Fond du Lac Band of Lake Superior Chippewa

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SENT ELECTRONICALLY
Minnesota Department of Natural Resources
Attention: NorthMetPermitting.DNR@state.mn.us
500 Lafayette Road N., Box 45
St. Paul, MN 55155-4045

March 6, 2018

Re: Fond du Lac Band of Lake Superior Chippewa comments and objections to draft NorthMet permit to mine

Dear Commissioner Landwehr:

The Fond du Lac Band of Lake Superior Chippewa ("Band") appreciates this opportunity to comment on the draft PolyMet Permit to Mine. In this letter, the Band raises objections to the draft Permit under Minn. R. 6132.4000, and presents comments raising its other concerns with the draft permit.

I. Statement of Interest and Actions the Commissioner Should Take

As described in more detail below, the Band may file these objections because the Band owns land that will be affected by the proposed operation, it is a "government having responsibilities affected by the proposed operation," and because its objections raise material issues of fact relating to the proposed operation."[1]

The Band is a federally recognized Indian tribe and a member band of the Minnesota Chippewa Tribe ("MCT"). The Band was a cooperating agency on the Project during the National Environmental Policy Act review process, along with the Grand Portage and Bois Forte Bands. All the Bands involved retain hunting, fishing, and other usufructuary rights that extend throughout the entire northeast portion of the state of Minnesota under the 1854 Treaty of LaPointe[2] (the "Ceded Territory"). Band members rely on those rights to hunt, fish and gather natural resources in the Ceded Territory for subsistence, cultural and religious purposes, and the Bands accordingly have a legal interest in protecting natural resources on which those rights depend. In addition, the Fond du Lac Band holds and occupies a Reservation established as the Band's permanent home by Treaty with the United States and which lies directly downstream from the Project. The Band provides governmental services to Band members and other qualifying persons. The Band

[1] Minn. R. 6132.4000 subp. 2 item C.

[2] Treaty with the Chippewa, 1854, 10 Stat. 1109, in Charles J. Kappler, ed., *Indian Affairs: Laws and Treaties*, Vol. II (Washington: Government Printing Office, 1904), available on-line at http://digital.library.okstate.edu/kappler/Vol2/treaties/chi0648.htm (last visited Mar. 10, 2014).

accordingly has rights and interests in ensuring that its reservation lands and waters and the natural resources on which Band members depend are not adversely affected by the Project.[3]

We raise grave concerns at this time that after more than ten years of environmental review, and agency assurances that significant environmental impact analyses deferred during that phase would be resolved during the permitting phase, we are still left questioning far too many environmental controls on PolyMet's proposed NorthMet project that will be necessary for it to be in compliance with the law. Just as during the environmental review process, critical information is either buried in thousands of pages of text, appendices and supporting technical documentation, or was not developed at all. It is no simple task, for example, to discern how PolyMet proposes to meet water quality standards in surface waters and groundwater at both the Mine Site and the Plant Site. It is hard to imagine how an ordinary concerned citizen can navigate their way through the daunting, massive maze of applications and updates, appendices, attachments, design drawings, management plans, technical support documents; then cross-walk that information with the draft special conditions, and reach an informed conclusion that this project, if permitted, will meet all applicable standards, or is even being required to meet those standards through enforceable limits and conditions. Review of these documents indicates that the draft permit fails to comply with state law as the plans for the project are based on unsupported and unsupportable assumptions, and because the draft permit fails to establish specific enforceable criteria necessary to ensure that the requirements of state law are satisfied.

The Application for the permit to mine (plus 18 appendices) and the MNDNR's draft special conditions together constitute the draft permit to mine. Some of the appendices describe how various facility components will be constructed, but others contain information that was never intended to become part of an enforceable permit; rather, it was intended to be "refined" during permitting. For instance, Appendix 16 contains the entire Final Environmental Impact Statement and Related Environmental Reports, but the NorthMet project has changed substantially since the project as described in the Final EIS, so it is not clear how the FEIS has actually been 'incorporated' into permitting. Appendix 17, which according to the table of contents contains various "workplans," contains only a "Conceptual Plan for Bedrock Groundwater Flow Mitigation" and does not include the "Geotechnical Investigation Work Plan," "Monitoring Wells North of the Mine Site: Installation and Hydrogeologic Monitoring Plan," and "Engineered Wetland Pilot Scale Testing Work Plan" as expected. The text indicates these "workplans" are no longer intended to be part of the Application.[4]

[3] *See* Minn. R. 6132.4000 subp. 2 item C.

[4] Appendix 17 stipulates that the Geotechnical Investigation Work Plan "is no longer included in the Application. It was previously submitted as part of version 1 of this Application; this document has since been removed from the Application, and the work began at the Plant Site. Agency review (DNR and MPCA) of this work plan was on a separate timeline than this Application." For the "Monitoring Wells North of the Mine Site: Installation and Hydrogeologic Monitoring Plan" Appendix 17 states that "[t]his document is no longer included in the Application. Due to the timing of this work, it is going through agency review (DNR

It is not reasonable or consistent with state law for the MNDNR to publish for review and comment a permit that is vaguely written, cross-references to contradictory or incompatible portions of an earlier FEIS, includes plans that do not exist, or that includes plans and supporting documents that are out-of-date and no longer part of the proposed project. Additionally, the MNDNR has omitted a key element of this definitive permit: to specify the term of the Permit. The establishment of a term for the Permit is absolutely essential, because a permit to mine is "irrevocable during its term," unless the Permittee violates the terms of the Permit.[5] But in reviewing the draft permit and the Permit to Mine Application, it appears that this omission is deliberate, as PolyMet has not been required to submit the information and analysis necessary for the MNDNR to determine the length of time that will be needed for all mine-related activities, including reclamation and post-closure activities. PolyMet's failure to clearly disclose how long they will need to provide active wastewater treatment and maintain other environmental infrastructure is not consistent with Minnesota metallic mining statutes.

For these reasons alone, the draft permit to mine does not satisfy and cannot satisfy the requirements of Minnesota law. It should be denied as currently written, and the Commissioner should take action under Minn. R. 6132.4000 subp. 2 item D and subp. 3 item A to resolve these issues so that if a permit to mine is issued, it is based on proper scientific, engineering and economic analysis, and subject to terms and conditions that ensure the project complies with the law.

The Band submits the following additional specific comments and objections relevant to major environmental concerns that we have consistently raised throughout our engagement in the environmental review process. We do not believe that the draft permit to mine sufficiently dispels those concerns, nor does it comply with Minnesota mining rules intended to protect the public, and that we rely upon to protect our reservation lands and waters and vital treaty resources.

II. The Band's Objections and Reasons Supporting Them

The Band's objections, and the specific reasons supporting them, are as follows.

1. **The PolyMet draft permit to mine does not ensure safe tailings storage using modern technology at an appropriate site to minimize potential adverse impacts to property, natural resources, groundwater and surface water, nor does it require a final design that demonstrates stability and compliance with sufficient factors of safety at the tailings basin.**

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and MPCA) on a separate timeline than this Application." Appendix 17.4 was intended to include the "Engineered Wetlands Pilot Scale Testing Work Plan" but instead consists of a statement that "this document is no longer included in the Application. Due to the timing of this work, it is going through agency review (DNR and MPCA) on a separate timeline than this Application."

[5] Minn. Stat. § 93.481 subd. 4.

Minnesota rules define reactive mine waste to include waste that releases "substances that adversely impact natural resources."[6] Whether or not tailings seepage and seepage from Category 1 waste rock will be acid-generating, they will contain sulfur, metals and other constituent that would harm natural resources if released the environment. PolyMet admits that its tailings will have the potential to release "metals and other parameters of concern" and that Category 1 waste rock may release metals.[7] As such, its permit must comply with the State's goal that "[r]eactive waste must be . . . disposed of, and reclaimed to prevent the release of substances that result in adverse impacts on natural resources."[8] That goal must be met by the construction of a professionally-designed "reactive mine waste storage facility" that will "at closure, permanently prevent substantially all water from moving through or over the mine waste and provide for the collection and disposal of any remaining residual waters that drain from the mine waste in compliance with federal and state standards."[9] The Minnesota Administrative Rules enshrine these as the most important goals and components of a mining permit.[10]

Moreover, the mine permit must include provisions for closure and post-closure maintenance, under which "[t]he mining area shall be closed so that it is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free."[11] When a mining site is permanently shut down, the permittee must implement its reclamation plan and accomplish certain reclamation goals, including "drainage of the basins" and "integrat[ion of] the area into the natural watershed."[12]

PolyMet's proposed method of tailings storage, as incorporated into the draft permit, does not comply with these requirements. It does not minimize adverse impacts to property, water or other natural resources from tailings waste facility seepage or that would result from tailings dam failure, or meet the closure and post-closure requirements. And the method that PolyMet proposes is based on unverified or unsupported assumptions that are open to question and must be critically analyzed before the permit is issued. These problems are discussed in more detail in the sections below.

2. The Flotation Tailings Basin seepage capture rate has not been supported with evidence

The draft permit calls for reactive tailings to be collected and stored in a Flotation Tailings

[6] Minn. R. 6132.0100, Subp. 28.
[7] PolyMet PTM Application, pp. 255, 257.
[8] Minn. R. 6132.2200 subp. 1.
[9] *Id.* 6132.2200 subp.2 item B(2). The permit may also provide for reactive mine waste to be modified or stored so that it is no longer reactive, *id.* 6132.2200 subp. 2 item B(1).
Although the Commissioner may "allow variance" from other specific reclamation requirements in Minn. R. 6132.2100 and 6132.2300 to .2700 if "their use would inhibit designs necessary to" store and reclaim reactive mine waste so as to protect natural resources from adverse impacts, Minn. R. 6132.2200 subp. 2 item D, nothing authorizes the Commissioner to vary reactive mine waste requirements if necessary to meet other design requirements.
[11] Minn. R. 6132.3200 subp. 1.
[12] Minn. R. 6132.3200 subp. 2 item E(5).

Basin (FTB). Because PolyMet proposes to construct the FTB as a reactive waste storage facility, its permit must describe the FTB's "engineering design, methods, [and] sequence of reclamation" including describing "materials, construction, and operating performance specifications and limitations that must be maintained to ensure protection of natural resources," and which will be designed, constructed, and operated to "minimize hydrologic impacts."[13] Accordingly, the permit must describe how the FTB will be designed and operated to minimize hydrologic and natural resource impacts from the 3,880 gallons per minute (gpm) of water that will seep out of the basin under its current design up to mine year 25, and then the 1,620 gpm of seepage during subsequent long-term maintenance.[14] PolyMet's application and the draft special conditions for the proposed permit fail to show the design by which this goal will be achieved, and backs down from PolyMet's prior commitments in the FEIS, which themselves require verification before they can be relied upon to be sufficiently protective.

The PolyMet FEIS claimed that, during mine operations, 3,860 gallons per minute (gpm) of the total 3,880 gpm of seepage modeled would be collected from the unlined, permanent FTB. This represents a nearly perfect collection rate of 99.5%.[15] It estimated a similar collection rate of 98.8% during long-term maintenance.[16] In order to arrive at this conclusion, the FEIS first assumed that all but 200 gpm (5%) of total NorthMet tailings seepage will be "surface seepage."[17] Then, based on PolyMet's modeling, the FEIS assumed that 100% of both tailings surface seepage and groundwater seepage would be captured on both the east side and the south side of the tailings waste facility,[18] and that 100% of the surface seepage and 90% of seepage retained in groundwater would be captured at the north, northwest and west toes of the tailings storage facility.[19]

Verification of this prediction is fundamental for determining whether this project can even be permitted (both the permit to mine and the NPDES/SDS permit): whether the barrier walls surrounding the tailings basin and the waste rock stockpiles will function as predicted to capture nearly 100% of mine-impacted surface and groundwaters. As Dr. Myers pointed out in his independent expert analysis of the NPDES/SDS permit, compliance with nondegradation requirements is crucially dependent on the seepage collection system "operating perfectly."[20] The proper functioning of this system will also determine whether

[13] Minn. R. 6132.1100 subp. 6; *id.* 6132.2500 subp. 1, subp. 2 item B(2); *id.* 6132.2200 subp. 2 item C(1).
[14] PolyMet FEIS, 5-181, Table 5.2.2-37.
[15] *Id.*
[16] *Id.*
[17] *Id*., 5-179.
[18] *Id*., 5-8, 5-102.
[19] *Id*., 5-186.
[20] Dr. Tom Myers, *Technical Memorandum: Review of PolyMet Project NPDES/SDS Permit Application*, February 19, 2018, for Minnesota Center for Environmental Advocacy) ("Myers NPDES Comments") submitted to the DNR as Exhibit 7 to the Joint Petition for a Contested Case Hearing by Minnesota Center for Environmental Advocacy, the Center for Biological Diversity and the Friends of the Boundary Waters Wilderness (Feb. 28, 2018).

the project complies with permit to mine regulations at Minn. R. 6132.2200, 6132.2500, and 6132.3200. But such verification has not been done.

Instead, in deciding that the PolyMet FEIS was "adequate," the MNDNR relied on PolyMet's promises regarding seepage capture at the tailings waste facility, finding:

> *Groundwater Seepage*. At the Tailings Basin, about 20 gallons per minute of untreated water would be released during closure (all related to Tailings Basin seepage that bypasses the groundwater containment system). This release represents less than one percent of total Tailings Basin water releases.[21]

Despite its promises in the FEIS, in its permit to mine application, PolyMet walks back from its promises in the FEIS that more than 99.5% of total tailings facility seepage will be contained by its seepage capture system. Instead PolyMet states, "tailings basin seepage will be *collected to the extent practical* by the FTB seepage capture systems."[22] This change is substantial and effectively eliminates performance standards.

PolyMet states that it will build various segments of a seepage containment system on the west, north and part of the east sides of the tailings storage facility,[23] but the draft special conditions do not specify any performance standards for this system. PolyMet proposes to furnish criteria, such as containment system trench wall thickness, conductivity and depth "prior to system construction."[24] Despite more than a decade of project planning, revisions and refinements, PolyMet seeks a Permit to Mine based upon a "conceptual" layout and cross-section of the tailings facility seepage containment system.[25] Consistent with its obligations under the Administrative Rules, MNDNR should establish in the special conditions the design and performance criteria that PolyMet must meet in order for this seepage containment system to function as described in the FEIS. Otherwise, Minnesota water quality standards simply cannot be met at the Plant Site.

On the south side of the tailings waste facility, PolyMet acknowledges that groundwater from the existing LTVSMC tailings basin is currently flowing south toward NPDES/SDS monitoring station SD026 at the headwaters of Second Creek, downstream to the Partridge River.[26] But PolyMet's permit to mine Application fails to fulfill commitments made during the FEIS process – commitments that ensured environmental protections and the ability to acquire necessary permits - for 100% collection on the south side of the tailings facilities. Now, however, PolyMet is apparently deferring implementation of critical environmental controls with a statement that does not lead to enforceable permit conditions:

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[21] DNR FEIS ROD, p. 47.

[22] PolyMet Permit to Mine Application, p. 354 (emphasis added). This is one of many examples where the permit application substantially departs from the elements of the proposed project as evaluated in the FEIS.

[23] *Id*., p. 269.

[24] *Id*.

[25] *Id*., p. 270, Figure 10-6.

[26] *Id*., p. 83. *See also* PolyMet FEIS, A-625, "It is acknowledged that there is currently incomplete capture of impacted water at SD026."

> PolyMet is working with Cliffs Erie and MPCA *to evaluate possible improvements* to this system, which will be called the FTB South Seepage Management System for the Project. . . A geotechnical investigation is required to determine *if additional improvements are needed and to develop a design for these improvements, if deemed necessary. If improvements are necessary*, design drawings will be submitted to the DNR for approval and potentially a permit amendment, as determined by the DNR, prior to the initiation of construction.[27]

The DNR draft Conditions for the PolyMet permit to mine fail to require that PolyMet keep those commitments relied upon by the MNDNR to conclude that the PolyMet FEIS was "adequate." They do not set a seepage capture ratio or establish limits to the total amount of seepage that can escape containment without violating Minnesota rules that demand water moving through or over mine waste must be effectively collected.[28] Instead, the MNDNR allows PolyMet to delay seepage capture designs until after a permit is issued and sets no standards for performance:

> Final designs for the cut-off wall for the tailings basin containment system must be submitted to the DNR for review at least 45 days prior to construction of such system. If DNR requests further information, then the Permittee must submit the requested information to the DNR at least 14 days prior to construction of such system.[29]

Despite repeated requests by the Band, other cooperating tribes and tribal agencies, and environmental advocacy groups, no documents, case studies or published literature – or perhaps more relevant, no examples at Minnesota wet tailings facilities - have yet been provided that can demonstrate the rates of seepage capture that approximate those claimed by PolyMet. Absent studies that would support the proposed seepage capture rate claimed by PolyMet, and absent clear conditions in the permit that would require PolyMet to meet specific performance standards as part of a designed reclamation plan, the permit to mine violates Minnesota law. The necessary studies must be done and any permit to mine must be amended to include such conditions.

3. The draft permit assumes, without scientific support or enforceable conditions, that the contaminated groundwater containment systems at both the flotation tailings basin and the waste rock stockpiles will maintain an inward hydrologic gradient at all times.

In PolyMet's modeling for the FEIS, the contaminated groundwater containment systems at both the Flotation Tailings Basin (FTB) and the waste rock stockpiles, including the Category 1 Waste Rock Stockpile were assumed to collect ninety percent of groundwater moving out

[27] *Id*., p. 270 (emphasis added)
[28] Minn. R. 6132.2500, subp. 2, item B(6); Minn. R. 6132.2200, subp. 2, item B(2).
[29] DNR draft permit to mine Conditions, p. 7, ¶55.

of these facilities.[30] Here too, despite numerous requests to the co-lead agencies, we have not been provided with any evidence that this level of effectiveness has ever been achieved before for a cut-off wall, drain, and pump type of system. The co-lead agencies accepted PolyMet's assumption of ninety percent efficiency solely on the presumption that the systems are designed to maintain an inward hydraulic gradient. Under those conditions, any breach in the containment wall would result in water flowing into the tailings basin side of the wall, rather than water escaping from the tailings basin into the surrounding environment.

But that assumption of ninety percent efficiency presumes that the inward hydraulic gradient would be maintained at all times. The FEIS never discusses any scenarios or any percentage of the year during which the inward gradient might be compromised. The Permit to Mine application maintains this unrealistic assumption. The application states:

> The FTB Seepage Containment System will draw down the water table on the Tailings Basin side of the cutoff wall, maintaining an inward gradient and mitigating the potential for tailings basin seepage to pass through the cutoff wall (i.e., any seepage through the cutoff wall would be inward into the FTB Seepage Containment System).[31]

As to the Category 1 Stockpile, the application states:

> The groundwater containment system will collect stockpile drainage and draw down the water table on the stockpile side of the cutoff wall, thereby maintaining an inward gradient along the cutoff wall and eliminating the potential for stockpile drainage passing through the cutoff wall. Potential leakage through the cutoff wall, if it occurs, will be inward into the groundwater containment system.[32]

However, when seeking to find any enforceable requirements of the systems, the only reference for operational requirements that could be found in the Permit to Mine application is the statement that "Proposed performance monitoring for the FTB Seepage Containment System is described in Appendix C of Reference (4)."[33] This cited document is PolyMet's NPDES/SDS permit application. Appendix C states:

> Successful containment system performance will be defined by: maintenance of an inward hydraulic gradient during average annual conditions; and consistent pumping rates, with changes attributable to weather.

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[30] *See* FEIS 3-47, 3-119, 5-51, 5-65, 5-76 to 81, 5-120, 5-145, 5-184 to 187; PolyMet PTM Application at Groundwater Modeling of the NorthMet Flotation Tailings Basin Containment System, Att. C to Water Management Plan, Plant Site.

[31] PolyMet PTM Application, p. 270

[32] PolyMet PTM Application, pp. 288-89

[33] PolyMet PTM Application, p. 269

"Average annual conditions" is not defined. And although it downplays the risk for reversing the gradient, the permit application does admit:

> *As long as heads are higher on the exterior side, there will be negligible flow escaping capture* through the cutoff wall. It is possible that there could be temporary localized ponding of water on the interior side of the cutoff wall during certain events, such as large rain events or snowmelt, *causing heads to temporarily be higher on the interior side* of the containment system than on the exterior side.[34]

The draft NPDES/SDS permit also states:

> The Permittee shall maintain an inward hydraulic gradient across the Category 1 Waste Rock Stockpile Groundwater Containment System as determined by comparing water level measurements from the paired monitoring wells and piezometers taking into account temporary conditions that may result from short-term precipitation or snowmelt events. Short-term precipitation or snowmelt events on the stockpile side of the low-permeability hydraulic barrier must not cause overtopping of the barrier.[35]

There are no clear or specific criteria for "taking into account temporary conditions that may result from short-term precipitation or snowmelt events". This vague language does not ensure that PolyMet must maintain an inward hydraulic gradient at all times, as had been assumed in the modeling for the FEIS. Both state permitting agencies seem to be ignoring the potential for cracks or other breaches in the containment wall, or for water flowing under the bottom of the wall. The permit to mine assumes that these systems will operate flawlessly for hundreds of years, yet visual inspections are not possible, nor does the permit include any specific conditions under which a detailed investigation would be required. These deficiencies in the design must be addressed before the permit can be issued.

At the tailings basin, FEIS modeling suggested that any contaminated water escaping the system would escape through the bedrock aquifer, and would not surface until miles downstream. But if the hydraulic gradient were reversed for a period of weeks during snowmelt conditions or heavy rain events, the result would be contaminated water escaping through the surficial aquifer and surfacing quickly in the wetlands and headwaters of Embarrass River tributaries, where the impact on water quality would be significant.

The FEIS conclusion that *no* groundwater would escape the containment system on the east side of the tailings basin is particularly dubious. The FEIS completely omitted any explanation for why the co-lead agencies assumed that PolyMet could collect 100 percent of seepage in this location, but that assumption is highly unlikely if an inward hydraulic gradient is not maintained at all times. The area immediately below the toe of the dam on

[34] PolyMet NPDES/SDS Application, App. C
[35] PolyMet draft NPDES/SDS Permit, p. 41

the east side is a wetland that receives overflow from the Spring Mine Creek headwaters.[36] Along with Yelp Creek and Second Creek, the FEIS provided no predictions for potential water quality impacts to this waterbody, which would become the headwaters of Mud Lake Creek after the east side of the tailings basin is built up to a higher elevation. This information must be made available for public review before a permit to mine – or, for that matter, an NPDES/SDS permit to mine) – can be issued.

These unsupported and unsupportable assumptions apply equally to the waste rock stockpile liners, and in particular, the Category 1 stockpile, as it will remain a permanent post-closure feature generating reactive mine waste for centuries. The FEIS assumed that all water escaping the collection system would exit via the bedrock aquifer, and virtually all of that water would flow into the mine pits. However, water escaping north of the stockpile, because of a reversal in the hydraulic gradient from mine pit pumping, would likely flow through the surficial aquifer to nearby Yelp Creek. No analysis of this potential groundwater flow path or water quality impacts on Yelp Creek and the uppermost reaches of the Partridge River has been done – but must be, before permitting can proceed.

In both the draft Permit to Mine and the draft NPDES/SDS permits, the state regulatory agencies are relying exclusively on monitoring to not only demonstrate performance of the containment systems but also to reveal any failures and contaminant release to nearby surface and groundwaters. But proposed monitoring wells are spaced to far apart to reliably detect groundwater plumes escaping the containment systems. As described by Dr. Myers, the primary problem with the design's location of the monitoring wells is that the well monitors can only detect contaminants in groundwater that flows directly past them.[37] But the monitoring wells are in very close proximity to the stockpiles and the tailings basin, such that "detailed modeling of the mine site and the plant site showed that contaminant plumes would miss much of the proposed monitoring."[38]

In short, absent studies that addresses these issues, and absent the imposition of clear conditions in the permit that would require PolyMet to meet specific performance standards, the permit to mine violates Minnesota law. The necessary studies must be done and any permit to mine must be amended to include such conditions.

4. "**Wet" closure of the Tailings Basin does not protect the environment, is not permissible under Minnesota regulations, and does not represent mining best practices**

PolyMet will generate approximately 11.3 million short tons of Flotation Tailings annually (approximately 10.3 million in-place cubic yards annually) for an estimated cumulative total of 225 million short tons and approximately 207 million in-place cubic yards.[39] These tailings would be pumped directly, as wet slurry, from the beneficiation plant to the FTB,[40]

[36] PolyMet FEIS 5-199, Fig. 5.2.2-48.
[37] *Myers NPDES Comments* at 74.
[38] *Myers NPDES Comments* at 74.
[39] PolyMet PTM Application, p. 266.
[40] PolyMet PTM Application, pp. 272, 355.

and would be deposited without a liner on top of the existing unlined LTVSMC taconite tailings waste facility.[41] PolyMet has estimated that the liquid component of their wet tailings slurry would be 68.5% by weight or 86% by volume.[42]

The MNDNR clearly recognized these fundamental risks in the long term storage of slurry mine waste, and earlier promulgated a regulation that prohibits the long term storage of slurried waste after mine closure:

> Within three years after the start of the closure of basins constructed for the purpose of mining or processing, or within a longer period if approved by the commissioner, the permittee shall provide for drainage of the basins and reintegrate the area into the natural watershed.[43]

The Application for permit to mine does not provide for drainage of the basins. The project has been designed to accomplish the very opposite: it is intended to *hold* as much water as possible.[44] PolyMet describes their reclamation process for the tailings basin as being designed to "maximize ponding of water in the reclaimed FTB Pond." The intent of the bentonite barrier below the pond is to "maintain a permanent pond."[45] This pond (including wetland area) will eventually cover about 900 acres, or about 3.6 square kilometers, and post-reclamation it is intended to hold that quantity of water in perpetuity. The draft permit must, therefore, be amended to be consistent with the requirement that the basins be drained within three years after the start of closure.

There is no question that the tailings to be deposited in the FTB will be "reactive" as defined by Minn. R. 6132.0100, subp. 28 ("waste which is shown through characterization studies to release substances that adversely impact natural resources").[46] Because of this fact, PolyMet has proposed to minimize sulfate use in their flotation process and to deposit tailings as a "bulk tailing" to reduce the sulfate release rates associated with the coarser tails. In addition to these actions, PolyMet proposes to:

- Maintain a pond on top of the basin at closure to minimize oxidation of Flotation Tailings. At closure, the beaches will cover about 425 acres, and the pond (including wetland fringes) will cover about 900 acres.
- At closure, amend the surface of the FTB dams and beaches, as well as the bed of the pond, with bentonite to reduce oxygen penetration and minimize oxidation of Flotation Tailings.
- Install engineered systems at the toe of the FTB dams to collect water that has contacted the tailings and prevent seepage from migrating into the surrounding surficial materials

[41] *Id*., pp. xxvii, 206, 263
[42] PolyMet Tailings Mgt. Plan, *supra*, in Appx. 11.5 to PolyMet PTM Application, Saint Anthony Falls Tailings Deposition Modeling Report (2011), Table 1
[43] Minn. R. 6132.3200 subp. 2 item E(5).
[44] Permit to Mine Application at 443.
[45] Permit to Mine Application at 443.
[46] Waste Characterization Data Package NorthMet Project, dated February 13, 2015.

MNDNR's rules for mining reclamation as stated in Minn. R. 6132.0200 seek to ensure that the mining area is left in a condition that protects natural resources and minimizes to the extent practical the need for maintenance and establishes a preference for "passive reclamation methods." As discussed above, given that PolyMet does not propose to treat or store the reactive mine waste so that it is no longer reactive, the permit application must show that the storage of reactive mine waste will "*permanently prevent substantially all water from moving through or over the mine waste* and provide for the collection and disposal of any remaining residual waters that drain from the mine waste in compliance with federal and state standards."[47] But PolyMet's tailings basin design for operations and their plan for post-closure maintenance will result in water permanently moving through and over the tailings waste. During operations, PolyMet plans to establish and maintain a pond on top of the tailings basin, into which they will dump untreated process water, untreated seepage collected from the toe of the tailings facility, filtered mine process water, sewage and waste cleaned out of the backwash and filters of the reverse osmosis treatment plant.[48] This is flatly contrary to the Administrative Rules and the permit must be either be denied or amended so that PolyMet's reclamation plan permanently prevents "substantially all water from moving through or over the mine waste."

The draft permit also does not adequately describe the design of the FTB.[49] As with many other draft Conditions, the MNDNR neither requires PolyMet to demonstrate the efficacy of the pond bottom prior to permit issuance nor sets standards for uniformity of application, hydraulic conductivity, or any other operating performance specifications. MNDNR draft Conditions for the Permit to Mine state only that the Permittee must prepare a workplan within 90 days *after* permit issuance to show that "the pond bottom will perform as intended."[50] Such an open-ended provision is not the proper condition of a permit, much less one that would ensure compliance with Minnesota law. PolyMet's permit must either be denied, or amended to include a design for a reactive mine waste storage facility that meets the requirements of Minn. R. 6132.2200 and 6132.2500

5. The Tailings Basin as Proposed Will Not Meet Applicable Safety Standards

During the EIS process, the tribal cooperating agencies specifically requested an analysis of the impacts that could occur if the tailings basin failed. We noted several recent and catastrophic tailings dam failures, which elevated the need for a comprehensive and rigorous dam break analysis to inform design decisions and mitigation strategies in the environmental review process. PolyMet has proposed using upstream-type dam construction for the FTB dam, which poses the highest risk for both seismic and static

[47] Minn. R. 6132.2200, subp. 2 item B(2) (emphasis added).
[48] PolyMet PTM Application, Figure 11-5, Project Water Balance in Mine Year 10.
[49] *See* Minn. R. 6132.2200 subp. 2 item C.
[50] DNR draft Conditions, p. 11 ¶88.

failure, and most tailings dam failures have been associated with upstream construction.[51] To date, the MNDNR and the project proponent declined to provide any safety analysis, because they assured us the dam would be designed so that it would not fail (i.e., meet all safety factors). There are clearly substantial and adverse impacts that could occur through dam failure that were not analyzed in the EIS process but rather left until the permitting stage. Review of the draft permit indicates that the necessary analysis still has not been done, preventing any conclusion that the dam as proposed will be safe. If the permit does not provide a sufficient analysis that demonstrates the safety of the dam, then it fails to "provide rationale for the site selection, with regard to dam safety"[52] and should not be approved.

As the Band explained in its comments on PolyMet's draft Dam Safety Permit:

> Appendix H of the dam safety permit application includes a very limited dam break analysis[53] which suggests some rather dramatic results (i.e., a 15 foot flood along Trimble Creek). This analysis, prepared back in 2012 and not updated since, states that the purpose of the analysis is to direct emergency response in the "unlikely event of a dam break", and to develop an emergency action plan for notifying property owners in closest proximity to the FTB. PolyMet's dam break analysis is simply inadequate for addressing the requirements in Minnesota rules for determining the hazard classification of dams and the adequacy of dam safety permits[54]. It completely ignores the most critical potential hazards of a catastrophic dam failure: downstream water quality, public health, safety, welfare and the environment. There should be clear and transparent analysis available to the public to understand:
>
> - Potential hazards that would result from a PolyMet dam breach or failure involving mobilization and flow of tailings waste (not just water);
> - Potential hazards that would result from a massive PolyMet tailings dam collapse rather than an assumed breach of limited scope;
> - Potential hazards to municipal water supplies, surface water quality, fisheries, environment and human health that would result from a PolyMet tailings dam failure;
> - Potential hazards that would result from a PolyMet tailings dam failure in cross-section N, adjacent to Second Creek (to the south of the FTB).

[51] David Chambers, Comments on the Geotechnical Stability of the Proposed NorthMet Tailings Basin and Hydrometallurgical Residue Facility in light of the Failure of the Mt Polley Tailings Storage Facility, April 30, 2015, p. 2.
[52] Minn. R. 6132.2500 subp. 2 item B(1).
[53] Barr Technical Memorandum, FTB Dam Break Analysis, Dec. 4, 2012, Attachment H of FTB Mgt. Plan ("FTB Dam Break Analysis").
[54] Minn. R. 6115.0410, Subp. 8

PolyMet noted the implications of the volume of tailings that could be mobilized and carried downstream in the event of a dam breach:

> The most significant unknown breach parameter for a tailings basin dam is how much of the tailings would be suspended and carried downstream in the event of a dam breach. Studies have shown that in many cases only 30 percent of the volume in the basin is carried downstream, however basin dam breaks have been recorded where up to 80 percent of the volume was carried downstream.[55]

Yet, they chose to model only this limited, minor FTB breach using a dam break model that models only the release of water, not sulfide tailings mobilization and flow, which would result in substantially more significant hazards to human health and the environment.

Although the south side of the proposed PolyMet FTB dam is not as close to private homes as the north, PolyMet's proposed "Cross-Section N", a section through the south perimeter dam of FTB Cell 1E, is immediately adjacent to Second Creek, near wetlands and near the proposed corridor for the Colby Lake Water Pipeline. If a dam failure occurred at this location, it could have devastating consequences including contamination of water, wild rice, fish and other biota, and potentially, the municipal drinking supply for the City of Hoyt Lakes (Colby Lake). And it is uncertain, without sufficient analysis, how far downstream these consequences could be perpetuated.

The failure to require any FTB dam break analysis pertaining to tailings, environmental consequences, catastrophic failure and breach on the south side of the dam appears highly irresponsible on the part of the permitting agency and inconsistent with state regulations. It is hard to fathom how PolyMet can provide a sufficient Contingency Action Plan (CAP), which is an element that requires approval from the DNR dam safety engineer prior to construction, without these critical analyses. The DNR must require that PolyMet perform additional modeling of potential hazards that could result from a FTB dam breach using appropriate software designed to reflect the characteristics of tailings. The tailings dam breach analysis must be sufficient to broadly address all statutory permitting factors related to public health and the environment, not just the timing and logistics of notification to nearby property owners. In order to fully evaluate potential hazards to public health, safety, welfare and the environment, as required by Minnesota statutes and rules, the DNR must require PolyMet to analyze impacts of the release of contaminated water and slurry on wetlands, drinking water supplies, surface waters, fish and wild rice downstream *in any direction* of the proposed PolyMet FTB. Given that municipal drinking water and fish would be contaminated with heavy metals such as lead, arsenic and methylmercury if a major dam failure occurred, the DNR must require PolyMet to evaluate the human health and economic costs of dam failure and downstream contamination.

[55] Application for Dam Safety Permit, Appendix H, pp. 6-7.

PolyMet has also changed its proposed method of construction the dam, which raises questions of material fact about whether the design of the tailings basin will "ensure protection of natural resources . . . ."[56] During the FEIS process and as recently as the FTB dam permit application, PolyMet was proposing to include Cement Deep Soil Mixing (CDSM) in conjunction with dam toe buttressing for constructing the dam. This proposed approach was specifically presented in the FEIS to address numerous comments expressing significant concerns for dam safety factors and stability. As we noted in our comments on the draft dam safety permit, apparently the CDSM method is no longer being considered for constructing the new FTB dam, and PolyMet is proposing to use larger, modified toe buttressing as an alternative. The Band raised significant concerns that this major modification in FTB dam construction has not been appropriately evaluated since it was not included in the FEIS and has not been subject to the environmental review process. While certainly we have questions about the effectiveness (in achieving geotechnical stability) of the larger dam toe buttressing compared with using CDSM, we are also fundamentally concerned about how constructing larger toe buttresses will affect other permits (e.g., wetlands and water appropriations). There will be increased direct wetland impacts from the additional fill required for constructing these larger buttresses than what was analyzed in the FEIS, and there are potential affects to the proposed seepage capture and collection system for contaminated water discharging at the FTB toe.

Given the already-substantial direct and indirect wetland impacts associated with the project as reviewed in the FEIS, the Band believes it imperative that this significant change in dam construction should undergo further environmental analysis to more clearly understand how dam stability and potential impacts to wetlands and water resources will change. This additional analysis is necessary to inform the permitting decision and requirements for the FTB, as well as the pending US Army Corps of Engineers' record of decision and permit issuance, since decisions to date (e.g. US Forest Service) were based on information presented in the FEIS, many critical elements of which have since changed. Changes to the project after the FEIS was completed and which, as here, substantially alter the project's impacts on the environment warrant further review and consideration before decisions on permits can properly and lawfully be made.

Additionally, the Band would expect the MNDNR, in enforcing Minnesota Rules that require tailings basins be designed to be safe and minimize hydrologic impacts, would have rejected PolyMet's Permit to Mine Application unless and until it could produce a tailings dam design for its outdated wet slurry tailings storage on a site with poor foundations that would meet minimum safety requirements. But instead, MNDNR proposed in its draft Special Conditions that PolyMet would prepare a tailings basin buttress "no later than 30 days following permit issuance . . . to demonstrate to the DNR that the use of the buttress material will meet all applicable standards, statutes and regulations to be protective of natural resources."[57] PolyMet has had more than ten years to design a tailings basin that meets safety standards; giving PolyMet 30 days after permit issuance to come up with that

[56] *Id.* 6132.2500 subp. 2 item B(2).
[57] DNR draft Conditions, p. 4 ¶26.

design provides no protection to natural resources and prevents public scrutiny of this integral project feature. As written, this draft permit simply does not satisfy Minnesota law, and the DNR should require that, before any decision is made on the proposed permit, the design be submitted and subject to review and approval.

6. The PolyMet draft permit to mine fails to provide an appropriate site, foundation or long-term management plan to prevent structural failure and release of concentrated and toxic waste from the hydrometallurgical residue facility.

The hydrometallurgical waste residue facility (HRF) would create a serious potential hazard to water quality, natural resources and downstream property owners if its dams were to fail, if its unstable foundation resulted in liner leakage, or if its inadequate long-term management plan resulted in release of concentrated wastes over time. The HRF is proposed to be located on an inappropriate site, on an unstable foundation that renders it structurally unsound and lacks a management plan to ensure that its hydrologic impacts will be minimized.[58]

The proposed site for the hydrometallurgical residue facility is located on 36.1 acres of wetlands,[59] which is inherently unsuitable for a facility storing highly concentrated and toxic wastes in perpetuity. Although PolyMet contends that HRF wastes are not "hazardous," there has been no comprehensive waste characterization performed to support that assertion.[60]

The engineering consultants retained by the DNR to review HRF dam safety considered the seriousness of the potential for HRF dam failure, due to inadequacy of the foundation beneath the proposed HRF and the risk of liner deformation. The EOR (Emmons & Olivier Resources) Dam Safety Review team advised the DNR in May 2017, "The soft ground beneath the proposed residue facility consists of up to 30 feet of slimes, peat and tailings concentrate. This will not be an adequate foundation for the 80 foot high basin."[61] The EOR review further noted, "The basin will have a geomembrane or geosynthetic liner. The liner could deform and fail if the existing underlying material cannot support the material added to the basin."[62]

PolyMet does not propose to excavate the existing hazardous waste in the previous LTV Emergency Basin to ensure a stable foundation beneath the HRF. It has proposed placing a "preload" to "compress" or "consolidate" the slimes, peat and tailings on the site.[63] This

[58] *See* Minn. Stat. §93.44; Minn. R. 6132.0200; Minn. R. 6132.2000, subp. 5, item C.
[59] PolyMet FEIS, 5-321, Figure 5.2.3-19.
[60] PolyMet proposes to characterize residue and coal ash wastes before disposal in the HRF. PolyMet PTM Application, p. 273. Minn. R. 7045.0214 describes evaluation of hazardous waste, including residues.
EOR (Emmons & Olivier Resources) Review Team, PolyMet Dam Safety Permit Application Review, May 15, 2017, p. 5, MDNR website at http://files.dnr.state.mn.us/lands_minerals/northmet/dam-safety/memo_dam_safety_permit_review20170515.pdf
[62] *Id.*, p. 6.
[63] PolyMet PTM Application, pp. 277, 357

engineering approach did not work as intended under similar conditions at a recent Superfund remedial site in the St. Louis River Area of Concern (the St. Louis River Interlake Duluth Tar site), where surcharging was done to compress a thick layer of contaminated sediments overlaying peat layers in a shallow embayment.[64] There is no reason to expect it to provide any additional stability to the HRF; the existing wastes should be excavated before attempting to establish a protective liner and leachate capture system.

There is no emergency overflow mechanism proposed for the HRF to prevent overtopping or dam failure during a massive precipitation event or in the event of disruption or blockage of the return water pipeline. PolyMet's PTM Application admitted that if the return water system "were to fail or be accidentally shutdown" overflow would occur.[65] If the overflow occurred to the northwest, it might be intercepted by the tailings seepage containment system. But, "If the overflow were to overtop the dams to the west or the south instead of the northwest, the HRF water would enter the Plant Site stormwater system, which outlets to a tributary to Second Creek."[66] Despite the significant threat to surface water resources from hydrometallurgical waste facility overflow, the MNDNR has not imposed any conditions requiring analysis of a maximum precipitation event on the HRF facility, or required a containment system to ensure that toxic and concentrated residue wastewater would not escape into groundwater to the northwest or surface waters of the United States on the west and south. Such conditions must be made part of the permit to prevent overtopping of the basin, as required by Minn. R. 6132.2500 subp. 2 item B(3).

One of MNDNR's assumptions that allows them to consider locating the HRF on an unstable wetlands site near Second Creek is that "virtually all" of the leakage through the upper layer of the double liner system will be captured by PolyMet's proposed leakage collection system.[67] However, PolyMet's plan for HRF maintenance post-closure is insufficient and short-lived:

> The frequency of monitoring will decrease and monitoring will eventually cease once the cover system has been completed, once vegetation has become established, and once it is confirmed that there are no areas where surface runoff is becoming channelized and causing erosion of the facility dams.[68]

This does not meet the requirement that a permit to mine must include a "schedule for the design engineers to inspect the . . . reclamation of the tailings basins, including closure and postclosure maintenance, to assure compliance with the design."[69] The MNDNR should

[64] Sediment Operable Unit Remediation Project Completion Report – Revision 1, St. Louis River/ Interlake/Duluth Tar Site (2013), prepared for XIK Corp. by aether dbs
[65] PolyMet PTM Application, Residue Management Plan, p. 35.
[66] *Id.*
[67] *Id*., pp. 274, 276.
[68] *Id*., Residue Management Plan, p. 36.
[69] Minn. R. 6132.2500 subp. 2 item B(7).

require a proper design and sufficient monitoring to assure compliance with the rule before any permit is issued.

7. HRF leachate has not been sufficiently characterized, nor adequate protections provided

According to the record of technical documents associated with the HRF, approximately 313,000 tons of highly concentrated hydromettalurgical process waste would be deposited annually in the HRF if PolyMet processed all of the nickel flotation concentrate streams it plans to produce.[70] Although PolyMet has repeatedly maintained that its concentrated hydromet residue waste would not be "hazardous," the company admits that HRF waste would be acidic and that over the long term acid generation would likely be greater than neutralizing capacity.[71] And, in its application, PolyMet apparently contemplates that, the very least, the slurry deposited in the HRF basin will be "reactive waste" that will adversely impact natural resources, if released into the environment.[72]

The Co-Lead Agencies for the FEIS acknowledged that 164 pounds of mercury would be deposited in the HRF each year.[73] Therefore, over the course of the proposed 20-year mine life, up to 3,280 pounds of mercury could be deposited in the HRF. PolyMet technical reports indicate that hydromet residue would have sulfate levels of 7,347 milligrams per liter.[74] The FEIS also anticipated that sludge from wastewater treatment would be stored in the HRF,[75] although none of the HRF dam permit documents specify whether the company still plans to deposit sludge from the WWTP in the HRF. This sludge from wastewater treatment reject concentrate could contain concentrations of arsenic, lead, manganese, copper and other metals as much three orders of magnitude above applicable water quality standards.[76] It is difficult to reconcile this level of hazardous waste with the cavalier description in the DNR Permit Fact Sheet as simply consisting of 70% gypsum and "an assortment of other minerals".

The Band finds it is disturbing that this draft HRF dam permit proposes to authorize permanent storage of highly concentrated and toxic waste on top of wetlands adjacent to St. Louis River tributary streams, while DNR regulators have not required PolyMet to

[70] HRF Mgt. Plan, p. 6. PolyMet FEIS, 1-5, 3-117, available at http://www.dnr.state.mn.us/input/environmentalreview/polymet/feis-toc.html

[71] HRF Mgt. Plan, p. 6.

[72] *Compare* PolyMet PTM Application, p. 273 (claiming that HRF Basin will be operated to comply with Minn. R. 6132.2200 (governing storage of reactive mine wastes)) *with* Minn. R. 6132.1000 subp. 28 (defining "reactive mine waste").

[73] PolyMet FEIS, A-414.

[74] February 2007 PolyMet RS33/RS65 Hydrometallurgical Residue Characterization, February 2007

[75] PolyMet FEIS, 3-53, 5-101 and Figures 3.2-12, 3.2-13, and 5.2.2-20. No HRF dam permit documents discuss whether PolyMet still plans to deposit wastewater sludge in the HRF.

[76] See PolyMet FEIS reference PolyMet 2015m, at autop. 452, data showing wastewater reject concentrate, even before it is dewatered would contain: 1,150 µg/L of arsenic (2 µg/L criterion for drinking water); 16,600 µg/L of manganese (100 µg/L HRL for drinking water); 847 of cobalt (5 µg/L surface water limit); 11,600 µg/L of copper (9.3 µg/L limit in water with 100 mg/L hardness); 1,290 µg/L of lead (3.2 µg/L limit in water with 100 mg/L hardness).

characterize and disclose in their permit application the chemical parameters of the metals processing wastes that the company proposes to store, as required by the Minnesota Administrative Rules.[77] And even though the DNR's consultants raise credible dam failure scenarios, and even though serious concerns about the impacts of HRF waste release on water quality have been raised by the Band and numerous other commenters during multiple years of environmental review, the DNR has not required PolyMet to analyze and disclose the downstream impacts to water qualities, fisheries and public health in the event of dam failure at PolyMet's proposed HRF waste facility. As a downstream water quality regulator, with responsibility to protect the waters of the Fond du Lac Band's Reservation, the Band finds that wholly unacceptable. All of these steps need to be taken to adequately rationalize the site selection and properly describe how the HRF design will ensure protection of natural resources, before any permit to mine is issued[78].

8. Single Wastewater Treatment facility (elimination of mine site WWTF) has not been shown to be sufficiently protective

In a major change from the plans examined in the FEIS, the PolyMet permit application proposes to eliminate the Wastewater Treatment Facility (WWTF) at the mine site and seeks early approval of passive non-mechanical treatment for wastewater post closure. This conflicts with Minnesota law, which requires that copper-nickel mining be conducted to reduce impacts, mitigate unavoidable impacts, ensure that the mining area is left in a condition that protects natural resources, and maximize the physical, chemical, and biological stabilization of areas disturbed by mining.[79]

Throughout the entirety of environmental review - in the draft EIS, supplemental draft EIS and the final EIS - PolyMet's operations plan have included a mine site WWTF. Beginning with the release of the supplemental draft EIS, PolyMet has assured that their project would protect water quality in the Partridge River watershed by upgrading the mine site WWTF during closure to provide reverse osmosis treatment of discharge and collected seepage.[80] In the final EIS, the WWTF is an essential part of the company's plans to protect water quality at the mine site during operations, closure and post closure, and provides flexibility for adaptive engineering and contingency mitigation. The WWTF is referred to hundreds of times in the final EIS, and FEIS modeling of solute levels in mine site surficial aquifer and surface water included treatment at the WWTF as a fundamental assumption.[81]

Among the many benefits the mine site WWTF was touted to provide are the following:

[77] Minn. R. 6132.1000 subp. 3 item A.
[78] Minn. R. 6132.2500 subp. 2 item B(1)-(2).
[79] Minn. Stat. §93.44; Minn. R. 6132.0200.
[80] MDNR et al., PolyMet NorthMet Supplemental Draft Environmental Impact Statement, Nov. 2013 ("PolyMet SDEIS"), see e.g. ES-24, Fig. 3.2-1, Fig. 3.2-13. Fig. 3.2-19.
[81] PolyMet FEIS, see 5-117 to 5-118, 5-162 to 5-178, 5-224 to 5-232 regarding solute modeling.

- During operations, the WWTF would treat mine processing water to reduce chemical parameters before wastewater was piped to the tailings pond for use at the plant site.[82]

- Process water treated at the mine site WWTF would be used to flood the East Pit after it was backfilled with waste rock, then flood the combined East Central Pit to ensure subaqueous disposal conditions and reduce sulfide oxidation and metals leachate.[83]

- Reverse osmosis or equivalent technology would be added to the mine site WWTF at closure. The WWTF would also be an adaptive engineering control that could be "adjusted as needed to manage sulfate concentrations," and "could be expanded or treatment capabilities modified to meet water quality standards."[84]

- When the West Pit is full, the discharge would be pumped to the mine site WWTF (upgraded to include RO or equivalent technology) for treatment to meet water quality standards before discharge into the West Pit Overflow Creek south of the Mine Site.[85]

- Category 1 waste stockpile drainage from the seepage containment system would be treated at the mine site WWTF during closure and reclamation.[86]

- The mine site WWTF "would be maintained to treat pit lake water quality for as long as necessary."[87]

- West Pit water would be treated and returned to the West Pit to manage water quality within the pit prior to groundwater outflow from the pit lake through the surficial aquifer.[88]

- "By pumping pit lake water to the WWTF, the pit water level would be managed to always provide sufficient freeboard to absorb extreme precipitation events without overflowing."[89]

- Water from the combined East Central Pit would also be pumped to the mine site WWTF and treated and then sent to the combined East Central Pit and West Pit to improve pore water quality migrating through the surficial aquifer to the Partridge River.[90]

- During post-closure, the mine site WWTF would continue to operate until such time as monitoring and pilot-testing demonstrated that a transition could be made to non-mechanical treatment.[91]

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[82] PolyMet FEIS, 3-53, 5-101, 5-184.
[83] *Id*., ES-23, 3-47, 5-101, 5-104.
[84] *Id*., ES-25, 3-52, 5-236, 5-237.
[85] *Id*., 3-65. 3-72.
[86] *Id*., 3-66, 3-72.
[87] *Id.*, ES-24.
[88] *Id*., 3-72
[89] *Id*., 5-105.
[90] *Id.*, 3-72, 5-102, 5-103.
[91] Id., 5-8

- Treatment at the mine site WWTF could also be used as contingency mitigation if West Pit water quality or Tailings Basin pond water quality was worse than expected.[92]

- If groundwater extraction wells were required as contingency mitigation due to northward flow of mine site groundwater, the extracted water would be treated at the mine site WWTF.[93]

The MNDNR's adequacy determination for the PolyMet FEIS emphasized the functions of the WWTF.[94] The agency relied on the WWTF to provide adaptive engineering, adaptive mitigation, contingency mitigation and to achieve compliance with water quality criteria. The MNDNR Record of Decision (ROD) findings specified that the project would include a "WWTF at the Mine Site (upgraded in closure to include reverse osmosis or an equivalently performing technology)."[95] The ROD repeated that "The WWTF would be upgraded to a reverse osmosis ("RO") process or equivalently performing technology that would meet water quality targets during closure and long-term maintenance to manage sulfate concentrations."[96] However, in a radical departure from the plans that were analyzed throughout the EIS process, the PolyMet permit to mine Application now contemplates that the treatment train proposed for the mine site WWTF instead be located at the plant site.[97]

The elimination of the mine site WWTF will profoundly increase the toxicity of materials being piped across eight miles of wetlands. The effluent to be pumped from the mine site High Concentration (West) Equalization Basin would contain copper and nickel levels at orders of magnitude higher concentration (far exceeding levels toxic to fish and aquatic life), and concentrations of manganese and lead far above the levels neurotoxic to humans, than would have been transported if a mine site WWTF had treated these wastes before piping them to the plant site. Even the untreated Low Concentration (East) Equalization Basin wastewater would contain concentrations of copper and nickel hundreds of times greater than in WWTF treated effluent.98 Sulfate concentrations in the High Concentration (West) Equalization Basin would be 9,010 milligrams per liter (mg/L), more than 900 times the wild rice sulfate standard applicable downstream in the Partridge River.[99] Sulfate in the "Low" Concentration (East) Equalization Basin would be 2,450 mg/L, 245 times the wild rice sulfate standard.[100] Those two sources alone will multiply by several hundred-fold the

[92] Id., 5-239.
[93] *Id*., 5-242.
[94] DNR FEIS ROD, pp. 23, 30, 39.
[95] *Id*., p. 39
[96] *Id*., p. 54.
[97] PolyMet PTM Application
[98] *See Id.,* Large Table 4 for concentrations in Low Concentration (East) Equalization Basin. Mine Year 14 P90 concentrations include copper 7,410 µg/L; and nickel 24,600 µg/L.
[99]PolyMet Adaptive Water Mgt. Plan, *supra*, Large Table 4, P90 at Mine Year 14. Wild rice sulfate standard of 10 mg/L in waters used for the production of wild rice/wild rice present. Minn. R. 7050.0224, subp. 2; Minn. R. 7050.0222, subp. 5a, item A(19).
[100] *Id*.

concentrations of contaminants being transported to the PolyMet plant site through overland pipelines.

But the ramifications of eliminating the WWTF propagate beyond these two sources of highly polluted wastewater. Treatment of contaminated process water at the mine site will now depend solely on uninterrupted operation of pumps and pipelines. In the event of any disruption in the central pumping system or pipelines, no method of treatment would be available to address contaminated groundwater seepage being managed at the mine site, or overflow of wastewater from equalization basins. Further, PolyMet's characterization of the quality of mine site wastewater being pumped to the plant site is incorrect and misleading. The concentration of pollutants in pipeline water referenced in the permit to mine application[101] are based on earlier modeling that assumed a mine site WWTF would treat mine wastewater before piping it from the mine site to the plant site.[102]

In addition to eliminating the mine site WWTF and its capacity to reduce wastewater contamination on site, the PolyMet draft permit to mine shows the Equalization Basins have been relocated and are now the closest mine features to the Partridge River. There are no apparent provisions for adequate water management that will prevent overflow of these Basins or other mine site wastewater features, which will quickly end up in the Partridge River. In fact, it appears to the Band that a primary reason for eliminating the mine site WWTF was to avoid issuing a permit for cumulative mine site discharges to the Partridge River watershed. Not having a treatment plant at the mine site does not translate into no discharges; it just means that the inevitable discharges to the Partridge River watershed from multiple sources will not be controlled or regulated. This is unacceptable, from a permitting standpoint and for protecting natural resources proximal to the mine site.[103] But it also leaves PolyMet at substantial risk for significant liabilities for unauthorized discharges, for instance if/when the Equalization Basins overtop or stormwater collection systems around wasterock stockpiles are overwhelmed.

9. Transition to Non-mechanical treatment

In violation of the MNDNR rule favoring "passive reclamation methods" and the rules governing reactive mining waste, the draft Permit proposes to authorize closure of the floatation tailings basin in a wet condition requiring permanent active treatment of the water recaptured in the seepage collection system. Additionally, the draft Permit authorizes the creation of mine pit lakes and the permanent Category 1 waste rock stockpile that will require prolonged water treatment of captured seepage. Recognizing the regulatory obstacle caused by the need for hundreds of years of active treatment post-mining, MNDNR incorporated the following requirements in the proposed Special Conditions:

[101] PolyMet Water Mgt. Plan - Mine, *supra*, Large Table 12, in Appx. 11.2 to PolyMet PTM Application.
[102] *Id*., citing the February 2015 PolyMet NorthMet Project Water Modeling Data Package – mine Site as the source of the data.
[103] *See* Minn. R. 6132.0200; 6132.1100 subp. 6 item C; 6132.2000

64. The Permittee's reclamation plan includes mechanical treatment. To further evaluate the goal of non-mechanical water treatment, the Permittee must develop a plan for investigation, design, and pilot testing of non-mechanical water treatment systems. The Permittee must provide this plan to the DNR for review and approval prior to Mine Year 1.

65. Upon DNR approval of the non-mechanical water treatment system plan, the Permittee must provide financial assurance sufficient for the DNR to implement the plan to evaluate nonmechanical water treatment in the event of unplanned closure.

The Application (Part 15.8) indicates that the Applicant has a plan "for transitioning from mechanical water treatment to nonmechanical treatment technologies after the 20-year mine life."[104] These nonmechanical treatment technologies are envisioned for the Category 1 Stockpile Groundwater Containment System, the West Pit overflow, and FTB seepage capture systems, and the FTB Closure Overflow. The Application states "[n]on-mechanical water treatment technologies are proven methods of water treatment" while acknowledging that these methods need to "be tailored" to site-specific conditions, which the Applicant promises to collect.

The PolyMet draft Permit to Mine also assumes a transition to passive non-mechanical treatment at the tailings waste facility. PolyMet is promoting the early transition to non-mechanical treatment and decommissioning of the plant site Wastewater Treatment System (WWTS).[105] PolyMet's proposed "low-maintenance, low-energy, non-mechanical treatment system" for the plant site "is expected to be" a constructed wetland for metal precipitation and solids removal, based on re-building the natural wetlands in the narrow area between the tailings facility and PolyMet's seepage containment trench and a permeable barrier to absorb additional pollutants (PSB).[106]

This strip of created wetlands and PSB is proposed to passively treat tailings seepage collected in the trench at the toe of the tailings facility.[107] In spite of highly elevated concentrations of mercury, copper, and sulfate in seepage from the hydrometallurgical waste facility, PolyMet proposes that concentrated wastewater from the HRF Leakage Collection System treatment would be sent for passive treatment.[108] PolyMet even suggests that if the water in the tailings pond complies with "applicable" water quality standards, it will seek approval "to allow the pond to discharge directly."[109]

[104] PolyMet PTM Application, p. 446.
[105] PolyMet PTM Application, p. 40.
[106] PolyMet Adaptive Mgt. Plan, *supra*, pp. 96-97, Appx. 11.4 to PolyMet PTM Application.
[107] *Id*., p. 96.
[108] *Id*.
[109] *Id*. *See also* PolyMet PTM Application, p. 444. These goals apparently reflect industry expectations for removal of or less stringent sulfate, hardness, total dissolved salts, specific conductance and/or metals standards, as well as inflated claims for the efficacy of passive treatment.

There are no case studies, pilot tests or other reliable evidence demonstrating that passive, non-mechanical treatment would successfully treat either tailings seepage or HRF seepage sufficiently to meet Minnesota's existing water quality standards. Based upon the state's own experience piloting similar wetland treatment at the Dunka wetlands, it should be abundantly clear by now that this non-mechanical technology cannot reduce sulfate to meet MN water quality standards, nor is it likely to provide sufficient nickel removal to meet standards.[110]

Thus, there is no evidence that the planned restoration can be accomplished under "available technology," as required by Minnesota law. [111] Nevertheless, and in violation of MNDNR's legal obligations, the DNR draft Conditions seem to presume a transition to non-mechanical treatment is feasible. They apparently prioritize passive treatment in evaluation of whether dam buttresses will meet safety standards, requiring that "analysis in the work plan must indicate that transition to non-mechanical treatment is *no less likely to occur* with the proposed use of buttress material."[112]

Rather than require that PolyMet make the requisite showing that available technologies make passive treatment possible, MNDNR draft Conditions improperly defer the obligation to set requirements for passive treatment until after a permit to mine is issued:

> To further evaluate the goal of non-mechanical water treatment, the Permittee must develop a plan for investigation, design, and pilot testing of non-mechanical water treatment systems. The Permittee must provide this plan to the DNR for review and approval prior to Mine Year 1.[113]

This Condition sets no requirement that passive water treatment must be shown to achieve compliance with all Minnesota water quality standards and no specifications of the specific type or level of proof that PolyMet must present to demonstrate this compliance, which are necessary components of the "engineering design [and] methods" of reclamation that PolyMet must provide under the Administrative Rules.[114] In spite of these rules and more than a decade of review, the MNDNR is now giving PolyMet another several years before they even require a plan to be provided.

The importance of this issue cannot be overstated. Under PolyMet's plan, its reactive wastes will be in place for hundreds of years. The PolyMet FEIS states that the East Pit, West Pit, Category 1 stockpile and Tailings Basin are permanent features that would provide solute loading for a minimum of 200 to 500 years.[115] PolyMet admits that treatment will be needed for at least 200 years at the tailings site to reduce sulfur and other constituent levels: "The 200-year model does not show that the sulfur in the tailings

[110] Richard Clark (MPCA) presentation at tribal/state quarterly mining meeting, January 18, 2018
[111] Minn. Stat. § 93.481 subd. 2.
[112] DNR draft Conditions, p. 4 ¶26.
[113] *Id.*, p. 8 ¶64.
[114] Minn. R. 6132.1000 subp. 6 item C.
[115] PolyMet FEIS, 5-173, 5-185, A-170, A-265.

has been depleted or that constituent release rates have decreased."[116] These reactive mining wastes will be a threat for generations. PolyMet must provide a legally sufficient, scientifically compelling design to remediate or restore waste, and that design must be incorporated into the permit to mine. The Commissioner should not issue any permit to mine until this is done.

10. Mercury and other water quality standards compliance issues

The Band will be commenting more extensively on the MPCA's draft NPDES permit and draft Section 401 certification, but since the MNDNR's decision on whether to issue the permit to mine hinges upon the Project's ability to meet the criteria and conditions imposed by other regulatory frameworks, it bears comment that we do not believe the Project can meet MN Water Quality Standards (WQS) for mercury and other parameters.

Throughout its PTM Application, PolyMet has failed to include mercury in its characterization of wastes or water quality. As noted above, two of the areas where mercury is of greatest concern are not characterized at all – the HRF in which 164 pounds of mercury will be deposited each year[117] and the unlined OSLA, where mercury-containing peat will be stored. We have found multiple tables in PolyMet's Water Management Plans and draft permit to mine that estimate water quality in various locations where water contacts waste, from the toe of the FTB to mine pits and waste rock seepage. But none of these tables estimate levels of mercury in the seepage or wastewater, even though all of the receiving waters for the proposed PolyMet project (the Partridge River and Embarrass River; Embarrass, Sabin, Wynne, Esquagama and Colby Lakes; the Whitewater Reservoir and numerous downstream segments of the St. Louis River) are all listed by MPCA under the Clean Water Act 303(d) as impaired due to mercury.[118] MNDNR should require PolyMet to revise its application to analyze and disclose mercury concentrations in *all* project wastes and in *all* water quality associated with mine site or plant wastes or ores before a permit to mine can be issued.

Throughout its application, PolyMet has also failed to disclose the levels of specific conductivity in mine pit water and water in contact with mine and plant site wastes. The Embarrass River is listed as impaired for aquatic life use (fish communities) from its headwaters to the St. Louis River, and MPCA has completed stressor identification, recognizing specific conductance as a stressor in the Embarrass River and remarking that the Embarrass River as well as Spring Mine Creek "are discharge points for mine pit dewatering, and water quality sampling results from these streams show elevated specific conductance and sulfate concentrations."[119] MNDNR should require PolyMet to revise its

[116] PolyMet Adaptive Mgt. Plan, *supra*, p. 80, Appx. 11.4 to PolyMet PTM Application.
[117] PolyMet Facility Mercury Mass Balance Analysis (RS66) (March 2007).
[118] MPCA, Draft Impaired Waters List 2018, excerpt with St. Louis River, Lake Superior Basin 2018 Mercury Impaired Waters full listing at https://www.pca.state.mn.us/water/minnesotas-impaired-waters-list
[119]MPCA, St, Louis River Watershed Stressor Identification Report, Dec. 2016, pp. 22,33, available at https://www.pca.state.mn.us/sites/default/files/wq-ws5-04010201a.pdf .

application to analyze and report specific conductance levels in all water quality associated with mine site or plant wastes or ores before a permit to mine can be issued.

11. OSLA (Overburden storage and laydown area)

The overburden storage and laydown area ("OSLA") constitutes a "storage pile"[120] which must be "designed and constructed to minimize hydrologic impacts" and "control erosion."[121] But the design described in the draft permit fails to meet these standards.

In its application for a permit to mine, PolyMet states that: Surface runoff from the OSLA is managed as mine water because there is concern about the potential release of mercury from peat storage. Surface runoff from the OSLA will drain to a mine water pond for storage and reduction of TSS. The water in the OSLA Pond is expected to exhibit water quality similar to construction stormwater and is not expected to require treatment for dissolved substances; however, water quality will be monitored throughout the life of the mine, as described in Section 5.0. The water will be pumped from the OSLA Pond directly to the Construction Mine Water Basin and on to the FTB via the Construction Mine Water Pipeline or to the East or Central Pit to aid in pit flooding.[122]

This plan is inadequate. The overburden storage and laydown area (OSLA) on the south side of the site, which will contain excavated peat with the potential to release mercury as well mineralized overburden materials is insufficient protection from flooding, since it is designed to accommodate only a 25-year 24-hour rain event.[123] Both the OSLA and the pond to which its runoff will be directed through grading are unlined,[124] allowing seepage of mercury, sulfates and metals from stored materials through groundwater to the surficial aquifer.

The MNDNR draft Conditions don't address the location of mine site wastewater features, the need for a liner to prevent seepage of mercury, other metals and sulfate from peat and overburden, the limited contingency planning if pumps and pipelines fail, or the lack of prudence in storing concentrated wastewater in basins, ponds and sumps designed to withstand no more than a 100-year 24-hour rain event. The draft Permit to Mine plans for storage of mine process wastewater fail to minimize impacts on surface water and groundwater as required by Minnesota non-ferrous mining rules.

PolyMet provides no characterization of the peat and sulfur mineralized overburden in the overburden storage and laydown area (OSLA), which will be an unlined waste containment

[120] Minn. R. 6132.0100 subp. 31 ("storage pile" is "a land form used for disposal of material generated during mining, such as surface overburden").
[121] Minn. R. 6132.2400 subp. 1.
[122] PolyMet PTM Application, Appendix 11-2, NorthMet Project Water Management Plan – Mine version 7, p. 21
[123] PolyMet PTM Application, p. 179, 280, 344.
[124] *Id*., pp. 280, 284.

area at the proposed mine site, and no evaluation of levels of mercury, other metals or sulfate in the runoff from the OSLA that will be pumped to the tailings piles without treatment.[125] *The DNR should require PolyMet to revise its application to characterize peat and overburden waste and runoff before a permit to mine can be issued.*

12. Wetland Impacts (direct)

Minnesota's Wetlands Conservation Act states that "Wetlands must not be drained or filled, wholly or partially, unless replaced by actions that provide at least equal public value." [126] The Act and its implementing regulations further require adequate delineations of the wetlands that will be affected by the project. [127] However, the proper delineation of the wetlands that will be directly impacted by the proposed mine remains uncertain, although this is not disclosed by the application for the permit to mine or any of the proposed special conditions.

With regard to direct wetlands impacts, PolyMet, in the application for the permit to mine, states:

> The direct impacts associated with each wetland within the Project Areas are shown in Table 12-1, and summarized by wetland type in Table 12-3. Of the 201 wetlands in the Project Areas, 127 wetlands will be directly impacted, totaling 903.3 acres of direct wetland impact. The Mine Site will contain the majority of direct wetland impacts (83%), followed by the FTB (15%), HRF (less than 1%), Dunka Road and Utility Corridor (less than 1%), and the Railroad Corridor (less than 0.1%). There will be no direct impacts in the Colby Lake Pipeline Corridor or the Second Creek area.[128]

However, based upon an updated GIS analysis done by Dr. Coleman at GLIFWC last summer,[129] the Band believes this fundamental inventory of direct wetland impact acreage has not been confirmed. This issue was raised with the U.S. Army Corps, U.S. Environmental Protection Agency, and U.S. Forest Service staff well before the revised application for the permit to mine was released. At a meeting held at Fond du Lac Resource Management on August 8, 2017, Dr. Coleman presented the results of his analysis which suggests that wetland acreage at the PolyMet mine site may be more than identified during the EIS process, and proposed an approach to resolve the uncertainty raised by his analysis. Dr. Coleman's analysis relied upon newer, higher resolution Lidar elevation data than what was used for PolyMet's original wetland delineation. Using slope analysis and GIS analytical routines, he identified 'lowlands' (i.e., potential wetlands) within the PolyMet mine site project area or in the direct impact footprint that represented up to

[125] See PolyMet PTM Application, p. 340
[126] Minn. Stat. 103G.222, subd. 1(a).
[127] Minn. Stat. 103G.2242, subd. 2a(a).
[128] See PolyMet PTM Application p. 389
[129] See Technical Memorandum from John Coleman GLIFWC to Ralph Augustin US Army Corps of Engineers, "Wetland mapping at the PolyMet mine site", August 6, 2017

28% more area as likely wetlands than PolyMet's analysis. Dr. Coleman suggested that, because of this discrepancy, it would be prudent to verify a set of random points within the areas where his and PolyMet's estimates differ. He proposed that he accompany USACE, MNDNR and PolyMet staff in conducting a field verification exercise, but PolyMet refused to allow him access to the site. The Band understands that staff from the USACE conducted a field verification exercise in September, but to date, despite numerous direct requests to USACE management, we have not been provided with the results of that verification, or even a report of the methods used.

Since so many regulatory decisions are based upon the determination of directly-impacted wetlands at the mine site, it is imperative that this basic inventory be accurate. The MNDNR should not issue a permit to mine for this project until this issue is resolved with a clear analysis of the field verification data.

13. Wetland Replacement Plan

The amended Permit to Mine application that was released to the public on December 13, 2017 included a completely new and unanticipated wetland replacement plan. This new plan was not included in any environmental review, nor does the permit application provide sufficient information for the Band to determine whether the provisions of Minnesota Rule 8420 have been met. While this fundamental departure from the mitigation plan that has been in front of the public for the past eight years may, on its face, represent an improvement with regards to the location and type of wetlands proposed for mitigation, we are not able to verify that the wetland bank that is the source for mitigation credits has sufficient credits available to replace the public value of the wetlands that will be lost at the site. The Band objects to approval of the wetland replacement plan at this time because the necessary and required information for the application has not been included. Such information must be provided so that a proper determination can be made on whether the replacement plan is adequate.

14. Rare Natural Communities cannot be adequately mitigated.

Among the wetlands that would be destroyed by the proposed project is the Northern Rich Spruce Swamp, which MNDNR also recognizes is a "rare natural community" under Minnesota Rule 8420.0515, subp. 3. The Northern Rich Spruce Swamp is a very specific plant community in not only plant community, but geologic origin, hydrology, and pH. It is probably one of the hardest, if not impossible wetlands to restore. Richard Gitar, Water Regulatory Specialist for the Band and a trained botanist, provided his opinion that he could not see this plant community being replaced adequately in any wetland mitigation bank given its specific mineral-influenced groundwater or surface water from adjacent uplands hydrology demands required to maintain its plant community.[130] The unique physical habitat requirements for this plant community are so narrow, they are virtually impossible to recreate in a restoration setting. Further, he commented that he only sees

[130] Richard Gitar, personal communication to N. Schuldt, February 27, 2018

continued loss of this plant community over time throughout its limited range in Northeast Minnesota.

The landscape setting and natural history for this wetland community, classified as FPn62 by the MNDNR[131], is described as follows:

> FPn62 occurs most often in small, poorly drained basins (usually less than 100 acres in size) but can also occur in larger peatlands along linear drainage features. Most common on bedrock-controlled topography and on non-calcareous till in northeastern Minnesota. Soils are saturated, well-decomposed deep peat (>15 inches) overlain by poorly decomposed *Sphagnum* peat. Surface water pH is >5.5…
>
> …Plants in FPn61 root in peat, which is low in available nutrients. In contrast to acid peatland communities, however, the upper peat surface in rich peatlands remains in contact with mineral-influenced groundwater or surface runoff from adjacent uplands. This flow of mineral-rich water keeps the pH of surface water relatively high and prevents development of bog conditions.

Because this "rare natural community" would be "permanently adversely affect[ed]" by the NorthMet mine, PolyMet's proposed wetlands replacement program "must be denied . . ."[132] and the draft permit denied or amended to prevent permanent adverse effects on the Swamp. Any plan to avoid permanent adverse effects must be developed and made available for review *before* the permit is issued, not "prior to any impact" as currently required in the draft Special Conditions.[133]

15. Wildlife Corridors:

The Band has consistently elevated to the co-lead agencies our concerns for protecting wildlife, particularly along the Mesabi Range where over a century of hard rock mining has fragmented habitat and decimated its quality. As the Barr Wildlife Corridor Study[134], the EOR report, and the FEIS all recognize, fragmentation and isolation are significant adverse effects on wildlife corridors. The FEIS acknowledges that two wildlife corridors would be affected, experiencing either direct loss and fragmentation and reduced habitat, or so affected by noise and activities associated with mine operations that wildlife would be discouraged from using it. The Band has submitted extensive comments during the DEIS, SDEIS, and FEIS reviews expressing our position that these few remaining corridors are themselves fundamentally inadequate for maintaining habitat connectivity across the Mesabi Range and that wildlife impacts should be minimized and mitigated.

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[131] MN Dept. of Natural Resources (2003). Field Guide to the Native Plant Communities of Minnesota: the Laurentian Mixed Forest Province. Ecological Land Classification Program, Minnesota County Biological Survey, and Natural Heritage and Nongame Research Program. MNDNR St. Paul, MN.

[132] Minn. R. 8420.0515 subp. 3.

[133] Special Conditions on PolyMet Draft PTM, Attach. 1, ¶C.

[134] Barr Engineering, Cumulative Effects Analysis of Wildlife Habitat and Threatened and Endangered Wildlife Species: Keetac Expansion Project (February 2009)(FEIS Ref. Barr 2009a).

However, the co-lead agencies casually dismissed our concerns, and suggested that low-cost mitigation measures might be considered during the Endangered Species Act Section 7 consultation process. But as the Band pointed out in our FEIS comments:

> The ESA §7 consultation process is intended to determine jeopardy (likelihood of a species' extinction from the Proposed Action) and address mitigation for impacts to endangered species. The ESA §7 process would not address mitigation measure for other species which are not presently endangered but which would be adversely affected by the loss of wildlife corridors. Again, the only reasonable process for fully evaluating likely impacts and then identifying and *requiring* mitigating actions is through the EIS and then with a fair examination of the impacts and mitigation measures in the EIS, implemented through the MnDNR Permit to Mine. The FEIS here fails to address an important issue, incorrectly leaves it to a process that will not address it, and deprives the public and the MnDNR of the information it should have to address this issue.

The MNDNR has a responsibility to conserve and sustainably manage the state's natural resources. It is now, through the consideration of issuing a permit to mine, that the agency has an opportunity *and* a responsibility to establish conditions on the permit that can minimize adverse impacts. Minnesota Rule 8420.0515, subpart 4, requires that "A replacement plan for activities that would have a significant adverse effect on a special or locally significant fish and wildlife resource that cannot be functionally replaced must be denied. These resources include…e.) wildlife travel corridors." The mine plan is not sufficient to "reduce impacts to the extent practicable" or ensure that, after mining, the area is "left in a conditions that protects natural resources." Accordingly, the permit should be denied unless the project is amended to avoid such adverse impacts. [135]

16. Financial Assurance, Insurance against catastrophic failure

An essential condition of a permit to mine is that the applicant provides financial assurances sufficient to cover the costs of reclamation as well as any required corrective action.[136] The rules require that financial assurances satisfy five criteria: (1) that the amount of funds are "sufficient to cover the costs estimated" for reclamation or corrective action; (2) "the funds will be available and made payable to the commissioner when needed;" (3) "the funds will be fully valid, binding, and enforceable under state and federal law;" (4) " the funds will not be dischargeable through bankruptcy;" and (5) "the commissioner, in evaluating financial assurance, shall use individuals with documented experience in the analysis."[137]

Although the amount of the financial assurances set out in the draft permit to mine has been increased from the amount that had earlier been under consideration, there remain substantial problems regarding the terms of the financial assurance package that fail to

[135] Minn. R. 6132.0200.
[136] Minn. R. 6132.1200.
[137] *Id.* subp. 5.

satisfy the requirements of the rule. In particular, as discussed in more detail in the report of Mr. Jim Kuipers,[138] the schedule by which payments would be made into a trust fund is improperly and unrealistically structured. It would allow PolyMet to make only very modest annual payments in the early years of the mining operations, with the size of the annual payments only substantially increased in the later years when the mine is likely to be far less profitable. His analysis indicates that in later years, PolyMet will not have sufficient revenue to make the required payments. If the mine is no longer profitable after, for example, year 10 or later, PolyMet could well cease operations with the trust fund woefully underfunded, and the State and its citizens left with the cost of reclamation. Mr. Kuipers identifies other flaws in the financial assurance package. These include a reduction in the estimated costs of reclamation, which is based on an improper reliance on contractor estimates rather than standard reclamation cost estimator – the result of which is an underestimation of costs by 25-50%. [139]

Before a permit to mine can be issued, the terms of the financial assurances must be revised to impose a payment structure that will ensure that there are sufficient funds to cover the estimated costs, and that such funds will, in fact, be available and payable to the Commissioner when needed.

In addition to the financial assurances required for reclamation and corrective action, Minnesota law requires that an applicant for a permit to mine have insurance "to provide personal injury and property damage protection in an amount adequate to compensate any persons who might be damaged as a result of the mining operation or any reclamation or restoration operations connected with the mining operation."[140] Here, despite the substantial size and risk posed by this first-of-its kind mining operation, the MNDNR draft Conditions would only require PolyMet to have environmental liability insurance in the amount of $10 million at the time of permit issuance. While the draft permit conditions indicate that the amount of insurance is to be re-evaluated after the first year, the draft Condition contains no standard articulated for determining the necessary amount of insurance for later years. And nothing in the record provides a basis for concluding that $10 million would be "adequate" to compensate any persons, including downstream property owners, consumers of fish and wild rice, and communities and taxpayers affected by pollution or dam failure resulting from the proposed PolyMet mining project. When considered in light of the damages and remediation costs of tailings storage facility failures on other watersheds and communities that have been addressed under the federal Superfund laws, a $10 million environmental liability policy is far from adequate. A

[138] Jim Kuipers, PE, *PolyMet NorthMet Mine Economic Analysis* at 3-6 (Feb. 23, 2018), submitted to the DNR as Exhibit 13 with the Joint Petition for a Contested Case Hearing by the Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness (Feb. 28, 2018)

[139] Jim Kuipers, PE, *PolyMet NorthMet Mine Application Review Comments* at 5-6 (Feb. 23, 2018), submitted to the DNR as Exhibit 3 with the Joint Petition for a Contested Case Hearing by the Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness (Feb. 28, 2018)

[140] Minn. Stat. § 93.481, subd 1(2).

meaningful substantive analysis is required to set an appropriate liability insurance policy requirement that is applicable to the initial and later years of the project's operation.

17. Uncertain resolution of legacy contamination

PolyMet has long planned to acquire, repurpose and reuse former LTVSMC facilities at the Plant Site from Cliff's, including the tailings basin. These properties are identified as the LTVSMC Legacy Properties for purposes of Section 16 of the revised PTM application[141], and PolyMet provided a Legacy Closure Plan and specifically associated financial assurance to replace Cliffs Erie's closure plan and financial assurance under Cliffs' permit to mine. This Legacy Closure Plan (Appendix 15.1) includes provisions for investigations and remedial actions in accordance with MPCA's voluntary investigation and cleanup program (VIC), and other reclamation activities such as dewatering of the tailings basin. After consistently questioning MPCA and the co-lead agencies about their anticipated regulatory oversight for addressing LTVSMC's legacy contamination throughout the entire EIS process, the Band is astounded to see that PolyMet will not be held to any water treatment activities or costs to remedy legacy pollution at the tailings basin[142]. The Band objects to this proposed decision, as it is a clear violation of the Clean Water Act and must be rejected and revised.

This determination that no water treatment would be required, nor any associated costs included in the financial assurance for the Legacy Closure Plan, is apparently based on a December 12, 2017 memorandum from the Minnesota Pollution Control Agency (MPCA) to the DNR. This memorandum states: "…should the PolyMet copper-nickel mine project never become operational (scenario II), no treatment or mitigation would be required for potential exceedances of mercury, sulfate, alkalinity, hardness, total dissolved salts and specific conductance at the LTVSMC tailings facility.[143]

The tailings basin is currently regulated under an existing Cliffs NPDES/SDS permit (MN 0042536) and a Consent Decree, which requires Cliffs to implement a Long Term Plan for testing and implementing active and passive water treatment at two outfalls, SD026 (south discharge from tailings basin) and SD033 (Area 5N). MPCA has been exceptionally lenient in enforcing the timelines in the Consent Decree as (we can only assume) it has been anticipated that PolyMet would be assuming the environmental liabilities associated with the LTVSMC properties it intends to acquire. But now, according to the December 2017 MPCA memo, "It is important to note that operation of the proposed NorthMet project absolves any legacy water quality issues at the ferrous Basin." [144]

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[141] PolyMet PTM Application, p. 453

[142] Legacy Closure Plan for Ferrous LTVSMC Legacy Areas subject to Assignment from Cliffs Erie, L.L.C. Dec. 2017, Appx. 15.1 to PolyMet PTM Application, autop. 6 of Appx. 15.

Ann Foss, MPCA Metallic Mining Sector Director, Legacy Permitting/Financial Assurance for Change in Assignment Former LTV Steel Mining Company (LTVSMC) Tailings Basin and Plant Site (Dec. 12, 2017), Attachment O to Legacy Closure Plan for Ferrous LTVSMC Legacy Areas subject to Assignment from Cliffs Erie, L.L.C., Dec. 2017, Appx. 15.1 to PolyMet PTM Application.

[144] *Id.,* pp. 1, 2, 10

The memo goes on to say that for mercury, without public review of its analysis, MPCA has determined that high concentrations of mercury exceeding Minnesota water quality standards in surface water surrounding the LTVSMC Basin "are most likely due to influences from precipitation and background concentration, not from seepage from the existing Basin."[145] Thus, under scenario II, "no treatment/mitigation is necessary in final closure for mercury."[146]

Similarly, for sulfate, MPCA assumes that high sulfate at the Basin "will likely not result in an exceedance of the calculated sulfate standard (or alternative sulfate standard in the proposed rule) if the MPCA's proposed rule revision goes into effect."[147] However, if the proposed wild rice rulemaking revision were not completed (which it is not), the MPCA suggests "another regulatory option available to the State would be to consider developing a site-specific standard based on the science at that time."[148] MPCA also cited current state law that prohibits the agency from requiring in any permit financial expenditures to design or implement sulfate treatment technologies.[149] So regardless of circumstances, MPCA declares that under scenario II, "no treatment/mitigation for sulfate would be required for protection of wild rice."[150]

Finally, regarding an array of Class 3 and Class 4 pollutants known to be discharging in exceedance of MN water quality standards from the LTVSMC tailings site (alkalinity, hardness, total dissolved salts and specific conductance), MPCA stated that the Agency "has made this rulemaking a high priority and expects to propose revisions in 2018." MPCA continued, "Based on current information, MPCA expects that these standards will either remain unchanged or become less stringent."[151] The memo also suggested that, even if those criteria were not weakened, "At any point, the MPCA can consider other regulatory options such as site-specific standards (SSS), a use attainability analysis (UAA), a use and value demonstration (UVD), or a variance."[152] Thus, if the PolyMet project did not become operational (scenario II), "no treatment/mitigation for alkalinity, hardness, TDS and specific conductance would be required."[153]

Apparently, the state permitting agencies are prepared to give PolyMet a free pass from the liabilities we were led to believe they would assume when acquiring the properties from Cliffs – whether or not their project ever becomes operational. If they do move forward and build the project, simply operating it "resolves any legacy water quality issues at the ferrous Basin." Further, the table labeled "Legacy Tailings Basin Cells 1E and 2E – Order of Magnitude Estimate of Closure Costs (05/24/2017) suggests that PolyMet, in

[145] MPCA, Legacy Permitting Attachment O, *supra*, p. 4.
[146] *Id*., see also p. 5.
[147] *Id*., p. 4.
[148] *Id*.
[149] *Id*., p. 6.
[150] *Id*., p. 7.
[151] *Id*., p. 4.
[152] *Id.*, p. 9
[153] *Id*., pp. 4, 10.

preparing the tailings basin for the operation of their project, will be dewatering the basin by moving water from Cell 2E to Cell 1E, then from Cell 1E to the discharge point at SD026, *without treatment.* However, if they receive permits, acquire the properties, but do not build or operate the project, the treatment/mitigation that Cliffs is now responsible under the Consent Decree would not be required.

MPCA cannot make these determinations (nor should the DNR be relying upon them), as they are expressly prohibited under the federal Clean Water Act. Mercury exceedances in watersheds that are already impaired for mercury may not be simply dismissed without an analysis of whether discharge from tailings basin seeps is causing or contributing to violation of surface water quality standards.[154]

Any conjecture about exceedances of sulfate standards that are based upon the MPCA's proposed rulemaking are no longer applicable. In January 2018, an Administrative Law Judge, with the concurrence of the Chief Judge disapproved the repeal of Minnesota's 10 parts per million (mg/L) wild rice sulfate standard, and disapproved the replacement of the existing standard with an equation based formula.[155] Through a series of analyses and opinions, the ALJ concluded that repeal of Minnesota's existing wild rice sulfate standard would conflict with the Clean Water Act and its implementing regulations.[156]

Regarding the other water quality constituents that are currently covered under the Consent Decree, it is not consistent with the either Clean Water Act or MPCA's claim that their focus is the "protection of surface water quality and existing uses in the area of the Basin," to simply wave away water quality standards compliance requirements solely on the rationale that the agency has made rulemaking (weakening of these standards) a "high priority". The Band and other concerned citizens and environmental groups have in fact provided the agency with input to their triennial review process urging them to establish a specific conductance standard to protect aquatic life[157]. There are multiple waterbodies in proximity to the tailings basin that have aquatic life use impairments, with elevated specific conductance determined to be contributing to those impairments. [158]

18. Northward flow post-mining

During the preparation of the FEIS, Dr. John Coleman with the Great Lakes Indian Fish and Wildlife Commission provided the co-lead agencies compelling evidence that groundwater from the Mine Site could potentially flow north into the Rainy River Basin via the

[154] 40 C.F.R. §122.44(d)(1)(i)-(iii)

[155] *In the Matter of the Proposed Rules of the Pollution Control Agency Amending the Sulfate Water Quality Standard Applicable to Wild Rice and Identification of Wild Rice Rivers,* OAH 80-9003-34519 Revisor R-4324, Report of the Administrative Law Judge, Jan. 9, 2018, ("ALJ Wild Rice Rule Report") p. 5.

[156] *Id*.

[157] Fond du Lac Comments on MPCA 2017 Triennial Standards Review, sent to Catherine O'Dell, Environmental Analysis and Outcomes, MPCA February 9, 2018

[158] St. Louis River watershed Stressor Identification Report (2016)

Northshore Mining Company's Peter Mitchell Pit (Northshore Mine) at mine closure.[159] In summary, Dr. Coleman demonstrated that:

- The project mine site groundwater flow model (MODFLOW) was calibrated with multiple conditions that did not exist simultaneously, i.e. boundary conditions in the form of taconite pit water levels from 1996 and river baseflows from 1979-88. This means that the mine site model is not correctly configured and, therefore, unlikely to generate accurate predictions.

- The project model was configured and used by the applicant as a basis for contaminant transport predictions at closure. As configured, it predicts that contaminants would flow from the PolyMet site south to the Partridge River at project closure. However, if the model is configured with correct closure boundary conditions in the form of taconite pit water levels at their closure level of 396 meters (1300 feet) or the very long-term level of 457 meters (1500 feet), contaminants are predicted to flow to the north toward the Peter Mitchell pits. This contaminant flow direction (to the Peter-Mitchell pits) is opposite the direction assumed for the current project contaminant transport modeling. The project contaminant modeling is incomplete because it does not evaluate northward flow of contaminants from either the PolyMet pits or the Category 1 stockpile.

- The conceptual model used for the basis of many of the conclusions in project reports and in the PFEIS text is that the taconite pits have little influence on the surrounding aquifer, regardless of whether they are full of water or pumped dry and that the surface water features are not hydraulically connected to the bedrock aquifer. However, the mine site MODFLOW model, which incorporates historical and site-specific conductivity data on the bedrock formations and is used by the applicant to predict closure conditions, indicates that the taconite pits have a profound impact on the surrounding aquifer. This is because the cone of depression caused by taconite pit dewatering extends well into the surrounding bedrock. Impact on the aquifer makes sense because of the relatively high horizontal conductivity of the bedrock in which the taconite pits sit.

- The current concept, articulated in the draft co-lead memo on a northward flowpath and the supporting MathCad modeling, appears to recognize the documented horizontal conductivities of the bedrock formations, yet seems to propose both the isolation of surface water features and the transmission of large quantities of water from surface water features to the bedrock. Both isolation and transmission are not simultaneously possible. A consistent conceptual model must be presented.

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[159] Letter from John Coleman to co-lead agencies, "Comments on PolyMet mine site contaminant northward flowpath and groundwater model calibration", August 11, 2015.

- Pit dewatering may induce significant quantities of water from the surficial aquifer into the bedrock. Although this would likely cause substantial wetland & stream impacts, natural formation of a groundwater mound in the bedrock, adequate to prevent northward flow, is impossible given the conductivities documented in the project materials.

He concluded: "Evaluation of contaminate flow to the north must be conducted and impacts predicted. Sensitivity analysis and adaptive management can not be substitutes for consistent and rational characterization of site hydrology."

In its revised application for the permit to mine PolyMet improperly seeks to minimize the evidence and the risks its poses by summarizing the review as follows:

> The Co-Lead Agencies considered this possibility, and concluded that such northward flow was possible, but not reasonably foreseeable. Following publication of the FEIS, additional comments were submitted regarding the possibility of northward flow. DNR's adequacy decision concluded that even if northward flow were to occur, it would be possible to detect and prevent effects within the Rainy River Basin. The USFS similarly concluded that northward flow to the Rainy River Basin was unlikely, and that any potential northward flow could be detected and prevented. A monitoring plan for assessing hydrogeologic conditions in the area between the NorthMet pits and the Northshore Mine has been submitted to the DNR and Minnesota Pollution Control Agency (MPCA) separate from this Application (Reference (10)).[160]

Neither PolyMet in its revised application nor the MNDNR in its draft special conditions address EPA's position on what needed to be done to address the northward flow. In its comments on the PolyMet FEIS, the EPA agreed with experts that "a northward flow path is a possibility." The EPA stated that "further impact assessment is needed *during the permitting process*, including information on water quality and quantity impacts that may occur as a result of a northward flow path and/or contingency mitigation measures."[161] The EPA recommended:

> Recommendation I: Given the possibility of a northward flow path, analyses of environmental impacts associated with this possibility should be conducted and evaluated *during the permitting process*. These analyses should include anticipated direct and indirect environmental impacts that may occur if one or more of the proposed contingency mitigation measures are implemented.[162]

[160] Revised permit to mine application, Environmental Setting p. 78.
[161] EPA, Letter and Detailed Comments on the NorthMet Mine Final Environmental Impact Statement, Dec. 21, 2015, p. 4 (emphasis added)
[162] *Id*., emphasis added.

But rather than follow EPA's recommendations and resolve this controversial issue by including as part of the permitting process, specific conditions to prevent northward flow, the MNDNR would allow PolyMet to defer analysis just long enough to avoid scrutiny and reduce its own leverage to deny or condition the PolyMet permit to mine. The MNDNR's draft special conditions simply recite that:

> ¶66. Prior to blasting within any mine pit footprint, the Permittee must submit a report and supporting data assessing the potential for current and future northward groundwater flow at the Mine Site. If the DNR concludes that this report, or other monitoring data, indicates a reasonable likelihood of northward groundwater flow at the Mine Site, then the DNR will require adaptive management or mitigation.
>
> ¶67. Any required management or mitigation must be approved by the DNR.[163]

The Band believes these MNDNR draft Conditions are vague, unenforceable, and shield PolyMet from their obligation to demonstrate that their proposed mine project will meet legal requirements. The draft Permit is deficient because the MNDNR has not specified their authority to review and approve the report, and because the way that "adaptive management or mitigation" will be implemented under the Permit is not clear. The Permit should establish the required content for the report, and define their guidelines for approving the report. If the report is approved, and if the information in the report supports the conclusion that there is the potential for a northward groundwater flow, the MNDNR should:

- require PolyMet to submit a plan for how that flow will be mitigated
- define the agency's criteria for approval of the mitigation plan, and
- provide for a process under which the approved plan will be incorporated into the permit as an amendment.

Given the nature of this disputed issue, the MNDNR should require that these reports be submitted to the MPCA as well for its review and approval, and the plans should be incorporated into the Permit to Mine and NPDES/SDS permit through formal amendments.

19. Consistency with MN mining law

Finally, the Band objects to the draft permit because it is fundamentally structurally infirm. The policy underlying Minnesota law and regulations is that the MNDNR must "minimize[] to the extent practicable the need for maintenance" through mining practices that "maximize physical, chemical, and biological stabilization of areas disturbed by mining, as

[163] DNR draft Conditions, p. 8.

opposed to the use of ongoing active treatment technologies."[164] It does so by issuing permits "for the term determined necessary by the commissioner for the completion of the proposed mining operation, including reclamation or restoration."[165] These permits – generally irrevocable for their terms[166] – must include "a proposed plan for the reclamation or restoration, or both, of any mining area affected by mining operations to be conducted" pursuant to the permit.[167] And these plans must be implemented through "use of mining, mine waste management, and passive reclamation methods that maximize physical, chemical, and biological stabilization of areas disturbed by mining, as opposed to the use of ongoing active treatment technologies."[168] These methods must be accomplished according to the Minnesota Administrative Rules, which in parts 6132.0100 to .5300 require permittees to present designs to prevent adverse impacts on natural resources, to minimize hazards from mining activities, to close the mine, and reclaim or restore the area of mining activity. These designs, integrated into the application, are the basis on which the Commissioner is to approve or deny a permit application.[169]

Contrary to these mandatory requirements, DNR fails to include in the Permit *specific permit requirements* or *terms and conditions* to ensure that the standards and goals in Minn. R. ch. 6132 are met. Instead, DNR has simply incorporated the Application as the Permit. The Application, however, notes that such specific conditions will be developed or refined during the permitting process. The "Draft Special Conditions" attached to the permit application are also deficient because they fails to impose any specific requirements on the mining operation. Instead of incorporating specific plans to address key issues related to the regulation of the mine and its associated facilities, the Permit "Special Conditions" document provides only that the permittee will develop and submit these plans to the DNR *in the future*.

The following plans or other submittals are required by the Permit, but are not specifically referenced or provided for public review as part of the Application:

1. Final geographic information system (GIS) data package for the largest footprints planned for each mine feature (Special Conditions part 17).
2. BIF construction rock work plan (parts 23-25);
3. Tailings basin buttress material work plan (parts 26-28);
4. Modeling and data verification work plan (parts 32-43);
5. Final construction material specifications for construction materials associated with each mine pit, stockpile, tailings basin, and auxiliary facility (parts 38-39);
6. Future waste characterization testing and results work plans (parts 46-48);
7. Performance monitoring for stockpile sumps and mine pit sumps (part 51);
8. Category 1 waste rock containment system and cover design (part 54);

[164] Minn. R. 6132.0200.
[165] Minn Stat. § 93.481 subd. 3(a).
[166] *Id.* subd. 4.
[167] *Id.* subd. 1(1).
[168] Minn. R. 6132.0200.
[169] Minn. R. 6132.4000 subp. 1.

9. Final designs for the cut-off wall for the tailings basin containment system (part 55);
10. Detailed operational plans (part 61);
11. Ore processing deviations showing chemical or physical changes to the tailings proposed in the Application (part 62);
12. Plan for investigation, design, and pilot testing of non-mechanical water treatment systems (Part 65);
13. Northward groundwater flow mitigation plan (part 66);
14. Mine pit bench slope stability plan (part 68);
15. Adaptive water management review process plan (part 80);
16. Verification of East Pit closure work plan (part 82);
17. Mine pit pipeline monitoring and spill response procedures (part 85);
18. Pilot and field scale testing of bentonite amendment of tailings pond line work plan (part 88); and
19. Mitigation of impacts to the FPn62-Northern Rich Spruce Swamp rare natural community (Appendix).

In its application, PolyMet proposes sites, technologies, and practices at the mine site, tailings waste facility, and HRF that may be least costly for PolyMet, but fail to protect natural resources, groundwater, surface water, and property as required under Minnesota law. It is therefore improper to use them as the very substance from which the permit is constructed. The inclusion of the draft Special Conditions does not correct this error. The draft Special Conditions allow PolyMet to defer the design of methods until after the permit is issued, despite the fact that Minnesota law and regulations require these designs to be included in the permit application itself. These include such critical design elements as the stability of the tailings dam, limits on seepage escaping containment systems, or the standards that must be met for closure and post-closure methods. This also prevents public review and independent scrutiny of the designs, which is contrary to the requirement under Minnesota law that the public be able to review the permit and object or petition for a contested case hearing.[170] Unless included in the terms of the permit, decisions on the mining operation will be made without the benefit of objective critical examination that is the purpose of public comment, administrative and judicial review. The end result is that, despite many years of process, repeated requests by cooperating agencies and citizens for more definitive information, and PolyMet's voluminous and repetitive production of documents, many simple and important aspects of the project will remain undefined and undisclosed. This is intolerable.

III. Conclusion

The draft permit should not be granted without significant amendment supported by the necessary studies. Under state law and regulations, PolyMet must minimize adverse impacts on natural resources and protect the safety of Minnesota residents by designing its mining and remediation plans to meet specific criteria. These designs must be supported by verifiable, scientifically valid evidence that demonstrates they can actually succeed. But

[170] Minn. Stat. §§ 93.481 subd. 2; 93.483; Minn. R. 6132.4000.

all too often, PolyMet's application and the draft permit to mine fail to meet these basic, necessary requirements. The draft permit to mine leaves critical design elements undescribed, to be developed at some later date, after the permit is issued and without objective standards that the design must meet. As to other elements, PolyMet has proposed designs without any evidence they can succeed, or without addressing evidence that they can or will fail. It has promised results without considering obvious shortcomings in its projections. And it has prescribed remediation methods without complying with the goals and requirements of Minnesota law. It is remarkable that, after years of planning, comments, and requests for information, PolyMet's application has so many deficiencies.

Rather than require PolyMet to resolve these problems, MNDNR has taken the highly unorthodox step of incorporating PolyMet's application wholesale into the draft permit, along with a FEIS that no longer accurately describes many elements of the proposed project. The draft special conditions that MNDNR would add to the permit do not remedy these problems. Instead, they continue to rely on unsupported or unsupportable assumptions about the mine operations, leave critical terms undefined, and allow PolyMet to submit necessary design elements to MNDNR for approval *after* the permit is granted, despite the fact the Administrative Rules require these designs to be included in the permit application. This end-run around regulatory rules improperly shields significant portions of PolyMet's permit from public scrutiny or judicial review.

The Commissioner has the obligation to address these shortcomings and should do so. We ask that the draft permit be denied and further analysis done to ensure that the material facts relevant to the safety of the proposed project are determined and, if so determined, then included in the terms and conditions of any permit to mine.

Sincerely,

Nancy Schuldt, Water Projects Coordinator