122.44, and 123.44(c)(1), (8)-(9). Furthermore, the permit includes technology based effluent limitations that are up to a thousand times greater than applicable water quality standards.

2. **Effluent Limitations Guidelines Calculation** – The draft permit does not include all the requirements of 40 C.F.R. 440, Subparts G, J, and K that apply to this proposed project, including a restriction on discharge volume that is in conformance with 40 C.F.R. § 440.104(b)(2)(i) and that is equivalent to the annual net precipitation for the site.

3. **Permit Enforceability Concerns** – Several sections of the draft permit present enforcement issues that should be revised to ensure compliance with 40 C.F.R. §§ 122.4(a) and (d) (see also 40 C.F.R. § 123.44(c)). For example, the permit as written may preclude enforcement per CWA Section 402(k), 33 U.S.C. § 1342(k), for pollutants disclosed during the application process but for which there are no limitations, or for water quality standards excursions where the limitation provided in the permit appears to be greater than the applicable state water quality criterion. Additionally, the permit contains "operating limits" on an internal outfall that may not be enforceable by EPA, citizens, and potentially MPCA and, thus, may be ineffective at protecting water quality under the Clean Water Act (see 40 C.F.R. §§ 122.4(a), (d)).

4. **Decision Making Procedures** – The draft permit states that certain plans, reports, and other actions are effective parts of the permit upon submittal by the permittee, making them de facto permit modifications that, in some instances, are likely to be major modifications subject to 40 C.F.R. § 122.62 (for example, see permit section 6.10.38). EPA is concerned that the permit allows both the permittee and MPCA to modify the permit without following the public process for major permit modifications under 40 C.F.R. § 122.62. Permit modifications that do not follow federal regulations may be unenforceable, may cause confusion for regulators and public over what is covered by the permit, and therefore would not ensure compliance with the CWA (see 40 C.F.R. § 122.4(a)).

The above concerns must be addressed to ensure that the permit will achieve compliance with all applicable requirements of the CWA, including water quality requirements of Minnesota and of all affected states. If unaddressed, the above concerns may result in an EPA objection to a proposed permit. See 40 C.F.R. §§ 123.44(c)(1), (5), (7), and (9). In addition to the issues identified above, we also recommend that you consider and address the additional comments and recommendations provided in the Enclosure.

We look forward to working with you as we conduct a formal review of the permit consistent with Section II of our Memorandum of Agreement. When the proposed permit is prepared, please forward a copy, any significant comments received during the public notice period, and MPCA's responses thereto, to r5npdes@epa.gov. Please include the EPA permit number, the facility name, and the words "Proposed Permit" in the message title. If you have any questions

related to EPA's review, please contact Mark Ackerman at (312) 353-4145 or at ackerman.mark@epa.gov. Thank you for your cooperation during the review process and your thoughtful consideration of our comments.

Sincerely,

Kevin M. Pierard, Chief
NPDES Programs Branch

Enclosure

cc: Richard Clark, electronically
Stephanie Handeland, electronically

Enclosure

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Comments and Recommendations to Ensure Consistency with the Clean Water Act

Water Quality Based Effluent Limitations

The draft permit does not include water quality based effluent limitations (WQBELs) except as described in the fact sheet (p. 41) for pH or any other conditions that are as stringent as necessary to ensure compliance with the applicable water quality requirements of Minnesota, or of all affected States, as required of all state programs by CWA Section 402(b), 33 U.S.C. § 1342(b); and 40 C.F.R. §§ 122.4(d), 122.44, and 123.44(c)(1), (8)-(9). Furthermore, the permit includes technology based effluent limitations (TBELs) that are up to a thousand times greater than applicable water quality standards.

1. We acknowledge MPCA's consideration in the draft permit of the federal regulations at 40 C.F.R. Part 440 Subparts G, J, and K, including TBELs. See permit sections 6.10.44 and 8.1.1. However, the permit does not include WQBELs for key parameters and appears to authorize discharges that would exceed Minnesota's federally-approved human health and/or aquatic life water quality standards for mercury, copper, arsenic, cadmium, and zinc. This concern would be resolved if the permit included WQBELs for these parameters.

2. The permit lacks clear narrative effluent limitations such as an unqualified general prohibition on discharges that would cause exceedances of water quality standards (WQS). For example, at paragraph 6.16.4, the permit prohibits toxic discharges, but the condition also includes an exception for situations in which TBELs apply, as is the case with several of the parameters covered by the draft permit. EPA's concern could be resolved if MPCA establishes WQBELs for the authorized discharge and, additionally, removes the qualifying language from paragraph 6.16.4 to clearly prohibit discharges that would cause exceedances of water quality standards.

3. The permitting record does not appear to demonstrate that MPCA considered all the pollutants that were disclosed in the permit application as being present in the proposed discharge when evaluating the need for WQBELs. Thus, in the absence of WQBELs, there is no assurance that the discharge will meet applicable water quality standards. MPCA should, therefore, consider in its analysis all the pollutants that were presented in the application materials as potentially present in the proposed discharge to determine those WQBELs that are needed in the permit. Further, if MPCA considers a particular parameter to be the key to ensuring the facility will meet all applicable water quality standards, e.g., copper at monitoring station WS074 (permit section 6.10.40) or sulfate at monitoring station WS074 (permit section 6.10.31), the permit should include appropriate WQBELs at monitoring location SD001 to ensure that these internal operating limits result in meeting applicable water quality standards at the point where the discharge is sent to receiving waters (see also comment 6, below).

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4. The fact sheet's reasonable potential analysis relies on the assumption that data provided in the application are maximum values without taking into account the potential variability and uncertainty in the discharge from this new source. Under the Addendum to the EPA-MPCA National Pollutant Discharge Elimination System (NPDES) Memorandum of Agreement for the GLI (Great Lakes Initiative) (May 8, 2000), Minnesota committed to "use only alternative statistical procedures for deriving PEQ[1] that meet the standard in 40 C.F.R. Part 132, Appendix F, Procedure 5, Paragraph B.2."[2] To resolve EPA's concern, MPCA should consider that the data provided in the application materials are estimates based on assumptions and modeling outputs and ensure that its reasonable potential analysis is consistent with the procedures in 40 C.F.R. Part 132, Appendix F, Procedure 5.

5. At pages 34-37of the fact sheet,[3] MPCA states that its decision that WQBELs are not needed in the permit relies on the operational limits for sulfate (in milligrams per liter) and copper (in micrograms per liter) at internal outfall WS074. Although these limits are set to low values, including the copper limit that is set to the water quality standard, (calculated by assuming a hardness value of 100 mg/L), there is nothing definitive in the permit or supporting information that justifies a conclusion that meeting these operational targets will result in meeting water quality standards for all the parameters in the permit application. This is especially a concern for mercury, for which the standard is specified in nanograms per liter and the pilot study[4] states that the effectiveness of the treatment system to remove mercury is unknown.

6. The permit requires that no sulfate or copper be added to the discharge after monitoring station WS074, but does not prohibit the addition of any other additives between monitoring station WS074 and the final outfalls. In fact, the permit record shows that the effluent of the water treatment system will require mineral addition prior to its discharge to surface waters to reduce the toxicity due to the low ionic strength of the treated water. This raises two concerns. First, the permitting record includes information showing that available local sources of lime contain aluminum in levels that, if used, will likely result in a discharge that exceeds the applicable water quality standard for aluminum.[5] While MPCA appears assured that higher cost lime containing lower levels of aluminum is available and will be used, to ensure that likely variability in the quality and price of available lime does not result in exceedances of the applicable water quality standard, the

[1] "Projected Effluent Quality," (PEQ) is described in 40 C.F.R. Part 132, Appendix F, Procedure 5 Paragraph B.2.
[2] "EPA and MPCA agree that MPCA will use only alternative statistical procedures for deriving PEQ that meet the criteria in 40 C.F.R. Part 132, Appendix F, Procedure 5, Paragraph B.2. EPA and MPCA further agree that EPA retains the authority to review any specific statistical procedures Minnesota intends to use for deriving PEQs and to object to permits that have been developed using statistical procedures that do not meet the requirements of Paragraph B.2. of Procedure 5."
[3] "To ensure the WWTS is operating as designed and to remain consistent with the assumptions made in the FEIS, the permit includes an internal performance monitoring point (Station WS074) where an Operating Limit of 10 mg/L sulfate applies. The Operating Limit at WS074 is an enforceable permit limit but is neither a water quality based permit limit nor a technology based permit limit because there is no Reasonable Potential." (p. 35).
[4] See page 43 of "Final Pilot-testing Report" dated June 2013.
[5] See page 31 of the "Final Pilot-testing Report" dated June 2013.

permit should include a WQBEL for aluminum at the final discharge points or an internal outfall after mineral addition. Second, in light of the potential for whole effluent toxicity to occur, the permit should include whole effluent toxicity limits at the final discharge points or an internal outfall after mineral addition.

7. EPA is concerned that the permit and supporting materials do not include sufficient information to explain how downstream water will be protected consistent with CWA Section 402(b)(5), 33 U.S.C. § 1342(b)(5), based upon the following considerations, including: (1) downstream receiving waters exceed the applicable state and downstream state human health and wildlife water quality standard for mercury, and (2) the pilot study states that the effectiveness of the treatment system to remove mercury is unknown. We note that a downstream tribe, that has "Treatment as a State" and federally approved WQS, has notified EPA that the project is likely to contribute to exceedances of its downstream WQS, including for mercury. MPCA should ensure that its permit will ensure compliance with downstream state WQS.

In summary, EPA recommends that MPCA include WQBELs in the permit for those parameters identified in the application that are expected to be in the discharge and for which Minnesota has applicable WQS. We note that as this is a new discharger, the inclusion of WQBELs for these parameters would be prudent and provide a basis for measuring the performance of the new treatment technology proposed by the applicant. We also note that in subsequent permit cycles, after the facility has achieved full operation, such limits could be modified or deleted if no reasonable potential to exceed water quality standards is demonstrated.

Effluent Limitations Guideline Calculation

The draft permit does not include all the requirements of 40 C.F.R. 440, Subparts G, J, and K that apply to this proposed project, including a restriction on discharge volume that is in conformance with 40 C.F.R. § 440.104(b)(2)(i) and that is equivalent to the annual net precipitation for the site.

Permit sections starting at 6.10.1 include a formula that retrospectively calculates the allowable discharge flow and includes a "carryover" amount defined as "the difference between the allowable annual discharge volume and the actual volume discharged" which acts as a "credit" that the permittee is allowed to apply to the following calendar year. This "carry over credit" appears to be in contradiction to the applicable regulatory definitions of "annual precipitation," "annual evaporation," and "mine drainage" at 40 C.F.R. § 440.132(b), (h). We recommend setting a numeric limit on flow, including this limit in the permit, and ensuring that it is consistent with 40 C.F.R. § 440.104(b)(2)(i).

In addition, we recommend that MPCA consider the applicability of – and inclusion of – effluent limitations contained in 40 C.F.R. § 440.12, and 40 C.F.R. Part 440, subpart A (iron ore), as the project discharge could include legacy pollutants.

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Permit Enforceability Concerns

MPCA should address the following concerns.

1. The permit as written may preclude enforcement per CWA Section 402(k), 33 U.S.C. § 1342(k), for pollutants disclosed during the application process but for which there are no limitations, or for water quality standards excursions where the limitation provided in the permit appears to be greater than the applicable state water quality criterion. 12

2. The permit contains "operating limits" on an internal outfall that may not be enforceable by EPA, citizens, and potentially MPCA and, thus, may be ineffective at protecting water quality under the Clean Water Act (see 40 C.F.R. §§ 122.4(a), (d)). Specifically, the permit includes an internal outfall operating "target" and "limit" for sulfate based on a voluntary commitment by PolyMet to meet a 10 mg/L sulfate limit (permit sections 6.10.34-35) and an internal operating "limit" for copper that MPCA states will ensure compliance with the chronic water quality standard for copper (permit section 6.10.43). We understand that MPCA's authority to enforce such a provision may rest on state authority, outside the scope of the CWA. MPCA should revise the permit as necessary to ensure that all NPDES requirements are enforceable under the CWA. 13 13b

   Additionally, the internal "operating limit" for copper, at 9.3 micrograms per liter at permit section 6.10.43, is equivalent to the water quality criterion for copper. However, permit section 6.10.44 appears to authorize higher discharge concentration for copper, based on the TBEL that appears to apply at outfall SD001 (permit section 8.1.1). This creates a conflict as to which limit is applicable and enforceable against the permittee. MPCA should revise the permit to include a WQBEL for copper. 13c

3. MPCA plans to transfer the administratively continued, expired Cliffs Erie, LLC permit (and associated enforcement documents) for the existing tailings basin to an affiliated corporate entity of PolyMet. It appears that this arrangement could result in the permittee holding multiple permits covering the same discharge for some time after the effective date of the NorthMet permit. This creates confusion over which discharges are covered by each permit and may complicate or preclude enforcement of permit requirements under either permit, for example if legacy pollutants do not attenuate as predicted (permit section 6.10.45). 14

   Additionally, the Permit Fact Sheet (p. 17) acknowledges continuing seep discharges from the tailing basin. As such, the draft permit and/or supporting documentation should clearly assign responsibility for seep discharges by specifying those applicable portions of the Cliffs Erie, LLC permit (MN0054089), the Cliffs Erie, LLC Consent Decree with MPCA, and the draft NorthMet permit. Specifically, the permit should include: (a) a list of known seeps (including coordinates and/or sections) that are authorized to discharge from the tailings basin, (b) a map identifying seeps and their relationship to the planned containment system, (c) monitoring and applicable limits for these seeps, because, as 14b

noted in the fact sheet (p. 17), seep discharges "contributed to exceedances of permit effluent limitations established in the NPDES/SDS permit," and (d) appropriate interim authorization, limits, and requirements for tailings basin seeps until such a time as seeps are fully contained and cease to reach surface waters.

4. MPCA plans to issue general permit coverages for construction stormwater discharges prior to commencement of construction. Neither the draft individual permit, nor any supporting documentation clearly delineates what activities are excluded from coverage under a general permit. Further, the stormwater general permit would authorize discharge from the draining of over 900 acres of wetlands, which are dominated by peat bogs. This activity is expected to release significant amounts of mercury into downstream navigable waters. While MPCA has acknowledged and addressed such discharges in its peat mining permits (and in verbal comments regarding this project), nothing in the permitting record demonstrates that this issue has been addressed or even considered. There is no provision in the construction stormwater general permit for addressing specific water quality standards issues. Thus, the draft permit (and associated permitting scheme) appears to leave mercury from this aspect of the project wholly unregulated. We suggest identifying what is intended to be covered under the stormwater general permit and evaluate whether there is reasonable potential for discharges from activities covered under the stormwater general permit to cause or contribute to excursions from water quality standards. If there is such reasonable potential, coverage under the stormwater general permit would not be appropriate. Rather this discharge, with appropriate WQBELs, could be covered under the NorthMet permit or another individual permit. 15 15b

5. Permit section 6.10.17 does not allow the permittee to discharge any process wastewater from the mine site to the surface waters. However, it is not clear how compliance with this condition will be evaluated. Under 40 C.F.R. § 122.44(i), NPDES permits must include monitoring requirements "to assure compliance with permit limitations," which include, among other things, "the mass (or other measurement specified in the permit) of each pollutant limited in the permit" and "the volume of effluent discharged from each outfall." We recommend that the permit include monitoring requirements and conditions against which compliance can be objectively measured. We have similar concerns with other provisions at permit sections 6.10.26, 6.10.78, 6.11.2, 6.11.9, 6.12.2, and 6.15.11. 16 16B

Decision Making Procedures

The draft permit states that certain plans, reports, and other actions are effective parts of the permit upon submittal by the permittee, making them de facto permit modifications that, in some instances, are likely to be major modifications subject to 40 C.F.R. § 122.62 (for example, see permit section 6.10.38). EPA is concerned that the permit allows both the permittee and MPCA to modify the permit without following the public process for major permit modifications under 40 C.F.R. § 122.62. Permit modifications that do not follow federal regulations may be unenforceable, may cause confusion for regulators and public over what is covered by the 17

permit, and therefore would not ensure compliance with the CWA (see 40 C.F.R. § 122.4(a)).

Although MPCA may wish to require the permittee to undertake immediate corrective action in appropriate circumstances, EPA recommends that MPCA eliminate those permit provisions that make permittee-submitted plans, reports, and other actions immediately-effective parts of the permit. We recommend that, instead, MPCA employ appropriate enforcement responses and its authority to modify permits under Minn. R. 7001.0170 and 40 C.F.R. § 122.62, as necessary. 17b

Other Recommendations

EPA recommends that MPCA consider and address the following comments to improve the clarity and accuracy of the permit.

1. The draft permit contains no limits for CBOD, TSS, pH, fecal coliform, percent BOD/TSS reductions at the sewage treatment stabilization pond ~~internal waste stream monitoring location~~ WS009. Also, the permit contains no limits for CBOD, fecal coliform, or percent BOD/TSS reductions at Outfall SD001. We also note that there does not appear to be a reasonable potential discussion regarding the stabilization pond. MPCA should evaluate whether effluent from the stabilization pond will cause or contribute to excursions from water quality standards. We also recommend including reporting requirements, such as weekly maintenance observations, for the stabilization pond. 18 18b

2. The permit (at p. 9 and Table 2.1) states that the WWTS discharge will be distributed to various tributaries to minimize hydrologic or ecologic impacts, but the permit does not clearly describe the relationship between the flow in these outfalls and the allowable discharge (permit section 6.10.1 - 6.10.9). MPCA should include provisions in the permit that show how the permittee and MPCA will determine the distribution of flows to Outfalls SD002-SD0011. 19 19b

3. The permit (at p. 11) discusses the "controlled discharge" from the stabilization pond to the floatation tailings basin (FTB). The permit should explain how the controls on this discharge will function as enforceable requirements of the permit. 20 20b

4. Permit section 6.10.12 does not allow cells 2E and 1E to be combined until the floatation tailings basin seepage collection system is "fully operating" but it is not clear how this term is defined. MPCA should define "fully operating" to ensure that these permit requirements can be adequately monitored and enforced. 21 21b

5. Permit section 6.10.27 requires the permittee to maintain a system of paired monitoring wells and piezometers (one internal and one external to the FTB seepage containment system). If these are established monitoring points already included in the permit, MPCA should include references to the monitoring numbers here. If these monitoring points have not yet been established, MPCA should create and include them in the monitoring table along with the type and frequency of data collection. 22 22b

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6. Permit section 6.10.26 says "Direct discharge to surface waters from the FTB Seepage Containment System is prohibited." It is unclear to EPA how MPCA would implement the prohibition of "direct discharge." EPA recommends that the permit be clarified to prohibit any "discharge of pollutants to surface waters" consistent with the Clean Water Act. 23 23b

7. Permit section 6.10.49 requires sampling at SW003, SW005, SW006, SW007, and SW020 to begin 18-months following initial operation of the WWTS. MPCA should ~~begin~~ sampling upon permit issuance so that a baseline can be established at these locations. 24 24b require to begin

8. Permit section 6.11.11 prohibits the discharge of PCBs. As this is a legacy mine site, we recommend that MPCA work with the permittee to determine whether the site contains PCBs. If it is determined that the site does not contain PCBs, MPCA should have the permittee certify this finding. Similarly, if PCBs are present on site, then MPCA should revise the permit to include monitoring requirements to evaluate compliance with the prohibition. 25 25b

9. We recommend that the permit include at the beginning (for example, p. 1) a citation to the federal and state authorities pursuant to which the discharges from the facility are allowed. 26

10. There are several references in the permit and fact sheet where the reader is directed to the permit application for more information. For example, one reference to the 3d volume of the October 2017 permit application references a document over 500 pages long (see permit p. 8). We suggest including a location for references such as these throughout the permit to facilitate the reader's ability to access the information. 27 27b

11. Permit section 6.10.21 allows "agency pre-approved adaptive management or mitigation measures." We recommend including a link or reference to where these measures can be located. 28 28b

12. The maps and figures in the permit and fact sheet are often difficult to read. If clearer versions of these cannot be included, we suggest including a reference to where the original maps and figures can be viewed in hard copy or on line. 29 29a