



Clean Water Act Section 401(a)(2) Evaluation and Recommendations with respect to the Fond du Lac Band's Objection to the Proposed Clean Water Act Section 404 Permit for the NorthMet Mine Project

PREPARED BY U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5

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Abstract

Pursuant to Clean Water Act (CWA) Section 401(a)(2), 33 U.S.C. § 1341(a)(2), EPA Region 5 prepared this evaluation and recommendations with respect to the objection raised by the Fond du Lac Band of Lake Superior Chippewa to the U.S. Army Corps of Engineers' (Corps') issuance of a CWA Section 404 permit for the proposed PolyMet NorthMet project. The Band submitted its "will affect" determination, objection letter, and hearing request to EPA and the Corps on August 3, 2021 (Band's Objection). The Corps scheduled a public hearing on the Band's Objection for May 3-5, 2022, at which EPA's evaluation and recommendations will be submitted. In developing EPA's evaluation and recommendations with respect to the Band's Objection and pursuant to CWA Section 401(a)(2), EPA reviewed the Band's Objection and other supporting and relevant information available to EPA. To further inform EPA's evaluation and recommendations, EPA requested and obtained two scientific reviews from EPA's Office of Research and Development.

In EPA's evaluation of the Band's Objection to the CWA Section 404 permit based on projected exceedances of its water quality requirements for mercury, EPA considered projected discharges of mercury resulting from the NorthMet project's CWA Section 404 permitted activities, the potential for mercury discharges associated with Minnesota Pollution Control Agency's (MPCA's) CWA Section 402 discharge permits for construction stormwater and process wastewater, and the extent to which the MPCA's CWA Section 401 water quality certification for the CWA Section 404 permit would prohibit or limit mercury discharges. The available data and analyses supporting the CWA Section 404 permit and CWA Section 401 certification are insufficient to fully evaluate the mercury impacts in terms of area of wetlands affected and effects on the Band's water quality. Based on EPA's review of the information, EPA's evaluation is that the CWA Section 404 permit and MPCA's CWA Section 401 certification lack conditions sufficient to protect from mercury mobilization, methylation, and export at levels that would exceed the Band's water quality requirements. In EPA's evaluation of the Band's Objection to the CWA Section 404 permit based on projected exceedances of its water quality requirements for specific conductance, EPA considered that the CWA Section 404 application and Corps' suspended CWA Section 404 permit, as proposed, would result in activities that contribute additional mineral loadings to the St. Louis River and decrease the specific conductance dilution capacity currently provided by the existing, undisturbed forested wetland mine site. The available data and analyses supporting the CWA Section 404 permit and CWA Section 401 certification do not provide sufficient information on the extent to which the cumulative mineral loadings will contribute to specific conductance downstream of the NorthMet project. Further, there are no corrective actions specified in the permits that would reverse trends showing that specific conductance is increasing. Even relatively small increases in specific conductance loading—and/or decreases in dilution capacity—would likely result in violations of the Band's water quality requirements pertaining to specific conductance and antidegradation.

Accordingly, EPA recommends that the Corps not reinstate the suspended CWA Section 404 permit for the NorthMet project, as currently proposed. Given uncertainties regarding pollutant discharges from permitted activities, in addition to the reasonably foreseeable discharges of methylmercury, mercury, and mineral loadings contributing to specific conductance that are

unaccounted for in the CWA Section 404 permit application and suspended permit, MPCA's CWA Section 401 certification, and MPCA's CWA Section 402 permits for the NorthMet project, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities. EPA's recommendations do not foreclose any future modifications to the permit application or the NorthMet project design. Any future modifications should include meaningful involvement of the Band and Minnesota to ensure compliance with both tribal and state water quality requirements.

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I. Executive Summary

Pursuant to Clean Water Act (CWA) Section 401(a)(2), 33 U.S.C. § 1341(a)(2), EPA Region 5 prepared this evaluation and recommendations with respect to the objection raised by the Fond du Lac Band of Lake Superior Chippewa (Fond du Lac Band or Band) to the U.S. Army Corps of Engineers' (Corps) issuance of a CWA Section 404 permit for the proposed PolyMet Mining, Inc. (PolyMet) NorthMet mine, a mine and processing plant to extract copper, nickel, and precious metals, including platinum, palladium, gold, and silver from the NorthMet Deposit in northeastern Minnesota. The Band submitted its “will affect” determination, objection letter, and hearing request to EPA and the Corps on August 3, 2021 (Fond du Lac Objection or Band’s Objection). The Corps scheduled a public hearing on the Band’s Objection for May 3-5, 2022, at which this evaluation and recommendations will be submitted. PolyMet Mining, Inc. has submitted a CWA Section 404 permit application for its NorthMet mine project in northeastern Minnesota dredge and fill operations with the potential to impact approximately 928 acres of wetlands either directly or through fragmentation and other associated dredge and fill operations related to the mine. The proposed NorthMet project (“NorthMet project”) includes a new open pit mine, temporary and permanent waste rock disposal areas, recommissioning of an existing processing plant and tailings basin, and refurbishment of an existing seven-mile railroad and utilities corridor between the mine and plant sites. Pursuant to CWA Section 401(a)(1), PolyMet received certification from the Minnesota Pollution Control Agency (MPCA) that the discharge from “the construction or operation of facilities” requiring a CWA Section 404 permit “will comply with the applicable provisions of [the CWA]” on December 20, 2018.¹ The Band contends that secondary impacts of the dredge and fill activities authorized by the CWA Section 404 permit include impacts to the Band’s downstream water quality, as well as impacts to the hydrology of an unspecified and as yet unknown quantity of adjacent wetlands and streams.²

Basis for EPA’s Evaluation and Recommendations:

In developing EPA’s evaluation and recommendations with respect to the Band’s Objection and pursuant to CWA Section 401(a)(2), EPA reviewed the Band’s CWA Section 401(a)(2) notification of objection, hearing request, and “will affect” determination (which together constitute the Band’s Objection), as well as other supporting and relevant information supplied by the Band.

In addition to reviewing information supplied by the Band, EPA also reviewed other pertinent information, including PolyMet’s CWA Section 404 application to the Corps, MPCA’s CWA Section 401 certification with respect to the CWA Section 404 permit, and other supporting and relevant information supplied by PolyMet and Minnesota. EPA also considered the Corps’

¹ MPCA, Final PolyMet 401 Certification, December 20, 2018, [hereafter MPCA’s CWA Section 401 certification] <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51hh.pdf> (last visited April 26, 2022); Background on the certification request is found in MPCA’s Clean Water Act Section 401 Water Quality Certification Program Fact Sheet, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51jj.pdf> (last visited April 26, 2022).

² Fond du Lac Notification of Objection to NorthMet project, U.S. Army Corps Proposed Permit MVP-1999-05528-TJH (August 3, 2021).

Record of Decision pertaining to the Final Environmental Impact Statement (FEIS)³ and the CWA Section 404 permit issued and suspended by the Corps. Where other permits (e.g., CWA Section 402 permits) are referenced in the CWA Section 404 and CWA Section 401 documentation, EPA reviewed the relevant permitting records pertaining to mercury and specific conductance. See Appendix A *References* for a list of key information sources that EPA reviewed for this evaluation and recommendations.⁴

To further inform EPA's evaluation and recommendations, EPA requested and obtained a scientific review from EPA Office of Research and Development, Center for Computational Toxicology and Exposure, Great Lakes Toxicology and Ecology Division (ORD GLTED) of potential impacts from mercury as described by the Band in its objection. To evaluate potential impacts regarding the Band's Objection regarding specific conductance, EPA requested and obtained a scientific review from EPA's ORD, Center for Environmental Measurement and Modeling, Watershed and Ecosystem Characterization Division (ORD CEMM-WEDC).

Through EPA's evaluation of the Band's Objection, EPA identified several points of uncertainty and reasonably foreseeable discharges of mercury and dissolved ions contributing to specific conductance with respect to the NorthMet project and the CWA Section 404 permitted activities. These include significant uncertainty regarding the full acreage of secondary impacts to wetlands from the anticipated drawdown of groundwater from mine construction and operation. EPA also notes that there is uncertainty in the mercury present in and the fate and transport of such mercury from wetlands subject to secondary impacts from the anticipated drawdown of groundwater from mine construction and operation and uncertainty regarding the extent to which mercury methylation would increase in the St. Louis River watershed due to direct and secondary impacts to wetlands from mine construction and operation. EPA further identified uncertainty regarding the quantity of total mercury and dissolved ions (contributing to elevated specific conductance) discharged during mine construction, the quantity of total mercury and dissolved ions (contributing to elevated specific conductance) discharged via seepage, and unknown reduction in dilution capacity contributing to elevated specific conductance.

Summary of EPA's Evaluation regarding mercury discharges:

In EPA's evaluation of the Band's Objection to the CWA Section 404 permit based on projected exceedances of its water quality requirements for mercury, EPA considered projected discharges of mercury resulting from the NorthMet project's CWA Section 404 permitted activities, the potential for mercury discharges associated with MPCA's CWA Section 402 discharge permits for construction stormwater and process wastewater, and the extent to which MPCA's CWA

³ Department of the Army, St. Paul District Corps of Engineers Record of Decision for the Northmet Mine Project, <https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/PolyMet/NorthMet%20FEIS%20Record%20of%20Decision%20-%20Corps%20of%20Engineers.pdf?ver=2019-03-22-084206-570>, [hereafter Corps' ROD] (last visited April 27, 2022).

⁴ Although this list represents the documents and sources of information specifically referenced in or reviewed for this document, it may not be an exhaustive list of the information before EPA and is not necessarily the same list of documents that would represent EPA's administrative record in litigation.

Section 401 water quality certification for the CWA Section 404 permit would prohibit or limit mercury discharges.

The Band's waters downstream of the CWA Section 404 permitted activities are already impaired due to excess mercury. In addition, the documentation prepared regarding the CWA Section 404 permit application; suspended CWA Section 404 permit and MPCA's CWA Section 402 permits (permit suite); as well as MPCA's CWA Section 401 certification, acknowledge the potential for hydrologic disturbance of the wetlands surrounding the NorthMet project to lead to the loss of wetland value and function, including the sequestration of mercury. Significantly, Corps', PolyMet's, and MPCA's analyses do not encompass wetlands' function as environmental reservoirs of mercury, the impacts of hydrologic modifications of those wetlands due to CWA Section 404 permitted dredge and fill activities on those mercury reservoirs, or the predictable impacts of mercury release through hydrologic alteration on the Band's already mercury-impaired waters.

The efforts of PolyMet to quantify the scope of hydrologic impacts resulting from the NorthMet project are cursory and insufficient to assess the full impacts of the permitted activities or to provide a basis to properly condition the permit. Understanding the scope of the anticipated impacts due to changes to wetland hydrologic regimes resulting from the CWA Section 404 permitted activities is essential to determining an accurate estimate of the quantities of mercury that may be subject to mercury methylation, mobilization, and export downstream to the Band's already impaired waters. The available data and analyses supporting the CWA Section 404 permit and CWA Section 401 certification are insufficient to fully evaluate the mercury impacts in terms of area of wetlands affected and effects on the Band's water quality. Based on EPA's review of the information, EPA's evaluation is that the CWA Section 404 permit and MPCA's CWA Section 401 certification lack conditions sufficient to protect from mercury mobilization, methylation, and export at levels that would exceed the Band's water quality requirements. Further, given these significant uncertainties, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for mercury for reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities.

Summary of EPA's Evaluation regarding Specific Conductance:

Based on EPA's review of available data on specific conductance, the CWA Section 404 application and Corps' suspended CWA Section 404 permit, as proposed, would result in activities that would contribute additional mineral loadings to the St. Louis River and decrease the specific conductance dilution capacity currently provided by the existing, undisturbed forested wetland mine site. It is uncertain what the cumulative mineral loadings would be that contribute to specific conductance downstream of the NorthMet project, and there are no corrective actions specified in the permits that would reverse trends showing that specific conductance is increasing. However, any additional mineral loadings and loss of dilution capacity would likely increase specific conductance in the St. Louis River watershed. Based on the information EPA reviewed, even relatively small increases in specific conductance loading—and/or decreases in dilution capacity—would result in violations of the Band's water quality

requirements pertaining to specific conductance and antidegradation. EPA also notes that the CWA Section 404 permit application, MPCA's CWA Section 401 certification, Corps' ROD, and permit suite all predate adoption of the Band's numeric specific conductance criterion and therefore do not consider the potential for violations of the Band's water quality requirements for specific conductance.⁵ The CWA Section 404 permit and CWA Section 401 certification do not include conditions that would ensure compliance with the Band's water quality requirements. Based on this review, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities.

Summary of EPA's Recommendations:

EPA recommends the Corps not reinstate the suspended CWA Section 404 permit for the NorthMet project, as currently proposed and given current project design and discharges outside the CWA Section 404 permitted activities. The Band's waters downstream of the proposed NorthMet project are already impaired due to an excess of mercury and elevated specific conductance. EPA's evaluation has identified both significant uncertainties related to the extent of the potential discharge and release of mercury and the potential for additional mineral loadings contributing to elevated specific conductance from the CWA Section 404 permitted activities. These uncertainties include the scale of wetland dewatering that would contribute methylmercury to the system, net loading from all the discharges of mercury and mineral loadings in the watershed, and loss of dilution capacity that will contribute to elevated specific conductance. Given these uncertainties, in addition to the reasonably foreseeable discharges of methylmercury, mercury, and mineral loadings contributing to specific conductance that are unaccounted for in the CWA Section 404 permit application and suspended permit, MPCA's CWA Section 401 certification, and MPCA's CWA Section 402 permits for the NorthMet project, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities. Accordingly, EPA recommends that the Corps not reinstate the suspended permit, as currently proposed. EPA's recommendations do not foreclose any future modifications to the permit application or the NorthMet project design. Any future modifications should include meaningful involvement of the Band and Minnesota to ensure compliance with both tribal and state water quality requirements.

⁵ U.S. EPA, *EPA's Review of Revisions to the Fond du Lac Band of Lake Superior Chippewa's Water Quality Standards Under Section 303(c) of the Clean Water Act*, WQSTS # TR2018-1280, <http://www.fdlrez.com/rm/downloads/WQSEPADecisionDocument10-5-2020.pdf> (last visited April 15, 2022).

II. Background

A. NorthMet Project and Project Area Description

PolyMet has proposed developing a mine and processing plant to extract copper, nickel, and precious metals, including platinum, palladium, gold, and silver from the NorthMet Deposit in northeastern Minnesota. The proposed NorthMet project site is located about six miles south of Babbitt, Minnesota and one mile south of the existing Northshore (iron ore) Mine. Processing of the ore would take place at the former LTV taconite plant near Hoyt Lakes, Minnesota. The proposed NorthMet project includes a new open pit mine, temporary and permanent waste rock disposal areas, recommissioning of an existing processing plant and tailings basin, and refurbishment of an existing seven-mile railroad and utilities corridor between the mine and plant sites.⁶ The NorthMet deposit site totals approximately 4,300 acres and the former LTV facility proposed for reuse by PolyMet (Plant Site), including the existing tailings basin and a wastewater treatment plant, covers approximately 12,400 acres.⁷

The NorthMet project is located within the Embarrass River and Partridge River Watersheds, both of which are within the headwaters of the St. Louis River and are tributaries to the St. Louis River, which flows into Lake Superior. The NorthMet project site is upstream of both Wisconsin and the Fond du Lac Reservation by way of the St. Louis River and its tributaries. While the Plant Site, including the existing tailings basin have been disturbed by the former LTV taconite plant, the NorthMet deposit site (mine pit area) consists largely of currently undisturbed forested and bog wetlands and forested uplands.

The NorthMet project requires numerous state and federal permits, including a Corps' CWA Section 404 permit, and state CWA Section 402 permits, as well as a state-issued CWA Section 401 water quality certification for the CWA Section 404 permit. For more information on the history of the NorthMet project's permitting, please see Section C.2 of this Background.

The CWA Section 404 permit would authorize impacts to 928.16 acres of wetlands directly or through fragmentation and other associated dredge and fill operations related to the mine. The CWA Section 404 permit also recognizes the potential for secondary impacts to an unknown quantity of wetlands near the NorthMet project due to groundwater drawdown at the site and accounts for this with permit conditions requiring wetland monitoring, adaptive management, and potential compensatory mitigation for those impacts, if and when they occur.⁸

⁶ MPCA, PolyMet's NorthMet mining project, <https://www.pca.state.mn.us/regulations/polymets-northmet-mining-project> (last visited April 8, 2022).

⁷ PolyMet Mining Corp. Annual Information Form for the year ended December 31, 2021, Submittal to the Securities and Exchange Commission, March 17, 2022, <https://www.sec.gov/Archives/edgar/data/0000866028/000106299322008047/exhibit99-1.htm> (last visited April 19, 2022).

⁸ U.S. Army Corps of Engineers, PolyMet Mining, Inc. Permit No. MVP-1999-05528-TJH, <https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/PolyMet/NorthMet%20Permit%20-%20Corps%20of%20Engineers.pdf?ver=2019-03-22-091358-997> (last visited April 27, 2022). The Corps subsequently suspended this permit. *See* Letter from Colonel Karl D. Jansen, District Engineer, U.S. Army Corps of Engineers, to Christie Kearney, PolyMet Mining, Inc., March 17, 2021,

B. Neighboring Jurisdictions

The NorthMet project site is located in the headwaters of the St. Louis River watershed, and EPA identified the Band and the State of Wisconsin as neighboring jurisdictions whose water quality may be affected by discharges from the NorthMet project's CWA Section 404 permitted activity. This permitted activity includes discharges to the Partridge River and the Embarrass River watersheds, both of which are tributaries to the St. Louis River. The Fond du Lac Band is approximately 100 miles downstream from the NorthMet project site and the St. Louis River forms a portion of the Band's boundary.⁹ Wisconsin is approximately 140 miles downstream from the NorthMet project site. Both the Band and Wisconsin have water quality requirements that apply in the St. Louis River and thus have waters potentially impacted by this project's CWA Section 404 permitted activity, including federally approved water quality standards.

The Band received "Treatment in a similar manner as State" and has authority under the CWA to set water quality standards for the Band's reservation. The water quality standards adopted by the Band, and approved by EPA, protect the Band's designated uses, including protection of aquatic dependent resources and the protection of culturally important designated uses. In its objection, the Band asserts that discharges from the CWA Section 404 permitted activities will adversely affect the Band's water quality. The Band states that the St. Louis River Watershed has unique importance to the Band because the Band retains the right to hunt, fish, and gather within the territory ceded under the Treaty of 1854, 10 Stat. 1109, which includes the St. Louis River Watershed.¹⁰ The Band also asserts that the NorthMet project will adversely impact the Band culturally, socially, economically, and ecologically, including threatening the Band's treaty rights to use and harvest resources. The Band emphasizes that the protection of its downstream waters is integral to protection of the Chippewa-Ojibwe tribes' treaty rights to water-dependent resources.¹¹

C. CWA Section 401(a)(2)

1. Description of the 401(a)(2) Process

CWA Section 401(a)(2) establishes a process for "neighboring jurisdictions" to participate in the federal licensing or permitting process in circumstances where EPA has determined that a discharge from an activity subject to CWA Section 401 certification from another jurisdiction

https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/PolyMet/1999-05528-TJH_20210317_PolyMet_Suspension_Letter.pdf?ver=MRtztWwBXu8eHe208VOzw%3d%3d (last visited April 8, 2022).

⁹ Treaty with the Chippewa, 1854, <https://glifwc.org/TreatyRights/TreatyChippewa09301854Web.pdf> (last visited March 28, 2022); Fond du Lac Objection at 33-34.

¹⁰ Fond du Lac Notification of Objection to NorthMet project, U.S. Army Corps Proposed Permit MVP-1999-05528-TJH, August 3, 2021, <https://www.epa.gov/mn/documents-submitted-epa-fond-du-lac-band>, Section V, Paragraphs 1-4, pp. 33-34 [hereafter Fond du Lac Objection]., (last visited April 28, 2022).

¹¹ See also, U.S. EPA, *Application of Region 5's CWA 401(a)(2) "May Affect" Screening Analysis for PolyMet's NorthMet Mining Project*, June 4, 2021, <https://www.epa.gov/sites/default/files/2021-06/documents/polymet-401a2-analysis-document-20210604-15pp.pdf> [hereafter EPA Screening Analysis]. (last visited April 28, 2022).

“may affect” their water quality. Neighboring jurisdictions include states and tribes that have received “treatment in a similar manner as a state.” See 33 U.S.C. § 1377(e).

To initiate the CWA Section 401(a)(2) process, a federal licensing or permitting agency must “immediately” notify EPA when it receives a license or permit application and a CWA Section 401 certification. 33 U.S.C. § 1341(a)(2). EPA then has 30 days from the date EPA receives that notification to determine whether a discharge from the licensed or permitted activity may affect the water quality of a neighboring jurisdiction and, if so, to notify that neighboring jurisdiction, the licensing or permitting agency, and the project applicant. *Id.*

After receiving notice from EPA, the neighboring jurisdiction has 60 days to determine whether the discharge “will affect” its water quality so as to violate its water quality requirements, and, if so, object in writing to the issuance of the license or permit and request that the licensing or permitting agency conduct a hearing on its objections. *Id.* When the licensing or permitting agency conducts a hearing under CWA Section 401(a)(2), EPA must submit to the licensing or permitting agency an evaluation and recommendations regarding the objections of the neighboring jurisdiction. *Id.* In turn, CWA Section 401(a)(2) requires the licensing or permitting agency to condition the relevant license or permit “as may be necessary to insure compliance with applicable water quality requirements,” based upon the recommendations of the neighboring jurisdiction and EPA, and any additional evidence presented at the hearing. If “the imposition of conditions cannot insure such compliance,” the licensing or permitting agency shall not issue the license or permit.

2. History of this Action

In this case, EPA received notice from the Corps of PolyMet’s CWA Section 404 permit application and MPCA’s CWA Section 401 certification on December 20, 2018.¹² At that time, EPA did not notify other jurisdictions, including the Band, pursuant to CWA Section 401(a)(2) within 30 days of receipt of the Corps’ notification. The Corps then issued the CWA Section 404 permit to PolyMet on March 22, 2019. The Band sued EPA and the Corps regarding, among other things, the lack of notice from EPA under CWA Section 401(a)(2). In its Order of February 16, 2021, the U.S. District Court for the District of Minnesota ruled that EPA had a non-discretionary duty to make a “may affect” determination pursuant to CWA Section 401(a)(2) in this matter.¹³ EPA voluntarily sought remand to reconsider whether to provide notice to the Band under CWA Section 401(a)(2). On March 8, 2021, the District Court granted EPA’s request.¹⁴

¹² U.S. EPA, EPA in Minnesota, PolyMet NorthMet Mine, EPA CWA 401(a)(2) “May Affect” Notification for PolyMet’s NorthMet Mine, <https://www.epa.gov/sites/default/files/2021-06/documents/fond-du-lac-polymet-section-401a2-letter-20210604-2pp.pdf> (last visited April 15, 2022).

¹³ *Fond du Lac Band of Lake Superior Chippewa v. EPA*, 519 F.Supp.3d 549, 567 (D. Minn. 2021).

¹⁴ *Fond du Lac Band of Lake Superior Chippewa v. EPA*, No. 19-cv-2489-PJS-LIB, slip op. at 2 (D. Minn., March 8, 2021).

In response to a March 4, 2021 letter from EPA,¹⁵ the Corps suspended the PolyMet CWA Section 404 permit on March 17, 2021 to allow for EPA to complete EPA’s CWA Section 401(a)(2) review. EPA completed EPA’s review under CWA Section 401(a)(2) and made a “may affect” determination and notified both the Band and Wisconsin on June 4, 2021.

On August 2, 2021, Wisconsin notified EPA and the Corps that it did not object to the issuance of the CWA Section 404 permit.¹⁶ On August 3, 2021, the Band notified EPA and the Corps that discharges from the NorthMet project would affect the quality of the Band’s waters so as to violate water quality requirements and that the Band objected to issuance of the permit and requested that the Corps hold a public hearing in accordance with CWA Section 401(a)(2).¹⁷

The Band’s Objection includes an analysis of potential water quality effects from the proposed NorthMet project, including those potential effects associated with the CWA Section 404 permitted activities, and concludes that the NorthMet project, as proposed, would violate the Band’s water quality requirements for mercury and specific conductance, specifically resulting in irreparable injury to the Band’s water quality and rights-protected aquatic-dependent resources, as well as disproportionate environmental justice-based injuries to the Band, its population, its water quality, and its aquatic-dependent resources.

3. EPA’s Approach to this Evaluation and Recommendations

In developing this evaluation and recommendations with respect to the Band’s Objection, EPA reviewed the Band’s Objection, documentation provided by the Band with its objection (including its “will affect” determination), as well as relevant documents from the permitting record for the permit suite and MPCA’s CWA Section 401 certification. Where other permits (e.g., CWA Section 402 permits) are referenced in the CWA Section 404 and CWA Section 401 documentation, EPA reviewed the relevant permitting records pertaining to mercury and specific conductance. See Appendix A *References* for a list of key information sources EPA reviewed for this evaluation and recommendations.¹⁸

EPA requested the technical support of mercury and specific conductance subject matter experts in EPA’s ORD to evaluate potential downstream project impacts for both mercury and specific conductance. As a result of its analyses, ORD produced two memoranda documenting its review: “Request for Scientific Support Regarding Potential Downstream Impacts of the NorthMet Mine” (“ORD’s Mercury Memo”), which is a scientific analysis of the potential mercury impacts

¹⁵ Letter from Colonel Karl D. Jansen, District Engineer, U.S. Army Corps of Engineers, to Christie Kearney, PolyMet Mining, Inc., March 17, 2021, https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/PolyMet/1999-05528-TJH_20210317_PolyMet_Suspension_Letter.pdf?ver=MRtitzfWwBXu8eHe208VOzw%3d%3d (last visited April 8, 2022).

¹⁶ Letter from David R. Siebert, Administrator, External Services Division, Wisconsin Department of Natural Resources, to Tera Fong and Chad Konickson, Chief, Regulatory Branch, Corps, August 2, 2022.

¹⁷ Fond du Lac Objection.

¹⁸ Although this list represents the documents and sources of information specifically referenced in or reviewed for this document, it may not be an exhaustive list of the information before EPA and is not necessarily the same list of documents that would represent EPA’s administrative record in litigation.

that would result from the NorthMet project; and “Assessment of effects of increased ion concentrations in the St. Louis River Watershed with special attention to potential mining influence and the jurisdiction of the Fond du Lac Band of Lake Superior Chippewa” (ORD’s Specific Conductance Memo), which is a scientific analysis of the potential impacts from increased specific conductance that would result from the proposed project. These memoranda are attached at Appendices B and C.

To inform EPA’s evaluation of the Band’s Objection, EPA reviewed the baseline water quality of the affected watershed and the impacts expected to result from the NorthMet project’s discharges from permitted activities if the following permits remain as currently drafted: (1) The CWA Section 404 permit application and Corps suspended permit¹⁹; (2) MPCA’s CWA Section 401 certification²⁰ of the CWA Section 404 permit; (3) MPCA’s CWA Section 402 NPDES discharge permit for the NorthMet project²¹; and (4) MPCA’s CWA Section 402 NPDES General Stormwater Construction Permit for the proposed project.²² EPA’s review of these permits is described below.

EPA’s evaluation was also informed by engagement with PolyMet and the Band both prior to and following EPA’s “may affect” determination. Because of the unique history of this matter, prior to making a “may affect” determination, EPA held listening sessions for PolyMet and the Band. Following the “may affect” determination, EPA held a consultation with the Band on January 25, 2022, to ensure meaningful communication with the Band regarding concerns it raised regarding the NorthMet project.²³ Additionally, during the consultation process for this matter, EPA held meetings on March 17, 2022, and April 8, 2022, with Band representatives to

¹⁹ U.S. Army Corps of Engineers, PolyMet Mining, Inc. Permit No. MVP-1999-05528-TJH, <https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/PolyMet/NorthMet%20Permit%20-%20Corps%20of%20Engineers.pdf?ver=2019-03-22-091358-997> (last visited April 8, 2022).

²⁰ MPCA 401 Water Quality Certification. Minnesota Pollution Control Agency, (December 20, 2018) CWA Section 401 Certification, <https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/PolyMet/Northmet%20Encl%20C%20401%20WQ%20Cert.pdf?ver=2019-03-22-091249-043> (last visited April 28, 2022).

²¹ NPDES Permit MN0071013, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51ff.pdf> (last visited April 27, 2022).

²² General Permit MNR100001: <https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf> and Notices of Coverage: <https://webapp.pca.state.mn.us/csw/permits/C00053251>; <https://webapp.pca.state.mn.us/csw/permits/C00053252>; <https://webapp.pca.state.mn.us/csw/permits/C00053253>; <https://webapp.pca.state.mn.us/csw/permits/C00053254> (last visited April 27, 2022).

²³ The EPA Policy on Consultation and Coordination with Indian Tribes establishes clear EPA standards for the consultation process. It defines when and how consultation takes place, designates EPA consultation contacts to promote consistency and coordination of the process, and establishes management oversight and reporting to ensure accountability and transparency. The Policy sets a broad standard for when EPA should consider consulting with federally recognized tribal governments based on Executive Order 13175 and the 1984 EPA Policy for the Administration of Environmental Programs on Indian Reservations. *See* <https://www.epa.gov/sites/default/files/2013-08/documents/cons-and-coord-with-indian-tribes-policy.pdf> (last visited April 26, 2022).

provide an opportunity for the Band to further communicate its concerns to EPA.²⁴ EPA's records of these meetings are attached at Appendix D.

4. Structure of this Document

This document is divided into three main sections including Background on this matter, EPA's Evaluation of the Band's Objection, and EPA's Recommendations based on the Band's Objections and the record before EPA. EPA's evaluation is divided into the following three subsections:

- Mercury/Methylmercury (at page 16),
- Specific Conductance (at page 30), and
- Additional topics (at page 37).

EPA's recommendations section discusses the information EPA reviewed in considering whether conditions for the CWA Section 404 permit that can ensure compliance with the Band's water quality requirements.

5. Conclusion from Evaluation and Recommendations

EPA has evaluated the Band's Objection. There is significant uncertainty regarding the water quality impacts under baseline conditions. Accordingly, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for mercury and specific conductance for reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities.

Specifically, EPA has identified several points of uncertainty with respect to the NorthMet project, including the following examples:

- Neither the CWA Section 404 permit application, suspended CWA Section 404 permit, nor MPCA's CWA Section 401 certification adequately address the significant uncertainty regarding the full acreage of secondary impacts to wetlands from the anticipated drawdown of groundwater from mine construction and operation;
- The wetting, drying, and rewetting peat has been identified as a process that increases methylation of mercury, but the CWA Section 404 permit application and suspended permit, MPCA's CWA Section 401 certification, and MPCA's CWA Section 402 permits for the project do not address mercury methylation or releases of mercury into the St. Louis River system resulting from drying and rewetting of the wetlands surrounding the pits;
- An unknown and wholly uncontrolled quantity of total mercury and dissolved ions (contributing to elevated specific conductance) is expected to be released from discharges covered by the MPCA CWA Section 402 construction stormwater general permit that are related to mine construction activities, but the CWA Section 404 permit application and suspended permit, MPCA's CWA

²⁴ U.S. EPA, Consultation Notes, January 25, 2022; U.S. EPA Meeting Notes, March 17, 2022; U.S. EPA Meeting Notes, April 7, 2022.

Section 401 certification, and MPCA’s CWA Section 402 permits, including the general permit for stormwater discharges from construction activity,²⁵ do not contain any controls or monitoring requirements that would ensure compliance with the Band’s water quality standards for mercury and specific conductance; and

- Peat from the mine site is expected to contain mercury from decades of air deposition, and excavated peat is a known source of mercury, methylmercury and sulfate, but the CWA Section 404 permit application and suspended permit, MPCA’s CWA Section 401 certification and MPCA’s CWA Section 402 permits for the project do not account for seepage from site features.²⁶

Given these uncertainties and the reasonably foreseeable discharges that are currently unaccounted for in the CWA Section 404 permit application, MPCA’s CWA Section 401 certification, and MPCA’s CWA Section 402 permits for the NorthMet project, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band’s water quality requirements for reservation waters, given current project design and discharges outside the Corps’ authority. Accordingly, EPA recommends that the Corps not reinstate the suspended permit, as currently proposed.

III. EPA’s Evaluation

A. Impacts on the Band’s waters—Mercury and Methylmercury

1. Introduction

With respect to mercury, the Band objects to the issuance of a CWA Section 404 permit for the proposed NorthMet mine and asserts that permitted activities will contribute to ongoing violations of the Band’s water quality requirements for mercury.

The Band’s Objection and supporting materials describe how the construction and operation of the NorthMet mine will alter the hydrology of some 6000 acres of wetlands, in addition to the approximately 939 acres of direct and fragmentation impacts. These wetland alterations, in addition to the loading of sulfates from the construction and operation of the NorthMet project, will both enhance methylation of mercury already present in the wetlands affected by the proposed mine and mobilize both total and methylmercury in those same wetlands. The mercury mobilized as a result of these wetland alterations will be exported from the NorthMet project site via the streams adjacent to the affected wetlands at the NorthMet project site and be transported downstream to the Fond du Lac Reservation. This mercury will further exacerbate ongoing exceedances of the Band’s mercury criterion of 0.77 ng/L and ongoing nonattainment of the Band’s designated uses.²⁷

²⁵ Polymet Mining Corp. NorthMet Project Water Management Plan – Mine (December 2017), https://files.dnr.state.mn.us/lands_minerals/northmet/permit_to_mine/appendix_11_2_dec17.pdf (last visited April 27, 2022), p. 6: “Runoff from construction areas where the majority of the material being excavated is Unsaturated Overburden or Peat will be managed as construction stormwater.”

²⁶ NPDES Permit MN0071013, pp. 3, 5.

²⁷ Fond du Lac Notification of Objection, beginning on p. 11.

Specific violations of water quality requirements that will result from the proposed project as identified by the Band include the following (specific language and citations to the Band’s water quality standards are provided in Appendix E- Applicable Water Quality Standards)²⁸:

- The Band’s antidegradation policies for surface waters requiring protection of existing uses and prohibiting new or increased discharges that would impact an existing use (wetlands and non-wetlands)²⁹;
- the Band’s ambient numeric water quality criterion for mercury to protect wildlife, human health and aquatic life due to direct loads of mercury and methylmercury as well as due to enhanced methylation of mercury due to increased loads of sulfate to waters of the Band³⁰;
- the Band’s narrative criteria prohibiting objectionable deposits and prohibiting water quality alterations that “may limit the growth and propagation of, or otherwise cause or contribute to adverse effect to wild rice and other flora and fauna of cultural importance to the Band”³¹; and
- the Band’s Wildlife, Warmwater Fisheries, and Subsistence Fishing for non-wetlands and wetland designated uses.³²

In contrast, PolyMet’s CWA Section 404 permit application and associated documentation focus on a mass balance of mercury for the NorthMet project and conclude that:

...most of the mercury input to the process will be sent to the Flotation Tailings Basin (FTB) and Hydrometallurgical Residue Facility and sequestered from the general environment. There will be a small amount of mercury (approximately 4.6 pounds per year) released to air and to surface water.³³

PolyMet considers mercury released into the air and direct discharges into water from the wastewater treatment plant and the discharge from the West Pit lake after closure, as the primary sources of mercury to the environment resulting from the NorthMet Project. PolyMet’s mercury analysis, however, does not consider the way secondary impacts from the NorthMet Project on adjacent wetlands that are not directly filled and/or excavated but are subject to drawdown and flooding might affect mercury that has built up in these wetlands over time and consequently does not consider this source of mercury in its evaluations. PolyMet estimates that the NorthMet project is expected to impact only 939 acres of wetlands, with impacts

²⁸ Fond du Lac Notification of Objection, pp. 28-33.

²⁹ Fond du Lac Band of Lake Superior Chippewa, Water Quality Standards of the Fond du Lac Reservation, Ordinance #12/98, as amended through July 8, 2020 [hereafter FDL WQS] at Section 105, Antidegradation Policy and Implementation, <http://www.fdlrez.com/government/ords/12-98WaterQualityStandard2020.07.pdf> (last visited April 15, 2022).

³⁰ FDL WQS at Appendix 1, Standards Specific to Designated Use.

³¹ FDL WQS at Section 301.n.

³² FDL WQS at Sections 302.B, 302.C.2, and 302.C.3; Sections 701–703.

³³ Mercury Overview: A summary of potential mercury releases from the NorthMet Project and potential effects on the environment. Barr for PolyMet Mining Inc, March 2015, <https://www.pca.state.mn.us/sites/default/files/Mercury%20Overview.pdf>, p. vi. (last visited April 27, 2022).

limited to excavation, filling, and fragmentation. The difference between the Band's and PolyMet's estimates of wetland impacts resulting from the project is due to PolyMet's view, as expressed in the CWA Section 404 permit application, that the vertical seepage of water in the wetlands at the mine site is "relatively weak" based on a 30-day pumping test at the mine site:

The degree of hydraulic connection between the wetland areas and adjacent unconsolidated deposits and bedrock at the Mine Site is expected to be variable, depending on the characteristics of the wetlands and the localized hydraulic conductivity and degree of bedrock fracturing. The hydraulic conductivity of the bedrock and surficial deposits have been estimated at the Mine Site by a variety of methods, including conducting aquifer tests and using grain-size distribution data from soil borings and ranges over several orders of magnitude. Data collected during a 30-day pumping test at the Mine Site showed a small amount of drawdown in the deep wetland piezometer nearest the pumping well, but no detectable drawdown at other water table or deep wetland piezometers, indicating that the connection between the bedrock, unconsolidated deposits, and wetlands may be relatively weak. Virtually all water movement in peat wetlands occurs horizontally in the upper layers of peat. The deeper, more decomposed peat soils limit vertical seepage because of the low hydraulic conductivities (~0.0028 feet/day) and the wetland hydrology is simply perched on the relatively impermeable peat layer. Vertical seepage losses from wetlands without peat soils will only have the potential to occur in isolated areas of contiguous, high hydraulic conductivity bedrock faults and fracture zones located under isolated areas of high hydraulic conductivity glacial till and aligned with wetlands containing high hydraulic conductivity soils.³⁴

The CWA Section 404 application identifies wetland impacts as either "direct" (defined as filling or excavation within the boundaries of a wetland), or "indirect" (defined as "fragmentation" of wetlands by features of the NorthMet project such as open pits, stockpiles, haulroads, etc.).³⁵ The CWA Section 404 application describes wetlands impacts at the mine site as follows:

There are 59 directly impacted or fragmented wetlands located in the Mine Site covering approximately 758 acres (Large Table 2; Large Figure 9). The total directly impacted wetlands include fill (39%), excavation (24%), or both fill and excavation (37%). Thirty-seven percent of the directly impacted wetlands are also impacted by wetland fragmentation. Three wetland types comprise 90% of the proposed wetland impacts in the Mine Site and include 529 acres of coniferous bog (67%), 101 acres of shrub swamp (13%), and 72 acres of coniferous swamp (9%). In addition, 38 acres of sedge/wet meadow (5%), 23 acres of shallow marsh

³⁴ NorthMet Revised Permit Application, PolyMet Mining, August 19, 2013 [hereafter NorthMet Revised Permit Application], <https://www.pca.state.mn.us/sites/default/files/Wetland%20Permit%20Application%20v2%20AUG2013%20w%20application.pdf> (last visited April 28, 2022), p. 45.

³⁵ NorthMet Revised Permit Application, p. 52.

(3%), 13 acres of hardwood swamp (2%), 8 acres of open bog (1%), and 0.1 acre of deep marsh (less than 1%) will also be impacted.³⁶

The Corps, in its ROD and in the suspended CWA Section 404 permit, acknowledges the potential for changes in wetland hydrology due to the dewatering of the mine pit and includes several permit conditions (Nos. 16-29) that are intended to identify indirect adverse effects to wetlands, including changes to hydrology. Permit conditions 31-33 require PolyMet to obtain additional compensatory mitigation for wetland indirect effects that are identified during the life of the NorthMet project. However, this additional wetland mitigation (e.g., purchasing mitigation bank credits) would not account for any additional mobilization of mercury or increased methylmercury load caused by the changes in wetland hydrology. The ROD does consider mercury but focuses on mercury present in the discharge from the wastewater treatment plant and water released from the pit lakes and concludes that because these discharges will be at or below 1.3 ng/L, that the NorthMet project is, “not expected to add to any potential exceedance of the Fond du Lac mercury water quality standard of 0.77 ng/L within the Reservation.”³⁷

The permit suite does not consider water quality impacts arising from changes in hydrology of wetlands due to the dewatering of the mine pit and that will result in the methylation of mercury and mobilization of mercury from the impacted wetlands. A summary of the requirements and conditions follows.

- **CWA Section 404 Permit and CWA Section 401 Certification:** The conditions included in the CWA Section 404 permit and MPCA’s Section 401 certification are limited to monitoring and adaptive management only. PolyMet would report monitoring data to MPCA, who would use that data to determine whether adaptive management measures should be triggered. Should monitoring data indicate a violation of Minnesota’s water quality standards, PolyMet is to report the violation to MPCA, along with an adaptive management plan to “monitor and remedy the cause of the violation.”³⁸ The conditions do not control mercury discharges but rely on detecting and correcting water quality requirement violations after they occur with the expectation that violations will be corrected as identified. The conditions do not consider the Band’s water quality requirements and are not triggered by violations or potential violations of the Band’s water quality requirements.
- **CWA Section 402 General Stormwater Permit:** The general stormwater permit for construction of the mine does not contain any limits on the discharge of mercury.
- **CWA Section 402 Individual Permit:** The individual CWA Section 402 permit does not contain numeric water quality-based effluent limitations for mercury. MPCA’s permit fact sheet³⁹ explains that MPCA did not find that there was a reasonable potential to

³⁶ NorthMet Revised Permit Application, p. 53.

³⁷ Corps’ ROD]

³⁸ MPCA’s CWA Section 401 Certification, p. 6.

³⁹ MPCA, National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program Fact Sheet, MN0071013, Prepared for public comment period beginning January 31, 2018, <https://www.pca.state.mn.us/sites/default/files/wq-wwprml-51gg.pdf> (last visited April 22, 2022).

exceed applicable water quality standards. Instead of water quality-based effluent limits, the permit includes “operating limits” on mercury. The CWA Section 402 individual permit includes an operating limit at an internal monitoring station that is set to Minnesota’s water quality standard of 1.3 ng/L. The permit also contains technology-based effluent limitations on mercury at 1,000 ng/L as a monthly average and 2,000 ng/L as a daily maximum.⁴⁰

2. Impacts of Mercury on the St. Louis River Watershed

The proposed NorthMet mine is located in the Mesabi Iron Range near Hoyt Lake, St. Louis County, Minnesota. The NorthMet project proposes to reuse and expand an existing taconite tailings basin and ore processing site. There are numerous historic, active and planned mines, tailings basins and ore processing facilities in the St. Louis River watershed. Mercury levels in the St. Louis River and its associated watershed tend to be elevated compared to other similar waters. The Band’s Objection notes that anthropogenic activities since the mid-1800s have resulted in large quantities of inorganic mercury being released to the atmosphere, increasing deposition to ecosystems by 200% to 500%.⁴¹ In low-oxygen aquatic environments such as lake sediments, slow-moving rivers and streams and wetlands (especially peatlands) in which sulfate-reducing bacteria are active, mercury can be converted to methylmercury. Methylmercury is a highly bioaccumulative toxin that biomagnifies up the trophic levels of the food chain, impacting human and wildlife consumers of fish and aquatic life.⁴² Mercury bioaccumulation in fish is a public health concern in northeast Minnesota, including the St. Louis River as it passes through the Band’s reservation.⁴³ As noted in the ORD Mercury Memo:

Mercury bioaccumulation in fish is a public health concern in northeast Minnesota. Atmospheric mercury emissions to the St. Louis River watershed are relatively high for the region (10-100 g/km²/yr; Cohen et al., 2004) and total mercury (THg) in surface waters of the St. Louis River is among the highest in Minnesota (Monson, 2013). The State of Minnesota has posted a fish consumption advisory for fish in the St. Louis River related to the high mercury concentrations found in fish tissues; for example, St. Louis River walleye have mercury concentrations higher than the regional background (Monson, 2012). Newborns tested from the Minnesota portion of the Lake Superior basin have a relatively high blood mercury concentration, and the data pattern suggests that exposure through fish consumption is a likely factor (McCann, 2011).⁴⁴

⁴⁰ NPDES Permit MN0071013, technology limits, p. 352, operating limit p. 426.

⁴¹ Fond du Lac Objection, p. 9.

⁴² EPA ORD Review: Request for Scientific Support Regarding Potential Downstream Impacts of the NorthMet Mine, p. 9.

⁴³ EPA ORD Review: Request for Scientific Support Regarding Potential Downstream Impacts of the NorthMet Mine, p. 2.

⁴⁴ EPA ORD Review: Request for Scientific Support Regarding Potential Downstream Impacts of the NorthMet Mine, p. 2.

3. Baseline Water Quality Conditions and Impacts

EPA reviewed the baseline water quality conditions and impacts associated with mercury expected to result from the NorthMet project's discharges, as proposed and as if each of the permits in the permit suite remain as currently drafted. The baseline impacts in turn inform whether the NorthMet project's permits, as currently drafted, will ensure that any discharge from the NorthMet project will comply with the Band's water quality requirements.

Baseline water quality conditions

Atmospheric mercury emissions to the St. Louis River watershed are relatively high for the region, and total mercury (THg) in surface waters of the St. Louis River as it passes through the Band's reservation is among the highest in Minnesota.⁴⁵

The Barr Engineering report⁴⁶ provided to PolyMet reports background THg and methylmercury (MeHg) in precipitation, water seeping from the existing LTV tailings basin, various streams, and monitoring stations. All the values reported here are greater than 0.77ng/L, with concentrations in the St. Louis River among the greatest observed (7.8 ng/L at River Mile 179 (the headwaters of the St. Louis River); and 4.2 ng/L at Cloquet (immediately downstream of the Fond du Lac Reservation)).

The ORD Mercury Memo includes an assessment of the percent MeHg in the waters affected by the NorthMet project as an indicator of the potential for inorganic mercury to be converted to MeHg in these waters. The ORD Mercury Memo concludes:

On average, rivers have %MeHg of 4%, lakes are 8%, whereas wetlands, which have high methylation potential, are 15% (Krabbenhoft et al., 1999; Kelly et al., 1995), similar to what is observed in the Partridge River (the watershed in which the mine pit will be located).⁴⁷

In Table 2-1 of the *Mercury Overview*, PolyMet reports baseline percent MeHg for streams in the NorthMet project area 13.1 – 20.4%.

Minnesota has a water quality standard for mercury of 1.3 ng/L, while the Band has a water quality standard for mercury of 0.77 ng/L. EPA also observes that the St. Louis River is already impaired for mercury and most St. Louis River segments between the NorthMet project site and the Fond du Lac Reservation have been listed since 1998 on Minnesota's CWA Section 303(d) Impaired Waters List.

⁴⁵ Appendix B ORD Mercury Memo, p. 2.

⁴⁶ Mercury Overview: A summary of potential mercury releases from the NorthMet Project and potential effects on the environment, Barr for PolyMet Mining Inc, March 2015, Table 2-1, "Baseline Concentrations of Total Mercury, Methylmercury and Sulfate in Precipitation and Selected Surface Waters Evaluated for Potential Effects from the Project," <https://www.pca.state.mn.us/sites/default/files/Mercury%20Overview.pdf> (last visited April, 272022).

⁴⁷ Appendix B ORD Mercury Memo, p. 8.

MPCA acknowledges that the receiving waters that will be affected by the mine demonstrate exceedances of Minnesota's water quality criterion of 1.3 ng/L for mercury:

All projected surface discharge locations for the project have no surface water assimilative capacity and thus no flow dilution is allowed when considering protection of water quality standards.⁴⁸

EPA also notes that Minnesota has issued fish consumption advisories for fish from the St. Louis River due to elevated fish tissue concentrations of mercury.⁴⁹ Moreover, MPCA has been engaged in a more-than decade-long process for developing a total maximum daily load for mercury for the St. Louis River to restore the uses of the river that are impaired due to mercury contamination.⁵⁰

The Band's Objection letter provides the following description of the existing water quality conditions related to mercury on the Band's Reservation:

Mercury concentrations in the St. Louis River have exceeded the Band's chronic human health standard (0.77 ng/L) for more than a decade. Consumption of fish contaminated by methylmercury is the primary exposure pathway for Band members and wildlife, and existing monitoring data indicate levels are already elevated in many species that are consumed as food [citations omitted].

Because the St. Louis River is already impaired for mercury, the St. Louis River and its associated watershed lack assimilative capacity that would ameliorate any adverse impacts of additional mercury loading from the NorthMet project on downstream waters.

Impacts from current permits

CWA Section 404 permit and CWA Section 401 water quality certification conditions

The Corps' currently suspended CWA Section 404 permit for this project does not include any discharge limitations on mercury. MPCA's CWA Section 401 certification on the CWA Section 404 permit includes two conditions on mercury:

- For wetlands: Conduct monthly (May to October) baseline THg and MeHg monitoring for at least two years and continue until the commencement of project mining operations. Monitoring will occur at 22 monitoring locations within the mine and plant sites. These monitoring wells are all located either within the mine site or on the immediate periphery of the mine site, limiting their value in detecting the kind of impacts identified by the Band.⁵¹

⁴⁸ *Poly Met Mining, Inc. NPDES Antidegradation Review – Preliminary MPCA Determination*, January 10, 2018.

⁴⁹ MN Department of Health Fish Consumption Guidance, <https://www.health.state.mn.us/communities/environment/fish/> (last visited April 22, 2022).

⁵⁰ St. Louis River Watershed mercury TMDL, Minnesota Pollution Control Agency, <https://www.pca.state.mn.us/water/st-louis-river-watershed-mercury-tmdl#:~:text=Because%20the%20main%20source%20of,93%20percent%20from%201990%20levels> (last visited April 19, 2022).

⁵¹ MPCA's CWA Section 401 Certification, p. 2.

- For streams: Conduct quarterly THg and MeHg monitoring upon issuance of all state permits or upon commencement of project and continue through one year after cessation of mining operations. Monitoring to occur at five surface water monitoring locations.⁵²

The CWA Section 404 permit and CWA Section 401 certification include only monitoring requirements to identify any secondary impacts to wetlands surrounding the mine site due to hydrologic impacts arising from the construction and operation of the mine, relying on adaptive management efforts to respond to secondary impacts after they occur. The Band provides analysis and documentation in its objection that the wetlands surrounding the NorthMet project site are reservoirs of mercury. In EPA’s evaluation, this analysis is supported by the available science. As noted in ORD’s Mercury Memo:

The extensive contiguous acreage of wetlands and peatlands enhance the mercury bioaccumulation potential of the river because wetlands and peatlands are a source of mercury (i.e., a net sink of deposited mercury) to surface waters. Based on research in northern Minnesota peatland systems, most THg and [dissolved organic carbon] in streams adjacent to peatlands are derived from those peatlands compared to upland sources.⁵³

The Band states in its objection that approximately 6000 acres of wetlands are likely to be affected by hydrologic disturbance due to the construction of the mine and the ongoing dewatering of the mine that is necessary for the mine to operate. The ORD Mercury Memo considers this issue. Regarding the potential for hydrologic fluctuations to result in mobilization of mercury and sulfate, the ORD Mercury Memo states:

Coleman, Wasik et al. (2015) showed that in a boreal peatland, hydrologic fluctuations released increased concentrations of sulfate and total mercury over time, as well as a higher percent methylmercury as a result of drying. Thus, disturbing the wetlands via draining could result in the release of increased total mercury, methylmercury, and sulfates into downstream receiving waters.⁵⁴

The ORD Mercury Memo concludes:

Given the scientific community’s understanding of the processes that would occur through drawdown of the wetlands, there is a potential with a strong likelihood that stored sulfate, organic matter, and THg with a high percent MeHg will be released over time (Krabbenhoft et al., 1999; Kelly et al., 1995; St. Louis et al., 2004; Coleman Wasik et al., 2012).⁵⁵

CWA Section 402 permits

⁵² MPCA’s CWA Section 401 Certification, pp. 2-4.

⁵³ Appendix B ORD Mercury Memo, p. 7.

⁵⁴ Appendix B ORD Mercury Memo, p. 5.

⁵⁵ Appendix B ORD Mercury Memo, p. 5.

Minnesota has issued two permits for this project pursuant CWA Section 402, including a construction stormwater general permit and an individual permit for process wastewater discharge. Limitations of both permits are discussed below.

Construction general permit: MPCA issued coverage under its general permit for discharges of stormwater associated with construction activity⁵⁶ for the NorthMet project. The conditions in the general permit address pollutants such as sediments, that would typically be expected in stormwater runoff from construction site activity. The permit does not contain controls that would address dissolved parameters and does not contain any water quality monitoring requirements. There are no conditions in the general permit that are specific to mercury, but EPA acknowledges that controls implemented to control sediment would also control the fraction of total mercury that would be attached to that sediment.

Individual permit: MPCA issued permit number MN0071013 on December 20, 2018.⁵⁷ The permit contains three limitations on mercury discharges:

- *Numeric technology based effluent limitations* that are required by federal regulations at 40 C.F.R. 440:
 - Mercury is limited at the final outfall to 1,000 ng/L as a monthly average and 2,000 ng/L as a daily maximum.⁵⁸
- *A numeric “operating limit”* of 1.3 ng/L, which is equivalent to Minnesota’s water quality standard for mercury. This limit is applied at a monitoring station internal to the wastewater treatment plant.⁵⁹
- *Narrative water quality based effluent limits*, which provide:
 - The discharge of treated wastewater from the wastewater treatment system (WWTS) must not cause a violation of state water quality standards. [Minn. R. 7001.0170, Minn. Stat. ch. 115.03]⁶⁰; and
 - The MPCA may modify this permit, require corrective actions, or take other actions if it determines that a discharge authorized by this permit is causing or contributing to a violation of water quality standards. [Minn. R. 7001.0170, Minn. Stat. ch. 115.03].⁶¹

MPCA did not include numeric water quality-based effluent limits for the discharge covered by individual permit because it did not find that there was a reasonable potential for the state water quality standards to be exceeded for mercury. MPCA explains in its fact sheet for the individual CWA Section 402 permit:

⁵⁶ General Permit [MNR100001](https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf); <https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf> and [Notices of Coverage: https://webapp.pca.state.mn.us/csw/permits/C00053251](https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf); (<https://webapp.pca.state.mn.us/csw/permits/C00053252>; <https://webapp.pca.state.mn.us/csw/permits/C00053253>; <https://webapp.pca.state.mn.us/csw/permits/C00053254> (last visited April 27, 2022).

⁵⁷ NPDES Permit MN0071013.

⁵⁸ NPDES Permit MN0071013.

⁵⁹ NPDES Permit MN0071013.

⁶⁰ NPDES Permit MN0071013.

⁶¹ NPDES Permit MN0071013.

The MPCA conducted a reasonable potential analysis for mercury as part of the permit application review. Based on its review, the Agency has determined there is no reasonable potential for concentrations of mercury in the WWTS effluent to cause or contribute to an exceedance of water quality standards. The MPCA expects no measurable change in mercury concentrations downstream in the St. Louis River at Forbes or below. However, to ensure the WWTS is removing mercury as expected, an Operating Limit of 1.3 ng/L total mercury applies at station WS074. The permit requires weekly monitoring of the WWTS effluent at stations WS074 and SD001 for total mercury using analytical method 1631 and clean-sampling method 1669. The applicable TBEL at station SD001 under the NSPS for mercury is a daily maximum of 0.002 mg/L and a monthly average of 0.001 mg/L.⁶²

MPCA's Fact Sheet explains that an operating limit was included for mercury because the influent mercury concentration to the wastewater treatment plant was predicted to be 1.0 ng/L, which is near Minnesota's applicable water quality standard.⁶³

MPCA also evaluated mercury in the context of its *Antidegradation Preliminary Determination*:

The only bioaccumulative chemical of concern in the effluent is mercury. The net loading of mercury will be prudently and feasibly minimized using the best available treatment technologies. The effluent from the wastewater treatment system is expected to be at or below the water quality standard of 1.3 ng/L and will not cause or contribute to any downstream mercury water quality exceedance. The receiving water wetlands and downstream creeks are not listed as impaired for mercury under Section 303(d) of the Clean Water Act; however, observed values in the downstream creeks are periodically in excess of applicable water quality standards (1.3 ng/L), primarily as a result of atmospheric deposition (Section 8.1 (pp. 83-84) of the Antidegradation Evaluation). Existing water quality with respect to mercury is discussed in Section 8.2 (pp. 84-85) of the Antidegradation Evaluation. Section 8.3 (pp. 85-93) of the Antidegradation Evaluation provides a comparison of existing and estimated water quality for mercury due to the project. All downstream waters are expected to show no measurable increase in estimated mercury concentrations or loading as compared to existing conditions. Additionally, because of flow (and resulting mercury loading) reductions to the Partridge River from the project upstream of the confluence with Second Creek, the overall loading of mercury to the Partridge River (and to the St. Louis River) downstream of Second Creek is estimated to decrease from current conditions. Because of the net decrease, all downstream OIRWs and ORVWs, including Lake Superior, will be protected.⁶⁴

⁶² MPCA, National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program Fact Sheet, MN0071013, Prepared for public comment period beginning January 31, 2018, p. 43.

⁶³ MPCA. National Pollutant Discharge Elimination System /State Disposal System (NPDES/SDS) Permit Program Fact Sheet, MN0071013, Prepared for public comment period beginning January 31, 2018, p. 43.

⁶⁴ *MPCA Antidegradation Preliminary Determination*, January 10, 2018, p. 25, <https://www.pca.state.mn.us/sites/default/files/wq-wwprml-51n.pdf> (last visited April 28, 2022).

Not considered in the antidegradation preliminary determination is any release of mercury from adjacent wetlands as a result of secondary impact on those wetlands.

4. Data Limitations

As discussed previously, to estimate potential loadings of mercury, sulfate, and other solutes resulting from the proposed project, PolyMet relied on a mass-balance model that subsequently informed the suite of permitting documents and MPCA's CWA Section 401 certification. However, the Band has faulted the FEIS model as being too limited and that it specifically omits consideration of fate and transport of mercury present in the adjacent wetlands subject to secondary impacts, and that this significant loading of sulfate and mercury will lead to increased production of methylmercury.⁶⁵

The Band argues that the model:

- does not include major data parameters, including methylmercury;
- does not include error or uncertainty surrounding the data used to populate the model;
- does not quantify mercury inputs resulting from altering the hydrological and biogeochemical function of wetlands surrounding the mine site, including repeating cycles of drying and rewetting; and
- does not attempt to understand the fate and transport of mercury loads resulting from the NorthMet project and its indirect impacts on the surrounding wetlands.⁶⁶

EPA agrees with the Band that there are substantial limitations to the information presented in regard to estimates of mercury impacts based on the mass-balance model currently presented in the FEIS. Specifically, the ORD Mercury Memo states:

“At this time, the scientific information to predict the timing and magnitude of mercury concentration change in waters or fish downstream of the NorthMet mine is incomplete because the impact on regional wetlands and peatlands has not been sufficiently studied. To evaluate the effect of wetland impacts on methylmercury, as well as the additions of mercury and sulfate from treated, discharged waters, it is necessary to develop a **process-based mass balance model of the system. Such an approach must incorporate wetlands and peatlands; surface, pore, and ground waters; and include future hydrologic changes owing to mine operations.** While there are examples of such hydrologic models in the scientific literature (e.g., a Hydrologic Simulation Program FORTRAN, Berndt et al., 2016), **no such model was applied to evaluate the NorthMet mine and processing facility impacts on area wetlands and peatlands with respect to changes in hydrology (whether direct or indirect).** To apply such a model, it would first be necessary to characterize the current conditions at the proposed mine site and processing site, including mercury inventories and relevant water quality parameters such as sulfur and dissolved organic carbon concentrations in wetlands, surface waters, and ground waters, as well as measurements of surface and ground water flows. To address

⁶⁵ Fond du Lac Objection, Exhibits 24, 27, 30.

⁶⁶ Fond du Lac Objection, pp.11-18.

the timing and magnitude of mercury concentration change downstream and in fish, the model would be used to assess potential change in loading of mercury and methylmercury to the St. Louis River under varying mine operations and environmental conditions. Specifically, to address the CWA Section 401(a)(2) process, the model should also address fate and transport downstream of the mine site and processing facility to the Fond du Lac Reservation boundaries.” (Emphasis added.)⁶⁷

These issues were raised to MPCA in the public comments on the proposed CWA Section 401 certification and the CWA Section 402 permit.⁶⁸ In its responses to comments regarding the limitations of the mass-balance presented in the FEIS, MPCA states that the mass-balance approach was appropriate “given the data available” and that the mass-balance “conceptual model used is more transparent and relies on fewer untested assumptions than a complex model incorporates.”⁶⁹ Additionally, MPCA stated its belief that the drawdown in the wetlands surrounding the NorthMet project mine pits would not be significant, but added that if significant drawdown were to occur, the wetlands would essentially be converted to “upland” and thus would not become sources of methylmercury.⁷⁰ As discussed, the amount of drawdown and its effect on the hydrology and biogeochemistry of the wetlands surrounding the NorthMet project continues to be a major point of concern for the Band. The ORD Mercury Memo also concludes that there are fundamental data gaps related to mercury cycling and hydrology in the wetlands surrounding the NorthMet project.

During the CWA Section 401 certification process and in response to the Band’s concerns, PolyMet published a report entitled “Cross-Media Analysis to Assess Potential Effects on Water Quality from Project-Related Deposition of Sulfur and Metal Air Emissions.”⁷¹ As the title of this report indicates, it was specifically developed to address the impacts of air/dust emissions from the NorthMet project. The analysis identified one “wetland of interest” (WOI) near the mine site that is anticipated to receive the highest loading of fugitive dust from the NorthMet project that contains sulfur and other metals and examined the impact of that deposition on mercury production in the wetland.

It should be noted that the WOI will not receive direct NPDES discharges as a result of the NorthMet project and will likely not be subject to drawdown based on the presence of a culvert. Based on analysis of the fugitive dust deposition to the WOI, the Cross-Media analysis

⁶⁷ Appendix B ORD Mercury Memo, p. 3.

⁶⁸ MPCA’s CWA Section 401 Certification Response to Comments, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-510o.pdf> (last visited April 27, 2022); MPCA 402 Permit Response to Comments, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-511l.pdf> (last visited April 27, 2022).

⁶⁹ MPCA Findings of Fact in the matter of the denial of contested case hearing requests and issuance of MPCA certification under Section 401 of the Clean Water Act for the proposed NorthMet project, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51kk.pdf>, p. 29 (last visited April 27, 2022).

⁷⁰ MPCA Findings of Fact in the matter of the denial of contested case hearing requests and issuance of MPCA certification under Section 401 of the Clean Water Act for the proposed NorthMet project, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51kk.pdf>, p. 19 (last visited April 27, 2022).

⁷¹ *Cross-Media Analysis to Assess Potential Effects on Water Quality from the Project-Related Deposition of Sulfur and Metal Air Emissions*, Barr, October 31, 2017, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51i.pdf> (last visited April 27, 2022), Appendix F.

determined that even with impacts from fugitive dust, the NorthMet project will still result in “non-measurable” changes to mercury and methylmercury concentrations at the St. Louis River at Cloquet. Although PolyMet does make some protective assumptions in its analysis, loadings from discharges from the NorthMet project are still assumed to meet the 1.3 ng/L mercury and 10 mg/L sulfate limit based on the analysis presented in the FEIS, and there is no indication of what happens in the event that these internal operating limits are not met.

As a result, EPA’s evaluation is that the Cross Media analysis does not sufficiently address the concerns raised by the Band regarding the extent of wetland drawdown and fluctuations in water levels resulting from mine operations. Instead, the Cross Media analysis essentially extrapolated its analysis of the WOI to all wetlands surrounding the NorthMet project area based on major assumptions made that the WOI was representative of all wetlands near the project and that wetland export of sulfate and mercury will not change during mine operations versus current conditions.⁷² The Band states that this is a major flaw in the Cross Media analysis; EPA agrees. The Cross Media analysis is limited to the impact of air deposition on mercury cycling in one “wetland of interest” that does not receive direct NPDES discharges and is likely not subject to drawdown. Because of this limitation, it cannot be used to address the larger question of impacts on mine construction and operation on mercury cycling of wetlands in the surrounding landscape for the NorthMet project.

Informed largely by the Cross-Media Analysis, MPCA’s CWA Section 401 certification is primarily focused on addressing impacts from air deposition resulting from the NorthMet project and does not sufficiently address alterations to wetland hydrology and biogeochemistry resulting from CWA Section 404 permitted activities for the NorthMet project. Although the CWA Section 401 certification states that 22 wetland sites must be monitored monthly during the ice-off period for Hg, MeHg, and sulfate, this monitoring is only required “for not less than 2 years and continue until the commencement of project mining operations.”⁷³ After that MPCA states that follow-up monitoring will continue “as needed” with no indication of what might trigger further wetland monitoring.⁷⁴ The CWA Section 404 permit does contain triggers for adaptive management and compensatory mitigation, but they would not eliminate the hydrologic change that would result in discharges of methylmercury to the watershed. The Band asserts and EPA agrees that the CWA Section 401 certification’s monitoring conditions will not be sufficient to determine whether discharges from CWA Section 404 permitted activities will result increases in methylmercury that could potentially affect the food web of the Saint Louis River Watershed.⁷⁵

⁷² *Cross-Media Analysis to Assess Potential Effects on Water Quality from the Project-Related Deposition of Sulfur and Metal Air Emissions*, Barr, October 31, 2017, Appendix F.

⁷³ MPCA’s CWA Section 401 Certification.

⁷⁴ MPCA Findings of Fact in the matter of the denial of contested case hearing requests and issuance of MPCA certification under Section 401 of the Clean Water Act for the proposed NorthMet project, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51kk.pdf> (last visited April 27, 2022) (last visited April 27, 2022), p. 113.

⁷⁵ Fond du Lac Objection, Exhibit 25.

In summary, EPA recognizes the limitations of the mercury mass-balance model presented in the FEIS and the lack of analysis addressing the potential impacts of altering the hydrology and biogeochemistry of large areas of peat-based wetlands surrounding the NorthMet project site.

5. Conclusion

As discussed above, mercury concentrations in the St. Louis River as it passes through the Fond du Lac Reservation already exceed the water quality criteria established by the Band to ensure that the Band's designated uses are protected and fish and aquatic life are safe for human consumption. Because the St. Louis River is already impaired for mercury, the St. Louis River and its associated watershed lack assimilative capacity that would ameliorate any adverse impacts of additional mercury loading from discharges from CWA Section 404 permitted activities on downstream waters.

The Band provides analysis and documentation in its objection that the wetlands surrounding the NorthMet project site are reservoirs of mercury and that project activities will result in the mobilization of mercury and sulfate. EPA agrees and notes that changes in hydrology are likely to result in mobilization of mercury and sulfate and that disturbing the wetlands via draining could result in mobilization of methylmercury downstream.⁷⁶ As a result, EPA's evaluation is that altering the hydrology of the wetlands surrounding the NorthMet project site has a strong likelihood to contribute to THg and MeHg downstream in the St. Louis River and within the Band's waters.

However, the documentation supporting the permit suite and the CWA Section 401 certification do not consider the function of wetlands as environmental reservoirs of mercury and the impacts of hydrologic modifications on those mercury reservoirs and fail to include conditions that ensure that mercury is not mobilized, methylated, and exported. With respect to the CWA Section 404 permit, minimal water quality monitoring is required in the suspended permit, and adaptive management for secondary impacts to wetlands would be required only after a hydrologic effect has occurred and mercury has been mobilized, leading to, in some circumstances, irreversible damage.

The CWA Section 402 individual permit authorizes continued exceedance of the Band's water quality standards for mercury because it allows a discharge from the wastewater treatment plant in excess of the Band's water quality standards for mercury of 0.77 ng/L and the receiving waters to this discharge within the headwaters of the St. Louis River already exceed the Band's water quality standard for mercury.⁷⁷ EPA's evaluation pursuant to CWA Section 401(a)(2) must consider whether the Band's more stringent water quality requirements and water quality criteria will be achieved at the point where water, including discharges from the proposed project, would enter the Band's downstream jurisdiction. Because all streams from the mine site to the mouth of the St. Louis River already exceed the Band's water quality standards for mercury, there is no assimilative capacity or dilution within this watershed that will result in dilution of the mercury concentration from 1.3 ng/L (as authorized by the current permit suite) such that water quality

⁷⁶ Appendix B, ORD Mercury Memo.

⁷⁷ NPDES Permit MN0071013.

downstream from the NorthMet project will comply with Band's more stringent criterion of 0.77 ng/L.

The efforts of PolyMet to quantify scope of the hydrologic impacts resulting from the discharges from CWA Section 404 permitted activities are extremely cursory, as detailed above in Section III.A.1. As a result, as noted in the ORD Mercury Memo, the available data and analyses supporting the CWA Section 404 permit and CWA Section 401 certification are insufficient to fully evaluate the mercury impacts in terms of area of wetlands affected and effects on the Band's water quality. Given these uncertainties, in addition to the reasonably foreseeable discharges that are unaccounted for in the CWA Section 404 permit application, MPCA's CWA Section 401 certification, and MPCA's CWA Section 402 permits for the NorthMet project, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for mercury for reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities.

B. Impacts on the Band's waters—Specific Conductance

1. Introduction

With respect to specific conductance, the Band objects to the issuance of a CWA Section 404 permit for the NorthMet project due to the Band's determination that discharges from the permitted activity will violate its water quality standards for specific conductance due to the contributions of mineral loadings (dissolved ions contributing to specific conductance) to the St. Louis River watershed. In particular, the Band outlines that discharges of dissolved ions (increased mineral loadings leading to higher specific conductance) would both:

- violate the Band's numeric water quality standard for specific conductance of 300 $\mu\text{S}/\text{cm}$; and
- adversely affect aquatic life within the St. Louis River watershed and within streams and wetlands on the Fond du Lac Reservation.⁷⁸

Based on the Band's analysis, those impacts to aquatic life (e.g., benthic aquatic insects and sturgeon) would violate the Band's antidegradation standard within wetlands and streams on the Fond du Lac Reservation, which are tied to the Band's narrative standards and designated uses.⁷⁹ Specific violations of water quality requirements identified by the Band in its objection include the following:

- The Band's antidegradation policies for surface waters requiring protection of existing uses and prohibiting new or increased discharges that would impact an existing use (wetlands and non-wetlands);
- the Band's ambient numeric water quality criterion for specific conductance for the protection of aquatic biota;
- the Band's narrative criteria prohibiting objectionable deposits and prohibiting conditions that, "may limit the growth and propagation of, or otherwise cause or contribute to

⁷⁸ Fond du Lac Objection, beginning on p. 28.

⁷⁹ Appendix E Applicable Water Quality Standards, Fond du Lac Objection, beginning on p. 24.

adverse effect to wild rice and other flora and fauna of cultural importance to the Band”;
and

- the Band’s Wildlife, Warmwater Fisheries, and Subsistence Fishing for non-wetlands and wetland designated uses.⁸⁰

The record for the CWA Section 404 permit application and MPCA’s CWA Section 401 certification do not speak directly to how the proposed NorthMet project will meet the Band’s numeric specific conductance standard, which post-dates these permitting documents,⁸¹ nor the Band’s narrative or antidegradation standards. The Corps’ ROD, informed by the FEIS, describes how engineering controls, a wastewater treatment plant, and state permit conditions (within the permit suite) will generally minimize and manage the NorthMet project’s potential effects to downstream water quality. While the ROD does not specifically reference the Band’s specific conductance or narrative standards, the ROD does indicate that reusing the LTV tailings facility will mitigate for existing discharges of total dissolved solids (TDS) and hardness, which directly relate to specific conductance. EPA also notes that the CWA Section 404 permit application, MPCA’s CWA Section 401 certification, Corps’ ROD, and permit suite all predate adoption of the Band’s numeric specific conductance criterion and therefore do not consider the potential for violations of the Band’s water quality requirements for specific conductance.⁸²

2. Impacts of Elevated Specific Conductance on the St. Louis Watershed

Unimpacted forested and wetland areas within the St. Louis River watershed provide dilution for St. Louis River watershed tributaries that contain elevated levels of specific conductance after receiving discharges from the iron range mining operations. See ORD’s Specific Conductance Memo. Both lake sturgeon and brook trout, as well as the benthic invertebrates upon which they feed, require low specific conductance water for naturally sustained populations. Even at a specific conductance threshold below 300 $\mu\text{S}/\text{cm}$, EPA determined that there would be declines in abundance in aquatic microinvertebrates, and lower thresholds may be needed to be protective of highly salt-intolerant species. As such, elevated specific conductance in wetlands and streams within the St. Louis River watershed would have adverse effects on macroinvertebrate communities as well as higher trophic fish and animal communities throughout, including in the Band’s waters.⁸³

EPA’s evaluation of the effects to the Band’s water quality standards with respect to specific conductance is made in the context of a cumulative loadings and background, which includes both:

⁸⁰ Fond du Lac Objection, beginning on p. 28.

⁸¹ EPA approved the Band’s water quality standards that included specific conductance on October 5, 2020. U.S. EPA, EPA’s Review of Revisions to the Fond du Lac Band of Lake Superior Chippewa’s Water Quality Standards Under Section 303(c) of the Clean Water Act, WQSTS # TR2018-1280, <http://www.fdlrez.com/rm/downloads/WQSEPADecisionDocument10-5-2020.pdf> (last visited April 15, 2022).

⁸² U.S. EPA, EPA’s Review of Revisions to the Fond du Lac Band of Lake Superior Chippewa’s Water Quality Standards Under Section 303(c) of the Clean Water Act, WQSTS # TR2018-1280.

⁸³ EPA ORD Review: Assessment of effects of increased ion concentrations in the St. Louis River Watershed with special attention to potential mining influence and the jurisdiction of the Fond du Lac Band of Lake Superior Chippewa, March 15, 2022 [hereafter ORD Specific Conductance Memo].

- natural specific conductance levels within the St. Louis River, referred to in the ORD Specific Conductance Memo as “least disturbed background [specific conductance] SC,” and
- existing sources of specific conductance in the St. Louis River watershed.⁸⁴

To evaluate the potential for the NorthMet project to violate the Band’s water quality standard for specific conductance and antidegradation, EPA reviewed the predicted contributions of mineral loadings from the permitted activities (dissolved ions contributing to specific conductance) to the St. Louis River watershed, including:

- Discharges from construction of transportation corridors, tailing basin expansion, wastewater treatment system, and mine site infrastructure;
- Discharges from the tailings basin water treatment plant during operation;
- Discharges from the mine site, including pits, tailings piles, and peat storage during operation;
- Discharges from transportation corridors during operation (e.g., rail spillage);
- Air deposition, as described in the MPCA Multimedia Analysis; and
- Disturbances to unimpacted forested and wetland areas, removing the specific conductance dilution from those subwatersheds (e.g., much of the upper Partridge River), would contribute to higher specific conductance concentrations downstream in the St. Louis River.⁸⁵

3. Baseline Water Quality Conditions and Impacts

EPA reviewed the baseline water quality conditions and impacts associated with specific conductance expected to result from the NorthMet project’s discharges, as proposed and as if each of the permits in the permit suite remain as currently drafted. The baseline impacts in turn inform whether the NorthMet project’s permits, as currently drafted, will ensure that any discharge from the NorthMet project will comply with the Band’s water quality requirements.

Baseline water quality conditions

ORD’s Specific Conductance Memo evaluates the existing condition for specific conductance in the St. Louis River watershed. In particular, EPA ORD’s analysis of the available data shows that the Partridge River watershed, which includes the proposed mine site, currently has low background specific conductance levels due to undisturbed vegetation and soils. Whereas several small tributaries to the St. Louis River receive high specific conductance discharges from the existing LTV Tailings Basin (proposed NorthMet project tailings basin facility and wastewater treatment plant) through First Creek, the low specific conductance water in the Partridge River draining from the currently undisturbed area of the proposed mine site dilutes the discharge from First Creek but not back to natural background levels.⁸⁶ As water flows downstream along the St. Louis River, specific conductance increases again with inputs from Mesabi Range watersheds until diluted by tributaries entering the St. Louis River mainstem nearer to the reservation.

⁸⁴ Appendix C ORD Specific Conductance Memo.

⁸⁵ Appendix C ORD Specific Conductance Memo.

⁸⁶ Appendix C ORD Specific Conductance Memo.

Existing anthropogenic sources of elevated specific conductance within the St. Louis River watershed include mining in the Mesabi range, wastewater treatment systems, agricultural runoff, unpaved roads, waste sites, and road salt application especially near highways and urban areas. Due to discharges containing specific conductance from many sources in the St. Louis River watershed, data collected in the St. Louis River mainstem shows that the river has been exceeding the Band's numeric water quality criterion of 300 $\mu\text{S}/\text{cm}$ as an annual average, in some recent years.⁸⁷

Impacts from current permits

CWA Section 404 Permit Conditions

The suspended Corps' CWA Section 404 permit⁸⁸ does not contain conditions that apply specifically to specific conductance. Instead, the Corps relies on MPCA's CWA Section 401 certification (along with the accompanying MPCA record) to evaluate whether the proposed project would violate water quality standards and to add water quality monitoring conditions (the certification conditions generally focus on parameters regulated by Minnesota's water quality standards, i.e., not specific conductance). See the *CWA Section 401 Certification Conditions* discussion below. One exception to this is CWA Section 404 Permit Condition No. 14, which is intended to minimize indirect effects to wetlands and streams by requiring erosion control and slope stabilization during construction.⁸⁹ This condition would result in decreasing some contribution of mineral loadings (which would otherwise result in increased specific conductance). Erosion control best management practices (BMPs), as required by CWA Section 404 Permit Condition No. 14, would assist in minimizing the discharge of sediments downstream of the construction, but BMPs alone cannot eliminate the discharges contributing to increased specific conductance downstream.

Additionally, while the suspended CWA Section 404 permit requires compensatory mitigation (in the form of bank credits) for direct and some secondary wetland impacts, it does not account for the loss of dilution capacity provided by the existing undisturbed forested and wetland mine site, which likely would increase specific conductance in the St. Louis River watershed and contribute to violations of the Band's numeric, narrative, and antidegradation water quality standards.

The suspended CWA Section 404 permit also includes a reporting condition as part of an annual Environmental Review Meeting (ERM), in which PolyMet must submit to the Corps "A summary of water quality data required by and reported to the Minnesota Department of Natural Resources (MDNR) and MPCA."⁹⁰ There are provisions of the ERM data reporting that may

⁸⁷ Appendix C ORD Specific Conductance Memo, Part 4.

⁸⁸ U.S. Army Corps of Engineers, PolyMet Mining, Inc. Permit No. MVP-1999-05528-TJH, March 22, 2019, <https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/PolyMet/NorthMet%20Permit%20-%20Corps%20of%20Engineers.pdf?ver=2019-03-22-091358-997> (last visited April 28, 2022).

⁸⁹ U.S. Army Corps of Engineers, PolyMet Mining, Inc. Permit No. MVP-1999-05528-TJH, March 22, 2019.

⁹⁰ U.S. Army Corps of Engineers, PolyMet Mining, Inc. Permit No. MVP-1999-05528-TJH, March 22, 2019, at Condition 34.e.

show instances of increased mineral loadings at a particular monitoring location (provided as total dissolved solids (TDS) or hardness). However, the suspended CWA Section 404 permit does not require PolyMet to take any action in response to this data, including any action to prevent discharges contributing to elevated specific conductance in the St. Louis River if the data identify any sediment discharge.

When describing the model results to demonstrate that the NorthMet project will not violate applicable water quality standards, the Corps' ROD refers to the Gold Sim Model,⁹¹ which uses probabilistic simulations that take into account uncertainty of the model inputs. The Corps concludes that the water quality model predicts that the NorthMet project would not cause any significant water quality impacts. However, the FEIS referenced surface water evaluation criterion for TDS at 500 or 700 mg/LTDS can be related to SC, and depending on the exact ionic mixture, 500-700 mg/L TDS criterion would translate to approximately 800 $\mu\text{S}/\text{cm}$ -1200 $\mu\text{S}/\text{cm}$ specific conductance, which far exceeds the Band's numeric criterion of 300 $\mu\text{S}/\text{cm}$.⁹²

CWA Section 401 Certification Conditions

MPCA's CWA Section 401 certification⁹³ includes wetland monitoring for several parameters, including specific conductance, only "[t]o provide data regarding methylmercury concentrations" related to air deposition.⁹⁴ This includes two years of monthly baseline monitoring from May to October at 22 wetland locations until mining operations commence.⁹⁵ MPCA's CWA Section 401 certification includes other conditions that do not pertain to specific conductance, such as requirements for annual reporting and adaptive management, if reported concentrations exceed some baseline or state water quality standards. However, Minnesota's water quality standards lack a specific conductance criterion to protect aquatic life that would be equivalent to the Band's numeric criterion, and the baseline threshold for action is not yet specified.

CWA Section 402 and Other State Authorizations

MPCA has issued coverage under its CWA Section 402 general permit to authorize discharge of stormwater associated with construction activity for construction of the mine and an individual permit for discharges of process wastewater from the mine, which includes conditions to minimize discharges associated with construction. However, conditions included in the general permit would not eliminate discharges of minerals (or any dissolved parameters).

⁹¹ FEIS Section 5.2.2.1.

⁹² U.S. EPA, *EPA's Review of Revisions to the Fond du Lac Band of Lake Superior Chippewa's Water Quality Standards Under Section 303(c) of the Clean Water Act*, WQSTS # TR2018-1280, <http://www.fdlrez.com/rm/downloads/WQSEPADecisionDocument10-5-2020.pdf> (last visited April 15, 2022).

⁹³ MPCA's CWA Section 401 Certification, Condition 1.

⁹⁴ MPCA's CWA Section 401 Certification, Condition 1.

⁹⁵ MPCA's CWA Section 401 Certification, Condition 1.

The MPCA's individual CWA Section 402 permit contains monitoring requirements for specific conductance, but no conditions that would limit the discharge of dissolved ions contributing to elevated specific conductance to a level that would ensure compliance with the Band's water quality standards. The wastewater treatment system, as designed would remove dissolved ions from the wastewater. However, minerals (granular calcite via the limestone contactor)⁹⁶ will be added to the treated water for effluent stabilization purposes, adding dissolved ions to the discharge. The permit requires monitoring of some parameters related to specific conductance (e.g., sulfate, TDS, hardness), but there is no water quality based effluent limit for specific conductance on the effluent. It is uncertain what the mineral content of the effluent would be. Further, Minnesota does not have a comparable water quality standard for specific conductance to the Band's water quality standards, and the Band's numeric water quality standard of 300 $\mu\text{S}/\text{cm}$ was not yet approved by EPA when the CWA Section 402 permit was issued.

MPCA's CWA Section 401 Certification relied on the CWA Section 402 permit to determine that there would be a net improvement in the "salty parameters" due to PolyMet's plan to manage seeps from the existing LTV Tailings Basin.⁹⁷ PolyMet is proposing to improve upon an existing seepage capture and return system at the tailings basin. The seepage capture system would collect and return seepage to the tailings basin, most of which currently flows to wetlands and small tributaries north and west of the Plant Site that flow towards the Embarrass River⁹⁸. MPCA predicts that the overall result of the seepage capture and return system to be an improvement in water quality parameters including specific conductance downstream of the tailings basin. However, it is not clear from 2017 NPDES Antidegradation Assessment that all loading contributing to elevated specific conductance were considered when the conclusion of net improvement was made. The FEIS model (960 $\mu\text{S}/\text{cm}$) and CWA Section 402 permit (design model estimate of 334 $\mu\text{S}/\text{cm}$) estimates of specific conductance within permitted discharges exceed the Band's standard and do not account for all potential sources of specific conductance.

4. Conclusion

Due to discharges containing mineral loadings from many sources in the St. Louis River watershed, data collected in the St. Louis River mainstem shows that the River has been exceeding the Band's numeric water quality criterion of 300 $\mu\text{S}/\text{cm}$ as an annual average, in some recent years. The NorthMet project, as proposed, includes discharges of mineral loadings contributing to specific conductance, removal of dilution from the mine development area, but also reduction of the current loading of dissolved minerals that contribute to specific conductance from the existing unpermitted seepage of pollutants from the existing tailings basin.

Additional inputs from the NorthMet project, as proposed, along with the elimination of some of the available dilution to the system will result in the criterion being exceeded more frequently. EPA recognizes that PolyMet proposes to decrease loadings (including dissolved minerals

⁹⁶ MPCA, National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program Fact Sheet, MN0071013, Prepared for public comment period beginning January 31, 2018, p. 38.

⁹⁷ MPCA's 401 Antidegradation Assessment, December 20, 2018, <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-51ii.pdf> (last visited April 27, 2022).

⁹⁸ FEIS Ch. 5, pp. 183-193.

contributing to SC) from the existing tailings basins by capturing existing seeps and constructing a new wastewater treatment system. However, without a quantification of total mineral loadings within the tailings basin and mine site sub-watersheds, EPA is not able to confirm that there would be a decrease in specific conductance as a result of the NorthMet project, as proposed.

Furthermore, as explained in the ORD Specific Conductance Memo, even the smallest amount of increase in specific conductance would result in violations of the Band's numeric water quality standards. The EPA ORD Specific Conductance Memo describes that an increase of the St. Louis River's annual average specific conductance levels of 3.4 $\mu\text{S}/\text{cm}$ upstream from the Fond du Lac Reservation would violate the Band's water quality criterion of 300 $\mu\text{S}/\text{cm}$ more frequently with concomitant impacts to aquatic life.⁹⁹ It is uncertain what the cumulative mineral loadings would be that contribute to specific conductance downstream of the NorthMet project, and there are no corrective actions specified in the permits that would reverse trends showing that specific conductance is increasing.

With respect to the suspended CWA Section 404 permit, EPA's evaluation is that, if issued, the permit would authorize activities that would contribute additional mineral loadings to the St. Louis River and decrease the dilution capacity provided by the existing undisturbed forested and wetland mine site, which likely would increase specific conductance in the St. Louis River watershed and contribute to violations of the Band's numeric, narrative, and antidegradation water quality standards. As detailed above, the suspended CWA Section 404 permit and the CWA Section 401 certification do not sufficiently address the Band's water quality requirements with respect to specific conductance. EPA also notes that the CWA Section 404 permit application, MPCA's CWA Section 401 certification, Corps' ROD, and permit suite all predate adoption of the Band's numeric specific conductance criterion and therefore do not consider the potential for violations of the Band's water quality requirements for specific conductance.¹⁰⁰ With respect to the CWA Section 401 certification conditions, EPA's evaluation is that the certification conditions would not ensure compliance with the Band's water quality requirements pertaining to specific conductance and antidegradation because it does not contain sufficient monitoring or action thresholds for specific conductance. With respect to the individual MPCA CWA Section 402 permit, although the permit requires instream water quality monitoring to demonstrate whether water quality improvements occur, there is no specific target or requirement to limit the discharge of dissolved ions contributing to elevated specific conductance that would comply with the Band's water quality standards. MPCA's coverage under its CWA Section 402 general permit to authorize discharge of stormwater associated with construction activity includes conditions to minimize discharges associated with construction. However, conditions included in the general permit would not eliminate discharges of minerals (or any dissolved parameters).

⁹⁹ EPA ORD Specific Conductance Memo, p. 2, Highlight No.1.

¹⁰⁰ U.S. EPA, EPA's Review of Revisions to the Fond du Lac Band of Lake Superior Chippewa's Water Quality Standards Under Section 303(c) of the Clean Water Act, WQSTS # TR2018-1280, <http://www.fdlrez.com/rm/downloads/WQSEPADecisionDocument10-5-2020.pdf> (last visited April 15, 2022).

As noted above, unimpacted forested and wetland areas within the St. Louis River watershed provide dilution for St. Louis River watershed tributaries that contain elevated levels of specific conductance after receiving discharges from the iron range mining operations. The increase in loadings from the NorthMet project and the decrease in dilution from the loss of the wetlands and forested areas will result in increased specific conductance concentrations in the Band's waters as a result of the discharges from the CWA Section 404 permitted activities, as proposed. Because even relatively small increases in mineral loading—and/or decreases in dilution capacity—would likely result in violations of the Band's water quality requirements pertaining to specific conductance and antidegradation, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for specific conductance for reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities.

C. Other Topics

1. Introduction

The Band's Objection describes other concerns pertaining to specific design aspects of the NorthMet project, including the risk that the dam for the new tailing basin dam will fail and the possibility of future dam expansion. EPA did not include a comprehensive evaluation of these concerns as part of this CWA Section 401(a)(2) evaluation. However, EPA is providing observations regarding these aspects of the objection.

Additionally, the Band's Objection describes other concerns related to treaty rights and environmental justice concerns. As discussed below, EPA believes EPA's evaluation and recommendations are consistent with EPA's tribal treaty and rights obligations and commitment to addressing environmental justice issues.

2. Risk of Tailings Basin Failure

The Band's Objection discusses its concerns with the new tailing basins dam. According to the Band, because the dam will be built using the upstream construction methods using materials from existing LTV tailings basin, there is a high chance of failure.¹⁰¹ That failure would in turn cause discharges that would impact the Band's waters.

While EPA recognizes that a failure of the tailings basin, if it occurred, would likely constitute an unpermitted discharge of pollutants into the St. Louis River watershed, potentially contributing to a violation of the Band's water quality standards, EPA defers to the Corps' conclusion in the ROD that the “design of the tailings basin impoundment dam complies with industry standards for stability and safety.”¹⁰²

¹⁰¹ Fond du Lac Objection, p. 11.

¹⁰² Corps' ROD, Decision Summary, p. 47 of 89.

3. Future Mine Expansion

According to the Band's Objection, there is a potential for PolyMet to need to expand the NorthMet project for it to be economically feasible, which would increase the adverse impacts described by the Band.¹⁰³

EPA acknowledges this concern and the resulting potential increases in adverse impacts from such an expansion. However, EPA defers to the Corps' response to this concern included in the Corps' ROD that at this time further expansion is speculative and, if proposed, would require additional environmental review and would need to meet appropriate regulatory requirements, including applicable water quality requirements.¹⁰⁴

4. Treaty Rights

The Band's Objection describes the unique importance that the St. Louis River watershed has to the Band because the Band retains judicially affirmed rights to hunt, fish, and gather within the territory ceded under the Treaty of 1854 (10 Stat. 1109), which includes the NorthMet project site.¹⁰⁵ Significantly, the St. Louis River forms part of the Band's reservation boundary.¹⁰⁶ The Band received "treatment in a similar manner as a state" in 1996 and has authority to set water quality standards for its reservation, including in the St. Louis River. The water quality standards adopted by the Band protect tribally designated uses, including protection of aquatic dependent resources and the protection of culturally important designated uses which are integral to protecting the health and welfare of Band members. The Band asserts that the NorthMet project will adversely impact the Band culturally, socially, economically, and ecologically, including threatening treaty reserved rights to use and harvest resources, as well as adversely impacting the health of Band members who consume fish and other aquatic dependent resources that will be adversely impacted by discharges from CWA Section 404 permitted activity. In addition, the Band states that the protection of its downstream waters is integral to protection of fish and other aquatic-dependent resources within the Band's reservation, which the Band's water quality requirements are designed to support.¹⁰⁷

EPA is committed to consulting and coordinating with federally recognized Indian tribes, as expressed in EPA's Policy on Consultation and Coordination with Indian Tribes and EPA's Policy on Consultation and Coordination with Indian Tribes: Guidance for Discussing Tribal Treaty Rights.¹⁰⁸ The Policy sets a broad standard for when EPA should consider consulting with

¹⁰³ Fond du Lac Objection, p. 5.

¹⁰⁴ Corps' ROD, Decision Summary, pp. 19-20 of 89.

¹⁰⁵ Fond du Lac Objection, pp. 33-34; *Minnesota v. Mille Lacs Band of Chippewa Indians*, 526 U.S. 172 (1999) and, *inter alia*, *Fond du Lac Band of Chippewa Indians v. Carlson*, No. 5-92-159 (D. Minn. Mar. 18, 1996).

¹⁰⁶ Treaty with the Chippewa, 1854, <https://glifwc.org/TreatyRights/TreatyChippewa09301854Web.pdf> (last visited March 28, 2022); Fond du Lac Objection, pp. 33-34.

¹⁰⁷ Fond du Lac Objection at 33-34; *see also* U.S. EPA, *Application of Region 5's CWA 401(a)(2) "May Affect" Screening Analysis for PolyMet's NorthMet Mining Project* (June 4, 2021).

¹⁰⁸ EPA, Policy on Consultation and Coordination with Indian Tribes (May 4, 2011), <https://www.epa.gov/sites/default/files/2013-08/documents/cons-and-coord-with-indian-tribes-policy.pdf> (last visited April 27, 2022); EPA Policy on Consultation and Coordination with Indian Tribes: Guidance for Discussing Tribal Treaty Rights (February 19, 2016), https://www.epa.gov/sites/default/files/2016-02/documents/tribal_treaty_rights_guidance_for_discussing_tribal_treaty_rights.pdf (last visited April 27, 2022).

federally recognized tribal governments based on Executive Order 13175¹⁰⁹ and EPA's 1984 Policy for the Administration of Environmental Programs on Indian Reservations.¹¹⁰ These policies are amplified in the January 26, 2021 *Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships*,¹¹¹ which charges all executive departments and agencies with engaging in regular, meaningful, and robust consultation with Tribal officials in the development of Federal policies that have Tribal implications. EPA and the Department of the Army, together with other executive departments and agencies, are also signatories to the 2021 *Memorandum of Understanding Regarding Interagency Coordination and Collaboration for the Protection of Tribal Treaty and Reserved Rights*¹¹² (2021 MOU).

EPA recognizes the importance of treaty rights and EPA's obligation to honor those rights. EPA's Guidance for Discussing Tribal Treaty Rights during consultation specifically provides that that:

during consultation with federally recognized tribes (tribes), EPA will seek information and recommendations on tribal treaty rights in accordance with [its] Guidance. EPA will subsequently consider all relevant information obtained to help ensure that EPA's actions do not conflict with treaty rights, and to help ensure that EPA is fully informed when it seeks to implement its programs and to further protect treaty rights and resources when it has discretion to do so.¹¹³

EPA held government-to-government consultation with the Band on January 25, 2022, to listen to the Band's concerns detailed in its Objection. Additionally, as part of the consultation process for this matter, EPA held meetings on March 17, 2022, and on April 8, 2022, with Band representatives to provide an opportunity for the Band to further communicate its concerns to EPA.¹¹⁴

EPA notes that the Corps, as the CWA Section 404 permit issuing authority, and as a signatory to the 2021 MOU, has an independent obligation to consider impacts the Band's treaty rights in making its decision regarding permit issuance. EPA further notes that the Corps' ROD for the NorthMet project contains little information regarding the consideration of treaty rights and, further, that the Corps concludes that the co-lead agencies were able to learn "little specific information concerning recent-historic subsistence use and [identified] no information regarding contemporary subsistence activity at the Mine Site, Transportation and Utility Corridor, or Plant

¹⁰⁹ Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (November 9, 2000), <https://www.govinfo.gov/content/pkg/FR-2000-11-09/pdf/00-29003.pdf> (last visited April 27, 2022).

¹¹⁰ EPA, Policy for the Administration of Environmental Programs on Indian Reservations (November 8, 1984), <https://www.epa.gov/sites/default/files/2015-04/documents/indian-policy-84.pdf> (last visited April 27, 2022).

¹¹¹ EPA's Guidance for Discussing Tribal Treaty Rights <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/26/memorandum-on-tribal-consultation-and-strengthening-nation-to-nation-relationships/>.

¹¹² Memorandum Of Understanding Regarding Interagency Coordination and Collaboration for the Protection of Tribal Treaty Rights and Reserved Rights, November 2021, https://www.epa.gov/sites/default/files/2017-02/documents/mou_treat_rights_12-01-16_final.pdf (last visited April 25, 2022).

¹¹³ EPA's Guidance for Discussing Tribal Treaty Rights, https://www.epa.gov/sites/default/files/2016-02/documents/tribal_treaty_rights_guidance_for_discussing_tribal_treaty_rights.pdf (last visited March 31, 2022).

¹¹⁴ Appendix D, U.S. EPA, Notes from January 25, 2022 Consultation Call; U.S. EPA, Notes from March 17, 2022 Lawyers' Call; U.S. EPA, Notes from April 8, 2022 Consultation Call.

Site.”¹¹⁵ Aside from this lack of information gathering, EPA does not observe that there was an attempt to understand resource use within the Fond du Lac Reservation where the Band’s water quality requirements specifically protect the Band’s designated uses of reservation waters, including the protection of fish and aquatic dependent species upon which Band members rely for subsistence, but also because of the Band’s commitment to protect these resources for their ecological and cultural values. EPA also does not observe that there was an attempt to understand how increased mercury impacts from the CWA Section 404 permitted activities would specifically impact and bioaccumulate in those species upon which Band members rely.¹¹⁶ Despite this lack of information, the Corps concludes:

Construction and operation of the Project is not likely to significantly reduce overall availability of 1854 Treaty resources that are typically part of subsistence activities in the 1854 Ceded Territory. Some individuals and localized populations may be affected, but overall species populations are expected to remain available. The sulfate released from the NorthMet waste rock and tailings is especially important because there are waters supporting the production of wild rice downstream from both the Mine Site and Tailings Basin. Research indicates that elevated sulfate concentrations can affect the growth and viability of wild rice. The MPCA has established a 10 mg/L sulfate water quality standard for waterbodies designated as waters used for production of wild rice. Effluent from the WWTS would be discharged at a water quality based effluent limit concentration that protects the sulfate standard for waters used for production of wild rice (10 mg/L). The Corps has determined the Project would have minor adverse impacts on cultural resources.¹¹⁷

The Corps also notes that the NorthMet project is unlikely to present a “statistically measurable” change to methylmercury concentrations and thus there is “no expected change in fish mercury concentrations, and no subsequent change in human health risks related to fish consumption [citation to FEIS omitted].”¹¹⁸ The Band raised issue with these conclusions in the Band’s Objection and during consultation between EPA and the Band regarding the Band’s concerns about increased mercury concentrations in fish within its reservation waters. EPA notes that the

¹¹⁵ Corps’ ROD, pp. 63-64.

¹¹⁶ EPA notes that the Great Lakes Water Quality Guidance defines a bioaccumulative chemical of concern (BCC) as: “any chemical that has the potential to cause adverse effects which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor greater than 1000.” For comparison, the bioaccumulation factors for mercury are 27,900 for trophic level three fish and 140,000 for trophic level 4 fish. EPA, *Great Lakes Water Quality Initiative Criteria Documents for the Protection of Human Health* (1995), p. 50, <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockkey=2000GYZK.txt> (last visited April 27, 2022). The Great Lakes Water Quality Guidance defines a bioaccumulative chemical of concern (BCC) as: “any chemical that has the potential to cause adverse effects which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor greater than 1000.” For comparison, the bioaccumulation factors for mercury are 27,900 for trophic level three fish and 140,000 for trophic level 4 fish.

¹¹⁷ Corps’ ROD, p. 64.

¹¹⁸ Corps’ ROD, pp. 73-74.

Band's population harvests and consumes a higher per capita amount of fish than the general population.¹¹⁹ The Band specifically states in its Objection:

As the Band indicated in its March 6, 2012, letter to the St. Paul District of the Army Corps of Engineers, Attachment 2, Ex. 3, mercury and specifically methylmercury in Reservation waters and wetlands are the principal health concerns of the Band. Mercury concentrations in the St. Louis River have exceeded the Band's chronic human health standard (0.77 ng/L) for more than a decade. Consumption of fish contaminated by methylmercury is the primary exposure pathway for Band members and wildlife, and existing monitoring data indicate levels are already elevated in many species that are consumed as food [citation omitted]. The Band continues to be especially concerned about any new or expanded discharges to the St. Louis River system upstream of the Reservation that will contribute to cumulative increases in mercury and sulfate loadings, enhance mercury methylation, and increase methylmercury bioaccumulation in fish and wetland dependent wildlife. The discharges from the Project will increase the loading of mercury, manganese, [citation omitted] and sulfate in the St. Louis River [citation omitted]. Both the Embarrass and Partridge Rivers are listed by the Minnesota Department of Natural Resources as impaired waters, from their headwaters to their confluence with the St. Louis River. The St. Louis River is listed as impaired for methylmercury in fish tissue where it forms the northern and eastern boundaries of the Reservation. There have been and continue to be fish consumption advisories for the St. Louis River that greatly affect the Band's members by inhibiting the traditional and safe consumption of fish.¹²⁰

The Band has repeatedly voiced concerns that its members are at risk from elevated mercury levels in fish and have further raised concerns regarding mercury impacts to fish and aquatic-dependent resources within reservation waters. EPA does not observe that these concerns have been either acknowledged or addressed. Therefore, with respect to the protection of the Band's water quality requirements that ensure the protection of the Band's rights to fish and to harvest and consume other aquatic dependent species—and in light of the uncertainties discussed herein regarding pollutant discharges from permitted activities and the reasonably foreseeable discharges of methylmercury, mercury, and mineral loadings contributing to specific conductance that are unaccounted for in the CWA Section 404 permit application and suspended permit, MPCA's CWA Section 401 certification, and MPCA's CWA Section 402 permits for the NorthMet project—EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for the protection of fish and other

¹¹⁹ Fond du Lac Objection, pp. 6, 8-9, 21-22, 33-34; EPA, Appendix D, Notes from Consultation, January 26, 2022. Because mercury is so highly bioaccumulative, fish consumption rate has a significant effect on the magnitude of water quality criteria to protect human health. Minnesota's criterion for mercury to protect human health are based on a fish consumption rate of 30 g/D, resulting in a human health criterion of 0.00153 µg/L. The Band's criterion for mercury is based on a fish consumption rate of 60 g/D and results in a criterion of 0.00077 µg/L to protect human health. Minnesota also has a wildlife criterion of 0.0013 µg/L to protect wildlife which is more stringent than its human health criterion and is the criterion that is the basis for the operating limits contained in the CWA Section 402 permit for the NorthMet wastewater treatment facility.

¹²⁰ Fond du Lac Objection, pp. 8-9; *see also id.* pp. 6, 21-22, 33-34.

aquatic-dependent resources in reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities.

5. Environmental Justice

The Band asserts that NorthMet project impacts will disproportionately fall on Band members and that the Corps' review of the PolyMet CWA Section 404 permit application did not adequately consider environmental justice equities. The Band states in its Objection:

Band members rely on aquatic resources harvested from these freshwater ecosystems for subsistence foods and as part of their traditional fishing activities that are essential for maintaining and protecting culture. In addition to the deleterious impacts of methylmercury on human health (summarized below), studies for other indigenous groups have shown substantial social costs associated with restricted traditional hunting and fishing due to environmental contaminants including increases in depression, suicide, and addiction (Van Oostdam et al., 2005). As noted herein, hunting and fishing activities have already been limited due to environmental pollution within the Band's Reservation (and its Ceded Territory). Any further increase in pollution poses unacceptable risks to the Band's traditional lifestyle, culture, and health and violates environmental justice considerations.¹²¹

The Band asserts that EPA has an obligation to implement environmental justice principles in carrying out EPA's evaluation and recommendations pursuant to CWA Section 401(a)(2); and that the Corps has a parallel obligation to apply environmental justice principles in carrying out its permitting responsibilities under CWA Sections 401(a)(2) and 404.¹²²

EPA recognizes the importance of meaningful community engagement in and consideration of the impacts of federal actions through EPA's *Policy on Environmental Justice for Working with Federally Recognized Tribes and Indigenous Peoples* (July 2014). The policy affirms EPA's commitment to exercise and ensure fair treatment and meaningful involvement for federally-recognized tribes and indigenous peoples in all areas of the United States for all EPA matters that may affect their health or environment.¹²³ The Corps, as the CWA Section 404 permit issuing authority, has an obligation to consider environmental justice in making its permitting decisions. EPA notes that the Corps undertook an environmental justice analysis as part of its ROD for this project.¹²⁴ Based on this, the Corps concludes:

As described in Section 10.8, Band members' use of the Project area is not well-defined and did not emerge during interviews. Without private landowner permission, there is minimal opportunity for the Bands to exercise usufructuary rights (hunting, fishing, and gathering) on this property. Construction and operation of the Project is not likely to

¹²¹ Fond du Lac Objection, p. 22.

¹²² Fond du Lac Objection, pp. 33-34.

¹²³ EPA, *Policy on Environmental Justice for Working with Federally Recognized Tribes and Indigenous Peoples* (2016), <https://www.epa.gov/sites/default/files/2017-10/documents/ej-indigenous-policy.pdf> (last visited April 19, 2022), p. 1; see also U.S. EPA, *EJ 2020 Action Agenda: EPA's Environmental Justice Strategy*, https://www.epa.gov/sites/default/files/2016-05/documents/052216_ej_2020_strategic_plan_final_0.pdf (last visited April 19, 2022).

¹²⁴ Corps' ROD, p. 88 of 89.

significantly reduce overall availability of 1854 Treaty resources that are typically part of subsistence activities in the 1854 Ceded Territory. Effects on 1854 Treaty resources are difficult to quantify when the effects are within environmental standards, yet above current baseline conditions. **Some individuals and localized populations may be affected, but overall species populations are expected to remain available. Effects on the environment, including any from increased mercury, are expected to meet the standards and regulations set forth by the appropriate state or federal agency or program.** These laws are intended to protect important natural and cultural resources and include, but are not limited to the ESA, CWA, and CAA. In conclusion, the Project would not have a disproportionately high and adverse human health or environmental effect on minority populations and low-income populations. The proposed action is in compliance with Title VI of the Civil Rights Act and Executive Order 12898 [Emphasis added].¹²⁵

Available Census data shows that for the past 12 months, more than 20% of all persons living on the Fond du Lac Reservation and off-reservation trust lands are living at or below the poverty level, with some 31% of American Indian/Alaska Native *alone* living at or below the poverty level.¹²⁶ The Band, in its objection and elsewhere, has repeatedly stated that its members rely upon fish and other aquatic-dependent species for subsistence food and for the ecological and cultural significance of these species. The Band also notes the disproportionate impact of mercury consumption in children and in more vulnerable members of a population: Even without projected discharges from CWA Section 404 permitted activities from this project, the Band states that “[t]he remaining fish [in the St. Louis River watershed] are now so high in mercury that the Band members cannot safely feed the fish to their children.”¹²⁷ In light of the Band’s significant and documented reliance on fish and other aquatic dependent species, the Corps’ ROD conclusion that “[s]ome individuals and localized populations may be affected [by activities permitted under the CWA 404 permit]” appears to discount environmental justice concerns.

With respect to the consideration of the Band’s statements regarding the disproportionate impact the project is likely to have on Band members—specifically because of tribal members’ particular reliance upon the fish and other aquatic-dependent species that are likely to be impacted within

¹²⁵ Corps’ ROD, p. 88 of 89.

¹²⁶ United States Census Bureau, American Community Survey, 5-year estimates, 2020, Table ID B17001, Fond du Lac Reservation and Off-Reservation Trust Land, Poverty Status in the Past 12 Months by Sex by Age, <https://data.census.gov/cedsci/table?q=fond%20du%20lac%20reservation&tid=ACSDT5YAIAN2015.B17001> (last visited April 29, 2022); United States Census Bureau, American Community Survey, 5-year estimates, 2020, Table ID B17001C, Fond du Lac Reservation and Off-Reservation Trust Land, Poverty Status in the Past 12 Months by Sex and Age (American Indian and Alaska Native Alone), <https://data.census.gov/cedsci/table?q=B17001C%3A%20POVERTY%20STATUS%20IN%20THE%20PAST%2012%20MONTHS%20BY%20SEX%20BY%20AGE%20%28AMERICAN%20INDIAN%20AND%20ALASKA%20NATIVE%20ALONE%29&g=2800000US271125&tid=ACSDT5Y2020.B17001C> (last visited April 28, 2022).

¹²⁷ Fond du Lac Objection at 34; *see also id.* pp. 6 and 22. Additionally, the Band states: “The Band presently has fish consumption guidelines in place to protect public health, including a recommendation to limit consumption for women who are or may become pregnant and for all children under 15 years old. *See* Attachment 4 (Geyaabi Go Onishi Brochure).” *Id.* p. 6.

the Band's reservation—and given uncertainties discussed throughout EPA's Evaluation regarding pollutant discharges from permitted activities, in addition to the reasonably foreseeable discharges of methylmercury, mercury, and mineral loadings contributing to specific conductance that are unaccounted for in the CWA Section 404 permit application and suspended permit, MPCA's CWA Section 401 certification, and MPCA's CWA Section 402 permits for the NorthMet project, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements that protect the Band's particular reliance on fish and aquatic species in reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities.

IV. EPA's Recommendations

The following recommendations are pursuant to the requirements of EPA outlined in the CWA Section 401(a)(2):

The Administrator shall at such hearing submit his evaluation and recommendations with respect to any such objection to the licensing or permitting agency.

The Corps then must consider the recommendations, and other relevant information in its CWA Section 404 permit decision, consistent with the subsequent statement, as follows:

Such agency, based upon the recommendations of such State, the Administrator, and upon any additional evidence, if any, presented to the agency at the hearing, shall condition such license or permit in such manner as may be necessary to insure compliance with applicable water quality requirements. If the imposition of conditions cannot insure such compliance such agency shall not issue such license or permit.¹²⁸

EPA recommends the Corps not reinstate the suspended CWA Section 404 permit for the NorthMet project, as currently proposed, because EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for reservation waters, given current project design and discharges outside the CWA Section 404 permitted activities.

This recommendation accounts for the current mercury impairment of the Band's waters, with the St. Louis River exceeding the Band's chronic human health standard for mercury (0.77 ng/L). Likewise, this recommendation accounts for the current condition of the Band's waters with regard to specific conductance. In some years, the St. Louis River where it intersects the Fond du Lac Reservation also exceeds the Band's numeric standard for specific conductance (300 µS/cm). The Fond du Lac Reservation is directly downstream of the NorthMet project. Thus, the discharges from CWA Section 404 permitted activities contributing to mercury/methylmercury and mineral loadings to the St. Louis River watershed would contribute to the total loadings that impact the Band's waters and violate the Band's water quality requirements.

¹²⁸ 33 U.S.C. § 1341(a)(2).

Further, the Band's water quality standard for mercury is more stringent than Minnesota's water quality standard (0.77 ng/L and 1.3 ng/L respectively), on which MPCA's CWA Section 401 certification is based. Similarly, Minnesota does not have a comparable numeric water quality standard to the Band's specific conductance standard of 300 $\mu\text{S}/\text{cm}$, and MPCA did not adequately consider specific conductance in its CWA Section 401 certification.

As detailed in Sections III A.3 and III B.3 of this document, to assess whether and under what conditions, if any, the CWA Section 404 permit could be issued that would ensure compliance with the Band's water quality requirements, EPA reviewed the baseline water quality conditions and impacts associated with mercury and specific conductance expected to result from the NorthMet project's discharges, as proposed and as if each of the permits in the permit suite remain as currently drafted. For both mercury and specific conductance, EPA reviewed the suspended CWA Section 404 permit, MPCA's CWA Section 401 certification, and CWA Section 402 permits to evaluate permitted discharges contributing to elevated mercury and specific conductance as well as any permit conditions that may address the cumulative mercury and specific conductance contributions from the NorthMet project.

Through EPA's evaluation of the Band's Objection, EPA identified several points of uncertainty and reasonably foreseeable discharges of mercury and dissolved ions contributing to specific conductance with respect to the NorthMet project and CWA Section 404 permitted activities, including the following examples:

- Significant uncertainty regarding the full acreage of secondary impacts to wetlands from the anticipated drawdown of groundwater from mine construction and operation;
- Uncertainty in the mercury present in and the fate and transport of such mercury from wetlands subject to secondary impacts from the anticipated drawdown of groundwater from mine construction and operation;
- Uncertainty regarding the extent to which mercury methylation would increase in the St. Louis River watershed due to direct and secondary impacts to wetlands from mine construction and operation;
- An unknown quantity of total mercury and dissolved ions (contributing to elevated specific conductance) discharged during mine construction;
- An unknown quantity of total mercury and dissolved ions (contributing to elevated specific conductance) discharged via seepage; and
- An unknown reduction in dilution capacity contributing to elevated specific conductance.

In developing EPA's recommendation, EPA took these uncertainties into account, along with the baseline water quality conditions and water quality impacts as permitted and conditioned in each permit within the permit suite and the reasonably foreseeable downstream water quality effects from the discharges from the CWA Section 404 permitted activities.

In preparing recommendations, EPA considered whether conditions to the CWA Section 404 permit (e.g., monitoring, planning and adaptive management, and mitigation or remediation)

could be developed that would ensure compliance with the Band's water quality requirements (both pertaining to mercury and specific conductance). Such CWA Section 404 permit conditions would need to be implementable and enforceable by the Corps, meaning that they would contain measurable water quality-based limits/thresholds with required actions that would prevent the violation of a neighboring jurisdiction's water quality requirement (e.g., adaptive management, mitigation, remediation). Such water quality-based limits/thresholds are impractical in light of the previously discussed limitations on the available data and permit conditions. Because EPA cannot recommend a CWA Section 404 permit condition that would ensure the NorthMet project complies with the Band's water quality requirements on the reservation, EPA recommends the Corps not reinstate the suspended permit, as currently proposed.

The ORD Mercury Memo analysis contains recommendations to include additional modeling and monitoring of wetland dewatering and other mercury sources to create a process-based mass balance model for mercury contributions to the St. Louis River. EPA anticipates that the additional mercury/methylmercury load analysis could assist PolyMet to develop measures to minimize, adapt, and mitigate for the increased mercury/methylmercury. However, because the St. Louis River is already exceeding the Band's water quality standard for mercury and not meeting designated uses, any addition of mercury from the NorthMet project could contribute mercury at a concentration greater than the Band's water quality criterion of 0.77 ng/L and thereby violate the Band's water quality requirements. As mentioned, eliminating all releases of mercury is not feasible under the current mine design given pit dewatering and CWA Section 402 permitted discharges.

The ORD Specific Conductance Memo provides a potential path forward with respect to specific conductance, which consists of quantifying potential sources of increased specific conductance (including CWA Section 402 permitted discharges and loss of dilution due to land use change) and identifying specific conductance criteria for species of concern in the St. Louis River (e.g., brook trout and lake sturgeon). Once that analysis is complete, a subwatershed cumulative mineral loadings assessment may suggest engineering controls to balance changes in loadings due to the development of the proposed mine. However, as the CWA Section 404 permit is currently proposed, it is untenable to fit the ORD Specific Conductance Memo recommendations into a Corps CWA Section 404 permit condition because the outcome of the subwatershed total maximum daily load for specific conductance and the scale of wetland dewatering are unknown. The scale of loadings and dewatering are necessary information to develop implementable, enforceable, and meaningful conditions for adequate engineering controls to ensure the NorthMet project would comply with the Band's specific conductance and narrative water quality standards.

Given uncertainties regarding pollutant discharges from permitted activities, in addition to the reasonably foreseeable discharges of methylmercury, mercury, and mineral loadings contributing to specific conductance that are unaccounted for in the CWA Section 404 permit application and suspended permit, MPCA's CWA Section 401 certification, and MPCA's CWA Section 402 permits for the NorthMet project, EPA is unaware of any CWA Section 404 permit conditions that would ensure compliance with the Band's water quality requirements for reservation waters,

given current project design and discharges outside the CWA Section 404 permitted activities. EPA's recommendations do not foreclose any future modifications to the permit application or the NorthMet project design. Any future modifications should include meaningful involvement of the Band and Minnesota to ensure compliance with both tribal and state water quality requirements.

Appendices

Appendix A- References

Appendix B- ORD Mercury Memo

Appendix C- ORD Specific Conductance Memo

Appendix D- EPA Record of Meetings with the Band

Appendix E- Applicable Fond du Lac Water Quality Standards