Minnesota Center for Environmental Advocacy

Using law, science, and research to protect Minnesota's environment, its natural resources, and the health of its people.

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VIA EMAIL & FIRST CLASS MAIL

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RE: Petition for Supplemental Environmental Impact Statement for the NorthMet Mine Project and Land Exchange

Dear Commissioner Landwehr, Supervisor Cummins, and Mr. Bruner,

The Minnesota Center for Environmental Advocacy ("MCEA"), the Center for Biological Diversity ("CBD"), and the Friends of the Boundary Waters Wilderness (collectively, the "Petitioners"), submit this Petition for the preparation of a Supplemental Environmental Impact Statement ("Supplemental EIS") for Poly Met Mining, Inc.'s ("PolyMet") NorthMet Mine Project and Land Exchange ("PolyMet

project"). Minnesota and federal law provide that a Responsible Governmental Unit ("RGU") must prepare a Supplement to a draft or final Environmental Impact Statement ("EIS") if substantial changes have been made to the project or there is new information or new circumstances that significantly affect the potential environmental effects from the project.[1] In March 2016, the Minnesota Department of Natural Resources ("DNR") declared the Final EIS ("FEIS") for the PolyMet project to be adequate.[2] That determination was also made by the U.S. Forest Service in its Record of Decision on the NorthMet Project Land Exchange on January 9, 2017.[3] The third Co-Lead Agency for the NorthMet Mine Project—the U.S. Army Corps of Engineers ("USACE") —has not yet made an adequacy determination for the NorthMet FEIS.

In comments on the FEIS, MCEA and others questioned the adequacy of the FEIS because it did not address the environmental effects of likely expansions or phases of the PolyMet project. However, at the time the FEIS was under review, MCEA did not have any *firm basis* for questioning DNR's finding that the project would not involve any future phases, and that it would have been speculative for the FEIS to consider expanded or accelerated mining alternatives.[4] Such a basis now exists. PolyMet itself has now demonstrated, through a recently filed financial disclosure document,[5] that expanded or accelerated mining is likely because the project as originally proposed is only marginally profitable. The feasibility and profitability of the expanded or accelerated mining cases is such that PolyMet's own consultant has recommended that the company expend significant funds to support the planning work necessary for their execution, including initiating the environmental studies required for an expanded operation.[6] These expansion cases, however, are a substantial change to the project, involving a vastly increased mine operation, both in terms of scale and intensity, and affect the significant environmental impacts of the project. Because of this substantial new information, and because of the danger of allowing a financially marginal mining project to begin construction without examination of the environmental impacts of what will likely be a significantly changed and expanded design, a Supplemental EIS must be ordered.

From an environmental perspective, the change in the scope of this proposal is the very sort of tectonic shift that would justify a Supplemental EIS at this stage.[7] Some of the most serious mine

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[1] *See* Minn. R. 4410.3000, subp. 3; 40 C.F.R. § 1502.9(c); *see also infra* notes 52-56 and accompanying text.
[2] DNR, *DNR Deems PolyMet Mine Environmental Impact Statement Adequate*, http://news.dnr.state.mn.us/2016/03/03/dnr-deems-polymet-mine-environmental-impact-statement-adequate/. The U.S. Army Corps of Engineers has not made an adequacy determination.
[3] U.S. Forest Service, Final Record of Decision for the NorthMet Land Exchange, Jan. 9. 2017, at 34.
[4] MCEA and others looking at the financial feasibility of the PolyMet project did assert that future phases were likely during the comment period on the draft EIS.
[5] M3 Engineering and Technology Corp., *NorthMet Project Form NI 43-101F1 Technical Report* (2018) [hereinafter Ex. 1], https://polymetmining.com/wp-content/uploads/2018/03/ PN150163-PolyMet-NI-43-101-Technical-Report-2018_03_26_Rev0.pdf, *attached as* Exhibit 1. The publication of this financial disclosure document is mandated by Canadian law.
[6] Ex. 1 at 27.
[7] *Friends of Capital Crescent Trail v. FTA*, 877 F.3d 1051, 1060 (D.C. Cir. 2017) ("Over the course of a long-running project, new information will arise that affects, in some way, the analysis contained in a prior FEIS.

disasters in history have occurred when an initial project starts and is later scaled up, when less attention is paid to safe design and tailings maintenance.[8] This is a recurring pattern: serious failures in tailings facilities such as the 2014 Mount Polley disaster occur when "older TSFs [tailings storage facilities] with smaller footprints are pushed to unplanned heights to accommodate production that was not anticipated when the tailings dams were originally designed and the permits originally issued."[9] Preventing these disasters requires planning tailings storage facilities to accommodate these higher volumes *before* the project begins construction, because storing the tailings from a 118,000 tons per day mine operation on the footprint of a 32,000 tons per day operation is a substantial risk to downstream communities, and one that was not contemplated by the FEIS.

When it is reasonably foreseeable that a project will expand or change, as is plainly the case based on PolyMet's most recent Technical Report, state and federal law require a Supplemental EIS. That law also clearly states that environmental review for expansion phases must be completed prior to initial permitting; conducting those studies after the initial phase of mining has been permitted will be too late.[10] The core purpose of the state and federal environmental policy acts is to "ensure[ ] that [agencies] will not act on incomplete information, only to regret [their] decision after it is too late to correct."[11] Accordingly, the need for supplementation "turns on the value of the new information to the still pending decisionmaking process."[12] Where, as in the present matter, that changed information concerns a bedrock assumption upon which the FEIS is based, a Supplemental EIS must be prepared.

NEPA does not require agencies to needlessly repeat their environmental impact analyses every time such information comes to light. Rather, a SEIS must be prepared only where new information 'provides a seriously different picture of the environmental landscape.'" (quoting Nat'l Comm. for the New River v. FERC, 373 F.3d 1323, 1330 (D.C. Cir. 2004))).

[8] Lindsay Bowker and David Chambers, *Root Causes of Tailings Dam Overtopping: The Economics of Risk and Consequence*, Int'l Seminar on Dam Protection Against Overtopping, Protections 2016, Ft. Collins, CO (Sept. 2016), attached as Exhibit 2 ("However, what we can see from examining reports on existing mines is that increased tailings capacity is being created at older tailings storage facilities with smaller footprints, not by the design and development of new TSFs specifically engineered to handle the higher volumes, longer lives, and higher throughputs. Major throughput expansions rarely include a systematic reevaluation of existing TSF capacity, or a reevaluation of tailings management needs inherent in the planned expansion. This is the Samarco failure story.").

[9] Lindsay Newland Bowker & David Chambers, The Risk, Public Liability, and Economics of Tailings Storage Facility Failures at 2 (2015), attached as Exhibit 3.

[10] *See Marsh v. Oregon Nat. Res. Council*, 490 U.S. 360, 371, 109 S. Ct. 1851, 104 L. Ed. 2d 377 (1989); *see also* 40 C.F.R. § 1508.25 (defining the scope of an EIS as including an analysis of connected actions, cumulative actions, and reasonably foreseeable similar actions); Minn. R. 4410.3000, subp. 3 (an RGU shall prepare a Supplemental EIS when the impacts of a later phase was not evaluated in the initial EIS); Minn. R. 4410.2300, pt. H (EIS analysis shall include indirect, direct, and cumulative impacts); Minn. R. 4410.1700 (defining "connected actions," "cumulative impact," and "cumulative potential effects").

[11] *Marsh*, 490 U.S. at 371, 109 S. Ct. 1851, 104 L. Ed. 2d 377.

[12] *Friends of Capital Crescent Trail*, 877 F.3d at 1058 (quoting Marsh, 490 U.S. at 374, 109 S. Ct. 1851, 104 L. Ed. 2d 377).

I. The Agencies Declined To Evaluate An Expansion Alternative Finding That It "Would Not Feasibly Meet the Purpose Of The Project."

During scoping of the PolyMet EIS, the Co-Lead Agencies decided not to evaluate an alternative scale or magnitude for the PolyMet project. The agencies based this decision on analysis, provided by PolyMet, of whether the project could be *smaller* than the 32,000 tons per day ("tpd") being proposed, but PolyMet did not provide any analysis of whether the project could be *larger* than proposed.[13] Consistent with this information, in the Scoping EAW, the agencies answered "no" to the question "are future stages of this development including development on any outlots planned or likely to happen."[14]

During the comment period on the Scoping EAW, a commenter questioned the adequacy of the scope of the EIS, and in particular the alternatives, because the EIS did not address possible expansions of the mining proposal. The Proposed Scope resulted in the following comment:

> Comment: (WQL-5) Comment is concerned about apparent discrepancy between statements of water not needing to be discharged from the tailings basin and needing to discharge water for water quality purposes. *The comment also requests evaluation of discharges from the tailings basin considering expansion of the project beyond the 20- year proposal.* [15]

DNR's response to this comment was:

> Response: It is acknowledged that in order to maintain suitable water quality in the basin, periodic treatment and discharge of tailings basin water will be needed. Evaluation of plant-tailing basin water management will be included in the EIS. *The EIS will not evaluate speculative expansion of the tailings basin. Any expansion or additional use of the basin beyond what is currently proposed will a [sic] need separate environmental review and permit modifications.*[16]

The Final Scoping Decision reflected this decision, noting that the project proponent had evaluated smaller mining projects but determined that such projects would not be economically feasible. The Co-Lead Agencies therefore "determined that an alternative scale or magnitude would not feasibly meet the purpose of the project."[17] As a result of this decision, the FEIS did not include any discussion of what the environmental impacts would be if the PolyMet project operated for more than 20 years

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[13] Minnesota DNR, PolyMet Mining Inc. EIS Scoping Environmental Assessment Worksheet for the NorthMet Mine and Ore Processing Facilities, at 19.

[14] DNR, *Response to Public Scoping Comments PolyMet Mining, Inc., NorthMet Project* 7 (2005), https://files.dnr.state.mn.us/input/environmentalreview/polymet/scoping _comments.pdf.; NorthMet Mine and Ore Processing Facilities Project, *Final Scoping Decision*, October 25, 2005, at p. 7.

[15] DNR, *Response to Public Scoping Comments PolyMet Mining, Inc., NorthMet Project* 34 (2005) (emphasis added), https://files.dnr.state.mn.us/input/environmentalreview/polymet/scoping _comments.pdf.

[16] *Id.* (emphasis added).

[17] NorthMet Mine and Ore Processing Facilities Project, *Final Scoping Decision*, October 25, 2005, at p. 7.

or if it processed more than 32,000 tons per day, stating that "[a]s a result of screening and analysis, the NorthMet Project No Action Alternative (i.e., the NorthMet Project Proposed Action would not occur) is the only alternative evaluated in detail in this FEIS."[18]

Throughout the development of the FEIS, the Co-Lead Agencies continued to view any expansion of the PolyMet project under consideration as "speculative" in the face of numerous commenters who pointed out that the approval to mine 32,000 tons of copper-nickel ore per day would only be the first step towards a bigger mine on the site. The agencies summarized these comments in the final comment response document as the following "theme" comment and response:

> **Theme PD 30 Theme Statement.** The SDEIS is misleading because it does not disclose the full extent of the project. The FEIS should provide additional detail about: • *The Proposed Mine's full operating capacities and opportunity to expand (e.g., the full size of the ore body and the capacity of the Plant Site)*; • The definition of ore and the volume and sulfur content of waste rock; • The geology of the mine pits; • The volume of material that would be mined, processed, and sold; • Siting, construction, and operation of the mine pits (e.g., how open pit mining works) and related facilities; and • The full environmental footprint.[19]

The agency response to these comments was the following:

> **Thematic Response.** The FEIS analyzes the NorthMet Project as planned and proposed by PolyMet. *If, in the future, there is a proposed expansion of the Project's footprint or processing rate, or a substantive change in operations, the requisite additional environmental review would be performed. No such changes are reasonably foreseeable.* FEIS Section 3.2.2.1 discusses the geology of the NorthMet Deposit and mine pits, the total volume of ore and waste rock that would be excavated, the sulfur content of the various categories of waste rock, and the process of siting, construction, and operation at the mine pits (e.g., Figure 3.2-10, Tables 3.2-4 and 3.2-8). FEIS Section 3.2.2.3 discusses the siting, construction, operation, and capacity of the Plant Site.[20]

II. Expansion and/or Acceleration of Mining is Reasonably Foreseeable.

Information made public in March 2018 makes plain that the PolyMet project is financially feasible only if the current proposal is the first phase of an expanded and/or accelerated project. It is, therefore, reasonably foreseeable that the PolyMet project is a phased component of a much larger plan, one with significantly different environmental impacts.

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[18] Final Environmental Impact Statement NorthMet Mining Project and Land Exchange, 3.0 PROPOSED ACTION AND ALTERNATIVES, at 3-5, 3-6 [hereinafter, "FEIS"].

[19] APPENDIX A: RESPONSE TO COMMENTS ON THE DEIS AND SDEIS A-450, November 2015, a-449-50.

[20] *Id.* (emphasis added).

On March 26, 2018, PolyMet released an Updated Form NI 43-101 Technical Report ("Technical Report") for the NorthMet Project, which is attached as Exhibit 1 to this Petition. This document contains updated financial analysis of the projected profitability of PolyMet's proposed mine operation. The Technical Report concludes that the PolyMet project would require capital investments of $945 million, for an internal rate of return (IRR) of 9.6%.[21] If the Hydromet plant is added into the projections, the IRR improves slightly to 10.3%.[22] Under accepted industry investment practices, both these rates of return are "subeconomic," meaning that projects with this rate of return will generally not proceed because the risk is too high in relation to the return.

As described in the attached letter from Kuipers and Associates, LLC, "it is common for major mining firms to require a 30% or even 40% IRR before giving approval to a new mining project in particular."[23] This conclusion is borne out by the history of this mine proposal. PolyMet acquired the mineral rights to the NorthMet deposit in 1989 and commissioned a pre-feasibility study for the project in 2001. That study produced an estimated IRR of 14.09%,[24] a return on investment that was found to be "unacceptably low due to the cost of capital and depressed commodity prices."[25] The project was mothballed until 2003, when new management took over the company.[26] The new management believed that acquiring existing processing facilities would improve the project's economics, and they completed acquisition of the LTV Steel facility in November 2005.[27] It was then, and only then, that the project was deemed profitable enough to proceed, after subsequent feasibility studies found an IRR of 26.7%.[28] Now, however, the project has returned to a subeconomic investment case that is—at only 10%—far lower than the 14% previously deemed too low to proceed.

Because these rates of return were so low, PolyMet requested the Technical Report consultant to include a detailed discussion of two additional mining scenarios ("cases") that could be undertaken at the proposed project site to unlock substantial shareholder value—both cases would be substantially

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[21] Ex. 1 at 20.0

[22] *Id.*

[23] Kuipers & Associates, LLC, *PolyMet NorthMet Mine Economic Analysis Form NI 43-101F1 Technical Report Performed by M3* 4 (2018), *attached as* Exhibit 5.

[24] Independent Mining Consultants, Inc., *NorthMet Project, Minnesota Pre-Feasibility Study, Vol. 1: Project Summary* tbl. 1-6 (2001), http://www.proteuscapital.com/PolyMet/POM_Due_Diligence/PolyMetTechnicalReport2001.04.pdf (prepared for PolyMet), *attached as* Exhibit 6.

[25] *See* Edison Investment Research Ltd., *PolyMet Mining Corp. Low-Cost Polymetallic Development Project* (2013) [hereinafter Edison Investment Research PolyMet Report], https://www.scribd.com/document/187067954/Edison-Investment-Research-PolyMet-report, attached as Exhibit 6. Although there is no hard and fast rule determining an acceptable IRR, 15% is accepted as the bare minimum return to justify the capital expense. *See, e.g.*, Rio Tinto, *Capital Markets Day* 20 (2016), https://www.slideshare.net/RTDigital/rio-tinto-capital-markets-day-sydney (Capital allocation discipline requires IRR > 15%").

[26] *Id.*

[27] *Id.*

[28] PolyMet Mining Corp., *PolyMet Receives Positive Definitive Feasibility Study for Its NorthMet Copper-Nickel-Precious Metals Project* (2006), http://www.marketwired.com/press-release/polymet-receives-positive-definitive-feasibility-study-its-northmet-copper-nickel-precious-tsx-venture-pom-613636.htm.

more profitable than the proposed project.[29] The Technical Report addresses a possible alternative mine design with a throughput of 59,000 short tons per day with "mining to the completion of the West Pit design" within a 15-year period (an "accelerated" mine) and an alternative mine design processing 118,000 short tons per day to be conducted within a 19-year period (similar to the current proposal, but with significantly more mineral removal per year, i.e., an "expanded mining" proposal). Although the Technical Report re s that the "two scenarios are preliminary in nature and both scenarios include Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves" and makes numerous other cautionary statements,[30] the Technical Report nevertheless unequivocally describes the scenarios as "potential expansion opportunities."[31]

Despite the numerous cautionary statements about the new cases, the Technical Report includes details on the changes that would need to be made to the mine site to accommodate the accelerated or increased mining scenarios, suggesting that the consultant has already made a relatively careful examination. The Technical Report concludes that changes to the current project (from a mining perspective) would not be significant. In particular, the Technical Report notes that:

> much of the existing infrastructure at the Erie Plant would be of sufficient size, if retrofitted, to accommodate the layout of new state-of-the-art equipment required for all three throughput scenarios. Only a few new structures such as a course mill feed storage dome would have to be erected to meet the material processing demands for the 118,000 STPD scenario.[32]

The Technical Report includes calculations of the financial benefit of both the accelerated proposal and the increased mining proposal. The Technical Report concludes that the "[e]stimated financial indicators for the 59,000 STPD case improved over the [proposed project] to $963 million U.S. dollars" to an 18.5% IRR for Phase I and II.[33] The Technical Report also concludes that "the 118,000 STPD case improves economics over the [proposed project] with an IRR of 23.6%."[34]

Finally, the consultant that prepared the Technical Report recommended that:

> • Based on the initial results of the additional scoping level and [Preliminary Economic Assessment] level estimates in [the part of the report providing analysis of the accelerated and increased mining scenarios], M3 recommends that additional engineering and environmental studies be performed at a pre-

[29] Naturally, PolyMet prefaced the description of these potential projects with a cautionary statement that the "future performance and prospects for the possible expansion of the operation" would be preceded by "an analysis of the environmental impact and alternatives of any proposal" and the need to obtain permits. Ex. 1 at ii.

[30] Ex. 1 at 19.

[31] *Id.* at 26.

[32] *Id*. at 242.

[33] *Id.* at 244.

[34] *Id*.

> feasibility study level to further refine the costs, valuations and environmental requirements for the potential 59,000 STPD and 118,000 STPD production scenarios. The estimated costs of these studies are expected to be $500,000. An estimated $2.5 million is required to move currently classified inferred material into measured and indicated categories.[35]

The consultant's recommendation is dispositive on the foreseeability issue. If the Proposer's own consultants have advised them to proceed with designing an expanded mine operation and initiating environmental studies for that operation, it cannot be said that these expansion scenarios are speculative. They are in fact the most likely outcome based on the available information.

Given this new knowledge, failure to supplement the EIS for the PolyMet project would produce an absurd result antithetical to bedrock environmental review laws. Should the RGU in this case decline to supplement the EIS, then permitting processes will proceed on the smaller mine design, *while* a new EA or EIS begins for the eventual expansion. This is the exact scenario that the Supplemental EIS rules are designed to avoid.

Perhaps the best and clearest summary of this issue was stated by the *Star Tribune*'s Lee Shaffer:

> [T]he real news last week was that the technical report for the first time showed two far better deals than PolyMet's 32,000 tons-a-day project, business cases PolyMet calls "opportunity" and "expansion." "The thing that people have lost sight of is that we are only permitting 225 million tons out of a 730-million ton resource," [PolyMet CEO Jon] Cherry said, suggesting that there's far more opportunity to make money here than maybe some people realize. *Actually, anybody paying any attention knew an expansion proposal was coming someday.* PolyMet for years has planned to process 32,000 tons per day at an old iron mining plant built to handle 100,000 tons. It had proposed a 20-year mine plan to take out less than a third of the ore more or less already known to be in the ground.[36]

The most recent information removes any doubt about a future expansion, something that appears to have been contemplated for years. PolyMet has frequently attempted to portray itself to potential investors as a small mine poised to expand into a much larger, much more profitable mine. Over a decade ago, its then-CFO Douglas Newby[37] maintained that the company does not have plans to expand, but pointedly described the 32,000 tons per day proposal as the "*initial* permit

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[35] *Id.* at 27.

[36] Lee Schafer, *New Numbers Show PolyMet's Minnesota Mine Holds Smaller Potential, Except to Backer Glencore*, Star Tribune, March 31, 2018, available at http://www.startribune.com/new-numbers-show-polymet-s-minnesota-mine-holds-smaller-potential-except-to-backer-glencore/478419643/ (emphasis added).

[37] Mr. Newby was the CFO of PolyMet Mining Corp., PolyMet Mining, Inc.'s Canadian parent company.

application."[38] The eventual expansions were described almost as an inevitability. Mr. Newby described to investors that the first 20 years of the proposed mine operations are "from a relatively small part of the total resource package[, s]o we are expecting the ultimate life to be more than 20 years."[39] PolyMet's presentations to investors have always endeavored to point out their capacity to process 100,000 tons per day, triple the capacity of the current proposal.[40] Again, the company has emphasized this point as far back as 2007, when it told investors that although the "*initial* production run[]" is for 32,000 tons per day, the plant is capable of 100,000 tons per day, "so you can do the math."[41] Its more recent investor presentations have more explicitly attempted to portray the project as having attractive expansion opportunities, noting to investors that the "mine plan represents 1/3rd of existing [measured and indicated] resource,"[42] adding that "existing infrastructure supports higher volumes."[43]

In 2013, PolyMet commissioned a valuation analysis from Edison Investment Research Limited.[44] That report—issued five years ago—projected that production would increase from the proposed 32,000 tons per day to 90,000 tons per day, with the report's author stating "[t]he real value is in getting that second project built . . . [t]he economics are huge."[45] The report concluded that PolyMet could triple its stock price if it expanded its ore processing to 90,000 tons per day, noting that "the size and scope of the ore body could support a much larger project, which would create meaningful additional value."[46] The analysts predicted that PolyMet would capture that value for

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[38] PolyMet Mining Corp., *PolyMet Mining: Wall Street Analyst Forum Presentation Transcript* (2007) [hereinafter "2007 Investor Transcript"](emphasis added), https://seekingalpha.com/article/27103-polymet-mining-wall-street-analyst-forum-presentation-transcript, attached as Exhibit 7.

[39] *Id.*

[40] *See* PolyMet Mining, Inc., *Investor Presentation* (2013), http://www.polymetmining.com/wp-content/uploads/2013/02/PLM-Investor-Presentation-2013-06.pdf.

[41] Ex. 7 (emphasis added).

[42] The terms used have particular definitions relevant to the foreseeability of future expansions. A "Measured Mineral Resource" is a mineral resource for which "quantity, grade or quality, densities, shape, and physical characteristics are estimate with confidence sufficient to allow the application of modifying factors to support detailed mine planning and final evaluation of the economic viability of the deposit." Canadian Institute of Mining, *CIM Definition Standards for Mineral Resources and Mineral Reserves* 4 (2014), https://mrmr.cim.org/media/1016/cim_definition_standards_20142.pdf. An "Indicated Mineral Resource" is less certain but still known with "sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit." *Id.*

[43] Poly Met Mining, Inc., *Investor Presentation* 21 (2018), http://polymetmining.com/wp-content/uploads/2018/05/Investor-Presentation-April-30-2018.pdf.

[44] Ex. 6.

[45] Josephine Marcotty, *Before Open Pit Copper Mine Opens in Northern Minnesota, the Expansion Debate Has Started*, Star Tribune, Nov. 27, 2013, http://www.startribune.com/beforecopper-mine-opens-in-ne-minn-expansion-debate-begins/233560181/.

[46] Ex. 6 at 2.

shareholders, and concluded "we look for management to create additional value through expanding capacity or consolidating the Duluth Complex."[47]

That conclusion appears to be based on direct conversations with PolyMet executives. When the author of that report was questioned by a reporter about the company's continued denials of any existing plans to expand, the stock analyst emphasized that the report was based on conversations with company executives, a review of company documents, and a visit to the site.[48] Based on that data, the analyst concluded that "[i]n my best judgment, I think that's what will happen," adding "[w]e didn't make this stuff up."[49]

Recent statements by company executives themselves consistently highlight the project's potential for expansion. When media outlets covered the updated profitability study and observed that "the new feasibility study for the first time analyzes the potential for PolyMet to expand the mine," PolyMet's CEO argued that "[t]here's significant additional economic potential for the remainder of the resource, for relatively low additional capital costs."[50] PolyMet executives even express frustration that the public is failing to recognize the potential for expansions and have "lost sight of [the fact that] we are only permitting 225 million tons out of a 730-million ton resource."[51]

In short, the company has for a decade implied, hinted, and inferred that the initial permit application is merely the first step in a much larger project. For much of that time, Petitioners were only able to strongly suspect this to be true. And we did so, loudly and consistently throughout the environmental review process, only to see our suspicions cast aside as unduly speculative. But now, the publication of the Updated Technical Report has turned suspicion into reality. There is no longer any doubt that the current mine proposed by PolyMet is but the first step in a larger project to extract and process the entirety of the deposit they control, up to almost 120,000 tons per day.

For the first time since 2013, PolyMet has updated its profitability analysis, and this update was grim news. The project is now estimated to return only 10% on investment, a rate far below the 14% that was previously deemed too low to proceed. The company is now scrambling to reassure investors by emphasizing that people have lost sight of the fact that it is only permitting 1/3rd of the measured and indicated mineral resource. This new information, particularly the consultant's recommendation to proceed with further engineering and environmental studies for the expansion cases, conclusively demonstrates that changed mining scenarios, including accelerated or expanded ore removal, can no longer be classified as speculative. To refrain from supplementing the EIS now, prior

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[47] *Id.* at 2.

[48] Marcotty, *supra* note 45.

[49] *Id.*

[50] Dan Kraker, *As PolyMet Mine's Costs Rise, Potential Profits Called Into Question*, MPRNews, March 27, 2018, https://www.mprnews.org/story/2018/03/27/polymet-costs-rise-but-so-do-potential-profits.

[51] Lee Schafer, *New numbers show PolyMet's Minnesota mine holds smaller potential, except to backer Glencore*, Star Tribune, March 31, 2018, available at http://www.startribune.com/new-numbers-show-polymet-s-minnesota-mine-holds-smaller-potential-except-to-backer-glencore/478419643/.

to permitting the initial PolyMet project, would defeat the central purpose of both the Minnesota Environmental Policy Act ("MEPA") and the National Environmental Policy Act ("NEPA").

III. A Supplemental EIS Is Mandated.

Both state and federal rules require an RGU to prepare a Supplemental EIS under certain conditions. Minnesota Rules 4410.3000, subpart 3 provides:

> **Supplement to an EIS.** An RGU shall prepare a supplement to an EIS under any of the following circumstances:
> A. whenever after a final EIS has been determined adequate, but before the project becomes exempt under part 4410.4600, subpart 2, item B or D, the RGU determines that either:
> (1) substantial changes have been made in the proposed project that affect the potential significant adverse environmental effects of the project; or
> (2) there is substantial new information or new circumstances that significantly affect the potential environmental effects from the proposed project that have not been considered in the final EIS or that significantly affect the availability of prudent and feasible alternatives with lesser environmental effects;
> B. whenever an EIS has been prepared for an ongoing governmental action and the RGU determines that the conditions of item A, subitem (1) or (2), are met with respect to the action; or
> C. whenever an EIS has been prepared for one or more phases of a phased action or one or more components of a connected action and a later phase or another component is proposed for approval or implementation that was not evaluated in the initial EIS.

The federal rules parallel this language. NEPA regulations state that agencies:

> shall prepare supplements to either draft or final environmental impact statements if:
> (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or
> (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.[52]

In this case, the FEIS has been found to be adequate by the DNR and USFS, but the project is not exempt under part 4410.4600, subpart 2, item B or D, because no governmental decisions have been made, and no portion of the project has been completed. As a result, if "substantial changes have been made to the proposed project" or "there is substantial new information or new circumstances that significantly affect the potential environmental effects from the proposed project that have not been

[52] 40 C.F.R. § 1502.9(c)(1). Regulations for USACE incorporate these regulations by reference. *See* 33 C.F.R. § 230.13(b).

considered in the final EIS," a Supplemental EIS is mandated.[53] Because no governmental decisions have been made, there are a number of federal and state actions that would benefit from the information provided by a Supplemental EIS, including state air and water permits, permits to mine, dam safety permits, water appropriations permits, federal Section 404 permits, as well as the final implementation of the Forest Service's land exchange.

Federal law is not to the contrary. Federal regulations are clear that environmental review should include an analysis of all reasonably foreseeable connected, similar, and cumulative actions, as well as all reasonably foreseeable cumulative impacts.[54] Federal law also mandates the preparation of a supplement to a draft or final EIS[55] if "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[56]

The Technical Report is, virtually by definition, "substantial" new information. The analysis of the two expansion cases is known as a Preliminary Economic Assessment ("PEA"),[57] a specific term defined by Canadian regulators.[58] Those same regulators describe a PEA as "the first signal to the public that a mineral project has potential viability."[59] That signal is a critically important "milestone in the evolution of any mineral project," and therefore one that the market views as "important information."[60] Furthermore, when a project proposer includes a PEA with the more certain feasibility study, as PolyMet has done here by combining a PEA of the expansion cases with the feasibility study for the 32,000 base case, that inclusion is "based on the premise that the issuer is contemplating a significant change in the existing or proposed operation that is materially different from the previous mining study."[61] The PEA for the expansion cases is therefore "substantial new information" because it is a defined process understood by industry and regulators as an important step. It is a specific piece of information critical to investors that signals a significant change in the proposed operation.

The new mining "cases" described in the Technical Report compel the preparation of a Supplemental EIS, because implementation of one (or indeed both) of these strategies appears to be

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[53] Minn. R. 4410.3000, subp. 3.

[54] 40 C.F.R. § 1508.25 (defining "connected actions", "cumulative actions", "similar actions", and "cumulative impacts"); *see also* Natural Resources Defense Council v. Hodel, 865 F.2d 288, 298 (D.C. Cir. 1988) (purpose of NEPA requirement to evaluate cumulative actions is to "prevent agencies from dividing one project into multiple individual actions").

[55] USACE has not yet approved the PolyMet FEIS as adequate.

[56] 40 C.F.R. § 1502.9(c)

[57] *See* Ex. 1 at 19 ("PolyMet US also requested that M3 investigate potential project economic valuations using scoping or preliminary economic assessment (PEA) level mine designs at higher throughputs (59,000 and 118,000 STPD).").

[58] Under Canadian mining disclosure rules, a PEA is defined "as a study, other than a pre-feasibility study (PFS) or feasibility study (FS), which includes an economic analysis of the potential viability of mineral resources." Canadian Securities Administrators, *CSA Staff Notice 43-307: Mining Technical Reports – Preliminary Economic Assessments* (2012), *attached as* Exhibit 7.

[59] *Id.* at 1.

[60] *Id.*

[61] *Id.*

likely given the lack of technical impediments (in the opinion of PolyMet's consultant) and the dramatic increase in the rate of return that either scenario would engender.[62] Given the likelihood that expansion cases will become a reality, the Technical Report constitutes both substantial new information and a substantial change to the project. The implementation of either of the scenarios would make much of the planning and modeling included in the current Final EIS utterly irrelevant, in particular the planning and modeling over management of waste rock, tailings, and water impacted by mine-related pollution, and the impacts of the mining on air quality. The likelihood of the increased mining scenario is particularly high, given its likely technical feasibility and the fact that the project as proposed is less profitable than ones already deemed unacceptably uneconomic by the proposer. The detailed description of this "case" in the Technical Report makes clear that the initial proposal for the PolyMet mine was just the first phase of an ultimately larger mine.

The Co-Lead Agencies cannot, in the face of the Technical Report, continue to rely on the project proponent's denial of the fact that additional mining or mining phases are planned. The Co-Lead Agencies have an independent duty to substantiate the project proponent's position, and to conduct environmental review accordingly.[63] Where it now appears that the project analyzed in the EIS *will* likely include accelerated or vastly increased mining and that such mining is not speculative, state and federal law clearly mandate a supplement to the FEIS.[64]

Nor can the Co-Lead Agencies avoid the need to prepare a Supplemental EIS on the ground that the prior analysis would be adequate, or that additional mining would be the mere continued operation of a permitted facility.[65] The changes in mining practices of the new cases discussed in the Technical Report are substantially different than the proposed project analyzed in the Final EIS.[66] The increased mining scenario, for example, represents a 312% percent increase in mined materials per

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[62] For example, the expanded mining scenario would more than triple the project's earnings, from $152 million to $488 million. Ex. 1 at 26, 246.

[63] *Hammond v. Norton*, 370 F. Supp. 2d 226, 251–52 (D.D.C. 2005); *see also In re Winona Cty. Mun. Solid Waste Incinerator*, 442 N.W.2d 344, 349–50 (Minn. Ct. App. 1989), *rev'd in part sub nom. City of Winona v. Minnesota Pollution Control Agency*, 449 N.W.2d 441 (Minn. 1990); *Sierra Club v. Marsh,* 714 F. Supp. 539, 569 (D. Me. 1989) ("[L]arge increases in project scale place decisionmakers under a duty to investigate whether it is likely that there would be a significant change in the environmental picture.").

[64] *See, e.g.*, *Louisiana Wildlife Federation v. York*, 761 F.2d 1044, 1052 (5th Cir. 1985)(holding that, where USACE found that impacts to 3,800 acres of forest were sufficient to warrant an EIS, new information that the project would in fact impact 8,000 acres warranted a supplement to the EIS); *Environmental Defense Fund v. Marsh*, 651 F.2d 983, 1006 (5th Cir. 1981) (holding that supplementation was mandated where project changes would increase traffic on a USACE waterway 350% relative to the initial proposal); *Sierra Club*, 714 F. Supp. at 571 (holding that plaintiffs were likely to prevail on a NEPA claim for failure to supplement where the FEIS analyzed the impacts of a marine dry cargo terminal on an assumption that it would impact 50 acres, and new information revealed it would impact 124 acres).

[65] *Montana Envtl. Info. Ctr. v. U.S. Office of Surface Mining*, 274 F. Supp. 3d 1074, 1091–92 (D. Mont. 2017), *amended in part*, *Montana Envtl. Info. Ctr. v. U.S. Office of Surface Mining*, No. CV 15-106-M-DWM, 2017 WL 5047901 (D. Mont. Nov. 3, 2017).

[66] *See id* at 1092 (finding it substantially different that a coal mine would be mining of 2 to 5 times as much coal as was studied in a prior EA).

day, and thus a similar increase in the volume of tailings that will require management in the already questionable floatation tailings basin, and the amount of air emissions that will be generated by the mining, trucking, and processing of the ore. While an agency need not prepare a Supplemental EIS every time new information comes to light, an agency must apply a "rule of reason" when deciding whether the current environment review document is accurate.[67] Where the project has not yet proceeded, yet it is clear that a changed mining scenario is likely, and that changed mining scenario has the potential to make irrelevant the studies and modeling performed for the EIS, a "hard look" requires that a Supplemental EIS be prepared that examines the new likely alternative or phase. Neither the "accelerated" nor the "increased" mining scenarios can be classified as a "minor variation" of the alternatives that were considered, because both differ significantly from the 32,000 tpd case.[68] They both present the potential for environmental impacts that go well beyond those considered in regard to the PolyMet project.[69]

The Co-Lead Agencies cannot avoid the duty to prepare a Supplemental EIS on the ground that, after the current project is approved and moving forward, any significant change in the project will require the development of a Supplemental EIS and new permits before it can be implemented. Under the facts of this case and relevant case law, this position is not reasonable. The central premise of environmental review is that an agency should be aware of the environmental consequences of its actions before its commits to a certain path. As one court described it, environmental review laws "insist on foresight."[70] The timing of information gathering activities is therefore critical. And if each phase of a project is treated as an isolated component that can be reviewed independently of any other phase, the agency effectively avoids any review of the project as a whole.

The consequences of this type of piecemealing can be devastating, and for that reason, courts specifically forbid it.[71] In *Natural Resources Defense Council v. Callaway*, the Second Circuit ruled

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[67] *Marsh v. Oregon Nat. Res. Council*, 490 U.S. 360, 373–74, 109 S. Ct. 1851, 1859, 104 L. Ed. 2d 377 (1989).
[68] *See id.* (citing Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026, 18035 (Mar. 17, 1981)).
[69] *See Sierra Club*, 744 F. Supp. at 367.
[70] *North Slope Borough v. Andrus*, 642 F.2d 589, 608 (D.C. Cir. 1980).
[71] *Kleppe v. Sierra Club*, 427 U.S. 390, 410, 96 S. Ct. 2718, 49 L. Ed. 2d 576 (1976) (when several proposals "that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together"); *Stewart Park and Reserve Coalition, Inc. v. Slater,* 352 F.3d 545, 560 (2d Cir. 2003) ("Segmentation is an attempt to circumvent NEPA by breaking up one project into smaller projects and not studying the overall impacts of the single overall project."); *Natural Resources Defense Council v. Hodel*, 865 F.2d 288, 298 (D.C. Cir. 1988) (purpose of NEPA requirement to evaluate cumulative impacts is to "prevent agencies from dividing one project into multiple individual actions"); *National Wildlife Federation v. Appalachian Regional Commission*, 677 F.2d 883, 890 (D.C. Cir. 1981) (just as an agency may not segment a larger project into smaller components to avoid environmental review altogether, so too may they not segment that environmental review itself by "disingenuously describing it as only an amalgamation of unrelated smaller projects"); *North Slope Borough*, 642 F.2d at 608 (quoting legislative history for NEPA arguing that "the earlier in the progress of a project a conflict . . . is recognized, the easier it is to design an alternative consistent with the requirements of the act, or to abandon the proposed action"); *Natural Resources Defense Council v. Callaway*, 524 F.2d 79, 88 (2d Cir. 1975).

that an agency may not "treat[] a project as an isolated 'single-shot' venture in the face of persuasive evidence that it is but one of several substantially similar operations, each of which will have the same polluting effect in the same area."[72] Ignoring the "prospective cumulative harm" under such circumstances would "risk ecological disaster."[73] In that case, the U.S. Navy prepared an EIS to study the environmental impacts of a project to dredge polluted soil from the Thames River in Connecticut and dispose of it near New London. Although that same disposal site was going to be used for similar dredging proposals by USACE, the Coast Guard, and private businesses, the EIS chose to look only at the Navy's specific dredging proposal. In rejecting that approach as unduly closing one's eyes to the environmental impact of connected actions, the court reasoned that an agency is not required to make a "crystal ball" inquiry into future projects, but it also may not willfully blind itself to the cumulative impacts of similar operations:

> As was recognized by Congress at the time of passage of NEPA, a good deal of our present air and water pollution has resulted from the accumulation of small amounts of pollutants added to the air and water by a great number of individual, unrelated sources. "Important decisions concerning the use and shape of man's future environment continue to be made in small but steady increments which perpetuate rather than avoid mistakes of previous decades." NEPA was, in large measure, an attempt by Congress to instill in the environmental decisionmaking process a more comprehensive approach so that long term and cumulative effects of small and unrelated decisions could be recognized, evaluated and either avoided, mitigated, or accepted as the price to be paid for the major federal action under consideration. The fact that another proposal has not yet been finally approved, adopted or funded does not foreclose it from consideration, since experience may demonstrate that its adoption and implementation is extremely likely.[74]

The core insight of NEPA and MEPA, then, was to specifically forbid agencies from piecemealing the analysis of the environmental impacts of their decisions.

The reasoning supporting that core insight is made readily apparent by the current proposal. If the current project is allowed to proceed, it may fail due to its marginal economics. At that point, the state will have little choice but to allow the expanded mining scenario rather than getting stuck with the cleanup cost of a failed mine at a time when the "back-loaded" financial assurance fund is incomplete.[75] It would be far more reasonable to understand the environmental effects of the more-

[72] *Callaway*, 521 F.2d at 88.
[73] *Id.*
[74] *Id.* (citations omitted).
[75] We note that under state law, permits to mine are "irrevocable during its term," and that the draft permit to mine for the PolyMet Project does not have a defined term. Minn. Stat. § 93.481, subd. 4. If issued, that permit would be effectively irrevocable indefinitely except for violations of law or to protect imminent threats to public health and safety.

profitable mining scenarios before they are likely to be implemented, so that a "hard look" can be taken now with regard to such key issues as where the additional mine tailings would be placed. These issues must be examined now to avoid the camel getting its nose under the tent, and forcing the state to permit an expanded project to avoid the failure of the proposed project when the environmental impacts of the new expanded project are not understood. Under these very stark circumstances, failure to supplement the EIS would be a failure to take the required "hard look" under state and federal laws, notwithstanding the overall length of the review process.[76]

IV. An Expanded NorthMet Mine Project Would Significantly Affect the Environmental Impacts of the Proposal that Have Not Been Considered in the FEIS

Federal law is clear that significant new information that "presents a seriously different picture of the environmental impact of the proposed project from what was previously envisioned" mandates supplementation of the FEIS.[77] In this case, it is almost impossible to comprehensively document the extent to which the analysis of environmental impacts in the FEIS is premised on a mine operation limited to only 32,000 tons per day. Nevertheless, the significant, additional environmental impacts of a quadrupled mine operation that were not studied in the FEIS would include, but are not limited to consideration of the following:

1) Whether seepage controls could handle increased quantities of water from an expanded operation to the extent necessary to prevent contamination of ground and surface waters;[78]
2) The impacts of the larger pits on wetlands drainage;
3) The impacts of the larger pits on surface water flow in the surrounding rivers and streams;[79]

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[76] *Montana Envtl. Info. Ctr. v. U.S. Office of Surface Mining*, 274 F. Supp. 3d 1074, 1092 (D. Mont. 2017) (state agency did not take a hard look at the environmental impacts of a much expanded mine operation when it relied on previously conducted EAs that assumed smaller tonnages).

[77] *Wisconsin v. Weinberger*, 745 F.2d 412, 421 (7th Cir. 1984). New information that significantly affects the environmental impacts of a project is not limited to new scientific or technical information, but is evaluated only with regard to the "likely environmental consequences that follow from the subsequent data." *Louisiana Wildlife Federation v. York*, 761 F.2d 1044, 1051 (5th Cir. 1985).

[78] The top-line summary of the proposal's impact to water resources is fundamentally based on the successful operation of these seepage controls. *See* FEIS at 5-5 ("While reusing the existing LTVSMC Tailings Basin for tailings disposal offers environmental benefits (e.g., reducing wetland effects and addressing legacy water quality issues), it does create challenges because the existing LTVSMC Tailings Basin is not lined and currently releases seepage with elevated concentrations of sulfate, TDS, and hardness, among other constituents. Many of the engineering controls proposed by PolyMet at the Plant Site are related to managing seepage from the combined existing LTVSMC tailings and the future NorthMet tailings."); *id.* at 5-8 ("The surface water and groundwater seepage containment systems along the northern, northwestern, and western portions of the proposed NorthMet Tailings Basin would capture about 99 percent of the seepage from the Tailings Basin . . . As a consequence, the flow of tailings water towards the Embarrass Rive; r would be reduced to zero surface seepage and about 20 gpm of affected groundwater."); *id.* at 5-9 ("With the proposed engineering controls, the water quality model predicts that the NorthMet Project Proposed Action would not cause any significant water quality impacts.").

4) The impacts of the larger pits on groundwater contamination;[80]

5) Whether the studies of the sulfide content of the ore and waste rock include the additional rock that would be mined in an expanded operation;[81]

6) Whether the waste rock from the expanded operation would have any acid neutralization potential;[82]

7) Whether the proposed water treatment technologies could handle the increased water quantities from an expanded operation, and if not, what alternatives would be utilized;[83]

8) Whether the expanded pits would still allow for backfilling of Category 2/3 and 4 waste rock;[84]

9) Whether the project's footprint would allow for an enlarged Category 1 stockpile;

10) Whether the increased size of the Category 1 waste rock stockpile would allow for a geomembrane cover and groundwater containment system;[85]

11) Whether the water quality modeling based on the base case would be a reliable indicator of water quality for an expanded operation;[86]

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[79] Water flow modeling (MODFLOW and XP-SWMM) was used to support the FEIS's conclusion that "the NorthMet Project Proposed Action would not result in any substantial changes at the Mine Site nor at the Plant Site to surface water flows based upon established evaluation criteria when compared to the continuation of existing conditions." *Id.* at 5-9. These flow models are premised on the assumption that the PolyMet project will mine 32,000 tons per day.

[80] *Id.* ("Probabilistic chemical concentrations predicted by GoldSim were compared against water quality evaluation criteria and CEC model results at eight groundwater and eight surface water evaluation location at the Mine Site, and three groundwater and ten surface water evaluation locations at the Plant Site."). These models are based on the assumption that the PolyMet project would mine 32,000 tons per day. *See also* FEIS at 5-7 ("After project operations, the only appreciable non-treated mine water leaving the Mine Site would be about 10 gpm of groundwater seepage in the surficial aquifer that would migrate south and eventually be released to the Partridge River.").

[81] *Id.* at 5-6.

[82] *Id.*

[83] As one example of the logistical challenges for water handling in the expanded mining scenario, the Updated Technical Report notes that the pipelines used to convey water from the mine site to the treatment facility at the plant site would have to be scaled upward for the expansion case to allow for larger pipe diameters and larger flow volumes. Ex. 1 at 241.

[84] FEIS at 5-6 ("The Category 2/3 and Category 4 waste rock would have sulfide S concentrations that could produce acid drainage if exposed to oxygen and water; however, the mine plan calls for temporary storage (less than 20 years) of this waste rock on geomembrane lined stockpiles with a seepage collection system, and then subaqueous disposal in the East Pit where oxidation would be very limited and acid drainage would not occur.").

[85] *Id.* at 5-7 ("It is estimated that more than 98 percent of affected groundwater seepage from the Category 1 stockpile would be capture by the containment system or would migrate as groundwater into the West Pit and East Pit.").

[86] The FEIS used three water models to "predict the potential hydrologic and water quality effects of the NorthMet Project Proposed Action," one for groundwater (MODFLOW), one for surface water (XP-SWMM), and one for water quality (GoldSim). *Id.* at 5-9. All of these models are based on a "Project Description" for 32,000 tons per day. *See, e.g., NorthMet Project Water Modeling Data Package – Vol. 2 Plant*

12) Whether the project could be scaled up to 118,000 tpd while still protecting wild rice downstream of the operation;[87]

13) The impact of the increased pits on groundwater elevations in the surrounding area;[88]

14) The impact of the increased greenhouse gas and criteria pollutant emissions produced by the increased generation of electrical power for the processing and beneficiation plant;[89]

15) The impact of the modified haul roads on emissions of fugitive dust;[90]

16) The air emissions impact of expanding the volumes of rock crushed at the processing and beneficiation plant;[91]

17) The air emissions impact of transporting 118,000 tons per day of crushed rock via an eight mile long overland conveyor;[92]

Site 46 (2015). These models are an integral component of the environmental impact analysis. The water quality model, for instance, uses the PolyMet project description to model the predicted concentration of constituents such as lead, arsenic, cobalt, copper, and sulfate in the mine-impacted water. *See id.* at 170-90; FEIS at 5-9 ("GoldSim independently modeled 27 chemical parameters and provided values to further calculate two more chemical parameters, TDS and hardness.").

[87] FEIS at 5-7 (noting that "it must be demonstrated that the NorthMet Project Proposed Action would not cause or add to exceedances of an effluent limit based on the 10 mg/L standard" to protect wild rice, and concluding that the proposed engineering controls would "provide a higher degree of reliability and flexibility to ensure that the evaluation criteria [for the protection of wild rice] would continue to be met in the future").

[88] *Id.* at 5-10 ("It is recognized that groundwater elevations would decrease within a small area around the mine pits.").

[89] The expansion case would require the electrical service at the plant site to be upgraded from 13.8 kV to 34.5 kV. Ex. 1 at 241. The project as currently proposed is estimated to require electrical demand of 59.5 MW running at full operation for 8,760 hours a year. *See* PolyMet Mining, Inc., NorthMet Project Air Data Package v. 5, January 5, 2015, Attachment W – Greenhouse Gas and Climate Change Evaluation v. 5, Appendix A – Greenhouse Gas Emission Inventory and Alternatives Report (June 2012), Attachment B – Indirect Emission Calculations, at Table B-1. Electricity at the site will be provided by Minnesota Power, which has the second-highest CO2 emissions for utilities in Minnesota. *See* PolyMet Mining, Inc., NorthMet Project Air Data Package v. 5, January 5, 2015, Attachment W – Greenhouse Gas and Climate Change Evaluation v. 5, Appendix A – Greenhouse Gas Emission Inventory and Alternatives Report (June 2012), at 29.

[90] Ex. 1 at 241 ("The construction of haul roads would change to include the larger footprint proposed for the 118,000 STPD mine").

[91] An expanded mine would almost certainly have a major influence on PolyMet's air permit. As noted in the Petitioner's comments on the air permit, the Potential to Emit calculation did not include the full crushing capacity of the Erie Plant. *See* Comments of MCEA, Sierra Club NorthStar Chapter, Center for Biological Diversity and Friends of the Boundary Water Wilderness on the NorthMet Air Emissions Permit at 4, March 16, 2018, attached as Exhibit 9. Even without any analysis of an expanded operation, the current proposal seeks to avoid being subject to the Prevention of Significant Deterioration requirements by accepting emission limits below the major source threshold. FEIS at 5-479. The proposal's controlled emission for total suspended particulates are already near the PSD Major Source Threshold of 250, and an expanded mine would push the emissions over that threshold. *Id.*

[92] Ex. 1 at 242. The introduction of the overland conveyor concept is a particularly notable modification. The current proposal would transport large-sized pieces of ore via a railroad from the mine site to the plant site. The expansion case proposes to crush the ore at the mine site and transport 118,000 tons per day of crushed rock via an eight-mile-long overland conveyor to the plant site. The fugitive emissions from this conveyor would include

18) The accuracy of the air modeling used to predict effects of the project on Class I areas;[93]

19) The accuracy of the modeling used to determine NAAQS and Prevention of Significant Deterioration Increment Impact Analysis;[94] and

20) Air emissions health impacts for workers and residents.[95]

These identified impacts that would change if the project were either accelerated or expanded are but a sampling of actual impacts. The FEIS is in every way based on the project as it is currently proposed, and an accelerated or expanded mine would change virtually every one of the environmental impacts studied in the FEIS. In addition to the prominent impacts to air, water, and wetlands, an accelerated or expanded operation would significantly affect other resources analyzed in the FEIS, including:

- **Vegetation.** FEIS 5.2.4 describes how the proposed action would disturb 1,718 acres at the mine site and 2,189 acres at the plant site, including areas with rare or sensitive plants and sites of high biodiversity significance. The expanded mine pits proposed for the expansion scenario would impact far more acres of these plant communities.[96]
- **Wildlife.** FEIS 5.2.5 describes how three federally listed endangered species would be affected by the proposal—the Canada lynx, the gray wolf, and the northern-long eared bat. These species would be affected by habitat loss and collisions with truck traffic; both of these factors would have a heightened impact from an accelerated or expanded mine operation.
- **Noise and Vibration.** FEIS 5.2.8 concludes that "[m]embers of the general public who may be recreating near the NorthMet Project area and tribal members who may have a cultural and spiritual connection to archeological sites in the Superior National Forest, in areas immediately

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mercury impacts to surrounding wetlands, among other notable impacts. The FEIS concluded that the transportation of ore by railroad would not be expected to produce "significant reactive airborne fugitive dust." FEIS at 5-480. This conclusion is based on the "size of the ore rock being transported, the design of the railcars, and the short distance of transport from the Mine Site to the Plant Site." *Id.* None of these assumptions would hold true for a system of crushing ore at the mine site and transporting it for processing via an eight-mile-long overland conveyor.

[93] FEIS at 5-484 ("Input options and data utilized in the models generally corresponded to default or USEPA recommended values along with representative, NorthMet Project Proposed Action-specific source input parameters.").

[94] *Id.* at 5-485 ("The Mine Site emission rates are based on a daily average mining rate of 32,000 tons of ore.").

[95] Modeling for the Air Emissions Risk Analysis (AERA) was conducted with AERMOD for years 8 and 13, "which were determined to be the years of highest air emissions." *Id.* at 5-498. This assumption would not be true for either the accelerated mining case (which reduces the life of mine operations to 15 years) or the expanded case. The plant site sources of air emissions analyzed in the AERA include ore crushing, autoclave operations, fugitive dust emissions and others. *See* 2015 Air Data Package, *supra* note 89, Attach. P at 20. Those estimates reflect project operations as proposed in 2013. *Id.* The expanded case would involve nearly quadrupled air emissions from mine vehicles, the "major risk driver" for lifetime cancer risk for farmers and fugitive emissions of nickel, arsenic and dioxins, the major risk driver for residents. FEIS at 5-499.

[96] *See, e.g.,* FEIS, fig. 4.2.4-2 (showing imperiled or vulnerable plant communities to the southeast of the proposed mine pits). The expansion case detailed in the Updated Technical Report would expand mining operations to access mineral resources to the southeast of the existing pit proposal. *See* Ex. 1 at 50 (showing additional ore to the southeast of the currently proposed pit boundaries).

near the mine, may occasionally experience noise and/or vibration associated with the NorthMet Project Proposed Action."[97] Because accelerated or expanded mine scenarios would involve doubled or quadrupled ore processing, the noise and vibration associated with blasting, crushing, and mine vehicles would increase by a corresponding amount.

- **Cultural Resources.** FEIS 5.2.9 describes project impacts to important cultural resources such as the Spring Mine Lake Sugarbush. The FEIS concluded that the Spring Mine Lake Sugarbush "is not in an area expected to be affected by dust deposition,"[98] but acknowledged that "the analysis of atmospheric effects on the Spring Mine Lake Sugarbush was an estimation based on modeling and that dust deposition is expected to occur near this property."[99] This acknowledgement, however, did not consider the effects of dust deposition from an expanded mine scenario that would involve crushing 118,000 tons per day of ore at the mine site and conveyed to the plant site with an eight mile long overland conveyor (as opposed to the current proposal to ship 32,000 tons per day of coarse ore by railroad to be crushed at the plant site).
- **Recreation and Visual Resources.** FEIS 5.2.11 describes how the proposed action may affect recreational opportunities due to noise, dust, and other disturbances.[100] Accelerated or expanded mining scenarios would increase the frequency and intensity of these disturbances.
- **Hazardous Materials.** FEIS 5.2.13 describes how "hazardous materials or wastes could result in spills, accidental release, or discharge into the environment, which could cause effects on workers, waters of the state, or the general public."[101] The FEIS does not, however, provide any analysis of the impacts of much larger spills and releases from an expanded or accelerated operation. According to the FEIS, for instance, the project will use 1,075 tons per year of potassium amyl xanthate, which it describes as "DOT spontaneously combustible. Mild irritant. Heating and moisture produces H_2S, a toxic gas. Toxic to animals in large quantities. Contact with water liberates extremely flammable gases, which can cause rapid burning and release of toxins into the air." An expanded or accelerated mine project may use three to four times as much of these chemicals, and the FEIS does not provide any analysis of what the impacts of an increased spill would be.
- **Geotechnical Stability.** FEIS 5.2.14 observes that "[i]f incorrectly designed, constructed, and/or managed, or from other unforeseen circumstances, waste material storage facilities have the potential to increase hydrologic and/or water quality effects and may become unstable, potentially leading to slope or dam failure (and/or other environmental impacts to downstream areas)".[102] These risks are substantially heightened by a mine operation that would have much larger waste rock stockpiles, much more tailings to store in the Tailings Basin, and much more hydrometallurgical residue to store in the HRF, but none of those risks are evaluated in the

[97] *Id.* at 5-521.
[98] *Id.* at 5-563.
[99] *Id.* at 5-564.
[100] *Id.* at 5-593.
[101] *Id.* at 5-607.
[102] *Id.* at 5-627.

FEIS, which focuses only on the risks posed by the structures as proposed, *i.e.* accommodating a mine plan for 32,000 tons per day.[103]

These impacts are significant, but Petitioners note that an especially significant impact of an accelerated or expanded mine operation would be the risk of tailings dam failure. A mine processing 118,000 tons per day would produce an incredible quantity of tailings requiring disposal. That would almost certainly mean expanding the existing LTV Steel tailings basin.[104]

An expanded tailings basin would increase the risk of dam failure dramatically. The frequency and severity of tailings dam failure are directly correlated to the volumes of waste stored in the facility. Recent decades have seen an increase in tailings dam failures, and this trend is a "direct result of the increasing prevalence of TSF's with greater than 5 million cubic meter capacity necessitated by lower grades of ore and higher volumes of ore production required to attain or expand a given tonnage of finished product."[105] Even the smaller PolyMet project would produce 10,000,000 cubic yards of tailings annually.

One of the most serious drivers of tailings failures is that mines are typically designed with a smaller footprint in mind and then expanded later, with less thought and planning going into those expansions than went into the original design. This is exactly what happened with the Samarco failure in Brazil that killed 19 people. There a police investigation found that the root cause of the tailings dam collapse was a "conscious choice to allocate all resources to higher throughput volumes with no corresponding investment in additional waste management technology."[106] As companies chase higher returns on a marginal project to achieve "maximum production at any cost," safety is the first casualty:

> In the run up of the supercycle the active participation among the 330 mines swelled from 144 (44%) to 226 (68%) (viz. an average of 173 active at any one time). It is in this increased re-entry, and often *expansion of economically fragile mines* that the trend to ever increasing severity and frequency of catastrophic TSF failures has manifested.[107]

This is exactly what has happened with the NorthMet mine proposal. These circumstances are the worst case scenario that MEPA and NEPA were created to avoid. Proceeding with permitting now—without any foresight given to the consequences to downstream communities of a catastrophic release

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[103] *See, e.g.*, *id.* at 5-628 ("The total weight of waste rock stored in a permanent stockpile (Category 1 Stockpile would be approximately 168 million tons").

[104] Ex. 4 at 1 (describing the expanded case as mining triple the ore of the current proposal).

[105] Ex. 3 at 2.

[106] Paul Kiernan, *Brazil Police Say BHP, Vale Venture at Fault for Dam Disaster*, Wall St. J., June 10, 2016, https://www.wsj.com/articles/brazil-police-say-bhp-vale-at-fault-for-dam-disaster-1465510198.

[107] Lindsay Bowker and David Chambers, *In the Dark Shadow of the Supercycle: Tailings Failure Risk & Public Liability Reach All Time Highs* at 7, August 17, 2017, attached as Exhibit 10 (emphasis added).

four times as large as the one studied in the FEIS—would turn the environmental review process into a "useless ritual, defeating the purpose of NEPA, and rather making a mockery of it."[108]

V. Conclusion

Petitioners do not make this request lightly. We are entirely cognizant of the already lengthy review process for this project. We note, however, that the length of this process has not been due to actions taken by the Petitioners. Delay alone has never been our objective.

We make this request now for one reason only: this project, and what it means for Minnesotans both now and in the future, has changed drastically since the FEIS was published. The landscape has changed entirely, and the communities around the proposal deserve an analysis of the project that is most likely to occur, not simply one for a smaller, test run for an eventual mega-mine. The company has long known that an expanded mine is not just reasonably foreseeable, but highly likely, and it has always been within the company's power to inform the Co-Lead Agencies of this fact. But rather than communicate that intent, it chose to persist down a path of environmental review that was fundamentally flawed. It is the company, not the Petitioners, that has potentially thrown away years of environmental review. An expanded mine could have been studied in the environmental review process from the beginning.

For the reasons given above, Petitioner requests that the Co-Lead Agencies prepare a Supplemental EIS that examines, at a minimum, the environmental impacts of the two mining scenarios described in the Technical Report, before this project proceeds with permitting.
Respectfully submitted,

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[108] *Natural Resources Defense Council v. Callaway*, 524 F.2d 79, 92 (2d Cir. 1975).

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