PolyMet Mining

401(a)(2) Hearing

May 4, 2022

Rebuttal Presentation

Band's Claims Have Been Extensively Studied and Resolved

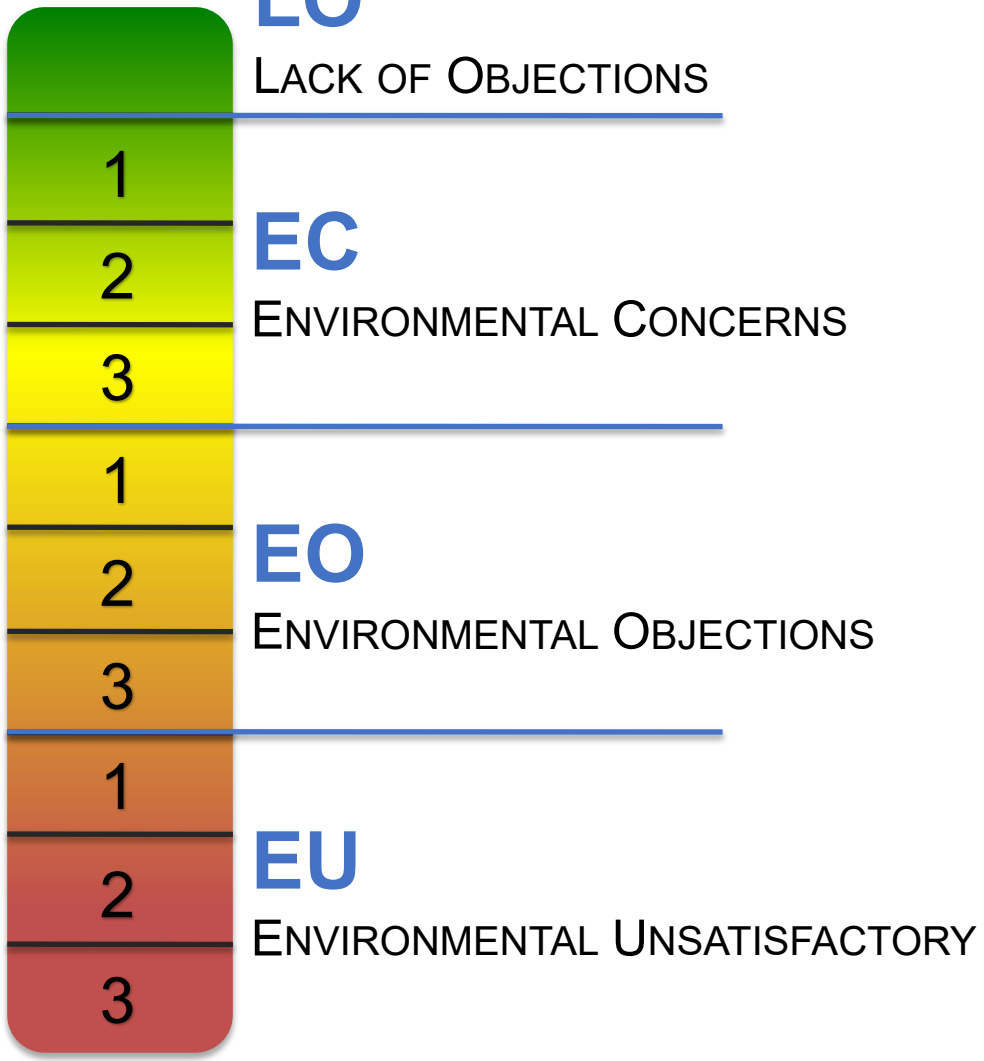
EPA Gave Positive Rating to PolyMet SDEIS

2014 EPA rating of SDEIS

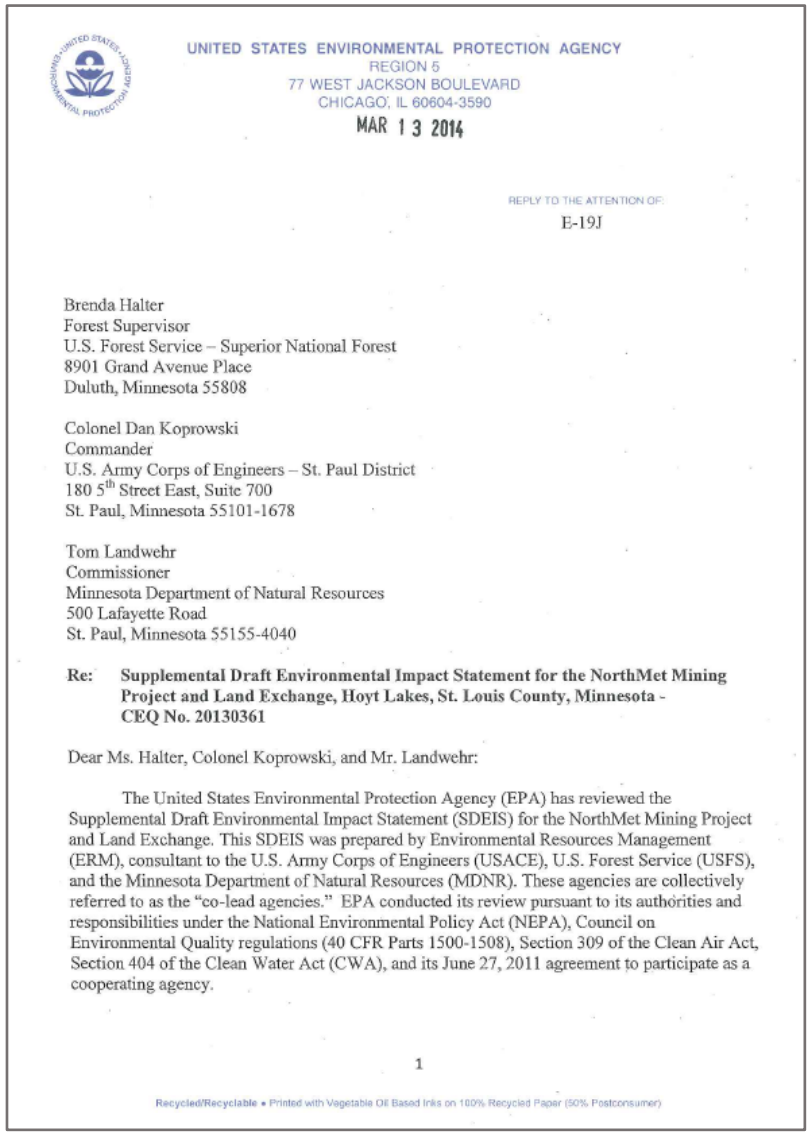
EC2

EC2 rating is the highest given by EPA for a new mining project

Same rating as St. Croix Bridge project and St. Paul to Minneapolis light rail project



EPA Commented on Mercury During EIS Process



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

MAR 13 2014

REPLY TO THE ATTENTION OF:
E-19J

Brenda Halter
Forest Supervisor
U.S. Forest Service – Superior National Forest
8901 Grand Avenue Place
Duluth, Minnesota 55808

Colonel Dan Koprowski
Commander
U.S. Army Corps of Engineers – St. Paul District
180 5th Street East, Suite 700
St. Paul, Minnesota 55101-1678

Tom Landwehr
Commissioner
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, Minnesota 55155-4040

Re: Supplemental Draft Environmental Impact Statement for the NorthMet Mining Project and Land Exchange, Hoyt Lakes, St. Louis County, Minnesota - CEQ No. 20130361

Dear Ms. Halter, Colonel Koprowski, and Mr. Landwehr:

The United States Environmental Protection Agency (EPA) has reviewed the Supplemental Draft Environmental Impact Statement (SDEIS) for the NorthMet Mining Project and Land Exchange. This SDEIS was prepared by Environmental Resources Management (ERM), consultant to the U.S. Army Corps of Engineers (USACE), U.S. Forest Service (USFS), and the Minnesota Department of Natural Resources (MDNR). These agencies are collectively referred to as the "co-lead agencies." EPA conducted its review pursuant to its authorities and responsibilities under the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500-1508), Section 309 of the Clean Air Act, Section 404 of the Clean Water Act (CWA), and its June 27, 2011 agreement to participate as a cooperating agency.

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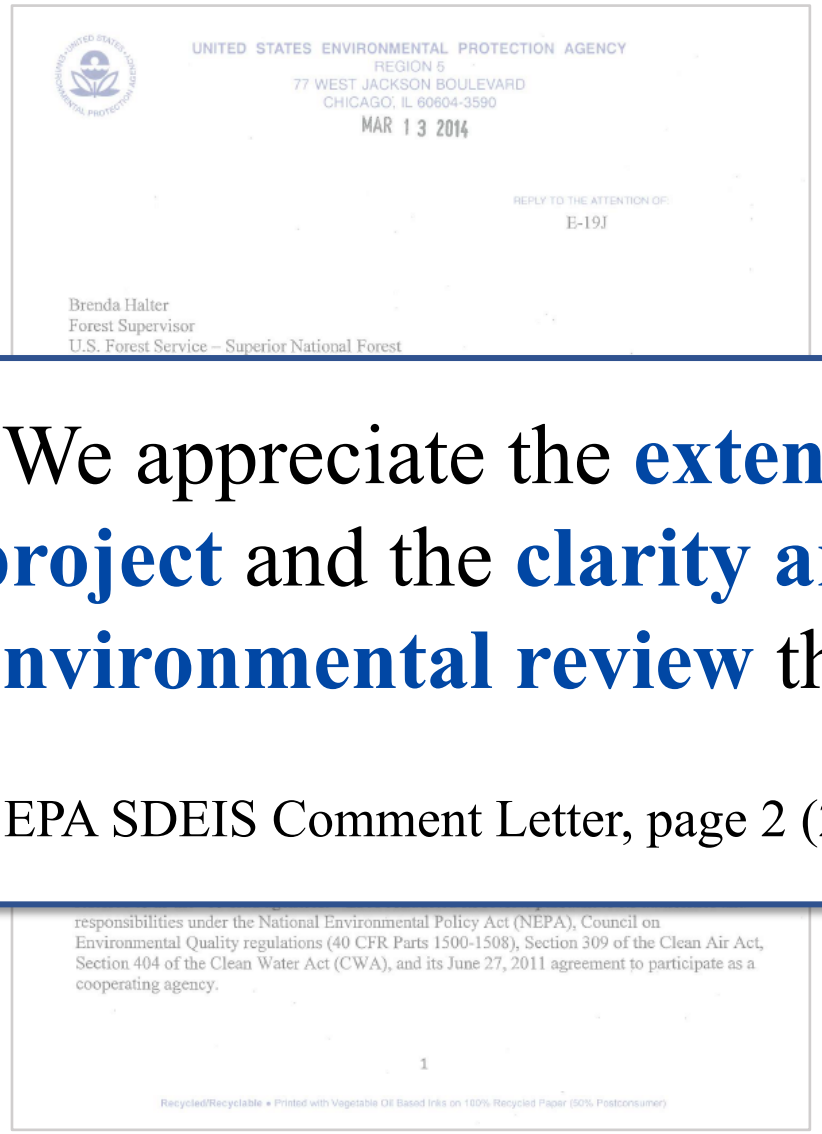

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Forest Supervisor
U.S. Forest Service – Superior National Forest

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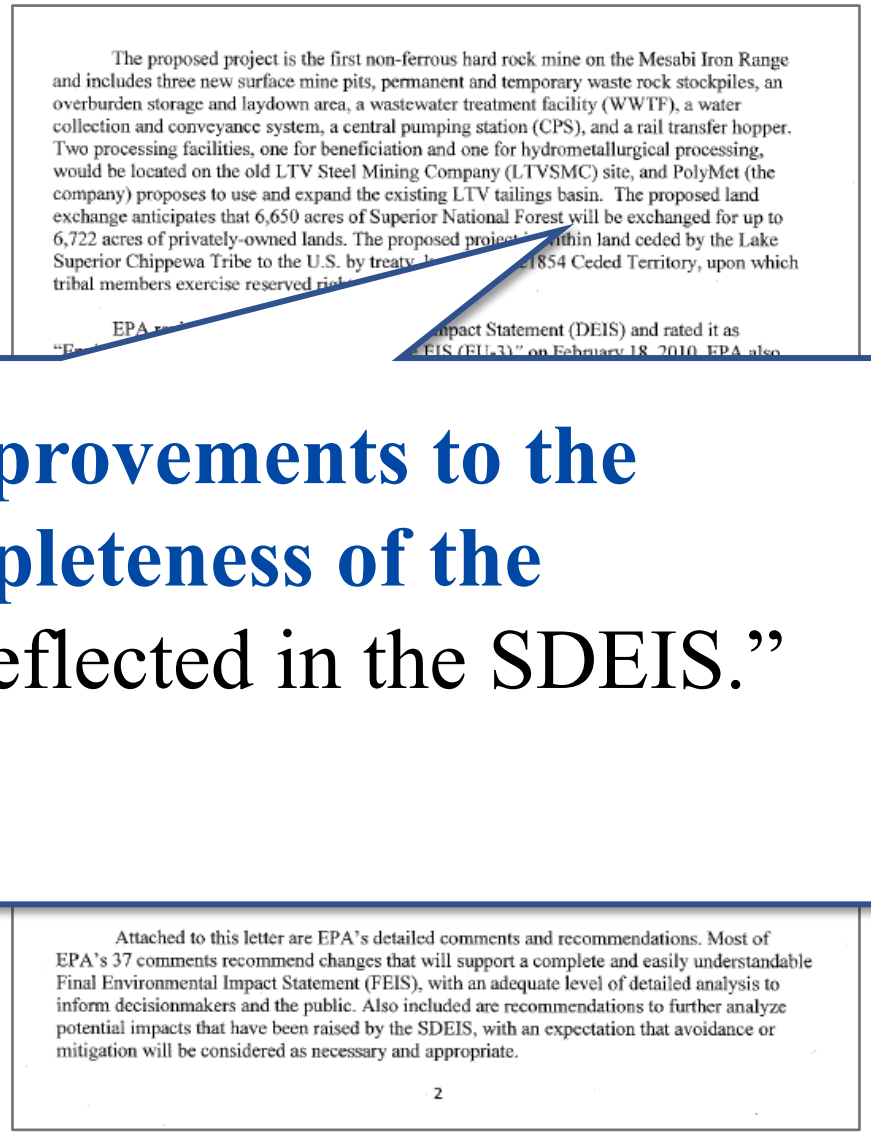


The proposed project is the first non-ferrous hard rock mine on the Mesabi Iron Range and includes three new surface mine pits, permanent and temporary waste rock stockpiles, an overburden storage and laydown area, a wastewater treatment facility (WWTF), a water collection and conveyance system, a central pumping station (CPS), and a rail transfer hopper. Two processing facilities, one for beneficiation and one for hydrometallurgical processing, would be located on the old LTV Steel Mining Company (LTVSMC) site, and PolyMet (the company) proposes to use and expand the existing LTV tailings basin. The proposed land exchange anticipates that 6,650 acres of Superior National Forest will be exchanged for up to 6,722 acres of privately-owned lands. The proposed project is within land ceded by the Lake Superior Chippewa Tribe to the U.S. by treaty [illegible] 1854 Ceded Territory, upon which tribal members exercise reserved [illegible]

EPA [illegible] Impact Statement (DEIS) and rated it as "[illegible] EIS (EU-3)" on February 18, 2010. EPA also

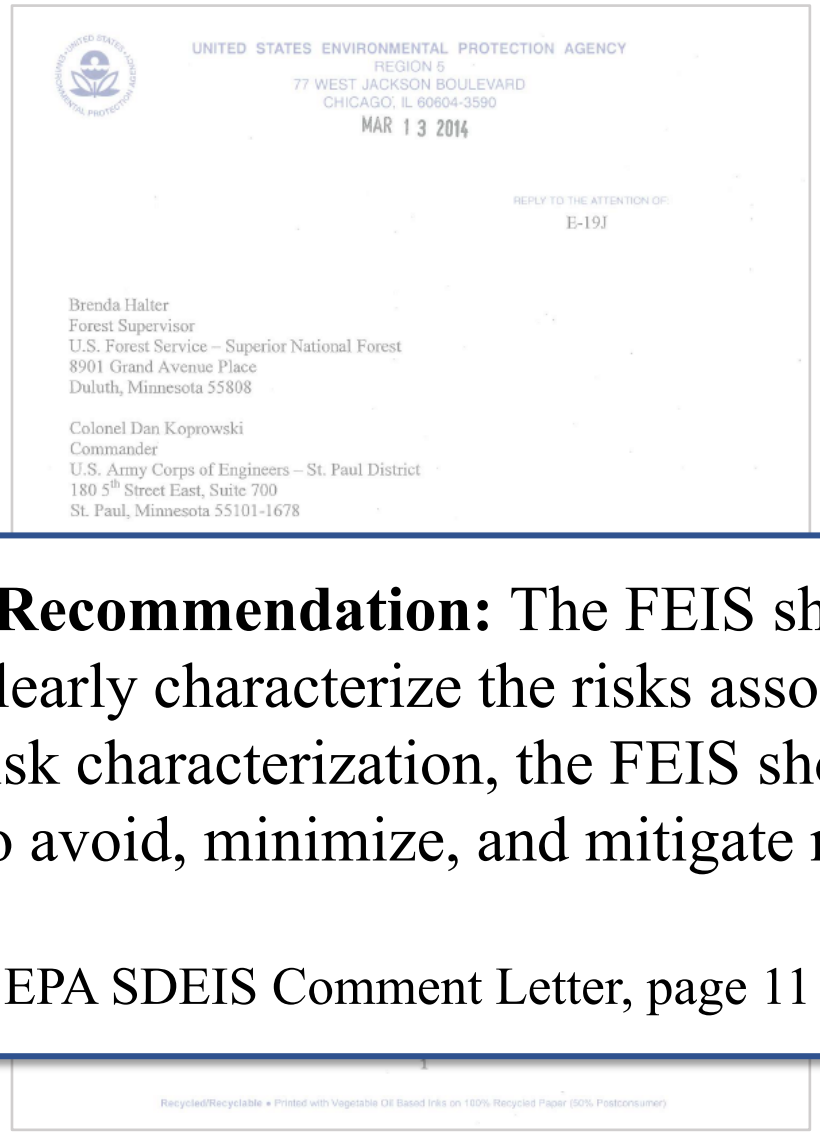
Attached to this letter are EPA's detailed comments and recommendations. Most of EPA's 37 comments recommend changes that will support a complete and easily understandable Final Environmental Impact Statement (FEIS), with an adequate level of detailed analysis to inform decisionmakers and the public. Also included are recommendations to further analyze potential impacts that have been raised by the SDEIS, with an expectation that avoidance or mitigation will be considered as necessary and appropriate.

2

"We appreciate the **extensive improvements to the project** and the **clarity and completeness of the environmental review** that are reflected in the SDEIS."

– EPA SDEIS Comment Letter, page 2 (2014)

EPA Commented on Mercury During EIS Process



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U.S. Forest Service – Superior National Forest
8901 Grand Avenue Place
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Colonel Dan Koprowski
Commander
U.S. Army Corps of Engineers – St. Paul District
180 5th Street East, Suite 700
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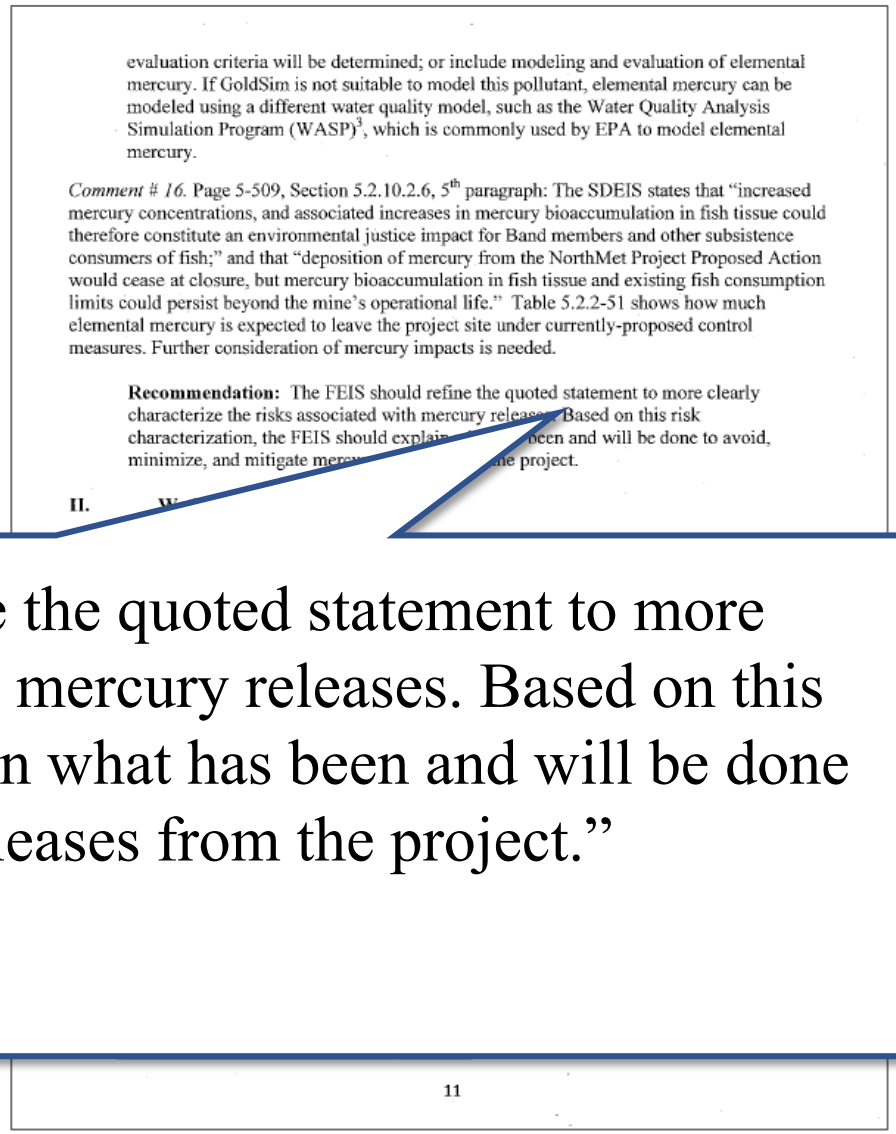


evaluation criteria will be determined; or include modeling and evaluation of elemental mercury. If GoldSim is not suitable to model this pollutant, elemental mercury can be modeled using a different water quality model, such as the Water Quality Analysis Simulation Program (WASP)[3], which is commonly used by EPA to model elemental mercury.

Comment # 16. Page 5-509, Section 5.2.10.2.6, 5th paragraph: The SDEIS states that "increased mercury concentrations, and associated increases in mercury bioaccumulation in fish tissue could therefore constitute an environmental justice impact for Band members and other subsistence consumers of fish;" and that "deposition of mercury from the NorthMet Project Proposed Action would cease at closure, but mercury bioaccumulation in fish tissue and existing fish consumption limits could persist beyond the mine's operational life." Table 5.2.2-51 shows how much elemental mercury is expected to leave the project site under currently-proposed control measures. Further consideration of mercury impacts is needed.

Recommendation: The FEIS should refine the quoted statement to more clearly characterize the risks associated with mercury releases. Based on this risk characterization, the FEIS should explain what has been and will be done to avoid, minimize, and mitigate mercury releases from the project.

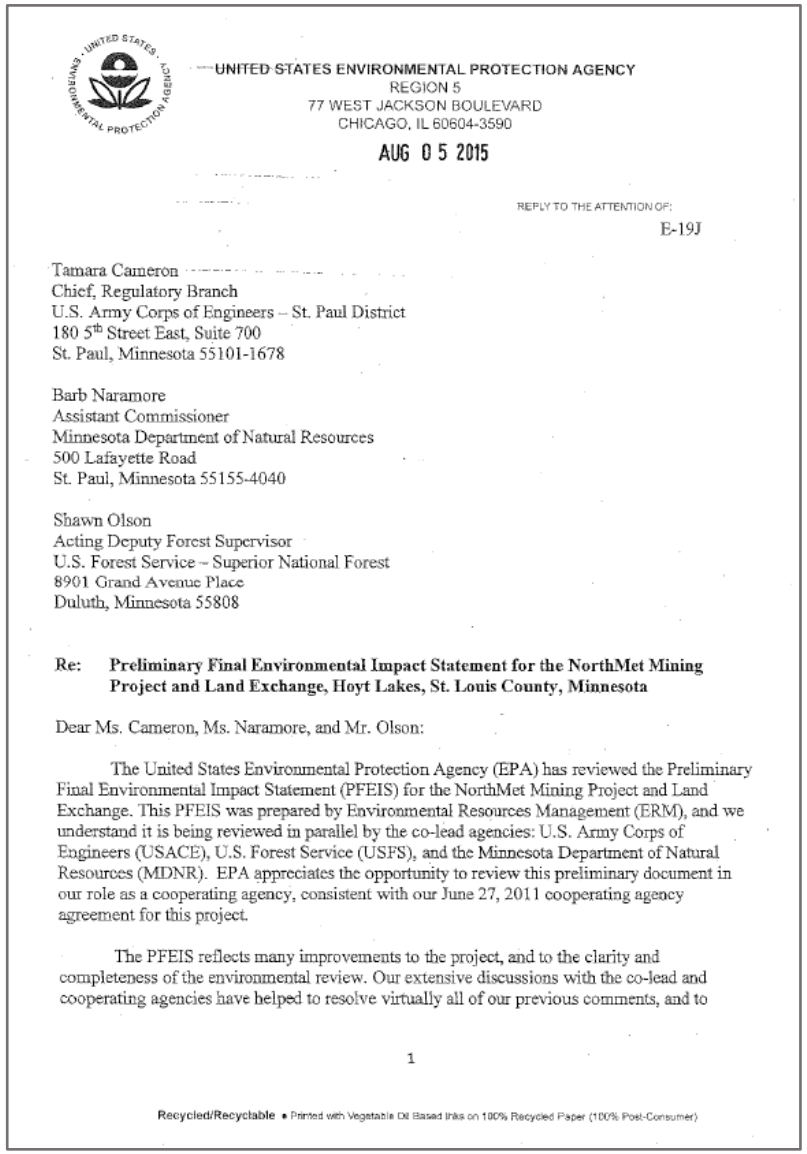
II.

11

"**Recommendation:** The FEIS should refine the quoted statement to more clearly characterize the risks associated with mercury releases. Based on this risk characterization, the FEIS should explain what has been and will be done to avoid, minimize, and mitigate mercury releases from the project."

– EPA SDEIS Comment Letter, page 11 (2014)

PFEIS Resolved the EPA's Comments



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AUG 0 5 2015

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Tamara Cameron
Chief, Regulatory Branch
U.S. Army Corps of Engineers – St. Paul District
180 5th Street East, Suite 700
St. Paul, Minnesota 55101-1678

Barb Naramore
Assistant Commissioner
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, Minnesota 55155-4040

Shawn Olson
Acting Deputy Forest Supervisor
U.S. Forest Service – Superior National Forest
8901 Grand Avenue Place
Duluth, Minnesota 55808

Re: Preliminary Final Environmental Impact Statement for the NorthMet Mining Project and Land Exchange, Hoyt Lakes, St. Louis County, Minnesota

Dear Ms. Cameron, Ms. Naramore, and Mr. Olson:

The United States Environmental Protection Agency (EPA) has reviewed the Preliminary Final Environmental Impact Statement (PFEIS) for the NorthMet Mining Project and Land Exchange. This PFEIS was prepared by Environmental Resources Management (ERM), and we understand it is being reviewed in parallel by the co-lead agencies: U.S. Army Corps of Engineers (USACE), U.S. Forest Service (USFS), and the Minnesota Department of Natural Resources (MDNR). EPA appreciates the opportunity to review this preliminary document in our role as a cooperating agency, consistent with our June 27, 2011 cooperating agency agreement for this project.

The PFEIS reflects many improvements to the project, and to the clarity and completeness of the environmental review. Our extensive discussions with the co-lead and cooperating agencies have helped to resolve virtually all of our previous comments, and to

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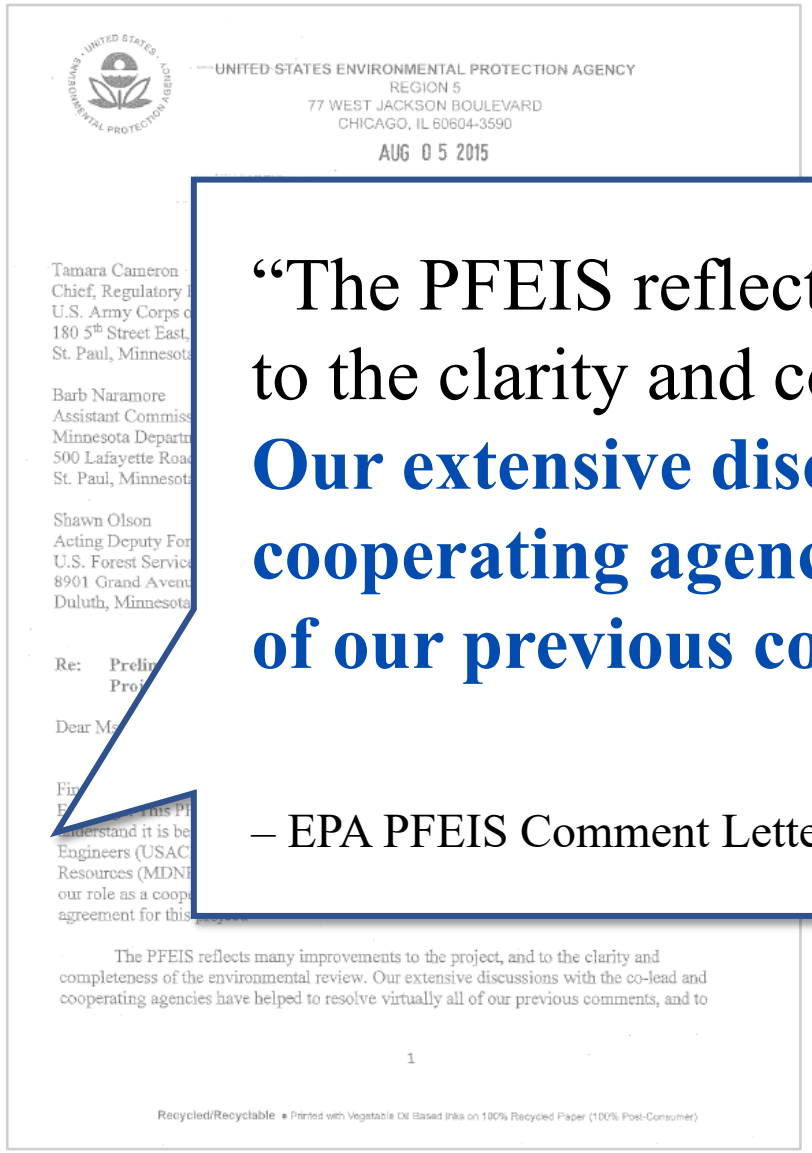
PFEIS Resolved the EPA's Comments



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AUG 05 2015

Tamara Cameron
Chief, Regulatory
U.S. Army Corps
180 5th Street East,
St. Paul, Minnesota

Barb Naramore
Assistant Commiss
Minnesota Departm
500 Lafayette Roa
St. Paul, Minnesot

Shawn Olson
Acting Deputy For
U.S. Forest Servic
8901 Grand Avenu
Duluth, Minnesota

Re: Preli
Proj

Dear M

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Engineers (USAC
Resources (MDNI
our role as a coop
agreement for this

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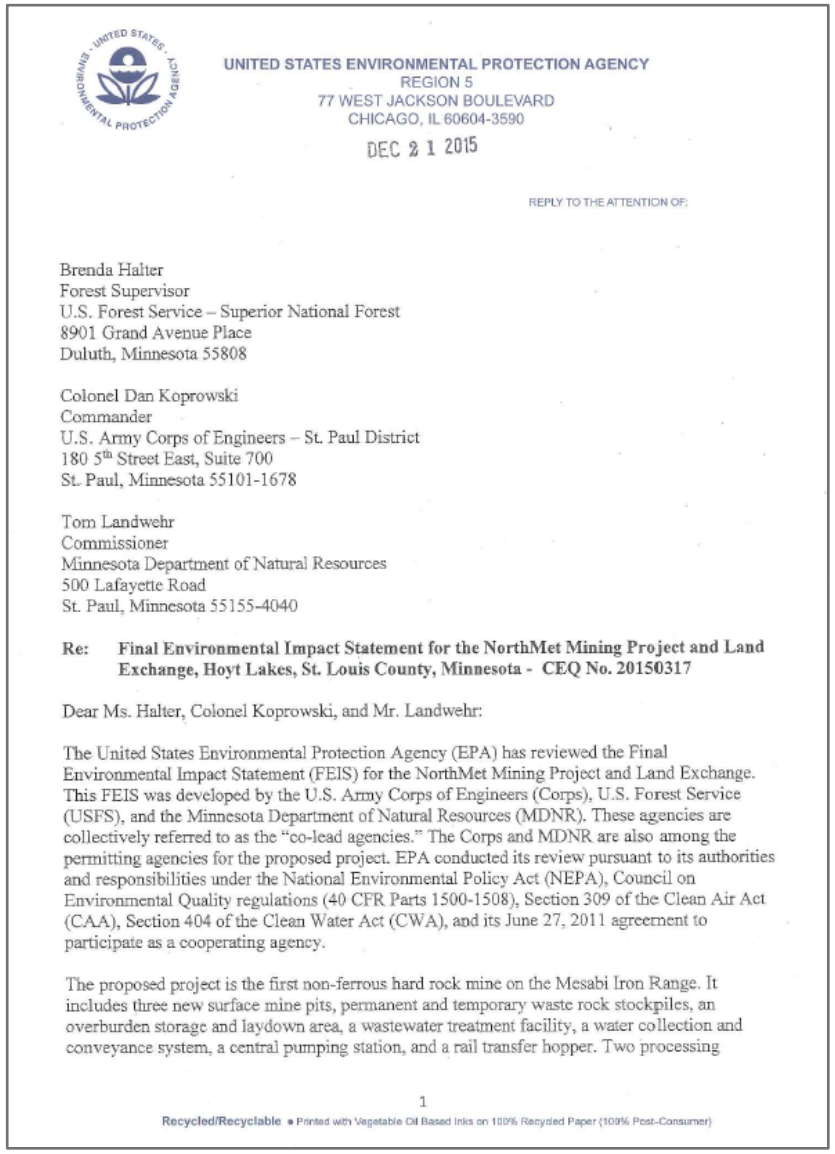
"The PFEIS reflects many improvements to the project, and to the clarity and completeness of the environmental review. **Our extensive discussions with the co-lead and cooperating agencies have helped to resolve virtually all of our previous comments**."

– EPA PFEIS Comment Letter, page 1 (2015)

FEIS Resolved the EPA's Comments



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DEC 21 2015

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180 5th Street East, Suite 700
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Tom Landwehr
Commissioner
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, Minnesota 55155-4040

Re: Final Environmental Impact Statement for the NorthMet Mining Project and Land Exchange, Hoyt Lakes, St. Louis County, Minnesota - CEQ No. 20150317

Dear Ms. Halter, Colonel Koprowski, and Mr. Landwehr:

The United States Environmental Protection Agency (EPA) has reviewed the Final Environmental Impact Statement (FEIS) for the NorthMet Mining Project and Land Exchange. This FEIS was developed by the U.S. Army Corps of Engineers (Corps), U.S. Forest Service (USFS), and the Minnesota Department of Natural Resources (MDNR). These agencies are collectively referred to as the "co-lead agencies." The Corps and MDNR are also among the permitting agencies for the proposed project. EPA conducted its review pursuant to its authorities and responsibilities under the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500-1508), Section 309 of the Clean Air Act (CAA), Section 404 of the Clean Water Act (CWA), and its June 27, 2011 agreement to participate as a cooperating agency.

The proposed project is the first non-ferrous hard rock mine on the Mesabi Iron Range. It includes three new surface mine pits, permanent and temporary waste rock stockpiles, an overburden storage and laydown area, a wastewater treatment facility, a water collection and conveyance system, a central pumping station, and a rail transfer hopper. Two processing

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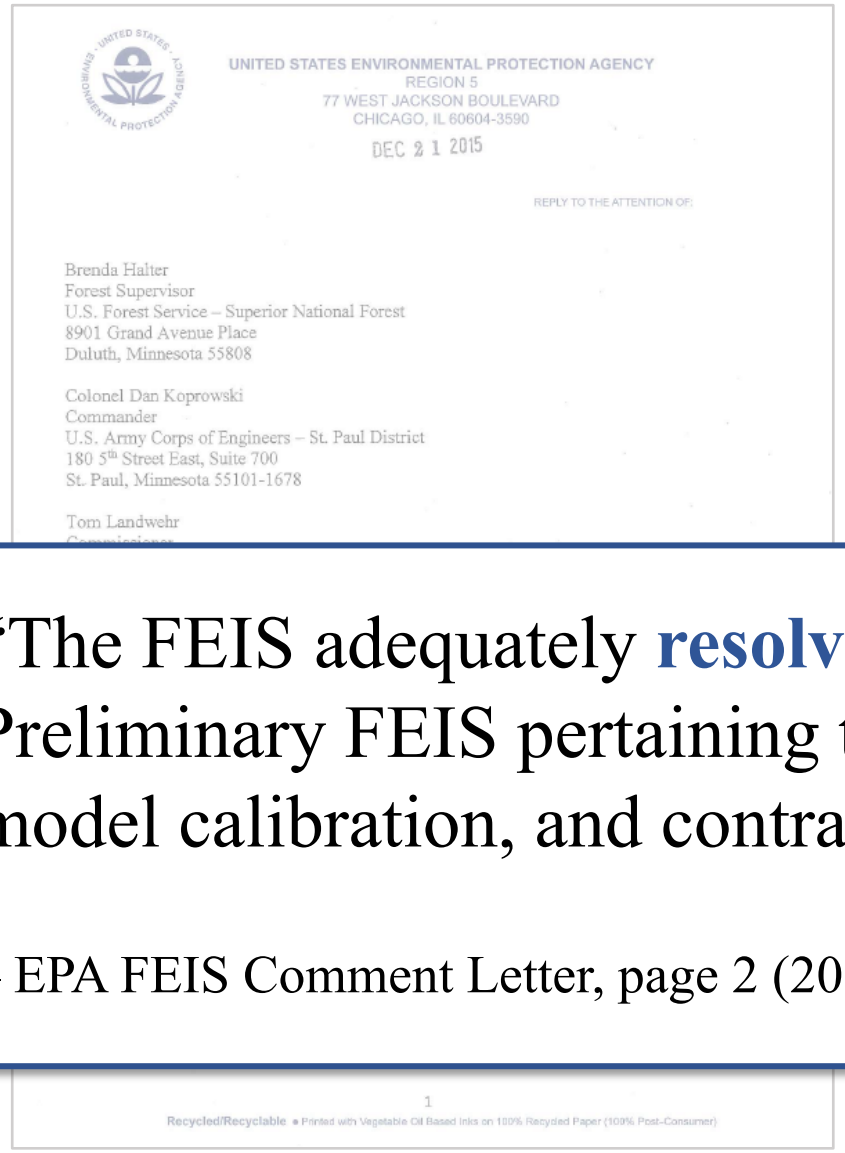

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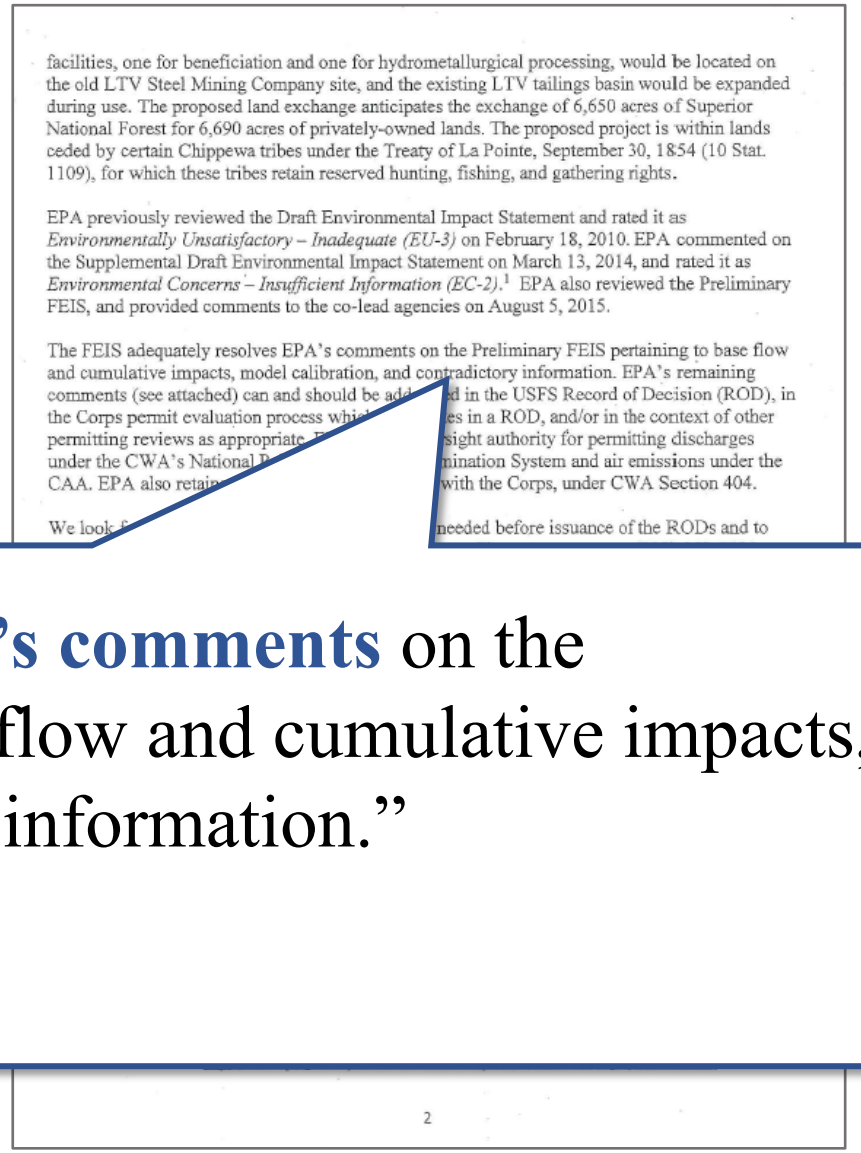


facilities, one for beneficiation and one for hydrometallurgical processing, would be located on the old LTV Steel Mining Company site, and the existing LTV tailings basin would be expanded during use. The proposed land exchange anticipates the exchange of 6,650 acres of Superior National Forest for 6,690 acres of privately-owned lands. The proposed project is within lands ceded by certain Chippewa tribes under the Treaty of La Pointe, September 30, 1854 (10 Stat. 1109), for which these tribes retain reserved hunting, fishing, and gathering rights.

EPA previously reviewed the Draft Environmental Impact Statement and rated it as *Environmentally Unsatisfactory – Inadequate (EU-3)* on February 18, 2010. EPA commented on the Supplemental Draft Environmental Impact Statement on March 13, 2014, and rated it as *Environmental Concerns – Insufficient Information (EC-2)*.[1] EPA also reviewed the Preliminary FEIS, and provided comments to the co-lead agencies on August 5, 2015.

The FEIS adequately resolves EPA's comments on the Preliminary FEIS pertaining to base flow and cumulative impacts, model calibration, and contradictory information. EPA's remaining comments (see attached) can and should be ad d in the USFS Record of Decision (ROD), in the Corps permit evaluation process whi es in a ROD, and/or in the context of other permitting reviews as appropriate. sight authority for permitting discharges under the CWA's National mination System and air emissions under the CAA. EPA also retain with the Corps, under CWA Section 404.

We look needed before issuance of the RODs and to

2

"The FEIS adequately **resolves EPA's comments** on the Preliminary FEIS pertaining to base flow and cumulative impacts, model calibration, and contradictory information."

– EPA FEIS Comment Letter, page 2 (2015)

FEIS Found No Exceedance of Band's Mercury Standard

NorthMet Mining Project and Land Exchange

Final
Environmental Impact Statement

November 2015

Prepared by
Minnesota Department of Natural Resources
United States Army Corps of Engineers
United States Forest Service

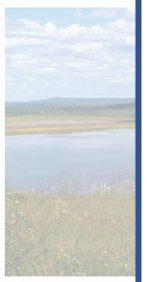
MNDNR

US Army Corps of Engineers
St. Paul District

FOREST SERVICE US DEPARTMENT OF AGRICULTURE

FEIS Found No Exceedance of Band's Mercury Standard

NorthMet Mining Project



"The net effect of these [Project] changes would be an **overall reduction in mercury loadings** to the downstream St. Louis River upstream of the Fond du Lac Reservation boundary. Therefore, the NorthMet Project Proposed Action **would not add to any potential exceedance of the Fond du Lac mercury water quality standard** of 0.77 ng/L within the Reservation."

– FEIS, page 5-10 (2018)

MNDNR

US Army Corps of Engineers
St. Paul District

USACE Decision Found No Exceedance of Band's Mercury Standard

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

RECORD OF DECISION

ACTION ID: 1999-05528

APPLICANT: PolyMet Mining Inc.

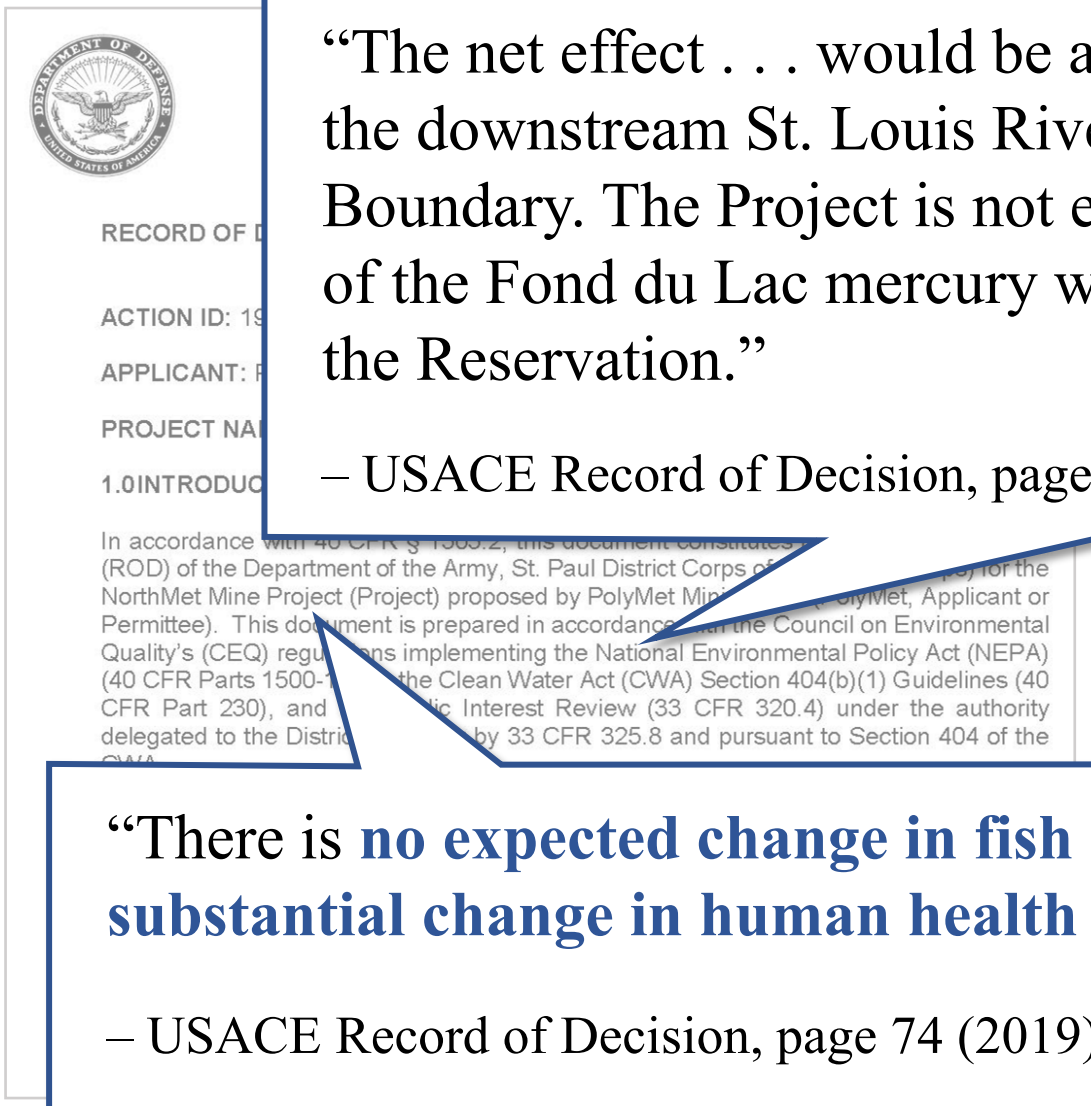
PROJECT NAME: NorthMet

1.0INTRODUCTION AND DECISION SUMMARY

In accordance with 40 CFR § 1505.2, this document constitutes the Record of Decision (ROD) of the Department of the Army, St. Paul District Corps of Engineers (Corps) for the NorthMet Mine Project (Project) proposed by PolyMet Mining, Inc. (PolyMet, Applicant or Permittee). This document is prepared in accordance with the Council on Environmental Quality's (CEQ) regulations implementing the National Environmental Policy Act (NEPA) (40 CFR Parts 1500-1508), the Clean Water Act (CWA) Section 404(b)(1) Guidelines (40 CFR Part 230), and the Public Interest Review (33 CFR 320.4) under the authority delegated to the District Engineer by 33 CFR 325.8 and pursuant to Section 404 of the CWA.

This ROD describes the Corps' decision to authorize discharges of dredged and fill material into waters of the United States (WOTUS) in association with the Project as detailed in the December 2015 Final Environmental Impact Statement (FEIS) with incorporation of changes to the Project proposed by the Applicant in 2017. The authorization is subject to special conditions and the specified mitigation described in this ROD. As further described in Section 7 and 8 of this document, the Corps has determined that additional changes to the Project proposed by the Applicant after FEIS publication are not substantial and did not constitute significant new circumstances or information related to environmental concerns (40 CFR 1502.9(c)(1)). For these reasons, a Supplemental Environmental Impact Statement (SEIS) to address these revisions was

USACE Decision Found No Exceedance of Band's Mercury Standard



RECORD OF D

ACTION ID: 19

APPLICANT: P

PROJECT NA

1.0INTRODUC

In accordance with 40 CFR § 1505.2, this document constitutes the (ROD) of the Department of the Army, St. Paul District Corps of ... for the NorthMet Mine Project (Project) proposed by PolyMet Mining ... PolyMet, Applicant or Permittee). This document is prepared in accordance ... the Council on Environmental Quality's (CEQ) regulations implementing the National Environmental Policy Act (NEPA) (40 CFR Parts 1500-1... the Clean Water Act (CWA) Section 404(b)(1) Guidelines (40 CFR Part 230), and ...ic Interest Review (33 CFR 320.4) under the authority delegated to the District ... by 33 CFR 325.8 and pursuant to Section 404 of the CWA.

"The net effect . . . would be an overall reduction in mercury loadings to the downstream St. Louis River upstream of the Fond du Lac Reservation Boundary. The 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."

– USACE Record of Decision, page 42 (2019)

"There is **no expected change in fish mercury concentrations and no substantial change in human health risks related to fish consumption**."

– USACE Record of Decision, page 74 (2019)

MPCA Found No Measurable Change to Water Quality Downstream

MINNESOTA POLLUTION CONTROL AGENCY

Clean Water Act Section 401 Water Quality Certification Program Fact Sheet

Federal Permitting Agency Contact	Project Proposer	Facility Name
Mr. Chad Konickson Regulatory Branch Chief U.S. Army Corps of Engineers 180 Fifth Street East, Suite 700 St. Paul, MN 55101	Ms. Jennifer Saran Poly Met Mining, Inc. Suite 2060, 444 Cedar Street St. Paul, MN 55101	NorthMet Project 6500 County Road 666 Hoyt Lakes, MN 55750

Public Comment Period Began: January 31, 2018
Period Ended: March 16, 2018

Watersheds of Interest:

- St. Louis River (HUC 04010201)
  - Embarrass River Watershed
  - Partridge River Watershed

Proposed Action: Section 401 Water Quality Certification

MPCA Found No Measurable Change to Water Quality Downstream

"Based on its review of Cross-Media analysis, the MPCA concluded:

1. The analysis developed a reasonable and protective scenario that showed no measurable changes of mercury in water or fish from Project-related deposition of sulfur.

2. There will be no exceedances of copper, cobalt, and arsenic Class 2D water quality standards or to any other numeric water quality criteria from Project-related air emissions or the cumulative impact of Project-related air emissions.

3. **The Project will not result in any measurable changes to water quality downstream of the Project in the St. Louis River, including downstream locations at Forbes (upper St. Louis River).**"

– MPCA 401 Fact Sheet, page 14 (2018)

Court of Appeals Held Permit Will Comply with Band's Standards

Court of Appeals Held Permit Will Comply with Band's Standards

The Minnesota Court of Appeals concluded:

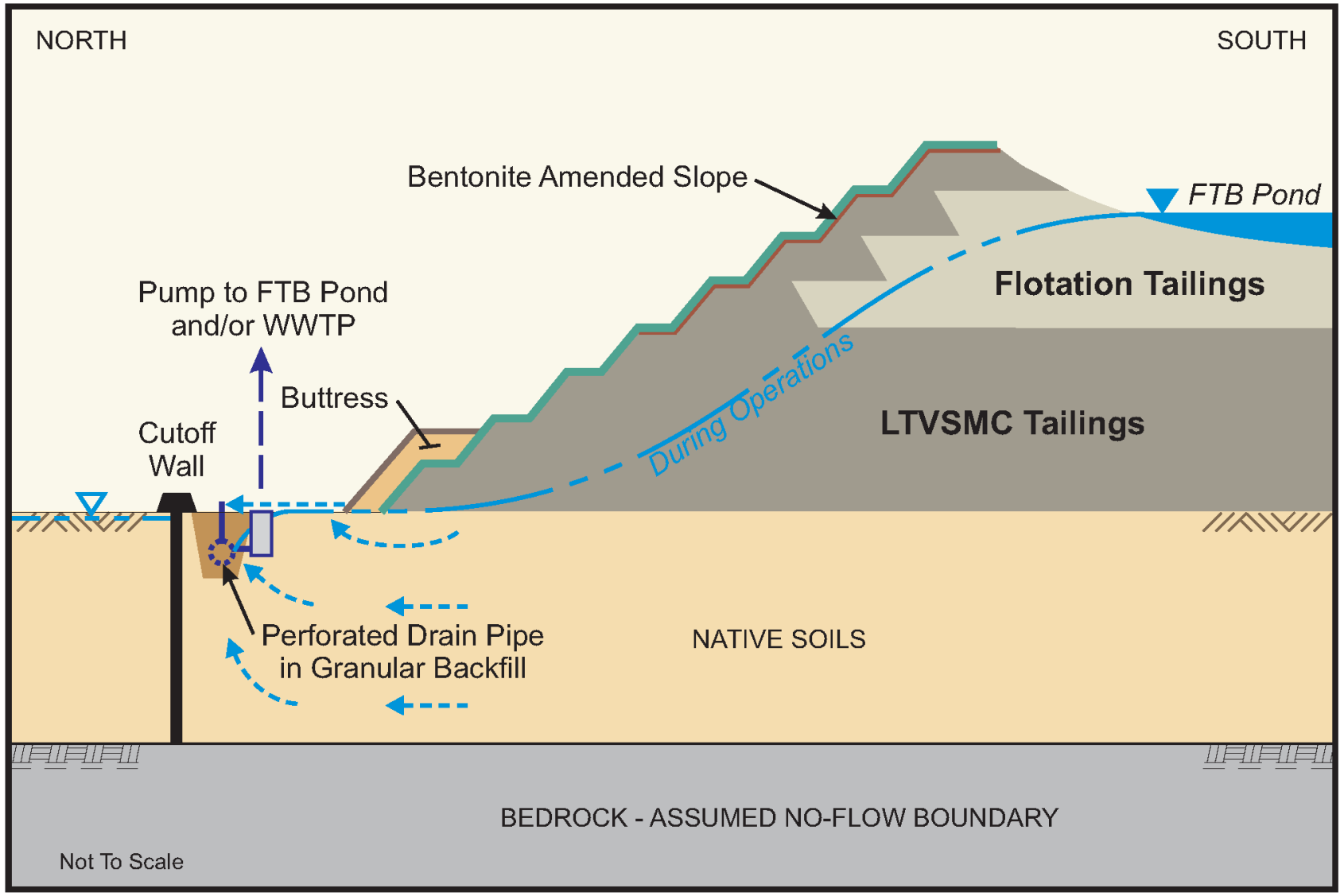
1. PolyMet's "permit will comply with the Band's water-quality standards because discharges from the project will not alter the quality of the waters within the Band's reservation boundaries."

2. "The permit ensures compliance with the Band's water-quality standards."

– *In re the Denial of Contested Case Hearing Requests*, No. A19-0112, 2022 WL 200338, at *14, 17 (Minn. Ct. App. Jan. 24, 2022)

Seepage Containment System

Seepage Containment System



Seepage Containment System Examples

Location	Project Setting	Barrier Wall	Trench Dimensions	Seepage Collection	Seepage Collection Pipe
Carlsbad, NM	Potash Process Disposal	Slurry wall	10 feet deep	Yes	Yes
Tacoma, WA	Wood Process Waste Landfill	Bentonite	30 feet deep	Yes	No
Bogalusa, LA	Papermill Landfill	Soil-bentonite	40 feet deep, 2.5 feet wide	Yes	Yes
Oak Ridge, TN	DOE Landfill	Soil-bentonite	22 feet deep	Yes	No
Taunton, MA	Pharmaceutical Mfr Remediation	Bentonite	55 feet deep, 12 feet wide	Yes	Yes
Salt Lake City, UT	Watkins Dam Restoration	Cement-bentonite	70 feet deep, 2.5 feet wide	Yes	No
Beaumont, TX	Creosoting Facility Remediation	Soil-bentonite	50 feet deep	Yes	No
Greely, CO	Former Gravel Quarry	Soil-cement-bentonite	65 feet deep, 3 feet wide	No	No
Fort McMurray, Alberta, Canada	Mine Tailings Pond	Soil-bentonite	100 feet deep, 3 feet wide	No	No

Reference: PolyMet Rock and Overburden Mgmt Plan – Attachment D: Degree of Use in the Industry

Permit Conditions on the Containment System

- **Over 7,000** total permit conditions
- PolyMet must construct a permeability cutoff wall keyed into bedrock, with collection and capable of removing collected water to the treatment system or tailings basin (5.175.54)
- PolyMet must maintain a system of paired monitoring wells and paired piezometers (5.175.67)
- PolyMet must maintain an inward hydraulic gradient across the containment system (5.175.68)
- If necessary, PolyMet must immediately commence mitigation measures (5.175.69), including:

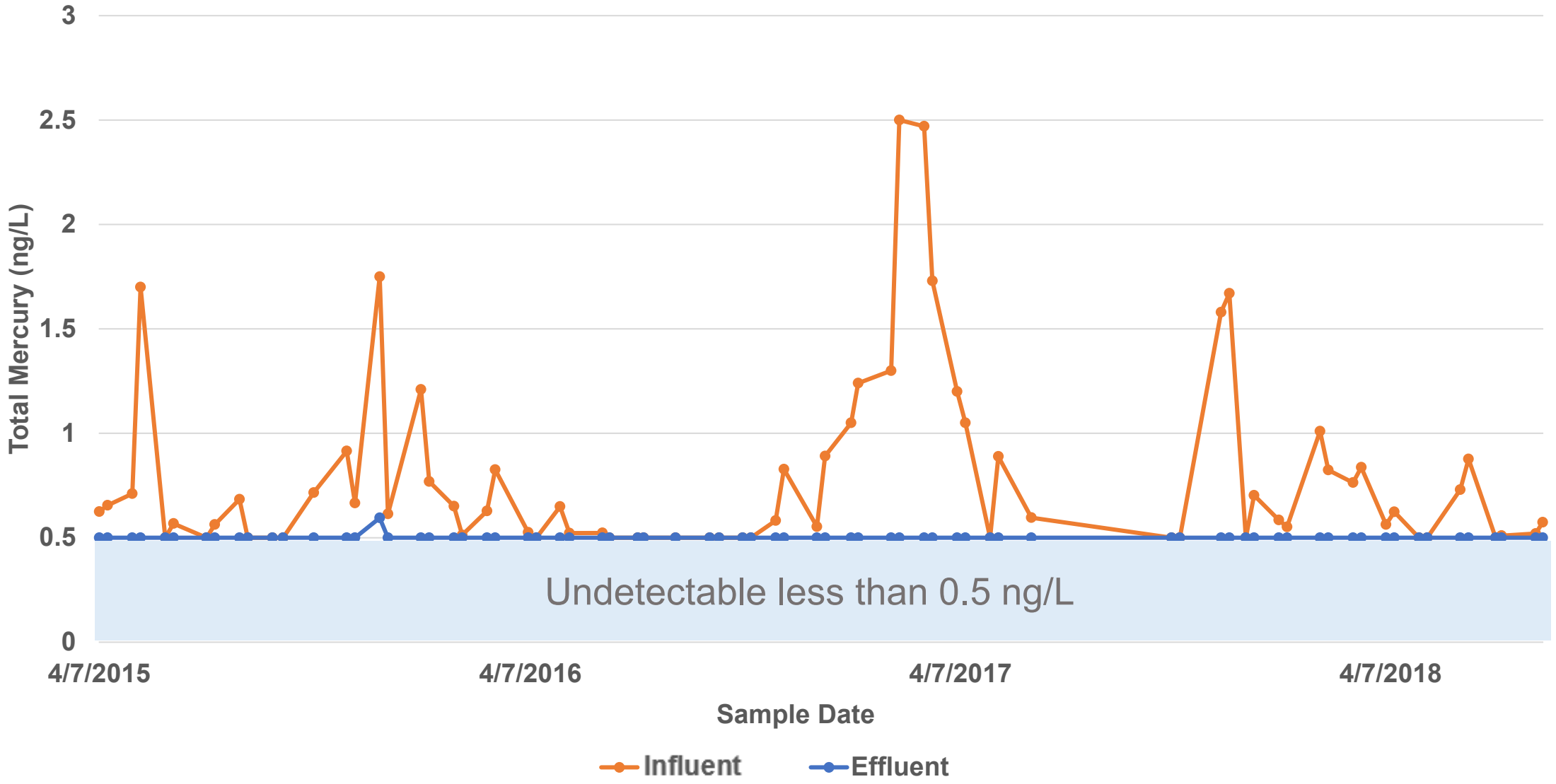
Sampling	Pumping
Inspection	Removal
Assessment	Repairs and Upgrades
Implement Agency-approved adaptive management or mitigation measures	

Membrane Treatment — Best Available Water Treatment

Membrane Treatment at Eagle Mine: Proven Technology

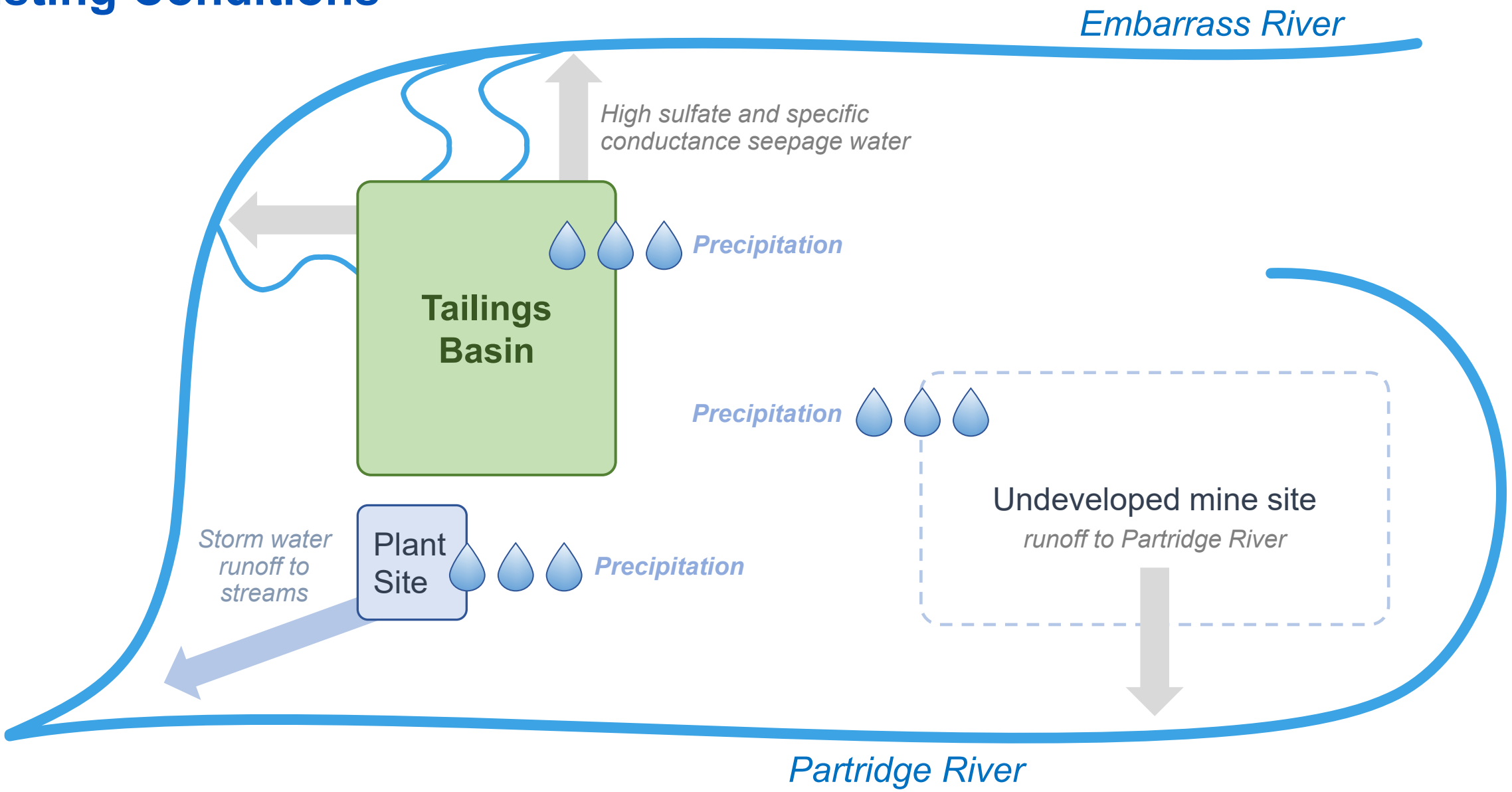
- Eagle Mine uses reverse osmosis as their primary means of removal, chosen as the best available technology
- Opponents of Eagle Mine claimed it wouldn’t work
- Eagle Mine has years of actual data showing successful removal of mercury

Membrane Treatment at Eagle Mine: Proven Technology

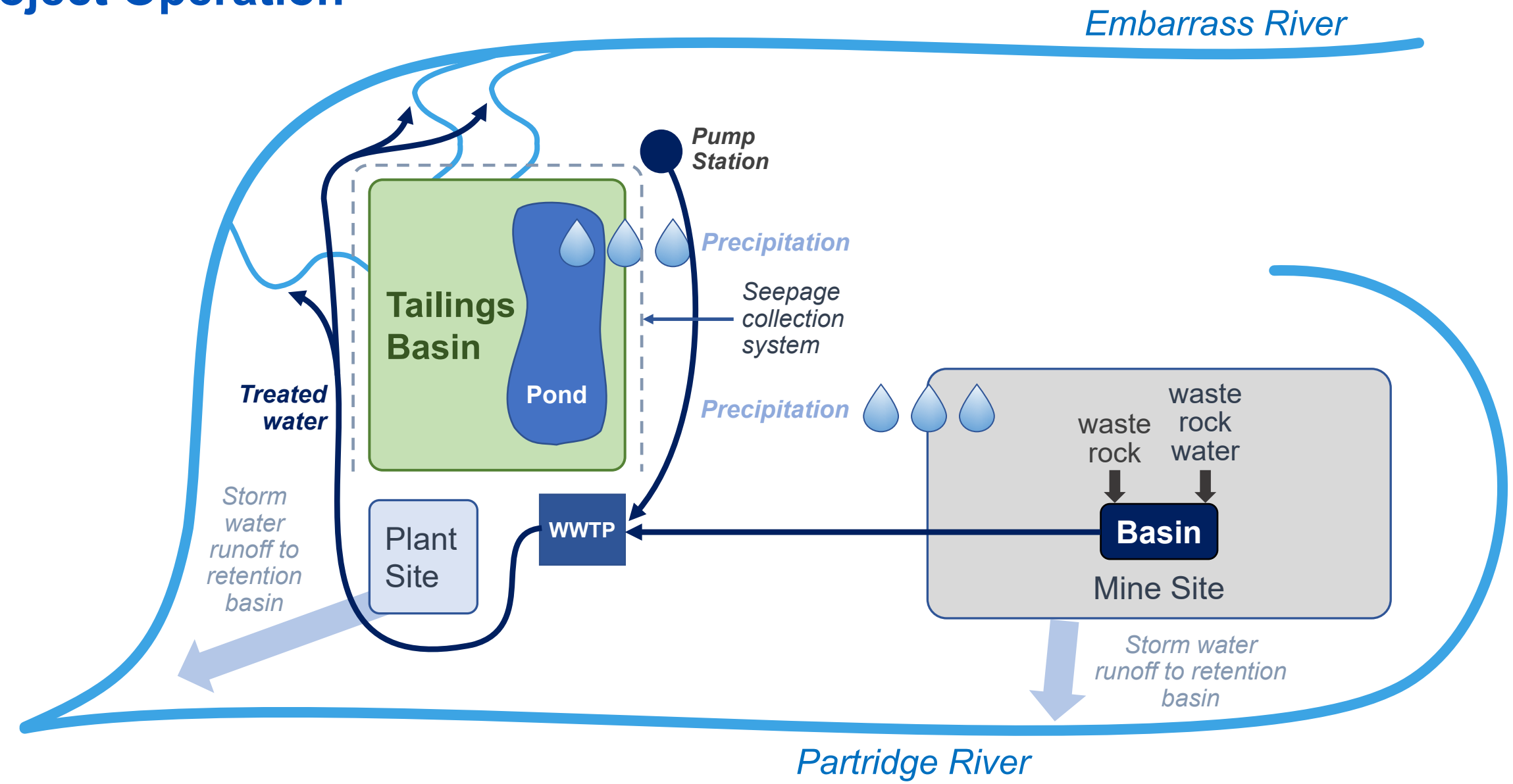


Water Management Will Reduce Mercury and Sulfate

Existing Conditions



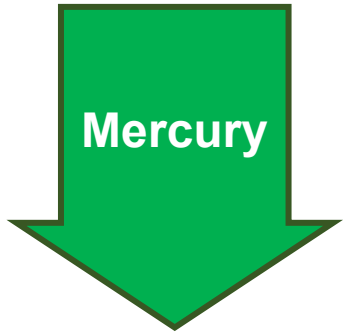
Project Operation



Project Benefits

Band **ignores** key water management features

5.2 grams of mercury **removed** per year



1,380,000 kilograms of sulfate **removed** per year

Increases in mercury, sulfate, and specific conductance **will not happen**

What Is a Nanogram?

A nanogram is ***one-billionth*** of a gram.

It is the equivalent of:

a **one-pound bag of coffee**

compared to

the combined weight of more than

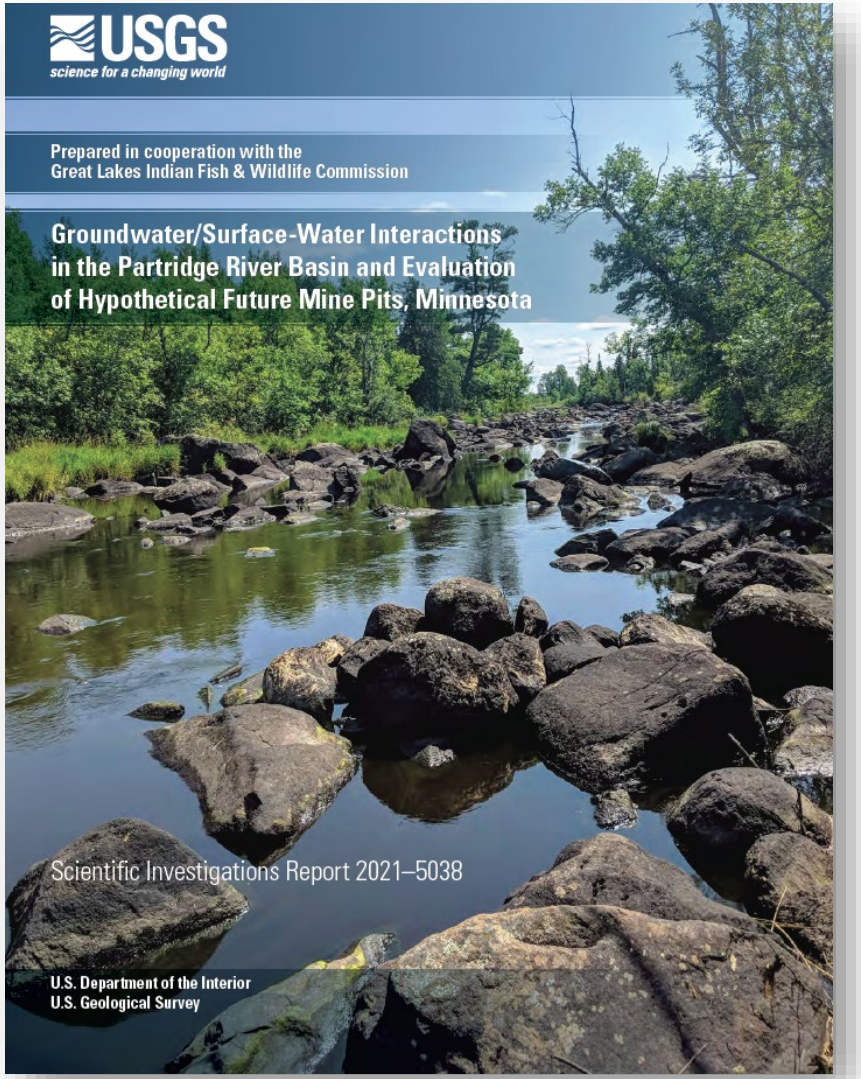
2,470

Boeing 747 passenger planes

** A Boeing 747 passenger plane weighs 404,600 pounds.*

Clarifications on Wetland Drawdown

USGS Groundwater Model Expressly Not for Use with Specific Project



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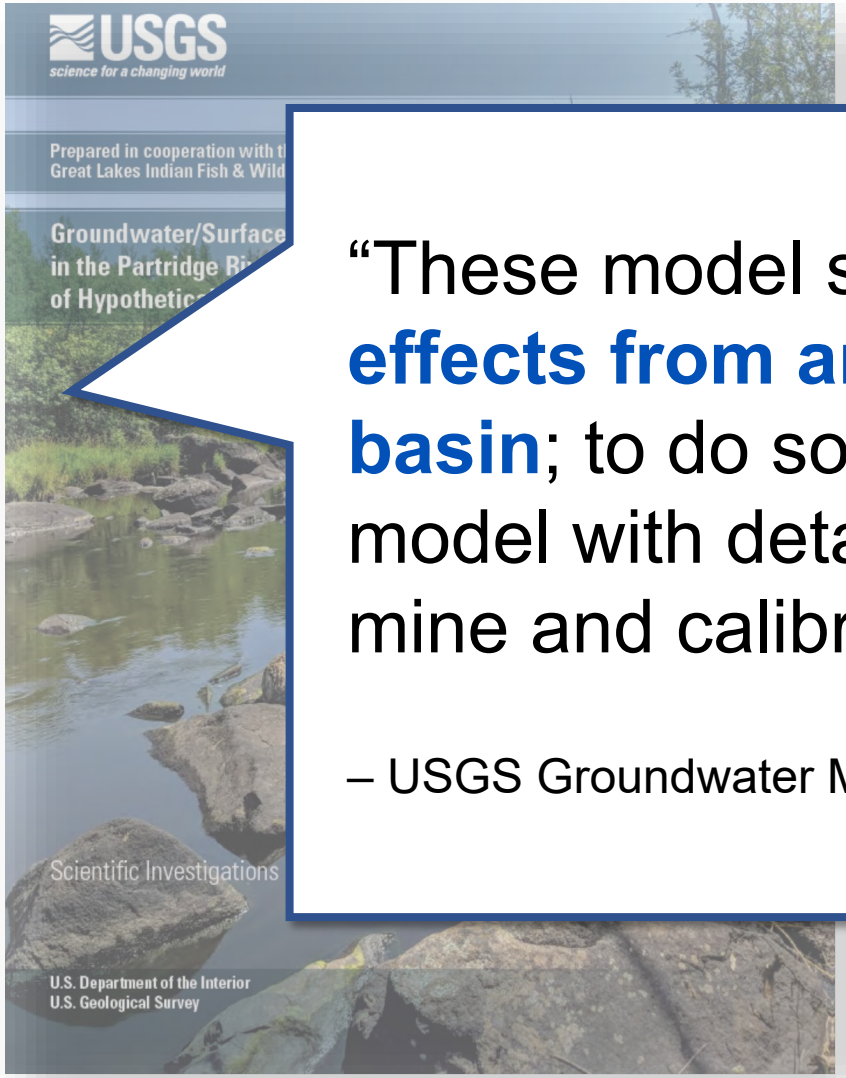


"These model scenarios were **not designed to predict effects from any specific future mine within the basin**; to do so would require a groundwater-flow model with detailed information about the proposed mine and calibration data near the mine."

– USGS Groundwater Model of Partridge River Basin, page 48 (2021)

USGS/GLIFWC Model

- Wetlands not robustly simulated
  - Groundwater drawdown ≠ Wetland water level decline
  - Groundwater drawdown likely overestimated because wetland infiltration limited
  - MODFLOW, by itself, is not an appropriate tool to assess wetland impacts
- Steady state: ignores storage

The “Crandon Method”?

- Process:
  - MODFLOW: groundwater drawdown contours to define wetland zones of potential impact
    - Crandon – thick till sequence (not PolyMet)
  - Characterize wetlands including types (precipitation- vs. groundwater-dominated)
  - What effect on the water budget, vegetation type
  - Delay (multiple models, reviews)
  - No formal agreement on what impacts were; EIS never completed
- Technical part not that different than process followed by PolyMet
  - Data instead of model

Drawdown Impacts Are Likely to Be Limited

- Agreed: Drawdown impacts decrease with distance
- Issue was specifically considered and addressed during the FEIS
  - Precipitation-dominated wetlands : unimpacted ⟶ low likelihood of impacts
  - Distance zones based on observed effects: **Data > Model**
- PolyMet mine would be in a much less permeable rock formation, adding conservativeness
- Predicted mine inflows (~1.1 cfs) are a very small percentage of the sub-watershed water budget
  - MODFLOW is a good tool for estimating mine inflow, not for predicting wetland water levels

Drawdown Can Be Monitored (and Mitigated)

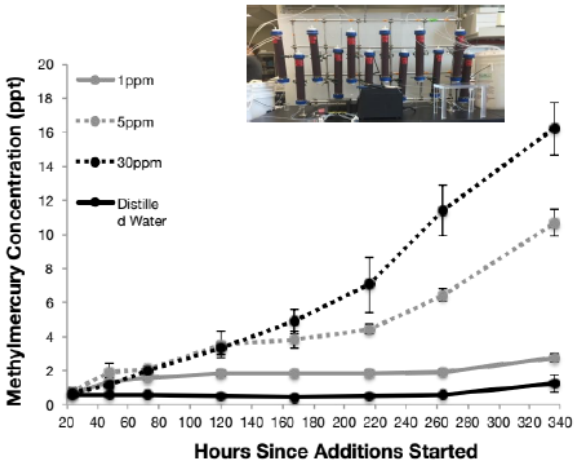
- Monitoring water levels is simple; unexpected wetland desaturation in large areas (as Band contends) could be detected in early stages of mine development
  - Not waiting until year 20
- Very high groundwater inflows to pit would also indicate potential need for mitigation measures
- These are not likely to be needed, but:
  - Mitigation measures are available to reduce groundwater inflows (and consequent drawdown)
  - Mitigation measures are available to reduce drawdown (add water)

Reduce Sulfate → Reduce Methylmercury

Sulfate Loading and Methylmercury Response: Reduce Sulfate Load, Then Methylmercury Reduced as Well

2) Overview: Sulfate, Methylmercury and Wetlands

- Even small amounts of additional sulfate can significantly increase MeHg concentrations in wetland soils.
- Recent lab experiment from my group:
- **1 mg/L sulfate = 4x MeHg**
- **5 mg/L sulfate = 20x MeHg**
- **30 mg/L sulfate = 30x MeHg**
- Similar responses measured in field experiments



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Branfireun's Factor Changes

- 1 mg/L sulfate = 4x methylmercury
- 5 mg/L sulfate = 20x methylmercury
- 30 mg/L sulfate = 30x methylmercury

Sulfate Loading and Methylmercury Response: Reduce Sulfate Load, Then Methylmercury Reduced as Well

Existing Conditions Sulfate (mg/L)	Project in Operation (sulfate in WWTS discharge) (mg/L)	Change In Conc. (mg/L) (reduction)	Factor Change	Existing Conditions Methylmercury Concentration[1] (ng/L)	Project in Operation Methylmercury Concentration (ng/L)	Change in methylmercury mass[2] (g/yr)
200	10	-190	30x	0.7	0.02	- 1,460
200	10	-190	30x	0.4	0.01	- 730
Total						**- 2,190**

[1] Highest measured methylmercury concentrations measured in Trimble Creek (0.7 ng/L) and Unnamed Creek (0.4 ng/L) north and west of the former LTVSMC tailings basin (Barr 2010)
[2] Mass reduction based on flow of 2400 cfs for existing conditions and for Project in operation

Mass Balance

Mass Balance Approaches Are Technically Valid Tools to Explain Watershed Processes and Impacts

- Not a naïve approach
- A common tool used to explain watershed processes and environmental concentrations
- Used by numbers of researchers, including Dr. Branfireun
- Cross-media analysis
  - Addressed Band's concerns about atmospheric loading of sulfur from Project air emissions
  - Used air modeling, GoldSim, and mass balance calculations
  - Confirmed reduction in mercury and sulfate

Adaptive Water Management

Adaptive Water Management

- Systematic monitoring, modeling and review process to improve performance of the Project
- It is a proactive approach that anticipates uncertainty and variability by using flexible (adaptive) engineering controls and establishes processes for monitoring and responding to actual conditions
- PTM includes a condition requiring an adaptive water management plan designed such that “adaptive management systems can be implemented prior to reaching a water quality limit”
- This plan is also required by the NPDES and water appropriation permits

Certainty of Environmental Outcomes

- Certainty in environmental predictions is a false goal
- Make reasonable, often conservative, estimates of outcomes based on:
  - Data
  - Sound science
  - Engineering principles
  - Peer and agency review
- Be conservative for immediate-critical-risk items (factor of safety)
- Adaptive management = Identify a problem before it exists, and make adjustments to avoid negative consequences (e.g., water quality triggers before violations)

The Project will not violate any of the Band's water quality requirements.

Section 401(a)(2):

"If, within sixty days after receipt of such notification, such other State determines that such discharge will affect the quality of its waters so as to violate any water quality requirements in such State, and within such sixty-day period notifies the Administrator and the licensing or permitting agency in writing of its objection to the issuance of such license or permit and requests a public hearing on such objection, the licensing or permitting agency shall hold such a hearing. The Administrator shall at such hearing submit his evaluation and recommendations with respect to any such objection to the licensing or permitting agency. 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."

Steps in the Section 401(a)(2) Process

1. EPA is notified of a section 401 certification and permit application.
2. EPA can determine that the permitted discharges “may affect” a downstream jurisdiction’s water quality.
3. The downstream jurisdiction can determine that the discharges “will affect the quality of its waters so as to violate any water quality requirements” and object to the permit.

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4. The federal permitting agency holds a public hearing on the objection, where it hears recommendations and evidence.

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5. The federal agency decides whether the discharges will violate the downstream jurisdiction’s water quality requirements.

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Jon Cherry, P.E., Chairman and CEO

PolyMet Mining

401(a)(2) Hearing

May 4, 2022

Rebuttal Presentation