



October 16, 2017

VIA EMAIL

Commissioner Tom Landwehr
MN Department of Natural Resources
ATTN: PolyMet NorthMet Project
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Dear Commissioner Landwehr,

Duluth for Clean Water submits the below comments regarding the NorthMet Draft Dam Safety Permits Nos. 2016-1380 and 2016-1383.

Our foundational comment is this: We live here. We balance many interests in Duluth, but Lake Superior is our most precious resource and the source of our drinking water. In submitting these comments, we note the following statement of Jim Kuipers regarding the NorthMet proposal:

“It is our professional opinion that the ultimate determination of acceptability of risk, if a wet tailings approach such as the Northmet TSF is proposed, should lie with the public members whose lives would be at risk in the event of a catastrophic breach. NorthMet’s analysis shows that the proposed TSF represents significant risk of loss of life in the event, however unlikely, of a catastrophic failure. *For that reason, we recommend that the inundation analysis together with the proposed emergency response plan be presented to both the responding regulatory agencies but also to the potentially affected public, through a very intentional process to engage and take their opinions wholly into account, prior to approval of the dam safety permit.* The DNR otherwise would be making a decision to put those persons at risk without their input or potentially even their knowledge.¹

¹ Comments of Jim Kuipers, attached as an Exhibit to the Dam Safety Permit Comments of the Minnesota Center for Environmental Advocacy. (emphasis added)

The interests of downstream communities like Duluth must have special standing in this permit review, and health impact assessments, inundation analyses, and emergency response planning should be reviewed specifically and intentionally with downstream communities *before* any dam safety permit were to be issued.

At its most basic level, the PolyMet application proposes to pitch toxic slurry against a 250-foot earthen dam, in our watershed and upstream of our drinking water, forever. This would be the “best case” scenario. There has never been a copper sulfide tailings dam that did not pollute the surrounding environment. As drafted, the dam permits would allow PolyMet to use outdated technology like upstream dam construction (upstream of us) and fail to use safer practices which are available. Even with new technology, safer technology than that proposed here, leaks and failures are common or even inevitable, and permit exemptions and variances are common as well.

Hundreds of millions of dollars have been spent cleaning up our St. Louis River estuary, and tens of thousands of people rely on its flow for clean drinking water. These draft permits would clearly put us at risk of a Mount Polley-type disaster in Minnesota. Our position is that the draft dam permits are facially unacceptable. We urge that you deny them.

1. The draft dam permits do not use prudent, current environmental practices, and therefore the permits must be denied or modified.

Dams of this type are subject to leaks and frequent and often catastrophic failures, which is why Minnesota law requires that a new dam or enlargement permit must reflect “prudent, current environmental practice.” The recommendations of the Mount Polley Expert Review Panel² make clear that prudent, current practices are not reflected in the NorthMet Draft Dam permits:

a.) Ban wet mining waste facilities requiring large water covers at closure.

The NorthMet Draft Dam permits propose to maintain a pond of water on top of the tailings basin in perpetuity, contrary to expert recommendations.

b.) Require Best Available Technology: dry closure with dry covers. Wet closure of the tailings basin is proposed, meaning that the top of the tailings basin would have a permanent pool of water on top of the basin. Dry closure (no water ponding) requires a greater initial investment, but has much lower ongoing maintenance costs and less long-term environmental risk. The draft dam permits are contrary to expert recommendations.

c.) Ban facilities requiring perpetual (or long-term) water treatment as a mitigation strategy. Under the NorthMet draft dam permits, water treatment would be needed for at

²<https://www.mountpolleyreviewpanel.ca/sites/default/files/report/ReportonMountPolleyTailingsStorageFacilityBreach.pdf>

least 200 years at the mine site and at least 500 years at the plant site, contrary to expert recommendations (and Minnesota law, as discussed below).

d.) Ban clay foundation and slime deposits in or near dams' structures. The former LTV tailings basin was constructed over layers of peat in some areas. Layers of slimes (very fine-grained taconite tailings) were also included in the construction of the tailings basin dam. Both peat layers and slimes layers have very low shear strength, which could potentially contribute to a dam failure. The soft ground beneath the proposed residue facility consists of up to 30 feet of slimes, peat and tailings concentrate. This would not be an adequate foundation for an 80-foot high basin. The NorthMet draft dam permits propose pre-loading the existing material with 50 feet of rock and soil to compress and consolidate the underlying material. The basin would 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. The former LTV tailings basin has already been faulted for being unstable. The low-grade nature of the copper-nickel ore means that the great amount of waste material (99%), and the heavy metals and contaminants associated with the sulfides would be added to this already unstable tailings basin. This is contrary to expert recommendations. Additional data should be gathered on the peat layers and slime layers and the proposed pre-load design should be re-evaluated to determine if it would adequately surcharge and compress the existing material.

e.) Ban dangerous mining waste facilities located upstream from communities and sensitive areas. If the proposed PolyMet dam were to fail, which happens 28% of the time with existing copper sulfide mines (US Forest Service, 2016³), it would flood the immediate area within hours, reach the Embarrass River, and flow downstream toward Giants Ridge, then the St. Louis River and Lake Superior. Dam failures are increasing in frequency as lower grade ores are mined. The upstream method is the most common design to fail, causing huge environmental consequences all over the world.⁴ Upstream construction is the most risky method because it relies on the stability of the tailings themselves as a foundation for dam construction. The embankments fail from load-induced liquefaction of the underlying layers. And, dam failures are not limited to old technology or to countries with scant regulation. Most tailings dam failures occur at operating mines, and 39 percent of failures worldwide occur in the United States. Upstream embankments are simply unsuitable where large amounts of water would be stored in the impoundment, and where rapid water accumulation is probable. The draft dam permits are contrary to expert recommendations.

³ <https://www.fs.usda.gov/detail/superior/landmanagement/resourcemanagement/?cid=fseprd507250>

⁴ International Commission on Large Dams, Bulletin 121, 2001.
<http://www.icold-cigb.net/GB/publications/bulletins.asp>

2. The draft dam permits violate Minnesota law by requiring perpetual water treatment as mitigation strategy. Minnesota Administrative Rule 6132.3200, Subpart 1, requires that “The 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.”⁵ The proposal reflected in the draft dam permits for perpetual water treatment violates Minnesota law and the permits must therefore be denied.

3. The reverse osmosis pilot test does not demonstrate water treatment on the scale that would be required on mine closure; Permit exemptions or variances are common. The reverse osmosis pilot test for PolyMet (Barr Engineering) does not demonstrate water treatment on the scale that would be required on mine closure. And, permit exemptions or variances are common. All six of Minnesota’s taconite mines operate under expired permits or variances, which means they continue to mine and expand without meeting environmental standards. The Minnesota Pollution Control Agency has not required reverse osmosis due to its uncertain effectiveness and its prohibitive cost. Mesabi Nugget was exempted from using reverse osmosis as “not technically feasible” and because it “would cause the discharger undue hardship.”⁶ The likelihood of permit violations and exceedances associated with the NorthMet proposal, and the accompanying “real world” challenges of enforcing permits once issued, should be considered in connection with the permit applications and supports the request for denial.

4. Tailings facility failures are increasing. A study of tailings dam failures between 1936-2015 shows an increase of 60% in the three most recent decades over the 100-year average.⁷ The expected count for 2010-2020 is 10 additional failures. Economically driven decision-making and mining of lower grade ores has led to this increase in serious dam failures. On November 5, 2015, a huge tailings dam operated by Brazilian mining company Samarco collapsed and a tidal wave of mining waste killed 19 people, destroyed villages, and killed fish and aquatic life as it flowed down the Doce River to the sea more than 600km (373 miles) away.⁸ Samarco published an independent study concluding that the dam collapsed after the liquefaction of iron ore mining waste caused by the interaction between two types of tailings – sands and slimes – and “unplanned occurrences” during its construction and operation.⁹ Samarco’s Fundao dam was put into service in 2009, had an Independent Tailings Review Board, and highly regarded expert advisers, and yet it had the largest failure in recorded history. In British Columbia, Imperial Metals was found not to be in violation of any law, but deviations from best available technology and best applicable practices resulted in one of the 10 largest failures ever in recorded history. The report concludes that we should expect future losses to routinely exceed the severity of Mount Polley. The risk of tailings failures associated with the NorthMet proposal should be prohibitive and the permits should therefore be denied.

⁵ <https://www.revisor.mn.gov/rules/?id=6132.3200>

⁶ Mesabi Nugget Delaware, LLC NPDES/SDS Permit No. MN0067687, pages 6-9, October 12, 2012

⁷ https://site-antigo.socioambiental.org/banco_imagens/pdfs/Long_Term_Risks_of_Tailings_Dam_Failure_-_Chambers_Higman_Oct11.pdf

⁸ <https://www.theguardian.com/world/2015/nov/10/brazil-dam-burst-mining-rules>

⁹ <http://fundaoinvestigacion.com/>

5. Downstream communities should be fully consulted and informed before the issuance of any dam permit. Health impacts, inundation analyses, and emergency response planning should be reviewed specifically and intentionally with downstream communities *before* the issuance of any dam safety permit. Failure to fully inform and consult downstream communities like Duluth regarding these assessments and plans would represent a fundamental failure in the draft dam permit process. A decision on a dam permit application should be deferred until downstream communities can be fully informed and consulted on inundation, emergency response, and health impacts.

Conclusion

Duluth for Clean Water urges that you deny the NorthMet Draft Dam Safety Permits Nos. 2016-1380 and 2016-1383. The proposed dam facility uses outdated technology, contravenes expert recommendations, and is simply too risky for our water, and downstream communities have not been consulted to the fullest possible degree regarding emergency planning and health impacts. In the wake of Mount Polley and other dam failures, pitching a 250-foot dam upstream of Duluth and Lake Superior, meant to hold back toxic slurry forever, is unacceptable and should be rejected.

Thank you.

JT Haines, Co-Lead Organizer
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