Fond du Lac Reservation

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Mr. Arkley and Mr. Ahlness:

The Fond du Lac Band of Lake Superior Chippewa (the Band) is providing you, the state and federal lead agency representatives, with our comments on the draft EIS (DEIS) for the proposed PolyMet copper-nickel mine located near Hoyt Lakes, MN. The Band requested status as a cooperating agency for this EIS process, based upon our fundamental concern for protecting cultural and natural resources within the 1854 Ceded Territories, and our interest as a downstream water quality regulatory authority. Fond du Lac made the decision to commit substantial time and resources to engage in this EIS process as a cooperating agency, because of the high potential for significant impacts to the water resources of the Reservation, and to the full array of trust resources that Band members have long relied upon within the 1854 Ceded Territory. Fond du Lac believed that it was in the best interest of Band members to work diligently on the "front end" to ensure that any sulfide mining project, such as PolyMet, would only move forward to permitting if all significant environmental impacts were clearly identified and mitigated.

We have documented many of our concerns with and questions about this project over the course of the past several years, both in written comments and as voiced in numerous conference calls and face-to-face meetings among cooperating agencies, the EIS contractors, the company and their consultants. More recently, all of the tribal cooperating agencies (Fond du Lac, Bois Forte, and Grand Portage) and the intertribal agencies working with them (Great Lakes Indian Fish and Wildlife Commission or 'GLIFWC', and the 1854 Treaty Authority) submitted a combined document of alternative tribal position statements based upon our review of the July 2009 draft EIS. This set of position statements appears largely as footnotes within the text of Volume 1 of the DEIS, and is reproduced entirely in Appendix D found in Volume 3. The purpose of providing alternative positions statements was to exercise our roles as cooperating agencies by focusing public review on issues or analyses where the tribal agencies had significant disagreement with the lead agencies. Cooperating agencies, per NEPA guidance, can submit adverse comments on EIS documents, are not required to endorse or accept the lead agencies' preferred alternative, and can select another alternative as their preferred alternative.

The tribal cooperating agencies were highly dissatisfied with the lead agencies' attempt to edit or eliminate the tribal alternative position statements in the draft of the EIS that would be released for public review, and with their initial intent to prevent the tribal cooperators from conducting a final review of the DEIS before it was published. Fond du Lac and Grand Portage both formally invoked the dispute resolution process provided in the MOU for the PolyMet EIS cooperating agencies. For the record, Fond du Lac is not satisfied that our positions are presented in the DEIS as we intended them to be, and we do not believe that our status as a cooperating agency has been fully afforded. We attempted to bring specific expertise on issues of tribal concern to this EIS process, and engaged with

other federal agencies (USEPA, USGS) to bring better science and analysis to bear in the process, but our efforts have been largely dismissed. The potential for this project to create significant adverse impacts to reservation and treaty-protected resources is of grave concern to Fond du Lac, and we take this opportunity to repeat our positions on flawed analyses and conclusions, lack of supporting data, EIS inadequacies, and new issues identified in our review of this draft document.

Introduction: Chapter 1

Connected Action is defined in NEPA guidance (40 C.F.R. § 1508.25(1)) as an action (that)**:** 'cannot proceed unless other actions are taken previously or simultaneously'; they are interdependent parts of a larger action that depend on the larger action for justification. **DEIS 1.1** states "This DEIS identifies and analyzes the potential alternatives and impacts for the Project based on the successful completion of a land exchange and elimination of National Forest Lands from the Project." Clearly, a federal land exchange process is a connection action, in that the Project cannot proceed unless the exchange is legally completed, and the exchange itself depends upon the larger action for justification. EPA Region 5 comments on the July 2009 draft of the EIS explicitly point out that the requisite EIS process for the federal land exchange should be conducted within this EIS process, as they are connected actions: "EPA finds it difficult to consider the U.S. Forest Service (USFS) land exchange as a separate action. Based on the interpretation of its authorities, USFS maintains that a land sale or transfer must occur for the applicant to access the mineral body, currently on public land. The PDEIS indicates that effects of land transfer will be addressed in a separate analysis prepared by the USFS. We further note that some direct impacts to tribal uses are related to the transfer of public land out of the Ceded Territory. We question how assessing the impacts of the connected action can be deferred to a separate analysis." (Kenneth Westlake, U.S. EPA to U.S. Army Corps of Engineers (August 25, 2009)).

The Project is proposed to be sited on approximately 6,700 acres of United States Forest Service lands within the Superior National Forest (SNF). These lands are also within the 1854 Ceded Territory, where the Fond du Lac, Bois Forte and Grand Portage Bands retain usufructuary rights under the Treaty of LaPointe (1854). The SNF lands proposed for exchange (and permanent removal from public management), contain high quality forested wetlands and peat bogs that lie within the Lake Superior basin, as well as vegetation communities and wildlife habitat for species of prime importance to Band members exercising their treaty-protected hunting, fishing and gathering rights. Since the location of the proposed non-federal land has not yet been identified, it is simply not possible to evaluate the environmental characteristics of the land, the value of the land to the public or the impacts of the proposed land exchange on cultural resources.

The DEIS acknowledges that there could be an impact on cultural resources due to the loss of access to public lands for tribal use due to the land exchange. There remains substantial disagreement between the lead agencies' discussion of this issue in the DEIS, and the position of the tribal cooperating agencies, who have consistently raised concerns about potential environmental, cultural and economic impacts of a land exchange on tribal treaty resource use within the Ceded Territory. The tribal cooperating agencies have noted that, since land exchange is based on monetary value, not acreage, there could be a permanent net loss of public lands within the Ceded Territory. Additionally, "there could be other types of losses based on the natural resources found on the original versus exchanged lands." (DEIS 4.9-2, Appendix D, Tribal Positions on July 2009 PDEIS)

DEIS 1.4.3 Applicable Regulations: The Minnesota Pollution Control Agency, under its delegated water quality standards authority, has a responsibility to ensure that a proposed action (in this case, the issuance of a USACE §404 wetland permit) is consistent with the state's water quality standards through its §401 certification process. The MPCA waived this certification responsibility by default when the permit application was publicly noticed in 2005. It is the Band's position that the USACE should reissue notice of the §404 permit application, and that MPCA should evaluate the §404 permit application under its Section 401 certification process, because the Project design has significantly changed since the initial public notice of the permit application, and because of the massive scale of

wetland impacts and potential for degradation of aquatic resources of national importance. The DEIS for the U.S. Steel Keetac Taconite Mine Expansion Project indicates that MPCA will be conducting a §401 certification on the USACE §404 permit for that project; this project certainly warrants the same scrutiny.

DEIS 2.0 EIS Development

Inadequacy of Scoping: The Council on Environmental Quality (CEQ) guidelines on the scoping process direct the lead agency to invite participation of affected Federal, State, local agencies, Indian nations, proponents and other interested parties; determine scope and significant issues to be evaluated; eliminate issues that are not significant; allocate assignments for preparing EIS; identify other environmental review and consultation requirements; indicate relationship between timing of analyses and agency planning and decision-making schedule. This is arguably the most important part of the NEPA process, yet the Band's request to be a cooperating agency was not honored for over one year after our original request to the USACE St. Paul District office. Tribal concerns were not fully identified during the state-led scooping process, nor when the Scoping Decision Document was issued, because the federal lead agency did not conduct its federal trust responsibility to the tribal governments to include them "at the earliest possible point" in the EIS process.

While the Minnesota Environmental Policy Act (MEPA) considers scoping to be essentially concluded with the issuance of the Final Scoping Decision Document, NEPA does not consider scoping complete until the EIS analysis is complete. This disconnect between the state and federal environmental review process created a substantial disadvantage for the Band in our ability to elevate tribal concerns early in the scoping process of this EIS. It is the Tribal cooperating agencies position that additional consultation and evaluation is needed to determine the degree of impact on the 1854 Ceded Territory as a result of this project. Although groundwater hydrology and impacts to groundwater, Cultural Resources, and impacts to wild rice were "incorporated" after scoping, cumulative effects for a number of resources were not added. To adequately determine impacts and mitigation strategies a greater understanding of groundwater hydrology at the site is required. In addition, impacts resulting from groundwater drawdown and inundation cannot be determined without additional data. Consultation is ongoing with the USACE regarding Cultural resources and impacts to wild rice.

Financial Assurance

In **DEIS 2.3.1: Potentially Significant Issues,** the lead agencies state that "The amount of financial assurance associated with reclamation actions cannot be estimated until these actions (closure planning, mitigation for environmental impacts) are understood at a more detailed level of design. This detail is more typically available during the permitting process. Therefore, discussions of financial assurance figures and instruments are not included in the DEIS." Fond du Lac's position is that financial assurance should be fully explored in the DEIS, and EPA review comments on earlier drafts also strongly recommend that it be included in the DEIS: "The PDEIS does not include information on financial assurance. EPA recommends including financial assurance information because one key component to determining the environmental impacts of a mine is the effectiveness of reclamation and closure activities. EPA has found the amount and viability of financial assurance are critical factors in determining the effectiveness of closure and reclamation and therefore the significance of environmental impacts. EPA has recognized the importance of disclosing financial assurance in EISs in the "National Hardrock Mining Framework (September 1997)" developed by several EPA national water, waste, and enforcement offices (Kenneth Westlake, U.S. EPA to U.S. Army Corps of Engineers (August 25, 2009)).

There is a high potential for very long-term or perpetual treatment, maintenance and monitoring needed for the Project. Because of its experience in expensive remediation actions for many defunct or bankrupt sulfide mines, EPA Region 9 has strongly urged other Regions over the past several years to require financial assurance disclosure in the NEPA process. New national rules for financial

assurance are under development by EPA, because "Given the history of adverse environmental effects resulting from some hard rock mines, and the expenditure of public funds used in some cases to address environmental problems caused by mining, EPA believes it is necessary to analyze these factors in the DEIS" (from InsideEPA.com, Tuesday, August 25, 2009).

Fond du Lac has strongly recommended that the lead agencies keep adequate financial assurance considerations 'front and center' during the EIS process. The Band requested technical assistance from EPA Headquarters and the National Hard Rock Mining Team, and specifically requested that agency experts conduct a workshop for the Project EIS lead agencies, cooperating agencies, and the company on financial assurance considerations for the PolyMet project. The Band hosted this workshop in November 2008, which was attended by representatives of the DNR, USACE, MPCA, the US Forest Service, PolyMet, and tribal cooperating agencies. Unfortunately, it appears that the lead agencies are choosing to disregard the recommendations of the EPA on this matter, instead relying upon the state's own untested regulations and guidelines somewhere 'down the road' before issuing the permit to mine.

The recent settlement between the Department of Interior and Grupo Mexico requiring the company to pay $1.79 billion for ASARCO LLC cleanup work is a clear example of our concern regarding the probable risk of contamination at the proposed mine and potential migration of contaminants likely to injure public and tribal trust resources off site. The bankruptcy of ASARCO LLC is pertinent to the PolyMet proposal, because the company became financially unsound at least in part because of a broad range of environmental cleanup liabilities brought by federal, tribal and state trustees seeking damages for injuries related to the company's lead, zinc, cadmium, arsenic and copper mining, smelting and refining over 106 years. A company in bankruptcy has no assets to pay for environmental remediation, or to restore injuries to public and tribal trust resources. Therefore we recommend that the state decision makers require substantial, enforceable financial commitments from the applicant up front, before permitting the proposed project, so that funds would be available for remediation *and* restoration rather than tied up in bankruptcy proceedings.

We hear PolyMet publicly proclaiming that there are modern mining technologies and mitigation strategies to vastly reduce the risk of such contamination at the proposed site in Minnesota. But Minnesota is not the arid, sparsely populated West. In Minnesota, the public and tribes rely substantially upon water-based natural and cultural resources. Our abundant waters are also known to effectively transport contamination to wells, aquifers and surface waters where humans, fish and wildlife can be exposed to toxic levels of heavy metals or other contaminants that could potentially be released from the proposed Project, both during operations and after closure. The population density is also greater in Minnesota than in the West, and there are greater use rates of natural resources. These factors point to a substantially higher level of potential financial environmental and natural resource damages here in Minnesota than has already occurred in the West at countless sulfide mine sites. It is highly likely that the stunning settlement figures from ASARCO LLC would have been substantially higher if the environmental and natural resources liabilities had occurred in Minnesota.

Even if we believe that the risk might be reduced with modern mining technology, the consequences of an environmental release remain potentially devastating to public health and safety as well as to public and tribal trust resources. If this proposed project is to be ultimately permitted, it should include permanent, enforceable, meaningful financial assurance in the event of an environmental liability or damages to public or tribal natural resources, and the mechanism for this assurance should be clearly discussed in the EIS. To fully consider 'meaningful financial assurances', the state should be aware that it may require many millions of dollars for restoration of natural resource injury or service losses (under Natural Resources Damages Assessment and Restoration, or NRDAR), above and beyond any contaminant remediation. The ASARCO LLC settlement included $194 million for the recovery of wildlife, habitat and other natural resources, also known as public or tribal trust resources, which are

managed by the Department of Interior, tribal and state governments. The $194 million NRDA settlement was above and beyond the cleanup costs imposed by EPA that brought the total Grupo Mexico settlement to $1.79 billion.

NRDAR is a provision within Superfund (Comprehensive Environmental Response, Compensation and Liability Act, or CERCLA) authority in which Congress has provided a means for trustees of tribal and public natural resources to seek restitution for injured trust resources. The availability of this authority to the Interior Secretary and tribal and state trustees is a valuable tool, but in general it is no guarantee that trustees will be able to recover funding from polluters to restore natural resources used by tribes and the public. NRDAR does not guarantee recovery and restoration of injuries to natural trust resources, because the process depends upon recovery of funding from the responsible party. If the responsible party no longer exists legally or is bankrupt, the trustees have no entity from which to recover financial damages. Again, even with the powerful NRDAR authority available, we need decision-makers for this proposal to require substantial, enforceable financial commitments from the applicant up front, before the permitting of such a project. Further, for the NRDAR authority to work properly, the tribal and public trustees need funding from the applicant to accurately inventory the present conditions of the trust resources most likely to be injured in the event of a potential release. In the case of PolyMet's proposed project, it would require (for example) groundwater modeling of transport and fate of contaminants following the likely pathways for the potential release, and a complete inventory of wetlands that are likely to be degraded by indirect impacts of mine pit dewatering and contaminated tailings basin seepage. A sampling plan for trust resources located along those pathways should be a condition of any permit issued for this project.

If future sampling identifies a release from the mining operations or after site closure, then the trustees would have a legal basis to quantify and seek damages. If the applicant has set aside permanent, enforceable and adequate funding, then the funding could be used to restore the groundwater and other impacted natural and cultural resources. But to be clear, these financial resources for NRDAR restoration must be *in addition* to whatever funding provided by the company for potential environmental remediation enforced by the EPA. This is an example of what we would consider 'meaningful levels of financial commitment' by the applicant, and should be factored into the agreement for financial assurance before the project can be permitted.

DEIS 3.0 Proposed Action and Project Alternatives

Tribal cooperating agencies submitted numerous position statements on previous drafts of the PolyMet EIS, and as the problems or deficiencies so noted were not addressed, clarified or corrected in the public DEIS by the lead agencies or the EIS contractor, the following issues are still problematic:

DEIS 3.1.2.9 Mine Site Water Management

Tribal cooperating agencies note that under the proposed project, the Wastewater Treatment facility will need to treat water for hundreds or thousands of years to avoid contamination to the Partridge River, and that the CPS would need to operate for hundreds or thousands of years in conjunction with the WWTF.

DEIS 3.1.2.10 Waste Rock and Overburden Management

In the "Waste Rock Cover and Liner Systems" section, Fond du Lac notes that this section should describe expected leakage rates as well as the long-term effectiveness of both the liner and cover systems. Given that the applicant has not proposed any long-term maintenance of these systems, these parameters should be described in this section and taken into account in section of the EIS that predict long term surface and ground water quality.

DEIS 3.1.3 Proposed Transport of Ore

Tribal cooperating agencies disagree that the amount of ore that could escape from rail cars would be "small." Taconite pellets currently litter most of the railroad right of way between the plant site and the proposed mine site, confirming that ore can and does spill from the gaps along the side door. Second, fugitive dust escaping through these gaps is also a concern. These very small particles have the potential to cause contamination of soils and wetlands that are located along the rail route, as evidenced by ongoing contamination issues at the Flambeau Mine in Wisconsin.

Tribal cooperators are unsure how ore debris can be visually distinguished by rail track maintenance crews from other rocks and ore that litter the embankments. In addition, spillage of ore pieces into the wetlands and creeks that are located along the rail line could not be easily identified and recovered. It is reasonable to assume that some acid drainage and metal leaching would occur along the waterbodies located along the rail line.

DEIS 3.1.5.3 Management of Process Waste Products

"Hydrometallurgical Residue Cell Design and Operations": It is the position of the tribal cooperators that this section should describe expected leakage rates during operations as well as the long-term effectiveness of the liner system. Given that the applicant has not proposed any long-term maintenance of this system, these parameters should be described in this section and taken into account in sections of the EIS that predict long- term surface and ground water quality.

"Hydrometallurgical Residue Cell Closure": It is the position of the tribal cooperators that this section should describe expected leakage rates during operations as well as the long-term effectiveness of the cover system. Given that the applicant has not proposed any long-term maintenance of this system, these parameters should be described in this section and taken into account in sections of the EIS that predict long-term surface and ground water quality.

DEIS 3.1.7 Project Closure

It is the position of the tribal cooperating agencies that the existing Closure Plan is insufficient to allow an adequate assessment of post-closure impacts. The Proposed Action has changed significantly since the development of the Closure Plan, and additional detail is needed to appropriately inform post closure impacts, since those impacts depend on the specific plans and methods used to close the mine. For example, the conclusions of the West Pit Lake Uncertainty Analysis indicate that "some of the waste rock stockpiles have the potential to leach solutes to groundwater for long periods (i.e., at least 2000 years)." Water quality of the leachate would "exceed USEPA primary MCL's and MDH Health Risk Limits." In order to adequately assess the environmental impacts of the Proposed Action, additional detail on the specific environmental impacts of this leachate and information about the remediation activities that would be needed to avoid damage to surrounding waters should be included in the Closure Plan.

DEIS 3.1.7.2 Reclamation of the Mine Site

West Pit Filling: It is the position of the tribal cooperating agencies that this section should acknowledge that the pit lake will remain at the site in perpetuity and will exceed water quality standards, and should clearly discuss its status as a "water of the state."

Mine Pit - East/Central Pit Category 4 Foot Wall Cover: It is the position of the tribal cooperating agencies that this section should describe the long-term effectiveness of the geosynthetic membrane that is proposed to cover the Virginia formation rock wall. Given that the applicant has not proposed any long-term maintenance of this system, expected long-term leaching rates should be described in this section and taken into account in sections of the EIS that predict long term surface and ground water quality.

Stock Piles – Waste Rock Stockpile Design and Cover: It is the position of the tribal cooperating agencies that in order to adequately assess the potentially significant environmental impacts of a

stockpile failure, a slope stability analysis must be performed and included in the DEIS. For more information, see section 4.13 of this document.

DEIS 3.1.7.3, Reclamation of the Plant Site

Flotation Tailings Basin: It is the position of the tribal cooperating agencies that in order to adequately assess post closure impacts, this section should estimate the length of time that seepage collection would be required at the tailings basin.

Hydrometallurgical Residue Facility Reclamation: (Drainage) It is the position of the tribal cooperating agencies that these pumping and water treatment activities would have to be conducted in perpetuity, and that the cover and liner would require perpetual maintenance.

DEIS 3.1.8, Post Closure Activities

It is the position of the tribal cooperating agencies that:

- The applicant has not demonstrated the effectiveness of the secondary wetland treatment system.
- The characterization of post closure activities as "occurring for many years" significantly underestimates the potential long term impacts of the project and the potential need for post closure activities to continue for hundreds or thousands of years.
- Other continued maintenance activities would also have to be conducted in perpetuity (repair of stockpile and tailings dike slope erosion, wetland and outflow structure upkeep, woody species and tree removal on stockpiles and hydrometallurgical cells with membranes, tailings pond maintenance, and seepage collection from the Tailings Basin.
- If this project would require perpetual maintenance, it cannot be deemed to be "reclaimed" and would violate the stated goal of Minnesota's reclamation statute.

DEIS 3.2.1 No Action Alternative

Tribal cooperating agencies disagree with the assumption that the proposed project would only result in social and economic benefits. The environmental impacts of the project on the 100 Mile Swamp, an undisturbed and very high quality wetland complex, would constitute a social impact. Furthermore, economic development that is not centered on heavy industry (tourism for example) would be adversely impacted by the project. At the end of the project life, there would also be negative economic impacts as the surrounding communities deal with the loss of primary employment and economic revenue streams that were dependent on the Project.

The DEIS differs from previous drafts that we reviewed and provided comments to the lead agencies. This version states that "At the brownfield Plant Site, Cliffs Erie LLC would be required to complete closure and reclamation activities required under an existing MnDNR- and MPCA-approved Closure Program." Yet, on page 3-19 of the DEIS, it is stated that PolyMet "owns or leases 15,100 acres of which approximately on-third is predicted to have ground-level disturbance due to Project operations. Most of that area that would be disturbed has already been impacted by LTVSMC operations". The July draft EIS included discussion of PolyMet as a responsible party for closure and reclamation activities under the VIC (Voluntary Investigation and Cleanup) program. It appears that any reference to PolyMet's liabilities for the acres they have acquired has disappeared from the DEIS. Under NEPA, hazardous waste sites are "unequivocably relevant to future use of a site", and in fact should be driving the decision-making process.

DEIS 3.2.3 Tailings Basin Alternative

It is the position of the tribal cooperators that water treatment of the discharge would be required to comply with the wild rice water quality standard. The Partridge River contains several wild rice beds immediately downstream of the proposed discharge point.

In the discussion of demonstrating a Permeable Reactive Barrier (PRB) north of the tailings basin, the DEIS notes that it may require periodic recharging. The tribal cooperating agencies' position is that if this PRB is a proposed mitigation for an identified significant environmental impact, then the DEIS should include explicit estimates of how often "periodic recharging" would need to occur.

DEIS 3.2.3.1 Tailings Basin Alternative Development Process

Tribal cooperating agencies note that although they participated in the identification of potential mitigation measures for the tailings basin, they did not participate in the development of the tailings basin mitigation design. In addition, it is the position of the tribal cooperators that an untreated discharge of contaminated tailings basin water to the Partridge River in order to dilute and dispose of tailings basin water would have environmental impacts that must be avoided in order to adequately protect the environment.

DEIS 3.2.4 Alternatives Considered But Eliminated

It is the position of the tribal cooperating agencies that this alternative was eliminated prematurely and without sufficient consideration. We note that analysis of unquantified environmental impacts, values, and amenities have not been evaluated as required by CEQ regulations. A study of this particular deposit was performed by U.S. Steel that recommended underground mining. By examining cross-sections showing the distribution of ore by depth, 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.

Under §404 of the Clean Water Act, the USACE is required to identify the "Least Environmentally Damaging Practical Action". Economics can play a role in determining the feasibility of an alternative, but it cannot be the sole source of making that determination. The economic analysis presented in the DEIS is flawed, because it does not take into account the money and resources saved by doing underground mining (reduced mitigation costs, etc.)

40 C.F.R. 23.10 (a)(2) "**An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.**

The DEIS includes information comparing the initial capital cost of underground mining as compared to open-pit mining, but does not consider any other pertinent costs, such as wetland mitigation, wastewater treatment, pollution prevention and remediation, mine closure or reclamation or costs to purchase and exchange public forest lands. It is not possible to determine, based upon information presented in the DEIS, whether any of the costs associated with greater environmental risks of open-pit mining are included in the "unit costs" per ton from which the DEIS concludes that underground mining is infeasible.

While the DEIS discusses the decrease in recoverable ore tonnage resulting from preserving pillars of ore left in place for geotechnical stability, it does not discuss the potential that open-pit mining methods to the depths specified in the DEIS will leave substantial ore reserves at depths *inaccessible* by open-pit mining.

Although a consultants' memorandum is cited, the DEIS provides no basis to determine whether an independent review of feasibility of underground mining was performed, and includes no data pertaining to metals commodity pricing, costs of ongoing operations and reclamation, or profitability over time as a basis for determining whether underground mining is infeasible or simply less profitable than the proposed open-pit extraction. The DEIS does not diminish our concern that greater feasibility

of open-pit mining may largely be attributed to the company's gross underestimation of future costs of long term water quality treatment, mine closure and reclamation.

DEIS 4.1 Water Resources

It is the tribal cooperating agencies position that there are several fatal flaws in the water resources section, listed below. Hydrologic characterization and impact prediction at the mine site and the tailings area are not based on strong data.

1. Water Quantity and Flow

Baseline. 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 the region (GLIFWC letter to Jon Ahlness and Stuart Arkley, February 6, 2009) 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 distant from the proposed project does not provide sufficient information to allow a full assessment of the hydrologic and environmental impacts of the project on the Partridge River. 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 a full or complete characterization of the watertable or the potentiometric surface in the bedrock or the surficial aquifer. The current bedrock groundwater model calibration to shallow wetland piezometers cannot be justified. The lack of groundwater level data at the tailings area except in the immediate area of the tailings piles prevents complete characterization of water tables, potentiometric surfaces, and groundwater flow direction. The dramatic scarcity of hydrologic data for the PolyMet project, both at the mine site and at the site of the tailings basins has been repeatedly recognized by hydrologists at technical meetings. Limited data collection to fill in the data gaps has recently been conducted and in general not incorporated into hydrologic analysis of the mine or plant site.

Analysis. Hydrologic characterization using MODFLOW models was done for the immediate area of the mine pit and the tailings pile only. There are no groundwater models that were designed to characterize the watertables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict impacts to the water tables or surface waters. The MODFLOW groundwater model at the tailings area is restricted to the tailings pile and cannot be used to characterize groundwater flow direction, the watertables, the potentiometric surface in the aquifers, fluxes to rivers and streams or to predict mounding impacts to the water tables or surface waters. Data driven models need to be developed and these impacts need to be predicted and evaluated.

The view that mine pit dewatering impacts will be very limited or non-existent (Adams, John and Michael Liljegren. 2009 "Additional PolyMet peatland data/information." email communication to Stuart Arkley, February 1, 2009) is based on the assumption that there is little or no connection between the bedrock and surficial aquifers (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009). However, the scant data that does exist characterizing mine site hydrology 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 watertable 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 cannot be determined at this time." Furthermore, tritium data also presented in RS10 suggests that deep water is of relatively recent origin.

While professional opinion can be very useful in predicting mine impacts, it must be tempered with site specific knowledge based on quantitative data. Models, using assumptions based on professional judgment, that adequately characterize the hydrology of both the mine site and the tailings site must be developed so that hydrologic data can be integrated into the best characterization of the area's hydrology possible. Such models depend on the reasonable use of professional judgment but require a significant amount of real, site-specific data. The expertise of both local hydrologists and hydrologists with experience in other settings is needed to develop a plan for hydrologic data collection and for formulating the appropriate models to integrate the hydrologic data.

2. Water Quality.

The old LTVSMC taconite mining and processing site encompasses approximately 60,000 acres. The PolyMet project would use some of the degraded areas of the old LTV site to develop the mine plant site and re-use the tailings basin. Groundwater contamination from the previous mining activities is still an issue near the LTV tailings basin more than twenty years after operations ceased. Because of the limited distribution of monitoring wells, the extent of the contaminant plume is not known. However, recent well data show that the plume extends in some areas at least as far as private wells along the Embarrass River. In the wells that do exist near the tailings basin, pollutants including iron, sulfate, manganese, aluminum, and fluoride exceeded drinking water standards. Recent wells near the northern property line show substantial contamination of the groundwater aquifer (Barr 2009, Memorandum: Results of Tailings Basin Hydrogeological Investigation. June 2, 2009). 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 incorporated into the estimates. Private domestic wells lie between the tailings basin and the Embarrass River where tailings basin discharge water is expected to ultimately discharge. Some of the sampled private wells have contaminants at levels several times the drinking water standard (Barr 2009, Memorandum: Results of residential well sampling north of LTVSMC tailings basin. January 27, 2009) Samples from these wells show exceedances of manganese and close to exceedances of the arsenic standard. Once a groundwater flow model is developed that would show the direction and rate of groundwater flow, that pattern of flow should be used to plan a groundwater sampling scheme that would map the extent of the existing contaminant plume. This data and analysis should then feed into estimates of how the proposed project would interact with existing contamination. The combination of existing conditions with impacts due to the proposed project would show what groundwater quality can be expected during and post project.

Surface water quality at the project has been poorly characterized or left uncharacterized. The limited data that exist 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, at nearby Area Pit 5, and mercury exceeds surface water criteria in the Partridge River downstream of Colby Lake. However, no water samples have been collected from lakes near the tailings basin (Heikkilla, Mud, Kaunonen, or Hay Lakes) to determine if the pollutants found in the surface and groundwater at the existing tailings pile have caused contamination of those waterbodies. Contaminant transport modeling suggests that the PolyMet project will cause manganese, aluminum and sulfate to exceed standards. Proposals to collect data and monitor groundwater after the issuance of the DEIS would not allow for identification of potentially significant groundwater and surface water impacts, or provide this analysis and information to the public during the primary public comment period.

DEIS 4.1.1.2 Groundwater Resources/Geology and Hydrogeology/Mine Site

Tribal cooperating agencies strongly disagree with this conclusion (that the peat "bogs are isolated from the underlying groundwater, receiving virtually all of their water and nutrient input from precipitation"). It is the tribal cooperating agencies' position that there is no data to substantiate this assumption. This assumption is based on incidental observation and the analysis of aerial photography, which is by its nature imprecise (Adams, John and Michael Liljegren. 2009 "Additional PolyMet peatland data / information." email communication to Stuart Arkley. February 1, 2009). Tribal cooperating agencies note that the wetland delineation indicates the presence of several hundred acres of cedar swamps and tamarack wetlands. These vegetation types, by definition, rely on an influx of groundwater to support them. Finally, tribal cooperating agencies note that the wetland delineation does not encompass all wetlands that are likely to be affected by the project. Because no initial determination of the projects area of influence (AOI) on wetlands was made, the site field surveys of wetland and other vegetation was limited to little more than the area within the project fence. The existing characterization of wetland and other vegetation does not cover even one-half the area that might reasonably be expected to be impacted by secondary impacts of the mine due to disruption of the existing hydrology. Around the tailings basin virtually no wetland delineation has taken place although wetland impacts from inundation are likely to occur.

It is the tribal cooperating agencies' position that any conclusions based on this aquifer test data have a great deal of uncertainty given the variability in the results (Table 4.1-3).

Plant Site

Tribal cooperators note that hydrologic data indicates that this aquifer is saturated by tailings discharge water. It is the tribal cooperating agencies' position that therefore, it is not possible for recharge from precipitation to occur.

Existing Groundwater Quality Downgradient from the LTVSMC Tailing Basin

It is the Tribal cooperating agencies' position that the existing LTVSMC tailings are contributing substantially to the level of constituents observed in the groundwater. Unfortunately the modeling of PolyMet contaminants at the basins does not take these or other existing constituents adequately into account (RS74 and TB-14). The result of this oversight is that the contaminant modeling done by PolyMet comes to the illogical conclusion that seepage water from PolyMet, after passing through both LTVSMC and PolyMet tailings, will be cleaner than the existing seepage that is passing only through the LTVSMC tailings. According to PolyMet's consultant "the predicted concentration of seepage from the PolyMet basin is lower than the actual measured concentration of existing seepage".(TB-14, page 9). It is unclear how the addition of mine waste to the basins would cause seepage water quality to improve.

Legacy Groundwater Quality Issues at the Plant Site and Tailings Basin

Tribal cooperating agencies note that additional legacy issues exist. Over the many decades of operations at the tailings basin, thousands of gallons per minute of tailings basin water have been discharged through the bottom of the basin, into groundwater. This water has then moved downgradient and into surrounding wetlands and as stated in the water quality section below, ultimately reaches the Embarrass River. It is the tribal cooperating agencies' position that despite very limited recent groundwater sampling that shows groundwater contamination at the property line and at private wells north of the basin, the full extent of the contaminant plume and the existing contamination to groundwater has not been defined.

The Band questions the conclusion on page 4.1-16, that "At Closure, all historic and any potential operational AOC's would be investigated and remediated as necessary." It is not acceptable to defer remediation of known contaminated sites from past mining operations until closure of the proposed project operations at some unknown future date. PolyMet's acquisition of portions of the Plant Site, as we point out in earlier comments, should also confer remedial liabilities with clear timelines for remediating those lands. The DEIS treatment of this critical issue – responsibilities for legacy

contamination, and inclusion of existing contamination in the modeling and predictions of future conditions – is grossly inadequate. It should also be made clear to the public, and be a consideration for any future permitting, that Cliff's permitted facility (SW625) for land treatment of petroleum contaminated soils within Cell 2W of the Tailings Basin is by definition a hazardous landfill.

DEIS 4.1.1.3 Surface Water Resources/Hydrology/Partridge River

It is the tribal cooperating agencies' position that these patterns (streamflow records suggesting significantly reduced summer flow) are not representative of the Partridge River near the mine site. The gauging station is seventeen miles from the mine site and the data from that station are twenty years old and therefore, unlikely to be representative of current conditions at the mine site.

Surface Water Quality Evaluation Criteria

It is the tribal cooperating agencies' position that, as stated in Minn. 7050, the 10 mg/l of sulfate standard for wild rice applies for waterbodies where wild rice is found. The PCA has used this approach in past permitting activities (MINNTAC Schedule of Compliance, 2008). The 10 mg/l sulfate standard also applies to the Partridge River below Colby Lake where several wild rice beds are located. Tribal cooperating agencies note that the Army Corps has not completed consultation on cultural issues with the potentially affected tribes. This delay means that the extent of existing wild rice beds has not been fully characterized.

DEIS 4.1-41

The discussion of LTVSMC Tailings Basin seepage and exceedances of the mercury criterion is puzzling. In reviewing other permit applications and environmental review technical documents, Fond du Lac has heard repeatedly from the state agencies about taconite tailings' affinity for sequestering mercury. Evidently seepage from the Tailings Basin (which currently holds only taconite tailings) contains mercury at concentrations that frequently exceed the applicable GLI standard (Table 4.1-30), but the discussion on page 4.1-48 includes completely contradictory information ("Mercury monitoring has occurred at the LTVSMC Tailings Basin and along the Embarrass River, which generally found mercury concentrations consistent with baseline levels….all samples were well below average concentrations in precipitation…").

Not only is this problematic for permitting this project, it also sheds doubt on other existing taconite operations and their lack of permit requirements to treat for mercury removal. Most of this region (the St. Louis River watershed) is not covered by the statewide mercury TMDL, and additional actions, both regulatory and watershed-based, must be employed to remove the mercury fish tissue impairment. It is irrelevant to compare tailings basin seepage mercury concentrations to ambient precipitation mercury concentrations; precipitation is not regulated through a NPDES permit.

DEIS 4.1.2.1, Hydrologic Alteration of Streams, Lakes and Aquifers Impact Criteria, lists as series of parameters recommended for a "range of variability approach", and states "The deviation from existing conditions, based on modeling, in the mean values of the hydrologic parameters help determine the degree of impact to stream ecology." It is the tribal cooperating agencies' position that there is no mechanism to accurately develop the data listed above. Field data collection is spotty or non-existent and the numbers used in this DEIS are derived from the MODFLOW groundwater model and XP-SWMM model. It is important to note that the MODFLOW model was developed to assess the rates of mine pit inflow and as such, the results it gives for areas outside the mine pit footprint are unsupported by data. The XP-SWMM is based on stream gage data that is 17 miles and 20 years distant from the proposed project. Therefore, the above listed parameters calculated for the Partridge River have little data to support them.

DEIS 4.1.3 Environmental Consequences

Tribal cooperating agencies take the position that the contaminant modeling for the project has not been adequately vetted, and consequently produces results that are illogical. For example, the contaminant modeling for the tailings basins (RS74B and TB-14) proposes that adding PolyMet

tailings to the existing LTVSMC tailings will improve the quality of seepage coming from the basins for some parameters.

The assumption (TB-14 of July 2, 2009, page 9) that PolyMet seepage water from the basins will be of better quality than the current seepage water results in an unexpected modeling result. The modeling proposes that the more PolyMet seepage that PolyMet releases from the basins, the better the water quality will be for Al, Mn and Fe in the Embarrass River (see Tables in TB-15 of June 24, 2009). It appears that the modeling at the basins does not appropriately account for leaching from the LTVSMC tailings when predicting future seepage quality.

DEIS 4.1.3.1 Proposed Action/Closure (Years 20-65) discusses process water (e.g. stockpile leachate) generation and required treatment at the WWTF, pumping to the East Pit, and flow through a passive wetland treatment system before filling the West Pit. The Band has seen no evidence presented of the long-term effectiveness of this treatment system, and in fact, a similar passive wetland treatment system employed to treat discharge from the Dunka Pit has not been effective in meeting effluent limits.

The DEIS predicts that seepage from the Hydrometallurgical Residue Cells would cease after 34 years. It is the tribal cooperating agencies' position that this 34 year timeframe is unlikely to be correct. Because all cap and liner systems leak, some pumping of water that enters the hydrometallurgical residue cells would be needed in perpetuity. This would be particularly true as the cap ages and develops additional leaks.

Post-Closure (After Year 65) states that PolyMet would continue to collect and treat leachate….until monitoring show that treatment is no longer necessary to meet water quality standards". Tribal cooperators note that stockpile leachate is predicted to not meet water quality standards for thousands of years (Table 4.1-41). Without a dry cap, Tailings Basin seepage will continue to occur; it is the tribal cooperating agencies' position that water quality and hydrologic impacts to wetlands and the Embarrass River under this proposed alternative would be perpetual.

Effects on Surrounding Groundwater Levels During Mine Operations states that "In this hydrologic setting, however, it is not practical to gather such locally variable input data for a MODFLOW model". Tribal cooperating agencies disagree with this assumption. It is the tribal cooperating agencies' position that in order to adequately predict potentially significant environmental impacts, hydrogeologic data must be collected that can be used as input to a MODFLOW model. Tribal cooperating agencies contracted with the United States Geological Survey (USGS) to review the uncertainty of the MODFLOW model and provide recommendations on how the model could be improved. The USGS report was submitted to the lead agencies in February of 2009 (USGS 2009, Letter Report reviewing PolyMet ground-water model. January 29, 2009). Tribal cooperating agencies organized meetings between USGS staff and participants in the EIS, including the applicant, to openly discuss all issues related to the USGS report, the MODFLOW model and the implications for the proposed project. The conclusions of the report and the meetings should be implemented so as to produce a useful model of project site hydrology. Tribal cooperating agencies believe that impacts to surface waters, groundwater, and wetlands for a project of this complexity demand a scientific, data driven approach rather than one based solely on professional opinion. Finally, it is the tribal cooperating agencies' position that a robust groundwater model must be developed for this project in order to adequately characterize the potential impacts of various project alternatives to natural resources.

The DEIS concludes that most surface water features, including bogs, are isolated and not affected by groundwater drawdowns (mine pit dewatering). As previously indicated, the empirical observations in the Adams 2009 email are insufficient to support the conclusions. The evidence presented in the email can be interpreted to indicate substantial impact of the Peter Mitchell Pits on adjacent lakes. However, it is the tribal cooperating agencies' position that aerial photography, without ground verification or georeference is an exceedingly imprecise method for determining water levels in lakes and wetlands

(GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009).

The DEIS also defers an analysis of hydrologic impacts until the future, relying upon monitoring to reveal impacts rather than developing strong predictive tools. It is the tribal cooperating agencies' position that the DEIS should not rely on future monitoring to detect impacts as a substitute for the development of data and analyses that would reasonably identify and predict those impacts as part of a DEIS.

Virginia Formation High Wall mitigation measures are discussed. Tribal cooperators strongly disagree with the assumptions used in the groundwater quality modeling for the mine site. It is the tribal cooperating agencies' position that relying on the effectiveness of a technology with highly variable outcomes (limestone treatment) in calculating long-term water quality is not a conservative approach. The DEIS should provide a range of water quality results including the groundwater quality under a scenario where lime treatment and covering the Virginia Formation wall is ineffective.

Effects on Upper Partridge River Morphology concludes that sediment deposition would only be temporary, and no other significant effects on river morphology would be expected. It is the tribal cooperating agencies' position that the available data do not support the conclusions presented in this section. The impacts predicted by technical reports (RS73B) to the Partridge River are primarily reduction in base flow due to mine pit dewatering and those impacts are predicted by the MODFLOW model. MODFLOW modeling in (RS22-Appen.B) forms the foundation for the predicted impacts. The MODFLOW model (RS22 Appen.B) is not calibrated to a data set representative of the area and predicts fluxes to the Partridge River based an a non-unique solution. A differently formulated and calibrated MODFLOW model could predict much higher inflow to the PolyMet pits and therefore, show greater impacts to stream baseflow.

The surface water model (SWMM) used for predicting impacts is calibrated to Partridge River flows from 1978 to 1988, seventeen miles downriver of the mine site. During the period of record, the Peter Mitchell pits were dewatered with unknown effects on the river flow data. According to technical documents (RS73A, page 21) the flow record at the Partridge River gage above Colby Lake (USGS #04015475) may have been impacted by mine discharges on the north branch. The monthly average flow recorded at this gaging station during 1978-1988 varied between a minimum of 1.3 cubic feet per second and a maximum of 454 cubic feet per second. The discharges from the Peter Mitchell Pit could account for up to 34 cubic feet per second. Since the timing, duration and location of mining discharges may be different now than during 1978-1988, the present hydrologic regime of the Partridge River may not be well represented by the period of record at USGS #04015475.

Effects on Flow in the Embarrass River discusses alterations to flows in the Embarrass River due to seepage from the Tailings Basin during operations, closure and post-closure. It is the tribal cooperating agencies' position that there will be surface water discharge to the Embarrass River. Aerial photography and state Public Waters inventory maps indicate that there is currently a direct surface water connection between the northwest corner of cell 2W and the Embarrass River. Aerial photos show that water discharging from the tailings basin follows a natural channel westward, through existing wetlands and intersects a channel that leads directly to the Embarrass River.

West Pit Overflow again discusses the passive wetland treatment system as the mitigation for water quality impacts. Tribal cooperating agencies believe the characterization in the previous paragraph is misleading. First, as previously indicated, the WWTF would need to operate for a minimum of 2000 years in order to treat leachate from the stockpiles. Second, the effectiveness of the passive wetland treatment system has not been demonstrated and it is likely that the wetland treatment system would not function as the applicant has suggested (see discussion below). Finally, the long term water quality of the pit lake is a concern. It is unlikely that this water would ever meet surface water quality standards. It is the tribal cooperating agencies' position that the DEIS should discuss the implications of leaving a polluted pit lake at this site in perpetuity.

The DEIS notes that "passive treatment is an important component of the MnDNR's regulatory goal of minimizing or avoiding the need for long term maintenance. Constructed wetlands performance, however is not sufficiently reliable to function as the primary treatment measure for assuring consistent year-round compliance with water quality standards. Based on these uncertainties, it is the tribal cooperating agencies' position that primary water treatment at the WWTF would need to continue for thousands of years. This does not meet the Minnesota goal for maintenance free closure.

The DEIS identifies a potential for water quality standards exceedances in an unnamed tributary. It is the tribal cooperating agencies' position that all waters of the state are protected by Minnesota water quality standards and using this unnamed water as a mechanism to dilute mine related contamination is not appropriate. In addition no flow information for this unnamed water is available.

The DEIS states that "Water quality in the West Pit is expected to improve as oxidation would be negligible once the pit walls were submerged." It is the tribal cooperating agencies' position that because of continued inputs from the stockpiles, the tailings basins, and the pit walls, the pit lake could exceed surface water quality standards for thousands of years. Tribal cooperating agencies note that 20 feet of pit wall will never be submerged and as such constitute a perpetual source of mine related contaminants.

Water Quality in the Lower Partridge River states that "All parameters are expected to meet surface water standards under all flow conditions for all mine years as is predicted for the Upper Partridge River and Colby Lake". It is the tribal cooperating agencies' position that contaminants from the project would contribute to exceedances of standards below Colby Lake. Wild rice beds are located on the Partridge River immediately below Colby Lake. Therefore, the State of Minnesota wild rice standard for sulfate of 10 mg/l should apply along all of the Lower Partridge River.

Embarrass River Water Quality Results It is the tribal cooperating agencies' position that because the Embarrass River already exceeds water quality standards, it would be difficult to permit the addition of additional contamination from new or expanded sources.

Mercury in Surface Waters discusses uncertainty as to whether the West Pit overflow would meet the GLI standard for mercury, and recommends additional analysis. Fond du Lac agrees; tribal cooperating agencies take the position that the analysis should be incorporated in the DEIS so that environmental impacts can be predicted and reviewed by the public. This may be one of the most significant environmental impacts of the Project, and clear analysis of the probability of non-compliance with water quality standards is undoubtedly a subject that requires full evaluation in the DEIS.

Increased Sulfate Loadings concludes that "the risk of increased sulfate loadings from the Mine Site promoting methylation of mercury in wetlands is expected to be low." Fond du Lac strongly disagrees with this conclusion; the Band believes that any increase in mercury or sulfate loadings is a significant environmental impact.

Nondegradation Standards suggests that simply monitoring for mercury from future West Pit overflows is sufficient. Tribal cooperating agencies disagree with this approach. It is the tribal cooperating agencies' position that the determination of the final water quality of the west pit should be included in the DEIS so that potential water quality impacts to Lake Superior can be characterized.

As a downstream water quality regulatory agency, Fond du Lac is specifically concerned about this project's potential for further degradation of our most important on-reservation fishery, the St. Louis River. Any additional releases of mercury, or loadings of sulfate that enhance downstream methylation of mercury and bioaccumulation in fish, is an unacceptable violation of our water quality standards authority. As we do not have delegated §303(d) CWA authority, EPA Region 5 will be calculating a mercury TMDL for the Fond du Lac reach of the St. Louis River, which is impaired for mercury in fish (Fond du Lac has concurred with the state of Minnesota's impaired waters lists on our shared waters for the last three iterations).

DEIS 4.1.3.2 No Action Alternative/Effects on Groundwater states that "The monitoring data that are available do not suggest regular exceedances of groundwater evaluation criteria at downgradient evaluation points (e.g., property boundary). It is the tribal cooperating agencies' position that data collected in 2009 show that private wells north of the basin have been impacted by historic tailings basin effluent. Although two additional groundwater samples north of the basins collected in 2009 indicate that exceedances exist at the property boundary, the full extent of the contaminant plume has not been defined.

This section also predicts that over time, concentrations of groundwater contaminants from the LTVSMC tailings would diminish, "but the relatively high concentrations of aluminum, iron and manganese currently found downgradient of the Tailings Basin may reflect natural conditions in this area." It is the tribal cooperating agencies' position that the available data does not support this claim. In addition, a basic assumption (i.e. plug flow [TB-14, July 2, 2009, page 9]) of the contaminant transport modeling at the basin (RS74) assumes that all constituents in the groundwater are the result of past and current seepage from the basins. This is yet another example of troubling inconsistencies in model assumptions and conclusions drawn in the DEIS.

Fond du Lac disagrees with several of the key conclusions in Table 4.1-69, "Water Resource Impact Summary of the No Action Alternative". The tribal cooperators take the position that the basins will drain until seepage equals precipitation at which point the hydrology will have returned to approximately pre-basin conditions. As seepage declines, as has been already seen over the past 8 years, surrounding wetlands will begin to recover from the previous hydrologic impacts. The tribal cooperators take the position that the assumption of plug flow in the contaminant modeling suggests that as precipitation becomes the dominant source of new water to the aquifer, groundwater quality may improve dramatically.

DEIS 4.1.3.3 Mine Site Alternative again suggests that monitoring is sufficient to ensure the effectiveness of the lime treatment of waste rock stockpile leachate. Tribal cooperating agencies disagree with this approach, and take the position that the effectiveness of lime treatment is very important in the final water quality of mine effluent. Therefore, this analysis should be conducted prior to the construction of the facility, and the results included in the DEIS.

Fond du Lac also disagrees with the proposal to apply a vegetated soil layer over the waste rock stockpiles. The tribal cooperators take the position that the effectiveness of the evapotranspiration caps has not been demonstrated. Tribal cooperating agencies have requested that this analysis be done (GLIFWC Comment letter of June 30, 2008 and GLIFWC comment letter of February 6, 2009).

Effects on Surface Water Quality within the Partridge River Watershed concludes that "both the Proposed Action and the Mine Site Alternative would comply with all surface water quality standards along the Partridge River." Tribal cooperating agencies note that wild rice grows on the lower Partridge River. Therefore, it is the tribal cooperating agencies' position that the wild rice sulfate standard applies and the mine site alternative effluent would exceed that standard (Table 4.1-74).

DEIS 4.1.3.4 Tailings Basin Alternative concludes that there would be no effect on flows or water quality in the Upper Partridge River. Fond du Lac strongly disagrees with this conclusion, and believes that discharging untreated tailings basin water to the Partridge River will have significant adverse water quality impacts.

DEIS 4.1.3.5 Mitigation and Monitoring Measures

It is the tribal cooperating agencies' position that treatment of the tailings basin effluent that is captured by the vertical wells must be an integral part of the tailings basin alternative. This treatment could occur in the WWTF already proposed for this project or in a second facility closer to the discharge point. However, treatment of the tailings basin effluent prior to discharge to the Partridge River is not included in the potential mitigation measures listed below. Tribal cooperating agencies strongly oppose an untreated discharge of tailings basin water to the Partridge River. In addition, there are other existing facilities and mine proposals (Laskin Energy, Mesabi Nugget Phase II) that

discharge, or are proposing to discharge water at this same location. Finally, water quality of the discharge would exceed the wild rice sulfate standard that applies to the lower Partridge River.

DEIS 4.1.4 Cumulative Effects on Water Resources

Tribal cooperating agencies note that the USACE has not completed its National Historic Preservation Act §106 consultation with the potentially affected tribes. In addition, a survey for wild rice presence in the waters potentially affected by the proposed mine has only recently begun. Tribal staff have already found extensive stands in the Lower Partridge River, and non-tribal harvesters have reported to the state on the presence of wild rice in the Partridge River and in the St. Louis River downstream of its confluence with the Partridge. Tribal cooperating agencies believe that the consultation process and wild rice surveys should be completed and the results included in the DEIS. This data can then be used to evaluate the cumulative impact analysis to this important tribal resource.

DEIS 4.2 Wetlands

As previously stated, it is Fond du Lac's position that the public notice for the §404 permit should be re-issued and that the MPCA should be afforded the opportunity to analyze and make a certification determination under §401 of the Clean Water Act. Significant changes in the design of the Proposed Action have occurred, and other important information needed to determine the nature and magnitude of the Project's impacts has been developed since the public notice was provided by the USACE in May of 2005. Adverse water quality impacts and exceedances of groundwater quality standards are predicted as a result of the proposed Project. Additionally, the Project would lead to significant degradation of aquatic resources, including water quality standards violations in both the Partridge and Embarrass Rivers (see Table 4.1-68 for a summary of water quality impacts). MPCA should be afforded the opportunity to certify or deny certification to the Proposed Action.

DEIS 4.2.1.1 Wetland Delineation

It is Fond du Lac's position that it is not possible to differentiate between rich forested peatlands, poor fens, and bogs using canopy cover alone. Identification of the low shrub, forb and graminoid layers are required.

It is the position of the tribal cooperating agencies that the current wetland delineation does not encompass all wetlands that may be affected by the Project. Because no initial determination of the Project's area of influence (AOI) on wetlands was made, the site field surveys of wetland and other vegetation were limited to little more than the area within the Project fence. The existing characterization of wetland and other vegetation does not cover even one-half the area that might reasonably be expected to be impacted by disruption of the existing hydrology. Around the tailings basin virtually no wetland delineation has taken place although wetland impacts from inundation are likely to occur. The Army Corps is developing a workplan to assess impacts to these additional wetlands but this workplan has not been finalized or implemented. Given the importance of this work in assessing potentially significant impacts to wetlands, it is the position of the tribal cooperating agencies that this work should be included in the DEIS to allow for a full public review.

Hydrology and Wetland Vegetation

Tribal cooperating agencies strongly object to the characterization of the hydrology at the mine site presented in the first paragraph. It is the Tribal cooperating agencies' position that the methodology used in the Adams 2009 email is not adequate for characterization of pit dewatering impacts to wetlands (GLIFWC 2009, Memorandum to Jon Ahlness and Stuart Arkley: Photographic evidence for pit impacts to wetland hydrology. April 24, 2009). Problems with the methodology used in the email include:

1. Lack of recognition that aerial photos are a very imprecise measure of surface water level.
2. Photographs presented in the paper show that the Peter Mitchell pits are mostly flooded. Therefore there is little or no stress on surrounding wetlands at the time.

3. Lack of consideration of the topographic relationship of the landscape features including the depth of the Peter Mitchell Pits (P-M Pits approximately 80 feet deep, PolyMet pits approximately 800 feet deep).
4. Lack of recognition that some changes in groundwater hydrology would not be evidenced by the large changes in surface water level that could be detected by aerial photography.
5. Dependence on wetland soil conductivity values that are extremely low and for which supporting source citation in the professional literature cannot be found.

The PDEIS appears to rely on “best professional judgment” for estimating impacts due to hydrologic disruption without incorporating specific knowledge of the ecological requirements of culturally significant wetland vegetation such as cedar, and without requiring sufficient background data regarding groundwater. A “best professional judgment” approach is being used as a replacement for data-based scientific analysis of potential impacts. Quantitative methods for estimating the impacts of drawdown and inundation on wetland hydrology exist, have been used at other mine sites, and can be used in addition to professional judgment.

Tribal cooperating agencies take the position that subsurface flow through upland soils likely provides the micro nutrients necessary for rich forested peatlands, cedar swamps and poor fens found in the mine site area. Many of the wetlands that have been identified during delineation as "perched bogs" are actually cedar swamps, northern wet ash swamps, forested rich peatlands, northern alder swamps, and poor fens, all of which require groundwater inputs. Indirect impacts to communities that require groundwater inflow have not been determined, but would likely be significantly different than expected impacts from the Project to perched bogs.

Mine Site

Tribal cooperating agencies take the position that northern alder swamps (FPn73) "occur in settings that receive mineral rich surface or subsurface flow, which is maintains surface water with nearly neutral pH." (MnDNR Field Guide to the Native Plant Communities of Minnesota, the Laurentian Mixed Forest Province, pg 205.)

Tribal cooperating agencies take the position that "Surface water in Northern Wet Meadow/Carrs is derived from runoff, stream flow, and groundwater sources, it has a circumneutral pH (6.0 - 8.0) and high mineral and nutrient content." (MnDNR Field Guide to the Native Plant Communities of Minnesota, the Laurentian Mixed Forest Province, pg 292.)

Tribal cooperating agencies take the position that Northern mixed cattail marshes "develop in areas occupied by fens or wet meadows following fires-usually during severe droughts-that remove accumulated peat from the fen or meadow". (MnDNR Field Guide to the Native Plant Communities of Minnesota, the Laurentian Mixed Forest Province, pg 298.)

Tribal cooperating agencies take the position that this canopy cover depicts a northern rich spruce swamp (FPn62) which requires groundwater. Balsam fir and white cedar are both rich forest indicator species.

Tribal cooperating agencies take the position that bunchberry and blue bead lily are both indicator species in the forb layer of mineral rich peatlands (MnDNR Field Guide to the Native Plant Communities of Minnesota, the Laurentian Mixed Forest Province, pg 317).

Tribal cooperating agencies take the position that a stable water table in NE MN is typically the result of groundwater inputs in periods of low precipitation.

Tribal cooperating agencies take the position that the canopy cover and herbaceous layer noted above indicate significant groundwater inputs to the wetland communities.

Fond du Lac does not agree with the DEIS statement that beavers cause artificial impoundments; the

hydrological modifications that beavers create is natural.

Plant Site

Tribal cooperating agencies take the position that the approximately 5,700 (RS13B) gallons per minute of tailings water released by past mine waste disposal activity has likely had a far greater influence on the hydrology of the area than beaver dams or transportation features.

DEIS 4.2.2 Impact Criteria states that "The most likely types of indirect impact on the functions and values of remaining wetlands at the Mine Site include fragmentation from haul road construction and indirect hydrological impacts that may result in a conversion of one wetland type to another or the conversion of a wetland to an upland." This is NOT an indirect impact but a direct impact.

DEIS 4.2.3.1 Environmental Consequences/Proposed Action/Mine Site Direct Wetland Impacts states "The most common wetland types are coniferous bog (510 acres) and open bog communities (76 acres). These two communities comprise 73% of the direct wetland impacts at the Mine Site (Table 4.2-4)." Tribal cooperating agencies disagree. The wetland delineation study (RS14, Appendix A) identified over 390 acres of wetland community with a significant white cedar component. For example, wetland ID-48 (Table 4.2-3) was identified in delineation reports as dominated by white cedar. White cedar is an indicator of mineral rich waters. Renaming wetland ID-48 as a coniferous bog, as was done in Table 4.2-3, does not make that community a bog. Cedar dominated wetlands are cedar swamps, not bogs. The significance of this is that, bogs tend to be precipitation fed while swamps tend to be groundwater fed. Data from the wetland delineations (RS14) suggest that bogs are *not* the most prevalent wetland type. In fact, it appears that wetlands that require groundwater inputs: forested rich peatlands and poor fens are the most prevalent.

Table 4.2-3 is not useful as it is presented. Whether deliberately or not, the total number of acres for each wetland is not provided on the table. This makes it impossible to determine to what real extent the wetland will be impacted. As an example, a given wetland of 100 acres may be able to survive an impact of 40 acres, but not an impact of 80 acres. If only the acres of impact are provided and not also the total wetland acres, then this determination is impossible.

Potential Indirect Wetland Impacts

Tribal cooperators note that the work needed to properly assess indirect wetland impacts at the mine site and at the plant site has not been completed. It is the position of the tribal cooperating agencies that the wetlands work group should finalize the indirect wetland impact workplan and that the results of that investigation be included in the DEIS to allow a full public review.

Mine Site Indirect Wetland Impacts

Tribal cooperating agencies note that there is no reliable groundwater model for groundwater drawdown impacts of the proposed project. The estimates of groundwater drawdown are currently based on anecdotal observations and analysis of historical aerial photography. Therefore, there is no quantitative assessment of mine related drawdown of the regional water table. This serious data gap has prevented an adequate indirect impact assessment for wetlands from being conducted.

Tribal cooperating agencies strongly disagree with the conclusion that "no indirect wetland impacts are anticipated at the Mine Site resulting from groundwater quality." As previously indicated, there is no data based evidence or analysis on which to conclude that wetlands would not be affected by mine related water quality changes. Existing exceedances do not predict plant community changes that may occur due to additional disturbance. The Project's discharges to groundwater and surface waters will have to comply with Minnesota water quality standards.

Tribal cooperating agencies take the position that indirect impact acreages would be greater than 318.6 if data and quantitative analysis of mine induced drawdown had been conducted.

As previously discussed, tribal cooperating agencies have reviewed the information in the above referenced email (Adams 2009) and it is the Tribal cooperating agencies' position that the methods

used are insufficient for prediction of indirect impacts to wetlands. For example, the projects referenced are located in upland areas of the range and are not proper reference sites for potential impacts at the PolyMet mine site. The Peter Mitchell Mine, although in close proximity, is very shallow compared to the proposed mine pits (Peter Mitchell pit is approximately 80 feet deep, PolyMet pit is approximately 800 feet deep).

Tribal cooperating agencies take the position that the conclusion ("additional indirect impacts to wetlands associated with drawdown from pit dewatering is anticipated to be minimal, with little to no dewatering of wetlands expected outside the Mine Site") is faulty. Based on the vegetation data collected from wetland delineations it appears that groundwater supported wetlands are common in the Project area. Indirect impacts to communities that require groundwater inflow have not been determined, but would likely be significantly different than the expected impacts from the Project to perched bogs.

The discussion on 4.2-19 makes too many assumptions regarding the potential of nickel and antimony in groundwater. It is not clear why the presence of nickel and antimony in the waste rock would only affect ground water and not surface water runoff. It is also assumed here that all affected wetlands are not ground water influenced. This is not necessarily the case if *Thuja occidentalis* (Northern White Cedar) is present in any of these wetlands. This tree species is circum-neutral to slightly alkaline in regards to its hydrologic requirements, and therefore would not necessarily survive in an acidic precipitation-influenced bog.

The DEIS concludes this discussion with the statement "Compensatory wetland mitigation would be required for any indirect wetland impacts determined through (this) monitoring". Tribal cooperating agencies disagree with this approach. Monitoring would only identify impacts after they have become apparent in the wetland. Tribal cooperating agencies take the position that the DEIS should provide a detailed description of reasonably foreseeable impacts to wetlands so that decision makers and the public can have a complete picture of the environmental consequences of this project.

Transportation Corridor Indirect Wetland Impacts

The DEIS concludes that any indirect impacts along the transportation corridor from spillage would be minor. Tribal cooperating agencies disagree with this conclusion. As indicated in section 3.1.3 it is likely that ore dust would spill from rail cars and be deposited in wetlands adjacent to the rail line. No analysis of any type has been conducted to determine if such impacts would be significant.

Plant Site and Tailings Basin Indirect Wetland Impacts

PolyMet "proposes a surface seepage collection system that would capture essentially all of the surface seepage and return it to the Tailings Basin until the seeps dry out". Tribal cooperating agencies take the position, based on the existing available contaminant modeling, that seepage capture would be needed for hundreds or thousands of years to avoid water quality and quantity impacts to wetlands.

Tribal cooperating agencies take the position that the method referenced in the DEIS (from Barr 2008, *Lined Tailings Basin Alternative – EIS Data* Request) is inadequate to assess indirect wetland impacts. This method ignores the fact that there is an area of uplands north of cell 2W which has constrained the movement and direction of tailings basin seepage. Therefore, using the northern extent of wetland impacts of 2W for 2E, north of which there are no uplands, is unjustified. Ignoring the presence of the upland area north of cell 2W creates an underestimation in the extent of wetland impacts due to seepage.

Tribal cooperating agencies have suggested a more conventional method for indirect wetland impact estimation to the lead agencies (Methods for evaluating indirect hydrologic impacts to wetlands, March 26, 2009). This method could be applied at both the mine site and the plant site. The method proposed by tribal cooperating agencies was developed by a consultant for the Army Corps for use in another sulfide mine project EIS (Crandon Mine Project Environmental Impact Statement: Wetlands Technical Memorandum, 2003). In addition to having been developed by the Army Corps, this method

has been presented by tribal technical staff at professional conferences (Society of Wetland Scientists Conference, 2009 and 55th Annual Meeting of the Institute of Lake Superior Geology, 2009). Tribal cooperating agencies do not agree that the unconventional method described in the DEIS can produce defensible results for indirect hydrologic impacts to wetlands. A more robust method should be used and the analysis presented in the DEIS so the public can review a science-based assessment of potential impacts.

Tribal cooperating agencies note that there is a serious inconsistency between this section and information presented in Section 4.1.3.1 of the DEIS. Section 4.1.3.1 states:

> "Therefore, future impacts to the hydrology of the aquifer and wetlands downgradient of the Tailings Basin were estimated by comparing predicted seepage rates for the Proposed Action (Hinck 2009) with the estimated groundwater flux capacity of the aquifer (155 gpm)(Technical Memorandum: TB-2 and TB-14: Tailings Basin Seepage Groundwater Quality Impacts Modeling Methodology). The current seepage rate toward the Embarrass River from the Tailings Basin (Cells 1E/2E and 2W) is estimated at 1,795 gpm, which continues to result in the upwelling of seepage water into the wetlands as the seepage rate exceeds the aquifer flux capacity by over 1,600 gpm. Under the Proposed Action, the unrecovered seepage rate is predicted to increase to a maximum of approximately 3,800 gpm in Year 20, over 2,900 gpm of which would be attributable to PolyMet (Hinck 2009). Therefore, under the Proposed Action, a significant increase (>100%) in groundwater upwelling relative to existing conditions would be expected. Some of this seepage water would drain to existing streams, but because of the generally flat topography and extensive wetlands, much of this water would be expected to form ponds and inundate wetlands."

Tribal cooperating agencies take the position that the latest relevant information developed for the water resources section has not been incorporated into the wetland impact section. The presentation of two different methods is confusing and does not provide an adequate assessment of wetland impacts. A thorough hydrologic impact analysis that incorporates actual seepage rates from the tailings facility should be conducted. In addition, these seepage rates should be used, in conjunction with tailings basin water chemistry information, to assess the effects of this untreated discharge to the biota and functional values of the Embarrass River watershed wetlands.

The DEIS states that the results of the transient flow modeling indicate that only aluminum would exceed the criteria. Fond du Lac notes that this would be enough to affect the plants that come in contact with this water – aluminum is toxic to plants at very low concentrations.

Summary of Direct and Indirect Wetland Impacts

Tribal cooperating agencies take the position that data from the wetland delineations indicate that bogs are *not* the most prevalent wetland type. In fact, it appears that wetlands that require groundwater inputs: forested rich peatlands and poor fens are the most prevalent.

Tribal cooperating agencies note that potentially impacted wetlands that are part of the 100 Mile Swamp were identified by the forest biologist in 1997 as "lacking ecosystem representation in protected areas." (SNF 1997, January) Interest in protecting the unique character of these wetlands was based on their "watershed integrity, the presence of riverine ecosystems, and large amount of interior forest present." This information was further substantiated in a report by the MnDNR titled "Evaluation of Selected Potential Candidate Research and Natural Resource Areas." (SNF 1997, December) This document describes the 100 Mile Swamp wetlands as "these sites represent the highest quality remaining examples of characteristic ecosystems in each ecological Landtype Association on the Superior National Forest." Tribal cooperating agencies take the position that this information must be included in the functional assessment for this project and included in the development of mitigation requirements for this project.

It is the position of the tribal cooperators that the proposed action and the preferred alternative would likely not comply with the requirements of §404(b)(1) guidelines, which do not allow a permit when

there are practicable alternatives that would have less adverse effects, when the Project would lead to a violation of state water quality standards or when it would cause or contribute to significant degradation of waters of the United States. Other alternatives that were not considered in the DEIS (e.g. underground mining) would pose less harm to high quality wetlands, and may be less damaging to aquatic resources. As documented in Table 4.1-68, the Project would result in water quality standards violations.

DEIS 4.2.3.4 Tailings Basin Alternative states "It is recommended that existing wetland acreages and impacts be delineated prior to issuance of the Final EIS." Tribal cooperating agencies take the position that this delineation should occur prior to the issuance of the DEIS so that the public can review a complete set of potential impacts from the project.

Should it receive permits for its project, PolyMet will assume responsibility for all legacy contamination caused by the tailings basin to surface water, groundwater and wetlands. Therefore, tribal cooperating agencies take the position that the current exceedances, which are the result of decades of untreated discharges from the tailings basin, must be addressed by PolyMet as part of its closure plan.

DEIS 4.2.4.2 Wetland Mitigation/Offsite Mitigation states that mitigation site analysis criteria were limited to sites of 100 acres or more. Fond du Lac has provided comments on several previous drafts of the EIS that the analysis should also have considered "clusters" of smaller potential sites. This recommendation has not been addressed.

"Watersheds Neighboring Adjacent Watersheds" is an artificial construct that only serves to highlight the significant and permanent loss of wetlands within the St. Louis River watershed and the 1854 Ceded Territories. The significance of this permanent loss of resources within the Ceded Territories cannot be overstated.

Mitigation Summary

Tribal cooperating agencies take the position that unless the mitigation for the additional 475 wetland acres is identified in the DEIS, or there is a detailed statement of how the permit conditions would address the needed acres, the impacts must be considered unmitigated for purposes of the DEIS.

The entire 4.2.4.4 Mitigation Summary section is inadequate. Any wetland restored after mine closure should not be included as any true mitigation because it cannot and will not ever compensate for the loss of wetlands during the 20+ years of mine operation. Mitigation ratios should be set higher for any "difficult to mitigate" wetland type such as forested, bog, and shrub wetlands. Furthermore, mitigation ratios should be fully discussed and finalized in the EIS and not in permitting.

DEIS 4.2.5.2 Cumulative Wetland Impacts – Partridge River Watershed states that the analysis was restricted to the Partridge and Embarrass River watersheds because "several of the primary functions performed by wetlands are directly related to watershed processes". Fond du Lac notes that not *all* wetland functions are related to watershed processes, therefore, the cumulative effects analysis should not be limited by it.

Fond du Lac disagrees with the statement that "no fens are known to occur in the Project area." Tribal cooperating agencies take the position that, based on the data from the wetland delineations, there are fens in the project area.

Tribal cooperating agencies disagree that limiting the analysis of cumulative wetland impacts to the Partridge River is appropriate. Tribal cooperating agencies take the position that wetland impacts related to regional mining operations throughout the area as well as large wetland impacts of the proposed PolyMet project to the Embarrass River watershed must be included. In addition, the analysis must include impacts related to changes in wetland functional values, only impacts related to direct fill.

At a local scale, PolyMet is likely to impact wetlands in the Embarrass River watershed as water that

percolates through the bottom of the tailings facility enters that shallow aquifer. This water, which is likely to have degraded quality, will re-emerge at the surface within wetlands of the Embarrass River watershed. The high chemical load of this water will affect wetlands by degrading water quality and altering the wetland functional values. In addition, PolyMet air emissions may deposit contaminants in the watershed of the Embarrass River and further degrade wetland quality. The full extent of wetland impact resulting from 20 years of emissions from the proposed PolyMet project via air and water must be quantitatively characterized. This quantitative analysis should be done using model output (air, surface and groundwater). A quantitative assessment of changes to functional values should include an analysis of the effects of 20 years of surface and groundwater emissions along with the additive effects of air emissions for Embarrass River Wetlands. Finally, the PolyMet project as proposed includes a possibility of post-closure contamination of surface and groundwater. The wetland cumulative impact analysis must include a quantitative analysis of the long-term effects of mine effluent on wetlands of the Embarrass River. If mine related effluent is to be perpetual, this section must discuss the effects of perpetual mine discharge on wetlands.

In regards to the Partridge River watershed, the analysis correctly focuses on 3 timeframes of analysis; Pre Settlement Resources, Existing Resources, and Future Resources. However, the cumulative impact discussion includes only wetland loss due to direct fill. There is no attempt in the document to assess cumulative impacts that result in changes to functional values. The issue of changes to wetland functional value has been highlighted to the USACE and the MnDNR during technical meetings. The DEIS should provide a quantitative analysis of the cumulative changes in wetland functional values for the Partridge River. This analysis must include the functional value changes related to maintenance of features of the closed mine (e.g. changes in water quality of mine site wetlands, changes in water flow through mine site wetlands, etc.).

At a regional scale, Iron Range taconite mining has impacted wetlands through direct wetland fill as well as indirect impacts due to air deposition of mine related contaminants, water quality degradation, and the flooding/de-watering of wetlands which lead to changes in wetland functional values. There are two additional geographic scales at which wetland cumulative impacts should be characterized:

St. Louis River Watershed. Fond du Lac has identified this watershed as an area of concern. The cumulative impact analysis should quantitatively characterize the following:

1. The additive effect of PolyMet related air and water emissions to the Partridge and Embarrass River watershed wetlands and their impact on water quality of the St. Louis River.
2. The loss of wetlands and changes in wetland functional values in the St. Louis River watershed during the 3 timeframes, including a characterization of the potential for future mining impacts and the long-term maintenance requirements of the PolyMet mine as currently proposed.

1854 Ceded Territory. The Fond du Lac, Grand Portage, and Bois Forte Bands retain treaty guaranteed rights to harvest natural resources within the 1854 Ceded Territory. The cumulative impact analysis should quantitatively characterize the following:

1. The additive effect of PolyMet related air and water emissions to the wetlands of the 1854 Ceded Territory.
2. The loss of wetlands and changes in wetland functional values in the 1854 Ceded Territory during the 3 timeframes.
3. Loss of tribal access to wetlands in the 1854 Ceded Territory due to either the changes documented in 2. above, or due to mitigation of wetland impacts occurring outside of the Ceded Territory.

DEIS 4.3 Vegetation

It is the tribal cooperating agencies' position that while there is no current documented tribal use of said resources, most band members do not report their harvest sites. Therefore, it should not be assumed that there is no use of resources in these areas. Additionally, tribal cooperating agencies note that the Area of Potential Effect for the Project was not determined until August 11th, 2009, and tribal consultation under §106 NHPA is ongoing. Therefore, historic and current Tribal harvest has not been determined for either the Plant or Mine Sites.

DEIS 4.3.3 Environmental Consequences/Plant Site

The tribal cooperating agencies' position is that although this area is significantly disturbed and will be for the foreseeable future, the closure and reclamation plans should have a significant effect on native vegetation as it is reintroduced. The prevalence of invasive, non-native species and their ability to out-compete native plants in disturbed areas, coupled with PolyMet's plan to introduce non-native and invasive species to this area, would result in significant impacts.

Species Life Histories paragraph on *Botrychium rugulosum* states in one sentence that "relatively little is known about the overall distribution, genetics, and life history requirements" yet then states "disturbance also likely plays an important role in the proliferation of this species." This is an unsubstantiated statement coming from the limited knowledge of this species, especially in this species limited use of mining stock piles, etc.

Effects of Invasive Non-Native Plant Species describes PolyMet's proposed use of non-native invasive species to stabilize disturbed areas during operation and closure. Fond du Lac has repeatedly commented on previous drafts of the EIS that this should not be allowed. PolyMet should be making steps to reduce negative impacts of invasive non-native species, not increase them.

Mine Site/Effects on Cover Types

It is the Tribal cooperating agencies position that native plant species have evolved over millennium and thus have adapted to local climatic conditions. Therefore, these native species should be used in any re-vegetation efforts. The use of non-native plants should be avoided. Seed mixes using native plants can be developed with the desired establishment and groundcover capabilities.

The tribal cooperating agencies' position is that the use of monoculture red pine plantations to mitigate should be avoided. The importance of a variety in tree species in the ecosystem to provide suitable habitat for a greater variety of wildlife species cannot be understated. A monoculture of red pine is not a forest, it is a plantation. It is disingenuous to compare a plantation to an ecosystem such as a forest.

DEIS 4.3.3.5 Other Mitigation Measures discusses using a seed mix at Closure that includes "several non-native" species. Fond du Lac has repeatedly advised that no non-native species should be used in any mitigation or stabilization measure. The third sentence gives a recommendation that should be stated as the preferred mitigation measure. There are native plant species that can accomplish the "quickly and effectively stabilize" goals of this mitigation measure; PolyMet should be required to use them. Other potential mitigation measures or recommendations are provided in this section; all of them should be implemented.

DEIS 4.3.4.4 Environmental Consequences of Reasonably Foreseeable Actions on ETSC Plant Species concludes that, because of their tolerance for disturbance, impacts on *Eleocharis nitida* and *Sparganium glomeratum* are not expected to jeopardize their presence of in Minnesota or in North America. It is the Tribal cooperating agencies position that too much emphasis is being placed on these species' tolerance for disturbance. Given the fact that the Project could affect nearly one-third of the population of *E. nitida*, this could jeopardize the presence of the species in Minnesota. If these species indeed could tolerate disturbance without jeopardizing their overall occurrence in Minnesota, then they

would probably not be ETSC species list in the first place.

DEIS 4.4 Wildlife

Tribal cooperating agencies note that the Area of Potential Effect for the Project was not determined until August 11th, 2009, and consultation under §106 of the NHPA is still ongoing between the USACE and the Tribes. Therefore, historic and current Tribal harvest has not been determined for either the Plant or Mine Sites yet. The tribal cooperators' position is that while there is no current documented tribal use of said resources, most band members don't formally report their harvest sites at the scale that would allow identification of proximity to the mine site. If species of tribal concern 'relocated' to other lands and these other lands were private lands, there would be a loss of opportunity to harvest.

Recent studies from the MnDNR, the Natural Resources Research Institute at University of Minnesota-Duluth and Tribal natural resource management staff indicate that preservation of wetlands may be one of most important factors in maintaining the moose population in northeastern Minnesota.

DEIS 4.4.2 Impact Criteria

Tribal cooperating agencies note that this list of impact criteria is incomplete. This section should also analyze the effects of the project on species harvested and gathered by tribal members on public lands. Furthermore, the USACE has not completed consultation with the potentially affected tribes; this must be finished before the federal portion of the EIS is considered complete.

DEIS 4.4.3 Environmental Consequences/Canada Lynx

Tribal cooperating agencies disagree with the conclusion that the effect on statewide lynx populations would be insignificant; this analysis does not consider the possibility that the Mine Site might include critical components of lynx habitat present, such as den sites.

The DEIS concludes that "Therefore, the Project would be likely to adversely affect, but not significantly affect the Canada Lynx because of the direct loss of designated critical habitat, fragmentation of additional habitat within the critical habitat boundaries, and the increased potential (albeit low) for incidental take resulting from vehicular collisions." Fond du Lac notes that there is no scientific basis for this conclusion, and in fact, consultation with the US Fish & Wildlife Service on the potential impacts of the Project to Canada lynx or any other ESA species has not been concluded. This is another critical deficiency of this EIS process, and must be addressed before the Project can proceed.

Bald Eagle

Fond du Lac disagrees with the conclusion that "Therefore, the Project is not likely to adversely affect Bald Eagles because the Mine and Plant Sites are more than two miles from any known nesting sites and do not provide optimal habitat for nesting and foraging bald eagles." Impacts to bald eagles could result from eagle feeding sites within or adjacent to the project area. Contaminants from the mine site, specifically mercury and heavy metals, could affect prey species thus having secondary impacts on eagle reproduction.

Wood Turtle

Tribal cooperating agencies have noted concerns in previous drafts of the EIS that the project may create attractive nesting sites where mining or heavy vehicle activity takes place. This could result in increased adult or nest mortality. The tribal cooperators do not see any new evidence or clear analysis to support the claim that the Project is not likely to adversely affect Wood turtles.

Wildlife Habitat Impacts

Tribal cooperating agencies reiterate previous DEIS review statements that single species conifer plantations have little wildlife value.

Wetlands

Tribal cooperating agencies strongly disagree with the conclusions presented in the wetlands section. The methodology used to predict the acres of wetlands indirectly impacted by the project pit dewatering are not adequate to assess indirect wetland impacts.

DEIS 4.4.4.2 Past and Current Habitat and Wildlife Trends

Tribal cooperating agencies consider the loss of mature forest a significant impact, and note that the activities on the mine site will prevent more forest acreage from reaching this mature community state, representing a nearly permanent loss of habitat.

DEIS 4.4.5.2 Wildlife Corridor Impacts by the NorthMet Project

Tribal cooperating agencies' position is that Corridor 11 (Emmons & Oliver 2006) is currently a poor and obstructed corridor (pending the long term success of a proposed revegetation corridor), and Corridor 12 will likely be degraded as a corridor by the Project; these impacts should be considered significant.

DEIS 4.4.5.4 Travel Corridor Mitigation

The tribal cooperating agencies' position is that per Emmons & Oliver (2006), any new impacts to the existing wildlife migration corridors is by definition significant, and should require mitigation. No mitigation has been proposed for this impact. For the entire time period (decades) of mine development and operation, Corridor 12 would experience a significant direct loss or fragmentation of wildife habitat, and impact the ability of many wildlife species to migrate throughout their ranges. Also, until the §106 consultation process between the USACE and the tribes is complete, it is not possible to determine the potential impacts to treaty-protected wildlife.

DEIS 4.5 Fish and Macroinvertebrates/Lake Sturgeon

The tribal cooperating agencies' position is that lake sturgeon were once prevalent in many tributaries to the Great Lakes, and that prior to the extensive dam construction on the lower St. Louis River, the upper St. Louis River was likely part of the historical range of the species. Tribal conservation officers have verified angler success in catching lake sturgeon upstream of the Minnesota Power hydropower dams in the past few years. The Fond du Lac Resource Management Division based its attempted restocking program on historical accounts of lake sturgeon abundance during the early logging period in Minnesota's history.

Northern Brook Lamprey

The tribal cooperating agencies' position is that no conclusions about the presence of northern brook lamprey can be made in this analysis without specific surveys in the Project Area. Tribal fisheries biologists have definitively identified this species in the Dark River, just a few miles to the west of the St. Louis River.

Mussel Species

The tribal cooperating agencies' position is that there was not an adequate sampling effort to determine the presence of the creek heelsplitter (*Lasmigona compressa*) in the Project Area, particularly for a species that is already known to be limited in numbers or distribution. While the detection probability is low for each site, tribal fisheries biologists have sampled this species in the headwaters region of the St. Louis River, approximately a mile downstream of Seven Beavers Lake (B. Borkholder, pers. comm.) in 2008.

DEIS 4.5.1.2 Habitat Conditions and Biotic Assemblages in the Partridge River and Embarrass River

The tribal cooperating agencies' position is that the conclusions regarding potential anthropogenic impacts are in some cases inconsistent, and in other cases simply not defensible. The writers conclude that macroinvertebrate species richness (low EPT taxa) at one site may be of anthropogenic origin

given its location downstream of the LTVSMC tailings basin, but dismiss that possibility with regards to the fish community. We would agree that most of these sampling sites represent headwaters habitat conditions (particularly B3), which alone can account for less-than-expected species richness. But there is no evidence to support a conclusion that low species richness in either the macroinvertebrate or fish communities is solely a manifestation of poor habitat, and not also potentially a result of previous mining impacts in the watershed. The QHEI scores are of little use in this analysis, as this index is notoriously poor in its power to distinguish the quality of habitat in headwaters streams; hard substrate is a key variable leading to a high QHEI score. In the technical report (Breneman 2005), the author expressed a disclaimer on the data interpretation from site B3, because of its habitat characteristics. It is critical to recognize that the six sampling sites in this survey represent 3-4 distinct habitat conditions, which is useful as background data but makes any comparisons problematic.

DEIS 4.5.1.3 Habitat Conditions and Biotic Assemblages in Colby Lake and Whitewater Reservoir concludes that, in the absence of state-established biocriteria for fish communities, the fish assemblages/composition appear to be similar to what might be expected based upon physical and water quality conditions. The tribal cooperating agencies' position is that if there is data to support this statement, it should be cited in the EIS.

The tribal cooperating agencies' position is that the benthic invertebrate data described in this section does not support a conclusion of good water quality. In the first place, the data is nearly 30 years old, and secondly, the presence of *Chaoborus* and the two other midge taxa is not indicative of good water quality; these species are not on the sensitive end of the pollution tolerance index.

DEIS 4.5.3 Environmental Consequences/Physical Habitat Effects/Partridge River

The aquatic biota present in these streams have adapted over millennia to normal seasonal fluctuations in streamflow. But a reduction in summer baseflow would be expected to adversely affect the biota.

The tribal cooperating agencies' position is that there is insufficient flow data and hydrologic modeling to support the conclusion that reductions in high end flows above Colby Lake would not have a significant effect on physical habitat for aquatic biota. Comments submitted on previous drafts of the EIS have expressed tribal technical staff concerns that any alteration of flow at the magnitude predicted will definitely result in a decrease of stream power, with a subsequent decrease in the size of particle able to be transported. Thus, increased sedimentation is likely to result.

Water Quality Effects

Tribal cooperating agencies' position is that existing contamination seeping from the LTVSMC Tailings Basin must be adequately addressed through PolyMet's assumption of remedial liabilities under the VIC program, and that mitigation measures should be included and discussed in the draft EIS to ensure that no new exceedences of the chronic aluminum aquatic life use criterion will occur. Fond du Lac does not believe that simply monitoring for aluminum is sufficient to protect aquatic life, particularly when the existing seepage is already causing exceedances downstream.

DEIS 4.5.4 Mercury and Bioaccumulation in Fish/Project-related Effects

The DEIS acknowledges "local factors related to Project Construction and operation have the potential to affect mercury bioaccumulation either through mobilization of mercury stored in rock, soil, peat and vegetation on site, or through factors that may enhance the methylation of mercury….The primary concern related to mercury for the NorthMet Project is the potential for releasing increased sulfate loads, which could promote mercury methylation." Additionally, "…the Proposed Action would results in the release of sulfate to a high risk situation for mercury methylation" as defined under the MPCA's mercury strategy. Monitoring, however, has only focused on sulfate and methylmercury concentrations downstream of the Project area, and has not included sampling fish tissue to determine actual bioaccumulation. It is not sufficient to simply monitor in-stream concentrations; the true biological endpoint that Fond du Lac is concerned about is fish tissue mercury concentrations. This section reveals one of the most likely, and most environmentally significant adverse effects of the

Project: a worsening of the existing mercury in fish impairment in waters downstream of the Project area.

Fond du Lac's position is that increasing methylmercury bioavailability in these watersheds is unacceptable, as access to fish that can be safely consumed is an essential component of treaty resource harvest rights. Consultation with tribes on cultural resource impacts is ongoing, and the potential impacts to tribal members of a significant increase in mercury in fish harvested in on-Reservation and 1854 Ceded Territory waters has not been adequately addressed.

The tribal cooperating agencies' position is that any increase of methylmercury bioavailability in the Partridge River watershed constitutes a significant adverse impact to a critical trust resource. The State of Minnesota's mercury TMDL process will not adequately address the fish consumption impairment in these waterbodies, and any new discharges that would result in further degradation to waters with an existing water quality impairment would not be legally permittable under the Clean Water Act (see Friends of Pinto Creek v. EPA (9th Cir.), known as the Carlota Decision).

DEIS 4.6 Air Quality

The DEIS assumes that PolyMet will be a "new", rather than "existing", source of air emissions and, as such, that it does not exceed major source thresholds, making it a minor source. As a minor source, PolyMet would not be subject to BACT or modeling requirements. Although PolyMet has agreed to perform modeling anyway, no BACT analysis was performed. However, it is Fond du Lac's understanding, after conversations with the MPCA and the EPA, that the status of PolyMet as a new source is not a certainty. If it is determined that the PolyMet project is a modification to an existing source, the project would be major. This is because the thresholds are different for new sources and modifications to existing sources. As a major source, BACT would become applicable. Our concern is that if PolyMet is ultimately found to be a modification to an existing source, the FEIS will be incomplete if it does not include a BACT analysis. In Table 4.6-5, please also include minor source permitting thresholds, as these could turn out to be applicable. It is FdL's belief that the DEIS should address this issue in the most conservative way, i.e. by assuming it is an existing source requesting a major modification. By assuming the more favorable scenario, the impression is given that this decision has been made and is final, when that is not the case.

Despite several comments from tribes on previous versions of the DEIS, it appears that the release of fugitive emissions of reactive waste rock have not been addressed. The Band continues to be concerned about this issue, and believes that this analysis needs to be completed.

Tribes have also commented several times previously that air emissions from the proposed Keetac expansion project need to be included in the PolyMet air quality and mercury analyses. This is essential for a valid cumulative impacts analysis.

DEIS 4.6-9 The DEIS does not explain why more stringent controls for fugitive air emissions are to be used on Tailings Basin roads than on Plant Site roads. What is the reason for the difference in 60% control for Plant Site roads versus 80% control for Tailings Basin roads? Please explain why the facility is not proposing to use the extra controls on both sets of roads.

DEIS 4.6-12 states that the FLAG Phase I report was used. Please discuss how use of the updated version of this document could change the findings.

DEIS 4.6-13 Modeling did not include current proposed tailings basin emissions. Increased emissions of PM_{10} and $PM_{2.5}$ of 96 and 11 tpy, respectively, are expected. These emissions increases were initially deemed too low for concern. Then further analysis was done, but it has not been evaluated yet by the MPCA. The DEIS states that "data is included but should be considered preliminary". Where

is this data? It is critically important for this to be included in the DEIS (along with the applicable MPCA comments) not just in the FEIS, because by then the ability for tribes to comment will be past. This needs to be done because emissions from the facility are predicted to be very close to the NAAQS for $PM_{2.5}$ (see comment below).

DEIS 4.6-14 states that modeling for $PM_{2.5}$ increment cannot be completed b/c EPA has not set a baseline date yet. The DEIS should state that the permit will be re-opened and this modeling will be done when the baseline date is set. That way, any needed mitigation can take place.

DEIS 4.6-15 states that the PM_{10} 24-hr impact approaches the Class II increment level for the Mine Site. Fond du Lac cautions that Class II increment is very close to being fully consumed in this area. This is important to note due to all the expansion planned in the area.

DEIS 4.6-16 The highest-sixth-high ("H6H") corresponds to one exceedence per year, yet the standard says one exceedence is allowed per year, not over the five-year modeling period. Fond du Lac believes that the H6H from each of the five years of modeling should be examined to see if it exceeds the standard.

DEIS 4.6-17, Table 4.6-10. Fond du Lac notes that $PM_{2.5}$ total is very close to the NAAQS (34 ug/m^3 versus 35 ug/m^3). This is especially concerning because $PM_{2.5}$ emissions estimates from this project have a high degree of uncertainty. Again, this total comes very close to exceeding a health-based standard, with numerous new projects planned in the area. The DEIS needs to explain what measures are proposed to limit the chance of exceeding these standards. Will monitoring be conducted? What mitigation plans are in place if an exceedence is detected? What conservative measures were included in the modeling?

DEIS 4.6-19 states that potential mitigation measures for visibility are located in Section 4.6.3.4, but that section is *Tailings Basin Alternative*. The section should instead be 4.6.3.5, *Mitigation Measures*.

DEIS 4.6-25

The Tribal cooperating agencies' position is that this analysis does not use the full particulate emission rate from the plant site, which would be 622 tpy using Table 4.6-6 with fugitive and mobile sources. Also unaccounted for are the additional 102 tpy from the tailings basin.

DEIS 4.6-27

Fond du Lac notes conflicting statements due to risk effects. From the 2nd paragraph of this section, "Although the current Project utilizes LTVSMC tailings to develop a portion of the current Tailings Basin, sampling data from the LTVSMC tailings show that the toxic compounds are lower than the modeled tailings material, except for potentially for manganese, beryllium, cadmium, and antimony. Cadmium and antimony are included in this discussion, although the content of the LTVSMC tailings was below analytical detection limits… ***However, these four compounds were not drivers in the original risk assessment.***" If cadmium is higher than what was modeled and is a major risk driver, this MEI analysis could be inconclusive as it does not take into effect the latest data.

The Tribal cooperating agencies' position is that regardless of the likelihood of farming being present at the boundary of the installation, the farm that is 6.5 miles away still might be within an area of exceedence of the MDH standard even though it is not at the maximum risk receptor point and must be evaluated to all direct and indirect toxic health risks associated with this project. It is also the position of the Tribal cooperating agencies that all risks outside the project boundaries need to be below MDH guidelines at the time that an air permit is issued to this facility.

DEIS 4.6-28 Greenhouse Gases

Fond du Lac has repeatedly requested that the lead agencies develop a comprehensive analysis of the Project's potential impacts on climate change, beyond a greenhouse gas inventory. The Ninth Circuit Court of Appeals held in Nov 2007, for the first time, that federal agencies must assess carbon dioxide emissions *and other climate change impacts* in environmental review documents prepared under the National Environmental Policy Act (NEPA). The Court's unanimous decision in *Center for Biological Diversity v. National Highway Traffic Safety Administration* arose out of challenges to new automobile fuel efficiency standards for light trucks and SUVs developed by the National Highway Traffic Safety Administration (NHTSA).

The Ninth Circuit took the unusual step of ordering NHTSA to prepare an EIS assessing carbon dioxide emissions attributable to the new standards, as well as the actual environmental effects associated with climate change. Petitioners alleged that NHTSA's environmental review under NEPA failed to take the requisite "hard look" at the carbon dioxide emissions *and other climate change impacts* attributable to the new CAFE standards.

The fact that 'climate change is largely a global phenomenon that includes actions that are outside of [the agency's] control . . . does not release the agency from the duty of assessing the effects of *its* actions on global warming within the context of other actions that also affect global warming.' While NHTSA did the calculations necessary to determine how much extra carbon dioxide would be emitted, it failed completely to discuss in any detail the global warming phenomenon itself, or to explain the benchmark for its determination of insignificance in relation to that environmental danger.

The Court faulted NHTSA for failing to "discuss the *actual* environmental effects" of the proposed standard, and directed the agency to "evaluate the 'incremental impact' that [those] emissions will have on climate change or on the environment more generally in light of other past, present, and reasonably foreseeable actions

In light of the Ninth Circuit's emphatic declaration that the "impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impact analysis that NEPA requires agencies to conduct," agencies cannot avoid evaluating climate change impacts for a broad range of projects requiring federal approvals or permits, such as energy facilities and transmission lines, casinos, landfills, mines, and transportation projects. The Court's holding also suggests that simply quantifying emissions and comparing them to a baseline is insufficient. Instead, project proponents should be required to evaluate the interplay between a project's emissions, emissions attributable to other past and reasonably foreseeable future actions, and the actual environmental impacts attributable to climate change.

In addition to the broadly recognized services that wetlands provide, they also store significant amounts of carbon. It has been estimated that wetlands (only about 6% of the world's terrestrial area) contain carbon equal to the total atmospheric carbon store (Intergovernmental Panel on Climate Change, Working Group 11: Impacts, Adaptation and Vulnerability, 5.8.1 (2001)). Much of the carbon stored in wetland soils and vegetation will be released if they are drained, and the release of carbon will exceed sequestration.

A relatively simple response to climate change is prioritizing avoidance of wetland impacts. Wetlands store more carbon than any other ecosystem. Including carbon storage in the §404 permit avoidance and minimization sequencing through the 'least damaging practical alternative' evaluation would be a logical step towards reducing the regional carbon footprint. Carbon sequestration services provided by forested wetlands and peat bogs must be considered in the avoidance equation alongside mitigation.

The American Society of Wetland Managers climate change recommendations include:

- incorporating adaptations to climate change in water projects to add safety factors for floods and erosion
- added ecosystem protection and adjustment goals reflecting anticipated climate changes such as low flow protection for fish and other wildlife.
- Add protection of wetland carbon stores as an explicit goal of the §404 permitting program
- require impact reduction and compensation
- Consider the impact of proposed activities on carbon stores in regulatory Permitting

The Minnesota Carbon Sequestration Project, an interdisciplinary research group, produced an assessment of the potential capacity for carbon sequestration in Minnesota's terrestrial ecosystems, on the request of the state legislature. After analyzing existing scientific literature, land use, and current state policies and programs on carbon sequestration potentials, they released a report in 2008 entitled *The Potential for Terrestrial Carbon Sequestration in Minnesota*. Key findings from the team include:

- Peatlands in Minnesota contain the largest carbon stocks in the state, in excess of 4 billion metric tons
- Release of this carbon to the atmosphere as CO_2 can result from peatland drainage and conversion
- Release of this carbon to the atmosphere would accelerate global warming and require greater reductions in CO_2 emissions elsewhere
- Destruction of 1,000 acres of peatland in Minnesota from mining or other activities would increase the state's total CO_2 emissions by 2% over 2005 levels

Their top recommendation was to "Preserve the existing large carbon stocks in peatlands and forests by identifying and protecting peatlands and forests vulnerable to conversion, fire, and other preventable threats."

The Minnesota Climate Change Advisory Group, a broad-based group of Minnesota citizens and leaders, including a representative from the Fond du Lac Environmental Program, was created to develop state-level policy recommendations to Governor Pawlenty. In 2008, the group released "Minnesota Climate Change Advisory Group Final Report", which included the following findings and recommendations:

- Wetlands have among the highest potential carbon-sequestration capacities for any type of land cover in Minnesota. Peatlands are likely Minnesota's largest single carbon sink, containing 37% of all carbon stored in the state.
- Protecting these enormous carbon reservoirs is critical
- Policy goals include protect and restore northern peatlands; by 2015, identify peatlands at risk of releasing greenhouse gases because of lowered water table or industrial uses such as mining; design policies to protect peatlands and wetlands from drainage and other carbon-releasing land uses.

Fond du Lac acknowledges that climate change regulations and requirements have not yet caught up with policy in Minnesota. But this Project is clearly in violation of the science-based recommendations of multi-disciplinary experts across the state and throughout the country. Climate change litigation has resulted in a clear mandate for the EIS process: any project subject to environmental review must include a comprehensive analysis of climate change impacts.

DEIS 4.6-37 The text states that "calculated visibility impacts greater than 5 or 10% could occur at some point within the BWCAW on a small number of days each year (a maximum of 23 days per year above 5% and one day above 10%)". Fond du Lac does not believe that 23 days of visible impact on

visibility per year can be characterized as "a small number". The Federal Land Managers are concerned with any number of days with a visibility impact above 5%. While the Band realizes that mitigation discussions are still underway between PolyMet, the MPCA, and the FLM's, we would still like to have options presented in the DEIS stage so that we may comment on them. At this point, it is impossible to know what scale of mitigation may be possible, especially as a number of other sources in the area intend to perform mitigation, as well.

DEIS 4.6-40 In order to meet the conditions of the statewide mercury TMDL implementation plan for new or expanded sources, PolyMet proposes to work with crematoria on mercury reductions, but only suggest working to quantify their emissions. This may include research or evaluation of control technologies, but the DEIS indentifies no real, enforceable requirements to take action. Any air permits issued must contain clear deadlines for actions.

DEIS 4.6-42 It appears that tribal comments found on this page have not been addressed. This should be done in the DEIS.

DEIS 4.6-44 Table 4.6-21 shows that the total cumulative modeled air concentration of 7.5 ug/m^3 is very close to the Class I PSD Increment of 8 ug/m^3. This is a concern to the Band due to the number of other new projects proposed in the area that will also emit related pollutants.

DEIS 4.6-45 Analyses of cumulative acid deposition, Class I and Class II air impacts, and mercury do not include the Keetac expansion. The Fuel Diversification item is a different project from a few years ago.

DEIS 4.7 Noise/Existing Conditions

It is the position of the tribal cooperating agencies that noise contour maps should be developed for inclusion in this PDEIS. Noise contour mapping would allow reviewers to assess the impacts of noise to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the mine site (See figure 4.9-1). An assessment of noise impacts to all public access lands is important information for assessing cultural impacts to tribes with hunting, fishing and gathering rights in the 1854 Ceded Territory.

DEIS 4.7.2 Impact Criteria

It is the tribal cooperating agency position that the Army Corps has not completed §106 NHPA consultation with potentially affected tribes. Therefore, this document does not estimate the potential degree of disturbance to tribal members who may be involved in traditional natural resource harvest harvests on national forest lands.

DEIS 4.7.3 Environmental Consequences/Summary concludes "Based on the above information, it is anticipated that the continuous generation of noise at the Plant and Mine Sites would have an insignificant effect on the noise environment during mine operations, Closure, and Post Closure." Tribal cooperating agencies disagree with this conclusion. This document does not present enough information to make this claim.

DEIS 4.7.4 Cumulative Effects states "The cumulative effects of a few reasonably foreseeable projects (i.e., future developments) within a 10 mile radius of the Project area were also considered over the 20 years of Project mining." Tribal cooperating agencies are not aware of any assessment that has been conducted. Contour mapping of cumulative noise sources should be presented in this section.

Tribal cooperating agencies do not believe that an adequate cumulative impact of noise impacts analysis has been done. Meeting ambient noise standards is a different question than assessing impacts. Impacts should be fully characterized in this document and contour maps showing overlapping noise pollution from different projects provided. Without this information, it is not

possible for the public to review the cumulative impacts of noise. In addition, the cumulative impacts of mine related vibration have not been assessed.

DEIS 4.8 Cultural Resources

It is Fond du Lac's understanding that this chapter is still being revised, as part of the ongoing §106 NHPA consultation process with the tribes. We note that the EIS cannot be considered final under federal guidelines, or a Record of Decision issued, until this consultation process has concluded. The tribal cooperating agencies' cultural resources staff have worked to improve and refine the information and analysis in this chapter, as the protection of treaty resources is our prime concern.

While the USACE did not determine that the 1854 Ceded Territory is a Traditional Cultural Property, the Grand Portage Band has documented its disagreement with this determination. The tribal cooperators are proceeding in accordance with USACE's offer to fully evaluate the Ceded Territory, including all factors that would be considered in a TCP analysis, pursuant to its trust responsibility.

The USACE has not completed consultation with the potentially affected tribes regarding culturally important species. The extent of existing wild rice beds has not been fully characterized; consequently, evaluation of the impacts and cumulative impacts to wild rice has not been determined. Wild rice grows on the Embarrass River, the lower Partridge River, and the St. Louis River; the Minnesota water quality criterion of 10 mg/l sulfate applies to these waters. There are other regional projects (including Mesabi Nugget Phase II and Laskin Energy) that are discharging water with elevated constituents. With these existing sources, it is unlikely that PolyMet would be able to discharge untreated tailings basin effluent without violating the CWA. But treatment of the tailings basin effluent prior to discharge to the Partridge River is not included in the potential mitigation measures.

There has not yet been sufficient evaluation of Band member use of vegetation and other usufructuary resources in the APE, and there is no permissible basis to omit such evaluation where the USACE and other federal permitting agencies have a trust responsibility to the Band to maintain treaty resources in the 1854 Ceded Territory. The APE for the Project was not determined until August 11, 2009, and tribal consultation is ongoing. Historic and current tribal harvest information has not been finally determined even for the Plant or Mine Sites. Although this area is significantly disturbed and will be for the foreseeable future, the closure and reclamation plans should have a significant effect on native vegetation as it is reintroduced. The prevalence of invasive, non-native species and their ability to out-compete native plants in disturbed areas, coupled with PolyMet's plan to introduce non-native and invasive species to this area, would result in significant impacts to cultural resources that have not been discussed in the DEIS.

Several wildlife species of high cultural and present-day value to Band members exist in the APE, including moose, whitetail deer, wolf, fisher, marten, and lynx. Most notably, the Minnesota moose population is under a long-term population decline. Mining operations will certainly do nothing to aid in the recovery of moose and are likely to reduce available habitat and impact travel corridors. Water, air, and noise pollution, combined with increased road density, have been shown to have negative impacts on most boreal wildlife species including wolves, moose, and lynx. Further evaluation of wildlife impacts must be done.

Several lakes and the Partridge River watershed are likely to experience adverse water quality and hydrologic impacts, which will impact fish species and thus the Bands' 1854 Treaty rights to harvest fish in those water bodies. The DEIS as written fails to mitigate the costs to fisheries and wildlife species that are protected under the 1854 Treaty. Treaty reserved fishing rights cannot be fully exercised when fish consumption must be restricted for health reasons to one or two meals per week. The entire DEIS must include proper analysis of the potential impacts of this Project on treaty rights. Any increase of methylmercury bioavailability in the Partridge River watershed constitutes a

significant adverse impact to a critical trust resource.

At or near the Project site, there is evidence that there were maple sugaring areas as recently as the 1950s, and the Grand Portage Band's THPO has specific knowledge of related artifacts and site specifics. Moreover, as part of the 1854 Ceded Territory, this is an area of importance for traditional plant and medicine harvest, and has great religious significance in connection with the Ojibwe Seventh Generation Prophecy. Again, additional consultation with the Band is imperative in order to comply with §106 NHPA and to preserve the sites.

DEIS 4.9 Compatibility with Plans and Land Use Regulations

The Project is clearly inconsistent with several of the identified land use plans: the Minnesota Forest Resource Council Landscape Management Plan (in particular, the goal of "providing diverse habitat to maintain natural communities and viable populations for the plant and animal species in northeastern Minnesota") and the St. Louis River Management Plan (the goal "to promote preservation and improvement of water quality, recreational opportunities, ecological health and archaeological resources"). The mitigation measure (using native seed mix) is not sufficient to compensate for the adverse impact.

Since the proposed land exchange between PolyMet and the USFS/Superior National Forest has not even begun formal review, it is appropriate to consider the Project's compatibility with SNF plans. During preparation for the Forest Plan revision in 1997, SNF set about identifying natural areas on the Forest to potentially designate for permanent protection, to be maintained as natural. Their approach was to develop a list and general description of the highest quality remaining examples of common ecosystems present within each Landtype Association ("landscape"). Forest biologist Robin Vora conducted that assessment. His results were presented in a report titled "Identification of Potential Natural Areas, Including Representative Ecosystems, on the Superior National Forest." In the report he notes, "A network of natural areas helps to protect biological diversity at the genetic, species, ecosystem, and landscape scales. Natural areas representative of common ecosystems in natural condition serve as baseline or reference."

The site PolyMet intends to build its mine on is one of the identified potential natural areas from this assessment, known as the "100 Mile Swamp." It is located within LTA 8A, which is also identified in the study as lacking ecosystem representation in protected areas. Features that gave this area a high ranking were its watershed integrity, the size of its wetlands, the presence of riverine ecosystems, and the large amount of interior forest present (see www.friends-bwca.org , "PolyMet Mine Site: Important Natural Area Will Be Obliterated for Dangerous New Mine").

MnDNR issued a 1997 report "Evaluation of Selected Potential Candidate Research and Natural Areas as Representative of Ecological Landtype Associations on the Superior National Forest, Minnesota", conducted by plant ecologist Chel Anderson. The purpose of this study was to continue the work done by Robin Vora, and to further assist the Superior National Forest in evaluating areas for protection for the Forest Plan Revision process. Anderson analyzed the 93 sites identified by Vora and developed a shorter list of 45 sites worthy of consideration as protected natural areas. The assessment notes that these sites represent the highest-quality remaining examples of characteristic ecosystems in each ecological Landtype Association on the Superior National Forest.

Again, the "100 Mile Swamp" appears on this list of worthy candidates. The report notes, "Inclusion of the 100 Mile Swamp site would very likely complete representation of the prominent ELTs (ecological landtypes), and provide some additional upland diversity."

In 1998, The Nature Conservancy and the North Central Forest Experiment Station published "Research Natural Area Assessment for the Superior National Forest." The report highlights the need

for representative natural areas to preserve and maintain landscape ecosystem and species diversity and to serve as baselines for comparisons to manipulated ecosystems. It identifies the Laurentian Highlands, the ecological subsection in which the PolyMet mine site is located, as a high priority for protection of representative ecosystems. The report notes that this subsection has "almost no representation of its biological variety."

The National Environmental Policy Act (NEPA) provides a mandate and a framework for federal agencies to consider all reasonably foreseeable environmental effects of their actions. To the extent that federal actions affect biodiversity, and to the extent that it is possible to both anticipate and evaluate those effects, NEPA requires federal agencies to do so (see "Incorporation of Biodiversity Considerations into Environmental Impact Analysis under the National Environmental Policy Act", Council on Environmental Quality, January 1993). This DEIS has failed to consider the potential impacts of the Project on biodiversity.

Current NEPA analyses often (1) focus on species, rather than ecosystems; (2) address the site scale, rather than the ecosystem or regional scale: and (3) concentrate on immediate short-term impacts, rather than likely future impacts. Because of these weaknesses, major impacts may he missed, as in the case of indirect effects arising from biodiversity components or interaction not considered in the assessment. For this reason, the lead agencies would benefit from giving explicit consideration to biodiversity goals and strategies against which they can assess the impacts of the Project.

In most cases, determination of the level of discussion on biological diversity should, as with all impacts, be made during the scoping process. The scoping process should he used to identify whether biological diversity will be an important consideration in the environmental analysis.

Biological resources are important ecologically and economically. At the ecosystems level, maintenance of structural diversity and functional integrity is essential to the continued provision of important ecological services, such as regulation of hydrologic cycles, and carbon and nutrient cycling. Healthy, functioning ecosystems are necessary to support commercially and recreationally important fish and wildlife populations. Furthermore, the aesthetic, ethical, and cultural values associated with unique forms of life lend additional support to the establishment of biological conservation as public policy (Wilson, E.O. ed. 1988. *Biodiversity.* National Academy Press, Washington, D.C.)

Physical alteration, as a result of resource exploitation and changing land use, is the most pervasive cause of biodiversity loss. Ecosystem alteration includes habitat destruction, simplification, and fragmentation. When natural areas are converted to industrial, residential, agricultural, military, recreational, or transportation uses, ecosystems are disrupted and biodiversity diminished. Beyond the direct removal of vegetation and natural landforms in local areas, development of sites for human use fragments larger ecosystems and produces isolated patches of natural areas.

Climate change impacts biodiversity as well: the ability of ecosystems to shift their locations would be further hindered by fragmentation of the natural landscape that places inhospitable environments between current and future ranges. There are general principles of ecosystem management: minimize fragmentation (promote natural pattern and connectivity of habitats); protect rare and ecologically important species; protect unique or sensitive environments; that promote or protect biodiversity. This project is clearly inconsistent with those principles.

DEIS 4.10.2 Socioeconomics/Impact Criteria

It is Fond du Lac's position that, because the Project would create a situation where the applicant would enjoy substantial financial gain while potentially creating disproportionately high and adverse human health or environmental effects on minority and low income populations, the Project requires a

complete analysis of environmental justice (Executive Order 12898, signed by President Clinton on February 11, 1994; EPA's website at http://www.epa.gov/compliance/environmentaljustice).

The casual dismissal of environmental justice issues in the DEIS is offensive. A simple recitation of census numbers and proportions of Native Americans in the regional and statewide populations is not a legitimate analysis. There are significant environmental justice concerns with the Project, including but not limited to: loss of usufructuary rights, permanent loss of wetlands in the 1854 Ceded Territory and the subsistence and cultural benefits they provide, increasing mercury in fish harvested from reservation and Ceded Territory waters, loss of wild rice resources, loss of wildlife species. These impacts must be fully considered in the DEIS.

The Council on Environmental Quality (CEQ) has oversight of the Federal government's compliance with Executive Order 12898 and NEPA. CEQ, in consultation with EPA and other affected agencies, has developed guidance to further assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed (*Environmental Justice: Guidance under the National Environmental Policy Act*, December 10, 1997).

Executive Order 12898 contains emphasis on the following four issues:

- The Executive Order requires the development of agency-specific environmental justice strategies. Thus, agencies have developed and should periodically revise their strategies providing guidance concerning the types of programs, policies, and activities that may, or historically have, raised environmental justice concerns at the particular agency. These guidances may suggest possible approaches to addressing such concerns in the agency's NEPA analyses, as appropriate.
- The Executive Order recognizes the importance of research, data collection, and analysis, particularly with respect to multiple and cumulative exposures to environmental hazards for low-income populations, minority populations, and Indian tribes. Thus, data on these exposure issues should be incorporated into NEPA analyses as appropriate.
- The Executive Order provides for agencies to collect, maintain, and analyze information on patterns of subsistence consumption of fish, vegetation, or wildlife. Where an agency action may affect fish, vegetation, or wildlife, that agency action may also affect subsistence patterns of consumption and indicate the potential for disproportionately high and adverse human health or environmental effects on low-income populations, minority populations, and Indian tribes.
- The Executive Order requires agencies to work to ensure effective public participation and access to information. Thus, within its NEPA process and through other appropriate mechanisms, each Federal agency shall, "wherever practicable and appropriate, translate crucial public documents, notices and hearings, relating to human health or the environment for limited English speaking populations." In addition, each agency should work to "ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public."

The public process for the DEIS was grossly deficient in ensuring effective public participation and access to information to the Native American population potentially affected by the Project. The public hearings were tightly controlled, and did not include an opportunity for the tribal cooperating agencies' technical staff to provide their perspective to the public.

The memorandum accompanying Executive Order 12898 identifies four important ways to consider environmental justice under NEPA:

- Each Federal agency should analyze the environmental effects, including human health, economic, and social effects of Federal actions, including effects on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA."

- Mitigation measures identified as part of an environmental assessment (EA), a finding of no significant impact (FONSI), an environmental impact statement (EIS), or a record of decision (ROD), should, whenever feasible, address significant and adverse environmental effects of proposed federal actions on minority populations, low-income populations, and Indian tribes.
- Each Federal agency must provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices.
- Review of NEPA compliance (such as EPA's review under §309 of the Clean Air Act) must ensure that the lead agency preparing NEPA analyses and documentation has appropriately analyzed environmental effects on minority populations, low-income populations, or Indian tribes, including human health, social, and economic effects.

The EIS process will not be complete or adequate until a full analysis of environmental justice issues has been conducted.

DEIS 4.11 Visual Resources/Visual Character of the Project Area

Tribal cooperating agencies' position that the use of a few visual receptors to assess PolyMet related visual impacts is not adequate. Using this method means that the conclusions presented in this chapter apply only to those visual receptors and do not apply to any other publicly accessible area in the vicinity of the proposed project. Tribal cooperating agencies have requested that a more complete Visual Impact Assessment (VIA) be developed for inclusion in this PDEIS (GLIFWC Comment letter of June 30, 2008 and GLIFWC comment letter of February 6, 2009). Methods for a complete VIA were developed and used for other mine proposals as part of the Army Corps federal EIS process (Crandon Mine EIS Preliminary Draft Technical Memorandum: Visual Resources Section of Draft Chapter 3, November 2002). Despite these comments and Corps precedent, a complete VIA has not been included in this iteration of the PDEIS. A complete VIA would allow the public to review the impacts of project features to all publicly accessible lands in the vicinity of the project which include large sections of the Superior National Forest immediately adjacent to the mine site (See figure 4.9-1). A VIA of all public access lands is important information for assessing cultural impacts to tribes who have retained the right to hunt, fish and gather on national forest lands.

DEIS 4.11.2 Impact Criteria

The Tribal cooperating agencies' position is that the Army Corps has not completed consultation with potentially affected tribes. Therefore, this document does not estimate the degree of disturbance to tribal members who may be involved in traditional natural resource harvest harvests on national forest lands.

DEIS 4.11.4 Cumulative Effects concludes "Therefore, there would be no long-term impacts during the Project life and Post-closure relative to Visual Resources and no cumulative effects analysis would be warranted." The Tribal cooperating agencies' position is that a cumulative impact of visual impacts analysis is needed. A thorough VIA following past Army Corps practices has not been conducted for this project and tribal consultation regarding cultural impacts have not been completed. Therefore, this conclusion is premature. Finally, the Tribal cooperating agency position is that the introduction of non-native, invasive species as a revegetation measure may have long-term visibility impacts to the site.

It is the Band's understanding that the company and the Federal Land Managers are close to an agreement for visibility mitigation that is not fully fleshed out in the DEIS. Please address further.

DEIS 4.13 Geotechnical Stability/ Environmental Consequences discusses waste rock slope stability analysis (deferred until permitting), low safety factors at the Tailings Basin because of slimes, and unknown stability or presence of slimes underlying the proposed Hydrometallurgical Residue Facility. The Tribal cooperating agencies' position is that this approach is not consistent with the federal EIS process. The purpose of this document is to provide information for all reasonably foreseeable impacts. The lack of a stability analysis for the stockpiles is a serious data gap given the serious environmental consequences of a structural failure of a stockpile. The structural stability of the tailings basin has been a serious concern since the PolyMet project was first proposed. This concern has led to the development of at least three different tailings basin designs that have been presented in various draft documents. Contractors reviewing these designs have expressed serious concerns with both the short-term and the long-term stability of the facility. Tribal cooperators take the position that given the history of design problems, it is irresponsible to postpone a serious analysis of the structural integrity of the latest tailings basin design until the permitting stage. A complete stability analysis must be included in the DEIS to comply with NEPA and so that the public can review a complete set of possible environmental impacts associated with this project. The hydrometallurgical residue facility would contain the most hazardous waste materials produced by this project that, if released to the environment, would cause serious and long lasting contamination. The unknowns listed in the DEIS are a serious data gap and the tribal cooperating agency position is that the analysis should be conducted and included in the DEIS to comply with NEPA and so that the public can review a complete set of possible environmental impacts associated with this project.

DEIS 4.13.3.2 No Action Alternative/Plant Site

The Tribal cooperating agencies' position is that the existing facility has stability concerns ***before*** any Polymet tailings have been deposited on top of it. This simple fact illustrates the need for a complete structural stability analysis to be performed and included in the DEIS.

DEIS 4.13.3.3 Mine Site Alternative

Tribal cooperating agencies strongly disagree with this approach. The Tribal cooperating agencies' position is that this approach is not consistent with the federal EIS process. The EIS must identify alternatives and mitigation methods that address potential problems with the project. Sufficient data must be collected so that a complete structural integrity analysis can be performed and included in the DEIS.

DEIS 4.13.3.4 Tailings Basin Alternative

The Tribal cooperating agencies' position is that this approach is that the analysis must be conducted prior to permitting and included in the DEIS.

DEIS 4.13.3.5 Mitigation Measures/Mine Site

Tribal cooperating agencies strongly disagree with this approach. The Tribal cooperating agencies' position is that the purpose of an EIS is to identify mitigation measures that address potential problems in the project. The analysis described in the previous paragraph must be conducted prior to permitting and included in the DEIS.

Tailings Basin

The Tribal cooperating agencies' position is that given the lack of confidence in the structural integrity of the tailings basin, the dam break analysis and risk assessment must be conducted prior to permitting and the results included in the DEIS so that the public can be fully informed about the risks associated with this project.

DEIS 4.14 Cumulative Impacts

It is the position of Tribal cooperating agencies that the CEQ guidelines on cumulative effects were only one of the sources used to develop the "Protocol to Assess Expanded Cumulative Effects on Native Americans." This protocol was submitted to the lead EIS agencies with the expectation that the

additional information detailed in the protocol would be used to assess cumulative impacts on the potentially affected tribes. The Tribal cooperating agency position is that while the protocol is mentioned in this section, none of the expanded data collection or analysis that the protocol recommends was done. Therefore it is the tribal cooperating agency position that the cumulative impact section is incomplete and does not properly assess cumulative effects of the proposed project on natural and cultural resources.

40 CFR 1508.7 defines cumulative impact as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions." Cumulative impacts can occur from individually minor but collectively significant actions taking place over a period of time.

The Tribal cooperating agencies' position is that there are several important topics that have not been included in this document.

- Climate Change implications of the proposed project. The project would disturb extensive areas of peat (Section 4.2) Peat is known to be an important carbon sink. Wetlands in general are recognized as important carbon sinks and areas where wildlife will seek refuge as the climate warms.
- Cumulative impacts to wild rice. Wild rice is a valuable tribal resource that has been declining throughout the 1854 ceded territory. Mine effluent is often associated with levels of sulfate that has impacted wild rice and hydrologic changes from pit dewatering and seepage from tailings basins can also impact wild rice, which is dependent upon a relatively stable hydrologic regime. The cumulative impacts to wild rice have not been assessed.
- Cumulative impacts to plant and animal species that are not listed as threatened or endangered. The focus of the EIS on listed species is understandable but other species that are important to tribal and non-tribal members would likely be impacted by mining projects. Moose, for example, are likely to be impacted through disturbance along the few wildlife corridors remaining along the Mesabi range and through wetland impacts of this project. At a time when moose populations in Minnesota are declining, this analysis is particularly important and should be done as part of this EIS.
- The DEIS fails to adequately analyze cumulative impacts to the water quality of the Partridge, Embarrass, or St. Louis Rivers. In Colby Lake, the community water supply for the City of Hoyt Lakes, aluminum, iron, copper, and mercury concentrations already exceed Minnesota water quality standards. The existing large number of water quality exceedances and the suite of constituents, particularly trace metals, exceeding standards 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 their presence should be identified in the DEIS. Related cumulative-impacts issues such as groundwater drawdown or mounding due to multiple mine projects, water quality in aquifers impacted by previous and existing other mine projects, and surface waters such as the Partridge and Embarrass Rivers and Second Creek that are impacted by multiple mines need further analysis. In particular, the contribution of legacy contamination from the LTVSMC plant site and tailings basin must be fully evaluated.
- The Cumulative effects of noise and vibration. These issues have not been analyzed although they were raised by the public during scoping.
- The Cumulative risk analysis of transportation of hazardous materials. This issue has not been analyzed.

- The cumulative effects on fish and macroinvertebrates. This discussion is limited to sulfate and mercury. Cumulative effects of habitat degradation on the fisheries of the region have not been discussed.
- The cumulative effects of the Project on the 1854 Ceded Territory has not been addressed.
- The cumulative effects on air quality have not been adequately addressed. The cumulative analysis did not account for all of the PolyMet emissions from the tailings basin, nor did it factor in emissions from the Keetac Expansion Project. The attainment for $PM_{2.5}$ is questionable because the 24 hr standard is almost met without those sources included in the modeling. The Class 1 PM_{10} increment analysis did not take into account the full particulate emissions from the tailings basin. That analysis also did not factor in any emissions from the Keetac Expansion Project, which plans to increase production by 61% by reopening another furnace line, nor is there any mention of the Essar Steel Expansion project that is planned. The present analysis showed that there was very little increment left without accounting for these sources and that as such it would have a significant impact by exceeding the increment limit. Data from the Central Regional Air Planning Association (CenRAP) indicate that visibility in Minnesota Class I areas is not expected to improve as much as is required by the Regional Haze Rule, even with expected reductions. Aggressive mitigation of NOx emissions is expected by the MPCA and the FLM's during the permitting process. The Tribal cooperating agencies should be included in these discussions to the extent possible.

Fond du Lac is specifically concerned that water quality within the St. Louis River has already been degraded by past and present mining activities, as documented by Fond du Lac and 1854 Treaty Authority monitoring. Additional discharges of sulfate, mercury and other trace metals will have a cumulative effect on water quality in the St. Louis River. An Antidegradation Analysis for the Lake Superior Basin must be conducted for several contaminants in addition to mercury. The results of this analysis should be included in the DEIS.

In summary, Fond du Lac believes that the DEIS as published does not contain sufficient detail or complete analysis to ensure that environmental consequences of the Project have been fully considered, and the public provided opportunity for review. The deficiencies identified throughout the EIS process by the tribal cooperating agencies have been rarely addressed, let alone incorporated into the analysis. Outstanding significant issues include:

- Elimination of the underground mining alternative
- Inadequacy of scoping process
- Inclusion of the proposed land exchange in this EIS process
- Full discussion of appropriate financial assurance for reclamation, remediation and restoration of resources
- Long-term treatment of contaminated water/consistency with maintenance-free closure goals
- Clear discussion of PolyMet liabilities for legacy contamination, and inclusion of existing levels of groundwater contaminants in modeling predictions
- Indadequate water quality impacts analysis
- Project's affect on existing water quality impairment (mercury bioaccumulation)
- Project's affect on wild rice waters (sulfate loadings)
- Project's affect on wildlife corridors
- Project's affect on air quality (new source of mercury; visibility in Class 1 airshed)
- Inadequate analysis of geotechnical stability (waste rock stockpiles, tailings basin, hydrometallurgical residue cells)
- Inadequate hydrologic and geochemical characterizations using all existing data; insufficient new data to support modeling and assumptions
- Inadequate assessment of indirect impacts to wetlands

- Inadequate cumulative effects analysis, across all resource categories
- Inadequate analysis of impacts to the 1854 Ceded Territories and exercise of treaty rights
- Inadequate analysis of environmental justice issues
- Inadequate analysis of climate change impacts

Fond du Lac expects that supplemental information and analysis must be forthcoming before the EIS process can conclude. We look forward to continued involvement and consultation on this Project and EIS process.

Sincerely,

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