Fond du Lac Band of Lake Superior Chippewa
Reservation Business Committee

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February 5, 2019
By U.S. Express Mail

Cathy Stepp
Regional Administrator, Region 5
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604

Chad Konickson
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U.S. Army Corps of Engineers
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Re: State of Minnesota's Section 401 Certification for PolyMet Mining, Inc.'s NorthMet Project

Dear Regional Administrator Stepp and Regulatory Branch Chief Konickson:

The Fond du Lac Band of Lake Superior Chippewa ("Fond du Lac" or the "Band") has sent two previous letters to request that the Environmental Protection Agency ("EPA") provide notice to the Band pursuant to Section 401(a)(2) of the Clean Water Act, 33 U.S.C. § 1251 *et seq.* ("CWA"), regarding PolyMet Mining, Inc.'s ("PolyMet") NorthMet Project ("Project"). The Band requested this notice so that it can comment, raise objections and/or urge additional measures necessary to ensure that PolyMet's Project will satisfy the Band's downstream water quality standards.[1] To date the Band has not received any response to these requests and yet the Minnesota Pollution Control Agency ("MPCA") issued its Section 401 Certification for the Project on December 20, 2018.[2] The Section 401(a)(2) process is critically important in providing the Band with the opportunity to protect its waters from pollution that will be discharged by the Project before the U.S. Army Corps of Engineers ("U.S. Army Corps") decides whether to issue a Section 404 permit to PolyMet for the Project.

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[1] *See* 33 U.S.C. § 1341(a)(2).

[2] Shortly after MPCA issued its 401 Certification the federal government shutdown on December 22, 2018. The federal shutdown ended on January 25, 2019. The Band's position is that the time for EPA to send the Section 401(a)(2) letter is extended so that the Band is not prejudiced by the shutdown. Therefore, the 30-day time period does not end until February 22, 2019.

As discussed in detail below, the Band objects to the State's 401 Certification and any issuance by the U.S. Army Corps of a Section 404 permit to PolyMet for the Project. Rather than wait for a Section 401(a)(2) letter and/or have the 30-day time period to receive a letter lapse, the Band provides a summary of its concerns and objections to the State's Section 401Certification and any issuance by the U.S. Army Corps of a Section 404 permit. The Band also requests a public hearing on these objections pursuant to Section 401(a)(2).[3]

I. Background

The Band is a federally recognized Indian tribe and a member band of the Minnesota Chippewa Tribe ("MCT"). The Band retains hunting, fishing, and other usufructuary rights that extend throughout the entire northeastern portion of the state of Minnesota under the 1854 Treaty of LaPointe[4] (the "Ceded Territory"). Fond du Lac Band members rely on those rights to harvest and gather natural resources in the Ceded Territory for subsistence, cultural and religious purposes. The Band accordingly has a legal interest in protecting natural resources on which those rights depend. All federal agencies share in the federal government's trust responsibility to the Band to maintain and protect those treaty resources.[5]

The Fond du Lac Band also holds and occupies a Reservation established as the Band's permanent home by Treaty with the United States. The Fond du Lac Reservation is hydrologically connected to the Project area via the St. Louis River. In 1996, EPA affirmed the Band's jurisdiction over waters of the Reservation when it approved the Band's Treatment as a State status under the CWA. In 2001, the Band's water quality standards were the first to be approved for an Indian tribe within the Great Lakes Basin. The Band accordingly has legal rights and interests in ensuring that Reservation lands and waters, as well as natural resources, on which Band members depend are not adversely affected by activities on or off the Reservation. Additionally, as a downstream regulator under the CWA, the Band has an interest in monitoring and ensuring the Project's compliance with upstream water quality standards for waters of the State and United States.[6]

The St. Louis River watershed (called Chi-gamii-ziibi or Lake Superior River by the Ojibwe), has been home to the Fond du Lac Band for centuries. Over time, with the development of non-Indian economies, we have seen our wild rice waters (called manoomin in Ojibwe) degraded in the very place where our migration prophecies led us; our dense forests clear-cut; our lake sturgeon wiped out by overfishing, habitat degradation and pollution; and

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[3] 33 U.S.C. § 1341(a)(2).
[4] Treaty with the Chippewa, 10 Stat. 1109 (Sept. 30, 1854).
[5] *See, e.g.*, Exec. Order 13175—Consultation and Coordination With Indian Tribal Governments (Nov. 6, 2000) (stating "the United States has recognized Indian tribes as domestic dependent nations under its protection . . . .," there is a "trust relationship with Indian tribes," and "[a]gencies shall respect Indian tribal self-government and sovereignty, honor tribal treaty and other rights, and strive to meet the responsibilities that arise from the unique legal relationship between the Federal Government and Indian tribal governments.").
[6] *See* 33 U.S.C. § 1377(e).

remaining fish are now so high in mercury that we cannot safely feed them to our children. Despite these impacts, we are working hard to restore and protect our waters and natural resources for future generations.

The Fond du Lac Environmental Program has implemented a broad-based tribal water quality protection program that includes federally approved water quality standards, a comprehensive monitoring program designed to assess the health of reservation lakes and streams, and protection plans for wetlands and ground water resources. Since at least 1999, Fond du Lac has been implementing its water quality monitoring program for Reservation lakes and streams. This started with a three-year baseline data collection effort and was followed by an ongoing modified core monitoring program. Twenty years of comprehensive monitoring and assessment of Reservation waters confirm that all waterbodies now meet standards to protect their designated uses, with the exception of mercury, either in the water column or fish tissue or both.

In all of the Tribal Environmental Agreements ("TEAs") and EPA/Tribal Environmental Plan ("ETEPs") between the Band and EPA Region 5, surface and ground water protection are identified as the number one tribal environmental priority. The Fond du Lac Nonpoint Source Assessment Report and Management Plan (2004) notes:

> All of the waters within the Reservation are believed to be relatively pristine, as there are no direct industrial or municipal discharges to the waters. Water quality is a priority that has been clearly expressed by Band members. The Band historically has relied upon aquatic resources (wild rice, fish, and associated wildlife and waterfowl). Culturally, the natural resources are an integral part of their lives. The Fond du Lac Reservation Land Use and Management Plan's (1998) guiding policy for natural resources states the following:
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> > *An appropriately diverse landscape of viable, healthy ecosystems of sufficient extent that are naturally functioning and/or managed by humans that: insure surface and ground water of the highest possible quality; insure the ongoing presence of natural resources critical to traditional Ojibwe uses; and offer, where appropriate, economic values.*

The Band became a cooperating agency for PolyMet's NorthMet Project during the National Environmental Policy Act ("NEPA") review process. The Minnesota Department of Natural Resources ("MDNR"), the U.S. Army Corps, and the U.S. Forest Service served as co-lead agencies in preparing an Environmental Impact Statement ("EIS") as required by the state environmental process and NEPA. The Band sought cooperating agency status and was invited by the U.S. Army Corps as such, because of the potential impacts that the Project would have on treaty-protected cultural and natural resources within the 1854 Ceded Territory, as well as downstream impacts within the St. Louis River watershed where the Band's Reservation is located. Throughout the environmental review and permitting processes, the Band has repeatedly voiced its concerns to the federal and state agencies responsible for ensuring that the

Project will have sufficient environmental controls to meet the Band's downstream Water Quality Standards, with respect to both narrative and numeric criteria, as well as our antidegradation policy.

For example, the Band submitted comments to the 2009 Draft Environmental Impact Statement ("DEIS") and the 2013 Supplemental EIS ("SEIS"). Then on December 18, 2015, the Band submitted comments to the State, the U.S. Army Corps and the Forest Service objecting to the Final EIS ("FEIS"); and on August 2, 2018, the Band petitioned the U.S. Army Corps and Forest Service to prepare a second Supplemental EIS.[7] Many of those comments are relevant to the Band's comments and objections to the State's 401 Certification and are incorporated here.[8] The Band also submitted comments and objections to MPCA on the draft NPDES/SDS Permit for the Project.[9] Because MPCA's Section 401 Certification relies, in part, on the NPDES/SDS Permit, those comments and objections are incorporated here.[10] Additionally, the Band submitted comments and objections to MPCA on the draft Section 401 Certification, draft Permit to Mine, and draft Dam Safety Permits for the NorthMet Project and those comments are incorporated here.[11]

II. Summary of the Band's Objections to MPCA's 401 Certification and any Issuance by the U.S. Army Corps of a Section 404 Permit

The U.S Army Corps' November 13, 2015 Public Notice regarding PolyMet's application for a Section 404 permit recognizes that a "Section 404 permit cannot be issued for any activity unless state water quality certification for the activity is granted or waived pursuant to Section 401 of the Clean Water Act." Notice at 7. But in addition to a Section 401 Certification from the MPCA, the U.S. Army Corps must also address the Band's authorities under sections 303(c) and 401 of the CWA due to the Project's potential impacts on the downstream waters. The EPA and the U.S. Army Corps must ensure that the Band's water quality standards will be satisfied in light of the Project's proposed activities. *See Wisconsin v. EPA*, 266 F.3d 741, 748 (7th Cir. 2001) ("Once a tribe is given TAS [treatment as state] status, it has the power to require upstream off-reservation dischargers . . . to make sure that their activities do not result in contamination of the downstream on-reservation waters."); *City of Albuquerque v. Browner*, 97 F.3d 415, 424 (10th Cir. 1996) (upholding EPA's authority to require upstream NPDES dischargers to comply with downstream tribal standards). Thus, before the U.S. Army Corps can issue a Section 404 permit, not only is an adequate Section 401 certification required from the MPCA, but measures must be taken to ensure the Project will comply with the Band's water quality standards.

The Band is to be treated as a State for purposes of Section 401 certifications. *See* 33

[7] To date the Band has not received a reply to its petition for a SEIS.
[8] *See* Attachments 1 through 4 respectively.
[9] On January 22, 2019, the Band filed a Petition for Writ of Certiorari before the Minnesota Court of Appeals seeking review of the final NPDES/SDS Permit issued to Polymet.
[10] *See* Attachment 5.
[11] *See* Attachment 6-8.

U.S.C. § 1377(e). Under Section 401(a)(2), a downstream State has the right to object to the issuance of a federal permit if the proposed activity may affect its water quality standards. *Id.* § 1341(a)(2). Accordingly, the EPA must notify the Band of MPCA's 401 Certification and the Band must be afforded an opportunity for a hearing on its objections to the U.S. Army Corps' proposed issuance of a Section 404 permit to PolyMet. *See Nat'l Wildlife Federation v. FERC*, 912 F.2d 1471, 1483 (D.C. Cir. 1990) ("[W]henever such discharge might affect the quality of the waters of any other state so as to violate any water quality requirement in that state, that state must be notified of the application and afforded an opportunity for a hearing."); *Lake Erie All. for Protection of Coastal Corridor v. U.S. Army Corps of Eng'rs*, 526 F. Supp. 1063, 1076 (W.D. Pa. 1981) (under section 401(a)(2), "if a state objects, it has the right to request in writing that a public hearing be held on its objections"); *see also* 40 C.F.R. §§ 121.13, 121.15. The Section 401(a)(2) process is critically important to provide the Band an opportunity to protect its waters from pollution proposed to be discharged by the Project before the U.S. Army Corps decides to issue a Section 404 permit. Any failure by the EPA or the U.S. Army Corps to adhere to the Section 401(a)(2) process will prejudice the Band's rights under the CWA to protect its waters.

Further, the EPA has an independent obligation to review both the MPCA's 401 Certification and the MPCA's issuance of a NPDES/SDS Permit[12] upon which the 401 Certification relies, to ensure that the Band's downstream water quality standards will be met. *See* 40 C.F.R. § 123.24(d)(2).

The discussion below provides a summary of the comments and objections that the Band has made with respect to the Project's impacts to water resources during the environmental review and permitting process that relate to MPCA's 401 Certification. A more complete discussion can be found in the Band's comments which are attached.

A. EPA and U.S. Army Corps Must Ensure the Band's Water Quality Standards Will Be Met for Mercury

Tribal members as a population rely on fish as a major constituent of their diet, to a greater extent than does the general or sport-fishing population, and mercury contamination of fish harvested from Reservation and ceded territories waters continues to be a serious public health concern. Specific water quality concerns communicated by Band members are focused upon toxic contaminants, particularly mercury, which were historically discharged into the St. Louis River from industrial sources and continue to precipitate out of the atmosphere from both regional and more remote sources (coal-fired power plants, taconite mining, and the pulp/paper industry). Waterbodies in this Northern Lakes and Forests ecoregion are especially vulnerable to mercury contamination, since the microbial methylation of mercury to its bioavailable form is

[12] *See* supra n.9 and Attachment 5 (Band's comment to the draft NPDES/SDS Permit).

greatly enhanced in wetlands, and our lakes and streams have a significant wetland component to their watersheds.[13]

The St. Louis River is the most significant and utilized fishery resource on the Reservation. Fish tissue collected by the Band in 2001, 2008, and 2015 revealed mercury concentrations that exceed human health risk levels and required advisories that recommend limited consumption of traditional preferred species. Additionally, water quality data collected by the Band since 2005 also demonstrates consistent exceedances of our chronic criterion (0.77 ng/l), which is more restrictive than the Great Lakes Initiative ("GLI") required criterion (1.3 ng/l) that the State of Minnesota adopted for waters in the Lake Superior Basin. Although the Band has concurred with the MPCA on this particular impairment in our shared waters of the St. Louis River for the past six biennial Section 303(d) (of the CWA) listing cycles, there is currently no TMDL in place to require mercury reductions sufficient to lift the consumption advisories and restore this impairment.

Accordingly, *any additional releases of mercury or loadings of sulfate by the Project that enhance downstream methylation of mercury and mercury bioaccumulation in fish constitutes an unacceptable violation of our water quality standards.*

As the Band asserted in its comments on the DEIS:

> The State of Minnesota's mercury TMDL process will not adequately address the fish consumption impairment in these waterbodies, and any new discharges that would result in further degradation to waters with an existing water quality impairment would not be legally permittable under the Clean Water Act (see Friends of Pinto Creek v. EPA (9th Cir.), known as the Carlota Decision).[14]

Subsequently, in the SDEIS, the co-lead agencies began to frame their concept of "compliance" with state and federal mercury limits as follows:

> *The NorthMet Project Proposed Action is predicted to increase mercury loadings in the Embarrass River, but decrease mercury loadings in the Partridge River. The net effect of these changes would be an overall reduction in mercury loadings to the downstream St. Louis River.*[15]

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[13] Although EPA approved a statewide mercury Total Maximum Daily Load ("TMDL") for Minnesota in 2008, hundreds of lakes and river reaches (including the St. Louis River and all Reservation lakes) were excluded from that TMDL, as the fish tissue mercury concentrations would still not achieve the health-based standard even if all mercury sector reduction goals were achieved. And to date, no TMDL has been developed to address the mercury impairment in the St. Louis River watershed.

[14] Attachment 1 at 28. *See also e.g.*, U.S. EPA Comments on NorthMet Project – Draft Environmental Impact Statement at 15 (Feb. 18, 2010) ("The project's potential to affect water quality on the reservation needs to be evaluated.").

[15] SDEIS at 5-210, available at https://www.dnr.state.mn.us/input/environmentalreview/polymet/sdeis-toc.html.

The Band does not accept MPCA's tactics for determining that the Project would not lead to exceedances of our water quality standards: that either the (dubiously predicted) decrease in mercury loading to the Partridge River would "offset" increased mercury loading to the Embarrass River, or that there would be "no measurable increase" of mercury in either watershed. Neither of these approaches is supported by either the CWA or state rules. Specifically, for outstanding international resource waters ("OIRWs") of the Lake Superior Basin, which include all receiving waters downstream of the PolyMet Project, if a designated use of the water body is impaired, "there can be no lowering of the water quality with respect to the GLI [Great Lakes Initiative] pollutants causing the impairment."[16] These waters downstream of the Project (Partridge River, Embarrass River) are all impaired due to mercury (a GLI pollutant) in the water column or methylmercury in fish tissue. Therefore, no further loadings of mercury may be allowed. Despite this clear statutory requirement being referenced in every one of the Band's submitted comments on this Project, MPCA has never responded with their rationale for ignoring it.

Indeed, the Band pointed out in comments that MPCA's conclusion was not supported by data, and that the SDEIS had also failed to evaluate other well-documented factors that affect mercury methylation and bioaccumulation. The co-lead agencies ignored relevant research from some of their own scientists regarding the enhancement of mercury methylation by sulfate loading to naturally sulfate-poor ecosystems, such as the watersheds surrounding the Project area (mine site and plant site). Data presented in the SDEIS on the water quality of seepage from the tailings basin contradicted the State's assumption that taconite tailings would indefinitely adsorb mercury, clearly showing mercury concentrations exceeding the GLI standard and higher than many of the data shown for nearby tributary streams.

The FEIS repeats this erroneous framework for justifying a prediction of no downstream impacts:

> *Overall, the NorthMet Project Proposed Action is predicted to increase mercury loadings in the Embarrass River. Mercury loadings in the Partridge River would decrease. The net effect of these changes would be an overall reduction in mercury loadings to the downstream St. Louis River upstream of the Fond du Lac Reservation boundary. Therefore the NorthMet Project Proposed Action would not add to any potential exceedance of the Fond du Lac mercury water quality standard of 0.77 ng/l within the Reservation.*[17]

This conclusion, once again, is not supported by data. The background site-specific analyses and data presented in the FEIS for total mercury and methylmercury in surface and groundwater is not sufficient to either adequately describe existing conditions or evaluate the potential for

[16] Minn. R. 7052.0300, subp. 2.
[17] FEIS at 5-10, available at https://www.dnr.state.mn.us/input/environmentalreview/polymet/feis-toc.html.

impact due to changes in hydrology and water quality as a result of the NorthMet Proposed Project. There is very little methylmercury data included in the analysis for any waterbodies, and there is *no* sediment mercury or methylmercury data used to benchmark or understand existing conditions. For the data that is presented, there are numerous inconsistencies in reporting limits and method detection limits, casting doubt on data quality and its utility for critical analysis of Project impacts. And even though the co-lead agencies are well aware of the role of wetlands as sources of methylmercury in the sensitive landscape of the Project, the potential impacts of the proposed NorthMet Project on the mercury biogeochemistry of wetlands have simply not been considered in *any* of the EIS assessments, including the FEIS. Predictions of sulfate loading (atmospheric deposition) to nearby wetlands are significantly underestimated, and the assumption for that sulfate to be mixing with standing water is untenable because of the wetland types in proximity to the Project. According to an independent analysis, the increase in sulfate loading to wetlands will likely be nearly four times the background deposition rate.[18] Finally, regardless of whether or not uncaptured sulfate or mercury is released via Project development, the dewatering of wetlands surrounding the tailings basin through seepage collection, and water table impacts by underdrainage of mine site peatlands through pit dewatering could increase total mercury, methylmercury and sulfate in the Partridge, Embarrass, and ultimately the St. Louis River.

After the draft EIS was deemed "Environmentally Unsatisfactory – Inadequate" by EPA Region 5, the co-lead agencies were determining the information needed to conduct a supplemental environmental review. The U.S. Army Corps asked the Band to describe its water quality standards program and clarify its concerns as a downstream regulator. The Band responded:[19]

> As you review our ordinance, you will note that all designated uses apply to our 22-mile reach of the St. Louis River with the exception of 'Public Water Supply' and 'Cultural - wild rice areas'. All narrative and numeric criteria associated with the designated uses apply, as well as the antidegradation provisions for high quality waters . . . .
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> . . . Our water quality standards have been calculated to assume a higher fish consumption rate by Band members, 60 grams/day, than the general public (17.5 g/day), or even the state of Minnesota's consumption rate for the Lake Superior Basin (30 g/day). We will be reevaluating that consumption rate this year during our triennial review process, and may revise it upwards to be consistent with more current studies on Ojibwe diet and traditional lifeways, studies by the Great Lakes Indian Fish and Wildlife Commission ("GLIFWC") identifying a strong seasonal

[18] Branfireun, B.A. "Final Expert Review of the NorthMet Mining Project and Land Exchange Final Environmental Impact Statement," prepared for counsel to WaterLegacy (Dec. 12, 2015) ("Branfireun 2015") (included as Attachment 9).

[19] Letter to U.S. Army Corps, Tamara Cameron, from Fond du Lac Band of Lake Superior Chippewa (Mar. 2, 2012).

> component to Ojibwe fish consumption rates, and in consideration of the mercury in fish studies we have conducted for Reservation waters . . . .
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> . . . Based upon results of our water quality monitoring program and additional resource investigations, the Reservation's reach of the St. Louis River is attaining all of its beneficial uses and meeting applicable water quality standards, with the exception of mercury contamination in fish (our human health chronic standard). While mercury concentrations we have measured in St. Louis River samples are (usually) below the GLI Chronic Wildlife Standard of 1.3 ng/l, they always exceed Fond du Lac's human health chronic standard of 0.077 ng/l. For this reason, we are concerned about any new or expanded discharges to the St. Louis River upstream of the Reservation that may adversely affect mercury bioaccumulation in fish. In order to fully assess the impact of the proposed project on mercury bioaccumulation downstream, we believe it is crucial to collect mercury data in biota (multiple trophic levels) to characterize current conditions in and around the proposed project area, not simply to predict downstream water column mercury concentrations through modeling. There are a number of relevant regional studies and peer-reviewed journal articles that describe sampling strategies and methodologies for lower trophic level taxa such as odonates, crayfish, and prey fish such as yellow perch.

Despite this, neither the U.S. Army Corps nor other co-lead agencies have required that assessment; neither did the MPCA before issuing its Section 401 Certification.

After the FEIS for the NorthMet Project was deemed adequate by the MDNR, the MPCA requested that PolyMet conduct a "cross-media analysis to address potential water quality concerns from dust deposition from the Project,"[20] another concern that the Band repeatedly raised in comments during environmental review. PolyMet submitted its *Cross-Media Analysis to Assess Potential Effects on Water Quality from Project-Related Deposition of Sulfur and Metal Air Emissions* on October 31, 2017, with supplemental information submitted on November 29, 2017. MPCA's technical experts in air quality modeling, water chemistry and mercury reviewed this analysis, and the agency relied upon their conclusions in developing the Section 401 Certification.

Although the Band and the public might reasonably assume that the Cross-Media Analysis would reflect a rigorous, in-depth analysis of specific water quality impacts that could occur due to deposition of toxic dust, this is not the case. Evaluation of the Project's mercury impacts in the Cross-Media Analysis is limited to airborne sulfate deposited to a single wetland of interest ("WOI") that is not hydrologically connected to other surface waters, and ignores the hydrologic processes (wetting and drying of wetlands around the mine site and plant site, release of mercury to tributary streams) that are *most likely* to have an effect on increased mercury releases to the watershed. Within that narrow focus, the background mercury data

[20] MPCA Section 401 Certification Fact Sheet at 14 (Dec. 20, 2018).

inconsistencies create a flawed understanding of baseline conditions, with the result being a flawed analysis of the relative magnitude of changes to the background mercury concentrations. This flawed representation of the magnitude of change in mercury concentrations is the basis for MPCA's determination of "no measurable change."

According to Branfireun's first analysis of the actual, significant, and predictable mercury impacts of the PolyMet Project, "[i]t is likely that the loadings to the Embarrass River may increase concentrations to a much greater degree than predicted, and it is also possible that loadings to the Partridge River will not decrease if the estimated background concentrations are in fact lower than those presented in the SDEIS, and appropriate uncertainties and considered in the analysis."[21] Maest[22] also agrees with Branfireun's interpretation of key literature cited by Barr in the Cross-Media Analysis:[23, 24]

> Hydrologic fluctuations not only serve to release previously sequestered sulfate and Hg from peatlands but may also increase the strength of peatlands as sources of MeHg to downstream aquatic systems, particularly in regions that have experienced elevated levels of atmospheric sulfate deposition.
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> . . . when deposition is higher, MeHg levels are higher, and when sulfate deposition is reduced, MeHg levels in biota are also reduced. The findings from both Coleman Wasik et al. articles strongly imply that increased sulfur deposition from Mine and Plant Site emissions will increase the production and export of MeHg in and from site wetlands during operations, especially during times of fluctuating water levels.

Because the scope of the Cross Media Analysis was so narrowly restricted (focusing only on dust deposition), coupled with the Project proponent's selective decision to examine only a single WOI, and applying certain limitations in the analysis, PolyMet's analysis unsurprisingly resulted in a conclusion that the Project would result in "no measurable changes in mercury in

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[21] Branfireun, Brian A, PhD, "Expert Opinion Concerning the NorthMet Mining Project and Land Exchange Supplemental Draft Environmental Impact Statement" at 8 (Mar. 10, 2014) ("Branfireun 2014"), prepared for counsel to WaterLegacy (included as Attachment 12). *See also* Branfireun 2015.

[22] Maest, A., Draft Technical Memorandum to Jane Reyer, Friends of the Boundary Waters Wilderness, re: Comments on PolyMet Mining's Cross-Media Report: Issues Related to Estimates of Metal Concentrations and Geochemical Behavior in the Wetland-of-Interest, at 8 (Mar. 11, 2018) (included as Attachment 11).

[23] Coleman Wasik, JK, Mitchell, CPJ, Engstrom, DR, Swain, EB, Monson, BA, Balogh, SJ, Jeremiason, JD, Branfireun, BA, Eggert, SL, Kolka, RK, and Almendinger, JE. 2012. Methylmercury declines in a boreal peatland when experimental sulfate deposition decreases. *Environ. Sci. Technol.* 46, 6663–6671, available at https://www.fs.fed.us/nrs/pubs/jrnl/2012/nrs_2012_colemanwasik_001.pdf

[24] Coleman Wasik, JK, Engstrom, DR, Mitchell, CPJ, Swain, EB, Monson, BA, Balogh, SJ, Jeremiason, JD, Branfireun, BA, Kolka, RK, and Almendinger, JE. 2015. The effects of hydrologic fluctuation and sulfate regeneration on mercury cycling in an experimental peatland. *J. Geophys. Res. Biogeosci.*, 120, 1697–1715, available at http://onlinelibrary.wiley.com/doi/10.1002/2015JG002993/full#abstract

water or fish."[25] In Dr. Branfireun's expert opinion, PolyMet's Cross-Media Analysis is "a straw man that enabled MPCA to limit its assessment of the issues concerning mercury and methylmercury to matters arising from the cross-media analysis only (i.e. dust deposition). The MPCA could then avoid addressing critical aspects of the problem of locating a copper-nickel sulfide ore mine in a landscape with high mercury methylation potential, including the effects of sulfate loading from direct discharge and seepage and the effects of changes in hydrology on mercury and methylmercury release from sediments, mercury methylation, bioaccumulation and transport."[26]

In other words, this "rigorous, in-depth analysis" *completely ignored the significant mercury and sulfate sources, and the mercury-enhancing landscape/watershed processes about which the Band and independent mercury experts have continually raised red flags throughout the entire environmental review and permitting processes.* These mechanisms should also have been thoroughly examined, and MPCA should have made an independent effort to model probable impacts, instead of just dismissing their technical feasibility and relying solely upon PolyMet's incomplete analysis.

Further, the proposed monitoring will not detect relevant mercury increases and changes. Even though the MPCA concluded in its Section 401 Certification that there is "sufficient uncertainty that additional monitoring is necessary," the monitoring requirements it actually established for surface discharge, wetland and stream monitoring of mercury and methylmercury are inadequate. As a consequence of the agency's decisions on location, scope and design, MPCA's proposed monitoring approach will not be sufficient to capture changes in either wetland biogeochemical function, or degradation of water quality in headwater streams impacted by the Project. The additional monitoring is narrowly defined by PolyMet's own self-declared area of concern – its Mine Site wetland of interest – which will not be impacted by either direct discharge or by uncaptured tailings seepage and has no direct surface connection to downstream tributaries. This proposed monitoring cannot even detect irreversible harm to the environment as a result of the project development and operations, let alone provide sufficient early warning to trigger adaptive management actions. Although MPCA's assurances give the impression it has exercised due diligence, a closer examination reveals that these additional monitoring requirements are wholly inadequate to protect human health or the environment.

For these reasons, the State's 401 Certification does not ensure that the Band's downstream water quality standards with respect to mercury contamination will be met. At a minimum, EPA and the U.S. Army Corps must conduct a full assessment as recommended by the Band and place additional conditions, in consultation with the Band, to ensure that the Band's downstream water quality standards will be met.

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[25] Branfireun, Brian A, PhD, "Expert Review of the Minnesota Pollution Control Agency Clean Water Act Section 401 Certification for the NorthMet Project," at 2, 12-13 (Jan. 20, 2019) ("Branfireun 2019"), prepared for counsel to WaterLegacy and submitted to the EPA on January 21, 2019 (included as Attachment 10).
[26] *Id.* at 2-3.

B. EPA and U.S. Army Corps Must Also Address Other Contaminants of Concern Affecting the Band's Water Quality Standards

The Band's concerns for water quality exceedances apply to more than just mercury and methylmercury.

In neither the SDEIS nor the FEIS did the co-lead agencies satisfy EPA's request for an analysis of the range of uncertainty concerning groundwater quality. PolyMet only conducted uncertainty analysis for certain selected elements, and for many of the elements reported in the FEIS data, the standard deviations (variation) are greater than the means and in some cases, they were much more variable than plus or minus 100% (iron, arsenic, chromium, copper, nickel, chromium).

The only elements of concern that were evaluated in the Cross-Media Analysis for their water quality impacts were sulfur, arsenic, cobalt and copper. These elements were considered 'indicator metals' because of their association with sulfur in NorthMet ore and waste rock, and their potential release from dust deposited in wetlands. Nickel was rejected for consideration, even though the effect of hardness on compliance with the nickel water quality standard was ignored. Rather than requiring the collection of wetland surface water quality data for background, the analysis of potential water quality impacts from Project dust relies on an equation derived with surrogate data from groundwater instead of surface water in the WOI. And the only chemistry data collected in the WOI were occasional measurements of pH and specific conductance. This analysis is inadequate because it relies on inferences from other water sources. In order to accurately analyze potential water quality impacts from the Project, baseline samples are necessary to provide actual data.

MPCA allowed the Project proponent to estimate total hardness, rather than actually measure it, using the equation:

Total Hardness (mg/L0 + 0.48 x Specific Conductance (μS/cm)

An r^2 value of 0.96 was given for this equation, but the underlying data used to derive this equation were not provided in the Cross-Media Analysis or in any other project documents. A quick analysis of Fond du Lac's concurrent total hardness and specific conductance data (thousands of data points over 20 years) does not result in the same simple conversion equation and has an r^2 of only 0.586. Needless to say, the use of *estimates* of critical data values do not engender the same confidence in variability or precision of water chemistry predictions as using actual data, and there is no valid reason for not requiring baseline wetland water quality data to be collected in advance of permitting. Specifically, for this aspect of the Cross-Media Analysis, lower hardness values would result in lower water quality standards for copper and nickel, which are hardness-dependent. Predictions for exceedances of hardness-dependent water quality parameters should not be based upon estimated data values.

No direct measures of surface water hydrology, including seasonal wetland water inflow, outflow, or levels, have been taken. In fact, the location of the WOI outlet is highly uncertain, and it is unclear if wetland water connects to the Partridge River. Choosing a WOI that does not directly connect to a stream underestimates the water quality effects of Project dust on downstream water quality. The Cross-Media Analysis assumes that water from the WOI does not infiltrate to the regional groundwater aquifer or to a stream.[27] Given the scarcity of real data (water quality and hydrology), and lack of hydrologic connection between the WOI it analyzed and other surface water features, it is hard to understand how MPCA justifies its singular reliance on this report in support of its 401 Certification.

Further, a water balance model was created for the WOI, which underestimated measure maximum and minimum water levels by as much as 10 inches (crossing the water level threshold defining the wetland). Yet the calibration period did not include any period of drought to evaluate how the model performs under extreme conditions that may become more common in the future under predicted climate change scenarios. With this poor calibration during high and low wetland water levels, uncertainty in the model estimates is high. This is critically important since most particulates and metals are exported from wetlands during the period of high flow following snowmelt.[28] Further, when droughts do occur, groundwater elevations will drop, conditions will become more oxidizing, and metals will be released (including methylmercury).

The Cross-Media Analysis also failed to consider the effect of total organic carbon ("TOC") in wetland soils and dissolved organic carbon ("DOC") in wetlands, streams and lake water. Mapped organic soils within the mine site are extensive, which suggests that streams receiving drainage from those wetlands likely have elevated DOC as well, with some seasonal variability. The very limited TOC/DOC data available for Project area groundwater and surface waters indicate that wetlands are contributing significant amounts of organic carbon to waters at the mine site and plant site. The MDNR's own research scientists have established, in the St. Louis River watershed specifically, that mercury concentrations frequently exceed the 1.3 ng/L standard, especially after storm events, and the vast majority of that mercury is bound to DOC derived from wetland areas and riparian soils.[29]

Maest also noted that the relative concentrations of nickel and copper in dust from the Category 1 waste rock stockpile do not match those in Appendix 2 of the Permit to Mine, which show much higher copper concentrations. Those discrepancies are not explained in the Cross-Media Analysis. Maest notes that MDNR leachate data from AMAX test piles and Dunka Road stockpiles, using materials with sulfur percentages similar to the NorthMet Category 4 waste rock, shows higher concentrations of nickel than copper in seepage, and concludes that nickel should be added to the list of toxic metal analytes, not excluded as it was.

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[27] Maest at 5.
[28] *Id.* at 5.
[29] *See* Michael Berndt, Jeff Jeremiason, and Benjamin Von Korff, *Hydrologic and Geochemical Controls on St. Louis River Chemistry with Implications for Regulating Sulfate to Control Methylmercury Concentrations*, Minn. Dep't of Natural Resources (Nov. 3, 2014).

For these reasons, MPCA's failure to fully examine and require a robust analysis of other contaminants of concern ignores the Band's downstream water quality standards. Without this examination, the State's 401 Certification does not ensure that the Band's water quality standards will be met or that the Band's water resources will be adequately protected from the Project's impacts. EPA and the U.S. Army Corps must conduct a full assessment as recommended by the Band and place additional conditions, in consultation with the Band, to ensure that the Band's downstream water quality standards will be met.

C. EPA and U.S. Army Corps Must Ensure Protection of Water Quality Standards Relevant to Aquatic Life

The effects of multiple metals' additive toxicity to aquatic life should have also been evaluated because of their potential for export from Project area wetlands to downstream surface waters. Lake Sturgeon have been successfully reproducing in the estuary for several years, and Fond du Lac Resource Management Division's successful reintroduction and tracking efforts in the upper river have been documented.[30] After the construction of hydroelectric facilities on the St. Louis River in the early 1900's, the Lake Sturgeon population in the upper St. Louis River was isolated from the lower estuary and Lake Superior.[31] The remaining Sturgeon population was likely extirpated due to exploitation and pollution from the wood products industry and municipal waste. In addition, many of the upper tributaries were dammed during the extensive white pine logging era (1800s) in order to float logs down during the high water spring runoff. Pollution and degraded water quality has been identified as a factor limiting Sturgeon abundance in many locations.[32]

The conclusion at FEIS 4-275 that "[t]here are no known occurrences of Lake Sturgeon and not likely habitat for Lake Sturgeon within the NorthMet Project area" neglects to consider that downstream water quality effects may result from the Proposed Project. Regardless of whether Lake Sturgeon currently occur in the Project area, they are currently living and breeding in waters directly downstream from the proposed NorthMet Project. These culturally and biologically critical fish may not survive further water quality degradation that the Band expects would result from the Project as currently designed. This water quality effect is specifically what the Band expected to see addressed in the FEIS, as it represents yet another potential degradation of our downstream water quality that is explicitly relevant to our stated resource management goals for Lake Sturgeon.

In addition, in the DEIS the Band took the position that that existing contamination seeping from the LTVSMC Tailings Basin must be adequately addressed through PolyMet's

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[30] *Lake Sturgeon Restoration in the Upper St. Louis River, Minnesota*, poster presented at the Great Lakes Lake Sturgeon Coordination Meeting, Sault Ste. Marie, MI. (Dec. 3-4, 2012).
[31] *Id.*
[32] Dick, T. A., *et al.*, COSEWIC assessment and update status report on the lake sturgeon (*Acipenser fulvescens)* in Canada. Ottawa, Ontario at 107 (2006).

assumption of remedial liabilities under the VIC program, and that mitigation measures should be included and discussed in the draft EIS to ensure that no new exceedances of the chronic aluminum aquatic life use criterion will occur. Fond du Lac does not believe that simply monitoring for aluminum is sufficient to protect aquatic life, particularly when the existing seepage is already causing exceedances downstream. The Band insists on measures that would actually limit aluminum discharge in a way that would protect aquatic life, rather than a requirement to simply monitor the ways in which it poisons what has been a critical habitat for numerous species.

The State's 401 Certification does not ensure compliance with the Band's downstream water quality standards as they relate to protecting aquatic life, including Lake Sturgeon. As such, the EPA and the U.S. Army Corps must conduct a full assessment and ensure that additional measures are taken to account for the Project's potential to impact the Band's downstream aquatic resources and water quality standards.

III. Conclusion

The Band fundamentally disagrees with MPCA's analysis and conclusions supporting its Section 401 Certification for the PolyMet Project. As a downstream water quality authority with a long-term comprehensive water quality monitoring program in place, the Band knows that existing mines upstream of the Reservation are polluting reservation waters today.[33] We have not seen sufficient or compelling evidence from other sulfide mines around the world to demonstrate that PolyMet can capture and treat their pollution to the extent claimed in the FEIS and permitting documents. Nor does it appear that the regulatory framework the State is proposing will assure that environmental controls operate as promised and that water quality exceedances (both surface and groundwater) will not occur. Accordingly, the Band objects to MPCA's 401 Certification and any issuance by the U.S. Army Corps of a Section 404 permit to PolyMet for the Project. As such, the Band requests a hearing on our objections discussed above.

Thank you.

Sincerely,

Kevin R. Dupuis, Sr.
Chairman

Cc: Linda Holst

[33] Berndt, M. and T. Bavin, "On the Cycling of Sulfur and Mercury in the St. Louis River Watershed, Northeastern Minnesota", an Environmental and Natural Trust Fund Final Report, (Aug. 15, 2012).