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

October 16, 2017

Re: Comments on Draft PolyMet NorthMet dam safety permits

Dear Commissioner Landwehr:

The Fond du Lac Band of Lake Superior Chippewa appreciates the opportunity to comment on the draft PolyMet dam safety permits. 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, 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[1] (the "Ceded Territory"). In the Ceded Territory, all the Bands have a legal interest in protecting natural resources and all federal agencies share in the federal government's trust responsibility to the Bands to maintain those treaty resources.[2]

There are two draft dam safety permits on public review for PolyMet's proposed NorthMet project. The first draft dam safety permit would cover the construction, operation, and maintenance of the tailings basin. This includes the modification of the existing tailings basin that is currently on the site of the historic LTV iron ore mine, and the construction of the PolyMet flotation tailings basin (FTB) on top of the historic basin to hold tailings from the proposed NorthMet project. The second draft dam safety permit would cover the proposed hydrometallurgical residue facility (HRF). The hydrometallurgical residue facility would be a separate basin near the tailings basin and would receive hydrometallurgical residue. The hydrometallurgical residue is the final waste product from the extraction of the desired metals and would consist of 70 percent gypsum and an assortment of other minerals. In addition to authorizing the construction of these two tailings basins, the permits would authorize

[1]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).
[2]*See, e.g.*, Exec. Order 13175—Consultation and Coordination With Indian Tribal Governments (Nov. 6, 2000) (stating "the United States has recognized Indian tribes as domestic dependent nations under its protection . . . .," there is a "trust relationship with Indian tribes," and "[a]gencies shall respect Indian tribal self-government and sovereignty, honor tribal treaty and other rights, and strive to meet the responsibilities that arise from the unique legal relationship between the Federal Government and Indian tribal governments.").

the operations and maintenance of the two basins, as well as set standards for monitoring and inspections.

Inadequate analysis of FTB dam failure

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 failure, and most tailings dam failures have been associated with upstream construction.[3] The MN DNR and the project proponent declined to do so, 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.

Appendix H of the dam safety permit application includes a very limited dam break analysis[4] 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[5]. 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).

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

[3] 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, (WaterLegacy FEIS Comments)

[4] Barr Technical Memorandum, FTB Dam Break Analysis, Dec. 4, 2012, Attachment H of FTB Mgt. Plan ("FTB Dam Break Analysis").

[5] Minn. R. 6115.0410, Subp. 8

> 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.[6]

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.

Inadequate analysis of HRF dam failure

The PolyMet hydrometallurgical residue facility (HRF) "dam break analysis"[7] is even more deficient than the FTB limited-scope analysis. PolyMet simply writes off the need to disclose any consequences of any dam breach or failure at the HRF, claiming that no

[6] Appendix H, pp. 6-7.
[7] Barr, HRF Dam Break Analysis, July 11, 2016, Attachment L to HRF Mgt. Plan.

potential hazards need be discussed since various failure scenarios are "improbable" or "have a low probability" of occurrence.[8]

The engineering consultants retained by the DNR to review HRF dam safety do consider 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 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."[9] 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."[10]

According to the record of technical documents associated with the HRF, approximately 313,000 tons of highly concentrated hydromet residue would be deposited annually in the HRF if PolyMet processed all of the nickel flotation concentrate streams it plans to produce.[11] 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.[12]

The Co-Lead Agencies for the FEIS acknowledged that 164 pounds of mercury would be deposited in the HRF each year.[13] 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.[14] The FEIS also anticipated that sludge from wastewater treatment would be stored in the HRF,[15] 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.[16] 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".

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[8] *Id*., p. 2, "[H]ydrologic and hydraulic modeling to detail the extent of inundation from an HRF dam break is not warranted because no plausible HRF dam failure scenarios have been identified." *See also* pp. 2-4.
[9] 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
[10] *Id.*, p. 6.
[11] 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
[12] HRF Mgt. Plan, p. 6.
[13] PolyMet FEIS, A-414.
[14] February 2007 PolyMet RS33/RS65 Hydrometallurgical Residue Characterization, February 2007
[15] 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.
[16] 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).

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 analyze and publicly disclose the chemical parameters of the metals processing wastes that the company proposes to store. 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, the Band finds that wholly unacceptable.

Inadequate analysis of major modification to FTB geotechnical stability measure

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. Now in the draft 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 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 for Section 404 (CWA) purposes that this significant change in dam construction should undergo further environmental analysis to more clearly understand how dam stability and potential impacts to 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. Changes to the project after records of decision have been made warrant further review and consideration.

All throughout the draft EIS, supplemental draft EIS and final EIS processes, the public was assured that complete data and engineering design would be available before permitting.[17] The Band and the citizens of Minnesota have waited far too long for the DNR to require PolyMet to produce the necessary data, final design and impact analysis for the agency to make an informed permitting decision that protects natural resources and the public interest, and meets all state regulations. These two draft dam safety permits must be deferred or denied until this information and analysis is complete.

[17] *See e.g.*, PolyMet FEIS 2-12, 3-15, 3-118, 5-179, 5-201, 5-657.

Sincerely,

Nancy Schuldt, Fond du Lac Water Projects Coordinator