



**GRAND PORTAGE BAND OF CHIPPEWA
ENVIRONMENTAL DEPARTMENT**

PO Box 428, Grand Portage, MN 55605

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Jon Ahlness
Regulatory Branch, St. Paul District
U.S. Army Corps of Engineers
190 Fifth Street East, Suite 401
St. Paul, MN 55101-1638

Stuart Arkley
EIS Project Manager
Environmental Policy and Review
Division of Ecological Services
500 Lafayette Road
St. Paul, MN 55155

Re: Grand Portage Comments on the PolyMet Complete Preliminary Draft
Environmental Impact Statement

Dear Mr. Ahlness and Mr. Arkley:

These comments are submitted on behalf of the Grand Portage Band of Chippewa (the "Band") in connection with the review of the NorthMet Project (the "Project") Complete Preliminary Draft Environmental Impact Statement ("CPDEIS"). The Band is a federally recognized Indian tribe, as one of the member bands of the Minnesota Chippewa Tribe. The Band retains hunting, fishing, and other usufructuary rights that extend throughout the entire northeast portion of the state of Minnesota under the 1854 Treaty of LaPointe (the "Ceded Territories"). In the Ceded Territories, the Band has a legal interest in protecting natural resources.

A federal Environmental Impact Statement ("EIS") must meet federal requirements, which differ from the State of Minnesota requirements. Adhering to a proposed schedule is a MN DNR priority for the Project draft EIS. However, the schedule has been extremely unrealistic for such a complicated project with the potential for immense environmental impacts. Schedule adherence has been additionally hampered by critical information that has not been forthcoming by the company. Regardless of schedule considerations, it is clearly the responsibility of the Lead

Agencies to determine the scope of analysis, ensure scientific integrity¹, to protect public health, and to prevent delays due to an inadequate draft EIS.

The Band reviewed a substantially incomplete Preliminary Draft Environmental Impact Statement ("PDEIS") in June 2008 and submitted lengthy comments, after which the MN DNR and USACE stated that the next review would be of a **Complete** PDEIS. However, the December 2008 CPDEIS is not complete and plainly acknowledges missing sections and analyses. Again, the volume of missing information is problematic, and seriously limits meaningful review. The Council on Environmental Quality ("CEQ") has specific regulations regarding the requirements of a sufficient EIS.² In order to follow them, the lead agencies must significantly supplement the CPDEIS and provide a full opportunity for review. Therefore, the Band renews its request for at least 30 days to review the CPDEIS when it is **fully complete**, not just renamed. Additionally, the Band reserves the right to comment on later drafts of the CPDEIS (the Draft and Final EIS), and to modify its comments, even as to any existing or apparently "complete" CPDEIS sections, once a revised and **complete** CPDEIS is issued.

The CPDEIS contains no closure plan. Cumulative impacts are missing in the sections listed below. Some gaps in data and analyses that are mentioned in the CPDEIS are listed in this letter after the missing sections on cumulative impacts. Many more gaps in data and analyses are listed below the references to sections that the CPDEIS plainly acknowledges are missing.

A. There is No Cohesive Closure Plan.

Small portions of some CPDEIS sections mention closure activities.

However, to discern what the closure plan may actually be, or if there is indeed one, is nearly impossible without a chapter devoted to this issue.

B. Cumulative Impacts analysis is missing in several CPDEIS chapters:

- Water Resources
 - 4.1.4 Cumulative Effects on Water Resources. *All sections are empty of text.*
- Fish and Macroinvertebrates
 - 4.5.4 No cumulative impacts are listed except the impacts of mercury contamination. However, Tribal comments on the June 2008 PDEIS noted this cumulative impact.
- Noise
 - 4.7.4 Cumulative Impacts. During the EIS scoping process (see Section 2.1 of the Final SDD), no cumulative impact issues associated with noise

¹ 40 C.F.R. § 1502.24.

² See, e.g., 40 C.F.R. §§ 1500.1 *et seq.*

were identified. However, Tribal comments on the June 2008 PDEIS noted this cumulative impact.

- Cultural Resources
4.8.4 Cumulative Impacts. During the EIS scoping process (see Section 2.1 of the Final SDD), no cumulative impact issues associated with cultural resources were identified. However, Tribal comments on the June 2008 PDEIS noted this cumulative impact.
- Visual
4.11.4. Cumulative Impacts. During the EIS scoping process (see Section 2.1 of the Final SDD), no cumulative impact issues associated with visual resources were identified. However, Tribal comments on the June 2008 PDEIS noted this cumulative impact.

C. Gaps in data or analyses that are identified in the CPDEIS:

- Water Resources
Page 4.1-27 states: "This large number of recurring water quality violations indicates that the existing surface waters in the project area have concentrations higher than existing water quality standards." Page 4.1-31 goes on to state: "Information about ground water resources at the NorthMet Project Site is taken from the following sources..." and lists references from various regional studies, none of which include actual data collected from the site. However, the December 3, 2008 memo from NTS regarding the Area of Concern (AOC) Summary for the VIC Projects on the Cliffs Erie Property shows twenty-nine AOC within the Project area. Only three AOC have been remediated. Twenty of the remaining twenty-six sites status is listed as "Area within property under Contract for Sale with Polymet. No actions have been taken with regard to this site." Some of those sites include: "Oily Waste Disposal Area, Private Landfill, Dunka WTP Sludge, Tailings Basin Reporting, Transformers, Emergency Basin, Cell 2W Salvage Area, Hornfels..." It is unclear to the Band whether the information regarding the AOC was provided to the Agency contractor. It also appears that there has not been a brownfield/superfund site investigation for the properties PolyMet intends to acquire for the Project area to assess existing contamination. Therefore, critical information to determine cumulative impacts at the site are not included in the CPDEIS, and natural background water quality cannot be differentiated from existing contamination requiring remediation.
- 27 Domestic Wells
Page 4.1-37 of the CPDEIS states: "There are 27 known domestic wells between the Plant and TSF sites and the Embarrass River which may be

impacted by the NorthMet facilities...Recent well water levels and water quality data will be collected prior to preparation of the final EIS."

- Lack of Stability of Tailings Cell Embankments
Page 4.1-66 of the CPDEIS states regarding the hydromet tailings: "RS28T Appendix K provides only a minimal indication that the stability of the cell embankments has been evaluated and found to be adequate especially given the foundation comprising LTV tailings."
- Stockpile Instability
Page 4.1-109 of the CPDEIS states, regarding stockpile stability: "To date, a rigorous slope stability assessment of the stockpiles has not been conducted. This needs to be completed to include site specific shears strength testing of the mine waste rock and foundation materials (e.g., triaxial shear strength testing) and the underlying liner (i.e., liner interface direct shear strength testing if a composite liner system is incorporated into the design) and limit equilibrium slope stability analyses.

Failure to address this area of concern could result in large scale slope instability with movement of the waste rock off of the lined area, potential release of contaminants, and significant mitigation work to return the stockpiles to an operable configuration. "

- Unsuitability of Mitigated Flotation Tailings Basin Design
Page 4.1-110 of the CPDEIS states unsuitability of proposed "mitigated" flotation basin design: "Sufficient data, information and analyses are not presented to support the Proposed Action Mitigation Design. Some of the data presented appears to be conflicting and the analyses incorrect. Additionally, the Proposed Action Mitigation Design is not consistent with what is believed to be the standard approach to upstream method dams. ***Given the above, there are significant concerns about the viability of the mitigation design....***"
- Impact of Catastrophic Tailings Dam Failure
"Failure to complete these analyses and address the concerns discussed above may result in the construction of a facility without adequate slope stability or seepage control that may fail with a corresponding release of the impounded PolyMet flotation tailings and process water."
- Arsenic
Page 4.1-121 expresses concern over predicted arsenic levels at the tailings basin. The CPDEIS states: "However, the Agency contractor (Knight Piésold) has questioned the appropriateness of the geochemical modeling given the lack of site specific sediment samples, constraining geochemical data (e.g., site specific redox measurements), or site specific sorption data (e.g., development of a sorption isotherm for the area in

question. Given the short time-frame for Agency comment and response, and in lieu of the above geochemical modeling, the Agency contractor requested PolyMet to determine the effective K_d for arsenic consistent with the results of the geochemical modeling."

- Uncertainty Analysis of the Tailings Mitigated Design is lacking
Page 4.1-121 of the CPDEIS states concern about the fact that uncertainty analysis of the tailings mitigated design is lacking: " similar to the conclusions from the limited uncertainty analysis for the Proposed Action, it is considered that a thorough uncertainty analysis for the Mitigation Design is likely to indicate that solute concentrations could range between several times higher and several times lower than these predicted values. "
- Unresolved Components of Waste-rock Model
Page 4.1-148 of the CPDEIS states: "The mass-balance confirmation on the waste-rock modeling requested in the Model Evaluation Plan (Minnesota Department of Natural Resources 2008) has not been received by the MNDNR."
- Evaluation of Pit-lake Computational Model
Page 4.1-158 of the CPDEIS states: "UNRESOLVED: The DNR team was unable to demonstrate complete consistency between the mass balance model results--a request to PolyMet's consultant for clarification to link the mass balance check to previous lake model is an outstanding request."
- Unresolved Components in Pit-lake Model
Page 4.1-159 of the CPDEIS states: "Unresolved Components in Pit-lake Model: The efficiency and long-term effectiveness of the wetland proposed for installation in the East Pit at closure to treat discharge to the West Pit has is not supported with tests or references to published studies. The wetland will presumably require perpetual maintenance to ensure its effectiveness. The MDNR has submitted to PolyMet a request for information to support the assumptions about wetland treatment effectiveness. The DNR team was unable to demonstrate complete consistency between the mass balance calculations cited above and the previous pit-lake water-quality model results--a request to PolyMet's consultant for clarification to link the mass balance check to the previous lake model is an outstanding request"
- Wild Rice Water Downstream of the Project
Page 4.8-10 of the CPDEIS recognizes that there is wild rice waters downstream of the project, there is no recognition of any wild rice water quality standard on Embarrass River.
- Remaining Groundwater Issues

The agency preferred alternative section states: "there are still remaining groundwater quality issues that are still undergoing evaluation and at this time, we are not prepared to identify an agency preferred alternative."

Inadequate Analysis of Impacts to Cultural Resources

Tribal interests need to be fully integrated into evaluation of potential impacts to cultural sites and cultural resources. We find it very troubling that thus far, they have not. Despite repeated requests by tribal staff, staff has not been allowed to assist or participate in drafting the chapter or even previewing it before the entire CPDEIS was given to all consulting and cooperating agencies to review. Cumulative impacts to Cultural Resources remain un-addressed in the CPDEIS apparently because they weren't identified in the scoping process, even though Tribes weren't included in scoping. Tribes have repeatedly stated and commented in writing that there likely *will be substantial impacts to cultural resources*. However, there appears to be a concerted effort to ignore any and all comments on this subject and simply revert back to scoping. In the CPDEIS section 2.2, Issues Identified During the EIS Scoping Process, it is stated that "The MnDNR and USACE determined that the following topics are not expected to present significant impacts, but would be addressed in the EIS using limited information beyond that provided in the Scoping EAW commensurate with the anticipated impacts Cover Types; Vehicle Related Air Emissions; Air Emissions; Noise; Archeology; Visibility; Compatibility with Plans and Land Use Regulations; Infrastructure; Asbestiform Fibers; *and 1854 Ceded Territory*."

The overall approach to the issue of Native American cultural resources so far reflects a core lack of understanding of the concept that natural resources are cultural resources. For example, as stated in many previous comments, if there are vegetation effects from any aspect of the proposed mining activities, on culturally significant plants like wild rice, birch, black spruce, wild blueberries, sugar maple, cedar, sweetgrass, and/or others, they must be described and the impact given appropriate weight in the CPDEIS. Mitigation for wetlands that are impacted by this project that occurs outside of the 1854 ceded territory does not mitigate for the loss of these resources to the tribes within the ceded territory. Additionally, the Area of Potential Effects, or the Area of Influence have not been established for cultural resources, wildlife corridors, water quality or quantity, or wetland impacts.

Section 4.8, Cultural Resources, states: "Of particular concern to tribal representatives is the potential impact to wild rice beds... ***Predicted hydrologic impacts are uncertain but likely to be small. As a result, the impact to this wild rice bed is unknown but not likely to be significantly adversely affected.***" Again, it is unacceptable to suggest that even though it is unknown what the impacts may be...impacts are likely to be small.

Section 4.3 of the CPDEIS, Vegetation, does not contain a list of treaty harvestable vegetation as was requested and specified by many Tribal commenter's many times. The species proposed for site re-vegetation, with the exception of Canada Bluegrass, are non-native and some species are considered invasive. Hay and agricultural

grasses that have been specified for use as mulch may contain additional invasive species such as reed canary-grass. Use of the proposed seed mix would introduce non-native invasive species to an area of primarily natural high quality vegetation. These species may reduce diversity, out-compete native vegetation, thereby reducing further the possibility of Tribal harvest in the area even after mining has ceased. Furthermore, introduction of invasive species into the relatively high quality habitat used for Tribal harvest risks the loss of many thousands more acres of lands that are not proposed to be directly impacted by mining.

Section 4.10, Socioeconomics, of the CPDEIS, under the Environmental Justice heading states "Such effects are termed environmental justice issues, and none were identified for the NorthMet Project. Minority populations in the affected communities do not comprise over 50 percent. In addition, in 2000 (US Census) the Native American population was 2.1% of St Louis County, Minnesota. The same census reported 1.2% Native American across the State of Minnesota. Therefore the Proposed Action and alternatives would not adversely affect minority groups disproportionately." Although the Native American population is indeed less than 50 percent, it is very difficult to imagine that there are no environmental justice issues resulting from the destruction of potentially thousands of acres of land within the 1854 ceded territory where Tribes have usufructuary rights. Additionally, virtually none of the benefits that may be realized by other populations as a result of this project would be realized by Tribal members. Specifically, Tribal schools do not benefit from the ad valorem tax or occupation tax. Occupation tax is credited to the general fund, of which tribes do not receive any benefits with the small exception of some Tribal members who attend public schools. There has been no attempt to quantify the socioeconomic losses that will likely be experienced by Tribal members in this chapter of the CPDEIS.

Finally, in the Cumulative Effects section of the CPDEIS, Tribal interests have largely been excluded. In table 4.13-1 Tribes are not included in economic impacts or social impacts. Loss of wetlands in the Embarrass River watershed is omitted. Streamflow and Lake Level Changes do not include the Embarrass River watershed either. In table 4.13-2 no secondary impacts associated with the loss of wetlands is included, and Streamflow and Lake Level changes as well as Water Quality Changes are listed as "under review". The cumulative effects to the St. Louis River watershed are "still under review". And, as stated on page 4.13-6 of the CPDEIS "Moose do occur in the vicinity of the Project; however, their populations are relatively low in this area compared to other portions of the 1854 Ceded Territory. Indirect cumulative effects to natural resources of cultural importance to tribes, due to the influence of regional projects on water resources, are under review."

Underground Mining Alternative Discarded Without Adequate Justification

In the Final Scoping Decision Document, the MN DNR and US ACE identified underground mining as the only alternative technology to be considered for the proposed project. However, the CPDEIS states that it "will not evaluate alternative technologies to the Proposed Action. During the Scoping EAW and Final SDD process, the MnDNR and USACE identified underground mining as a potential alternative to be considered based

on an economic evaluation. During development of the CPDEIS the underground mining alternative was determined to be economically prohibitive to the Project due to the reduced rate of production associated with underground mining relative to an open pit. The rate of ore production of an underground mine would not support the processing rate necessary to economically process the low grade ore, and therefore would not meet the purpose and need of the Project. This reduced scale of production ties into the elimination of the modified scale or magnitude alternative discussed below. Additionally, the ore deposit is shallow and broadly distributed throughout the Mine Site; which increases the safety hazards due to the risk of the mine ceiling collapse unless a sizable amount of ore was left in place and not recovered."

The economic viability of an underground mine depends on a variety of factors, including ore grade, market prices, cost of tailings, and waste rock disposal. A study of this particular deposit was performed by U.S. Steel that actually *recommended* underground mining.³ And PolyMet is well aware of this study, given that the company included it in a 2003 filing with the Securities and Exchange Commission.⁴ In fact, by examining cross-sections showing the distribution of ore by depth,⁵ it appears that there are substantial ore reserves at depths that likely *could not be accessed* by the proposed open-pit mine. The ecological costs of open-pit mining and above-ground disposal of tailings and waste rock are immense. This ecological cost, combined with the most current understanding of deposit ore grades and reasonably possible metals prices, must be evaluated to determine the viability of this alternative. This and all the alternatives in the draft EIS must be evaluated in greater detail.

The conclusion that underground mining is not a viable, or preferable, alternative in the CPDEIS remains unjustified, despite repeated requests for further analysis. There has not been an appropriate use of a cost-benefit analysis for purposes of analyzing an Environmental Impact Statement ("EIS") alternative. The CEQ regulations require that, where a cost-benefit analysis is "relevant to the choice among environmentally different alternatives," there are a variety of additional requirements, including "analysis of unquantified environmental impacts, values, and amenities,"⁶ in addition to other CEQ alternatives rules.

Mitigation for potential impacts to surface waters and wetlands may be greatly reduced by underground mining instead of strip mining. Because underground mines have smaller surface footprints than strip mines, direct impacts to wetlands in this project could be reduced considerably. Keeping most of the waste rock underground could minimize exposure to air and water, thereby reducing the potential for acid mine drainage to pollute nearby surface waters.

³ See, e.g., S.E.C. Form 20-F, PolyMet, Inc. Annual Report for Yr. ending 1/31/03, ITEM 4.D(d) (stating "[a] 1971 study for US Steel suggested mineralized deposits to a depth of 2000 feet and recommended underground mining techniques for recovery.")

⁴ *Id.*

⁵ See Tech. Doc. GC06.

⁶ 40 C.F.R. § 1502.23.

Another issue that has not been addressed, but certainly has the potential to affect large tracts of land that are currently accessible to band members for hunting, fishing, and other usufructuary rights is: How PolyMet will acquire the right to surface-mine this land,⁷ noting only that there are current negotiations “to acquire surface ownership of lands above and adjacent to the mineral lease,” but that “no decisions” have yet been made.⁸ There is a deed limitation on the Project site, on what is currently U.S. Forest Service land⁹ that plainly *prohibits* strip mining. The current ownership by the Forest Service, and the possibility that the Project is effectively proposed to take place on what are Forest Service lands, must be addressed.

The Minnesota Center for Environmental Advocacy (“MCEA”), in its scoping comments on July 5, 2005,¹⁰ raised the issue that there must be separate EIS consideration of the potential environmental impacts of any land transfer as a separate matter from the analysis of the Project’s own impact. Even though the issue was raised more than three years ago, no such analysis has been provided.

The Band presumes that the lead agencies and PolyMet have assumed that this land transfer issue will be obviated by potential legislative action. This is not only uncertain, but the proposal would unfairly circumvent the existing environmental review rules for land transfers of this kind. But if this is, indeed, the means by which they intend to enable the Project to proceed, it must appear in the DEIS. Congressman Jim Oberstar has introduced a bill in the U.S. House of Representatives that would require the Secretary of Agriculture to sell the U.S. Forest Service land to PolyMet. Senator Amy Klobuchar also co-sponsored the bill, known as the Superior National Forest Land Adjustment Act of 2007 (the “Act”).¹¹ The Act includes the following provisions:

- (1) 6,700 acres of Forest Service land, the proposed Project site, will be sold within 180 days of the enactment;¹²
- (2) The first offer for the sale of the lands under this Act is to be made to PolyMet,¹³ explicitly for the purposes of strip mining;¹⁴

⁷ See, e.g., 1.0 INTRODUCTION; 4.9.3.1 *Environmental Consequences, Proposed Action, Federal Land Management* (plainly noting “need USFS to clarify if mining is inconsistent with deed.”)

⁸ PDEIS at 3.1.1.

⁹ See, e.g., 1.4 *Regulatory Framework*; 4.9.3.1 *Environmental Consequences, Proposed Action, Federal Land Management*.

¹⁰ See J. Brimmer (MCEA) to R. Doneen and J. Ahlness (Corps) (7/5/2005), Ex. C at 2.

¹¹ H.R. 4292, 110th Cong. (1st Sess. 2007).

¹² *Id.* at § 3(b)(1).

¹³ *Id.* at § 3(f)(1).

¹⁴ *Id.* at § 5(b)(1).

(3) The PolyMet Project EIS would stand in for what would otherwise require separate environmental review;¹⁵ and

(4) There can be no administrative appeal of the sale.¹⁶

The Band strongly feels that there is no need to introduce legislation that circumvents existing law, and it joins other groups in opposing the bill.¹⁷ There is a time-tested federal process in place that gives the federal agencies, Indian tribes, and the public the opportunity for input into the land-exchange process. The Federal Land Policy and Management Act of 1976¹⁸ describes how land exchanges are supposed to occur for both the Bureau of Land Management and the U.S. Forest Service. Exchanges of federal land under this provision routinely happen all over the U.S. While this process does not guarantee that all concerns are addressed, it guarantees that concerns are heard. The Oberstar legislation would take away that right and would relieve the U.S. Forest Service from their responsibilities to protect public lands, and it would create a negative precedent by which the U.S. Forest Service could sell public lands each time a mine gets close to the permitting phase of development.

The loss of wetland acreage, distribution of wildlife corridors, and access by Tribal members to the lands cannot be determined because PolyMet has not made an offer for specific lands to exchange for the properties they are hoping to receive. This must be addressed because such an action could have further implications for the access rights of Band members to 1854 Ceded Territories to exercise usufructuary rights. The length of the comments from all cooperating agencies and interested parties even at this preliminary phase illustrates the inherent problems with this proposed legislative “fix.”

Although the CPDEIS attempts to acknowledge the current situation, it does not discuss whether or how the project could move forward in the absence of a land swap or legislation, discuss the process and potential for a land-transfer, or acknowledge the proposed legislation and its requirements.

Brownfield/Superfund Site Contaminant Issues Not Addressed in CPDEIS

As you are aware, the proposed PolyMet project plant site and tailings basin are part of a larger brownfield or superfund site (the old LTV site) currently owned by Cliffs Natural Resources, Minnesota Power, and Mesabi Nugget. The old LTV taconite mining and processing site encompasses approximately 60,000 acres. The PolyMet project would use some of the most degraded areas of the old LTV site to develop their mine plant site and re-use the tailings basin. In 2002, the Minnesota Pollution Control Agency identified sixty-two areas of concern within the old LTV site. Of those sixty-two sites,

¹⁵ *Id.* at § 5(b)(2).

¹⁶ *Id.* at § 5(d)

¹⁷ *See, e.g.*, Save Our Sky Blue Waters Action Alert, at <http://www.sosbluewaters.org/oberstar.htm>.

¹⁸ 43 U.S.C. §§ 1701, *et seq.*

approximately thirteen have been investigated beyond a phase I contaminant survey. Only a few of those have been remediated.

The areas of concern identified during the initial contaminant survey and the concentrations of the contaminants that were measured were not provided to Cooperating and Consulting Agencies until December 2008, even though we had requested the information months earlier. Additionally, this information was not added to the scant data provided in the technical documents that were used to prepare the CPDEIS. And, to our knowledge, the information has not been provided to MN DNR staff or contractors working on drafting the CPDEIS. Without additional site investigation cumulative impacts cannot be assessed, proposed remediation may not be adequate, the amount of financial assurance needed is very difficult to define, and the existing risk to the environment and human health cannot be determined.

Hydrologic Characterization and Impact Predictions are Inadequate

The baseline data for both the mine site and the tailings basin are sparse. A comparison of hydrologic data that was collected for two other projects in this region demonstrates that the PolyMet project is data-poor in the area of basic hydrology. The use of flow data on the Partridge River from a site twenty years and seventeen miles away from the proposed project *does not meet current standards* for hydrologic characterization of a project site.

Hydrologic characterization using MODFLOW models was done only for the immediate area of the mine pit and the tailings basin. There are no groundwater models that were designed to characterize the water tables, the potentiometric surface in the aquifers, fluxes to rivers and streams, or to predict impacts to the water tables or surface waters. The CPDEIS discusses impacts to river baseflows and groundwater levels based on model-predicted drawdown of the surficial aquifer. However, in other parts of the CPDEIS Water Resources chapter this analysis is dismissed as an inappropriate use of the model. In addition, the results of the MODFLOW modeling appear to be misrepresented in the Project documents that predict the area to be impacted by one foot or more of drawdown as approximately 3,757 acres. Review of the MODFLOW output files shows a much larger drawdown impact prediction of approximately 8,922 acres. The lack of groundwater level data in the surficial aquifer and in the bedrock, except in the immediate vicinity of the mine pits, does not allow for defensible characterization of either the water table or the potentiometric surfaces in the bedrock and surficial aquifers. The current bedrock groundwater model that is calibrated to shallow wetland piezometers can not be justified.

The data characterizing mine site hydrology that does exist suggests that there may be substantial connection between the bedrock and surficial aquifers. Such a connection would mean that dewatering of the mine pits could cause significant drawdown of the water table in the surficial aquifer. Data presented in RS02 indicates that ammonia can be found in deep boreholes. Section 3.3 Analytical Results, Pg.10 of RS02 states: "The water sample from boring 05-407M exceeded the criteria for ammonia (1,900 ug/l)"; and goes on to state, "The sample from boring 05-401M exceeded criteria

for ammonia (610 ug/l)."; and "Water quality criteria were exceeded for ammonia, aluminum, copper, and silver in both boreholes."; and concluded that, "The presence of ammonia in the deep boreholes may indicate that the water in the borehole came from the shallow surficial deposits. Ammonia is not typically found in deep bedrock systems but is common in wetland environments." Similarly, technical document RS10 concludes: "The presence of ammonia nitrogen in the samples likely indicates that there is a hydraulic connection between the bedrock aquifer and the surficial aquifer; however, the nature of this connection can not be determined at this time." Furthermore, tritium data also presented in RS10 suggests that deep water is of relatively recent origin.

The current approach by the MN DNR appears to rely solely on professional opinion that mine pit dewatering impacts will be very limited. This opinion is based on the assumption that there is little or no connection between the bedrock and surficial aquifers. While professional opinion can be very useful in predicting mine impacts, it must be tempered with site specific knowledge based on quantitative data. However, the CPDEIS Water Resources section does not consistently address or refute any of the issues listed above.

The CPDEIS contains no data-based hydrologic characterization of the plant site or tailings basin area groundwater system. The MODFLOW groundwater model at the tailings basin/plant site area is restricted to the tailings basin alone, and therefore cannot be used to characterize groundwater flow direction, the water tables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict mounding impacts to the water tables or surface waters. Lack of modeling at the tailings basin prohibits the quantitative determination of potential environmental effects on nearby wetlands from inundation. Without credible data-based site characterization of groundwater hydrology it is impossible to determine potential impacts, cumulative impacts, and proper mitigation measures. Additionally, impacts on wild ricing areas that will unquestionably be affected by the Project must be determined and listed in the EIS, particularly in the Embarrass River, which is protected under the 1854 Treaty and Minnesota State law.¹⁹ The issue is not resolved simply by the fact that a portion of the existing mine site is already "highly disturbed."²⁰

Groundwater contamination from the previous mining activities is still an issue near the LTV tailings basin more than twenty years after operations have ceased. Because of the limited distribution of monitoring wells, the extent of the contaminant plume is not known. In the wells that do exist near the tailings basin, pollutants including

¹⁹ See Minn. R. 7050.0224 subp. 1, which states:

In recognition of the ecological importance of this resource, and in conjunction with Minnesota Indian tribes, selected wild rice waters have been specifically identified [WR] and listed in part 7050.0470, subpart 1. The quality of these waters and the aquatic habitat necessary to support the propagation and maintenance of wild rice plant species must not be materially impaired or degraded. If the standards in this part are exceeded in waters of the state that have the Class 4 designation, it is considered indicative of a polluted condition which is actually or potentially deleterious, harmful, detrimental, or injurious with respect to the designated uses.

²⁰ See, e.g., 4.3.1.2 *Threatened and Endangered Plant Species*.

lead, manganese, aluminum, molybdenum, and fluoride exceeded drinking water standards.

The baseline data on which to base estimates of the impact of the proposed project on water quality at the mine site and the tailings basins is insufficient. The existing analysis for the PolyMet project calculates the additional constituents that the project will add to groundwater but is unable to realistically estimate what the resulting water quality will be because background water quality has not been established over most of the project area.

The contaminant transport modeling for the tailings basin area suggests that the PolyMet project will cause arsenic, manganese, and aluminum to exceed drinking water standards. However, without any existing data from and of the twenty-seven domestic drinking water wells between the tailings basin and the Embarrass River it is impossible to determine what groundwater quality will be during and after the project. The issue of potential contamination of water resources from amphibole fibers appears to have been ignored in the CPDEIS even though it is well known that the eastern Mesabi Range bedrock contains relatively high concentrations of amphibole fibers.

Clearly, the intent of the National Environmental Policy Act ("NEPA") is to inform agency staff and the public of potential impacts to both the environment and human health. The CPDEIS states that domestic well water analysis will not be provided in the draft EIS. Instead, the results of the well water analysis will be provided in the final EIS. This appears to violate the intent of NEPA by denying agency staff and the public the opportunity to make informed comments on past groundwater contamination and the potential for cumulative effects on drinking water resources.

Surface water quality throughout the entire Project area has been poorly characterized or left uncharacterized. The limited surface water data that exists suggest that surface waters are already adversely impacted by mining activity. Mercury, sulfate and specific conductance have exceeded Minnesota surface water criteria in surface water samples collected near the tailings basin proposed for use by PolyMet and at nearby Area Pit 5. However, no water samples have been collected from lakes near the tailings basin (e.g. Heikkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the tailings basin have caused contamination of those waterbodies.

There has been some effort to characterize uncertainty in impact predictions for water quality. The uncertainty analysis that has been conducted indicates that the applicants' water quality analysis was not conservative for some parameters. However, even for water quality, much of the evaluation of impact uncertainty has been put off until after the release of the draft EIS. For many other resources, such as groundwater levels, stream flows, noise and visual impacts, no evaluation of uncertainty in impact predictions has been made. Given the scarcity of baseline data for many potentially impacted resources, the level of uncertainty in impacts is likely to be very high. Uncertainty analysis should be conducted for all resources and where uncertainty is found to be unacceptably high, approaches developed to reduce the level of uncertainty.

As stated previously, the *water resources cumulative impacts sections are blank*. Therefore, analysis of cumulative impacts to the Partridge River, Embarrass River and Colby Lake (the community water supply for the city of Hoyt Lakes) cannot be ascertained. Colby Lake already has several constituents including aluminum, iron, copper, and mercury in concentrations that already exceed Minnesota Water Quality Standards (“WQS”). The existing large number of water-quality exceedances and the suite of constituents, particularly trace metals, exceeding WQS shows the site has not been remediated from previous mining activities. Additionally, amphibole or asbestos-like mineral fibers, known to cause digestive-tract cancers in high concentrations, have been identified as existing pollutants in the Hoyt Lakes community water supply and the potential for increased concentrations must be discussed in the CPDEIS. Related cumulative-impacts issues such as groundwater drawdown or mounding due to multiple mine projects in the area, and groundwater quality impacted by previous and current mining operations such as Mesabi Nugget and North Shore Mining need to be included in the CPDEIS.

The existing characterization of wetland and other vegetation does not cover even one half of the area that might reasonably be expected to be impacted by secondary impacts of the mine due to disruption of the existing hydrology. Only a fraction of the wetlands possibly impacted due to either drawdown or inundation of the water table have been delineated. In the areas around the tailings basin, virtually no wetland delineation has taken place although wetland impacts from inundation are likely to occur. Wetland impact criteria have yet to be finalized for mine induced drawdown or inundation. With the existing hydrologic characterization it is not possible to reasonably predict how many acres and what types of wetlands may be impacted by the project. When indirect impacts are considered in conjunction with the direct loss of approximately 800 acres of high quality forested wetlands and peat bogs, the total acres of wetland impacts from this project are substantial. Nearly all of the proposed mitigation planned at this time for the direct project impacts is outside the watershed and the 1854 ceded territories and does not replace the same wetland types. There is currently no planning for mitigation for the wetland acres that may be damaged due to indirect impacts.

The acknowledged data and analyses deficiencies and lack of a closure plan clearly indicate that the CPDEIS does not meet the policy threshold for NEPA disclosure of potential impacts to the environment or human health. These issues must be rectified before meaningful environmental review can occur and this project is moved to the next level of evaluation and comment.

Sincerely,

Margaret Watkins
Environmental Department
Grand Portage Band of Chippewa

Cc: Nancy Sutley, Chair, Council on Environmental Quality
Luke Jones, Director, Region V Indian Environmental Office, USEPA
Tim Henry, Acting Water Division Director, USEPA
Rick Karl, Superfund Program, USEPA
Ken Westlake, NEPA Program, USEPA
Rebecca Harvey, UIC Program, USEPA
Carol Jorgensen, Director, American Indian Environmental Office,
USEPA
Steve Hoffmann, Mining Coordinator, Office of Solid Waste, USEPA
Ed Fairbanks, Tribal Liaison, USEPA