

**ATTACHMENT 14
COMMENTS AND RESPONSES**

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
1	Air-01	<p>The Minnesota Center for Environmental Advocacy ("MCEA"), submits the following comments with regard to the proposed air emissions permit for PolyMet Mining, Inc. ("PolyMet") on behalf of its own members and on behalf of the Sierra Club Northstar Chapter, the Center for Biological Diversity, and Friends of the Boundary Waters Wilderness ("Conservation Organizations"). The Minnesota Pollution Control Agency ("MPCA") has made the preliminary determination to issue an air emissions permit allowing construction and operation of the proposed PolyMet NorthMet copper-nickel-gold/platinum-group metal mine. In order to issue this permit, the MPCA must find that the conditions of the permit provide for compliance with all applicable requirements and the requirements of parts 7007.0100 to 7007.1850, or include a schedule to achieve such compliance. Minn. R. 7007.1000, subp. E. Minn. R. 7007.010.0, subp. 7.K. defines "applicable requirement" to include "any national ambient air quality standard adopted under section 109 of the act or increment or visibility requirement under part C of the act..." Minn. R. 7007 .0800, subp. 1 states that " the agency shall include the permit conditions specified in this part in all permits, except where the requirement states that it applies only to part 70 permits or only to state permits."Minn. R. 7007.0800, subp. 2.A. states that the permit must "include emission limitations, operational requirements, and other provisions needed to ensure compliance with all applicable requirements at the time of permit issuance..." Further, Minn. R. 7007.0800, subp.2.B. states that the permit must " include any condition the commissioner determines to be necessary to protect human health and the environment." The most important conditions are those that ensure compliance with the National and Minnesota ambient air quality standards. Minn, R. 7009.0020 mandates that "No person shall emit any pollutant in such an amount or in such a manner as to cause or contribute to a violation of any Minnesota ambient air quality standard under part 7009.0080 beyond the person's property line, provided however, that in the event the general public has access to the person's property or portion thereof, the ambient air quality standards apply in those locations."</p> <p>PolyMet must be required to evaluate cumulative impacts on the NAAQS in all areas of ambient air in order to ensure that its permit contains adequate emission limits to ensure NAAQS will not be violated. As provided for in MPCA guidance, when a cumulative modeling analysis shows a problem with NAAQS compliance, rather than finding reasons to exclude a neighboring source 's emissions, a proposed source should analyze its contributions and other neighboring source's contributions and if the proposed source contributes significantly to NAAQS exceedances, then additional emission limitations should be required in its permit.</p>	<p>The MPCA agrees with the commenter's assessment of the importance of the National and Minnesota Ambient Air Quality Standards.</p>

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2	Air-01	<p>The deficiencies identified by the Conservation Organizations include the following:1: The Draft Permit for Polymet Fails to Ensure the Source Will Comply with the National Ambient Air Quality Standards (NAAQS).A. It is not clear whether PolyMet currently has ownership or control of the ambient air boundary used to define the scope of the air modeling.Before issuing this Permit, MPCA must require PolyMet to document and disclose the impacts on ambient air quality now in the event that PolyMet does not gain ownership or control of the area within its currently projected "effective fenceline," and the Permit must include other conditions as needed to protect the NAAQS that apply if PolyMet does not gain ownership or control of the effective fenceline. Until PolyMet has control of the land around the mine, MPCA cannot issue a permit based on a NAAQS analysis for an effective fenceline that PolyMet does not currently control.</p>	<p>The proposed air permit is based on the Permittee's certified application and reflects state and federal laws, rules, and requirements, including the federally-enforceable permit conditions associated with the determination and maintenance of the ambient air boundary. If the ownership and control of the property within the ambient air boundary differ from the certified representations made by the Permittee and reflected in the proposed permit, then the permittee may need to apply for a permit amendment and/or demonstrate that a different property boundary does not impact the NAAQS compliance at the effective fence line. MPCA considers the status of the land exchanges to be out of scope for the draft air quality permit, which was under review. The effective fence line at the NorthMet site reflects the project area that is within the Permittee's anticipated ambient air boundary, where access by the general public can be controlled and where compliance with the NAAQS has been demonstrated through modeling.</p>
3	Air-01	<p>B. PolyMet 's air modeling failed to include the impacts of contributing sources. PolyMet must be required to evaluate cumulative impacts on the NAAQS in all areas of ambient air in order to ensure that its permit contains adequate emission limits to ensure NAAQS will not be violated. As provided for in MPCA guidance, when a cumulative modeling analysis shows a problem with NAAQS compliance, rather than finding reasons to exclude a neighboring source 's emissions, a proposed source should analyze its contributions and other neighboring source's contributions and if the proposed source contributes significantly to NAAQS exceedances, then additional emission limitations should be required in its permit.</p>	<p>The draft permit contained conditions based on an approved protocol for NAAQS compliance modeling and modeling results from the certified application submitted by the Permittee. Process rates and operating assumptions that were identified in the approved protocol and modeling results were included as operating and emission limits in the draft permit. The receptor grid utilized in the modeling was representative of the impacts analysis conducted during Minnesota Environmental Policy Act and National Environmental Policy Act review. This approach was consistent with the MPCA's previous modeling practices, and was approved and directed by MPCA as a means of maintaining consistency between the 2015 Final Environmental Impact Statement and air quality permit modeling. Section 2.7 of the Technical Support Document (TSD) for the proposed permit provides addition information on the various environmental review components for this project.</p> <p>The impacts from the project, as demonstrated through the modeling, indicate that the project under review would not cause a violation of the NAAQS at the effective fence line. Moreover, if any changes to a modeled parameter or emission rate of PM10, PM2.5, NO2 and SO2 occur before startup date of the primary crushers (EQUI 1 or EQUI 20), then the permittee was required to submit updated baseline modeling demonstration, based on the most updated protocol.</p>

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			<p>Nevertheless, in an abundance of a caution and to address concerns raised by commenters related to nearby source impacts, grid spacing for receptors, and placement of receptors outside of the effective fence line, the proposed permit includes a baseline NAAQS remodeling requirement. The proposed permit requires the Permittee to submit updated NAAQS modeling results for PM10 (24-hour), PM2.5 (24-hour and annual), 1-hr SO2, and 1-hr NO2. This requirement can be found at the total facility level of the permit. The Permittee will be required to submit an updated modeling protocol for the facility 270 days after permit issuance. The Permittee must follow the MPCA Air Dispersion Modeling Practices Manual. Furthermore, the facility will be required to follow the applicable modeling protocol forms and collect site-specific particle distribution, mass fraction, and specific gravity parameters from unpaved roads if Method 1 is proposed as a plume depletion analysis for PM10 NAAQS modeling.</p> <p>If modeling parameters assumed in the remodeling deviate from those listed in the proposed permit, Appendix D Modeling Information, then the Permittee is required to evaluate whether a permit amendment is necessary. If a permit amendment is needed, the Permittee is required to submit an application for an amendment in accordance with the requirements of Minn. R. 7007.1150 through 7007.1500 and comply with any applicable public notice requirements. If a modeled NAAQS exceedance is shown, the MPCA will follow the process outlined in MPCA Air Dispersion Modeling Practices Manual, Appendix A. As discussed in that policy, the MPCA retains discretion to move forward with issuing a permit to a facility that may be contributing to a NAAQS exceedance, but is not the primary culpable source.</p> <p>The MPCA believes that the requirement for updated baseline modeling in the proposed permit will provide additional assurance to both the Permittee and the commenters for NAAQS compliance demonstration at the effective fence line.</p>
4	Air-01	<p>C. The Permit unlawfully allows for dispersion techniques to protect the NAAQS. The Permit must be changed to include fugitive emissions controls that are not prohibited "dispersion techniques" under the Clean Air Act, and mandate measures intended to continuously control fugitive dust to the level assumed in the -air modeling analysis.</p>	<p>The proposed permit contains requirements related to the Special Purpose Monitoring. Attachment 11 to the TSD (Special Purpose Monitoring Plan) was provided with the draft permit application as submitted by the Permittee. The proposed permit details the requirements by which the Permittee must demonstrate compliance. Some requirements include following an EPA reference method for operation of the monitors, install an on-site meteorological station, and develop a quality assurance and quality check plan. Additionally, the proposed permit contains multiple recordkeeping requirements as they pertain to location of monitors, data collected, laboratory</p>

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			analysis details, and specified root cause analysis details. It is reasonable to emphasize concern over the cumulative number of perceived 24-hr PM10 NAAQS violations prior to contacting the MPCA, it's important to remark that these monitors are not meant to demonstrate compliance with the NAAQS. They are intended to provide the Permittee real-time monitoring of PM10 concentrations located at the Mine Site.
5	Air-01	<p>D. PolyMet understated fugitive PM10 and PM2.5 emissions, which in turn means PolyMet understated PM10 and PM2.5 ambient air impacts.</p> <p>MPCA must require PolyMet to revise its PM10 and PM2.5 emission projections for unpaved roads at the Plant Site and the Mine Site. For the short term average PM10 and PM2.5 NAAQS, MPCA must require that short term emissions estimates reflect worst case daily emissions at both the Mine Site and Plant Site, reflecting employee trips on unpaved roads as well as other vehicle trips related to PolyMet. MPCA must also require the use of PM10 and PM2.5 emission factors appropriate for the weight of the vehicle at the Plant Site. Further, MPCA cannot allow such a high level of PM10 and PM2.5 control from unpaved road emissions without specific, enforceable requirements to ensure that 80-90% control is actually achieved.</p> <p>As a result of the issues identified above, MPCA must require the modeling to be redone with appropriate assumptions before the Permit is issued to ensure that the Permit includes all conditions necessary to ensure compliance with the PM10 and PM2.5 NAAQS.</p>	Because of comments received, the MPCA reviewed the emission calculations and found them to be adequate to develop 24-hr emission rates for unpaved roads at the Plant and Mine sites. The Permittee has numerous operational and recordkeeping requirements in the Fugitive Dust Control Plans found at Appendix B which provides reasonable assurance the Permittee will ensure compliance with the PM10 and PM2.5 NAAQS.
6	Air-01	<p>II. The Draft Permit Does Not Include Adequate Limits on the Potential Emissions of the PolyMet Facility under the Prevention of Significant Deterioration Permitting Regulations. MPCA claims that the PolyMet source is a synthetic minor source and is thus not subject to prevention of significant deterioration (PSD) permitting requirements in Minn. Rule 7007.3000, which incorporates by reference the federal PSD permitting rules at 40 C.F.R. 52.21.1 Under the PSD permitting program, source is considered to be a major stationary source if the potential to emit of any regulated New Source Review pollutant is equal to or greater than 100 tons per year for certain source categories and 250 tons per year for all other source categories.2 MPCA has stated that PolyMet is in the 250 ton-per year source category.3 A source that would otherwise be a major stationary source can take practically enforceable limitations on its potential to emit to keep air emissions below major source emissions thresholds. Such a source would be deemed a "synthetic minor" source. MPCA has stated that it is issuing a synthetic minor permit for the PolyMet facility. MPCA has identified permit conditions that are necessary to ensure the PolyMet source is not a major source as "Title I conditions." The Conservation Organizations question the adequacy of the assumptions made for the Potential to Emit and the proposed conditions to maintain the "synthetic minor" status.</p>	PolyMet accepted limits on its emissions and operations in order to avoid a new major source classification under NSR. Therefore, the facility is not considered a new major source for NSR. Restrictions on emissions and operations that limit annual emissions from the facility to below NSR major source thresholds are referred to as synthetic minor limitations and can take a number of forms, such as process throughput limits, emissions rate or concentration limits, vehicle miles traveled limits, and control efficiency requirements. The effect of these limits and their sum over the entire facility results in the total facility limited potential emissions to below 250 tons per year. Section 2.1 of the Technical Support Document (TSD) for the proposed permit provides additional information NSR applicability. Section 3.1 of the TSD provides additional technical information on calculations of potential to emit. The proposed permit contains a material throughput limit to be monitored at two points during the crushing process. The MPCA believes this that this provides reasonable practicable enforceability and follows the recommendations in EPA's 1989 potential to emit memorandum. may need to reference PM responses below

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7	Air-01	<p>A. The Potential to Emit of PolyMet Does Not Account for the Full Potential Emissions of the Fine Crushing Plant. The Potential to Emit ("PTE") calculation did not include some fine crushing lines that PolyMet has stated that it does not intend to use. With respect to determining potential to emit of the PolyMet facility, these fine crushing lines do have potential to emit air pollutants and the Draft Permit does not include any prohibition on their startup or operation as a Title I condition. Thus, these crushing lines must be included in the potential to emit of the PolyMet facility. If MPCA was to impose Title I limitations prohibiting operation of these four fine crusher lines without a permit modification, MPCA must make clear that, in the case of such a permit change, the PolyMet source' must be re-evaluated for PSD applicability as though construction had not yet commenced pursuant to 40 C.F.R. 52.21(r)(4).</p>	<p>The proposed permit contains construction authorization conditions for specific pieces of equipment (Appendix F to proposed permit). The MPCA acknowledges that there may be historical decommissioned equipment located on the premises. However, the Permittee is only authorized to construct and operate the units identified in the proposed permit. Those units are identified in Appendix 4 to the proposed permit. Therefore, the fine crushing units are not included in the calculations for potential to emit. The MPCA agrees with the commenter that PolyMet would need to evaluate the operation of this equipment pursuant to 40 C.F.R. 52.21(r)(4) if the Permittee were to propose reactivation.</p>
8	Air-01	<p>B. The Permit Fails to Take Into Account All Non-Fugitive Particulate Emissions in Determining Whether PolyMet is a Major Stationary Source under the PSD Program. In determining if the PolyMet facility is a major stationary source under the PSD permitting requirements, PolyMet and MPCA have excluded "fugitive emissions." PolyMet considered several sources of emissions as fugitive emissions when the emissions from those sources could be reasonably captured and vented through a vent or stack. Specifically, PolyMet considered emissions from the portable crushing plants, screening, and blasthole drilling at the Mine Site as fugitive emissions. Particulate emissions from all of these sources could be reasonably captured and vented through a stack or other functionally equivalent opening. Therefore, the potential to emit particulate (PM, PM 10, and PM2.5) must be included in determining the potential to emit of the PolyMet facility.</p>	<p>The MPCA reviewed the draft permit material and confirmed that units identified to be part of the portable crushing plant and screening were labeled as "FUGI" while the emissions were summed in the facilities potential to emit calculations under the PSD permitting requirements. Nevertheless, the MPCA updated the subject item inventory to include these units as "EQUI" to more clearly differentiate among those units the MPCA had determined to be fugitive emissions units.</p> <p>The MPCA considers blasthole drilling a fugitive emissions source due to the remote location of the activities and are controlled pursuant to the Fugitive Dust Control Plan (Proposed Permit, Appendix B).</p>
9	Air-01	<p>C. The Permit Fails to Adequately Limit the Potential to Emit of the Autoclave Unit and Autoclave Flash Vessel. At PolyMet's plant site, an autoclave will be used to process nickel flotation concentrate to leach valuable minerals in the concentrate so they can be removed. The data supporting the assumptions in the Permit is deficient for a variety of reasons. MPCA must require more documentation of PolyMet's estimate of 99.06% control of PM, PM10, and PM2.5 with venturi and packed bed scrubbers. Proposed testing and operating conditions in the Permit are inadequate. Given the unknowns about this process which has never been tested at a commercial scale and the unknowns and wide variability of control of PM, PM10, PM2.5 and sulfuric acid mists across the scrubbers, the potential to emit of the PolyMet facility must be based on the worst case uncontrolled annual emissions that could be emitted from the Autoclave unit and Autoclave flash vessel under their physical and operational design.</p>	<p>Autoclaves are pressure vessels used in mineral processing operations to extract metals from refractory ore. This technology has been used throughout the country to extract minerals on a variety of orebodies including gold, molybdenum, and cobalt. Autoclaves are generally low emitting emission units and while the proposed permit contains construction authorization for the first autoclave in the State of Minnesota, proposed emissions from this project are comparable to autoclaves permitted around the country..</p> <p>The autoclave and corresponding flash vessel will use high pressure and high temperature in addition to chemical catalysts to release the minerals from the ore. Since each autoclave is manufactured and designed based on the site-specific orebody compositions, the Permittee performed pilot tests on autoclave operations at three different points in the development of this project in years 2000, 2005, and 2009 to collect information for autoclave design requirements. Additionally, the data gathered during these pilot scale tests, including measured concentrations of pollutants of interest in both air and condenser underflow streams, were used (along with a safety factor) to quantify uncontrolled emissions. The control efficiencies from the selected control technology were applied to the uncontrolled emissions to determine emission limits for the autoclave. Because this is a new technology as applied to Minnesota mineral processing operations, MPCA also is requiring additional emission testing to ensure that assumptions made during permit development are consistent with actual operating conditions and to adjust operating parameters as necessary.</p>

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			<p>Based on comments seeking clarity on the emissions from the autoclave, the MPCA requested additional information from the Permittee regarding the information collected by the Permittee during the development of the draft permit. The Permittee consolidated information it collected during pilot scale testing in 2000, 2005, and 2009, and provided the information in the table below. The table shows the pollutants that were measured during each pilot-test and is included as an attachment to the TSD (Attachment 15).</p> <p>The Permittee used information collected from the pilot scale testing as well as the ore- and site-specific metallurgical details as inputs to a simulation model referred to as MetSim. The MetSim model combined with the design capacity of the autoclave and flash vessel to inform emission factor estimates for the commercial size autoclave.</p> <p>Emission factors for the Autoclave and Flash Vessel were developed from measured concentrations during the pilot scale testing as well as from the MetSim software. Worst-case emissions for the autoclave were based on the design capacity for the autoclave and flash vessel and MetSim results. For pollutants with measured concentrations below detection limit, the worst case emission factors were calculated at the detection limit for the specific pollutants. Overall, a safety factor of 1.5 was applied to all pollutants to account for uncertainty in the expanded capacity between the pilot scale and the commercial autoclave and flash vessel units.</p> <p>The proposed permit contains construction authorization for a 4.9-ton per hour autoclave and 27.4 ton per hour flash vessel and wet scrubbers with continuous operating parameters for wet scrubbers in series. The Permittee made a commitment during the SDEIS process, to install the best available control technology for mercury and particulate emissions. The Permittee evaluated mercury and amphibole fiber emission controls based on a Best Available Control Technology (BACT) approach for particulate matter. These evaluations are not typically required for synthetic minor permits. This commitment is reflected in the selection of the types of control equipment proposed in the draft permit application and listed as required permit conditions in the proposed permit. Reliance upon control equipment chosen from a BACT-like approach provides the MPCA assurance that the facility will remain a synthetic minor when installing and operating the control equipment identified in the proposed permit.</p> <p>The Permittee also conducted an Air Emissions Risk Analysis (AERA). Based on the results from the AERA, there were several risk drivers associated with heavy metals including arsenic and nickel as well hydrochloric acid. These three pollutants of concern have a performance test requirement and a trigger for the potential need to reevaluate the AERA assumptions if the performance tests or other operational changes increase hourly emission rates. The use of wet scrubbers to control wet streams containing particulate</p>

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			<p>matter, as well as heavy metals, is well documented. The draft permit record contains references to the BACT-like approach taken for mercury and amphibole fibers, which were considered correlated pollutants to particulate matter.</p> <p>Sulfuric acid mist is the acid gas with the highest potential emissions for the project, and will be controlled by wet scrubbers. Wet scrubbers are a common type of control equipment operated for the control of sulfuric acid mist and SO₂.</p> <p>Emissions from the Autoclave Vent (EQUI 108) and Flash Vessel (EQUI 109) will be controlled with a venturi scrubber (TREA 51) and packed bed scrubber (TREA 52) operating. The proposed permit contains standard monitoring parameters for wet scrubbers, including daily checks of water flow, pressure drop, and pH. Semi-annual deviation reporting is identified in the proposed permit and the Permittee is required to complete reporting requirements if the manufacturers operating recommendations are not followed.</p> <p>The Permittee is required to conduct an initial performance test 180 days after commencement of operations of the Autoclave (EQUI 108) and Flash Vessel (EQUI 109) at STRU 35. As is standard MPCA practice, the test frequency for subsequent reoccurring performance tests is set based on the results after the initial performance test. Testing at the scrubber stream and at STRU 35 will not automatically result in updated emission limits for the Permittee. The test results will be used to inform the MPCA and Permittee when developing a test frequency plan. The information may also be used to inform efficacy of the wet scrubbers and the existing operating parameters.</p> <p>Recognizing that this technology is new in Minnesota, the MPCA also is requiring an engineering test to evaluate scrubber stream emissions that pass through the venting after TREA 51 and prior to emissions vented to TREA 52. Testing shall be conducted on the same schedule as STRU 35 (Autoclave Scrubber Stack), and requires the Permittee to evaluate concentrations of the following pollutants: Particulate Matter, PM₁₀, PM_{2.5}, SO₂, and Sulfuric Acid Mist (SAM). This permit condition will be relied upon by the MPCA and the Permittee to collect pollutant concentrations on the emissions stream between the two wet scrubbers. The engineering test will be used to understand how TREA 51 and TREA 52 contribute to controlling pollutants to emission limit requirements. Compliance with emission limits will still be measured at STRU 35.</p>

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10	Air-01	<p>D. The Permit Lacks Federally and Practically Enforceable Limits on the Potential to Emit of Other Sources of Emissions at the PolyMet Facility.</p> <p>The Draft Permit contains hundreds of conditions intended to limit the PolyMet facility's potential to emit, which are labeled "Title I condition[s]." However, the number of such permit conditions and the extreme length of the permit is not indicative of whether such conditions are practically enforceable and whether such conditions will ensure that the potential emissions of the PolyMet facility are limited to less than major source emission levels. In addition to the deficiencies we raised with the permit limits on Autoclave vent and Autoclave Flash vessel discussed above, there are numerous other deficiencies in the Draft Permit that render the limits on the potential to emit as ineffective. These deficiencies include:</p> <ol style="list-style-type: none"> 1. The Draft Permit contemplates the addition of "contractor activities," which are currently unidentified and which likely need to be counted in the potential to emit of the PolyMet facility, but fails' to include any limitations on the emissions from such activities. 2. The Draft Permit fails to ensure that if any Title I Conditions are relaxed, the source must be evaluated for PSD applicability as though construction has not yet commenced. 3. The ore processing throughput limit does not limit the amount of ore produced at the mine, and the Draft Permit fails to include necessary conditions to limit ore throughput at the plant site. 4. The Draft Permit fails to include all provisions related to Title I conditions as Title I Conditions, which is necessary to ensure that such provisions remain in effect even if the permit expires. 5. The Draft Permit does not include all conditions necessary to ensure continuous compliance with emission limitations intended to limit the potential to emit of the PolyMet facility. 	See response to comment numbers 43 – 48.
11	Air-01	<p>III. The Draft Permit Fails to Adequately Limit Potential Hazardous Air Pollutant Emissions of the PolyMet Facility to Less than Major Source Emission Thresholds. The Draft Permit for the PolyMet facility also includes emission limitations intended to keep the PolyMet facility a synthetic minor source of hazardous air pollutants (HAPs) under 40 CFR 63.2. Those limits are identified in the Draft Permit as "Avoid major source under 40 CFR 63.2" and the majority of those limits apply to metal HAPs that would also qualify as particulate matter.⁴ These limits are generally control efficiency requirements for the baghouses /cartridge filters.⁵ As discussed above, those removal efficiency requirements are not enforceable requirements unless the permit requires periodic testing to ensure compliance with the control efficiency limit.</p>	See response to comment number 53.
12	Air-01	<p>IV. Additional Comments on the Draft Permit for PolyMet.</p> <p>The Conservation Organizations believe that it is inappropriate for the Permit to allow PolyMet up to 5 years to begin construction. Construction should be commenced within 18 months of permit issuance. The Conservation Organizations also note that the Permit could be streamlined to avoid repetitive provision to allow citizens to better understand and enforce the permit conditions.</p>	See response to comment numbers 54 and 55.
13	Air-01	<p>Given the issues raised with regard to the modeling performed in support of the Permit, the Conservation Organizations believe that it would be appropriate for the MPCA to amend and supplement the modeling and renounce the Permit if the new modeling supports issuance.</p> <p>The Conservation Organizations appreciate the opportunity to comment on the Permit.</p>	Comment noted. As a result of comments received, the MPCA made changes to the proposed permit resulting in clarified requirements related to synthetic minor limits and a requirement for the Permittee to remodel. The MPCA considers those changes to result in more protective requirements. The changes are summarized in Attachment 13 to the Technical Support Document.
14	Air-01	Refer to the second attachment for more information. The second attachment serves as the comments provided by Vicki Stamper. The information in Ms. Stamper's document is extremely detailed (includes tables with data) and was used to prepare the main letter submitted with this comment.	Comment noted. The MPCA responded to Ms. Stamper's individual comments below.

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15	Air-01	<p>The Draft Permit for PolyMet Fails to Ensure the Source Will Comply with the National Ambient Air Quality Standards (NAAQS).The Permit for PolyMet is required to include terms and conditions necessary to ensure compliance with the National Ambient Air Quality Standards (NAAQS). Specifically, Minn. Rule 7007.0100, Subp. 7.K. defines “applicable requirement” to include “any national ambient air quality standard adopted under section 109 of the act or increment or visibility requirement under part C of the act....” Minn. Rule 7007.0800, Subp. 1 states that “the agency shall include the permit conditions specified in this part in all permits, except where the requirement states that it applies only to part 70 permits or only to state permits.” Minn. Rule 7007.0800, Subp. 2.A. states that the permit must “include emission limitations, operational requirements, and other provisions needed to ensure compliance with all applicable requirements at the time of permit issuance....” Further, Minn. Rule 7007.0800, Subp.2.B. states that the permit must “include any condition the commissioner determines to be necessary to protect human health and the environment.” Minn. Rule 7009.0020 mandates that “No person shall emit any pollutant in such an amount or in such a manner as to cause or contribute to a violation of any Minnesota ambient air quality standard under part 7009.0080 beyond the person’s property line, provided however, that in the event the general public has access to the person’s property or portion thereof, the ambient air quality standards apply in those locations.”¹</p> <p>Minn. Rule 7009.0020 mandates that “No person shall emit any pollutant in such an amount or in such a manner as to cause or contribute to a violation of any Minnesota ambient air quality standard under part 7009.0080 beyond the person’s property line, provided however, that in the event the general public has access to the person’s property or portion thereof, the ambient air quality standards apply in those locations.”¹</p> <p>It is clear that fugitive dust sources at the PolyMet site is the primary concern for compliance with the PM10 and PM2.5 NAAQS, particularly around the mine site. Fugitive particulate emissions are projected to be very high at the PolyMet site.</p> <p>Beginning at the source-wide level (mine and mineral processing plant), the uncontrolled fugitive emissions of total PM, PM10, and PM2.5 and the “controlled” level of emissions have been projected by PolyMet as follows: Fugitive emissions at PolyMet mine site are the majority of these total plantwide fugitive particulate emissions. Table 2 below shows PolyMet’s projection of PTE and Controlled PTE of particulate matter from fugitive emission sources at the mine site.</p>	<p>The MPCA agrees that fugitive dust impacts are a significant contributor to NAAQS impacts from this facility. The MPCA has determined that the proposed permit based on the application submitted by the Permittee contains sufficient permit conditions to demonstrate compliance with the NAAQS at the effective fence line, including recordkeeping and monitoring conditions, as well as federally enforceable requirement to comply with robust fugitive dust control plans.</p>

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16	Air-01	<p>The bulk of the fugitive mine source PM10 and PM2.5 emissions is from unpaved mine roads and mine haul roads. By our tally of the unpaved road emissions at the mine, the uncontrolled PM10 emissions due to unpaved roads were projected to be a total of 2,040 tpy or about 93% of the total 2,204 tpy of uncontrolled PM10 from fugitive dust sources at the mine site.4 Uncontrolled PM2.5 emissions from unpaved roads at the mine site tally up to 209 tpy, which reflects 86% of the total 243 tpy of uncontrolled PM2.5 from fugitive dust sources at the mine.5 PolyMet’s PTE calculations and calculations of emission rates for input into the ambient air modeling demonstration assumed 90% control from PTE emissions for all unpaved roads, with the exception of Dunka Road for which Polymet assumes 80% control.6 Those are very high levels of control to assume for unpaved road emissions, and the assumptions undoubtedly made a significant difference as to whether the PolyMet mine site modeling could demonstrate attainment of the PM10 and PM2.5 NAAQS.</p>	<p>The MPCA acknowledges that emissions from the unpaved mine and haul roads are significant.</p> <p>Minnesota regulations require that all facilities in Minnesota take all reasonable measures to prevent avoidable amounts of particulate matter from becoming airborne. As many commenters remarked, the PolyMet project requires requirements for airborne particulate matter that are more stringent than the Minnesota regulatory requirements. In addition to the Minnesota rule requiring prevention of fugitive dust, the proposed permit for PolyMet included additional detailed fugitive dust requirements, all federally enforceable, which are located in the fugitive dust control plan identified in Appendix B: Fugitive Dust Control Plans (FDCPs). FDCPs identify the primary and secondary control strategies as a starting point for preventing fugitive dust, and rely upon active engagement by the Permittee to mitigate and prevent airborne fugitive dust. The FDCPs were presented as part the permit application. The MPCA revised the FDCPs during the permit drafting phase. The FDCPs found in Appendix B to the proposed permit, contain comprehensive documentation of primary, secondary, and contingent controls for all authorized sources which generate fugitive dust located at the Mine and Plant Sites. Several sources identified in the FDCPs have contingencies requiring the activities to cease if fugitive emissions cannot be controlled.</p> <p>The Permittee followed the MPCA Fugitive Emissions Memorandum, which is included in the Technical Support Document (TSD) as Attachment 6. This document describes haul road dust control efficiencies and tiers them into three levels of effort resulting in corresponding dust control efficiencies. The Permittee has committed to Level III-B and III-A plans, which assume 80% and 90% control of fugitive dust. As a result, this proposed permit contains robust FDCPs, and rigorous monitoring and recordkeeping conditions.</p> <p>Several commenters note skepticism over the lack of enforceable conditions located within the draft permit. The placement of the FDCPs as an appendix to the permit, however, makes all components of the plan federally enforceable. The Technical Support Document discusses the various operating practices and requirements with which the Permittee will be required to demonstrate compliance. The FDCPs require daily visible emission checks on all active haul roads, unpaved service roads, material loading, material unloading, material processing, stockpiles, the tailings basin, tailings basin access roads, and tailings basin construction activities. Reported fugitive dust emissions will be investigated and evaluated for appropriate corrective action. The FDCPs identify the various dust suppression practices for the variety of sources as well as how to mitigate airborne dust in freezing and non-freezing conditions.</p> <p>The proposed permit also contains requirements to operate on-site air monitoring equipment. The purpose of the monitoring equipment is to</p>

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			<p>provide near-real-time feedback to the facility operators regarding the effectiveness of their emission control measures. If monitored levels reach certain pre-determined levels, then the Permittee must take certain prescribed actions. If these levels are repeatedly reached, then the Permittee must perform a root cause analysis that assesses the reasons for the high levels and what will be done to ensure that fugitive dust levels remain below threshold levels in the future. As the commenters point out, the monitors are located within the ambient air boundary of the Permittee. The use of these air monitors and the placement of the action levels are intended to provide the Permittee another piece of information when determining the best strategy for fugitive dust control. The MPCA maintains that the most effective strategy in managing fugitive dust and preventing airborne dust from crossing the ambient air boundary is engaged facility operators and staff. The recordkeeping and monitoring required by the proposed permit provides reasonable assurance that the Permittee will remain engaged and committed to compliance with the commitments specified in the proposed permit.</p> <p>The Permittee addressed blasting of overburden and waste rock in the FDCPs and best management practices when conducting blasting. The proposed permit does not have additional requirements related to blasting activities. The best management practice for blasting includes limiting other activities at the mine site, this includes haul truck traffic. As such, the MPCA evaluated potential emissions from blasting activities are comparable to emissions during non-blasting mine activities and found them to be comparable for particulate matter. Reliance on the FDCP for the mine site provides reasonable assurance that the Permittee will control the fugitive dust generated.</p> <p>The MPCA received comments about air monitors and requests for an air monitor to be placed in areas surrounding the facility. Ambient air monitoring is an available regulatory tools that the agency could require as the result of an enforcement action.</p> <p>The draft permit contains requirements to ensure National Ambient Air Quality Standards will be met. The MPCA maintains a network of air monitors throughout the state that it uses to measure the concentration of pollutants in the air to compare to National Ambient Air Quality Standards that EPA sets to protect human health and the environment. The monitor nearest to this site is in Virginia, MN. All areas of Minnesota, including Virginia, currently meet ambient air quality standards for particulate matter. The MPCA will pass this comment along to air monitoring staff.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
17	Air-01	<p>PolyMet’s modeling predicts that the maximum concentrations of the PM10 and PM2.5 would be almost at the level of the NAAQS. Specifically, the Class II NAAQS modeling of the proposed PolyMet source predicted 24-hour average concentrations of PM10 and PM2.5 that were about 90% of the NAAQS and predicted annual PM2.5 concentrations that were about 93% of the annual PM2.5 NAAQS.⁷ Given how close these predicted maximum concentrations are to the levels of the PM10 and PM2.5 NAAQS and the high levels of fugitive dust control taken into account in the PM10 and PM2.5 modeling, it is imperative that the inputs to the model accurately predict maximum allowable impacts and that the control measures of the permit are enforceable, lawful, and reasonably tied to the assumptions in the modeling.</p>	<p>See response to comment numbers 3 and 16.</p>
18	Air-01	<p>It appears that these peak concentrations in PM10 and PM2.5 were predicted both adjacent to the Plant Site Effective Fence Line and adjacent to and near the Mine Site Effective Fence Line, areas which are likely to be heavily influenced by fugitive dust from unpaved roads.⁸ Our review of the emissions input to the model and the conditions of the permit finds that the permit does not adequately or lawfully limit emissions from unpaved roads at the Mine Site or Plant Site. Further, the permit will not adequately ensure that the public is restricted from the area that PolyMet did not consider to be “ambient air,” claiming it was within the Plant and Mine Fence Lines. Thus PolyMet’s NAAQS modeling is fatally flawed for not including all locations of ambient air. Moreover, MPCA allowed PolyMet to exclude impacts from other nearby sources in its modeling, which is not allowed by MPCA’s own guidance. The exclusion of both large swaths of ambient air and air impacts of nearby sources mean the maximum modeled impacts are understated. For all of these reasons as will be detailed below, the draft air permit for PolyMet does not ensure that the source will comply with the applicable requirements of the NAAQS.</p>	<p>See response to comment number, 3.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
19	Air-01	<p>A. It is Not Clear Whether PolyMet Currently Has Ownership of Control of the Ambient Air Boundary Used to Define the Scope of the Air Modeling in Assessing Whether the Facility Will Comply with the NAAQS.</p> <p>PolyMet’s air modeling did not include receptors within the “effective fenceline.”⁹ The draft permit requires PolyMet to use fencing, control access points, conduct security patrols, place ‘no trespassing’ signage, and use remote monitoring to maintain control over the effective fenceline prior to blasting of waste rock, but no later than the initial startup of Mine Site Blast Hole Drilling (FUGI 25).¹⁰ The permit also requires development of an “Ambient Air Boundary Control Strategy Implementation Plan.”¹¹ It is apparent that PolyMet does not currently own or control all of the area of the effective fenceline. Specifically, as stated in its January 2018 Permit Application, “[t]he effective fencelines for the Plant Site and Mine Site are within property expected to be owned or controlled by PolyMet at the commencement of operations.”¹²</p> <p>Yet, MPCA is relying on ambient air modeling that excludes the area within the effective fenceline to authorize construction and operation of the PolyMet facility without knowing for certain that PolyMet will own or have control over all of the area of the effective fenceline. In the absence of such ownership or control, PolyMet will not have authority to implement the “Ambient Air Boundary Control Strategy Implementation Plan” requirements of the Draft Permit. MPCA must require PolyMet to document and disclose the impacts on ambient air quality as it stands now in the event that PolyMet does not gain ownership or control of the area within its currently projected “effective fenceline.” The permit must include other conditions as needed to protect the NAAQS that apply if PolyMet does not gain ownership or control of the effective fenceline.</p> <p>EPA defines “ambient air” as “that portion of the atmosphere, external to buildings, to which the general public has access.”¹³ Given that the NAAQS are to be met in all areas of ambient air, EPA has adopted strict policies for defining what is and is not ambient air and how public access can and cannot be precluded.¹⁴ As PolyMet stated in its December 2017 Ambient Air Boundary Control Plan, areas “owned or controlled by an owner/operator and where the owner/operator precludes [fn omitted] public access to the land or property using a fence or other effective physical barriers are not considered ambient air.”¹⁵ As EPA stated in a June 22, 2007 guidance memo, which is the reference cited by PolyMet for the above quote, under the first condition, “ ‘control’ of the land means that the source has certain rights to the use of the land/property, including the power to control public access to it.”¹⁶ Currently, it is not clear over what lands PolyMet has control and what the extent of that control is.</p> <p>PolyMet intends to gain control of the area around the Mine Site via a land exchange with the U.S. Forest Service.¹⁷ That land exchange is still being challenged in court. The litigation is currently stayed due to legislation pending in the Senate to moot the lawsuit. Unless the legislation is signed into law, it is unclear when the litigation will be resolved and PolyMet will have control of the land around the mining operations. Until PolyMet has permanent control of the land around the mine, MPCA cannot issue a permit based on a NAAQS analysis for an effective fenceline for which PolyMet does not currently control.</p> <p>Further, it appears that the PolyMet effective fenceline extends beyond the currently proposed federal land exchange and thus it is not clear in the Permit Application or the Draft Permit whether PolyMet needs to purchase and/or lease additional land. A comparison of a map of the land exchange to the map of the effective fenceline around the mine</p>	<p>See response to Comment Number 2.</p> <p>The commenter provided information on the land exchange that may differ from the effective fence line boundary identified in the draft permit. As part of the draft permit application the Permittee had to certify that the details identified within demonstrated compliance with the NAAQS. The Permittee is required to follow permit requirements as found in the proposed permit. The proposed permit contains requirements to prepare an Ambient Air Control Strategy which will use GIS tools to identify the effective fence line. MPCA considers the details on the land exchanges and relative similarities to be out of scope for the proposed air quality permit.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>indicates the following: 1) Dunka Road is outside the boundary of the land exchange, and 2) there is an area to the southeast of the Ore Surge Pile and to the southwest of the "Category 2/3 Removed and Reclaimed" area that is not within the land exchange and for which Polymet did not own the surface rights to as of at least January 2017, and yet that area is identified as within the effective fence line in PolyMet's air modeling report.¹⁸ MPCA must identify the lands currently under PolyMet's ownership and/or control and the lands projected to be under PolyMet's ownership and/or control so that it is clear to the public what actions need to be taken by PolyMet to protect the effective fenceline. With respect to the Plant site, it is not clear if all land within the effective fenceline has already been purchased and is owned by PolyMet, if additional property still needs to be purchased, and if any area is leased. MPCA must make clear to the public what the current status of the land ownership and control by PolyMet at the boundary of and within its claimed effective fenceline.</p>	

<p>20</p>	<p>Air-01</p>	<p>The draft permit requires PolyMet to, have a map marking locations of controlled access points and a map marking locations of controlled access points for power line access.¹⁹ These provisions make clear that parties other than employees of PolyMet or businesses serving Polymet with temporary access, such as fuel delivery, could have access within the “ambient air boundary.” Presumably, such access would be granted using Dunka Road. Portions of Dunka Road were considered to be within PolyMet’s effective fence line for purposes of the air modeling,²⁰ but it is not clear that PolyMet truly has control of Dunka Road.</p> <p>It appears that Dunka Road is outside of the land exchange with the US Department of Agriculture.²¹ In addition, it appears that different companies own or lease parts of Dunka Road (as of 2010, Cliffs Erie, PolyMet, and Minnesota Power owned or leased parts of the road).²² It is not clear how PolyMet can preclude access to Cliffs Erie and Minnesota Power through its effective fenceline, when those companies own or control parts of the road further from Polymet. There is only one way to get from one end of Dunka Road to the other, and that is through the effective fenceline of the PolyMet Mine site. The road is presumably also used by the United States Forest Service and possibly other federal or state employees for accessing public lands.</p> <p>None of those parties are employees of or related to the business of PolyMet (such as a company delivering fuel to PolyMet). These other parties that would access the road are thus members of the general public with respect to PolyMet. For these reasons, it seems unrealistic that PolyMet could effectively exclude the general public from using Dunka Road. Unless it can do so, the air above Dunka Road must be considered ambient air – even if within the effective fenceline of PolyMet – and PolyMet’s modeling must address impacts on Dunka Road.</p> <p>In evaluating a proposed ambient air boundary for an apparently similar source in terms of size and type of facility and varied approaches for precluding public access, EPA indicated a need for more details on the areas of concern with respect to the NAAQS determined through dispersion modeling and more specific details as to how the general public will be prohibited from accessing those areas of concern.²³ In the case of PolyMet, MPCA has made clear some of the areas of concern with respect to the NAAQS in its Technical Support Document (TSD) with the figures that show the modeled receptors with the highest modeled impacts. For example, it is clear that the area to the south and east of the Plant Site and the areas to the south and one area to the north of the Mine Site are projected to have high concentrations of PM_{2.5} and PM₁₀, within 90% of the NAAQS.²⁴ Presumably, modeling would show higher concentrations within the effective fenceline in those areas, potentially exceeding the NAAQS. Thus, it is imperative that the Draft Permit make clear with specific details as to how the public will be excluded from those areas of concern. Simply listing various options for controlling public access in permit conditions does not ensure the public will be prevented from accessing areas that could experience high PM₁₀ and PM_{2.5} concentrations.²⁵ Indeed, EPA has typically required much more detail in defining how the general public will be precluded from accessing an area when a source is relying on boundary controls other than a fence or other physical barrier.</p> <p>For example, while EPA has found that a river can be considered a sufficient natural ambient air boundary and barrier, EPA has stated that the riverbank still must be clearly posted and regularly patrolled by plant security and “[a]ny areas where there is any question...should be fenced and marked, even if there is only a very remote possibility that the public would attempt to use this property.”²⁶ EPA has also not historically considered little public use of an area to effectively mean public access has been precluded. For example, EPA stated for the LTV Steel’s iron and steel mill which was located on both sides of the Cuyahoga River in Ohio that the company did not control the river traffic sufficiently (despite the source being on both sides of the river) to preclude the public from the river, stating specifically “[t]he fact that there is little or no recreational traffic in that area is not sufficient to say that all river traffic there is LTV traffic.”²⁷ This EPA guidance is instructive as to how rigorous the preclusion of public access must be to justify exclusion of an area from the ambient air modeling required to show compliance with the NAAQS.</p>	<p>The proposed air permit is based on the Permittee’s certified application and reflects state and federal laws, rules, and requirements, including the federally-enforceable permit conditions associated with the determination and maintenance of the ambient air boundary. If the ownership and control of the property within the ambient air boundary differ from the certified representations made by the Permittee and reflected in the proposed permit, then the permittee may need to apply for a permit amendment and/or demonstrate that a different property boundary does not impact the NAAQS compliance at the effective fence line. MPCA considers the status of the land exchanges to be out of scope for the draft air quality permit which was under review. The effective fence line at the NorthMet site reflects the project area that is within the Permittee’s anticipated ambient air boundary, where access by the general public can be controlled and where compliance with the NAAQS has been demonstrated through modeling.</p> <p>The Permittee will use a combination of strategies that the MPCA has determined are reasonable for controlling access by the public to the area within the effective fence line for this site. The combined acreage of the plant and mine sites is approximately 7,500 acres. The site is located away from populated areas, which decreases the likelihood of public access. In addition, some portions of the effective fenceline are not close to public roads or trails, and some portions include natural barriers (such as dense vegetation and water), which also decrease the likelihood of public access. Therefore, the MCPA determined it is reasonable that a combination of physical barriers, and practical control methods, such as security and monitoring strategies, and posting warning signs are sufficient to provide control of the effective fence line at this time. These conditions are discussed in more detail below.</p> <p>Very few State-issued synthetic minor permits that contain NAAQS modeling results include federally enforceable permit conditions that identify access and control measures along the ambient air boundary. The proposed permit for the permittee, however, includes federally enforceable conditions that require the Permittee to develop and maintain an ambient air boundary control strategy implementation plan containing minimum requirements, including a GIS-ready file corresponding to the effective fenceline boundaries, security patrols locations and frequency of the patrols, location of remote monitoring devices, operation and maintenance requirements for remote monitoring, contingency plans for downtime of remote monitoring, a response plan for breeches, and identification of controlled access points. Appendix C to the proposed permit identifies all portions of the</p>
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			<p>effective fenceline and details which segments will be controlled by remote monitoring, security patrols, gated access and/or fencing.</p> <p>The Permittee submitted Class II Ambient Air Boundary Control Plan (Plan) as a supplement to the permit application. The Plan contains the elements required by conditions in the proposed permit and is included in the TSD as Attachment 8. The Permittee will submit an updated version of this plan prior to blasting of waste rock or ore, but no later than the initial startup of Mine Site Blast Hole Drilling (FUGI 25). The Permittee is required to maintain the Plan on-site and update it to reflect changes associated with controlling the effective fence line.</p> <p>Commenters raised concerns that PolyMet does not have ownership or control of Dunka Road and will not be able to prevent the general public from accessing that portion of the site. The Dunka Road is a private mining road constructed and owned by Cliffs Erie, that provides access to the NorthMet mine site. Access to the road is subject to contractual agreements between PolyMet and Cliffs Erie, that provide PolyMet exclusive control of the road. PolyMet has demonstrated that there will be sufficient control at this road to exclude persons who do not have express permission to enter. Access to the Dunka Road will be restricted by security controlled access points, including 24-hour control on the west end, and locked gates. Only persons directly authorized by PolyMet may use the road, including Cliffs Erie. Cliffs Erie will only enter the property for specific activities, including use of the road to access other Cliffs Erie property for the purposes of maintaining that property.</p>
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COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
21	Air-01	<p>In summary, MPCA must document and make public which areas within the effective fenceline PolyMet currently has control or ownership of and which areas within the effective fenceline that PolyMet still needs to gain ownership or control of and how that control or ownership is to be obtained. If areas of concern for NAAQS compliance are within areas that PolyMet currently does not own or have control of, then MPCA should not issue the construction permit until PolyMet obtains ownership or control of those areas. Otherwise, MPCA will be issuing a permit with conditions that PolyMet may not be able to legally comply with and that are necessary conditions to ensure compliance with the NAAQS pursuant to Minn. Rule 7007.0800, Subp. 2.A. With respect to the portion of Dunka Road that passes within the effective fenceline, MPCA must provide additional justification to show that PolyMet truly has ownership or control of that portion of Dunka Road such that the general public (which includes employees of Cliffs Erie and Minnesota Power) will be precluded from accessing that portion of Dunka Road currently identified as within the PolyMet effective fenceline. Last, assuming MPCA finds that PolyMet has authority via ownership or control to preclude public access at the effective fenceline, the permit must include more specific requirements regarding how PolyMet will preclude the general public from accessing those areas that have been modeled to be close to (or in excess of) the NAAQS.</p>	See response to Comment Number 20, above.
22	Air-01	<p>A. PolyMet’s Air Modeling Failed to Include the Impacts of Contributing Sources.</p> <p>As MPCA discusses in its review of the PolyMet air modeling, PolyMet did not include all contributing sources’ impacts at all locations modeled for the PM10 and PM2.5 modeling. Specifically, MPCA states:The Company provided language in their report to narrate how nearby source contributions were removed from the modeling evaluation. The Company followed an approach whereby they subtracted modeled nearby source concentrations from the nearby source property at and up to the property boundary. This practice is no longer observed in Minnesota. MPCA Management allowed the Company to remove modeled nearby source concentrations from the nearby source property in recognition of historical modeling practice. The MPCA will expect that any future cumulative ambient air quality modeling will follow the current MPCA Modeling Practices Manual (2017) to address modeled nearby source concentrations. In the event that a modeled exceedance is discovered at a nearby source facility, the MPCA has developed processes to evaluate these situations on a case-by-case basis (See Appendix A of the MPCA Modeling Practices Manual (2017)). MPCA TSD, Attachment 7, Class II Modeling (MPCA Approval) at 3.</p> <p>According to MPCA, to justify its approach, PolyMet relied on a 1986 memo from EPA which stated that “controlled property...is non-ambient air. However, property of one company is ambient air with respect to emissions from its neighbor.”²⁸</p> <p>It appears the sources that PolyMet excluded pursuant to this policy are the Mesabi Nugget and the Northshore Mining sources.²⁹ It was not clear why MPCA to allow PolyMet to circumvent its modeling guidance on this issue, especially since MPCA’s policy on this matter is clearly intended to ensure that all potential areas of NAAQS noncompliance are evaluated. It must first be noted that MPCA’s policy as to how to address a modeled NAAQS violation on a nearby</p>	See response to Comment Number 3, above.

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		<p>source's property has been in effect in Minnesota since at least October 13, 2015.³⁰ PolyMet's air permit application was not submitted to MPCA until August 2016 and MPCA did not find that permit application complete until September 1, 2016.³¹ In addition, PolyMet submitted revised modeling and a revised permit application to MPCA in December 2017 and January 2018.³² Thus, PolyMet clearly should have been aware of and could have readily followed MPCA's 2015 modeling policy for modeling emissions over nearby sources' property for its permit application. MPCA did not provide a reasoned basis demonstrating why the MPCA modeling policy is inapplicable in this particular situation. PolyMet claimed that the Virginia PM10 and PM2.5 air monitors, which were used to reflect background concentrations in the modeling, capture sources "similar to" Mesabi Nugget and NorthMet Plant.³³ This blanket assertion is not supported with any technical analysis to back up PolyMet's claim that "explicitly modeling Mesabi Nugget and the NorthMet Plant Site would be in essence double counting the impacts from these sources when using the NAAQS design value from the Virginia monitor as the representative background concentration."³⁴ PolyMet did not make such a claim for the Northshore mining site and instead stated outright that the Northshore Peter Mitchell Mine has a "potential for combined" PM10 and PM2.5 impacts "with the [PolyMet Mine] Site sources," and yet PolyMet still excluded the Northshore mine's impacts from PolyMet's impacts on PM10 and PM2.5 concentrations³⁵ PolyMet thus did not provide any basis to justify ignoring MPCA's modeling policy and excluding the Northshore mine's PM10 and PM2.5 impacts from the impacts of the proposed PolyMet facility in its modeling.</p>	

<p>23</p>	<p>Air-01</p>	<p>In reviewing MPCA’s TSD for the PolyMet Air Permit, it appears that another of the contributing source’s impact was excluded from the modeling submitted in PolyMet’s January 2018 revised permit application, and that was for the Cliffs Erie Pellet Yard. Specifically, the PolyMet Air Quality Dispersion Modeling (AQDM) Results Form in Attachment 7 of MPCA’s TSD states:</p> <p>Previous modeling submitted for the NorthMet Project, including the modeling submitted with the August 2016 air permit application, incorporated emissions from the Cliffs Erie Pellet Yard based on potential to emit calculations provided by MPCA in 2011. Those emission calculations submitted by Cliffs Erie, were based on operations at the facility at the time.</p> <p>On June 15, 2016, Cliffs Erie submitted a registration permit application, reflecting the current operational status of the facility. On July 18, 2016, MPCA issued the requested registration permit. Fugitive emission calculations based on current operations at the Cliffs Erie site were included with the registration permit application. Those emissions were based on 2015 actual processing rates and have been corrected for current operations at the facility. The emission rates were reported as 0.05 tons PM10/year and 0.00 tons PM2.5 per year.</p> <p>The MPCA square root mean distance (SQRM-D) tool is used as a first cut to identify nearby sources for inclusion in the modeling. On Page 35 of the MPCA Modeling Practices Manual, the following statement in reference to the AQRM-D tool is included: “The Tool will remove all sources that have less than one ton per year of emitted criteria pollutants (actuals).” As shown above, in the most recent actual emission calculations submitted by Cliffs Erie, the rates of all criteria pollutants are well below one ton per year and can be accounted for in the background concentrations added to the modeled air concentrations.</p> <p>Based on this information developed after PolyMet submitted and MPCA approved the protocol, PolyMet did not include Cliffs Erie in the supplemental modeling described in this report. PolyMet Air Quality Dispersion Modeling (AQDM) Results Form in Attachment 7 of MPCA’s TSD at 5.</p> <p>PolyMet is reading this MPCA Guidance provision out of context with the overall intent of MPCA’s modeling guidelines and does not ensure protection of the NAAQS as required under Minnesota’s regulations for issuance of this permit. The Cliffs Erie emission source that PolyMet has excluded is adjacent to the PolyMet Plant site and is located at an area of peak PM10 and PM2.5 impacts from the Polymet Plant site.36 MPCA’s Modeling Guidelines first and foremost require a nearby source inventory “that accounts for all nearby emissions that may adversely affect the compliance status of the source under review.”37</p> <p>While there may be very limited operations currently occurring at the Cliffs Erie pellet yard, none-the-less there are sources of PM10 and PM2.5, including sources that were likely not accounted for in the registration permit. For example, windblown dust from unpaved roads and storage piles would contribute to PM10 and PM2.5 concentrations in the immediate vicinity.</p> <p>Second, any vehicular traffic in the pellet yard would cause fugitive dust emissions that would contribute to PM10 and PM2.5 concentrations. While operations may be limited such that Cliffs Erie projected only 0.5 tons per year of PM10, what is more important for the 24-hour PM10 and PM2.5 NAAQS is the maximum projected emissions for a 24-hour period. Given how close the modeled concentrations were to the 24-hour PM10 and PM2.5 NAAQS, MPCA must require that the peak daily PM10 and PM2.5 emissions from the Cliffs Erie Pellet Yard be included in the PM10 and PM2.5 modeling for the PolyMet Project.</p> <p>PolyMet’s methodology of not including neighboring source’s emissions fails to result in a complete analysis of whether PolyMet will cause or contribute to a violation of the NAAQS and is not consistent with MPCA’s Air Dispersion Modeling Practices Manual. Specifically, MPCA’s modeling guidance states as follows:...the nearby source property, including its</p>	<p>See response at comment 20. Nearby sources are selected by following the practices identified in the MCPA Modeling Practice Manual. Actual emissions from the Cliffs Erie facility we below those which would require the source to be included as a nearby source for NAAQS modeling.</p> <p>Registration permit holders must meet the qualifications as described in Minnesota Rules 7007.1110. The Cliffs Erie registration permit was required to demonstrate via a permit application that activities located at the site met those minimum requirements. As a practical matter, the Cliffs Erie registration permit is meant to capture those limited and sporadic emissions associated with a site that is going through closure activities, which for this site includes monitoring of tailings basin fugitive dust and unpaved roads.</p>
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		<p>nonambient portions, are considered ambient air to the project under review. A NAAQS analysis is not complete if portions of the modeling domain, determined to have a potential for a significant ambient contribution through the SIA, are then removed from areas of the analysis prior to completing the Cumulative Impact Analysis (CIA) (see Section 3.7). In this situation, the CIA would not reveal any modeled NAAQS exceedance on portions of the nearby source property where people are actually present (the nearby source). Secondly, upon completion of the CIA, the modeled nearby source contribution can be removed from its own nonambient property as part of the analysis, but not the receptors. This practice provides a better understanding of the project contribution to a modeled exceedance on a nearby source property even if that property is not ambient to the nearby source. In the event a CIA results in a modeled exceedance, please refer to Appendix A of this Manual. MPCA Air Dispersion Modeling Practices Manual, October 2017, at 24.</p>	
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COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
24	Air-01	<p>It must be noted that PolyMet has provided no demonstration to show that the property of these neighboring sources (Northshore Mining, Cliffs-Erie, or Mesabi Nugget) is excluded from public access. If the property is not excluded from public access, then there is no question that the area above such property is ambient air with respect to all sources of emissions that impact that air, including the sources located on that property.</p> <p>Thus, it was improper for MPCA to allow PolyMet to exclude all of these contributing sources' emissions impacts from the PolyMet modeled receptors on those sources' property. PolyMet must be required to evaluate cumulative impacts on the NAAQS in all areas of ambient air in order to ensure that its permit contains adequate limits emissions to ensure no violations of the NAAQS. As provided for in MPCA guidance, when a cumulative modeling analysis shows a problem with NAAQS compliance, rather than finding reasons to exclude a neighboring source's emissions, a proposed source should analyze its contributions and other neighboring sources' contributions and if the propose source contributes significantly to NAAQS exceedances, then additional emission limitations should be required in its permit.³⁸ Because of PolyMet's flawed and incomplete modeling, MPCA cannot definitively find that it has included all limitations necessary to ensure that the draft permit includes all emissions limitations necessary to ensure compliance with the NAAQS as required by Minn. Rule 7007.0800, Subp. 2.A. Until a proper cumulative modeling analysis is completed and evaluated by MPCA, PolyMet should not be issued an Air Permit authorizing construction and operation.</p>	See response to Comment Number 3, above.

<p>25</p>	<p>Air-01</p>	<p>Condition 5.1.82 of the Draft Permit requires PolyMet to operating and maintain two real-time hourly PM10 monitors, one upwind of the mine and the other downwind of the mine. Condition 5.1.85 of the Draft Permit states that “[t]he monitored PM10 concentration data shall be used to evaluate the performance of, including the need for changes to, the Fugitive Emissions Control Plan....” Condition 5.1.87 requires PolyMet to maintain an on-site meteorological station.</p> <p>According to Polymet, justification for the special purpose monitors is as follows: A Final Environmental Impact Statement (FEIS) was prepared during the course of the Project’s environmental review (Reference (1)). The FEIS included a detailed assessment of potential impacts to air quality from the Mine Site and other elements of the Project. In order to reduce potential impacts, PolyMet agreed to adopt site-specific fugitive emission control procedures for the Haul Roads at the Mine Site that result in a 90% reduction from uncontrolled emissions. These procedures are described in the Mine Site Fugitive Emission Control Plan (FEC Plan; Appendix C2). An element of the Haul Road fugitive emission control procedures is PM10 monitoring within the effective fenceline to verify the fugitive emission control procedures performance and to provide data to support improvements to fugitive emission control procedures at the site. January 2018 Polymet Revised Permit Application, Appendix D at 1 [Emphasis added.]</p> <p>In fact, the draft permit requires implementation of fugitive dust control measures if PM10 monitored concentrations are elevated. Specifically, Condition 5.1.92 of the Draft Permit requires that if the monitored PM10 data shows a 1-hour average PM10 concentration greater than or equal to 105 µg/m3, then PolyMet is to investigate the cause of the monitored result by reviewing operating records and meteorological data and then take corrective actions identified in the fugitive dust control plan to reduce PM10 emissions. Condition 5.1.93 of the Draft Permit requires that if the monitored PM10 data shows a 1-hour average PM10 concentration greater than or equal to 150 µg/m3, then PolyMet is to investigate the cause of the monitored result by reviewing operating records and meteorological data and then take corrective actions identified in the fugitive dust control plan to reduce PM10 emissions. Condition 5.1.94 of the Draft Permit requires that if the monitored PM10 data shows a 24-hour block average PM10 concentration greater than or equal to 150 µg/m3 (which is the level of the 24-hour average PM10 NAAQS), then PolyMet is to investigate the cause of the monitored result by reviewing operating records and meteorological data and, if PolyMet sources significantly contributed to the elevated concentration of PM10, then PolyMet must propose revisions to the fugitive emissions control plan.</p> <p>These permit conditions vary fugitive dust emissions controls on ambient PM10 concentrations, and are thus clearly dispersion techniques which are prohibited under the Clean Air Act. While the concept of requiring special purpose air monitoring as a double-check on the air modeling is helpful concept, the fugitive emissions controls that have been relied on to demonstrate attainment of the PM10 and PM2.5 NAAQS cannot vary based on atmospheric conditions. Instead, the fugitive emissions control must mandate measures intended to continuously control fugitive dust to the levels assumed in the air modeling analysis. As discussed below, the permit and the fugitive emissions control plan fail to ensure continuous emission reductions to the levels assumed in the air modeling analysis.</p>	<p>The proposed permit contains requirements to operate on-site air monitoring equipment. The purpose of the monitoring equipment is to provide near-real-time feedback to the facility operators regarding the effectiveness of their emission control measures. If monitored levels reach certain pre-determined levels, then the Permittee must take certain prescribed actions. If these levels are repeatedly reached, then the Permittee must perform a root cause analysis that assesses the reasons for the high levels and what will be done to ensure that fugitive dust levels remain below threshold levels in the future. As the commenters point out, the monitors are located within the ambient air boundary of the Permittee. The use of these air monitors and the placement of the action levels are intended to provide the Permittee another piece of information when determining the best strategy for fugitive dust control. The MCPA maintains that the most effective strategy in managing fugitive dust and preventing airborne dust from crossing the ambient air boundary is engaged facility operators and staff. The recordkeeping and monitoring required by the proposed permit provides reasonable assurance that the Permittee will remain engaged and committed to compliance with the commitments specified in the proposed permit.</p>
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COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
26	Air-01	<p>D. PolyMet Understated Fugitive PM10 and PM2.5 Emissions, Which in Turn Means PolyMet Understated PM10 and PM2.5 Ambient Air Impacts.</p> <p>An analysis of the assumptions and calculations that went into PolyMet’s determination of emissions to model for fugitive emissions shows that PolyMet understated emissions. Given the likelihood that fugitive emissions are the primary driver for the maximum PM10 and PM2.5 concentrations, these deficiencies call into question the adequacy of PolyMet’s modeling and whether the Permit includes all conditions necessary to ensure attainment of the NAAQS. The areas in which PolyMet understated fugitive PM10 and PM2.5 emissions are discussed in detail below.</p>	<p>Comment noted. The MPCA believes PolyMet modeled emissions are representative of the proposed project.</p>
27	Air-01	<p>1. PolyMet Failed to Include Emissions Caused by Employee Driving Trips to the Facility. In determining the number of trips on Dunka Road, PolyMet excluded the trips by employees driving to Area 2 of the plant site. This exclusion was determined by an analysis of the electronic version of the Polymet Plant Site Calculations spreadsheet, at the “Dunka Rd” tab.⁴⁰ Given that the employees getting to the site are a required component to operation of the facility and that their vehicles traveling over unpaved roads on the plant site will create fugitive dust, PolyMet should not have excluded these emissions from its calculations and modeling.</p>	<p>The MPCA concurs that transporting employees to the site is a required component of the facility. Based on comments received, the MPCA has determined that the increase from this activity does not significantly increase the overall fugitive emissions from Dunka road, and therefore modeling is still protective of the NAAQS. Nevertheless, the MPCA is requiring PolyMet to remodel. For addition discussion, see response to comment number 3, above.</p>
28	Air-01	<p>2. PolyMet Failed to Estimate and Model Peak Daily Emissions from Unpaved Roads at the Mine Site. In determining pound per hour emission rates to model for the unpaved road fugitive emissions for the Mine Site haul roads, PolyMet used expected annual vehicle-miles-traveled (VMT) and assumed those annual VMT would be spread out evenly over all of the hours in a year (i.e., 8760 hours/year). This deficiency was determined by comparing the assumed annual VMT to the hourly VMT, and it is clear that PolyMet assumed the annual VMT would be spread out evenly across all hours of the year on the Mine Haul Roads.⁴¹ This is inconsistent with the approach PolyMet applied to determining hourly emissions to model for other haul roads, for which Polymet did evaluate the timeframe of expected maximum hourly VMT for determining the hourly rate to model.⁴² Thus, PolyMet failed to determine worst case hourly PM10 and PM2.5 emission rates for its Mine Site haul roads, which means the 24-hour PM10 and PM2.5 modeling of emissions from the mine site are understated.</p>	<p>Based on input from commenters, the MPCA reviewed emission estimates from various unpaved road vehicles. The MPCA agrees Some roads did underestimate the hourly rate. However, the NAAQS is a 24-hour standard, and this oversight did not impact the daily rate. Therefore, the impact of this oversight is not significant for NAAQS modeling purposes. However, we are still remodeling,</p>
29	Air-01	<p>1. PolyMet Used the Same PM10 and PM2.5 Emission Factors for Various Vehicle Types and Weights for the Dunka Road Fugitive Emissions at the Plant Site, when Vehicle Weight Impacts Fugitive Dust Emissions. For Dunka Road fugitive emissions at the Plant Site, PolyMet used the same emission factor of 1.193 lb PM10/VMT and 0.119 lb PM2.5/VMT for light trucks, fuel tankers, blast mat trucks.⁴³ The EPA AP-42 particulate matter emission factors equations, which PolyMet relied on for estimating uncontrolled PM fugitive dust emissions, are based on the weight of the vehicles⁴⁴, and each of these vehicles have different and widely varying weights.⁴⁵ Thus, it does not make sense that Polymet used the same PM10 and PM2.5 emission factors for all of these vehicle types.</p>	<p>Emission estimates include vehicle weight, silt content of the road, and vehicle miles traveled. The MPCA reviewed the draft permit application, which contained emission factors proposed for various vehicles and concluded that the emission factors to be reasonable, and it was reasonable to group different vehicles with similar engine sizes.</p>
30	Air-01	<p>2. PolyMet Assumed 80-90% Control of Fugitive Dust Emissions from Unpaved Roads, But the Fugitive Emission Control Plan and Associated Requirements in the Draft Permit Fail to Include the Necessary Requirements to Correlate with Such High Removal Efficiencies.</p> <p>Polymet assumed 80% control of fugitive dust from unpaved haul roads on the Plant Site and 90% control of fugitive dust from unpaved roads on the Mine Site, which are extremely high levels of control and there has been no demonstration that the Fugitive Emission Control Plan will achieve these high levels of control. Indeed, a review of the Fugitive Emission Control Plan and terms of the Draft Permit show that the Draft Permit does not sufficiently impose enforceable requirements that, according to the EPA, are needed to assure such high levels of PM10 and PM2.5 removal efficiency.</p> <p>While both the Plant Site and Mine Site Fugitive Emission Control Plans rely on watering of roads to control fugitive dust from unpaved roads, neither the Plant Site Fugitive Emission Plan or the Mine Site Fugitive Emission Plan definitively require any set schedule for watering of the unpaved roads, nor does it indicate the amount of water to be</p>	<p>See response to comment number 19 above, regarding Fugitive Dust Control Plan.</p> <p>The permit condition related to opacity will be relied upon by the Permittee and the MPCA to collect information on road conditions and any fugitive dust correction action taken pursuant to the Fugitive Dust Control Plan.</p>

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>applied per area of road. Instead, the decision on when and which roads to water is up to the discretion of the Plant Site Operator or the Mine Site Operator.⁴⁶ While the Mine Site Fugitive Emission Plan requires once per day opacity readings (something not required in the Plant Site Fugitive Emission Plan), there is no clear trigger point as to what opacity levels would trigger a need to water the roads. Moreover, neither the permit application nor MPCA's TSD provide any basis for a correlation between certain opacity ranges and percent control of fugitive dust.</p>	
31	Air-01	<p>The Mine Site Fugitive Emissions plan also relies on the special purpose PM10 monitoring program to identify higher PM10 concentrations.⁴⁷ The Draft Permit requires that, if the real-time PM10 monitoring measures PM10 concentrations above certain levels, PolyMet must identify the culpable sources and take on or more of the corrective actions in the fugitive emission control plan.⁴⁸ As discussed in Section I.C. above, this approach of targeting emissions control implementation based on PM10 concentrations appears to be a dispersion technique which is not lawful under the Clean Air Act. Even if it was a lawful emission control method, neither the Permit Application nor the TSD identify a specific correlation between the concentration of PM10 measured by the monitors and a percent removal of fugitive dust from unpaved roads. Thus, these air monitoring provisions do not ensure 90% control of fugitive emissions from unpaved roads at the Mine Site.</p>	<p>See response to Comment Number 16, above regarding fugitive dust impacts.</p>
32	Air-01	<p>Application of chemical dust suppressants is also identified as a potential unpaved road control strategy, particularly during the winter months, but again the application of this particulate control is at the discretion of the Mine Site manager or the Plant Site Manager.⁴⁹ There are no specific requirements for frequency of application of chemical dust suppressants. Further, neither the Mine Site Fugitive Dust Plan or the Plant Site Fugitive Dust plan include any requirements as to the type of chemical dust suppressant or how much chemical dust suppressant is to be applied to the unpaved roads.</p>	<p>See response to Comment Number 16, above regarding fugitive dust impacts. The MPCA relies upon the discretion of the mine site manager to follow the conditions of the fugitive dust control plans.</p>
33	Air-01	<p>The primary differences between the Mine Site Fugitive Emission Plan and the Plant Site Fugitive Emission Plan is the requirement for daily observations, recordkeeping and reporting of visible emissions at the Mine Site haul roads, as well as the use of the real-time PM10 monitor at the Mine Site which as stated above is a dispersion technique rather than a permanent control measure. The Draft permit states that "opacity<= 20 percent" for the Dunka Road, Tailings Basin unpaved roads, Mine Site Fueling Facility Circle, and Mine Site Haul Roads.⁵⁰ However, there has been no correlation provided that keeping opacity less than or equal to 20% from unpaved roads equates to either 80% or 90% control. Further, even though the draft permit states that PolyMet will "check the fugitive source at a location in which emissions from the fugitive source would be expected to vent to the atmosphere once each day of operation for any visible emissions...",⁵¹ neither the Draft Permit nor the Mine Site Fugitive Emission Control Plan require any specific action items that would definitively reduce PM10 and PM2.5 emissions based on the daily visible emissions monitoring. In both Fugitive Emission Control Plans for the Plant Site and for the Mine Site, the decision to employ controls on road dust is up to the discretion of the Plant Site and Mine Site supervisors.⁵² Thus, it is arbitrary for MPCA to claim that these requirements for haul roads at the Mine Site justify assuming an additional level of control of fugitive particulate emissions at the Mine Site haul roads compared to the Plant Site unpaved roads.</p>	<p>The MPCA is relying on an implementation strategy for mine sites in Minnesota (TSD, Attachment 6, Taconite Industry Haul Truck Unpaved Haul Road Fugitive Particulate Emission Factor and Control Efficiency) when considering control efficiencies for haul roads and other fugitive sources at facilities of this nature. This implementation strategy includes a tiered approach to establish control efficiencies that allows facilities flexibility in the level of effort they make and the control efficiency they receive. The tiers include increasingly more onerous control strategies that result in reduced potential airborne fugitive emissions. The tier with the least control efficiency requires the fewest control strategy requirements. The tier with the highest control efficiency requires most robust control strategies, and recordkeeping and monitoring requirements. Fugitive dust control plans are evaluated on a case by case basis, by the MPCA permit teams, comprised of permitting, modeling, enforcement and inventory staff. The Permittee submitted a fugitive dust control plan that applied the Level III-A approach for the mine site, and a plan that applied the Level III-B approach for portions of the plant site. The MPCA permit team reviewed and revised the plans during the permit drafting process.</p>
34	Air-01	<p>2.7.57 EPA's AP-42 section on unpaved road emissions suggests that characterization of emissions from uncontrolled and watered unpaved roads be determined by collecting road surface material samples at various times between water truck passes, and then the moisture content ratios can be associated with a control efficiency.⁵⁸ EPA states that samples be collected during periods with active traffic on the road and that, due to different evaporation rates, samples should be collected at various times per year.⁵⁹ Neither the Draft Permit nor the Fugitive Emission Control Plans require any such analysis, and there is no evidence in the permit application or the TSD that such analysis has already been done.</p>	<p>The MPCA followed a standard agency approach in developing the fugitive dust control plans, which included review by the MPCA permitting, enforcement and modeling staff. The MPCA required primary and secondary control strategies, and retains authority to require the facility to cease certain activities if the primary and secondary control strategies are not successful in preventing fugitive dust emissions from becoming airborne.</p> <p>The Permittee proposed AP-42 emission factors in calculating emissions for</p>

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>With respect to chemical dust suppressants, EPA states that the control effectiveness depends on “(a) the dilution rate used in the mixture; (b) the application rate (volume of solution per unit road surface area); (c) the time between applications; (d) the size, speed, and amount of traffic during the period between applications; and (e) meteorological conditions (rainfall, freeze/thaw cycles, etc.) during the period.”⁶⁰ EPA states that other factors also affect the performance of chemical dust suppressants such as other traffic characteristics (including track-on from unpaved areas such as one would expect at the Mine Site) and road characteristics.⁶¹ EPA states that the variabilities in these characteristics and the composition of dust control products make the control efficiencies difficult to estimate. EPA states that past field testing showed that chemical dust suppressants could provide 80% PM10 control efficiency when applied at regular intervals of 2 weeks to 1 month.⁶² However, there is nothing in the Draft Permit or in the Fugitive Emission Control Plans that provide any detail on application frequency of chemical dust suppressants. Chemical application is identified as a “potential control strategy” particularly during the winter months in the PolyMet Fugitive Emission Control Plans, but again the application of the control is at the discretion of the Mine Site manager or the Plant Site Manager.⁶³</p> <p>EPA has long identified the specific types of requirements that should be made clear in a permit or a SIP rule for unpaved road controls, including:</p> <ol style="list-style-type: none"> 1. A list of all road segments referenced on a map 2. Length of each road 3. Amount of water to be applied to each road/area and planned frequency of application, or alternatively a minimum moisture level could be specified, 4. Provisions for weather (e.g., ¼ inch of rainfall could substitute for one treatment, program suspended during freezing periods, watering frequency defined as a function of temperature, cloud cover). 5. Source of water and tank capacity. <p>See EPA’s Control of Open Fugitive Dust, September 1988, at 3-15 to 3-16.</p> <p>For chemical dust suppressants, the plan or permit should specify the same information as in 1,2, and 4 above as well as the type of chemical to be applied to each road, the dilution ratio, application intensity, and planned frequency of application.⁶⁴ The Draft Permit and Fugitive Emission Control Plans do not specify any of this information for either watering or chemical applications to control road dust at the PolyMet site. Without such specific requirements, it is not appropriate to assume that such high levels of PM10 and PM2.5 control will actually occur at the PolyMet site.</p> <p>For all of these reasons, PolyMet was not justified in assuming 80% control for unpaved road emissions at the Plant Site nor was PolyMet justified in assuming 90% control for unpaved road emission at the Mine Site, because the Draft Permit and Fugitive Emission Control Plans fail to include specific requirements and steps to take to ensure 80-90% reduction in fugitive particulate matter from these roads. Further, there has been no analyses provided to show that the conditions in the Permit for opacity limitations or PM10 monitoring levels are reflective of 80-90% control of fugitive dust emissions from unpaved roads at the PolyMet site. As a result, PolyMet greatly understated PM10 and PM2.5 emissions from unpaved roads, which means the PM10 and PM2.5 modeling understated maximum projected concentrations due to PolyMet.</p>	<p>their fugitive emissions sources. Refinements to AP-42 emission factors are at the discretion of the Permittee and the MPCA did not require additional refinement.</p> <p>The fugitive dust control plans do not require collecting road surface material samples. Through normal daily use, unpaved roads could have varying moisture levels. Therefore, the MPCA has determined it is reasonable to perform daily visible emissions checks, and implement primary and/or secondary control strategies if necessary to ensure control of fugitive emissions. The PolyMet fugitive dust control plans for the NorthMet facility, include onerous road-segment specific and vehicle-specific daily tracking. In addition, PolyMet has committed to training nearly all mine and plant site staff to report when fugitive emissions are observed, which the MPCA believes increases the protectiveness of the plans warranting a higher control efficiency.</p> <p>For more detail regarding the fugitive dust control plan, see response to Comment Number 16, above.</p>
35	Air-01	<p>5. Summary MPCA must require PolyMet to revise its PM10 and PM2.5 emission projections for unpaved roads at the Plant Site and the Mine Site. For the short term average PM10 and PM2.5 NAAQS, MPCA must require that short term emissions estimates reflect worst case daily emissions at both the Mine Site and Plant Site, reflecting employee trips on unpaved roads as well as other vehicle trips related to PolyMet. MPCA must also require the use of PM10 and PM2.5 emission factors appropriate for the weight of the vehicle at the Plant Site. Further, MPCA cannot allow such a high level of PM10 and PM2.5 control to be assumed from unpaved road emissions without specific enforceable requirements to ensure that 80-90% control is actually achieved. These deficiencies in projecting PM10 and PM2.5</p>	<p>The MPCA agrees that fugitive dust impacts are a significant contributor to NAAQS impacts from this facility. The MPCA has determined that the proposed permit based on the application submitted by the Permittee contains sufficient permit conditions to demonstrate compliance with the NAAQS at the effective fenceline, including recordkeeping and monitoring conditions, as well as federally enforceable requirement to comply with robust fugitive dust control plans</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		emissions from unpaved roads call into question the validity of the PolyMet modeling, and these issues must be addressed before MPCA can definitively find that it has included all necessary requirements in the permit to ensure PolyMet will comply with the NAAQS.	
36	Air-01	A. MPCA Must Require PolyMet to Conduct Additional Modeling for PM10 and PM2.5 so that MPCA Can Include in the Permit All Conditions Necessary to Ensure PolyMet Complies with the PM10 and PM2.5 NAAQS. As previously stated, MPCA is required to include in PolyMet’s air permit all terms and conditions necessary to ensure compliance with the NAAQS, pursuant to Minn. Rule 7007.0100, Subp. 7.K. and Minn. Rule 7007.0800, Subps. 1, 2.A., and 2.B. To know what requirements need to be imposed as permit limitations to protect the NAAQS requires a complete modeling analysis of the PolyMet facility’s potential impacts on the NAAQS in all areas of the ambient air. PolyMet’s modeling analysis is flawed and likely understates PM10 and PM2.5 impacts for the reasons discussed above.	For reasons discussed in response to Comment Numbers 16, 26, and 34, the MPCA believes the Permittee has adequately characterized PM10 and PM2.5 emissions from unpaved roads. Nevertheless, in an abundance of a caution and to address related concerns raised by commenters, the proposed permit includes a baseline NAAQS remodeling requirement. See response to Comment Number 3 above for additional discussion on PM10 and PM2.5 NAAQS remodeling.
37	Air-01	Until this revised modeling is conducted and more definitive fugitive dust control requirements are imposed, MPCA cannot lawfully issue the Air Permit for PolyMet because it cannot be demonstrated that the permit includes all terms and conditions necessary to assure attainment of the PM10 and PM2.5 NAAQS.	See Response to Comment Number 36, above.
38	Air-01	<p>The Draft Permit Does Not Include Adequate Limits on the Potential Emissions of the PolyMet Facility under the Prevention of Significant Deterioration Permitting Regulations.MPCA claims that the PolyMet source is a synthetic minor source and is thus not subject to prevention of significant deterioration (PSD) permitting requirements in Minn. Rule 7007.3000, which incorporates by reference the federal PSD permitting rules at 40 C.F.R. 52.21.65 Under the PSD permitting program, a source is considered to be a major stationary source if the potential to emit of any regulated New Source Review pollutant is equal to or greater than 100 tons per year for certain source categories and 250 tons per year for all other source categories.66 MPCA has stated that PolyMet is in the 250 ton per year source category.67 The potential to emit of a new source is defined as follows:</p> <p>The maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source. 40 C.F.R. 52.21(b)(4), incorporated by reference at Minn. Rule 7007.3000.</p> <p>A source that would otherwise be a major stationary source can take federally and practically enforceable limitations on its potential to emit to keep air emissions below major source emission thresholds. Such a source would be deemed a “synthetic minor” source. MPCA has stated that it is issuing a synthetic minor permit for the PolyMet facility.68 MPCA has identified permit conditions that are necessary to ensure the PolyMet source is not a major source as “Title I conditions.”69</p> <p>The following provides review and comment on the Title I conditions and other conditions of the draft permit to evaluate whether the limits address all potential point source emissions and whether the limits are technically justified and practically enforceable.</p>	The MPCA has determined that the proposed permit based on the application submitted by the Permittee contains sufficient permit conditions to demonstrate the proposed permitted facility is a synthetic minor source.
39	Air-01	<p>The Potential to Emit of PolyMet Does Not Account for the Full Potential Emissions of the Fine Crushing Plant.</p> <p>As stated above, potential to emit is to be based on a facility’s physical and operational design. The PolyMet facility will be using the former LTVSM taconite ore processing facility at which there are four surplus fine crushing lines that PolyMet does not intend to use.70 PolyMet did not include emissions from these units in its calculation of potential</p>	See response to Comment Number 7, above, regarding the historical decommissioned equipment at the facility. The facility is already required to evaluate whether changes at the facility require the Permittee reevaluate PSD applicability pursuant to 40 C.F.R. 52.21 (r)(4).

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>emissions because they “do not have any current plans to restart” the crushing equipment.⁷¹ PolyMet also states that the equipment cannot be started up “without a permit applicability analysis and applicable permitting,” and further states that “[n]o additional permit terms or conditions are necessary to prevent the use of additional unpermitted equipment without the proper review of permitting requirements as provided for by state and/or federal rules.”⁷² With respect to determining potential to emit of the PolyMet facility, these fine crushing lines do have potential to emit air pollutants and the Draft Permit does not include any prohibition on their startup or operation as a Title I condition. Thus, these crushing lines must be included in the potential to emit of the PolyMet facility.</p> <p>If MPCA was to impose Title I limitations prohibiting operation of these four fine crusher lines without a permit modification, then these crusher lines could be properly excluded from the potential to emit of the PolyMet facility. However, MPCA must make clear that, in the case of a future permit change authorizing the use of any of these four crusher lines, the PolyMet source must be re-evaluated for PSD applicability as though construction had not yet commenced pursuant to 40 C.F.R. 52.21(r)(4).</p>	
40	Air-01	<p>The Permit Fails to Take Into Account All Non-Fugitive Particulate Emissions in Determining Whether PolyMet is a Major Stationary Source under the PSD Program.</p> <p>In determining if the PolyMet facility is a major stationary source under the PSD permitting requirements, PolyMet and MPCA have excluded “fugitive emissions.” Emissions are considered to be “fugitive emissions” if the emissions “could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.”⁷³ EPA’s NSR Workshop Manual states the following regarding defining emissions as fugitive emissions:</p> <p>Remember, if emissions can be “reasonably” captured and vented through a stack they are not considered “fugitive” under EPA regulations. In such cases, these emissions, to the extent they are quantifiable, would count towards the potential to emit regardless of the source or facility type. PolyMet considered several sources of emissions as fugitive emissions when the emissions from those sources could be reasonably captured and vented through a vent or stack. Specifically, PolyMet considered emissions from the portable crushing plants, screening, and blasthole drilling at the Mine Site as fugitive emissions.⁷⁴ Particulate emissions from all of these sources could be reasonably captured and vented through a stack or other functionally equivalent opening.</p> <p>In determining which emissions count towards a source’s potential to emit for determining PSD applicability, it does not matter whether or not these emission sources are subject to the NSPS Subpart OOO requirements or other baghouse control requirements or whether it is economically feasible for these emission sources to capture emissions and route to a baghouse. Instead, the question is whether such emissions could reasonably be captured and directed to a stack or control device? In the case of the portable crushing plants, the screening equipment, and the blasthole drilling at the Mine Site, the answer is yes – these sources’ particulate emissions could reasonably be captured and vented to a stack or baghouse. Therefore, the potential to emit particulate (PM, PM10, and PM2.5) must be included in determining the potential to emit of the PolyMet facility.</p>	<p>See response to Comment Number 8, above. See TSD, Attachment 1 for revised limited potential to emit emissions.</p>
41	Air-01	<p>Further, the assumed level of control for SO₂, sulfuric acid mist, and particulate matter including PM₁₀ and PM_{2.5} are estimates. The emissions from the Autoclave Vent and Autoclave Flash Vessel vent will be routed to a venturi scrubber in series with a packed bed scrubber as the air pollution control equipment.⁹⁰ PolyMet assumed 90% SO₂ control based on an engineering estimate,⁹¹ assumed 99% control for sulfuric acid mist, and assumed 99.06% control for PM, PM₁₀, and PM_{2.5}.⁹² There is absolutely no documentation provided in the Permit Application or TSD to support these levels of control. Indeed, there is not much data provided at all for the scrubbers, such as the type of reagent to be used in the packed bed scrubber and whether any reagent is to be used in the venturi scrubber.</p>	<p>See response to Comment Number 9, above. In response to comments, MPCA requested clarification on the autoclave information provided by the Permittee in the draft permit application. The Permittee provided consolidated data on the autoclave and flash vessel, which has been provided as an attachment to the TSD (Attachment 15, Tables 1 and 2.)</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>With respect to expected PM, PM10, and PM2.5 removal efficiencies expected, EPA has identified a range of 70% to 99% control expected for particles larger than 1 µm across a venturi scrubber and greater than 50% for particles under 1 µm.⁹³ EPA has said packed tower scrubbers are not often used for PM removal due to high particle concentrations building up on the packing and clogging the tower.⁹⁴ Similar types of scrubbers such as tray towers can achieve 97% control efficiency of particles greater than 5 µm, but such scrubbers do not effectively control submicron particles.⁹⁵ Thus, there is a wide range of expected PM, PM10, and PM2.5 control efficiencies expected with venturi and packed bed scrubbers, and there is not support in the permit record for the extremely high levels of control assumed by PolyMet. Neither MPCA nor PolyMet has provided any data on the expected size fraction or type (filterable versus condensable) of particulate matter expected to be emitted from the Autoclave vent and Autoclave Flash Vessel, which is extremely important in estimating control efficiency of the scrubbers. It is reasonable to assume that most of the particulate matter emitted from the Autoclave vent and the Autoclave flash vessel vent will be PM2.5, since it will likely be due to pollutants emitted initially as gases (formed due to the heat and pressure of the autoclave) that condense into particulate in the ductwork to the scrubbers.⁹⁶ Typically condensable particulate matter is smaller than 2.5 µm in diameter.⁹⁷ Thus, PolyMet’s estimate of 99.06% control of PM, PM10, and PM2.5 with venturi and packed bed scrubbers is highly questionable, especially for PM2.5. MPCA must require more documentation to support such a claim by PolyMet.</p> <p>While MPCA has proposed pound per hour limits on the autoclave scrubber stack (to which the autoclave vent, the autoclave flash vessel vent, and also the iron and aluminum precipitation tanks will be routed) for PM, PM10, and PM2.5 which are considered Title I conditions to keep the Polymet facility a minor source,⁹⁸ the Draft Permit only definitively requires one stack test within 180 days of operation to ensure compliance with these limits under the terms of the Draft permit.⁹⁹ The Draft Permit then allows test frequency to be every 12-months, every 36 months, or up to every 60 months, apparently at the discretion of PolyMet.¹⁰⁰ None of these testing schedules is frequent enough to ensure continuous compliance with the pound per hour limits on PM, PM10, or PM2.5, and thus these emission limits cannot be relied upon to limit the potential to emit of these emission units.</p> <p>It is not clear that the permit could mandate any level of testing for these particulate emissions that would continuously ensure compliance with the pound per hour limits. In <i>United States v. Louisiana-Pacific Corporation</i>, the Court interpreted the definition of potential to emit in 40C.F.R. § 52.21(b)(4) to require restrictions on operating hours or production levels or types of material combusted, rather than simply imposing limits on tons of pollutants emitted per year, in order to effectively limit potential to emit.¹⁰¹ While the Louisiana-Pacific Court was focused on ton per year emission limits intended to reduce a source’s potential to emit because such limits “would be virtually impossible to verify or enforce,”¹⁰² pound per hour limits are similarly impossible to determine continuous compliance (which is necessary to rely on such hourly limits to limit annual potential to emit) without continuous emission monitoring systems (CEMS).</p> <p>Indeed, in its June 13, 1989 guidance on limiting potential to emit, EPA stated that proper limits on potential to emit must include a production or operational limitation in addition to an emission limitation “where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment.”¹⁰³ EPA stated that there are two exceptions to the prohibition on using blanket emission restrictions to limit potential to emit. One exception pertained to surface coating operations, and the other exemption applies when setting operating parameters for control equipment is infeasible. In such cases, a permit that includes “short term emission limits (e.g. lbs per hour) would be sufficient to limit potential to emit, provided that such limits reflect the operation of the control equipment, and the permit includes requirements to install, maintain, and operate a continuous emission monitoring (CEM) system and to retain CEM data, and specifies that CEM data may be used to determine compliance with the emission limit.”¹⁰⁴ In the case of the pound per hour PM, PM10, and PM2.5 emission</p>	

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>limits in the Draft Permit applicable to the autoclave scrubbers, the limits apply to total particulates including condensable particulate emissions for which there are no CEMs available. Thus, these limits cannot be relied upon to limit potential to emit of PM, PM10, or PM2.5 from these units.</p> <p>Further, because the removal efficiency of the particulate matter from the Autoclave vent and the Autoclave flash vessel vent by the venturi and packed bed scrubbers is unknown for the type of particulate matter to be emitted by these units (i.e., primarily condensable particulate matter, which is typically under 2.5 microns in diameter), the fact that the permit requires the emissions from the autoclave and autoclave flash vessels to be routed to the scrubbers cannot be relied upon to limit particulate emissions from the autoclave units to any specific amount. The Draft Permit does require that PolyMet operate the scrubbers to achieve 99.06% control efficiency of PM, PM10, and PM2.5 and to achieve 99% control efficiency of sulfuric acid mist,¹⁰⁵ but the Permit does not require periodic testing (which would require stack testing upstream and downstream of the scrubbers) to verify compliance with those removal efficiency requirements. While the Draft Permit includes requirements for specific pressure drops and water flow rates for the Autoclave Scrubbers,¹⁰⁶ neither MPCA nor PolyMet has provided data and analysis to show that those operating parameters will ensure compliance with the 99.06% removal efficiency requirement for PM, PM10, and PM2.5 and the 99% removal efficiency requirement for sulfuric acid mist.</p> <p>Given the unknown PM, PM10, and PM2.5 removal efficiencies to expect across the scrubbers and the estimate of the uncontrolled emission rates based on a 10-day trial at a pilot plant, the fact that the permit requires the emissions from the autoclave and autoclave flash vessels to be routed to the scrubbers cannot be relied upon to limit sulfuric acid mist emissions from the autoclave units to any specific amount. There are just too many unknowns to rely on control equipment alone to limit potential to emit from the autoclave units.</p> <p>All of these issues also apply to the pound per hour sulfuric acid mist limit applicable to the Autoclave Scrubber Stack in the Draft Permit.¹⁰⁷ There is no continuous emission monitoring system for sulfuric acid mist. The removal efficiency of sulfuric acid mist in scrubbers is quite variable.¹⁰⁸ Similar to the testing for compliance with the particulate matter pound per hour limits, the Draft Permit only requires one stack test within 180 days after startup, and then provides PolyMet the discretion to decide how frequently to re-test emissions and does not request testing any more frequently than once per year.¹⁰⁹ This infrequent testing is nowhere near sufficient to ensure continuous compliance with the pound per hour sulfuric acid mist limit.¹¹⁰ Given the unknown removal efficiency to expect across the scrubbers and the estimate of the uncontrolled emission rate based on a 10 day trial at a pilot plant, the fact that the permit requires the emissions from the autoclave and autoclave flash vessels to be routed to the scrubbers cannot be relied upon to limit sulfuric acid mist emissions from the autoclave units to any specific amount.</p> <p>For all of the reasons discussed above, the Draft Permit fails to limit the potential to emit of the Autoclave unit and Autoclave flash vessel, and there does not appear to be an adequate method to create practically enforceable limits on emissions from the Autoclave and Autoclave flash vessel. Given the unknowns about this process which has never been tested at a commercial scale and the unknowns and wide variability of control of PM, PM10, PM2.5 and sulfuric acid mist across the scrubbers, the potential to emit of the PolyMet facility must be based on the worst case uncontrolled annual emissions that could be emitted from the Autoclave unit and Autoclave flash vessel under their physical and operational design.</p>	
42	Air-01	<p>A. The Permit Lacks Federally and Practically Enforceable Limits on the Potential to Emit of Other Sources of Emissions at the PolyMet Facility. The Draft Permit contains hundreds of conditions intended to limit the PolyMet facility's potential to emit which are labeled "Title I conditions." However, the number of permit conditions and the extreme length of the permit obfuscates whether such conditions are practically enforceable and whether such conditions will ensure that the potential emissions of the PolyMet facility are limited to less than major source emission levels. In</p>	<p>The MPCA has determined that the proposed permit based on the application submitted by the Permittee contains sufficient permit conditions to demonstrate the proposed permitted facility is a synthetic minor source. The permit contains practically enforceable limits in the form of an annual throughput from the mine site to the plan site to be monitored at two points</p>

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>addition to the deficiencies we raised with the permit limits on Autoclave vent and Autoclave Flash vessel discussed above, there are numerous other deficiencies in the Draft Permit that render the limits on the potential to emit ineffective. The following comments detail why the Draft Permit does not include practically enforceable limits necessary to limit the potential to emit of the PolyMet facility to less than major source levels.</p>	<p>in the crushing process, material use limits on process consumables, an operating hour restrictions.</p>
43	Air-01	<p>that certain activities are not part of the stationary source. This condition should not be in the permit.</p> <p>Instead, if PolyMet at some future date prior to commencing operation decides it needs to change or add activities to its facility, the permit must require that PolyMet submit such changes to MPCA and follow all other permitting requirements that MPCA determines apply to such change including determining whether the initial permit was a sham permit. EPA has stated that “[p]ermits with conditions that do not reflect a source’s planned mode of operation may be considered void and cannot shield the source from the requirement to undergo major source preconstruction review. In other words, if a source accepts operational limits to obtain a minor source construction permit but intends to operate the source in excess of those limitations once the unit is built, the permit is considered a sham...Additionally, a permit may be considered a sham permit if it is issued for a number of pollutant-emitting modules that keep the source minor, but within a short period of time an application is submitted for additional modules which will make the total source major.”¹¹²</p>	<p>The proposed permit contains conditions related to contractor activities that are contained in the majority of air quality permits issued by the MPCA, to clarify the requirement for a Permittee to evaluate whether a permit amendment is required prior to commencing an activity at the facility that is not already authorized by their permit. Contractor activities at facilities are common, but can be vary significantly. Therefore, the Permittee to must evaluate potential emissions prior to allowing the contractor to conduct the activity and determine whether a permit amendment is required.</p>
44	Air-01	<p>In the PSD program, 40 C.F.R. 52.21(r)(4) states as follows: At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification. The Draft Permit fails to include any provision reflective of these requirements and, instead, includes a condition that indicates changes at the source that would make the source a major source must be processed as a major permit amendment.¹¹³ If the PolyMet facility makes a change or changes that relax Title I limits or that otherwise make the PolyMet source a major source, it must get a PSD permit as though construction has not yet commenced on the source.</p> <p>Permit amendments are for modifications to existing sources, and any changes to the Title conditions or other changes (such as additional activities not yet determined, as discussed above) must require a new permit as if starting from square one. Numerous requirements would apply, all of which should have applied prior to construction of the facility. It is not appropriate to indicate that the necessary permit could be issued as a Major Permit Amendment, which typically applies to emission increases at a source and not to the entire source as though construction has not yet commenced. Therefore, MPCA must revise Draft Permit Condition 5.1.13 to read consistently with the requirement of 40 C.F.R. 52.21(r)(4) quoted above. Otherwise, Draft Permit Condition 5.1.13 strongly implies that any changes in Title I conditions or addition of activities that could make the source major could be addressed as a modification to the source, which for a minor source could allow an increase of up to 250 tons per year without triggering PSD.</p>	<p>The proposed permit contains conditions found in the majority of air quality permits issued by the MPCA for facilities establishing limits to keep it a minor source under New Source Review. If a Permittee submits a request for modification or construction at their facility, the MPCA will evaluate the request according to all applicable state and federal requirements, including 40 C.F.R 52.21.(r)(4).</p>
45	Air-01	<p>The Ore Processing Throughput Limit Does Not Limit the Amount of Ore Produced at the Mine, and the Draft Permit Fails to Include Necessary Conditions to Limit Ore Throughput at the Plant Site.</p> <p>Condition 5.1.39 of the Draft Permit limits ore process throughput to 11.680 million tons per year of ore processed at the facility, and Condition 5.1.40 of the Draft Permit requires PolyMet to monitor and record the tons of ore exiting the coarse crusher building on a monthly basis. By monitoring the amount of ore exiting the coarse crusher building, this tons-of-ore-processed limit does not effectively limit the tons of ore produced at the mine because some of the mined ore could be shipped off-site for processing. Therefore, all of the emission estimates for mine sources used for modeling and those that are used for Title I conditions at mine site sources that rely on the 11.680 million ton per year</p>	<p>The MPCA has prepared a proposed permit based on the application submitted by the Permittee. The ore will be delivered from the mine site to the plant site via rail and directly dumped into the primary crusher. Ore moves continuously through the crushing circuit with minimal storage capacity between the primary crusher and the SAG mill. Storage capacity within the circuit is physically limited to approximately 18 hours worth of ore.</p> <p>The proposed permit contains restrictions on the volume of ore transported to the rail car via haul road trucks in form of vehicle miles traveled and fuel</p>

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>ore processing limit are based on a limitation that does not exist in the Draft Permit. For Mine Site sources for which emissions are projected based on this ore processing limit of 11.680 million tons per year, the limit must be imposed to all ore shipped either to the Plant Site or offsite for processing from the Mine Site, with appropriate monitoring, recordkeeping and reporting and periodic calibration of belt scales or whatever other method is used for tracking weight of ore transported to the Plant Site or offsite.</p> <p>Further, the 11.680 million ton per year limit of ore processed cannot be relied on to limit emissions of the coarse crusher building because the Draft Permit does not require monitoring of the weight of ore fed into the coarse crushers. Instead it only requires monitoring of the ore at the exit of the coarse crushers. The Permit should limit the weight of ore entering the coarse crusher building.</p>	<p>use to be monitored on a daily basis. The proposed permit also contains daily restrictions on rail car engine fuel use, as well as restrictions on the number of engines in operation. These restrictions are based on the ore body material movement schedule provided in the permit application. These restrictions effectively limit ore delivery from the mine site to the plant site. Therefore, the MCPA material throughput is adequately limited at the plant site.</p> <p>The Permittee is refurbishing an existing plant site. The MPCA considered it reasonable based on the information provided to allow monitoring and recordkeeping at the exit of the course crushers. Based on comments received, the MPCA added calibration requirements to the belt scales and made those requirements Title I conditions.</p>
46	Air-01	<p>Lastly, the wording of Draft Permit Condition 5.1.40 needs to be revised because it does not definitively require constant monitoring and recording of the ore throughputs exiting the coarse crusher building. Specifically, this permit condition states that PolyMet shall “monitor and record the tons of ore exiting the coarse crushing building on a monthly basis.”¹¹⁴ Instead, this permit condition must require the continuous weighing of ore throughput exiting the coarse crusher building and summing of total ore throughput on a monthly basis. The permit must also require period calibration of the belt scales used for monitoring ore throughput and associated recordkeeping and reporting of such calibrations. Further, the permit must include provisions for any malfunctions or breakdowns in operations of the belt scales, including requiring prompt notification to MPCA, prompt repair of the scales, and other specific provisions indicating how PolyMet will ensure compliance with the 11.680 million ton per limit on ore processed during any periods of belt scale outage or breakdown. Without such provisions, the ore throughput limitation of Condition 5.1.39 cannot be considered to be a reliable limit on potential to emit of the remainder of the ore processing facilities at PolyMet.</p> <p>These conditions are especially important given that the coarse crusher lines and the fine crushing lines have more capacity than the 11.680 million ton per year ore throughput limit. Specifically, just one of the coarse crushers has hourly ore throughput capacity of 4025 tons per hour, which equates to 35.259 million tons of ore capacity per year.¹¹⁵ It appears there are two coarse crusher lines (North and South), and thus the potential capacity is two times 4025 tons per hour or 70.518 million tons of ore capacity per year. Even just the three fine crusher lines that PolyMet claims are all it will use of the seven fine crusher lines that exist in the fine crusher building have higher ore throughput capacity than 11.680 million tons per year. Specifically, the three fine crusher lines have a total capacity of 2412 tons of ore per hour¹¹⁶, which equates to 21.129 million tons of ore capacity per year. With the other four fine crusher lines that currently exist at the site (which we believe must be included in determining potential to emit of the facility unless the permit specifically prohibits their use as a Title I condition, see Section II.A. above), the ore throughput capacity is even greater.</p> <p>For all of these reasons, the permit must include provisions to ensure the integrity of the ore throughput capacity limit of Condition 5.1.39 of the Draft Permit in order for it to be relied upon to either limit emissions that were considered in the ambient air modeling and/or to limit emissions in determining potential to emit of the PolyMet facility.</p>	<p>The proposed permit contains a material throughput limit to be monitored at two points during the crushing process. The MPCA believes that this provides reasonable practicable enforceability and follows the recommendations in EPA’s 1989 Guidance on Limiting Potential to Emit in New Source Permitting.</p> <p>The Permittee is required to operate and maintain control equipment per manufacturer’s recommendations and conduct periodic parametric monitoring.</p>
47	Air-01	<p>4. The Draft Permit Fails to Identify All Provisions Related to Title I Conditions as Title I Conditions, Which is Necessary to Ensure that Such Provisions Remain in Effect even if the Permit Expires.</p> <p>The Draft Permit includes numerous Title I conditions with associated monitoring or recordkeeping requirements that are necessary to assure compliance but that are NOT listed as Title I conditions. A key component of practically enforceable limits are conditions that imposing testing and monitoring of compliance with permit conditions. Thus, the</p>	<p>The MPCA agree that some permit conditions in the draft permit required additional recordkeeping and monitoring conditions. The MPCA has updated the proposed permit based on the commenters recommendation. The proposed permit now contains Title I citations for monitoring and recordkeeping conditions related to Title I synthetic minor limits.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>permit provisions that provide the mechanism for compliance with Title I conditions must also be listed as Title I conditions. Table 3 below lists those permit conditions that we have identified that are related to determining compliance with Title I conditions but which have not been listed as Title I conditions in the Draft Permit.</p> <p>Almost all of these requirements pertain to requiring monitoring of throughput or other information, and such a requirement is imperative to the enforceability of throughput or processing limits that are designated as Title I limits on potential to emit. Therefore, all of these monitoring requirements must be identified as Title I conditions in the permit, in addition to the Title I condition to which the monitoring requirements pertain, to ensure that the monitoring requirements necessary to ensure practical enforceability of limits on potential to emit remain in effect even if the permit expires. MPCA should review all of the Title I conditions of the permit to ensure that all conditions necessary to ensure the enforceability of an emission or production limit are listed as Title I conditions in the permit.</p>	
47	Air-01	<p>1. The Draft Permit Does Not Include All Conditions Necessary to Ensure Continuous Compliance with Emission Limitations Intended to Limit the Potential to Emit of the PolyMet Facility.</p>	
48	Air-01	<p>The Draft Permit imposes numerous pound per hour limits and control efficiency requirements for control equipment. Those limitations were, in turn, relied upon for determining potential to emit of the PolyMet facility. In the comments in Section II.C. above regarding the emission limitations on the Autoclave, we explained why the pound per hour emission limits and the requirements to route to a particulate control device were not sufficient to limit potential to emit. To reiterate, the Court in <i>United States v. Louisiana-Pacific Corporation</i> has interpreted the definition of potential to emit in 40 C.F.R. § 52.21(b)(4) to require restrictions on operating hours or production levels or types of material combusted, rather than simply imposing limits on tons of pollutants emitted per year.¹¹⁷ In its June 13, 1989 guidance on limiting potential to emit, EPA stated that proper limits on potential to emit must include a production or operational limitation in addition to an emission limitation “where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment.”¹¹⁸ EPA stated that there are two exceptions to the prohibition on using blanket emission restrictions to limit potential to emit. One exception pertained to surface coating operations, and the other exemption applies when setting operating parameters for control equipment is infeasible. In such cases, a permit that includes “short term emission limits (e.g., lbs per hour) would be sufficient to limit potential to emit, provided that such limits reflect the operation of the control equipment, and the permit includes requirements to install, maintain, and operate a continuous emission monitoring (CEM) system and to retain CEM data, and specifies that CEM data may be used to determine compliance with the emission limit.”¹¹⁹</p> <p>In the case of the pound per hour emission limits in the Draft Permit that are being relied upon as Title I conditions to limit potential to emit of the PolyMet facility (of which there are numerous such limits), the permit does not require use of CEMs to determine compliance. Instead, the Draft Permit requires one stack test within 180 days of operation and then very infrequent stack tests occurring at intervals of one to five years entirely at the discretion of PolyMet.¹²⁰ Thus, the various pound per hour limits cannot be relied upon to limit potential to emit of any air pollutants in the absence of CEMs, especially with such infrequent testing, at any of the emission units at PolyMet.</p>	<p>Emissions calculations for PTE were based on design capacity of the Autoclave. The Permittee committed to installing BACT-like controls for particulate matter. Modeled emission rates were calculated using best available control technology for particulates and this is well document in the environmental review documents. The Permittee is required to perform daily monitoring and recordkeeping on the baghouses and cartridge filters controlling emissions. PolyMet submitted a BACT-like report that provides reasonable assurance that when operated within the manufacturer's recommended specifications, the control equipment will result in controlled emissions as proposed by the permit application. The MPCA believes that daily recordkeeping and monitoring, as well as enhanced</p>
49	Air-01	<p>The Draft Permit lacks necessary requirements to rely on control equipment requirements in the Permit to ensure compliance with the limits on potential to emit. For example, for all of the emission points of the crushing operations, PolyMet assumed particulate emissions based on “performance specifications for the baghouses that will be installed in the crushing plant of 0.0025 gr/cf of total PM...Uncontrolled emissions were estimated by assuming a control efficiency of 99% for the baghouses.”¹²¹ First, it must be noted that PolyMet has not provided any vendor guarantee for the baghouses or cartridge filters that a 0.0025 grains per cubic foot limit can be met at the crushing operations at</p>	<p>As a result of comments received, the MPCA verified potential to emit calculations for the crushing plant operations. The proposed permit includes synthetic minor at two points in the crushing process. The modeled emission rate takes into account the 0.0025 grains per cubic foot. The permit application, as provided by the Permittee, included summaries, information, and data from the various environmental review components as they</p>

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		<p>the PolyMet Plant site. MPCA must require such information to support PolyMet’s claimed emission rate. Further, the Draft Permit fails to impose a 0.0025 grain per cubic foot permit limit on any of the cartridge filters or baghouses. While the draft permit imposes a requirement that all cartridge filters or baghouses be operated and maintained to achieve 99% control efficiency of particulate matter,¹²² the Permit does not include any provisions to determine the control efficiency of the cartridge filters or baghouses. While the Draft Permit does include other provisions regarding the operation of the baghouses or cartridge filters, such as pressure drop requirements,¹²³ neither MPCA nor PolyMet has provided any demonstration that these pressure drop requirements will ensure 99% control efficiency across the baghouse. But given that PolyMet did not properly estimate uncontrolled particulate emissions, what is more important to ensuring the integrity of PolyMet’s potential to emit calculations for PM, PM10, and PM2.5 at the Plant Site is ensuring that there are vendor guarantees for all of the baghouse and cartridge filters to achieve 0.0025 grains per cubic foot and to ensure periodic testing (more frequent than 1 to 5 times per five years) of compliance with the pound per hour limits at all baghouse and cartridge filter emission points.</p>	<p>pertained to particulate matter. Some of this information included information on best available control technology for particulate matter, PM 2.5, and mercury control. As a result, the Permittee committed to high performance control equipment. The proposed permit contains requirements for the Permittee to operate and maintain control equipment in accordance with an operation and maintenance plan, conduct quarterly inspections, and operate a bagleak detector at all times.</p>
50	Air-01	<p>Similarly, for the emission limits for the units routing emissions to TREA 53, the Plant Scrubber, the draft permit sets pound per hour emission limits for PM, PM10, PM2.5 and sulfuric acid mist,¹²⁴ but the Draft Permit only requires infrequent testing of compliance with those limits – as infrequent as once per five years.¹²⁵ The Draft Permit requires 99% particulate matter and sulfuric acid mist control efficiencies for the scrubber, but the Draft Permit fails to include any requirements for ensuring compliance with the 99% control efficiency requirements.¹²⁶ While the Draft Permit has operational requirements for the Plant Scrubber including to regulate pressure drop, water flow rate, and pH across the scrubber,¹²⁷ neither MPCA nor PolyMet has put forth any demonstration that these requirements are tied to 99% control of PM, PM10, PM2.5 or sulfuric acid mist across the scrubber. The Plant Scrubber is relied upon to control the emissions of the AuPGM precipitation tanks (EQUI 110), the CuS Cementation Tank N2 Vent (EQUI 112), the MHP Stage 1 Tank Vent (EQUI 113), and the NaHS Mix Tank/Storage Tank. With very infrequent test requirements for the particulate matter and sulfuric acid mist emission limits and no provisions for ensuring the control efficiency of the scrubber, the pound per hour emission limits cannot be relied upon to limit potential to emit.</p>	<p>See response to Comment Number 9, above. The MPCA takes into account all available information and reserves the right to set a test frequency for emission units based on the initial performance test.</p>
51	Air-01	<p>For all of these reasons, the Draft Permit fails to include all conditions necessary to limit potential to emit of the PolyMet facility with practically enforceable limitations that ensure continuous compliance with emission limitations intended to keep the PolyMet facility from being considered a major source under the PSD program.</p>	<p>For reasons discussed above, including in responses to comment numbers 6 and 9, the MPCA has determined that the proposed permit based on the application submitted by the Permittee contains sufficient permit conditions to demonstrate the proposed permitted facility is a synthetic minor source.</p>
52	Air-01	<p>As previously stated, the assumed 99.06% control efficiency of the Autoclave scrubber for PM, PM10, and PM2.5 and the 99% control efficiency of sulfuric acid mist have not been justified by vendor guarantees, and the Autoclave scrubber control efficiency limits in the Draft Permit do not include provisions to make those assumptions enforceable. Further, the scrubber operational requirements have not been tied to these high levels of particulate and sulfuric acid removal, especially given the likelihood that the particulate matter will likely be condensable particulate matter that is not as readily captured in scrubbers.</p> <p>As it is right now (not even taking into account the other issues with the potential to emit of the PolyMet facility and the permit deficiencies discussed above), if the scrubbers only achieved 97.9% control of PM, PM10, and PM2.5, the PolyMet facility’s potential to emit would be major (i.e., greater than 250 tons per year¹²⁹) for PM, PM10, and PM2.5. A particulate control efficiency of 97.9%, especially for condensable particulate matter which is likely the form of the particulate to be emitted from the autoclave flash vessel, is still a very high control efficiency to assume for the scrubbers to be installed for condensable particulate matter, and this slight change in control efficiency makes the difference as to whether the PolyMet source is major or not for PM, PM10, and PM 2.5 under the PSD program.</p> <p>Thus, because of the difficulty of imposing emission limits for which compliance can continuously be demonstrated for the sulfuric acid mist, PM, PM10, and PM2.5 emissions from the Autoclave units, it is imperative that the assumed</p>	<p>For reasons discussed above, including in responses to comment numbers 6 and 9, the MPCA has determined that the proposed permit based on the application submitted by the Permittee contains sufficient permit conditions to demonstrate the proposed permitted facility is a synthetic minor source.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>removal efficiencies for the Autoclave scrubbers for sulfuric acid mist, PM, PM10, and PM2.5 are technically justified for the form of and concentrations of particulate matter that are expected to be emitted from the Autoclave units to the Autoclave scrubbers. Vendor guarantees should be obtained and made available for public review before MPCA issues any permit purporting to impose synthetic minor limits on the PolyMet facility because the pollutant removal efficiency achieved across the control equipment is extremely important to PolyMet’s potential to emit calculations being grounded in reality, especially given the fact that the process to be used in the Autoclaves at PolyMet has never been done on a commercial scale. In the absence of such vendor guarantees and unless permit conditions are imposed to ensure continuous compliance with the pound per hour limits, the potential to emit of these emission units should be based on uncontrolled emissions when determining potential to emit of the PolyMet facility.</p> <p>In addition, MPCA must address all of the other deficiencies in the Draft Permit in limiting potential to emit of the PolyMet source in order to ensure the integrity of PolyMet’s potential to emit calculations and assumptions. As it stands now, it does not appear that the Draft Permit will sufficiently limit PolyMet’s emissions to less than major source emission thresholds without significant changes to the permit as discussed above and without additional support for the emissions assumptions.</p>	
53	Air-01	<p>I. The Draft Permit Fails to Adequately Limit Potential Hazardous Air Pollutant Emissions of the PolyMet Facility to Less than Major Source Emission Thresholds. The Draft Permit for the PolyMet facility also includes emission limitations intended to keep the PolyMet facility a synthetic minor source of hazardous air pollutants (HAPs) under 40 CFR 63.2. Those limits are identified in the Draft Permit as “Avoid major source under 40 CFR 63.2” and the majority of those limits apply to metal HAPs that would also qualify as particulate matter.¹³⁰ These limits are generally control efficiency requirements for the baghouses/cartridge filters.¹³¹ As discussed above, those removal efficiency requirements are not enforceable requirements unless the permit requires periodic testing to ensure compliance with the control efficiency limit. Typically that is done by measuring emissions upstream and downstream of the pollution control device. It is not clear how to accomplish the upstream emissions from some of the sources at PolyMet such as the crushing operations controlled by cartridge filters. Further, the operational requirements applicable to the pollution control devices have not been shown to be sufficient to achieve the assumed removal efficiency. In any event, because the permit does not require testing to ensure compliance with the HAP removal efficiency requirements, those requirements cannot be relied upon to limit potential to emit HAPs at the PolyMet facility.</p>	<p>The proposed permit includes requirements related to metal hazardous air pollutants (HAPs) that are included in the majority of air quality permits issued by the MPCA for similar facilities. The permit application, as provided by the Permittee, included summaries, information, and data from the various environmental review components as they pertained to particulate matter. Metal HAPs are a component of particulate matter. Therefore, the MPCA considers the information provided by the Permittee to adequately characterize control of metal HAPs. The MPCA requires specific testing for metal risk drivers as identified by the AERA. These include nickel and arsenic, as well as hydrochloric acid.</p>
54	Air-01	<p>II. Additional Comments on the Draft Permit for PolyMet.A. MPCA Must Require PolyMet to Begin Construction within a Shorter Timeframe than 60 Months. Condition 5.1.1 of the Draft Permit states that the permittee must start construction of the equipment authorized in this permit within 60 months (five years) after issuance or the authorization to construct will expire. Five years is a long time to allow for commencement of construction. The PSD permit provisions require construction to commence within 18 months of permit issuance or the permit to construct will expire.¹³² The reason for this limitation on the beginning of construction after permit issuance is so the information in the permit and the air quality and other analyses upon which it is based is current. While five years may be the length of time of a Part 70 permit, such Part 70 permits were not envisioned to be authorizations to construct but authorizations to operate. While it is recognized that MPCA has adopted a combined construction and operating permit program, the state still could – and should – impose a shorter timeframe for commencing of construction of the PolyMet facility. To preserve the integrity of the modeling and to be consistent with PSD permitting requirements, MPCA should require construction commence on the PolyMet facility within 18 months of permit issuance</p>	<p>Comment noted. The proposed permit is not a PSD permit. Therefore, the this permit is not required to include the 18-month construction authorization window for PSD permits.</p>
55	Air-01	<p>Assuming MPCA Incorporates Additional Provisions into the PolyMet Permit to Sufficiently Limit Potential to Emit below Major Source Levels, the Permit Should be Streamlined to More Readily Ensure Compliance by PolyMet.</p> <p>The Draft Permit is extremely long at 1230 pages and is also very difficult to follow, because provisions applicable to one emissions unit are found in several different parts of the permit. After going through the entire permit in detail, it is clear that many identical provisions and emission limits are repeated for different emission units. Assuming MPCA</p>	<p>The MPCA acknowledges that this is a complex and lengthy permit. The commenter makes several helpful suggestions related to permit format style that the MPCA will consider in future permit actions, but unfortunately, due to permit drafting software could not be considered or implemented at this time.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>incorporated additional provisions to adequately limit potential to emit of the PolyMet facility, MPCA should also streamline repeating conditions of the permit to better ensure compliance by PolyMet. For example, The North 60" Crusher and the South 60" Crusher are subject to the same numerical particulate matter emission limits, but route their emissions to two different particulate matter controls (that also have identical requirements).¹³³ Instead of breaking those conditions up into individual permit conditions for each crusher and baghouse, these emission limits could be combined into one permit condition applicable to each Crusher on an individual basis. Indeed, the Permit could simply have a table of emission limits for all of the various emission units, which in many cases are the same limits. Also the baghouse and cartridge filters are subject to the same requirements, which could be summarized as one set of requirements applicable to each of those particulate controls on an individual basis. At the very minimum, the permit should include such a summary at the beginning to help assure PolyMet's compliance with the Permit.</p>	
56	Air-01	<p>II. Conclusion In summary, MPCA must not issue the Draft Permit for the PolyMet facility as currently proposed for several reasons. First, MPCA must require PolyMet to conduct revised modeling for compliance with the PM10 and PM2.5 NAAQS before it can issue an Air Permit authorizing construction and operation. MPCA must ensure that the revised modeling includes all areas of "ambient air" and that it includes all contributing source emissions in compliance with MPCA's permitting guidance. And, with respect to control of fugitive emissions from unpaved roads, if some level of PM10 and PM2.5 control is deemed necessary to assure compliance with the NAAQS (which presumably it will be), then MPCA must impose more definitive requirements in the Air Permit that will control fugitive dust to the levels assumed in the modeling and that are not simply dispersion techniques. Until this revised modeling is conducted and more definitive fugitive dust control requirements are imposed, MPCA cannot lawfully issue the Air Permit for PolyMet because it cannot be demonstrated that the permit includes all terms and conditions necessary to assure attainment of the PM10 and PM2.5 NAAQS.</p> <p>Second, the Draft Permit does not properly limit potential to emit of the PolyMet facility below major source levels for numerous reasons. Specifically, the permit fails to account for all sources of point source emissions existing and contemplated at the PolyMet site (e.g., portable crushing equipment at Mine Site, existing fine crushing lines at Plant Site, additional contractor activities contemplated in Draft Permit). Further, the potential to emit of the Autoclave vent and Autoclave flash vessel is based on short term pilot testing for a process that has never been implemented on a commercial basis, and the permit record fails to include support for the emissions assumptions and the assumed control efficiencies of the Autoclave scrubbers. The Draft Permit also to include practically enforceable limits and associated requirements to ensure the integrity of the assumed emission rates and control equipment efficiencies from the Autoclave units, the crusher units, and several other emission units. Without proper and practically enforceable limits on the PolyMet facility, the source must be permitted as a major source under the PSD program.</p> <p>In sum, there are significant changes needed in the modeling and emissions documentation for the permit as well as within the permit itself to ensure compliance with the air permitting requirements of the Clean Air Act and the Minnesota Rules. We request the ability to review and comment on that information and revised permit conditions in a new 30-day comment period.</p>	<p>Comment noted. As a result of comments received, the MPCA made changes to the proposed permit resulting in clarified requirements related to synthetic minor limits, and requiring the Permittee to remodel. The MPCA considers those changes to result in more protective requirements. The changes are summarized in Attachment 13 to the Technical Support Document.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
57	Air-02	<p>Dear Commissioner Stine:</p> <p>The Fond du Lac Band of Lake Superior Chippewa appreciates this opportunity to comment on the PolyMet Draft Air Permit. In these comments, the Band sets out its concerns and objections regarding the draft permit and the actions that the MPCA should take regarding issues raised by the draft permit, and the reasons in support of the Band's position.</p> <p>The Fond du Lac Band of Lake Superior Chippewa (the Band) is a federally recognized tribe with a Reservation located in northeastern Minnesota that was established by Treaty with the United States as the Band's permanent home. By treaty, the Band retains hunting, fishing and gathering rights on more than 8 million acres of territory in Northeastern Minnesota ceded to the United States government under the Treaties of 1837 and 1854 . Band members rely on those rights to hunt, fish and gather natural resources in the Ceded Territory for subsistence, cultural and religious purposes, and the Bands accordingly have a legal interest in protecting natural resources on which those rights depend. The Band provides governmental services to Band members and other eligible persons living on and near the Band's reservation. Among those government functions are those to protect the environment. With regard to air quality, the Band has Treatment as a State status under the federal Clean Air Act for air related activities that take place on or near the Reservation and/or other tribal lands.</p> <p>As the project proposed by NorthMet would be located directly upstream of the Fond du Lac Reservation, and within the Ceded Territories where Band members exercise hunting, fishing and gathering rights, the Band has a substantial interest in ensuring that the terms and conditions of any air permit issued to PolyMet are effective in protecting air quality. Our comments reflect our review of the draft permit, Technical Support Document (TSD), and TSD Attachments obtained from the MPCA's website. Comments are grouped according to the documents reviewed.</p>	Comment noted.
58	Air-02	<p>In addition, while the MPCA website presents the April 2016 Modeling Protocols as the approved Class II Protocols for the Mine site and Plant site, review of the TSD Attachments suggests that the MPCA, in September or December of 2017, may have approved some modifications of these protocols. See TSD Attachments at page 808. These later documents however are not clear. They raise more questions than they answer about the elements of the Class II modeling protocol to be used, and still leave serious deficiencies in the modeling protocol. We discuss those below as well.</p>	Comment noted.
59	Air-02	<p>Receptor Spacing (PM-10 and PM-2.5)</p> <ul style="list-style-type: none"> • PolyMet, in its Air Quality Dispersion Model Protocol for the Mine Site, AQDM-01-NorthMet Mine Site Protocol, Mine Site Class II, Section F (Receptors) (reprinted in the Technical Support Document (TSD) Attachments, at pages 844-845), states that PM-10 receptors will be spaced at 100 meters (m) along the property line and 500 m at distance. This is inadequate, as illustrated when compared to the recommendations contained in the MPCA's modeling guidance (MPCA Modeling Practices Manual, 2017 – "the Manual"). Table 11 of the Manual sets out the recommended placement for ambient air receptors for a proper NAAQS (National Ambient Air Quality Standards) and MAAQS (Minnesota Ambient Air Quality Standards) analysis. See Manual at page 24, Table 11. That table recommends 10 m spacing between each receptor at the property boundary, 50 m spacing from the boundary out to 1 km, and does not allow 100 meter spacing until evaluating concentrations 1-2 km out from the source. PolyMet, in its Modeling Protocol used receptor spacing of 500 m to evaluate concentrations that were between 1-5 km from the source, whereas the Manual does not recommend 500 m spacing until evaluating concentrations 5-10 km out from the source. Further, the Band could not confirm, from the records provided with the draft permit, that PolyMet's protocol calls for receptor placement between the fence line and property boundary. These departures from the standards for receptor spacing set out in the Manual are extreme and no justification for them is given in the protocol. Figures J-3 and J-4 in PolyMet's Modeling Protocol further show that the modeling grid for PM-10 does not appear to change in terms of spacing from the fence line to a distance 5 km out. Table 1 below shows the differences between the receptor spacing used by PolyMet, and the receptor spacing set out in the Manual. Please note that in this Section of PolyMet's Modeling Protocol, items #3 and #5 provide receptor spacing details. However, these two items do not agree in all respects. MPCA does not provide any explanation of the reasons why the recommendations in the Manual were not 	See response to Comment Number 3, above.

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>followed with regard to receptor spacing for this project. Deviations from the guidance contained in the Manual need to be explained.</p> <ul style="list-style-type: none"> • PolyMet’s receptor spacing is also inconsistent with the MPCA modeling guidance that had been used from October 2004 until September 2016 (since September 2016, MPCA has recommended the spacing that is also set out in the current Manual discussed above.) PolyMet, in its modeling protocol, states that it was relying on the MPCA guidance in effect in 2013 (TSD Attachments at page 844). However, MPCA modeling guidance from October 2004 until September 2016, suggested the placement of receptors every 10 m along fence lines and 25 m along property lines. The righthand column in Table 1 below shows spacing suggested by MPCA from October 2004 until September 2016. These parameters are compared with the middle column, receptor spacing used in the modeling by PolyMet. The italicized rows include distance gradations that are found only in the 2004 guidance. One can see that the PolyMet modeling used receptor spacing that would not have been in accordance with MPCA guidance at any point in the last past 13 years. Note that the October 2004 guidance does not suggest spacing receptors at a distance of 500 m apart until a distance of 2.5-4.5 km away from the boundary, whereas the PolyMet modeling uses this spacing straight out from the boundary. Note that the very latest guidance available when PolyMet submitted its modeling protocol in April of 2016 (Manual, July 2013) was consistent with the October 2004 guidance, and would not have allowed the receptor spacing that PolyMet used. Although PolyMet deviated from the recommendations contained in the MPCA’s October 2004 through September 2016 guidance and used fewer receptors spaced further apart, no explanation is provided to justify why this deviation from the recommendations from twelve years’ of prior guidance was allowed. <...> Refer to comment to view Table 1 • The same flaws in receptor spacing occur with the receptors used by PolyMet for PM2.5 (particulate matter less than 2.5 microns in diameter). PolyMet’s AQDM-01-NorthMet Mine Site Protocol, Mine Site Class II, Section F (Receptors) (page 845 of the TSD Attachments), does not follow the recommendations in the Manual. Instead, the model calls for PM-2.5 receptor spacing of 100 m around the ambient boundary. From the ambient boundary out to 1 km, PolyMet uses a range of spacing of 50 m at expected maximum locations and 100 m at other locations, which does not follow the Manual’s recommendation of spacing at 50 m for all locations. In addition, PolyMet’s spacing of receptors at 500 m from 1-5 km distance from the ambient boundary does not follow the Manual’s recommended distance of 100 m from 1-2 km out. The Manual does not recommend spacing of 500 m until 5-10 km out from the boundary. Table 2 below summarizes the substantial difference between the recommendations in the Manual and PolyMet’s modeling protocol. Again, the Band was unable to confirm, from the records provided with the draft permit, that PolyMet’s protocol calls for receptor placement between the fenceline and property boundary. Similar to the problems with the spacing of PM-10 receptor issues described above, no explanation or justification is provided for why this departure from the Manual was proposed or why the proposal was accepted. In addition, similar to the problems with the spacing of PM-10 receptors, PolyMet’s model also deviates from the recommendations set out in the MPCA’s guidance that were in effect from October 2004 until September 2016, and no explanation is provided for why such a departure was allowed. This implies that the reason these receptors were placed as they were (fewer receptors placed further apart) was solely to allow the source to model compliance with the PM-2.5 and PM-10 NAAQS/MAAQS, but that compliance might not have occurred if the modeling followed the recommendations in the guidance. Table 2 below shows the substantial differences between the MPCA Manual and PolyMet’s Model. Again, note that these deviations are inconsistent with recommendations consistently made through twelve years of MPCA modeling guidance. <...> Refer to comment to view Table 2. • There was a possible December 2017 modification to the receptor spacing at the mine site. In a later report, MPCA appears to have approved a modification to the receptor placement at the mine site. That report indicates that the ambient air boundary has been modified from the property boundary line to a smaller area called the “effective fenceline”, which we discuss in more detail in the Ambient Air Boundary section below. In connection with this change, MPCA describes a change in receptor spacing, as follows: “The Mine Site Protocol text stated that the receptor grid would use 100 m spacing from the ambient air boundary (as the boundary was formerly called) out to 1 km. After 	

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>discussion with the MPCA, the receptor grid spacing from the effective fenceline out to 1 km was changed to 250 m. No changes were made to the receptor density in areas of maximum modeled concentrations.” TSD Attachments at page 808. If this modification has been approved, it reflects an even greater deviation from the recommended spacing in the Manual. The Manual recommends 50 m spacing at the fenceline or facility boundary to 1 km. No explanation is given on the reason why a deviation from the recommendations contained in the Manual is warranted here.</p> <p>Relief requested. MPCA should not approve the draft air permit until the receptor spacing for this proposed project complies with the recommendations set out in Table 11 of the Manual, and updated modeling is done with receptors that are properly spaced in accord with the recommendations in the Manual. If, however, deviations are to be made, MPCA needs to provide a detailed justification explaining the basis for those deviations and provide the public with an opportunity to review and comment on them before a final decision is made on an air permit</p>	
60	Air-02	<p>Removal of Nearby Sources (Background Concentrations) PolyMet, in AQDM-01-NorthMet Mine Site Protocol, Mine Site Class II, Section J (Nearby Sources), states that some nearby sources were omitted from the Class II PM-10 and PM-2.5 modeling and refers the reviewer to Attachment J. However, as discussed below, these nearby sources were removed improperly due to the incorrect assumption that their emissions are included in background concentrations.</p> <ul style="list-style-type: none"> • Attachment J attempts to justify the removal of nearby sources by claiming that background concentration values from the PM-10 monitor in Virginia capture PM-10 emissions from relevant nearby sources. The Band does not see how this monitor can adequately and consistently reflect emissions from Louis Leustek and Sons Inc, Northshore Mining Co – Babbitt, Mesabi Nugget, or Cliffs Erie Hoyt Lakes. Attachment J states that the conditions that lead to worst-case modeling scenarios at the site are those involving low wind speeds and either southerly or northerly winds, and that these sources are captured by the monitor. But how can PM-10 emissions from these facilities be captured by the monitor during low wind speed conditions? One would think this would be the worst time for the monitor to pick these sources up. Likewise, it seems that northerly or southerly winds (see wind rose from Attachment J which indicates that the majority of winds in the area are northerly and southerly) would not be conducive for carrying these emissions to the southwest, which is where the Virginia PM-10 monitor is located. • The Band believes that the use of data from this monitor is also not clearly representative of background levels in the area because of the great variation in distance of the other major sources in the area from the monitor, which may cause some sources to be over-represented and some to be under-represented. However, rather than make complicated arguments based on meteorological conditions, the Band suggests that it would be better to use data from a different monitor that truly represents background concentrations of this pollutant, and to then model all nearby sources explicitly. The Fernberg monitor operated by the US Forest Service would be a good indicator of true background concentrations, as it is isolated from the immediate impact of emissions from mining sources. • In the Results Review Form for PolyMet’s Air Quality Dispersion Modeling (AQDM-01) (Dec. 2017) at Section 2 page 3, (TSD Attachments at page 802) MPCA comments that “The Company provided language in their report to narrate how nearby source contributions were removed from the modeling evaluation. The Company followed an approach whereby they subtracted modeled nearby source concentrations from the nearby source property at and up to the property boundary. This practice is no longer observed in Minnesota. MPCA Management allowed the Company to remove modeled nearby source concentrations from the nearby source property in recognition of a historical modeling practice. The MPCA will expect that any future cumulative ambient air quality modeling will follow the current MPCA Modeling Practices Manual (2017) to address modeled nearby source concentrations. In the event that a modeled exceedence is discovered at a nearby source facility, the MPCA has developed processes to evaluate these situations on a case-by-case basis (See Appendix A of the MPCA Modeling Practices Manual (2017).” MPCA here confirms that PolyMet used an improper modeling procedure - one that may have been allowed in the past but which was “no longer 	See response to Comment Number 3, above.

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>observed in Minnesota.” MPCA then postpones any issues with modeled non-compliance to be dealt with at some later time. This is improper and should be corrected. It adds an improperly modeled new source to an area that already has high levels of PM-10, which both complicates modeling for other facilities in the area and degrades the air quality for the residents who will deal with poor air quality. In addition, the records made available on this matter fail to provide any justification for this departure from guidance set out in the Manual. The decision here wholly: fails to explain when the alleged “historical practice” that PolyMet used was allowed under MPCA modeling protocols; fails to identify the guidance or other policy vehicle that allowed this “historical practice”; fails to address when the “historical practice” was ended and the reasons why it is no longer recommended for use; and fails to describe what factors were used to allow PolyMet to deviate from the guidance set out in the current Manual and instead rely on an unidentified and since abandoned “historical practice”.</p> <ul style="list-style-type: none"> • MPCA’s decision here to allow PolyMet to use a “practice that is no longer observed in Minnesota” raises questions about whether MPCA has made similar exceptions in other air permits in this region under which the applicant was allowed to remove nearby sources. If this has been allowed elsewhere, information should be provided to identify all such other permits – as this practice and the deviation from what is recognized as proper practices will lead to incorrect conclusions about compliance with NAAQS/MAAQS and requires a more comprehensive, and corrected, analysis. MPCA should require that PolyMet correct its modeling to address nearby source contributions in accordance with the recommendations of the Manual, and the terms of any air permit for this project should be based on the corrected model. If, however, deviations are to be made, MPCA needs to provide a detailed justification explaining the basis for those deviations and provide the public with an opportunity to review and comment on them before a final decision is made on an air permit. <p>The MPCA’s statement that “The MPCA will expect that any future cumulative ambient air quality modeling will follow the current MPCA Modeling Practices Manual (2017) to address modeled nearby source concentrations.” cannot be enforced, as it is not part of a regulation, nor is it official guidance. It is a statement made in a 1,500 page technical document that few people will read. MPCA’s statement further illustrates and confirms that its decision to allow this for PolyMet is not supported by any facts or reasoned justification and is wholly arbitrary. The remedy for this draft permit is to require that the proper modeling be done before any air permit is issued. And to ensure future compliance, the MPCA’s Manual should be updated to explicitly prohibit the type of modeling that PolyMet conducted, otherwise this assurance is meaningless.</p> <p>Further comments on the problems arising from the removal of nearby sources can be found in this letter, under Ambient Air Boundary.</p>	
61	Air-02	<p>Plant Site Class II Modeling Protocol</p> <ul style="list-style-type: none"> • The same flaws in the spacing of receptors that occurs with PolyMet’s air quality dispersion model protocol for the mine site also occurs in PolyMet’s Air Quality Dispersion Model for the Plant Site, AQDM-01-NorthMet Plant Site Protocol, reprinted in the Technical Support Document (TSD) Attachments at pages 886-887 (Section F Receptors). Receptor placement at the plant site deviates considerably from the spacing for receptors recommended in the Manual. Table 3 below shows the very substantial differences between PolyMet’s receptor placement compared to what the Manual recommends. As a result, PolyMet used a fraction of the number of receptors recommended, placed at far greater distances from one another, undermining their effectiveness in measuring NAAQS/MAAQS. Large Figure 3 at page 897 of the TSD Attachments further shows the large open spaces between receptors. Again, the Band was unable to confirm, from the records provided with the draft permit, that PolyMet’s protocol calls for receptor placement between the fenceline and property boundary and no explanation is provided to justify the deviation from the MPCA’s guidance. In addition, similar to the problems with the spacing of receptors for the mine site, PolyMet’s model also deviates from the recommendations set out in the MPCA’s guidance that were in effect from October 2004 	See response to Comment Number 3, above.

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>until September 2016, and no explanation is provided for why such a departure was allowed. <...>Refer to original comment to view Table 3.</p> <p>The same problem exists with regard to receptor spacing for cumulative impacts (see page 887 of TSD Attachments). Table 4 below shows the difference in receptor spacing that is set out in the Manual from what PolyMet used for cumulative impacts. PolyMet’s Large Figure 4 at page 898 of the TSD again illustrates the large spaces between receptors. PolyMet’s model also deviates from the recommendations set out in the MPCA’s guidance that were in effect from October 2004 until September 2016, and no explanation is provided for why such a departure was allowed. Phrases used to describe the spacing, such as “as necessary”, “very dense”, and “less dense” are not well defined, although one mention of a 500 m grid from the boundary out to 5 km is used. The protocol also calls for “receptors... at 1 km intervals out to the extent of the grid”, apparently measured from the boundary, although this is not clear.; Again, the Band was unable to confirm, from the records provided with the draft permit, that PolyMet’s protocol calls for receptor placement between the fenceline and property boundary. <...>Refer to original comment to view Table 4.</p> <ul style="list-style-type: none"> • Section F of this modeling protocol refers to Attachment J when discussing cumulative impacts grid spacing, (see page 887 of the TSD Attachments), stating “As described in Attachment J, the extent of the cumulative impacts assessment grid will vary by pollutant, but all pollutants will be evaluated along the boundary” However, Attachment J does not give any further information as to what distances are meant by “as necessary”. See TSD Attachments at pages 909-915. If this information is indeed given, it is difficult to find, as no reasonable cross-reference was provided. Here too, specific information is needed about the receptor spacing that was done, and to the extent the spacing deviates from the MPCA guidance, an explanation needs to be provided to show the reasons why this was done. • MPCA should not approve the draft air permit until the receptor spacing for this proposed project at the plant site, and the mine site, including receptors for cumulative impacts analysis, follows the recommendations set out in the Manual, and updated modeling is done with receptors that are properly spaced in accord with the recommendations set out in the Manual. If, however, deviations are to be made, MPCA needs to provide a detailed justification explaining the basis for those deviations and provide the public with an opportunity to review and comment on them before a final decision is made on an air permit. 	
62	Air-02	<p>Class I Modeling Protocol Table S6-1 shows that the SIL in the BWCA is 0.290, very close to the SIL of 0.3. See TSD Attachments at page 1184. This is reason for concern and calls for careful review and reassessment of the modeling protocol, including consideration of whether it was appropriate to assume 90% control of road dust and to use plume depletion for fugitive sources (see comments below on these issues).</p>	<p>The comment is noted; however, it is unclear if the commenter is referring to the Class I air quality modeling analysis or the Class II air quality modeling analysis. The comment appears to be addressing the Class II analysis.</p> <p>The Class I air quality-modeling analysis addresses the long-range transport of air pollutants to areas of concern, such as National Parks and areas of cultural importance. The receptor grid used in a Class I analysis is a fixed grid developed by the MPCA in conjunction with the United States Forest Service and the Tribal Nations. The comment provided refers to distances that are consistent with Class II modeling.</p>

<p>63</p>	<p>Air-02</p>	<ul style="list-style-type: none"> • “Ambient air” is defined as “that portion of the atmosphere, external to buildings, as to which the general public has access.” 40 CFR 50.1(e). As the MPCA explains in Appendix D to the Manual, the rules for defining a “ambient air” for purposes of the placement of air quality dispersion modeling receptors has been well-established by EPA forty years. As MPCA states: “In the 1980’s the Environmental Protection Agency (EPA) guided receptor placement modeling procedures through what has become EPA’s long-standing ambient air policy: ‘for modeling purposes, the air everywhere outside of contiguous plant property to which public access is precluded by a fence or other effective physical barrier should be considered in locating receptors. Specifically, for stationary source modeling, receptors should be placed anywhere outside inaccessible plant property. For example, receptors should be included over bodies of water, over unfenced plant property, on buildings, over roadways, and over property owned by other sources.’” Manual, Appendix D at 1-2 (citing EPA Memorandum from Regional Meteorologists, Regions 1-X to Joseph Tikvart, Chief (MD-14) dated May 16, 1985). <p>MPCA further explains that “EPA has been consistent in the expectation of receptor placement for NAAQS modeling,” id at 2, and that: “Based on EPA policy interpretations of ambient air and public access control from the past three decades, the following key points are considered most relevant when considering the placement of receptors in a NAAQS modeling demonstration:</p> <ol style="list-style-type: none"> 1) The federal definition of ambient air is defined at 40 CFR 50.1(e) as “that portion of the atmosphere, external to buildings, to which the general public has access.” 2) EPA has exempted a source’s area from ambient air when: (1) the source owns or controls (e.g., leasing) the land or property; and (2) precludes public access to the land or property using a fence or other effective physical barrier. The general public must be protected from areas of the facility property (owned or leased) that have modeled exceedances of the NAAQS. 3) For the purpose of a NAAQS analysis, EPA expects receptor placement throughout the facility property if no approved fencing or effective physical barrier exists. MPCA further adds that: “The EPA has applied the Federal definition of ambient air for the past four decades, clarifying their interpretation of public access and control over time. EPA has maintained fencing to be a chain-link fence, or any fencing of suitable height, to restrict public access and expects any proposed effective physical barriers to be as restrictive.” Manual Appendix D at 2 citing Email from Randall Robinson, EPA Region 5, to Jim Sullivan, MPCA, dated March 27, 2017. <ul style="list-style-type: none"> • The ambient air boundary used by Polymet for its Class II air dispersion modeling is not consistent with these requirements. According to the records provided with its approved April 2016 modeling protocol, PolyMet largely used its property boundary line and only undertook air dispersion modeling along the perimeter of its property boundary to points beyond that boundary.&nbsp; See TSD Attachments at pages 853, 854, 873, 874 (mine site) and 897 (plant site). This is contrary to EPA and MPCA requirements as the boundary of PolyMet’s property is largely not fenced and does not have effective physical barriers that would serve to prevent public access. • A Technical Memorandum written to the MPCA from PolyMet’s consultant Barr (dated July 17, 2016 – at page 949 of the TSD Attachments) seeks to justify PolyMet’s position, but it instead shows that the ambient air boundary was not properly defined. This memorandum explains that with regard to the plant site, although some areas will be controlled by a fence or gate, much of the perimeter is not fenced. PolyMet and Barr instead assert that the lands are not accessible to the public because the eastern and northern borders, as well as the western portion of the plant site, are located generally within wetlands, consisting of bogs and swamps, which they contend provide a natural barrier against trespassing (although PolyMet also notes that these lands do include a small upland area that is periodically logged.) Memo at 2, 3. PolyMet and Barr take the same position regarding the mine site – claiming that because the northern border and southeastern borders of the mine site are located in large areas of wetlands (but with some uplands), they present a significant travel barrier. PolyMet and Barr also note the lack of roads to further support their claim that these features prevent public access. PolyMet recognizes that they are obligated to preclude public access in areas 	<p>See responses to Comments Number 2 and 20, above. As the commenter notes, the MPCA is not a party to the Memorandum of Agreement regarding access to cultural resources. However, if the general public obtains access to portions of property, then that area must meet the definition of ambient air. The commenter references a December 11, 2013 report that states “the project would meet ambient air quality at the mining and plant site property boundaries.” This report was completed prior to January 11, 2018 permit application submitted by the Permittee. The permit application identified the ambient air boundary at the effective fence line, and not plant and mine site anticipated property boundary.</p>
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	<p>where exceedances of NAAQS/MAAQs are likely to occur, and expresses a commitment do so prior to mine operations by measures including no trespass signs and security patrols in areas where access is not precluded by either gates and fences, or natural barriers.</p> <ul style="list-style-type: none"> • The fact that much of the land along the perimeter of the plant and mine sites are wetlands does not make them a sufficient physical barrier to allow such lands to be excluded from modeling as ambient air. Although wetlands would not be accessible by persons traveling on-foot during the spring, summer and early fall, wetlands can and in fact are accessible when persons travel by canoe or kayak. And during winter, wetlands are frozen and accessible by hiker (with or without snowshoes) or cross-country skiers or snowmobiles. Longstanding EPA policy recognizes this, and in fact requires that air dispersion modeling receptors “be included over bodies of water.” • Likewise, the use of no trespassing signs is not sufficient to treat the property as non-ambient air. EPA has consistently and clearly required that public access be prevented by a fence or other physical barrier. Absent these, if the general public can either intentionally or unintentionally enter the property, the property must be included within the area evaluated as ambient air. That the person entering the property may be doing so in trespass does not change the result. Minnesota Rules also make it clear that even trespassers are part of the general public who are to be protected by the ambient air boundary. Minn. R. 7009.0020. The TSD incorrectly describes this Minnesota Rule as if the ambient air boundary does not apply to trespassers. TSD at 115. That is not correct and misreads Minn. R. 7009.0020. • The importance of properly defining the ambient air boundary also arises because a historic sugar bush site exists near the property which has been recognized as a traditional cultural property of the Chippewa Bands and eligible for listing on the National Register of Historic Places. PolyMet is well aware of this as the importance of this site and the need to protect it and provide for Chippewa access to use it has been the subject of considerable discussion with the company and the co-lead agencies on this project for many years. This is reflected in a number of documents, including the Summary Report of Cultural Resource Identification Efforts, Determinations of Eligibility, and Effects Determinations for the NorthMet Project, St. Louis County, Minnesota, USDA Superior National Forest & US Army Corps of Engineers, St. Paul District, 12/11/2013. The Tribes have also, throughout these proceedings, sought to ensure that they and their members would have continued access to this site. Although a final agreement has not yet been reached regarding specific terms for Tribal access, measures to mitigate potential harm to the sugar bush are the subject of a Memorandum of Agreement between PolyMet, the Minnesota State Historic Preservation Office, the Advisory Council on Historic Preservation, the US Forest Service and the Army Corps of Engineers made in December 2016. In addition, that Memorandum of Agreement expressly contemplates that steps will be taken by which the Chippewa will have access to this site so that the Bands and their members can engage in traditional practices of gathering and sugaring as well as maintenance and conservation of this irreplaceable living cultural resource. It is worth noting that the Summary Report of Cultural Resource Identification Efforts, Determinations of Eligibility, and Effects Determinations for the NorthMet Project, St. Louis County, Minnesota states that “the project would meet ambient air quality at the Mining and Plant Site property boundaries” and that commitment needs to continue to apply to the sugar bush site given the December 2016 MOA and even though the site needs to be fenced in order to protect this irreplaceable historic and cultural resource. • For the company and the agencies to move ahead with modeling under the assumption that no one will ever access this historic site is disingenuous and contrary to the express purpose and intent of the December 2016 MOA. 	
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COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
64	Air-02	<ul style="list-style-type: none"> • PolyMet improperly removed receptors from nearby sources outside its property and its model is flawed for this reason as well. In addition to failing to place receptors on its own property, PolyMet also removed receptors from nearby sources. This is discussed in a memo from Barr Engineering to the MPCA (dated January 3, 2018) (page 829 of the TSD Attachments). In discussing the removal of receptors from nearby sources, Barr argued that any nearby source can impact air quality on another nearby source, but not on its own land. If this is indeed the reasoning behind this action, is not supported by either MPCA nor the EPA guidance or policies. 	See response to Comment Number 3, above.
65	Air-02	<ul style="list-style-type: none"> • MPCA apparently, but improperly, approved the removal of these nearby source contributions from the model. As set out in the Overall Status of Results section of Attachment 7 (Class II Modeling Report), it is stated that “Second, on July 26, 2017, the MPCA Air Managers agreed to allow the Company to remove nearby source contributions from nearby source property, irrespective of whether public access was controlled or not, in recognition of a historical modeling practice. The MPCA Management approval was unique to this situation. The nearby source modeling practice described in this report will not be acceptable for any future cumulative ambient air quality dispersion modeling demonstrations.” There are a number of troubling phrases in this statement which undermine the MPCA approval. First, the statement that: “...irrespective of whether public access was controlled or not” suggests that the MPCA did not know or was not convinced that public access is truly controlled in this situation. Second, the statement suggests that the answer to that question didn’t (and doesn’t) really matter – although it does under the law. Third, the assertion that this “...was unique to this situation” does not address what factors made this situation unique amongst all of the air permits that are issued annually. Fourth, the statement that this “...will not be acceptable for any future...modeling demonstrations” simply proves that this approach is so unacceptable that it will never be repeated. MPCA does not describe what factors were considered in allowing this facility to take an approach at the MPCA so clearly disapproves of, and the removal of these nearby sources should not have been approved. 	See response to Comment Number 3, above.
66	Air-02	<ul style="list-style-type: none"> • This same report states that “For all pollutants, cumulative impacts were assessed on all neighboring properties with the impacts due to emissions from each neighboring facility excluded from the receptors within the facility’s property boundary” and claims that “This methodology is consistent with the EPA guidance on ambient air” See Overall Status of Results section of Attachment 7 (Class II Modeling Report). Because of the flaws in the way the NAAQS/MAAQS PM-10 modeling was conducted, we do not agree that “the only nearby source expected to potentially have significant overlapping impacts with the Mine Site is the Northshore Mine. We believe that the nearby source originally identified by the MPCA’s square root mean distance tool (TSD Attachments at page 867) will also impact the NAAQS/MAAQS. Proper modeling of these sources may indicate different locations for these monitors to be placed (see Section D1-2.1.3). Also, estimates of annual snow cover should reflect predictions for a warmer climate in the future. It is unclear whether this is the case. Snow cover will serve to reduce fugitive dust emissions. It is also unclear whether the wind rose used in modeling is appropriate for the changing climate. 	See response to Comment Number 3, above.
67	Air-02	<ul style="list-style-type: none"> • According to a conversation with a MPCA modeler, one of the nearby sources removed from modeling was an old stockpile left from the days of LTV operation at this site. Since this stockpile is not active, there is less chance of particulate being entrained from its surface than from an active stockpile. If work on this stockpile is started up again, the facility should re-model for NAAQS/MAAQS, Class 1, and Class 2 increment. This condition should be placed in the draft permit. 	See response to Comment Number 3, above.
68	Air-02	<ul style="list-style-type: none"> • Also the Overall Status of Results section of Attachment 7, states: “Lastly, in the event that a modeled exceedance is discovered on a nearby source property, it should be submitted with the modeling demonstration, along with a contribution analysis to determine if the Company is below the SIL (Significant Impact Level). If the Company is below a SIL value at the receptor(s) that exceed the applicable NAAQS, then the Company may complete their permit action. If the Company has modeled a greater than a SIL value at a nearby source receptor where a modeled exceedance exists, controls or limits may be necessary. The nearby source may also have obligations to reduce their contribution to the modeled exceedance.” The records provide with the draft permit do not indicate whether the MPCA has seen or has knowledge of any modeling that implies or demonstrates that emissions from PolyMet may cause or contribute to an exceedance at any nearby source receptor, for any criteria pollutant. This information needs to be provided. 	See response to Comment Number 3, above.

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
69	Air-02	<ul style="list-style-type: none"> • The Ambient Air Boundary Control Plan is not adequate. The facility is required to develop an Ambient Air Boundary Control Strategy- Implementation Plan. It appears that a proposed plan is submitted as part of the TSD Attachments (pages 1117-1151). This plan, and the draft permit at page 797, indicate that PolyMet has revised the Ambient Air Boundary so that includes part of the mine site and plant site from a smaller area called the “effective fenceline” extending to and beyond the property boundaries. See TSD Attachments at page 1138. The use of this “effective fenceline” is an improvement since it will require NAAQS/MAAQs compliance over a larger area, but it still has many of the same flaws as when the ambient air boundary was based on the property boundary lines. It incorrectly assumes that wetlands will prevent public access and therefore relies on wetlands as part of its “effective fenceline”. See TSD Attachments at page 1133. But as discussed above, wetlands are still publically accessible by canoe or kayak or, during the winter, by hikers, skiers, or snowmobilers. While some part of the “effective fenceline” would be fenced or gated, in other areas, control is to be done only by posting no-trespass signs and security patrols. As to these, the Plan is written in only general terms. It does not appear to set any specifics for the items it will contain. For example, there is no requirement set on frequency of patrols or even any requirement for PolyMet to set such a number. As a result, in addition to the error in defining the “ambient air boundary,” and without waiving our objection to the “ambient air boundary” used by PolyMet, the Plan itself is not sufficiently detailed to prevent public access. • According to page 208 of TSD Attachments, PolyMet is not required to report fenceline breeches to the MPCA unless six such breeches occur within a 12-month period. Only if a 6th breach occurs (and is observed) is the facility required to submit a report to the MPCA. Since the facility is not actually installing a fence that would fully surround the perimeter of the mine site and plant site, but is relying on wetlands, no trespassing signs, and security patrols, any draft permit should be revised to report all breeches to the MPCA. This will allow the MPCA to assess whether the so-called “effective fenceline” is truly effective or whether changes need to be made. • The draft permit (see page 56) would allow PolyMet to extend the “effective fenceline” outward toward property boundaries, as long as they notify the MPCA 30 days prior to making the extension. No details are given as to what factors would go into this decision nor what impact such an extension would have on the modeling performed for the facility. There is also no opportunity for input by the MPCA, the general public or other regulatory authorities. The draft permit should require a review and approval process, including a list of factors that would contribute to any decision by MPCA to approve this expansion, any modeling or monitoring that will be done with regard to this decision, and should require a public comment period before any decision to allow the change is made. • This proposed permit condition effectively extends the potential area of non-compliance to cover an even larger area than what is currently proposed. This provision indicates that PolyMet believes there may be a need in the future to address areas that cannot model or monitor compliance with the NAAQS/MAAQs or other standards. The ability to extend the “effective fenceline” outward at will also raises questions about how well-controlled this boundary really is. 	See responses Comment Number 2 and 20, above.
70	Air-02	Relief requested. For all of the reasons set out above, the draft air permit should not be issued until the ambient air boundary for the plant site and mite site is properly defined consistent with longstanding EPA requirements, and modeling done based on a proper delineation of the ambient air boundary which includes receptors both within PolyMet’s property and outside its property at nearby sources.	See responses Comment Number 2 and 20, above.
71	Air-02	<p>TSD Attachments, Attachment 7, Class II Modeling Report – Cumulative modeling</p> <ul style="list-style-type: none"> • This report also seems to address cumulative modeling (see Large Figures Q4-5 through Q4-13) (TSD Attachments at pages 818-826). However the spacing of the receptors for this modeling is not clear. An explanation is needed, as well as an explanation of how the protocol approved for this modeling compares to MPCA modeling guidance. If deviations from the guidance were made, a justification also needs to be provided. <p>TSD Attachments, Attachment 7, Class II Modeling Report (December 2017)</p> <ul style="list-style-type: none"> • In this report on the status of the Class II Modeling, MPCA, at page 802 of the TSD Attachments, Section 1, states: 	See response to Comment Number 3, above.

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		<p>“Large Figure Q4-11 Annual PM2.5 NAAQS presents findings for the 24-hour PM2.5 NAAQS rather than the Annual standard. The MPCA has reviewed the PM2.5 Annual NAAQS modeling files and concluded that the proposed facility will comply with the applicable standard; however, this figure should be remedied for the final air quality permit record.” The MPCA also shows the status of this as “Incomplete.” These statements are unclear and an explanation is needed to clarify what MPCA means and how the MPCA reached the conclusion that this requirement was met. In addition, since MPCA also states that “this figure should be remedied,” the corrected information needs to be provided and made available for public review and comment before any final decision is made on an air permit.</p>	
72	Air-02	Fiber Monitoring Plan	
73	Air-02	<p>Fiber Monitoring Plan</p> <ul style="list-style-type: none"> • The Fiber Monitoring Plan (TSD Attachments at pages 1496-1520), allows monitoring to be conducted “after operations begin at the Plant Site for a period to be determined”. TSD Attachments at page 1501. The Band believes that monitoring should be contingent upon operation of not only the Plant but also the Mine Site. Whenever operations begin at either site, monitoring should be conducted. • The draft permit contains provisions for fiber monitoring but doesn’t contain any criteria for how long monitoring will continue. See Draft Permit at page 64. There is no mention in either the permit or the TSD or TSD Attachments of how or whether monitoring can be discontinued. Instead, the plan simply leaves this “to be determined”. Therefore, there is nothing to stop the facility from ending the monitoring program at any time or from moving the monitor. The permit or the plan should either require that monitoring occur throughout the time that the mine or plant site are in operation, or should detail criteria under which MPCA might allow the discontinuance of the fiber monitoring. These criteria should be subject to public notice and comments. • The draft permit requires the facility to develop and implement an Ambient Fiber Monitoring and Quality Assurance Plan but does not require the facility to provide this plan to the MPCA. See Draft Permit at page 64. Thus, neither the MPCA nor the public will not have an opportunity to review the plan and address any deficiencies before monitoring begins. This lack of agency and public input makes this monitoring effort meaningless, as the results may be indefensible. • The draft permit does not require the facility to send fiber monitoring reports to the MPCA on any type of regular basis. The draft permit only says that the results must be provided to the MPCA within 30 calendar days of a request. This improperly shifts the burden on MPCA personnel, who are busy with other things. The facility should be required to report their findings to the MPCA within 30 days of receiving the results from the lab. These results should also be made known publicly and provided to the Minnesota Department of Health and University of Minnesota for their on-going fibers study. • The draft permit should also include action levels that would trigger further review or an examination of potential problems that may warrant a response to reduce or eliminate the problem. The information on page 131 of the TSD might help suggest some action levels, and the MPCA should use that information in consultation with the Minnesota Department of Health and the University of Minnesota which are engaged in on-going studies to develop action levels for these fibers which are incorporated into any air permit for this project. • The fact sheet title Fiber requirements in the PolyMet air permit, (found on the MPCA’s PolyMet website) dated February, 2018, states that the Special Purpose Monitors to be placed to measure particulate levels associated with fugitive dust will be used as a way to evaluate the effectiveness of particulate/fiber controls. Since the Special Purpose Monitoring Plan is deficient (see section below) it is not an acceptable means of evaluating whether fibers are being adequately controlled. 	<p>The Technical Support Document (TSD) contains information used to develop the draft permit as well as provide contextual information on the permit and is not enforceable. The proposed permit contains conditions requiring Fiber Monitoring is set to begin when either primary crusher (EQUI 1 or EQUI 2) commence operation because of the occurrence of fibers in the rock to be liberated during crushing activities, and the fibers will have potential to enter the air after this point. Additionally, any ambient fibers generated by operation of the Mine Site (blasting) are not likely to be detected by the fiber monitor due to the distance of the monitors from the blasting site. The proposed permit contains additional requirements which can be found at beginning at in 5.1.82 in the proposed permit.</p> <p>If the Permittee wants to make a change to the fiber monitoring requirements, they must submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Until then, the monitoring plan remains in effect.</p> <p>As part of the draft permit application submitted January 11, 2018, the Permittee submitted a draft Ambient Fiber Monitoring and Quality Assurance Plan. This plan is now included as an attachment to the TSD. The Permittee must follow the enforceable conditions listed in the proposed permit, including a condition which requires the Permittee to have a Plan on site and available for review upon request by MPCA.</p> <p>MPCA compliance and enforcement staff have the authority to request this data from the permittee at any time, and can include this request as part of a regular facility inspection. Information and data submitted to the MPCA is subject to and maintained according to the Minnesota Government Data Practices Act. Any person can submit a request to the MPCA to access public data for inspection or copying. Instructions and forms to make an information request are available on the MPCA website at, https://www.pca.state.mn.us/about-mpca/information-requests.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<ul style="list-style-type: none"> • Revisions should be made to the draft permit and PolyMet’s proposed monitoring plan to address these issues before any air permit is approved. 	<p>There is currently no established health based standard for fibers as defined in this permit. The MPCA retains the right to re-open the permit as new information becomes available regarding fibers and their implications for human health. The Permittee is required to maintain and follow a robust Fugitive Dust Control Plan (FDCP) to prevent fugitive dust from crossing their ambient air boundary. The MPCA relies upon the use of the FDCP and the associated monitoring and recordkeeping as a surrogate monitoring system for all particulate</p> <p>This comment is noted and its content is beyond the scope of the public notice for this permitting process. The scope for public comment was limited to the terms and conditions of the Draft Air Emissions Permit No. 13700345-101.</p> <p>The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. Fact sheets are beyond the scope of the public notice. The Permittee is required to install PM10 air quality monitors as an additional evaluation against fugitive dust emissions. Since fine particulate matter has been used as a surrogate for amphibole fibers, it is reasonable to infer controlling fine particulate matter will control amphibole fibers.</p> <p>The proposed Ambient Fiber Monitoring and Quality Assurance Plan can be found as Attachment 12.</p>
74	Air-02	<p>Special Purpose (PM-10) Monitors</p> <ul style="list-style-type: none"> • Permit requirements for PM-10 monitors start on page 66 of the draft permit. The Band’s first comment regarding these monitors is that an additional monitor should be placed beyond the ambient air boundary to protect the general public from excess emissions, especially given the very large amount of particulate emissions expected from this source and the inadequacy of the modeling performed. • The draft permit does not adequately address relocation of these special purpose monitors. The Special Purpose Monitoring Plan (TSD Attachments at pages 1454-1495), states that “PolyMet may elect to add additional monitors or periodically relocate monitors to further address seasonal variation in the prevailing wind direction and/or to address differences in the monitored PM-10 concentrations versus that were estimated by modeling.” Plan at page 5. The paragraph further states that “Periodic relocation of the monitors will be permissible because of their status as Special Purpose monitors.” The MPCA will review proposed monitoring sites and approve or suggest options, as MPCA staff finds appropriate. The Band disagrees with this approach. While these monitors are not intended to demonstrate compliance, past experience with mine sites has shown that fugitive emissions can exceed the NAAQS/MAAQS. While the MPCA may pre-approve monitoring locations, the decision of when and where to relocate a monitor is obviously made on a case-by-case basis and should not be treated by an “off-the-shelf” decision making process, as seems to be suggested here. There are no criteria listed for the source to evaluate to determine where the culpable emissions are coming from, nor is there any type of decision tree showing how that decision will be made. While potential sites can be identified ahead of time, some technical demonstration needs to be made to prove that a change in monitor location is likely to correctly identify the true source of excess emissions. While the MPCA is to be allowed the opportunity to review such a change before it occurs, MPCA approval is not required. The fact that very few provisions 	<p>The proposed permit contains requirements related to the Special Purpose Monitoring. Attachment 11 to the TSD (Special Purpose Monitoring Plan) was provided with the draft permit application as submitted by the Permittee. The proposed permit details the requirements by which the Permittee must demonstrate compliance. Some requirements include following an EPA reference method for operation of the monitors, install an on-site meteorological station, and develop a quality assurance and quality check plan. Additionally, the proposed permit contains multiple recordkeeping requirements as they pertain to location of monitors, data collected, laboratory analysis details, and specified root cause analysis details. It is reasonable to emphasize concern over the cumulative number of perceived 24-hr PM10 NAAQS violations prior to contacting the MPCA, it is important to reiterate that these monitors are not meant to demonstrate compliance with the NAAQS. They are intended to provide the Permittee real-time monitoring of PM10 concentrations located at the Mine Site.</p> <p>Appendix B to the Permit contains the federally enforceable Fugitive Emission Control Plans. These plans contain primary and contingent control measures, operating practices, and recordkeeping. The Permittee may use the information gathered from the Special Purpose Monitors to consider which types of control strategies identified in the FECPs to implement.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>regarding this process are included in the draft permit allows the facility to essentially move monitors around at will. The draft permit and the plan should require MPCA approval in advance for any such changes, and should detail criteria for considering such changes.</p> <ul style="list-style-type: none"> • Section D1-3.2 of the Monitoring Plan (TSD Attachment at page 1464) states that GIS tools will be used to identify candidate monitoring and meteorological sites. It is unclear exactly what tools are being referred to, or why previously performed modeling results would not be used for this purpose. Modeling results would be the most effective method of determining where peak emissions could expect to be found and the plan should be revised to do this. Without knowing what GIS tools the facility is proposing to use or how they are proposing to use them, no public input can be given on the adequacy of their use. • While Section D1-4.5 of the Monitoring Plan discusses the discontinuation of this monitoring program, it does not list any criteria the MPCA will use to determine whether it is appropriate to issue a permit amendment allowing the discontinuation of this program. This could apparently happen at any time for any reason. This issue is not addressed in the draft permit so it is unclear to the Band how the MPCA plans to deal with this situation in actuality. • The draft permit and Section D1-4.6 (Table D1-4-1) of the Monitoring Plan list proposed action levels whereupon PolyMet will review the monitoring data to evaluate the cause of elevated results and take action.; While the Band agrees that Action Level 1 (AL1) is a reasonable level for requiring some type of action, there really is no requirement that PolyMet do anything to address the situation if this level is reached. The Action uses words such as “Appropriate corrective action” and “if warranted” without defining these terms. There is also no reference to the Fugitive Emissions Control plan that the facility was required to write. It is unclear why this plan is not directly referenced and means that the facility doesn’t even have to consider it when deciding what action might be “appropriate” or “warranted”. Here too, the MPCA should define these terms, and require that the facility consider the Fugitive Emissions Control Plan when assessing what actions are appropriate or warranted. • The Band believes that the degree that the air quality is allowed to deteriorate between AL1 and AL2 is excessive. AL2’s associated “Action” also uses words such as “if warranted”, which have no given definition. • The Band is also concerned about AL3, which allows the 24-hour NAAQS for PM-10 (150 ug/m3) to be met or exceeded for 3 days before the MPCA is notified, and allows 60 days to pass with no further action other than performance of a root cause analysis. While a root cause analysis is an appropriate requirement, the facility should be required to implement items from its Fugitive Emissions Control (FEC) plan while this analysis is being performed. A time period of midnight-to-midnight is also specified for AL3, but not justified or explained. An Action Level at some percentage of the 24-hour NAAQS should be added as a more precautionary level so that emissions are not allowed to reach the level of the NAAQS before action is taken. The Band suggests 85% of the NAAQS as a better Action Level. • The draft permit and the Monitoring Plan also allow eight days of PM-10 concentrations at or above the NAAQS to occur on a 12-month rolling sum before a root cause analysis is performed. Again, although the FEC plan is mentioned, there is no firm requirement for PolyMet to implement actions from its FEC plan during this time. Further, there is no justification offered for allowing the facility to meet or exceed the NAAQS for this time period before such action is taken. Although a footnote is included, an examination of the instances that this footnote references shows that one is a Federal Land Manager management tool that is used to address visibility, not health based standards. The other use of the 98th percentile worst case day per year is used for PM-2.5, not PM-10. • In addition to allowing eight days’ worth of exceedences of the NAAQS per year, both the draft permit and the Monitoring Plan divide the potential sources of PM-10 emissions into five source groups and state that “If the 12- 	<p>The purpose of the monitoring equipment is to provide near-real-time feedback to the facility operators regarding the effectiveness of their emission control measures. The purpose is not to demonstrate compliance against the NAAQS. If monitored levels reach certain pre-determined levels, then the Permittee must take certain prescribed actions. If these levels are repeatedly reached, then the Permittee must perform a root cause analysis that assesses the reasons for the high levels and what will be done to ensure that fugitive dust levels remain below threshold levels in the future. As the commenters point out, the monitors are located within the ambient air boundary of the Permittee. The use of these air monitors and the placement of the action levels are intended to provide the Permittee another piece of information when determining the best strategy for fugitive dust control.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>month rolling sum number of days with action level events for a source type (italics added) equals eight, the Permittee shall conduct a root cause analysis...” This means that exceedences of the NAAQS will be allowed until it can be confirmed that the exceedences all come from one of the source groups before any real action is taken. This approach could allow up to 40 exceedences in a 12-month period before action is started. This is unreasonable, as the NAAQS do not allow for consideration of which source contributions are allowed to count toward violations and which are not. Relief requested: The draft permit and the proposed Monitoring Plan should be revised to address and cure the problems set out above with revised drafts made available to the public for review and comment before an air permit is approved.</p>	
75	Air-02	<p>Haul Roads and Plume Depletion</p> <ul style="list-style-type: none"> • Attachment 6 (TSD Attachments at pages 792-799 – MPCA memo) describes haul road dust control efficiencies, as estimated by the MPCA. This memo describes three different levels of effort in controlling dust and the corresponding control efficiencies that can be assumed for each level. PolyMet is proposing Level III-A and III-B plans, which assume 80% and 90% control of dust, respectively. • The draft permit should contain requirements to perform a “ground truth” analysis of road emissions and the control efficiencies that were assumed for these roads should be contained in the permit. The permit should contain requirements for evaluating the density and size fraction of the road dust, using ASTM and statistical sampling methods. This is a very important issue, as modeled compliance with the PM-10 NAAQS depends on the use of 80-90% control for haul roads. • On page 793 (TSD Attachments) the MPCA states “Companies will assess which of their road beds are overburden and which are taconite or waste rock and differentiate these for the purposes of modeling/permitting/inventory submittals so that the appropriate emission factor is used. By certifying inventory, modeling, and permitting submittals, the company is verifying the composition of road bed material and is certifying to the accuracy of this information. This supports the Band’s claim that the draft permit needs to be updated to require the submittal of this information. • In addition to including test provisions for road dust, the permit should also include a deadline for this analysis to be performed and reports sent to the MPCA, as well as action levels that would trigger re-modeling if the assumptions made regarding road dust control efficiencies cannot be supported by performance testing. The Band suggests that results showing more than a 10% variation in density and/or size fractionation should trigger re-modeling. The reports on these tests should be made public. • Page 795 of this document states that “Level III-A Plan – The following activities will be carried out and the following information will be provided for Level III-A Plan. Information for 1-3 will be updated annually with the emission inventory submittal...” Please address how these requirements are written into the draft permit, including what emission inventory is referenced and how often it is updated. • Section 1 of Attachment 7 at page 801 (Class II Modeling Report) states that “...future cumulative plume-depleted PM10 air quality dispersion modeling will be conditioned on the validation of plume depletion characteristics (particle size, particle density, particle fraction) through field assessment. Details of the field assessment approach will be included in the air quality permit.” However, no such requirement can be found in the draft permit. • Section 3.2.3 of the TSD states that “...if the predicted ambient impacts (including background) are less than 95% of the NAAQS or MAAQS and the facility maintains an appropriate and enforceable fugitive dust control plan, fugitive dust from paved roads need not be included in the modeling”. Since the Band believes that the PM-10 (and possibly PM-2.5) modeling for this source was done incorrectly (see Removal of Nearby Sources sections of this letter), we cannot agree 	<p>The proposed permit contains requirements for the Permittee to complete new baseline NAAQS modeling, see Comment #3. The proposed permit requires the Permittee to submit a protocol for MPCA review. During this review, the MPCA will confirm that the protocol follows the current version of the MPCA Air Dispersion Modeling Practices Manual. If the Permittee options to use a plume depletion or other non-default technique, then the modeling and permit team will review the protocol. In future cases where Method 1 Particle Analysis is proposed, the MPCA may elect to require site-specific sampling plans for the collection of particle distribution, specific gravity, and mass fraction of unpaved road material prior to acceptance of a modeling protocol. This is necessary to determine whether the base assumption to use Method 1 exists.</p> <p>The information as provided in the TSD and attachments is considered supporting material to the proposed permit. See response to comment 73. The Permittee must follow Appendix material to the permit.</p> <p>See comment 74 for discussion on Special Purpose Monitoring.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>that the modeled emissions are less than 95% of the NAAQS or MAAQS. Section 3.2.5 suggests using the results of the Special Purpose Monitoring Plan to confirm the effectiveness of the fugitive emission control measures. However, we have already commented, the Band finds issues with the effectiveness of the Special Purpose Monitoring Plan, including the potential for NAAQS to be exceeded up to 40 times before any action is taken. Although modeling assumptions can be further evaluated if the root cause analysis does not identify ways to lower emissions, there is no guarantee this would happen in a timely manner or that any changes would be made at all.</p>	
76	Air-02	<p>There are a number of requirements that are referenced in the TSD but that do not appear in the draft permit. These are:</p> <ul style="list-style-type: none"> • Page 58 of the draft permit requires modeling to be updated if there are any changes to autoclave emissions “upon initial start-up date”. This provision does not have any consequences in case of any modeled violations, but would allow the facility to continue to operate the autoclave indefinitely, even if any compliance issues arise due to changes in emissions. There is also no requirement for the AERA to be updated based on the results of this modeling, which could lead to issues with toxic or metals emissions. 	<p>The Permittee submitted as part of the draft permit application supporting information as they felt appropriate to develop a draft permit. The MPCA considered the information submitted, which also included draft versions of compliance plans, for example, Ambient Air Strategy Control Plan and Fiber Monitoring Plan. The Technical Support Document (TSD) is meant to help explain the rationale for the proposed permit. In some cases, attachments to the TSD are used to list out subject item inventories and in other cases they are used to provide additional context for site specific conditions, such as the draft plans mentioned earlier in this comment response.</p> <p>The Permittee must remain in compliance with the NAAQS. The Permittee is required to follow requirements listed in this proposed permit. The Permittee must demonstrate NAAQS compliance if the facility is required to remodel. The proposed permit contains recalculation of AERA assumptions if there changes to the emission estimates relied up for this proposed permit.</p>
77	Air-02	<ul style="list-style-type: none"> • Given the high public interest in this project, semi-annual and annual monitoring and deviation reports should be posted for the public to review. 	<p>Comment noted. The MPCA does not intend to post reports and submittals for this permit to its public website at this time.</p>
78	Air-02	<ul style="list-style-type: none"> • For fugitive emission readings, on page 73 of the draft permit, the reference of 40 CFR 60.675(c) should be 40 CFR 60.675(e). 	<p>Comment Noted.</p>
79	Air-02	<ul style="list-style-type: none"> • There appear to be discrepancies between the TSD and the draft permit as to during which months the facility may operate between 6:00 am and 6:00 pm. In the draft permit, these hours appear to be allowed only in the months of November, December, January, February, March and April but page 541 of the TSD Attachments allows these hours of operation in the months of April-October. 	<p>Comment Noted. The proposed permit limits operation hours during the months of November, December, January, February, March, and April. There is no restriction on hours of operation during the remaining months of the year.</p>
80	Air-02	<ul style="list-style-type: none"> • The TSD, Section 3.2.6 (page 119) contains Class II Remodeling Requirements based on emission rates that are 25% of the significant emission rate threshold. However, the facility should also remodel: if the road dust analysis shows more than a 10% variation in density and/or size fractionation; if autoclave emissions change; if the facility finds that control from road dust is less than 90%; if high levels are found through special monitoring of particulate matter. These conditions should be added to the draft permit. • On page 20 of the TSD, the facility is only required to remodel for Class I as part of the PSD program. The Band believes that the triggers for remodeling Class II impacts should also serve as triggers to remodel for Class I impacts. AERA • The deficiencies in PM-10 and PM-2.5 modeling that the Band has identified in this letter also call into question the validity of the AERA modeling. The Band maintains that the modeling for these two pollutants substantially underestimates their predicted concentrations. • Page 1370 of the TSD Attachments discusses nearby sources included in the AERA. It is interesting that the inventory used in the AERA is not the same as that used for PM-10 and PM-2.5 regulatory modeling. The AERA inventory included Mesabi Nugget (see page 1370, TSD Attachments), whereas Nugget was not included in the ambient air quality modeling done for PM-10 and PM-2.5 (see pages 829 and 867, TSD Attachments). PolyMet excluded Mesabi Nugget 	<p>The commenter proposes additional remodeling triggers. The proposed permit contains a requirement to remodel. Assumptions pertaining to density and particle size distribution will be addressed in the modeling protocol document. See response to Comment Number 3, above, for more discussion on Class II remodeling, and response to Comment Number 62, above, for discussion on Class I remodeling. Regarding AERA modeling, the commenter was correct in that the AERA and the Class II modeling nearby source inventories were different. The main reason for this is the disparate air pollutants assessed in the two analyses. A cumulative AERA was conducted for the NorthMet project. The goal of a cumulative AERA is to assess the full facility modeled air toxics, representative background measurements of air toxics, and nearby sources that were not accounted for in background measurements. Therefore, the nearby source inventory for the AERA included sources of air toxics pollutants that were not adequately reflected in the air toxics measurements. For example, crystalline silica was not included in the air toxics measurements because the MPCA ambient air network does not measure crystalline silica in this location. Therefore, this pollutant was included in the nearby sources to capture its potential human health impacts.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>from regulatory modeling because they believe that Nugget’s emissions are captured by the background concentration from the Virginia monitor. Please explain the discrepancy between these two emission inventories.</p> <ul style="list-style-type: none"> • The draft permit (page 47) gives the facility 60 months after permit issuance to “start construction of this equipment” and references Appendix F, which lists what seems to be the entire range of functions at the proposed facility. This is a deviation from the usual permit condition allowing a facility 18 months to construct. It is also inconsistent with the rules under which a permit becomes invalid if construction is not commenced within 18 months after the permit becomes effective. See 40 C.F.R. 49.155(b). The rules make limited exceptions. For example, a facility may request one 18 month extension of this deadline and must do so well in advance of the expiration date of the permit. • No justification is provided for the departure from the rule. • The departure from the rule is problematic because many of the assumptions, calculations, or models used in writing this permit could change over a period of five years. These include (but are not limited to): updates to the ambient air quality models used; updates to acceptable modeling protocols and the use of default settings in the models; control equipment performance; and AP-42 emission factors. The draft permit does not make allowances for any updates to be made in any of these areas if construction extends beyond the traditional 18 months. 	<p>40 CFR 49.155(b) is part of the Federal minor (NSR) program established by EPA which is a component of the Federal Implementation Plan that applies in Indian country. This Federal minor NSR program applies on all Indian reservation lands where no EPA-approved program is in place and all other areas of Indian country where no EPA-approved program is in place and over which an Indian tribe, or the EPA, has demonstrated that a tribe has jurisdiction (40 CFR 49.151(c)). PolyMet is not located on Indian reservation lands; therefore, the state of Minnesota has jurisdiction. Minnesota rules, including the rules that constitute Minnesota’s minor NSR program, do not include a deadline for starting construction. Nevertheless, the MPCA has included a 60-month deadline for starting construction in the PolyMet permit.</p>
81	Air-02	<ul style="list-style-type: none"> • The AERA certification on page 1371 is not signed. The instructions for the form state that the certification should not be signed until the AERA is completed and ready for submittal. Since the certification remains unsigned, it is unclear if this document should be considered complete. If it is not yet complete, it cannot be reviewed properly. 	<p>Thank you to the commenter. This was an oversight. The final signed version of this form has been attached to the TSD in Attachment 10.</p>
82	Air-02	<p>Thank you for your considerations of these comments. We urge the MPCA to take the steps needed to address the issues that we have identified and provide an opportunity for public review and comment on a revised draft permit. This is essential in order for the terms of any air permit for this project to be effective in protecting air quality and complying with the law.</p>	<p>Comment noted.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENTS
83	Air-03	<p>Nonetheless, under the provisions of the Minnesota Environmental Rights Act (Minn. Stat. Ch. 116B), we also make these comments to protect Minnesota’s air, water, land, and other natural resources from pollution and destruction. We comment here on the MPCA Air Quality permit to inform and notice MPCA, MDNR and responsible federal agencies of our identification of numerous illegalities identified in the Final Environmental Impact Statement (FEIS) that is the lawful basis for the Air Permit.</p> <p>The state agencies, the Responsible Government Unit MDNR and MPCA, use the FEIS to inform “permitting and approval processes and describes mitigation measures that may be available”;... ..federal agencies U.S. Army Corps of Engineers (USACE) and the US Forest Service (USFS) use the FEIS to evaluate “the potential to significantly affect the quality of the human environment” for their subsequent major federal action permitting and approval processes (FEIS, p. ES-3). The U.S. Environmental Protection Agency (USEPA) and the Minnesota Department of Health (MDH) also had critical roles in review of the FEIS. All of these agencies knew, or should have known, that this is the first copper/nickel/cobalt/ platinum group elements mine in Minnesota, and that this mine differs from other Minnesota and regional mines in many ways reasonably expected to be potentially significant for human and ecological health.</p> <p>These comments are in response to the Minnesota Pollution Control Agency (MPCA)’s PolyMet NorthMet Draft Air Permit announcement for comments January 31, 2018. The mine site is still not owned by the project proponent. The project proponent still has no legal right to construct facilities at mine site. The mine site is subject to legal decisions that put proposer’s access to the surface for the purpose of mining at risk. If this risk results in no access for PolyMet’s mining, this MPCA action for public comment would be a waste of time, money and resources, and so also would any further action by state agencies on permits. The same is true from the beginning of the project. If PolyMet does not obtain access to the surface of the mine property, this EIS has been a waste. Minnesota Department of Natural Resources (MDNR) should have seen this in February 2005 and stopped the project when the proposer laid the environmental assessment worksheet (EAW) information in its lap, and MPCA should also have seen this when it received its first completed Air Emissions Risk Assessment from PolyMet in February 2005 (PolyMet submitted its first AERA to MPCA in February 2005 as a part of the air permit process according to PolyMet’s Technical Report on the NorthMet Project, submitted to Securities Exchange Commission, Oct. 2006.)</p> <p>The people of Minnesota expect and deserve an excellent job of evaluating impacts on the human and ecological environment, and they did their parts in providing their scientific and knowledgeable reviews through commenting. Federal and state agencies are in legal violation when they ignored the substance of many of these comments.</p> <p>Since federal and state laws, rules or requirements are violated as described below, especially crimes under Uniform Code of Military Justice (UCMJ), then Minnesota cannot proceed with any permitting until such time as federal and state infractions, illegalities and/or crimes are adjudicated and remedied.</p> <p>The following violations of environmental laws and regulations by the Co-Leads and USEPA invalidate the FEIS and preclude issuance of any permits. Co-leads’ and EPA’s oversights, omissions and errors, irregularities, inaccuracies, incompleteness outright misuse and avoidance of environmental laws and regulations are described. We conclude the previous and following violations, alone or together, are so egregious that they constitute bad faith, waste, fraud and abuse in an effort to suppress knowledge of impacts and predetermine the outcome of the EIS. The regulation 40 CFR 1508.18 specifies that Major federal actions include the circumstance where the responsible officials fail to act and that failure to act is reviewable by courts or administrative tribunals under the Administrative Procedure Act or other applicable law as agency action.</p> <p>The commenter lists aspects of the EIS that are in violation of regulations. The commenter states that the violations show there is no basis to proceed with permitting.</p>	<p>The proposed permit is based on the Permittee’s certified application, submitted on January 11, 2018, and reflects state and federal laws, rules, and requirements, including the federally-enforceable permit conditions associated with the determination and maintenance of the ambient air boundary. Please refer the proposed permit, Technical Support Document and attachments, and responses to comments for additional information and justification related to protectiveness of air quality standards and public health. The state environmental review process concluded on March 3, 2016, when the Department of Natural Resources determined that the 2015 Final EIS for the proposed project and land exchange was adequate. Comments on the adequacy of the environmental review process are outside the scope of this permit action. The scope for public comment was limited to the terms and conditions of the Draft Air Emissions Permit No. 13700345-101.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENTS
		<p>The violations are included in the attachment pages 2-28.& Portions of the violations that specifically mention MPCA are delineated.</p> <p>Not providing many of the cited final documents forming the basis for the FEIS and MDNR Record of Decision for over a decade are also legal violations under the Administrative Procedure Act (APA), National Environmental Policy Act (NEPA), and associated agency-specific regulations governing the activities of the agencies responsible for the FEIS, for review of the FEIS, and empowered to act as safe-guards against state and federal malfeasance.</p>	
84	Air-03	<p>Violation: The MPCA failed to demonstrate in the FEIS that its AERA and other analyses adequately define air impacts, just as MDNR has failed to demonstrate that the Water Appropriations permits on which the Permit to Mine depends is protective of human health as demonstrated by the faults in the FEIS caused by Co-Leads' violations. Detailed violations follow.</p> <p>Therefore, the permit cannot be issued.</p> <p>Law/ Regulation /Policy/Violated: Minn. Stat. 103G.297(2).</p> <p>NEPA Sec. 101 (b) The policy is created to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;" and other objectives.</p> <p>40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.</p> <p>40 CFR 1502.22(b), Risk Assessment Guidance for Superfund, EPA/540//R-95/132, 1989; Framework for Metals Risk Assessment, EPA 120/R-07/001, March 2007; Background for NEPA Reviewers: Non-Coal Mining Operations, EPA/530/R-95/043, Dec. 1994; EIA Guidelines for Mining Environmental Impact Assessment Guidelines for NE Source NPDES Permits Ore Mining and Dressing, EPA 315R94 001x, Sept. 1994; Appendix B Potential Environmental Impacts of Hardrock Mining US EPA's Hardrock Mining Framework, EPA-833-B-97-003, on line.</p> <p>MPCA is using a tool that minimizes risks – either they are hiding risk information from the public or the preparers are not competent to identify the inadequacies of the tool for this complex new-to-the-state mining project. The use of this tool in making decisions for the Air permit is inappropriate; the Air permit should be based on a full HHRA using USEPA protocols.</p> <p>Violation: Cumulative health risks cannot be performed for property not owned by a project proposer because definitive access and boundaries are necessary for modeling. All this air emissions work is fiction until such time as final ownership of surface rights to the mine site are obtained from USFS. Therefore, permitting is not permitted or valid and should stop.</p> <p>According to USEPA staff, to apply for a permit and do modeling, the proposer must own or lease the surface to be able to plan facilities exactly.</p> <p>According to USEPA staff, a proposer cannot do modeling if the boundary is not known. USEPA has no guidance on modeling for a project where land is not owned or leased, with no identifiable boundary. In summary, EPA staff confirm that modeling of any type and permit modeling is not allowed in proposals until such time as the land surface and subsurface access is owned or leased.</p>	<p>See response to Comment Number 83, above, regarding the scope of public comment. The commenter states that a full human health risk assessment (HHRA) should be conducted. The MPCA AERA is a multi-pathway air toxics risk assessment process, which means it can be considered a full HHRA for air emissions from a facility. An AERA compares modeled air concentrations to inhalation health benchmarks to estimate inhalation risks, which are then scaled to ingestion risks based on the USEPA Human Health Risk Assessment Protocol, 2005 (HHRAP 2005). The MPCA AERA process analyzes additive risks, which means that individual pollutant risks are summed regardless of health endpoint or temporal exposure patterns. The MPCA AERA risk estimates were calculated assuming that people were not only exposed through inhalation pathways, but also included exposures from air pollutants that were deposited onto and taken up into soil, homegrown animal to meat production and homegrown vegetables. The USEPA and the Minnesota Department of Health reviewed the MPCA AERA process when it was developed in the late 1990s to ensure that the AERA process was comprehensive and adhered to USEPA risk assessment guidance. Since inhalation and ingestion, the full facility operation, and all potential air toxics pollutant emissions were considered, the MPCA AERA process is equivalent to a full HHRA for air toxics emissions. The commenter also asserts that an AERA cannot be performed before property ownership is final. An AERA is an information gathering exercise with the goal of assessing the maximum air toxics impacts on and beyond the owned and controlled boundary, based on the project as proposed. If final land ownership moves the proposed owned or controlled boundary closer to air emissions sources, then the MPCA will request an update to the AERA to assess potential changes to the impacts.</p> <p>Commenter also asserts that the Risk Assessment Guidance for Superfund, EPA/540//R-95/132, 1989 was not followed by the NorthMet project MPCA AERA process. The Risk Assessment Guidance for Superfund (EPA RAGS) is a multi-volume appendix directed to risk assessment for remediation decision making efforts, and is not specifically directed at air toxics risk assessment. In general, the MPCA air toxics program follows EPA risk assessment guidance from air program publications. The MPCA air toxics program will, however, look to EPA RAGS guidance if there is no guidance on a specific air toxics topic. For example, there is little guidance in how to estimate annual summaries for air toxics measurements to compare to inhalation health benchmarks. The MPCA AERA looked at comparisons of measurements and inhalation health benchmarks in order to address potential background risks in the cumulative AERA for the NorthMet project. In the cumulative AERA,</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENTS
			<p>the MPCA air toxics program compares inhalation health benchmarks to the annual 95% upper confidence limit of the arithmetic mean (UCL-95) of air toxics measurements. The UCL-95 is calculated rather than the mean in order to provide a conservative or health protective estimate of risks from existing air pollutants. We support the calculation of a UCL-95 rather than a straight mean by citing the RAGs documents. Therefore, the RAGs for Superfund are not explicitly followed because the MPCA AERA wasn't directed at a remediation site, however we do look for guidance from this program when it is lacking for air toxics.</p>
85	Air-03	<p>Violation: Co-Lead decisions and permitting based on the FEIS, its findings, and conclusions must be held unlawful and set aside because the FEIS is not in accordance with law due to the many significant violations of APA, NEPA, Clean Air Act (CAA), Council on Environmental Quality (CEQ) Code of Federal Regulations (CFR), and other laws, regulations and policies described below.</p> <p>Therefore, the permits cannot be issued. EAW, EIS, FEIS, and ROD deficiencies must be remedied before permitting can continue.</p>	<p>See response to Comment Number 83, above.</p>
86	Air-03	<p>13. Yet MPCA appears willing and ready to actually issue an Air Permit based on an assumption that PolyMet will own or lease the mine surface by "commencement of operations".</p> <p>14. The repeated assumption of future surface control from the beginning in the EIS process is tantamount to predetermination of the desired outcome by PolyMet, MDNR and MPCA.</p> <p>Overall, the air permit shall not be granted because the underlying basis for the air permit, the FEIS, has not met procedural and technical requirements, and, as noted in innumerable citizen comments most of which were ignored by co-lead agencies, is incomplete, inaccurate, and lacks integrity including scientific integrity. The FEIS is based on missing final certified risk analyses, missing final certified engineering analyses, missing proven expertise of subject matter authors, and missing surface lease or ownership rights with definitive boundaries for the proposed mine site. Agencies cannot permit a facility for which the project proponent lacks ownership, according to USEPA. In Minnesota, no right to surface access is obtained from the mining lease, particularly for land owned by the USFS under the 1911 Weeks Act.</p> <p>SCOPING</p> <p>Violation: Either MDNR violated MEPA's definition of project vs plan when it proceeded with the PolyMet NorthMet proposal EAW, or PolyMet violated it when it submitted the EAW information form for an EAW and did not specify that it did not own or control the surface rights to the mine, even if it thought that it had control through the lease which specified condemnation proceedings are available to it. MPCA also should not have acted on the AERA submitted to it in February and May 2005 for the same reason. <i>Minnesota for Responsible Recreation v. Dep't of Natural Res.</i>, 651 N.W.2d 533, 538 (Minn.App.2002) decided that the 116 C Subd. 7. Project definition was valid in requiring an activity "fixed in location." The 2013 appeals court decision, <i>IN RE ENVIRONMENTAL ASSESSMENT WORKSHEET</i>, 838 NW 2d 212 (2013), reaffirmed the 2002 definition deciding a Minnesota mine lease with no surface access is a plan, not a project qualified for an EIS. [The 2013 decision stated "{a} lease, without more, does not constitute a project triggering environmental-review requirements." Furthermore, under this decision, "The government's obligation to conduct environmental review under the MEPA is tied to the environmental changes that are contemplated by the government's action. Thus, the proper focus is not on what activity might be allowed to take place under the mineral leases, but on what activity is actually planned. As discussed above, there are no definite, site-specific environmental changes contemplated by the mineral leases. Rather, the leases transfer only the right to explore for and mine minerals from the state to the lessees, and future exploration and mining activities remain subject to the MEPA and the rules governing environmental review. Thus, we reject the analysis of the cited</p>	<p>See response to Comment Number 83, above.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENTS
		<p>cases, which would have the effect of requiring the DNR to conduct environmental review with respect to all parcels offered for lease—including those for which no bid was ultimately received—and to assume that the most extensive and invasive possible exploration activities would be undertaken on those parcels, even though past experience with mineral leases in this state suggests otherwise.”]</p> <p>Rules governing environmental review at the onset of the NorthMet project required more than a lease to constitute a project worthy of proceeding. The physical act of USFS-approved exploratory drilling does not constitute “more than a lease” because it does not provide surface access for mining and definition of boundaries.</p> <p>PolyMet submitted its AERA to MPCA AQ in February 2005. According to the EQB process, calculating back from the known public comment period end date, PolyMet submitted its EAW form information to DNR in late February. Item 5 of the scoping EAW is the project location – the mining area is identified as “Parts of Sections 1, 2, 3, 4, 9, 10, 11, and 12, Township 59 North, Range 13 West” but there is no clarification that surface access is not yet in place. In the EAW Project Overview PolyMet admits the proposal is “a plan that will be modified as information from various studies is developed during the EIS.” At the point of reviewing PolyMet’s EAW Information, MDNR failed to evaluate whether the NorthMet proposal was ready for a scoping EAW.</p> <p>Violation: The Co-Leads violated NEPA by not using all practicable means consistent with national policy, including following all NEPA requirements laid out in federal laws, rules, regulations, guidance and guidelines. In fact, federal agencies appear to have completely deferred to state agency’s lower performance standards without comment. In the scoping Minnesota Environmental Assessment Work Sheet (EAW) federally known as an Environmental Assessment (EA), the Co-leads adopted a summary of the MPCA air permit screening tool Air Emissions Risk Assessment (AERA). Although the MPCA’s AERA method is used for state permits and state EAW/ EIS scoping, the AERA method falls far short of the technical quality mandated by federal risk protocols.</p> <p>Law/ Regulation /Policy/ Violated: NEPA Section 101(b). Use all practicable means consistent with national policy to assure for all Americans, safe, healthful surroundings.</p> <p>40 CFR 1500.1 (b) The information must be of high quality with accurate scientific analysis.</p> <p>Minn. Stat 116D.02 “use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which human beings and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of the state’s people.”</p> <p>Violation: NEPA and MEPA, public processes, were not treated as such resulting in public documents (e.g. all AERAs) being held as private documents and meeting notes during scoping not being shared with the public. The first February 2005 AERA submitted to MPCA in February 2005 was not referenced in the Scoping EAW and was not made available to the public. How this affected the scoping process is unknown. The May 2005 AERA, not made available to the public, clearly influenced scoping; the scoping EAW included the (plant site) AERA summary and statement: “ impacts associated with air emissions, that are reasonably expected to occur from this project, do not have the potential for significant environmental or health effects.” <....></p> <p>Violation: In the draft scoping EAW, Co-Leads failed to independently evaluate and identify that the included summary of an AERA was produced under the MPCA-administered air quality permit action with the major effect that the Co-Leads accepted, without evidence of the complete report with calculations, the permit-based recommendation that air emissions would not have potential for significant impact, potentially prejudicing selection of alternatives by eliminating an alternative that might require more mitigation. If a complete HHRA were performed by a qualified preparer, it would show whether or not alternative(s) is sufficient.</p> <p>Law/ Regulation /Policy/ Violated: APA Sec. 10 (e) Court will hold unlawful agency action unsupported by substantial</p>	

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENTS
		<p>evidence. 40 CFR 1506.5 Agency shall independently evaluate/verify for accuracy the information, issues, scope, content of EAW and EIS. 40 CFR 1506.1, No action (e.g., permitting) in EIS Agencies shall commit resources prejudicing selection of alternatives. 40 CFR 1508.18(4) defines actions with effects that may be major and which are potentially subject to federal control and responsibility that are not allowed during the EIS, including permit or other regulatory decision.</p>	
87	Air-04	<p>Dear Commissioner Stine, I live northwest of PolyMet’s proposed mine site, in western Cook County. I ask you not to issue the air quality permit for NorthMet. We who live downwind from the proposed mine sites think about what would be blowing our way. Emissions that can be captured would be inconsistently and incompletely filtered or treated, but not so the fugitive emissions rising from the various operations sites and roads between. They would contain arsenic, cadmium, lead, mercury and probably those asbestos-like fibers that have caused such misery and expense, and there is no way to ensure they won’t enter the environment.</p> <p>The fugitive emissions control plan lists remedies like sprinkling water on gravel roads and containment basins, which would help. But there would be circumstances and conditions when that wouldn’t be enough. If you watch a mining operation you’ll see great explosions of debris from blasting, a dirty look to the horizon, clouds of dust above roads, and the belching diesel exhaust from heavy equipment and trucks. As much as ¼ of that would settle on adjacent vegetation, rivers and streams, contributing to their burden of pollution, and the rest would be carried by the wind to fall out across the forest and human communities.</p>	<p>The focus of the Minnesota Pollution Control Agency Ambient Air Quality Dispersion Modeling was an evaluation of modeled compliance for the applicable National Ambient Air Quality Standards (NAAQS). The focus of the air toxics modeling (AERA) was an evaluation of modeled air concentrations in comparison to inhalation health benchmarks.</p> <p>The Minnesota Pollution Control Agency (MPCA) uses five years of meteorological data that includes wind speed and wind direction, from the Hibbing, Minnesota Automated Weather Observing System (AWOS) site. The data is collected and processed as hourly values for use in the regulatory ambient air quality dispersion model, AERMOD. As a result, the northwest prevailing winds as measured at the Hibbing, Minnesota, AWOS site, are included in the PolyMet ambient air quality modeling demonstration and the AERA.</p> <p>The meteorological conditions that result in inversions was included in the Modeling demonstration for the PolyMet project. The results of the Modeling demonstration indicate that the proposed PolyMet project would comply with the applicable ambient air quality standards even under meteorological conditions that result in inversions.</p> <p>The Permittee is required to follow federally enforceable Fugitive Dust Control Plans, see comment 16.</p>
88	Air-04	<p>Recent studies in Cook County have found airborne pollutants in remote lakes that must have originated hundreds of miles away. Older studies document decades of air pollution. If toxic particles from the Polymet Northmet operation fall across the forest - as they will if you permit it, they wouldn’t be alone – there would be cumulative impacts to the health of forest ecosystems. Mining would add a new stress to a forest system already stressed by climate change, non-native invasive species, a disrupted fire regime, and so on. Apparently you think that simply listing conditions and requiring PolyMet to self monitor and report would preserve our air quality.</p> <p>I’m one of many citizens who have no faith at all that this will work. Look at Minntac’s variance request. They want to continue to pollute to the degree to which they’ve become accustomed – over the decades. No state agency has stopped them. Minntac is in a different category of the mining industry than NorthMet, but it’s a great example of the shameful behavior all these companies tend to engage in: This is a predatory delay - a strategic, deliberate dragging of the feet when it comes to meeting obligations, keeping promises, and following the law, with the sole purpose of maximizing profits for as long as possible – while preying on others who will have to foot the bills and clean up the mess – that is, we citizens and our descendents. There is a long and well-documented record of sulfide ore copper-nickel mining that predicts that we should expect the same behavior from PolyMet.</p>	<p>Comment Noted. The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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		<p>I didn't find anything in the draft permit that convinced me otherwise. The state's failure to enforce sulfate standards is another example of unreliable or nonexistent enforcement that gives a clear warning that regulations on the books don't mean no pollution in the air and on land and waters. It's discouraging when environmental standards in laws and permits aren't enforced – and when agencies that are meant to be about land stewardship enable a proposal like PolyMet's to get so far.</p> <p>But the wildlife, the forests, the traditional land uses, the clean waters and fresh air and our descendants that would be hurt so badly by this kind of mining are so precious to us that we have to persevere, and ask that even at this late stage you thoughtfully consider the many unresolved problems with NorthMet, and deny this permit. Thank you for the opportunity to comment. Sincerely, Ellen Hawkins</p>	
89	Air-05	<p>PolyMet Mining, Inc. (PolyMet) is proposing to develop the NorthMet copper-nickel- gold/platinum-group metal mine and associated processing facilities in northeastern Minnesota for the NorthMet Project (Project). The Project area includes the Mine Site, Plant Site, and the Transportation and Utility Corridors. The Mine Site is located approximately 6 miles south of the City of Babbitt and directly south of the Peter Mitchell Mine, which is an active taconite/iron mine. The Plant Site is located southwest of the Mine Site at the former LTV Steel Mining Company taconite facility, which PolyMet purchased from Cliffs Erie LLC.</p> <p>The air permit action for the Project is an initial Part 70 Permit. Limits on emissions and throughput were established in this permit to prevent the facility from being classified as a major source under New Source Review (NSR). If permit limits were not established the Project would be classified as a major source under NSR, a Class I area analysis would be required to quantify impacts at nearby Class I areas (e.g. Voyagers National Park and the Boundary Waters Canoe Area Wilderness - BWCAW). Nevertheless PolyMet completed a Class I area analysis, as part of a mitigation commitment made during the environmental review process, to show the emissions from the proposed PolyMet operations will not adversely impact any Class I areas.</p> <p>The original evaluation was completed as part of the environmental review process, and updated and verified as part of preparing the draft air permit.</p> <p>The Supervisor of the Superior National Forest is the Federal Land Manager for the BWCAW. She has “an affirmative responsibility to protect air quality related values (including visibility) of such lands and to consider, in consultation with the Administrator (Minnesota Pollution Control Agency - MPCA and Environmental Protection Agency - EPA), whether a proposed source or modification will have an adverse impact on such values” [40 CFR 52.21(p)(2)]. We reviewed the air permit application submitted to the MPCA, and the draft air permit and technical support document (TSD) for the Project. Our comments are below.</p> <p>Class I Area Analysis</p> <p>The Class I area analysis covered:</p> <ul style="list-style-type: none"> • Class I increment, • Acidic effects of sulfur and nitrogen on terrestrial and aquatic ecosystems, and • Visibility impacts. <p>The visibility results were the most notable. The analysis showed a change of 4.94-4.98% in visibility. Our concern threshold is greater than 5% (see, https://www.nature.nps.gov/air/Pubs/pdf/flag/ FLAG_2010.pdf). Information from the Final Environmental Impact Statement (EIS) was used by the MPCA in conjunction with the permit application to inform the permit. The Final EIS identified several commitments specific to air quality that were addressed as part of the air permit. These mitigation commitments were used in the Class I area modeling</p>	<p>Class I areas are of special national or regional scenic, recreational, natural, or historic value and are provided special air quality and visibility protection under the Clean Air Act, through the Prevention of Significant Deterioration (PSD) permitting program. PSD permitting regulations apply to sources whose emissions exceed the Clean Air Act, New Source Review (NSR) major source threshold. Under the Clean Air Act, air quality related values (AQRVs), such as a specific scenic, cultural, physical, biological, ecological, or recreational resources are established for the Class I area's unique attributes. Depending on its proximity to a Class I area, a facility obtaining a PSD permit, may be required to perform Class I dispersion modeling to identify air quality and visibility impacts to the Class I area, and to demonstrate that the project will not adversely affect any Class I AQRVs. The MPCA is responsible for administering the PSD program and ensuring that AQRVs are protected within the state. Class I areas in Minnesota include the Boundary Waters Canoe Area Wilderness and Voyages National Park. Other nearby Class I Areas include Rainbow Lake Wilderness in Wisconsin and Isle Royale National Park in Michigan.</p> <p>PolyMet has taken restrictions on emissions and operations that limit annual emissions from the facility to below NSR major source threshold, and is therefore considered a synthetic minor source. As such, PolyMet is not seeking a PSD permit for the NorthMet project and is not required under federal or state law to complete Class I modeling. However, PolyMet completed Class I dispersion modeling as part of the 2013 Supplemental Draft Environmental Impact Statement. Because of the environmental review process, the Permittee committed to mitigation limiting potential impacts to visibility in Class I areas. The permit application included the following updated Class I dispersion modeling: an acid deposition impacts analysis, a visibility impact analysis, and increment analysis for PM10 (24-hr and annual), NO2 (annual), and SO2 (3-hr, 24-hr, and annual), which looked at impacts to the AQRVs in Class I areas located near the project. The results of these analyses and further explanation is found in the TSD in section 3.3. Operating restrictions specific to the Class I modeling were incorporated as permit limits to this permit. These measures include: limiting the emissions from mobile sources; upgrading the insulation in the existing Crusher and Concentrator buildings; utilize low-NO_x space heating equipment; use of Tier IV certified engines for any mining fleet equipment; use of efficient gen-</p>

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		<p>demonstration and resulted in unique conditions as part of the permit. The individual items included:</p> <ul style="list-style-type: none"> • limiting the emissions from mobile sources, • upgrading the insulation in the existing Crusher and Concentrator buildings, • utilize low-NOX space heating equipment, • use of Tier IV certified engines for any mining fleet equipment, • use of efficient gen-set locomotives, • reducing dust collector exhaust for heating demand reductions, • use of pollution control equipment, and • use of fuel in their mobile equipment with a sulfur content not to exceed 15ppm. <p>Because of the very small margin between the modeled visibility impact and our concern threshold, it is important that PolyMet stays in compliance with the permit conditions associated with these items. Any non-compliance would jeopardize the model results and assumed impacts.</p> <p>Since the visibility impacts are so close to our visibility threshold, we would like to see the permit contain Class I remodeling language that is related to the margin in that analysis. There was remodeling language in previous drafts of permit terms for the Project. The criteria used for Class II remodeling is not appropriate because it does not take into account any site specific criteria as suggested by the MPCA (see section 4.4 of MPCA Air Dispersion Modeling Practices Manual, October 2017). The key pollutants in the Class I analysis (such as sulfur and nitrogen) are different than the Class II analysis.</p> <p>Caring for the Land and Serving People Printed on Recycled Paper</p> <ul style="list-style-type: none"> • Visibility impacts. <p>The visibility results were the most notable. The analysis showed a change of 4.94-4.98% in visibility. Our concern threshold is greater than 5% (see, https://www.nature.nps.gov/air/Pubs/pdf/flag/ FLAG_2010.pdf). Information from the Final Environmental Impact Statement (EIS) was used by the MPCA in conjunction with the permit application to inform the permit. The Final EIS identified several commitments specific to air quality that were addressed as part of the air permit. These mitigation commitments were used in the Class I area modeling demonstration and resulted in unique conditions as part of the permit. The individual items included:</p> <ul style="list-style-type: none"> • limiting the emissions from mobile sources, • upgrading the insulation in the existing Crusher and Concentrator buildings, • utilize low-NOX space heating equipment, • use of Tier IV certified engines for any mining fleet equipment, • use of efficient gen-set locomotives, • reducing dust collector exhaust for heating demand reductions, • use of pollution control equipment, and • use of fuel in their mobile equipment with a sulfur content not to exceed 15ppm. <p>Because of the very small margin between the modeled visibility impact and our concern threshold, it is important that PolyMet stays in compliance with the permit conditions associated with these items. Any non-compliance would jeopardize the model results and assumed impacts.</p> <p>Since the visibility impacts are so close to our visibility threshold, we would like to see the permit contain Class I remodeling language that is related to the margin in that analysis. There was remodeling language in previous drafts of permit terms for the Project. The criteria used for Class II remodeling is not appropriate because it does not take into account any site specific criteria as suggested by the MPCA (see section 4.4 of MPCA Air Dispersion Modeling Practices Manual, October 2017). The key pollutants in the Class I analysis (such as sulfur and nitrogen) are different than the Class II analysis.</p>	<p>set locomotives; reducing dust collector exhaust for heating demand reductions; use of pollution control equipment; and use of fuel in their mobile equipment with a sulfur content not to exceed 15ppm.</p> <p>The MPCA notes the commenters concern regarding impacts to Class I areas specifically the PM10 increment. The proposed permit has limitations on sources for PM10, including, fugitive emissions generated from unpaved roads, and fuel use restrictions for light duty and haul trucks. The Permittee is required to follow the Fugitive Dust Control Plan for the Mine and Plant Sites. The Plan in its entirety is federally enforceable as it is an appendix to the permit.</p>

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90	Air-05	<p>Public Posting of Key Permit-Related Reports</p> <p>Because permit-required reports are generally not readily available and because this project has generated the most public interest of any air permit in state history, we ask that you post the following reports to the PolyMet air permitting website:</p> <ul style="list-style-type: none"> • performance test results, • changes made to monitor locations, • changes to the location of the effective fenceline, • semiannual monitoring reports, • semiannual deviations report, and • annual compliance certification. <p>Information in these reports ties directly to assumptions made in the modeling and therefore the assumed impacts to air quality.</p>	<p>Comment noted. The MPCA does not intend to post reports and submittals for this permit to its public website at this time.</p>
91	Air-06	<p>Thank you for providing the opportunity to comment on draft air individual permit 13700345-101 for the Poly Met Mining, Inc. (PolyMet) NorthMet project. PolyMet appreciates the significant time and effort the MPCA has dedicated to this draft permit and PolyMet supports issuance of the permit. The following are PolyMet’s specific comments:</p> <p>Mercury</p> <p>Superior NF staff have participated for nine years on the MPCA Oversight Board for implementation of the statewide mercury total maximum daily load (TMDL) program. The TSD states that the taconite plants have successfully piloted mercury controls. The Oversight Board has an update from the taconite industry at every meeting and we believe that this information has not been presented. Please provide more information regarding the pilot projects referred to in the TSD.</p>	<p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period. Please make an information request following the instructions and forms as available on the MPCA website at: https://www.pca.mn.us/about-mpca/information-requests for information regarding the pilot projects referenced.</p>
92	Air-06	<p>1a. Emissions downstream (in terms of process flow) from the Rail Transfer Hopper do not rely on the modeling-based limitation of the Rail Transfer Hopper to ensure the facility remains a synthetic minor PSD source. Emissions from the crushing and concentrating facilities (Crusher/Concentrator) were determined by calculating the airflow required to collect the dust from the equipment operating at maximum design capacity and assuming a PM, PM10 and PM2.5 concentration in the air exiting the dust collectors equivalent to the performance specification for the dust collectors of 0.0025 grains per dry standard cubic foot. The permit establishes a mass emission rate limit based on the calculated airflow and the dust collector performance specification for PM, PM10 and PM2.5. These limits are included in the draft permit for each stack or other dust collector exit point in the Crusher/Concentrator.</p> <p>b. The maximum design capacity for the equipment in the Crusher/Concentrator is shown in the attached Figure 1. There are two general categories of equipment shown on the figure: 1) existing equipment from the former LTV Steel Mining Company (LTVSMC) taconite processing operation (blue symbols) and 2) new equipment to be installed specifically for the NorthMet Project (red symbols). The design of the upgraded dust collection systems for former LTVSMC equipment is based on the maximum design capacity of the equipment as it was operated by LTVSMC. As shown on Figure 1, the new equipment was designed to handle, with allowances for short term feed variations, the ore throughput associated with the mine plan.</p> <p>c. All modeling conducted for the Crusher/Concentrator was based on the airflow as calculated for the maximum design capacity of the equipment, assuming emissions at the controlled potential to emit for 8760 hours per year. Emissions calculations performed to show the facility qualifies for a synthetic minor permit were conducted in the same manner. No throughput restrictions or reductions in operating hours or emissions were included in the calculation of the controlled potential to emit.</p>	<p>The averaging time for synthetic minor limits are well established through various EPA guidance memoranda and EPA responses to Title V petitions. Those memoranda and decisions make clear that synthetic minor limits may be extended up to a 12-month rolling average if the units or process has the potential for unpredictable variability.</p> <p>Synthetic minor limits are required to be enforceable as a practical matter. Proposing the use of an initial stack test and then the uncertain frequency of future stack testing does not provide adequate or reasonable assurance for compliance with a synthetic minor limit.</p> <p>Through review of the permit application and supporting information, the MPCA concluded that emission calculations for the crushing and concentrating facilities were not properly conducted in determining potential to emit (PTE). The MPCA recalculated the potential to emit for EQUI 1-92 using equipment capacities and emission factors from AP-42 Section 11.23 for emissions of particulate matter, except where applicable factors do not exist in 11.23 for the described unit. In those cases, such as fines screening, emission factors from AP-42 Section 11.19.2. The MPCA remained consistent with the assumptions used by Polymet, PM10 and PM2.5 were assumed to equal PM. Speciation of elemental constituents of PM are calculated using Polymet’s fractional analysis from the 2005 pilot study. Emission calculations for EQUI 104-107 are based on emission factors from AP-42 Section 11.24, Metallic Mineral Processing using the high</p>

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		<p>1. The draft permit includes an annual ore processing limit at the Total Facility Level (TFAC 1) of 11.68 million tons per year (Permit Term 5.1.39 with associated monitoring and record keeping under Permit Terms 5.1.40 and 5.1.41). The cited regulations for this limit include 7009.0020-0090 (Minnesota and national ambient air quality standards) and a Title I Condition to avoid major source status under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000. PolyMet suggests this limit is unnecessary, but if it should be applied, it should be applied to the operations at Rail Transfer Hopper (FUGI 17 and/or FUGI 18), and the Title I condition should be removed. The basis for the limit would then be limited to the assumptions made in the Class II dispersion modeling, which included an annual throughput of 11.68 million tons at the Rail Transfer Hopper and citation to Minn. R. 7009.0020-0090 would remain. It is not necessary to have this limit at the Total Facility level or to have it as a Title I synthetic minor limit to avoid major source status under 40 CFR Part 52 for the reasons described below:</p> <p>d. The draft permit requires that stack testing be conducted on each stack and/or control equipment outlet in the Crusher/Concentrator for PM, PM10 and PM2.5 to show compliance with the emission limitations in the permit. The operating throughput for each piece of equipment tested will be recorded during the performance test and future operation of the equipment will be potentially limited by the throughput during the stack test per Minnesota Rules 7017.2025. The pressure drop across each dust collector will also be recorded during the stacks tests.</p> <p>e. PolyMet is required by the permit and/or applicable regulations to keep operational records including process throughput and dust collector pressure drop as ongoing demonstration that the facility continues to be operated consistent with the permit limits. Each dust collector in the Crusher/Concentrator will also be equipped with a bag leak detector to provide additional indication of any need for corrective action on the dust collector. Any required corrective action will be conducted consistent with the Operation and Maintenance plan required by the draft permit for the pollution control equipment.</p> <p>The comment attachment file includes a figure: Figure 1 Plant Site - Crushing Flotation</p> <p>f. Based on the paragraphs above, the permit provides sufficient ongoing demonstration that the facility will meet appropriate synthetic minor permit limitations without a Title I limit on ore processing throughput at the Total Facility level. Again, as noted above, these downstream emission units are limited appropriately in a manner unrelated to the capacity of the Rail Transfer Hopper. The Crusher/Concentrator sources have independent limitations that are adequately and appropriately enforceable. PolyMet requests that the limit be modified to remove the Title I condition and that the applicable sources be limited to those at the Rail Transfer Hopper (i.e. FUGI 17 and/or FUGI 18). The associated monitoring and recordkeeping requirements are appropriate, but should also be listed under the Rail Transfer Hopper source or sources with the same requested removal of the Title I synthetic minor citation as provided for the limit itself.</p>	<p>moisture assumption (≥4% moisture) for PM and PM10 because materials handled by these units have gone through wet processing. Emissions of PM2.5 are calculated based on emissions of PM10 using the aerodynamic particle size multiplier in AP-42, Page 13.2.4-4. Speciation of elemental constituents of PM are calculated using Polymet’s fractional analysis from the 2005 pilot study.</p> <p>The revised PTE calculation demonstrates that at design capacity, the proposed facility exceeds the PSD threshold for PM (250 TPY). The MCPA then applied the total facility synthetic minor limit of 11.68 million tons of ore processed on a rolling 12 month basis to the crushing and concentrating facilities (EQUI 1-92, 104-107). With application of this synthetic minor limit, the total facility emissions remain below the PSD threshold for PM. Summarized calculations are found as an attachment to this response.</p> <p>The emission limits referenced by the commenter are a result of NAAQS compliance modeling based upon a flawed method of calculating potential to emit. The MPCA compared the emission rates modeled for the 24-hr PM10 and PM2.5 NAAQS modeling to those based on the recalculated limited potential to emit and concluded that emissions rates modeled remain conservative. When the facility remodels for these pollutants, the Permittee will provide updated emission rates as part of the proposed protocol.</p> <p>As a result of comments received, the MPCA also added the total facility throughput limit to be calculated on a 12-month rolling basis to be monitored at the SAG Mill Feed Belt (EQUI 56). Ore moves through the crushing facility as a semi-batch process with very minimal storage opportunities. The proposed permit does not contain permitted storage piles within the crushing operations. The facility will then be bound by the belt scale monitoring in the beginning and of the crushing process to monitor throughput.</p>
93	Air-06	<p>2. The draft permit has separate limits for mobile sources for NOx, SO2 and PM10 that are unnecessary, provide no additional environmental benefit and reduce operational flexibility. (Permit Terms 5.1.60, 5. 1.61 and 5.1.62). These limits apply to: 1) Ore Haul and Switcher locomotives, 2) Mine Fleet Mobile Sources and 3) Tailings Basin Construction Mobile Sources. The separate limits for NOx and SO2 should instead be a combined limit with a separate limit for PM10.</p> <p>The items below provide further support for this proposed change:</p> <p>a. Magnitude of Emissions – NOx has by far the highest daily emissions rate and drives the Class I analysis. All mobile sources included in the Class I analysis will use ultra-low-sulfur diesel fuel (<= 15 ppm sulfur) per the draft air permit</p>	<p>The MCPA acknowledges the basis for the requested change. The proposed permit now contains limits combining NOx and SO2 as requested. The updated requirements are identified in an attachment to the TSD, Attachment 13.</p>

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		<p>requirement, so contribution from SO2 as a byproduct of diesel fuel combustion is minimal. *Refer to attachment file to view the table with data.*</p> <p>e. SO2 emissions are only a function of diesel fuel sulfur content and fuel usage, so a separate SO2 limit is functionally equivalent to a fuel usage limit, which effectively places a second restriction of fuel usage that is unnecessary considering the other requirements imposed on the diesel- powered equipment.</p> <p>f. The Minnesota Ore Operations - Keetac Air Emission Permit No. 13700063-5 has combined NOx and SO2 emission limits for mobile sources. Per the Keetac permit TSD: “The NOx and SO2 emission rates have been combined into one emission limit in this case due to the similar atmospheric transport, transformation and visibility impact characteristics between the two; insignificant amount of SO2 emissions in comparison to NOX (0.30 lbs/hr of SO2 compared to 397.40 lbs/hr NOX); and the minute amount of potential variability in emission rates between the two, bounded by a backstop limit on the fuel sulfur content.” Those same rationales apply here.</p> <p>g. Removing these unnecessary flexibility barriers by instituting a combined limit for NOx and SO2 makes it easier for PolyMet to purchase more environmentally beneficial equipment.</p> <p>b. Nature of Emissions: both NOx and SO2 are gaseous pollutants that form ammonium compounds in the atmosphere, which can affect visibility. These pollutants show similar dispersion and undergo similar chemical reactions in CALPUFF using the MESOPUFF II chemistry methods, both limited by the availability of NH3 in the atmosphere. In general, NH3 not converted to sulfate (preferentially scavenged) is available for conversion to nitrate. Given their common limitation on conversion, it is appropriate to group them together.</p> <p>c. Per the IMPROVE visibility calculations implemented in CALPOST, the ammonium compounds that NOx and SO2 convert to in the atmosphere have the same weighting factors and they share Relative Humidity-based adjustment factors in CALPOST, so NOx and SO2 derived compounds would be expected to have the same potential contribution to visibility degradation.</p> <p>d. Tailpipe emissions of some AERA pollutants (e.g. PAHs) are independent of the vehicle criteria pollutant emissions. The use of additional fuel as allowed by the purchase of lower emitting vehicles and a combined NO2 and SO2 limit could potentially increase emissions of some AERA pollutants from vehicle tailpipes. However, permit condition 5.1.71 addresses that concern by requiring PolyMet to calculate and record the total monthly fuel usage in the locomotives, Mining Vehicles and Tailings Basin Construction Equipment and calculate the 12-month rolling sum diesel fuel usage. Permit condition 5.1.72 requires PolyMet to recalculate the AERA results if the calculated 12-month rolling sum diesel fuel usage is greater than the value assumed in the emissions inventory (4,507,527 gallons).</p>	
94	Air-06	<p>3. The draft permit has a limit on the pH range for TREA 52 of 5.0 to 6.0 (Permit Term 5.337.14). This control device is a packed bed scrubber, which is the second stage in the Autoclave emission control system. The design for this scrubber does not call for caustic addition to control pH; scrubber chemistry can be maintained replacing a portion of the recirculated water with fresh water. Therefore, a pH limit is not appropriate for this control device.</p> <p>4. The draft permit identifies a limit on the pH range of 5-6 on TREA 53 (Permit Term 5.338.11) – PolyMet feels that a minimum pH value is more appropriate, as the removal efficiency of the gas phase pollutant controlled by this scrubber (SO2, H2SO4, H2S) generally increases with higher pH. Therefore, the permit should specify a minimum pH of 5.0. This value can be adjusted as indicated by the manufacturer’s recommendations and/or the performance testing on the scrubber as described in the draft permit.</p>	<p>Comment noted. The MPCA did not make this requested change. The proposed permit contains the pH ranges for TREA 52 and TREA 53 as they were listed in the draft permit.</p>

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENTS
95	[BLANK]	NO COMMENT NUMBER 95; NUMBERING ERROR	[BLANK]
96	Air-06	<p>c. The FUGI 1 VMT limit (Permit Term 5.206.2) for “Light and Medium-Duty Vehicles” should be 389 vmt/day. This is a result of the summation of the following vehicle miles traveled as indicated by the previously submitted emission inventory: (258 (light trucks) + 22.2 (fuel tankers) + 22.2 (blasting material trucks) + 86.9 (Lime Trucks)).</p> <p>d. The FUGI 5 VMT Limit (Permit Term 5.209.3) does not include bentonite hauling. This VMT limit should be inclusive of this as indicated in submitted emission inventories and as shown by the following: 9427 (dam/buttress construction) + 59.2 (bentonite hauling) = 9486.2.</p> <p>e. Pan conveyors EQUI 21, 22, 23 and 24 vent to TREA 9. EQUI 24 was omitted in permit condition 5.294.1 (note: a flow arrow was missing on the GI-02 drawing submitted with the permit application).</p> <p>f. TREA 42 also controls EQUI 80 (permit condition 5.327.1).</p> <p>g. The FUGI 26 (Mine Haul Roads) – permit conditions 5.230.8 and 6.205.1 refer to material handling record keeping and reporting. They should refer to VMT reporting as that is the parameter tracked for the Mine Haul Roads.</p> <p>h. Permit Term 5.1.6 has an incorrect reference to 40 CFR, Part 1068.101(b)(3) {1068.010(b)(3) in draft permit}.</p> <p>5. PolyMet identified the following items as technical and/or typographical errors in the permit:</p> <p>a. EQUI 143 (Limestone Crusher) (Permit Term 5.165.6) has a 0.0265 lb/hr PM2.5 limit expressed as a 24-hr block average. This limit arises from the modeling to demonstrate compliance with the annual PM2.5 NAAQS. This limit should be expressed as an annual average. The unit has an annual throughput limit so the annual modeling based PM2.5 limit is redundant – the annual limit takes into account throughput limit. There is a similar issue for STRU 43 (Limestone Unloading Baghouse Stack) (Permit Term 5.284.4), which has a PM2.5 limit of 0.0189 lb/hr expressed as a 24-hr block average. This limit should also be expressed as an annual average. PolyMet acknowledges that the modeled emissions rates for the annual PM2.5 modeling were incorrectly reported under the 24-hr modeling on the MPCA AQDM-02 Form submitted with the application on Jan 11, 2018, but were correct in the model input files.</p> <p>b. EQUIs 188 and 190, (Fire Pumps) (Permit terms 5.177.10 and 5.178.10) reference the EPA “emergency generator” guidance memo1. It should be made clear that these are “emergency engines” (i.e. fire pumps) that operate with similar inherent restrictions as “emergency generators”. This should also be discussed in the TSD.</p>	<p>The MPCA has addressed all corrections as identified in this comment. See Attachment 13 to the TSD for a complete list of updated SI Requirements.</p>
97	Air-06	<p>6. PolyMet has the following comments on the draft Technical Support Document (TSD):</p> <p>a. Section 2.7.2 Air Emission Risk Analysis. The TSD does not make it clear that the AERA was required at MPCA’s discretion. PolyMet requests that the first sentences of the final two paragraphs of this section be edited as shown below (**refer to original attachment file to view changes):</p> <p>i. An MPCA policy requires an AERA is required when an EIS is required by Minn. R. 4410.4400 and the project increases air emissions of a single pollutant (excluding greenhouse gases) by 250 tons per year or more after the use of control equipment.</p> <p>ii. Although the project did not increase emissions of a single pollutant by 250 tons per year, due to the high level of public interest in the project, As a result, an AERA was completed for the PolyMet EIS and updated and verified as part of preparing Air Emissions Permit 13700345-101.</p>	<p>Comment noted. The MPCA did not make adjustments to the technical support document as a results of comments.</p>

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		<p>b. Section 3.3 Class I Dispersion Modeling. The third paragraph of this section should be edited as follows to clarify the reason why the Class I analysis was conducted (**refer to original attachment file to view changes): Class I modeling was not required by the Clean Air Act as part of this non-PSD permit. PolyMet completed Class I dispersion modeling as part of a mitigation commitment made during the environmental review process to show the emissions from the proposed PolyMet operations will not adversely impact any Class I areas.</p>	
98	Air-06	<p>c. Section 3.3.1 Class I Increment Analysis. The end of the first paragraph of this section be edited as follows to clarify the basis for the Class I increment analysis (**refer to original attachment file to view changes): ... Therefore, an analysis of the cumulative impact from all sources of PM10 (past and present, increases and decreases) on the Class I areas was prepared. As noted above, the Class I analysis was performed as part of the environmental review process and was not necessary for Clean Air Act permitting purposes. As such, any requirements related to Class I modeling are state only requirements and are not enforceable by the U.S. Environmental Protection Agency (EPA) Administrator and citizens under the Clean Air Act.</p>	<p>Comment noted. The MPCA did not make this edit to the Technical Support Document.</p>
99	Air-06	<p>d. Section 3.8 Amphibole Mineral Fibers. The final paragraph of Section 3.8.2 be edited as follows to clarify that the fiber requirements are not being implemented based on a known risk to human health (**refer to original attachment file to view changes): The inclusion of fine particulate controls as permit conditions for controlling fiber emissions is a state-only requirement that MPCA is requiring pursuant to Minn. Stat. § 116.07, subd. 4a(a) Minnesota Rule 7007.0800, subp. 2(B)....</p>	<p>Comment noted. The MPCA did not make this edit to the Technical Support Document.</p>

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
100	Air-07	<p>Polymet proposes a hard rock, open pit mine in an area of the state that has already been heavily impacted by iron ore mining in the past. That mining has stripped all of the high grade iron ore from the region, thus most of the near-by towns have been left in an economic depression as iron mining ended its best day. Polymet promises to them high paying mining jobs and a restoration of their economic vitality.</p> <p>Copper mining in this area is vastly different from iron mining. The ore body being mined has sulfur in it make up, and that sulfur, beyond the harm of the digging itself, is what provides the problem.</p> <p>Run off from this mine will be laced with sulfur as long as water and the mine refuse exists. Sulphur will enter the environment though rain run off, local water ways, and in the underlying aquifer leaching other chemicals into the environment. This sulfur pollution will not end with the closure of the mine. Tailings ponds, reservoirs will not contain it. It will always be a part of that mines legacy. It will do harm to the people, flora, and fauna of the entire run off area.</p> <p>Money and a strong economy are excellent arguments for opening this mine. It will make investors a great deal of money that they can use for their own pleasure. It will give 200-300 people good jobs for a few years.</p> <p>On the other hand, this mine threatens to wreck the BWCA for the next millennium, perhaps destroy the underlying aquifer, and diminish the St. Louis River Valley from mine sight to St. Louis Bay on Lake Superior.</p> <p>I think the risk far out weight the worth of the metal and the jobs. I think it is a short sighted mistake to open this area to copper and other heavy metal mining.</p> <p>I think that the mining industry has no way to clean up the mess that they will necessarily make with this mine, and that future generation of Minnesotans, far from the mine site will pay the cost in their health and their tax dollars for the sake of a few men getting richer.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
101	Air-08	<p>As a Minnesota resident and an annual visitor to the Biwabik area, I would like to state my support for the Polymet mine. The job generation opportunity is important to the area and should move forward as long as the project is in full compliance with all federal, state, and local laws and regulations. I firmly believe that a sound technical solution can be found to any environmental concerns about the project.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
102	Air-09	<p>NO NO NO NO NO! No sulfide mining near the BWCAW. This mine will fail as all sulfide mines in the past have. The wilderness will be irreparably harmed costing generations of jobs. The state will be on the hook for the cleanup costs as the mining company will have declared bankruptcy and moved on.]</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p>

Comments Received and Responses to Comments on Air Emissions Permit No.13700345-101.

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
			The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.
103	Air-10	I believe polymet mine is a good project. The mine and all the hard working employees will protect the air quality. This mine will provide good paying construction jobs and good paying permanent jobs. Thank you.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
104	Air-11	Dear Sir or Madam The Boundary Waters Canoe Area and the surrounding lake country is a national treasure. It deserves the most protection available to it. The earth and the thousands of people, from all over the world who visit here, deserve to have it protected ! The earth, and the worlds people need it protected. The PolyMet mine is not in anyone’s best interest, nor the interests of the Boundary Waters Canoe Area. The mine company says they will protect the air and water at the proposed mine site. However mining’s track record with mines is deplorable. The Rio Tinto is a river in Spain polluted by a copper sulfide mine. It runs red and dead, with a ph of 2. The Phoenicians, then the Romans, started to mine here 3000 years ago. Is this the possibility we want to see in Minnesota ? Please do not let this ill advised mine proceed. Please stop the PolyMet Mine ! Regards Jim Bambenek	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
105	Air-12	I believe polymet mine is a good project. I believe polymet mine has a good plan in place for the air quality. I believe the jobs are needed in this area of the state. We all need and use these precious metals this mine will produce. Please pass this plan so hard working Minnesota can get back to work.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
106	Air-13	Excellent project, time to mine	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
107	Air-14	I believe polymet mine is a good project. The air quality at polymet will be great. This mine is needed for the high quality jobs. Polymet will take care of the mine and it’s workers.	The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The

Comments Received and Responses to Comments on Air Emissions Permit No.13700345-101.

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			<p>MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
108	Air-15	PolyMet cannot assure protection of the environment, especially vulnerable water resources.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
109	Air-15	<p>The previous reviews and application were incomplete and inadequate.</p> <p>To date no such operations have proved safe, that is not to contaminate the surrounding air and water. Do not permit PolyMet to build the mine that irredeemably destroys the water resources of northern Minnesota including Lake Superior.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
110	Air-16	I fully support the polymet project moving forward to completion and operation. There is plenty of environmental safeguards in place and I have full confidence in the continued oversight by our governing agencies	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
111	Air-17	<p>My comments are made based on providing positive environmental solutions to restarts of dormant mining projects focused on the process operational impacts. The fact this property has existing equipment while having extreme value to the effectiveness of the project and subsequent returns on investments, it will require special applications of new technologies. For the past 25 plus years we have been installing and refurbishing equipment in plants that have ranged in age from the 50's thru 2017. The existing assets are valuable and with proper care can be operated very effectively and environmental sound practices. They can also be upgraded to "new world class standards" for pollution controls, fugitive dust and air and water discharge qualities.</p> <p>The time period from it's shutdown until now should not be a big issue in restarting, areas of which an analysis, if not already done and anticipated, should focus on are, as it pertains to the process area:</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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		<p>1.Lead paints and Transite siding, often found in building older than 1980 2.Inspections and Cleaning of piping process and discharge; 3.Areas to have improvement in operational closed loop water management systems 4.Changes in Federal MSHA safety requirements thru out the site 5.Changes within Electrical codes and upgrades</p> <p>How solutions can be found, while of course I would like for the group to employ someone like ourselves, Vezer Industrial professionals, relying on experts and consultants that can compress the cycle time and provide the most cutting edge solutions that the project can afford within it's aggregate budget and be in full environmental compliance and stewardship. The community can take confidence that it's interests are being dealt with first by having such solution, in anticipation of their questions, people knowing that you are consulting with the best companies that have serviced the mining industry & other process industries in many countries will add confidence. These many mines have had similar meeting and community discussions. Yes, communities want the jobs that can ensue, but they want the confidence that past or historic interests that did not address the existing environmental concerns, have been thought out by management (which often is viewed by the community as self serving and profit driven) and solutions are already anticipated and budgeted for. These solutions may not necessarily come from the gene pool of the area but can benefit from Global invitations of other operators and professionals, that can be pipelined to your meetings as a backup so that immediate expert answers can be provided. My comments are personal and do not necessarily reflect the views of Vezer Industrial Professionals, other than we commonly share the desire to see good world class environmentally sound process operations in restarting of mining operations. I do not have any direct or indirect interest other than as a tiny shareholder that believes in the value this will bring to the local, state and federal GDP. This project, besides creating skilled well paying jobs, contributes to our country's exports and domestic consumption of valuable resources that we the people should have safe access to benefiting from for generations.</p>	
112	Air-18	<p>Hello, my name is Darryn and I am putting forth my comment of FULL support of the PolyMet/NorthMet Air Quality Permit! I as a former citizen of the metropolitan area in Princeton, MN, and now current resident of Buhl, MN as a iron ranger for the previous three years of my life completely support the acceptance of this Air Quality Permit.</p> <p>Growing up near the Twin Cities and having seen life on the Iron Range has been a real eye opener on the importance of this mine coming to fruition. We currently rely on our precious metals we need for everyday life and security to come from other countries where there is no such thing as environmental protections or worker's health standards. We have those regulations and protections here in MN and are some of the strongest in the nation. I have never experienced such clean water and clean air as there is in northern MN, We have been mining here for almost the last 200 years and have some of the cleanest resources there are. This is proof that mining can be done responsibly without excessive harmful pollution. With the large scale mining projects that have existed like Minntac, Hibbing Taconite, Keetac, Minorca, and the Thunderbird Mine, and all the previous smaller mines that have opened and closed since, if pollution was certain as a result of mining companies, it would be here as we speak and as I write this comment. But it is not, We have some of the cleanest freshwater and air in the country and world.</p> <p>Polymet has shown and proven they have a plan to responsibly finance, build and construct, and operate the Copper/Nickle mine without harm. Please approve this permit so we can continue to have</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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		great family supporting jobs in northern MN and fuel our nation independently with the resources we need. Please let this letter participate in the final decision of this Permit. Thank you Thank you,	
113	Air-19 Air-20	<p>I have studied Polymet for years. I believe that they have done everything correctly to open a successful and profitable mine.</p> <p>They will provide jobs for many over the years to come. I hope Polymet gets approved by the Senate and the President. I am looking forward to great things from this company!</p> <p>Mining so near to a world-class national (and international!) treasure should be a crime. The permanent damage this sort of mining will certainly do to our state's natural resource gem should not be allowed:</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
114	Air-20	<p>if this company shuts down and moves- it is the people if Minnesota who will have to clean up this mess- for GENERATIONS (if it's even possible to clean up at all).</p> <p>NO to PolyMet's permit to mine. Yes to clean air and the future of clean and pristine air and water in Minnesota.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
115	Air-21	<p>Dear Commissioners Landwehr and Linc Stine. Today, I write in support of the NorthMet project's major draft permits under review, and urge DNR and MPCA to move forward with their issuance. As the elected Member of Congress representing the proposed NorthMet project site and its surrounding communities, I have a longstanding interest and involvement in its development and progress. I also wish to commend both of you and your agencies on the extensive work and open process that has led to the ongoing comment period and public meetings being held in northeastern Minnesota. As both of you are well aware, these draft permits follow a decade of extensive and thorough environmental review that successfully determined the NorthMet project could move forward to this next stage. Under public review and comment today is the "fine print" spanning thousands of pages outlining how PolyMet will comply with strict state and federal laws that protect and ensure the quality of our region's precious waters and air. Below are my specific views on these permits and why I believe they should be issued to help power the next generation of mining on the Iron Range.</p> <p>The Draft Permit to Mine (PTM) contains a comprehensive summary of the project, the mining and reclamation plan, environmental and natural resource management and protection, and PolyMet's proposed approach to financial assurance. It also describes in detail specific regulatory standards governing various aspects of the project and the basis of design and/or operational protocols that PolyMet will use to meet these requirements. The issuance of a PTM will bolster Minnesota's efforts to diversify its mineral economy through long-term support of mineral development, production, and commercialization as set forth in Minnesota Statutes. Additionally, consistent with the policies set forth in Minnesota Rules, the project will promote the orderly development of nonferrous metallic mineral mining by using mining and reclamation best practices to minimize and mitigate adverse</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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		<p>environmental effects and to preserve and protect natural resources through each phase of the project.</p> <p>The NorthMet Draft Air Permit (13700345-101) contains the specific parameters PolyMet will comply with to ensure operations from mining and processing comply with the Clean Air Act and additional state-specific air requirements. The draft permit demonstrates that adjacent National Parks and Wilderness Areas – which are subject to more stringent air quality requirements – will not be negatively affected by the operation of the project.</p> <p>The NorthMet Draft Water Quality Permit (MN0071013) is a draft National Pollutant Discharge Elimination System /State Disposal System (NPDES/SDS) permit to construct and/or operate wastewater treatment facilities and to discharge into waters of the State of Minnesota. It contains the specific parameters PolyMet will comply with to reduce pollutant levels in point source discharges and protect water quality in accordance with the federal Clean Water Act (CWA), Minnesota statutes and rules, and additional federal laws and regulations. After years of modeling and engineering work, PolyMet has shown it will be able to utilize its Wastewater Treatment System to treat and release certain water back into the surrounding environment even cleaner than it was received by using a combination of membrane separation treatment technologies (such as reverse osmosis). This engineering technology is vital to protecting downstream water quality and the Great Lakes Basin.</p> <p>The NorthMet Draft 401 Certification (MVP-1999-05528-JKA) contains the conditions and monitoring regime PolyMet will comply with in accordance with Sec. 401 the Clean Water Act, which is closely interrelated with protecting wetlands under Sec. 404 of the CWA. To receive this certification, PolyMet has proposed to purchase wetland credits from the Superior Mitigation Bank, which is located in the St. Louis River watershed. PolyMet will also be required by the 401 Certification to monitor surrounding wetlands to determine whether indirect impacts will result from the Project.</p> <p>Collectively, the 401 Certification, individual NPDES, general NPDES, and other permits (including the CWA 404 permit) for the NorthMet project will ensure compliance with state and federal surface water pollution control statutes and regulations. In fact, these draft permits are proof that we have the brains, science and technology to create good paying jobs and protect the environment on the Iron Range for generations to come. Our Nation requires these strategic Minnesota minerals to strengthen our national security and economy, but perhaps one of their most critical uses will be to propel the next generation of “green” technologies in our society. For example, new hybrid cars contain more than 1 ton of iron, steel, copper, nickel, and nickel-based aluminum. Wind turbines contain hundreds of tons of steel and copper – and reduce our air pollution and dependency on fossil fuels. And practically every one of the appliances and devices that power our modern way of life rely on iron ore and precious metals. We have limited choices on how we get these strategic minerals. Though we can recycle a certain percentage, recycling will never be able to take the place of mining – not even by half. Therefore, we are left with two options. Either we can primarily import our strategic minerals from foreign countries with terrible environmental standards and worker protections. Or we can mine them right here at home, where we control the process, create good paying American jobs, and follow the toughest environmental rules and regulations in the world. In my judgement, the latter choice makes the most ethical, moral, and economic common sense. I therefore urge you to finalize these permits and continue the progress we have made to date. Thank you for your review and consideration of my views, and again, for all of your own individual work and that of your agencies on this project.</p> <p>Sincerely, Richard M. Nolan Member of Congress</p>	

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
116	Air-22	<p>10 February 2018 Minnesota Pollution Control Agency, I write to you today while thinking of my granddaughter. We both live in Duluth, downstream of the proposed PolyMet mine. We know that children in the Arrowhead are already overexposed to mercury pollution. Will this mine increase our children's exposure to mercury and other toxins? We really do not know.</p> <p>We do not know because we have not asked the question by doing a Health Impact Assessment. This assurance that the mine's water and air pollution will not effect people in the Arrowhead has been supported by 30,000 doctors, nurses and health care professionals.</p> <p>Granting the air or water quality permits without doing a Health Impact Assessment needlessly exposes our children to unknown risks.</p> <p>Our granddaughter is just one year old. When she is old enough to be looking for a job, PolyMet will be closing down. Instead of a high paying job, we will be leaving her and her grandchildren a leaking tailings basin and the almost-certain danger of a catastrophic mine collapse in the St. Louis River watershed. One generation of jobs for hundreds of people means generations of pollution for all of us. For a grandfather, this is a short sighted bargain. We need an evidentiary hearing to examine the facts of the benefits versus the dangers of this type of mining before granting the permit to mine. Sincerely, Jay Newcomb 1230 East 8th Street Duluth 55805 218-724-6141</p>	<p>There were several comments requested that a Health Impact Statement (HIA) be conducted. Health impacts of the NorthMet project were assessed and reviewed during the development of the Environmental Impact Statement (EIS) for this project. An HIA is one tool that can be used to evaluate potential health effects from a project, policy, plan, or program on a community or on the public as a whole. The use of an HIA was not identified as part of EIS scoping in 2006 nor was it identified as part of public comments on the 2009 Draft EIS. However, the 2013 Supplemental Draft EIS evaluated various potential health-related impacts of the NorthMet project. The potential impacts of toxics on human health were addressed in sections of the EIS related to water quality and air quality. During the public comment period for the Supplemental Draft EIS (2013), Professional medical associations, including the Minnesota Nurses Association, requested an HIA for the project. (These letters and comments are included in the final EIS documentation on the DNR webpage here: https://www.dnr.state.mn.us/input/environmentalreview/polymet/feis-toc.html.) The 2015 Final EIS did not include an HIA, but it did include a new human health section that consolidated the existing human health related material in the Final EIS to a separate human health section to make information on the human health impacts more accessible, clear, and transparent. (See 2015 Final EIS, Section 7.3.4.) The commissioners of the MPCA, Department of Natural Resources and Minnesota Department of Health collectively determined that an HIA would be redundant to and/or duplicative of the information already gathered and assessed in the 2013 Supplemental Draft EIS. The decision not to conduct an HIA subsequent to the EIS process was summarized in a letter sent to Governor Dayton on December 7, 2015 (See TSD, Attachment 10). The DNR published information about this decision in an EIS health fact sheet: https://files.dnr.state.mn.us/input/environmentalreview/polymet/feis/fact_sheets/health.pdf. The decision to complete or not complete an HIA for this project also was discussed at the Environmental Quality Board meeting in October of 2016, and this discussion is documented at this website: https://www.eqb.state.mn.us/sites/default/files/documents/eqb%20Board%20Packet%2010-19-16_1.pdf.</p>
117	Air-23	<p>Dust from tailings piles will contaminate nearby communities and forest biomes. The dust will contain heavy metals - mercury, lead, phosphorus. When mixed with water (rainwater or water on the ground) the mercury sulfate will methylate to mercury sulfide.</p>	<p>See comment #16 for discussion regarding fugitive dust control strategies. The Technical Support Document (TSD) identifies the various reports determining mercury impacts the Permittee considered during the environmental review process (See section 2.7.1 in the TSD). The proposed permit requires performance tests for mercury emissions from the autoclave and requirements to follow the Fugitive Dust Control Plans located in Appendix B.</p>
118	Air-24	<p>Regarding "restoration" when the PolyMet DOES in the future contaminate and destroy the environment....remind yourself what is happening today...and supposedly the science at the time was "god!" BAD will only come from what may happen if the permits are allowed....and most important, there is NO guarantee after PolyMet or any similar company destroys the safety and quality of the water, they will EVER have the money to pay for it...LET ALONE IT MAY NOT BE FIXABLE!!!! WE OPPOSE ANY TYPE OF COPPER-SULFIDE MINING....</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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119	Air-24	Below is the article about the toxic problems trying to be paid for due to contamination by 3M...you know how bad it WILL be if PolyMet is allowed to mine, or any copper-sulfide mining company. This was in the Duluth News Tribune, Sunday, February 11, 2018 Minnesota vs. 3M: A guide to the \$5B trial: State's biggest environmental lawsuit, over company's PFCs in groundwater, starts this month By Bob Shaw / St. Paul Pioneer Press on Feb 10, 2018 at 4:25 p.m. ST. PAUL — Call it the \$5 billion Teflon trial — Minnesota's biggest environmental lawsuit ever. *Summary: The news article details the future lawsuit against 3M. The state says chemicals were made by 3M, dumped by 3M and consumed by 67,000 local water drinkers and have now spread around the world. The article provides viewpoints from both sides of the lawsuit. The article provides other examples of major environmental lawsuits, such as Deepwater Horizon and Exxon Valdez. The article discusses the chemicals used by 3M and their dumping of those chemicals. The article provides information about concentrations of chemicals and potential consequences to the environment and human health.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
120	Air-25	Polymet should be allowed to go forward as they have gone above and beyond to show that mining can go along with clean air.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
121	Air-26	This project meets all standards. Let's get it going.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
122	Air-27	Allow Polymet to proceed as standards are met.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
123	Air-28	After 14 years of doing everything that current law & rules asked of them, it is time to issue the air permits & move forward. We are all consumers of these metals and no one knows how to mine more safely than MN. Our laws are some of the strictest on the planet.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The</p>

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			<p>MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
124	Air-29	I support the Polymet Mine project.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
125	Air-30	I support the Polymet Mine Project.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
126	Air-31	I support the Air Quality Permit for Polymet.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
127	Air-32	<p>Polymet's proposed sulfide mining operation is a terrible idea with will enrich multi-national corporate entities at the expense of our clean water and air.</p> <p>The few, temporary, non-union jobs created will not offset the destruction of significant areas of the Superior Nat'l Forrest and the Rainy River Watershed and Wetlands, as well as habitat loss for countless species of flora and fauna speeding up massive extensions already decimateing life on this planet due to global warning. It is a price just too high to pay!</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
128	Air-33	Generating capital income for a select few is not feasible to the overall air quality of Northern Minnesota.	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The</p>

Comments Received and Responses to Comments on Air Emissions Permit No.13700345-101.

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			<p>MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
129	Air-33	<p>We do not want neurological toxin in our air. We ask for a complete EIS Environmental Impact Statement and allows us a full review of a mercury mitigation plan.</p>	<p>The Permittee was required to prepare and complete an Environmental Impact Statement (EIS) in advance of submitting a draft air quality permit. The Technical Support Document (TSD) discusses the various information that was gathered and evaluated against the concerns the commenters raises and can be found discussed in section 2.7.1 of the TSD. On March 3, 2016, the state environmental review process concluded when the DNR determined adequacy.</p>
130	Air-34	<p>If you let this company do it, you'll be opening the floodgates to multiple more greedy destroyers to swoop in on the action & wreck the remainder of the most important source of clean water our nation & maybe the world will have to depend on someday. There is no way to safely mine this product. Stop it not before it's too late. NO. NO. NO. NO.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
131	Air-35	<p>Please DENY all permits. We cannot risk our health on an incredibly toxic industry. Please consider the long term effects of this & do the right thing & deny all permits.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
132	Air-36	<p>This type of mining does NOT belong in Minnesota. The toxic pollution from the mine will last hundreds of years.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
133	Air-36	<p>Polymet & Glencore are only in this for short-term profit. Please do NOT issue the permits. Thank you.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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134	Air-37	Please do not allow this type of mining in Minnesota! The toxic pollution from the sulfide mining will last hundreds of years. Please to not issue the permits!	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
135	Air-38	What we understand is that the surface will be ground to a fine powder, only to extract 1% of copper, nickel, etc. The grinding will cause breathing and lung issues to humans & animals alike. Horrible!	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
136	Air-39	The model day did not take into account the prevailing Northwest winds that will carry the particulate matter over Duluth and Lake Superior.	See Comment 87 for discussion on prevailing winds.
137	Air-40	More particulate in air in urban areas = more hospitalizations and more acid rain. Inversions of air in certain seasons will create awful air quality that could linger for days to weeks. The prevailing Northwest winds will carry particulate matter over Duluth and Lake Superior. More particulate in air and urban areas = risk to human health and more acid rain.	
138	Air-41	Why would we ever take this risk to so many citizens' health in order that a few can profit? I believe the science is there to protect the environment and mine copper nickel at the Nothmet project. It is time to grant the permits & start mining & processing the ore.	
139	Air-42	Support	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
140	Air-43	Support	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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141	Air-44	I support Polymet 100%	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
142	Air-45 Air-46	<p>I want to thank all of the people that have put this information together. To see it all shows due diligence. I feel confident that this project will succeed. So once again thank you all. I do not support Polymet mining for copper and nickel. I am an active user of the Boundary Waters and do not want to see it environmentally compromised.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
143	Air-46	<p>While I understand people's desire for good jobs, I do not believe the long-term risk is worth taking for a limited number of jobs in the short-term. Also, looking at the history of mining operations around the world, I do not trust Polymet to supply the funds needed for potential clean-up. They might promise the world, but it is another thing to actually come through with promises when the time comes.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
144	Air-47	<p>This permit proposes to monitor discharges in the Laurentian area from this project's copper-sulfide mining of low grade ore in an extremely water-dependent area of the world at the headwaters of the Great Lakes and the St Lawrence Seaway. Infrastructure including rails and roads will be required. Among the facilities referenced in this draft, the following: o A beneficiation plant o A hydrometallurgical plant o A flotation tailings basin (FTB) including Seepage Capture Systems o A hydrometallurgical residue facility (HRF) o A waste water treatment system (WWTS) – discharge of which will be routed through pipes to maintain flows in Trimble Creek, Second Creek, and Unnamed Creek, with some being recycled directly to FTB pond. o Other ancillary facilities (eg Colby Lake water pipeline): o Mine water filtration train o Tailings basin seepage treatment train o Wastewater treatment solids/byproducts: from the tailings basin seepage treatment train including waste from filters and membrane cleaning and concentrate, which will be routed to FTB pond and mine water chemical precipitation treatment train. Can we rely on a for-profit corporation to monitor itself? The permittee, Polymet, is expected to report all data from the required monitoring stations, whether favorable or not. If reported accurately and standards are not met, then Polymet will be required to monitor again until standards are met. What worthy and worthwhile actions will be taken at the “end of the day?” If the unfathomable number of reports (essentially required just to monitor the discharge from this mining operation) are maintained accurately with regularity, consistency and competency, what truly effective actions can be taken when standards are exceeded? What of the monitoring stations that have no set standards as guidelines? What of those that are not enforceable? What actions are possible that will return the water to its base levels when the degradation becomes apparent to us all? What amount of money in the form of fees or financial guarantees can reclaim</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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		<p>The first precaution should be a DNR certified water sample from all wells in the watersheds that could be impacted by mining operations or the disposal of mining by products. This would be a public notice period where residents through out the Minnesota Arrowhead would be able to provide well water samples for testing to be documented PRIOR to mining operations. This establishes a control data base for future comparisons. The program would be voluntary. Residents would have to comply with certain measures to meet a control standard for certification PRIOR to mining operations.</p> <p>Second, the "stress test" of all permits should be accomplished using Monte Carlo Simulation where variables, probabilities, and the costs in extreme events would show the likelihood of a disaster in the mining operations. This information is likely in use by the environmental insurance underwriters. These insurance measures were available at the exhibit hall. However, no stress test evidence was present. Also, the insurance underwriters were unwilling to insure the project for the extremes and probabilities of a Monte Carlo Simulation. That is because the likelihood of a mining disaster, from which no recovery is possible to achieve the pre-disaster level of environment, could occur.</p> <p>In summary, residents would have pre-mining data certification of their well water for post mining comparisons. A voluntary program. Monte Carlo Simulation would show, in understandable probabilities, the likelihood of a mining failure. This stress test shows due diligence rather than untested acceptance of a insufficiently bonded mining operation. Paul F. Renneisen 954-812-2674</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
150	Air-52	<p>I strongly object to PolyMet copper sulfide mining. It is very toxic to the land, water and air. Citizens health will be severely affected as well as damaging to wildlife.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
151	Air-53	<p>I support the polymet mine and support the state granting of the air quality permit.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
152	Air-54	<p>To whom it may concern: It concerns me that we would even contemplate taking a chance of any kind of risk close to the boundaries water's. Once it is contaminated polluted or destroyed we will be left to try to re-create a pristine wilderness. A priceless area that can't be re-created once destroyed.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
153	Air-55	<p>http://www.twin-metals.com/poll-shows-strong-support-for-copper-nickel-mining-in-northeastern-minnesota/ The PolyMet North Met project is desperately needed to bring jobs back to the Iron Range to keep our</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and</p>

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		<p>communities healthy and to allow our country to utilize the much-needed metals we have right here. Using foreign resources is not the way to keep our country strong plus they pollute the air that we all breathe around the globe. The Poll above shows how much Minnesotans support this project. I believe PolyMet has gone above and beyond the requirements for safe mining.</p>	<p>conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
154	Air-56	<p>Regarding the Air Quality Permit, As this is the first mine of this type, I request that the most stringent requirements be made for all the ways air quality will be impacted at this mine. From dust from the mine to evaporation into the air from the pits besides any smoke stacks. There will be more mines so now is the time to set a good standard. Thanks</p>	<p>The Permittee has federally enforceable Fugitive Dust Control Plans. See comment 16 for discussion of fugitive emission controls.</p>
155	Air-57	<p>Dear DNR, I strongly urge you to reject the PolyMet NorthMet sulfide-ore air quality permit application. It is immoral for us as a society to create a contaminated site that will last for centuries when we cannot know that our current economic and regulatory systems will be there as long as needed to take care of it. New content or unresolved issues that still need to be addressed include but are not limited to the following:...</p> <p>Require PM to prove it can meet minimum air quality standards relating to dust from increased vehicle traffic, train exhaust, and facility air pollution at the proposed mine and plant sites. Mines usually promise high, and perform low. Meaning, PolyMet plans to use the same technology that other mines have used, nothing new, nothing better, yet claims it will achieve what has never been achieved before. Reject the permit application and require proven Best Available Technology be used to achieve minimum air pollution standards;...</p> <p>Conduct a Health Impact Assessment - even Alaska does these for proposed sulfide-ore mines. Human health is at great risk with this proposal's air pollution impacts. Air pollution from PolyMet will affect people living nearby, and those who feel the air deposition of pollution in far away lands. These people deserve to know what health risks will be placed upon them due to PolyMet's air pollution;...</p> <p>I have paddled the Partridge River, as have many others have. It's quite beautiful and the air is quite clean. This river lies directly downstream of PolyMet's proposed mine site and offers publicly accessible clean air. PolyMet plans to pollute air that belongs to the public. And, during the course of these many years of public hearings, over 100,000 citizens have commented to agencies that we do not want PolyMet's pollution. I hope you listen to the people and deny the PolyMet air quality application. Respectfully, Tonia Kittelson</p>	<p>See comment 116 for a discussion on Health Impact Assessments.</p> <p>The proposed permit is based on the Permittee's certified application, submitted on January 11, 2018, and reflects state and federal laws, rules, and requirements, including the federally enforceable permit conditions associated with compliance with NAAQS. The Permittee committed to installing BACT for particulate emissions (see Technical Support Document).</p> <p>Additionally, the proposed permit requires semi-annual deviation reports and an annual compliance certification that the Permittee followed the details listed within the proposed permit. The MPCA reviews these submittals and considers whether enforcement action is necessary.</p>
157	Air-58	<p>Hello, My name is Gary LaFave and I am a journeyman pipefitter. My wife Cathy and I are life-long residents of northern Minnesota and we are both in favor of the Polymet NorthMet Project. Polymet has proven its' commitment to northern Minnesota by complying with every one of Minnesota's strict environmental standards and are doing more than what is expected by addressing the current water quality issues created by legacy mining.</p> <p>Their water quality will generate a net decrease in mercury and sulfate that may reach the St. Louis River and Lake Superior. All water on the NorthMet Project site will have low concentrations of mercury. All water discharges will comply with the Great Lakes Initiative standard of 1.3 nanograms per liter of mercury. Because of this treatment process, all discharged water will be about 8-9 times cleaner than the rainwater that falls on the site and will also be 2-3 times cleaner than the natural runoff within the watershed. Polymet is also protecting the environment by using an existing basin</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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		<p>that has been stable for over 40 years. They will also replace every acre of wetlands distributed by the project at a greater than one-to-one ratio.</p> <p>No other country in the world has stricter environmental standards than those here in the United States, and if we cannot produce the raw materials needed manufacturing electronics, etc. in this country we'll be forced to get them from countries who could care less about the environment or the air we breathe. Polymet's NorthMet Project will create up to 1,000 very much needed jobs in this region of our state. These jobs will play an important role in sustaining the viability of the Iron Range, not to mention the \$515 million boost to St. Louis county annually. Polymet is a solid company that is wholly committed to doing the right thing for our environment and the people of Minnesota. That is why I am in favor of Polymet's NorthMet Project.</p>	
158	Air-59	<p>There has been ample time for investigating and evaluating Polymets mining proposals. Time to issue the permit and bring the good jobs and needed resources to this state.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
159	Air-60	<p>I fully support the PolyMet mining project! The mineral resource is needed. The jobs are needed. The boost to the the northeast MN economy is needed.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
160	Air-60	<p>All this permitting process has dragged on for far too long! Try to imagine the many great projects that were accomplished over the decades. The Hoover Dam, the Highway System, the Great Lakes Canal System, Nuclear Power plants, Iron Ore mining and many, many more. Had all these projects been subjected to all the scrutinizing, study after study, public opposition, permit upon permit, such as the PolyMet project has had to endure, they never would have become a reality. Enough is enough!! All this redundancy within the studies, permitting processes and environmentalists opinions have run their course. It's long overdue to inject some GOOD OLD COMMON SENSE, SOUND REASONING and the AMERICAN CAN DO SPIRIT into this equation!!! Myself and most people I know support this project wholeheartedly!! We may be the "silent majority" but remember the "screaming minority" doesn't win elections! Donald Trump proved that hadn't he??</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
161	Air-61	<p>We need clean air to breathe. We need clean water to drink. You know that PolyMet will poison our water and air, and our children and grandchildren. Do NOT give our children's future to this filthy corporate monster. Our health should not be for sale. I will not vote for the people who support PolyMet. I will not accept a global corporation's greedy destruction. Sulfide mining equals death for the land and people of Minnesota. NO! NO! NO!</p>	<p>The proposed permit is based on the Permittee's certified application, submitted on January 11, 2018, and reflects state and federal laws, rules, and requirements, including the federally enforceable permit conditions associated with compliance with NAAQS.</p>
162	Air-62	<p><...>Notice that the 10 Commandments are an index to 613 Statutes found in Genesis to Deuteronomy. Rest is required in God's Government ... Not only in the daily cycle, weekly cycle and holidays... But in freedom from worry/stress...</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The</p>

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		<p>This type of mining causes worry...It causes stress...It causes pollution...I am concerned... Minnesota is the epitome of outdoor rest and relaxation... We all need places go to get away from stress and to hear God's quiet voice... And that in these outdoor areas the WATER AND AIR MUST STAY PURE AND LAND UNTOUCHED. These things represent what God is doing in our lives, making us pure and holy and we need untouched outdoor areas to communicate with God and to hear His quiet voice.</p> <p>You did not consult God, our Creator about whether it is good to pollute the earth. You do not have a right to give away what is not yours to give. The various agencies involved in this process are only stewards of God's resources. God is the owner. When God created the earth He did it in 6 days and it only takes two chapters to tell about it (Genesis 1-2). This has taken thousands of pages and wasted our public servant's time and the time of hard working people.</p> <p><...> The comment provides Biblical citations to relate to the opinion expressed.</p>	<p>MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
163	Air-63	<p>If Polymet has met all state and federal guidelines, then they should be allowed to mine.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
164	Air-64	<p>I am very concerned about the air pollution that will be caused from this Polymet sulfide mine. Concerns include lead and mercury air pollution that is very toxic to living things (all) people, plants, and animals. P.S. If you don't have clean air to breath, nothing else really matters.</p>	<p>Comment noted. Please refer the proposed permit, Technical Support Document and attachments, and responses to comments for additional information and justification related to protectiveness of air quality standards and public health.</p>
165	Air-65	<p>I am 100% opposed to the Polymet mine. After the company is finished mining the citizens of Minnesota will be left with the degraded land and the pollution that will go for perpetuity.No mining company can ever put enough money aside for the treatment of polluted water runoff that will go on for ever. When the mining company has made their profits they will leave the state, change their name, file for bankruptcy and keep their profits. A few years employment for a few miners for an eternity of pollution is plainly wrong.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
166	Air-66	<p>My understanding of hydrogen fuel cells is that they can produce electricity in great abundance with no exhaust pollution whatsoever - just pure water and heat. Zero carbon footprint. Zero air pollution. Also, that this technology is available as an add on to trucks and train locomotives. Is this technology suitable for Polymet? If so, could they install a fuel cell energy park on their vast land holdings and provide off-grid electricity to their proposed plants and even to the surrounding area, i.e. Hoyt Lakes, Duluth, St. Louis county? These are questions, not a proposal. Three companies produce fuel cell energy in North America. They are Plug Power (PLUG) Ballard (BLDP) and Fuel Cell Energy (FCEL). Congress recently authorized a tax break for around 30% for renewable energy including hydrogen fuel cells, solar power, and wind power. All of the above relates to the air quality surrounding the Polymet mine. Thank you. Steven Ulmen</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
167	Air-67	<p>Born and raised in MN and a long time visitor of Duluth and northern MN, I understand there is concerns on both sides of this. However after hearing and reading both side of this issue, I strongly believe there are significantly more positives to approving this project than negatives. While there are environmentally risks, I feel confident that Poly Met has and will take the necessary measures to</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The</p>

Comments Received and Responses to Comments on Air Emissions Permit No.13700345-101.

COMMENT NUMBER	COMMENTS ID NUMBER	COMMENT	RESPONSE TO COMMENT
		reduce/eliminate the impact to the environment. On the other side, I believe this will bring a significant amount of jobs and resources to MN that outweigh the potential risks. I strongly advocate for this project to be approved and finally be allowed to move forward!	<p>MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
168	Air-68	We have been following and closely watching and researching the entire Polymet project almost from day 1 and have been very impressed with the care and diligence the company has shown throughout the entire process including "over the top" scientific data showing how the company intends to protect the natural resources of Minnesota. We feel they have achieved all the necessary requirements to be granted the proper permits to begin this project and also believe the MNDNR and MNPCA have done their due diligence necessary to not only protect the environment of Minnesota but also the citizens of Minnesota. We firmly support the Polymet project for Minnesota and feel all permit requests should be granted. Chris and Debbie Engel	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
169	Air-69	This permit is stands against everything the state of Minnesota says it is. It is no clean air, no clean water, no legacy for our children and grandchildren. Please stop this madness while you still can. The number of promised jobs will be lost to robotics and automation. This permit goes against the will of the people of Minnesota. John Dorival	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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170	Air-70	<p>Minnesota Pollution Control Agency PolyMet Draft Permit Comments — 4th Floor 520 Lafayette Road North St. Paul MN 55155-4194 The board of directors for the Range Association of Municipalities & Schools (RAMS) is proud to stand with PolyMet with the attached resolution of support for the NorthMet project. Our RAMS member communities and schools also stand in support and those resolution are also attached. The 51 public sector members of RAMS supports the mining industry and looks forward to the opening of PolyMet’s copper-nickel mine in Hoyt Lakes. This project will strengthen our community by providing good-paying jobs to many hard-working men and women while producing the metals we all use every day. The project will also contribute to our local and state economy with millions of dollars in earnings and tax revenue and will do so while meeting or exceeding Minnesota’s strict environmental standards. Mining supports our way of life and we support mining. Please expeditiously move to issue final permits so PolyMet can move forward. RAMS supports the issuance of MPCA permits for the project covering air, water and wetlands.&nbsp;Sincerely, Steve Giorgi Executive Director Range Association of Municipalities & Schools</p> <p>The comment includes an attachment file. The file is a resolution of support for the project. The resolution is signed by supporting organizations: Range Association of Municipalities and Schools (RAMS), Northeast Service Cooperative, Minnesota Association of School Administrators of Region 7 Districts 27 and 28, City of Virginia, Mountain Iron-Buhl Public School District Number 712, City of Nashauk, Iron Range Mayor’s Association, City of Babbitt, City of Gilbert, Town of White Board of Supervisors, City of Ely, City Council of Mountain Iron, City Council of Hoyt Lakes, City of Aurora, City of LaPrairie.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
172	Air-71	<p>JOBSJOBSJOBSJOBSJOBSJOBSJOBSJOBSJOBSJOBS JOBSJOBSJOBSJOBSJOBSJOBSJOBSJOBSJOBSJOBS JOBSJOBSJOBSJOBSJOBSJOBSJOBS</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
172	Air-72	<p>RE: Comment on NorthMet Draft Air Permit To Whom It May Concern: The NorthMet Project has been in process of application for many years now, because the project will cause unusual problems, and because it will imperil wilderness lands, waters, air, wildlife and the economies that depend upon clean air, water and healthy ecosystems. Permitting a copper mine will set precedent and change the land use forever. Since the copper deposits in Minnesota are of low grade, the process will naturally require removal of more rock than copper.</p>	<p>Comment noted.</p>
173	Air-72	<p>By Polymet’s own estimate the NorthMet ore body comprises 275 million tons of Proven and Probable reserves grading 0.28 percent copper with Measured and Indicated Mineral Resources of 694 million tons grading 0.27 percent copper and 0.08 percent nickel. Since Polymet intends to mine and process 32,000 tons of ore per day (11,680,000 tons of ore per year) what does this mean for the air quality surrounding the Project?</p> <p>The comment describes the mining process proposed in reports for the NorthMet project including blasting, large construction equipment, rail cars, transport to the LTV site to the Coarse Crusher Building, Fine Crusher Building, removal of impurities. The permit describes how the facilities will have filtration systems including HEPA, cartridge and fiber, and would comply with standards.</p>	<p>The proposed permit is based on the Permittee’s certified application, submitted on January 11, 2018, and reflects state and federal laws, rules, and requirements, including the federally-enforceable permit conditions associated with the determination and maintenance of the ambient air boundary. Please refer the proposed permit, Technical Support Document and attachments, and responses to comments for additional information and justification related to protectiveness of air quality standards and public health.</p>
174	Air-72	<p>Outside of these buildings where there are no filters, fugitive emissions are even more difficult to control. Fugitive source emissions from mining operations stem from the blasting of rock and the debris that these operations create,</p>	<p>The commenter is correct that this proposed project generated fugitive emissions. For a discussion on fugitive emissions, please see comment 16,</p>

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		<p>loading and unloading of rock, truck traffic, preparation, crushing and screening activities and excavating. Traffic, road building and repair will contribute naturally and this will exceed the boundaries of the NorthMet Project site where no truly effective organic and sustainable control is possible in most situations, physics the determining factor. Fugitive sources of emissions at the processing plant can be found during construction activities, crushing and screening, along with wind erosion during flotation tailings basin operation, miscellaneous truck traffic, and SAG and ball mill grinding of the ore. The list of unusual problems and effects goes on in the permit reports, unintentionally illustrating why copper sulfide mining would be a major contributor to air pollution in this wilderness, and all the while presuming to make a case for protection. How much of the regulation in place on spot filtration systems and their filters will be effective? How much of the fugitive emissions and noise will cause untenable situations for wilderness tourism, which is the backbone of this country? Only time will tell after all. If experience has taught us anything, these systems will fail or be neglected in time while the mining effects will continue into perpetuity.</p>	<p>The Permittee must comply with the conditions within the proposed permit. The Fugitive Dust Control Plan is located in Appendix B. All operational and recordkeeping requirements listed in this plan is federally enforceable. The Permittee is also subject to Minnesota Rules governing noise.</p> <p>The Permittee was required to prepare and complete an Environmental Impact Statement (EIS) in advance of submitting a draft air quality permit. The Technical Support Document (TSD) discusses the various information that was gathered and evaluated against the concerns the commenters raises and can be found discussed in section 2.7.1 of the TSD.</p>
175	Air-72	<p>The commenter details the vehicles required for operations. Also other construction equipment that are considered when assessing air quality impacts.</p>	<p>Comment noted.</p>
176	Air-72	<p>Polymet will monitor itself. There is no restriction on hours of operation for portable crushing spread operations May to October and other operations are given the time needed to process almost 12,000,000 tons of ore each year. Much of the monitoring is not enforceable in this permit or on a practical level. So where are the real safeguards? The winds will blow, the climate will do its thing and Polymet will be forgiven in a force majeure situation. We are told that this ore will be processed in an environmentally sound manner. We are told that if limits are exceeded, they will be remedied by the miner except in the case of unforeseeable circumstances that prevent them from fulfilling their contract. Will they monitor and police themselves without regard to profits? If fugitive emissions are found to degrade the environment outside of the parameters of their fence line, will this too be remedied? What will the meaning of going up North hold for citizens once this mine starts construction?</p>	<p>The portable crushing spread has restrictions on material throughput to be monitored. The proposed permit has numerous conditions related to operational limits and limits on material used.</p> <p>The proposed permit is a federally enforceable document that requires semi-annual deviation reports and an annual compliance certification that the Permittee followed the details listed within the proposed permit. The MPCA reviews these submittals and considers whether enforcement action is necessary.</p>
177	Air-72	<p>Wetlands abound along this copper deposit, with thousands of flora and fauna, many rare and uncommon all depending on clean air and water, in a wilderness of outstanding quality. <...> The commenter lists species of plants and animals that could be impacted. What is the potential harm to these populations if the fragile balance of this ecosystem is destroyed, an ecosystem so interconnected with the health of its waters and its air? Do we sell or do we protect? This is what this decision concerning the NorthMet Project comes down to, essentially.</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>
178	Air-72	<p>There are no guarantees that Polymet or theirs will be around to pay for the damage that acid rain and other hazards of mining for decades in this area will cause. They are a corporation, after all, developed to limit liability. Ongoing treatment, passive or aggressive, will never return this region to its original state. Observe ongoing pollution witnessed from mining in the area already. What financial or political assurances would suffice in a tragedy of the scale that sulfide mining would unleash?</p> <p>We have waste on this earth that could be recycled without destroying our environment, our home. Have we come to a crossroads in our handling of this planet, an ecosystem that we so dearly need for our survival? Isn't this priceless wilderness more important than any profit we can make from mining? Once understood that we cannot mine in this area without devastating results, perhaps we will favor sane and ecologically sound solutions to those challenges that engage us? We could speak of the beauty, the wild, the spirit of something greater than ourselves, the sustenance we all gain from these masterpieces. Such is the Arrowhead of Minnesota. What profit is there if not life itself? It is undeniable that people in the area need jobs ... although, who of these long term residents came with the intent to mine this jewel? If given the opportunity to work in a sustainable activity, who would not choose to do so? What kind of</p>	<p>The MPCA received many comments in support and opposition to the project identified in the draft permit. These comments are noted and their content is beyond the scope of the public notice or this permitting process. The scope for public comment was limited to the terms and conditions of the proposed amendment to Draft Air Emissions Permit No. 13700345-101. The MPCA considers comments related to public concerns about land-use, zoning, or environmental impacts unrelated to air emissions outside the scope of the permit.</p> <p>The MPCA acknowledges and thanks all commenters who participated in the review of the draft permit during the public notice period.</p>

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		<p>opportunities could be created with a mindset that encourages positive long term results over short term gains and financial profiteering? Don't we owe it to ourselves and life itself to make the effort? For the reasons outlined in this comment, I request that the Draft Air Permit for the NorthMet Project be denied.</p>	
179	Air-73	<p>Research indicates that arsenic alone will kill a conservative 50 but more likely closer to 100 people per year in the Duluth, Superior, Cloquet area, i.e thousands of people in Superior WI over the next 300 years.&nbsp; Your help can save lives in exposing this (PolyMet) criminal venture. Arsenic has been linked to a variety of illnesses including diabetes and heart disease. http://www.bmj.com/content/342/bmj.d2431 There is no known safe amount of arsenic: http://www.reuters.com/article/us-chile-cancer-idUSTRE80N1YJ20120124</p> <p>PolyMet Air Quality Permits I am requesting that you deny PolyMet an air quality permit. In Butte Montana, at the Berkeley Pit a fog phenomena occurs emanating from the mine pit lake. It has been proposed that because of the relative weight of the heavy metals that they do not become air born although no definitive study, it is claimed, has been done. There actually has been a relevant study done in Spain at a mine site which emits the same type of fog. There the researchers found that toxic levels of heavy metals in fact are lifted in the fog. I have read about this study where the mist was actually condensed and analyzed although I have misplaced the citation.</p> <p>The agencies have inadequately assessed the air quality hazard that will occur with PolyMet mining. Heavy metals do in fact become air born from the effects of blasting.</p> <p>This is what explains the elevated levels of mercury in the blood of north shore children. Past taconite mining has blasted mineral formations including mercury which is directly inhaled by persons downwind. The downwind phenomena is the only plausible explanation for why, say, Lake Superior South shore children are not effected as severely from just eating Lake Superior fish. If mercury can be propelled from, say, China in a smoke stack it is just as likely that it would be propelled just 50 miles to the Lake Superior north shore from blasting. Included with the higher levels of mercury will be higher levels of arsenic and other heavy metals. It has been discovered that the modern era of copper mining in Chile is chronicled in ice cores from Antarctica. It is consistent that it should be expected that the blasting of arsenic containing sulfides at PolyMet and other prospective mine sites in the area would produce airborne arsenic as occurred in Chilean mining operations much further away.I have been having trouble lately locating arsenic references to the PolyMet deposit lately because of the volume of information.</p> <p>However, my friend, retired from the MPCA, has indicated to me glittering rock walls he observed in the 1970's at the AMAX bulk sampling and now Teck Cominco site to the east of PolyMet indicating a rich presence of pyrite containing arsenic (reference arsenopyrite). The Wetlegs deposit shown on the following map to the West of PolyMet is close to PolyMet as you can see from the link: http://sosbluewater.org/Deposit_map.pdf The following report indicates that Wetlegs is rich in Arsenic: http://forum.amiminerals.it/viewtopic.php?t=12078 The Cities of Superior, Duluth, and Cloquet are I am told by a representative of PolyMet 170 river miles downstream.</p> <p>The commenter provides links to cases in Chile of arsenic and associated impacts of exposure.</p> <p>The PolyMet Supplemental Draft EIS indicated that Arsenic and Mercury would be removed with reverse osmosis. In the Final EIS it was acknowledged the RO would not do the job and a reference to Greensand Filtering was made with a denial contrary to the 1960's Chilean experience that the Arsenic would not make the 170 river miles to the drinking water intakes of Duluth, Superior, and Cloquet. Even with greensand filtering which is simply promised and not guaranteed A 1999 study of methods highlighting greensand filtering indicates the complications in arsenic removal and one of the main conclusions of greensand filtering was "the technology discussed here is probably not cost effective." http://www.usbr.gov/research/AWT/reportpdfs/report041.pdf</p>	<p>Drill hole blasting emissions including heavy metals such as arsenic and nickel were evaluated during the draft permit review. Emission factors were derived from AP-42, section 11.9, Wester Surface Coal Mining and site-specific mineralogical characteristics taken from well core data. The proposed permit contains conditions related drill hole blasting in the form of visible emission (VE) checks, corrective actions as defined in the Fugitive Dust Control Plan located in Appendix B to the proposed permit, and number recordkeeping requirements associated with VE checks, number of blast holes drilled each day, meteorological conditions, and time and location of blasts.</p> <p>In support of this proposed permit, the Permittee conducted an Air Emission Risk Analysis. Section 2.7.2 of the Technical Support Document discusses the purpose and scope of the AERA process. The Proposed permit includes requirements to limit emissions of arsenic and mercury emissions. The Permittee is required to demonstrate compliance with these limits through by operation and monitoring control equipment as well as following Appendix B: Fugitive Dust Control Plans.</p>

COMMENT NUMBER	COMMENTER ID NUMBER	COMMENT	RESPONSE TO COMMENT
		<p>The commenter provides links pertaining to arsenic and heavy metals. Provides a link to EPA regional director that approved PolyMet but resigned due to Flint MI.</p> <p>A big deal is being made about sulfides inhibiting the growth of wild rice, but if a strain of wild rice is found that will grow in these sulfate waters/arsenic waters they will be poison from an uptake of arsenic. http://www.huffingtonpost.com/2012/09/20/arsenic-rice-toxic-element-inside-grain_n_1900654.html Arsenic and mercury will rain down in the blast residue to effect rivers other than the St. Louis on the north shore of Lake Superior. Breathing arsenic has an even more severely intensified effect on producing lung cancer in particular as well as negatively effecting the intellectual development of children. The blast produced arsenic will more severely impact the drinking water of the St. Louis river downstream consumers which will be impacted by the extremely and dishonestly stated toxic waste water outputs and consumption.</p> <p>Tailings basin seepage treatment train at the WWTS estimate of 4000 gpm during operations is underestimated at 5,760,000 gallons per day. This amount seems unrealistically optimistic given the treatment demands for a much smaller amount of process material at the Humboldt Mill in Michigan will take 2.8 million gallons a day and does not include treatment of water from a very large mine. The PolyMet mine is planning to process 32 thousand tons of ore per day while the Humboldt mill only processes 2 million tons. This indicates that PolyMet is claiming to be 7-8 time more efficient even though they have no experience in mineral processing. This much larger amount of water to be treated will inundate the system. These claims are consistently underestimated with the low estimates proven to be wrong at the Humboldt Mill and at the Resolution mine site as necessary. These dishonest estimates are a dangr to the public and it must not be acceptable for PolyMet simply to be expected to be allowed to simply dump tens of millions of gallons of tainted water into the St. Louis River water shed to poison downstream water consumers with heavy metals and arsenic from this high arsenic mineral formation and processing. The current 4000 gpm estimate is less than one-third of the Polymet processing capacity. The PolyMet projected water consumption and toxic waste water discharge should be expected and planned for at as much as 300 million gallons per day or 9.E10 per year from mine pumping and ore processing which the tailings basin needs to be expected to hold. 300 million gallons is the equivalent of 920 acre feet of water. This amount of water invalidates the Environmental impact findings and estimated engineering specifications, environmental impact notices, due process, media discussions and is a fraudulent infraction on PolyMet's part for which it should pay a penalty to the public that it has deceived.</p>	
180	Air-74	<p>Boozhoo (Greetings) from the Red Cliff Band of Lake Superior Chippewa (Red Cliff). Please accept the following comments in regards to the NorthMet draft air quality permit, draft water quality permit (NPDES/SDS), and draft 401 Certification. Although Red Cliff is not located in the state of Minnesota, we retain hunting, fishing, and gathering rights among other usufructuary rights in the Lake Superior basin. Red Cliff is located at the top of the Bayfield Peninsula in northern Wisconsin and is enclosed by 22 miles of Lake Superior shoreline. In the ceded territory, Red Cliff has a legal and cultural interest in protecting treaty resources for the next seven generations. We, as with other Tribes and Nations, have lived in the Lake Superior basin for hundreds of years, and have relied on Lake Superior, its tributaries, and ecosystems for subsistence and cultural uses. Red Cliff is submitting the following comments.</p> <p>Draft Air Quality Permit</p> <p>I. Fugitive emissions control plan The fugitive emissions control plan as described in Appendix B of the draft air quality permit does not include the use of fence line or near roadside monitors to aid in determining fugitive emissions concentrations. Although the permit states that a trained observer will monitor site and road dust levels and take appropriate action, PM10 and PM2.5 levels can easily exceed National Ambient Air Quality Standards (NAAQS). This fact coupled with any potential high wind activity, can distribute these emissions over a wide range. Red Cliff requests that the permit includes use of mobile and personal monitors to correctly identify true sources of excess emissions and consequently determine appropriate action.</p>	<p>The MPCA received comments about air monitors and requests for an air monitor to be placed in areas surrounding the facility. Ambient air monitoring is an available regulatory tool that the agency could require as the result of an enforcement action.</p> <p>The draft permit contains requirements to ensure National Ambient Air Quality Standards will be met at the effective fence line. As the commenter notes, the Fugitive Dust Control Plan is located in Appendix B of the proposed permit which makes all requirements listed within federally enforceable.</p>

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181	Air-74	2. Section F: Receptors (RE Pathway) According to MPCA Modeling Practices, Table 11, there is a discrepancy in the meter spacing listed in the manual and the meter spacing described in the permit. We request that this discrepancy be remedied or an explanation provided as to why this is allowable for PolyMet.	See response to Comment Number 3.
182	Air-74	3. Section J- Nearby Sources In this section, it is stated that some nearby sources were omitted from particulate modeling. We would like to know why these items were omitted and what protocols were used. Please provide information on the policy for removing nearby sources, which permitting actions support this decision.	See response to Comment Number 3.
183	Air-74	4. Plant Site Class I Modeling Protocol There are several instances where spacing of receptors around property boundaries, within 1 km of the boundary, and from 1-5 km out differs widely from the MPCA' s Air Dispersion Modeling Practices Manual. There is no justification for these extreme exceptions to be made. Please explain this discrepancy.	See response to Comment Number 3.
184	Air-74	<p>Draft Water Quality Permit</p> <p>1. Unsupported and unenforceable inward flow claims The modeling in the EIS assumes that PolyMet will maintain an inward hydraulic gradient of contaminated groundwater at the flotation tailings basin and at the waste rock stockpiles. The effectiveness of this proposed containment system is defined by this assumption and also by the assumption that if a breach in a containment wall were to occur, the contaminated water would flow into the basin rather than the surrounding environment. Red Cliff is concerned that these claims of PolyMet to maintain a constant inward gradient are both unsupported and unenforceable. This unrealistic assumption does not model the consequences of scenarios in which the gradient may be reversed, such as weather events like heavy rainfall or snowmelt, nor does the permit provide detailed language regarding such scenarios. For example , page 41 of the NPDES/SDS permit states that this system (in regards to the Category 1 Waste Rock Stockpile) will take into account " tempo rary conditions that may result from short-term precipitation or snowmelt events." However, this language is not specific enough to gain our confidence that a constant inward flow gradient will be maintained and that contaminated groundwater will not flow in the reverse direction into surficial aquifers and groundwater. Therefore, this permit cannot be based solely on the assumption of this system operating without failure, and these claims cannot be supported without more specific language to support the assumptions and enforce any violations of such claims.</p> <p>2. Great Lakes Initiative and Minnesota mercury standard The proposed PolyMet project area is located in the Lake Superior Basin, and therefore any water discharges from the project area must meet the protective Great Lakes Initiative and Minnesota mercury standard of 1.3 nanograms per liter (ng/L). Attachment 1 under the Wastewater Treatment System (WWTS) section of the NPDES/SDS draft permit document states that the daily maximum limit will be 2,000 ng/L and calendar monthly average limit will be 1,000 ng/L. These limits are 1,000 times more than the Great Lakes Initiative and Minnesota mercury standard of 1.3 ng/L. Red Cliff must ensure protection of treaty resources and requests MPCA to review this monitoring requirement and rewrite to comply with Great Lakes Initiative and Minnesota mercury standards.</p> <p>3. Bedrock Monitoring Wells The Draft NPDES/SDS Fact Sheet outlines the summary of all Mine Site Groundwater Monitoring. In regards to the Bedrock Monitoring Wells, Red Cliff is concerned about the proposed frequency in which the samples would be taken. As listed in Table 11 on page 53, Group B wells are monitored quarterly and Group C wells are monitored annually. We are concerned that this frequency would not accurately capture potential contamination if the bedrock is breached or fissured due to seismic activity from blasting. Therefore we request that the frequency of this monitoring be increased during all blasting phases to adequately capture any seepages of contaminated waste that may infiltrate groundwater and drinking water.</p>	Comments related to the permits other than the Air Quality Emissions Permit are out of scope for this permit decision.

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		<p>4. Annual Groundwater Evaluation Report and Annual Comprehensive Performance Monitoring Evaluation Report Red Cliff requests that all annual reports be accessible to the public. This includes the Annual Groundwater Evaluation Report as well as the Annual Comprehensive Performance Monitoring Evaluation Report. As stated in the NPDES/SDS Permit Fact Sheet on page 69, the purpose of these reports is to utilize all available data to fully evaluate the performance of the facility and to assess the potential for or existence of any unauthorized discharge to surface waters. Red Cliff disagrees with the claim that this annual evaluation will provide early identification of potential impacts so that adaptive management or mitigation can take place. This 'early' identification of potential impacts requires the addition of continuous flow monitoring and increased frequency of water quality monitoring (see below comments). However, we still request that the annual reports to be made available to the public. This would include any needed changes to the monitoring network, evaluation of compliance with groundwater standards, monitoring data, assessment of spatial distribution of groundwater quality, and the current assessment on the potential for a north flow path in the bedrock or surficial aquifer north of the Partridge River. It is a concern that a north flow path in the bedrock is a likely possibility, underscoring the need for all information and analyses regarding such an outcome to be made accessible.</p> <p>Draft 401 Certification</p> <p>I. Inadequate water quality monitoring and response time Red Cliff is concerned that the proposed monitoring strategy is inadequate and will not allow for detection of discharges, depositions, or impacts to water quality with enough time to allow for adaptive mitigation as planned. The Section 401 Draft Water Quality Certification states that if surface water conditions exhibit deviations from baseline conditions that are attributable to Project factors, then adaptive management may be required. Continuous flow monitoring is necessary and should be required in order to detect these changes in real time. If monitoring data indicate that the Project has caused or contributed to a violation of water quality standards in Minn. R. chs. 7050 and 7052, the permittee must report as follows: a violation endangering the human health or environment must be reported within 24 hours; and other violations must be reported within 30 days and an adaptive management plan must subsequently be submitted within 30 days. These monitoring and reporting timelines do not adequately protect the impacted adjacent wetlands and downstream waterbodies from discharge violations. If a violation occurs that jeopardizes the water quality standards, despite the 24 hour reporting requirement, and the samples are only taken monthly or quarterly, then it is highly likely that the impact was occurring for a longer period of time. In order to accurately monitor and prevent detrimental impacts to water quality, there must be continuous flow monitoring as well as increased frequency of water quality monitoring. If not, the claims that adaptive mitigation can take place in time are not validated.</p> <p>2. Accuracy of wetland delineation</p> <p>The Draft 401 Certification includes details about PolyMet's plan for mitigation of wetland impacts. In regards to impacted wetlands, the wetland report completed by Barr Engineering (Barr) for the EIS does not indicate that Lidar data was one of the sources used to map the wetland areas. However, in 2011, detailed Lidar derived elevation data was collected and was utilized by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) to identify further areas inside the project boundary that may be wetlands not identified by Barr Engineering. GLIFWC's analysis identified 12% more wetland areas within the mine site project boundary and 12% more wetland areas within the direct impact footprint. Assuming that all areas identified originally by Barr and subsequently by GLIFWC are wetlands, then the wetland area may be 28% more than what is listed. Upon receipt of a Technical Memorandum describing GLIFWC's findings in August 2017, the United States Army Corps of Engineers had instructed PolyMet to reevaluate the wetland area estimation with the tools utilized by GLIFWC. However, Barr has yet to submit this report. If the number of wetlands is indeed different, a highly likely scenario, then mitigation plans must be adapted. Given this evidence, these permits cannot be approved without first checking the accuracy of the current</p>	

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		<p>wetland delineation. Red Cliff requests these discrepancies be reviewed to most accurately account for impacted wetlands, and mitigation plans adjusted accordingly.</p> <p>We appreciate the opportunity to comment and thank you for reviewing and considering the above comments.</p>	
185	Air-75	<p>I write to oppose MPCA's draft water pollution (NPDES/SDS) permit, and MPCA's draft CLEAN WATER ACT SECTION 401 CERTIFICATION for the PolyMet sulfide mine project, as currently proposed. The Mission of the Minnesota Pollution Control Agency (MPCA) is to protect the environment and Minnesota citizens from pollution.</p> <p>From what I read and study, the MPCA has proposed a draft water pollution permit that does not set limits on polluted seepage through groundwater and a draft certification that the PolyMet project would not harm water quality, increase mercury contamination of fish, affect the environment or impair human health. The MPCA's draft water pollution permit not only fails to set limits for contamination that would seep from PolyMet waste facilities to wetlands and streams; the MPCA would not even require monitoring of surface water quality in the places closest to the PolyMet tailing basin or concentrated waste storage facilities. Without surface water monitoring, even if PolyMet pollution violates the Clean Water Act, it could be many years before that contamination of our waters is detected.</p> <p>And in the meantime, we will have failed our children, our elders, our water, our tribal people and their treaty rights, the wild rice and wetlands, our traditional cultural properties, the air we breathe and the trees and fauna which bless us with possibilities to meet the very real climate change which challenges our "usual ways" of doing things.</p> <p>The commenter provides quotes about the importance of water and land. Quotes are from Aldo Leopold, Standing Rock, and Pope Francis.</p> <p>suggest that we can do better, in protecting the very elements which stand threatened by PolyMet's sulfide mine project. We all need to gather around the mission to protect the environment for Minnesotans and for all up-river and down-river dwellers, for time to come. Water flow has no political boundaries. We are all connected. In summary, I oppose MPCA's draft water pollution (NPDES/SDS) permit, and MPCA's draft CLEAN WATER ACT SECTION 401 CERTIFICATION , as currently proposed for the PolyMet sulfide mine project. Thank you for this opportunity to comment.</p>	<p>Comments related to the permits other than the Air Quality Emissions Permit are out of scope for this permit decision.</p>
186	Air-76	<p>Please protect our clean air from toxic airborne pollution from PolyMet. The mission of the MPCA is to. Protect the environment and citizens of Minnesota from toxic pollution. Thank you. Sincerely, Lisa Fitzpatrick</p>	<p>Comment noted.</p>
187	Air-77	<p>air quality is tremendous and would have severe consequences to the health of humans and wildlife and to the environment in general. The harmful effects have not been sufficiently studied. I am not at all reassured and have great concern about air pollution from this type of caustic mining.</p>	<p>Comment noted.</p>
188	Air-78	<p>Statement of Interest: The writer breathes are in various parts of Minnesota. The public notice for this permitting actions (https://www.pca.state.mn.us/sites/default/files/Public%20Notice_71.pdf) indicates that the total limited potential to emit will be approximately 5.7 million pounds per year. (I have presumed that "PM" refers to Total Suspended Particulate and that the PM10 and PM2.5 quantities listed are not additive. Also, this total does not include 161,000 tons--322 million pounds--per year of carbon dioxide equivalent.) Emissions of this magnitude would make PolyMet one of the largest point sources of air pollution in Minnesota.</p> <p>Remarkably, PolyMet is near four Class I areas (which have special protections under the Clean Air Act): Boundary Water Canoe Area Wilderness, Voyageurs National Park, Isle Royale National Park, and Rainbow Lake Wilderness. Nonetheless, the MPCA claims in "Overview of PolyMet's air permit" (https://www.pca.state.mn.us/sites/default/files/aq5-36q.pdf) that: "The Class I modeling demonstrates that PolyMet's emissions, as limited by its permit, will not deteriorate air quality in nearby Class I areas. In addition, visibility impacts will be below perceptible levels. This conclusion is implausible.</p>	<p>Comment noted.</p>

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190	Air-78	<p>In the same document the PCA claims "PolyMet's Class II modeling demonstrates its stack and fugitive emissions will not exceed air quality standards." This conclusion is implausible.</p> <p>The MPCA also claims that "Each health impact evaluation showed PolyMet's emissions, as limited by its permit, would not result in unacceptable risks to human health." This conclusion is implausible.</p>	Comment noted.
191	Air-78	I am not clear on whether railroad equipment emissions and truck emissions on the PolyMet sites have been fully included in the fugitive emissions inventory. If not, as "on site" emissions they should be included. It does not appear, from the magnitude of the projected emissions, particularly the particulate emissions, that serious efforts to minimize emissions have been designed into this project.	Railroad equipment and light duty as well as haul truck vehicle emissions are included as 'mobile' source emissions. The fugitive dust generated from vehicle use on unpaved roads is included in the facility potential to emit calculations. The Permittee has committed to an exhaustive, onerous, and robust federally enforceable Fugitive Dust Control Plan.
192	Air-78	In many respects the proposed PolyMet project is in an area as sensitive to air quality impacts as it is to water quality impacts. The draft permit should not issue without serious re-evaluation. Respectfully submitted, Alan Muller	Comment noted.
193	Air-79	AGAINST PolyMet: the wrong mine in the wrong place. Deny the permits. There are inadequate funds to be set to be aside regarding state financial assurance regulations. PolyMet's proposed \$75M in cash for financial assurance was always a joke, and even with the DNR increase of several hundred million, this amount would not even begin to cover the inevitable environmental damage, including widespread air pollution.	Comment noted.
194	Air-79	Further, much of the information in PolyMet's applications for permits is ten years old. Using incorrect information for such an important decision is misleading at best. Take, for example, the assessment of directly impacted wetlands if permitting and construction proceed, most recently conducted by the Corps of Engineers. These results should be made available and should be public knowledge. However, the Corps is not allowing access to this information which almost certainly reveals that larger areas that originally estimated will be impacted. It's time for meaningful reinvestment on the Range instead of allowing permits for PolyMet and other similar mines.	Comment noted.
195	Air-89	<p>The One Hundred Mile Swamp was cut off before it crossed the Laurentian Divide on 10 Environmental Impact Statement (EIS) maps; these maps could have been corrected before the Final EIS was released to the public, but they were not. Minnesota's agencies have already allowed removal of bedrock pillars by taconite mining at the Peter Mitchell mine, essentially removing the Laurentian Divide. If permitted, PolyMet's toxic sulfide mining pollution could flow north, not only through the Peter Mitchell pit to Birch Lake, but also by way of the One Hundred Mile Swamp, following the directional flow of groundwater determined by geologic rock types and their associated structures beneath the Laurentian Divide. The contaminant migration pathways have had little to no scrutiny in PolyMet's EIS, and cannot be known with any certainty without detailed onsite hydro-geologic investigations.</p> <p>2. "The BWCAW and Voyageurs National Park are located in different watersheds than the NorthMet Project area. Surface water flow and surficial groundwater flow from the NorthMet Project Proposed Action would not directly, indirectly, or cumulatively affect the water in these areas. Potential bedrock groundwater flow from the Mine Site north to the Northshore Mine, if determined possible through monitoring, would be prevented." (PolyMet) Prevented how? "Adaptive management strategy" is meaningless, unscientific, and makes all risk assessments invalid. All contamination management issues must have scientifically proven plans in place before permitting, not after.</p> <p>A mythical water mound will not stop contamination from seeping into the Peter Mitchell Pit to be released into Birch Lake-into the Kawishiwi River watershed-flowing to the Boundary Waters Canoe Area Wilderness. The entire PolyMet permit has been based on PolyMet not polluting two watersheds. Only polluting waters of the St. Louis River watershed, as if that was acceptable. Absolutely not the Kawishiwi River/Rainy River watershed! The people of Minnesota are being deceived with an unproven, improbable scenario and with altered maps of a significant wetland area at the NorthMet mining site.</p> <p>3. PolyMet testwork showed that LTVSMC tailings leached arsenic; indicating the basin should not be disturbed, nor the tailings used for covers and dams, due to the high potential for toxic releases of arsenic to groundwater-releases above</p>	Comments related to the permits other than the Air Quality Emissions Permit are out of scope for this permit decision. For response to comment requesting a health impact assessment, please see response to Comment Number 116, above.

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		<p>water quality standards. Documented elevated arsenic risks-discussed within the agencies at the beginning of the permitting process- were tied to the No Action Alternative. Yet the agencies went ahead with a plan to deliberately disturb the basin and use the tailings for other purposes. Was the public ever informed in the EIS of this serious arsenic issue? The No Action Alternative was the only valid choice from the beginning; it is still the only valid choice. (Or building a new tailings basin.) It is not scientifically valid to reuse the LTVSMC tailings basin for copper -nickel sulfide mining. Apparently, since the LTVSMC tailings basin is already leaking, the agency solution is to risk releasing high levels of arsenic-then add massive amounts of toxic sulfide mining waste to the already leaking basin-and then capture the basin's legacy pollution, including arsenic, at the same time that PolyMet collects and treats the entire overwhelming mess. Whenever that may be. It is delusional.</p> <p>4. Adding massive amounts of toxic sulfide mining pollution to an already leaking, polluted basin while risking the release of arsenic-then collecting everything-is scientifically impossible on such a scale. Where is the scientific proof, where has it been done on such a scale in a like environment? To experiment with Minnesota's waters is not in the best interest of the people of Minnesota. Requiring Cliffs Erie to put in a collection system and to clean up the mess it assumed responsibility for would have been the best choice for Minnesota. It is fiscally irresponsible for the state of Minnesota to permit sulfide mining. The monetary losses would far outweigh the gains. Our waters are Minnesota's most valuable resource, environmentally, economically, and strategically.</p> <p>5. It is false that virtually all of the pollution can be collected. And if by some miracle that could occur, it would only weaken a tailings basin that is designed to leak for stability. Once tailings are deposited in the LTVSMC basin there are two choices, let the basin leak or return all polluted waters to a basin that would then only become increasingly unstable, leaving Minnesota with an ever greater risk of catastrophic failure.</p> <p>6. NorthMet would become a toxic pit; there is no feasible way to keep the exposed Virginia Formation from turning pit waters into a death trap for wildlife, particularly waterfowl.</p> <p>7. The Duluth Complex is a sole-source aquifer. Exploration drilling has turned the area into a contamination network for proposed sulfide mining pollution. Destroying a region's water supply is criminal.</p> <p>8. No cost/benefit analysis has been done for PolyMet.</p> <p>9. The number of projected mining jobs would be highly questionable; the amount of mining waste generated annually by PolyMet's proposed NorthMet Project fluctuates significantly over the proposed 20 years of operations, which translates to fluctuating mining layoffs with significantly unstable economic benefits. This fact was not made clear in PolyMet's Environmental Impact Statement.</p> <p>10. No adequate risk assessment (including for human health) has been done for PolyMet. PolyMet has not done a risk assessment, they have many disparate reports, and none are cumulatively put together as a human health or environmental risk assessment. A complete Human Health and Ecological Risk Assessment needs to be done to assess cumulative impacts to the human environment, as required under NEPA The Air Emissions Risk Assessment (AERA) in the FEIS cannot be reviewed for accuracy or completeness by anyone because the full report has not been provided anywhere. The AERA does not qualify as a human health risk assessment such as the USEPA uses (USE PA Risk Assessment Guidance for Superfund, EPA/S40/R95/132PB96-963203), and the LTVSMC plant site is a superfund site. The MPCA AERA process is not written in Rule but is an agency administrative policy. The AERA lacks outside scientific peer review by such agencies as USEPA. Thus the use of the AREA resulted in an inadequate human health evaluation for the air in PolyMet's Final EIS.</p>	

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		<p>No other risk assessments have been performed for soils, sediments, surface or groundwater, even though impacts are documented currently in the FEIS references in both the surface and groundwater from the existing LTVSMC plant site. These impacts must be added to PolyMet's proposed use of tons of additional chemicals including the surfite of waste minerals and elements that have been identified within in the rock from numerous reports from such sources as DNR minerals and the NRRI. These wastes will require perpetual treatment as stated in the FEIS. NEPA requires EIS's to protect the human environment (NEPA sec. 2). This requirement has not been met, and is a major omission invalidating PolyMet's FEIS. Since there was not a standard human health risk assessment performed on the air, soils, sediments, surface or groundwater, the DNR cannot certify that human health will be protected. The lack of protection of human health in air, soils, sediments and water means the DNR cannot issue PolyMet water appropriation permits under MN. Statute 103G.297 Subd. 3 (2) & (3). Nor can the MPCA issue an air quality permit, a water quality permit, or a 401 Water Quality Certification for PolyMet.</p> <p>11. No comprehensive, independent Health Impact Assessment has been done for the PolyMet Project, despite repeated requests from Minnesota's health professionals; all requests were denied, denying the utmost protection to the public, particularly to Minnesota's children.</p> <p>12. The addition of toxic sulfide mining waste-including dozens of chemicals that were unidentified in the EIS-to a basin already contaminated with high levels of arsenic, is putting the children of Minnesota at extreme risk for physical and neurological impairment. Also, chemicals associated with the PolyMet Project-identified and unidentified in the EIS-have not been studied synergistically. Total toxicity has been vastly under reported.</p> <p>13. No cost/benefit analysis has been done for a sulfide mining industrial complex.</p> <p>14. No cumulative impact/risk assessment, inclusive of human health, has been done for a sulfide mining industrial complex. The public needs to know what the probable impact of a sulfide mining industrial complex would be, before we begin to permit such a complex with PolyMet. A cumulative risk assessment-including for health is critical for a massive sulfide mining industrial complex in such a rare water-rich environment as northeastern Minnesota. It is false to claim each mine is permitted on its own merits when the agencies are well aware that once the standards are set for PolyMet they are set for all sulfide mining companies seeking permits in Minnesota.</p> <p>15. Minnesotans have not been given an accurate way to gauge the true cost of what the public is risking. The only acceptable financial assurance under such unknown risk -for a high-risk industry in a high-risk location-is total projected costs in cash including reclamation costs-upfront. Or no permit. Must also include insurance for catastrophic failures or natural disasters, which it is highly doubtful PolyMet could obtain. Minnesota must not take on the industry's risk. All cash up front or no permit. The proposed financial assurance is far too low, and payment comes far too late in the mining process.</p> <p>16. Who is lying? The taconite industry that says it cannot use reverse osmosis. Or PolyMet that claims it could use reverse osmosis for sulfide mining, but then uses taconite tailings leachate-contaminated water for its "Successful Water Treatment Plant." PolyMet cannot be permitted when its 'successful' use of reverse osmosis is suspect and unverifiable. And the concentrated contaminants that would remain after reverse osmosis have unknown levels of toxicity, and therefore unknown disposability. There are no other examples of sulfide mines of this scale in a comparable water-intensive environment and climate that have not polluted surrounding waters. The entire EIS is based on PolyMet's ability to use reverse osmosis successfully. No proof. No permit.</p> <p>17. When I asked for an explanation as to why information from Barr Engineering contradicted the DNR classification for a 100-year event, the DNR refused to answer. I was questioning the assertion in the Duluth News Tribune that</p>	

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		<p>PolyMet was now designing its tailings dam to withstand a 1,000-year event, and asking how that determination had been made. Initially the DNR sent me a portion of an email from Barr, "the proposer," to explain why a Duluth News Tribune article suddenly referenced a PMP. Part of that email stated the following: "The Flotation Tailings Basin has been designed to hold the 72-hour Probable Maximum Precipitation (PMP) event, which is approximately 38 inches, without overtopping. The PMP does not have an assigned return period. 10 year - about 4" in 72 hours, 100 year - about 6" in 72 hours, 1000 year - about 9" in 72 hours, PMP - 38" in 72 hours." I then questioned the fact that the PolyMet EIS consistently referred to a 100-year event as being in 24 hours. As did the DNR website, "A 24-hour duration 100-year storm for most Minnesota communities is roughly six to seven inches." It was when I asked the following questions that the DNR became less than forthcoming. I asked, "Why then has Barr or proposer decided to state that a 100-year event is about 6 inches in 72 hours, rather than 6 inches in 24 hours?" I added, "I am also wondering how it is possible to upgrade PolyMet's tailings basin to a so-called PMP, without also upgrading the entire interconnected EIS, which was based on a 100-year event?" The DNR response was as follows. "Thanks for your interest and questions. We will be addressing all comments during the permitting process." (I was responding to an email I received from the DNR, not a draft permit application.) So, why has Barr/proposer decided to state that a 100-year event is about 6 inches in 72 hours, rather than in 24 hours? It appears such a change would skew the results of a PMP. Spreading six inches over 72 hours, instead of six inches of rainfall in 24 hours, certainly makes a difference in flooding potential. Again, I am wondering how it is possible to upgrade PolyMet's tailings basin to a so-called PMP, without also upgrading the entire interconnected EIS, which was based on a 100-year event not a 1000-year event?" I am also aware that a 100-year event or a 1000-year event can occur at any time, it is a matter of percentages. 500-year events are no longer rare, yet PolyMet's EIS is still based on a 100-year event.</p> <p>18. Which raises the point that an EIS largely based on a 100-year event is wholly inadequate in a time of great climate change, when 500-year events are becoming more and more frequent, and 1000-year events are occurring as well.</p>	
196	Air-82	<p>My name is Nick Rowse and I live at 10704 Prescott Court, Burnsville, Minnesota. I am here to advocate and bear witness for the continued, strict protection of the Boundary Waters Canoe Area Wilderness, specifically from the NorthMet Mining project as proposed by PolyMet Mining and in their nationally owned mining company.</p> <p>For 33 years, I have lived and worked in Minnesota and specifically have experienced the joy and recreation provided by the Boundary Waters Canoe Area Wilderness. Whereas, copper and nickel mining will expose subsurface rock to air and water erosion resulting in acid mine runoff...</p> <p>..... whereas, air pollution will degrade air quality for recreation within the Boundary Waters Canoe Area Wilderness; whereas, significant noise will result from blasting and degrading quiet recreation within the Boundary Waters Canoe Area Wilderness; whereas, air quality is a high priority on federal land, specifically on nationally recognized wilderness areas such the Boundary Waters Canoe Area Wilderness; whereas, the State of Minnesota must protect wilderness values provided by the Boundary Waters Canoe Area Wilderness for current and future generations of Minnesotans; whereas, large-scale mining on more than 4000 acres of currently forested land will result in releasing air pollution over the Boundary Waters Canoe Area Wilderness,.....</p> <p>....and; whereas, the Fond Du Lac Tribe of Lake Superior Chippewa, the Grand Portage Band of Lake Superior Chippewa and the Bois Forte Band of Chippewa will suffer the loss of wild ricing leading to the degradation of their livelihoods in waters downstream at the proposed project due to changes in water quality.</p> <p>One more whereas. These tribes were treated unfairly by the Corps of Engineers and the Minnesota Department of Natural Resources during the environmental review process.</p>	<p>Comment Noted. Comments related to the permits other than the Air Quality Emissions Permit are out of scope for this permit decision.</p>

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		<p>Because the long-term integrity of tailing ponds in copper-nickel mines worldwide has proven to be inadequate, resulting in irreparable water pollution, the Minnesota Pollution Control Agency must deny the NPDES/SDS water quality permit. There is no failsafe technology to contain mine waste material in perpetuity, which will result in degradation of water quality in the Boundary Waters Canoe Area Wilderness.</p> <p>Finally, the wilderness values given to people across this nation must be the highest priority. Wilderness can never be replaced. That's it.</p>	
197	Air-83	<p>Good evening. My name is Tony Kwilas, K-W-I-L-A-S, and I am the director of environmental policy at the Minnesota Chamber of Commerce.</p> <p>First of all, I'd like to thank the Department of Natural Resources and the Pollution Control Agency for having this consolidated draft public hearing on the draft permit to mine, the draft air permit, the draft water -- or NPDES permit -- and the 401 certification.</p> <p>Because this is the perfect example of one of the efficiencies that the chamber has been asking for: Instead of having four separate public hearings, to have one consolidated hearing, and we thank you for listening to us and having -- this is one, just, perfect example of when we think of efficiency in the system.</p> <p>Second of all, I'd like to thank you for having multiple public hearings, which you didn't have to do, and went above and beyond what was required in state law. But we thank you for doing that, and especially having it in the region where the proposed project is located. Hearing from stakeholders that have daily interactions with this proposed project is invaluable.</p> <p>The environmental review and environmental permitting process has been adhered to by state statute and rule. Some say, along with the chamber, that it's taken too long and cost too much, but no one can argue that this process has not been followed and closely adhered to.</p> <p>We have a tremendous opportunity before us to develop a world-class resource, the NorthMet ore body, and in turn, capitalize on one of the largest economic development project proposals in this state in recent years, all the while protecting the great natural resources that we all enjoy. The economic impact to this project is invaluable and could create over 600 construction jobs and 360 permanent jobs at the facility. There will be numerous auxiliary benefits also to local cities, counties, school district.</p> <p>In regards to the four permits -- on the permit to mine, I'd like to thank the Department of Natural Resources, Commissioner Landwehr and Assistant Commissioner Naramore, for your staff for putting together this document. I know it was no easy task.</p> <p>But the most important part of that permit to mine is the financial assurance provision. The financial assurance provisions ensure that the state of Minnesota will be protected from the process when the facilities and the mine are properly closed and maintained. It is important to note that this provision could be revisited yearly and adjusted by the State.</p> <p>In regards to the draft air permit, the company has set -- has met all the details required by the draft air permit. The potential emissions are identified and have set limits on those and they are legally enforceable.</p> <p>On the draft water quality permit, or the NPDES permit, we thank you for establishing the specific limits and protection of surface and groundwater. But in the end, it is clear that the process established by the State --</p>	<p>Comment Noted. Comments related to the permits other than the Air Quality Emissions Permit are out of scope for this permit decision.</p>
198	Air-84	<p>Hi, my name is J.T. Haines. I live in Duluth, and I'm a volunteer with Duluth for Clean Water. I spent some of my early years growing up on the Iron Range in Mountain Iron. I have very fond memories of growing up in Mountain Iron.</p>	<p>Comments related to the permits other than the Air Quality Emissions Permit are out of scope. For response to comment requesting a health impact assessment, please see response to Comment Number 116, above.</p>

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		<p>The basic comment that I want to make today is that those of us in this area, we live downstream of this proposal, and as such, I think that the very serious concerns you're hearing from downstream communities need -- deserve special respect.</p> <p>I have three brief comments about the permits.</p> <p>First, as you know, medical professionals around the state have called for a health impact assessment on this project to measure cumulative impacts to humans. That study has not happened. I view this as a failure in the process and something the draft permits do not adequately address.</p> <p>Second, the U.S. Forest Service recently found that 28 percent of dams for this type of mining failed in the U.S. That rate is unacceptable in a water-rich environment.</p> <p>Since this process began, agencies have updated climate data which confirms increasing frequency of heavy precipitation events in our area. My understanding is that these draft permits do not address the increased risk of dam failure to downstream communities. That is clearly a failure in this process.</p> <p>Third, and finally, there has been no emergency response-planning education with downstream communities like Fond du Lac, like Cloquet, Esko, Duluth, and others. The threat of dam failure is high, and the threat of spills and leaks is, essentially, 100 percent.</p> <p>It is unconscionable that downstream communities have not been educated and informed about dam failure rates, inundation analysis, and emergency response planning. How has that not happened?</p> <p>This is a fundamental failure in the process, and the permits should be denied on that basis alone. This has been a long process, but I think it's important that we remember -- are we okay here?</p> <p>Thank you. I just want to acknowledge this has been a long process, but I think it's really important, Commissioners, that we recall that this is the moment of decision, and it's required of all of us, elected officials and commissioners, that we give it a fresh look with the final details now, and I expect you to do that.</p> <p>And I want to say that I regret that my advocacy for the children of this area feels like advocacy against the children from my old home town. That is not my intent.</p> <p>I like to think that as Minnesotans we could agree that if our jobs harm or threaten our neighbor's children, as painful as it might be, maybe those aren't the right jobs.</p> <p>Glencore is not a good company. They have a horrible record of mistreating labor and the environment. I think it's obvious they would say anything for profit. I do not trust them. I don't think anyone in here should trust them, either blue hat or orange scarf.</p> <p>Commissioners, we believe this process has failed in fundamental ways, especially with regard to downstream communities. I urge you to reject the permits. If this goes forward, I believe we will have sold Minnesota to the lowest bidder and nothing would ever be the same again. We need a better option. Thank you.</p>	
199	Air-84	<p>Dear Commissioner Stine,</p> <p>Duluth for Clean Water objects to the draft water quality permit, draft air quality permit, and draft Clean Water Act Section 401 certification (wetlands) related to the PolyMet Mining Co. NorthMet proposal. Our objections center on two fundamental problems with the permits as drafted: 1) long-term health impacts of the proposal on the residents of downstream communities are unknown, and 2) long-term water treatment of the proposal is undefined and unreliable. Duluth for Clean Water is a Minnesota nonprofit based in Duluth, with volunteers and members around the Duluth area. Our mission is to promote a safe and healthy future for the St. Louis River Watershed, Lake Superior, and the communities who reside thereon. We have participated in the administrative processes concerning the NorthMet</p>	<p>Comments related to the permits other than the Air Quality Emissions Permit are out of scope. For response to comment requesting a health impact assessment, please see response to Comment Number 116, above.</p>

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		<p>Mine proposal by submitting comments, retaining expert consulting services, and attending and speaking at public hearings. Our members live downstream from the proposed PolyMet operation. We drink water from, eat fish from, and rely fully upon the St. Louis River and Lake Superior for our future. Our position is that the NorthMet draft permits are insufficient to protect Minnesota, especially downstream communities, and should be denied.</p> <p>1. Cumulative human health impacts have not been assessed. PCA's mission to "protect and improve the environment and enhance human health" based on the core value that "decisions and policies are supported by data and analysis" is instructive and should guide this decision. Heavy metals are neurotoxins that affect brain development. Pregnant and nursing mothers, infants, and young children would be most impacted by exposure to these metals. Mine waste, especially from nonferrous hardrock mining, poses a significant human health threat downstream. Given these realities, we are extremely concerned that PCA and other state agencies have so far declined to evaluate impacts to human health from the proposed NorthMet project through an independent Health Impact Assessment. We are grateful that PCA promotes a "health in all policies" approach, and we are grateful for the work of the Minnesota Academy of Family Physicians (and other medical professionals) who requested that a "comprehensive, independently produced HIA be completed for the PolyMet NorthMet Project out of a concern for the health of Minnesotans." It is effectively impossible for us to respond fully to this new-to-Minnesota proposal for impacts to air and water quality, when the cumulative impacts to human health have not been analyzed and presented . There is ample reason to conclude -- based on the history of this type of mining as the nation's most toxic industry -- that an HIA is a necessity for a data-driven analysis of these 1 draft permits. The lack of an HIA for this dangerous proposal is a clear failure in the process. Our position is that it would be an unconscionable failure to issue permits for this proposal to bring this toxic and unfamiliar industry to Minnesota when long term health impacts have not been studied or communicated. We object.</p> <p>2. Water Quality Permit would not protect downstream communities. It appears that the draft water quality permit would not set limits on polluted seepage through groundwater to drinking water or surface water, and would not provide necessary monitoring, meaning that pollution seeping from groundwater and upwelling in wetlands and streams in violation of the Clean Water Act could go undetected. We object to the draft water quality permit on this basis.</p> <p>3. The draft water quality permit violates Minnesota law requiring maintenance free closure. Minnesota Administrative Rule 6132.3200 requires that a mining area "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." Closure is defined as "the process of terminating and completing final steps in reclaiming any specific portion of a mining operation. Closure begins when, as prescribed in the permit to mine, there will be no renewed use or activity by the permittee." The NorthMet proposal currently anticipates cessation of activity at year 30, meaning "closure" would theoretically be at that date. The DNR's permit to mine, meanwhile, has no set term, effectively meaning that there is no closure defined at all . Here is a scenario that concerns us, and one which we would request that you consider: Let's imagine that an applicant has an extensive system of water controls that they plan to use, and, if everything goes perfectly, things would be mostly fine for a while. The question, especially for downstream communities, is, what do those controls look like in twenty years? Problems with non-performing mines develop over decades, and applicant companies have a history of abandoning controls as soon as they are legally, or just financially, able. Claims about the future study of "passive controls," and an incredibly extensive system of liners, trenches, pumps, caps, and pipelines -- all of which would require perpetual maintenance to work -- do not reassure us. 2 The permits as drafted anticipate water treatment for centuries or longer, maintaining hydrologic impacts, release of substances, and continuing to pose potential hazards beyond any (undefined) "closure" date. This is a clear violation of Minnesota law, including with</p>	

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		<p>regard to the draft water quality permit. It appears, then, that under this permit regime as drafted, PCA's enforcement of any water quality permit it may issue would be difficult if not facially impossible We are, quite simply, not protected by these draft permits over the longer term. That's not only a legal problem under Minnesota's closure requirements, it is clearly an ethical problem as well. We object. 3</p> <p>4. Downstream communities have not provided consent. Duluth, Carlton, Cloquet, and the many other communities downstream of the NorthMet proposal have not been directly consulted on the PolyMet proposal, and some have vocally objected. Simply put, these communities have not consented. This includes the sovereign Fond du Lac Band of Lake Superior Chippewa, whose concerns have not been fully integrated into permits or the NorthMet project design. Copper sulfide mining would be new to Minnesota, and the legal and regulatory regime is untested and dated. Downstream consultation and consent should be required for a proposal as dangerous as this. We view the lack of downstream consent, including the absence of downstream consent with regard to the so-far-undetermined cumulative health impacts, as a fundamental failure in this process to date, and we request that PCA recognizes this failure in its evaluation of the proposal. We object to the draft NorthMet permits on the basis of the lack of consent of downstream communities and urge that they be denied.</p> <p>Conclusion. The future health and prosperity of northeastern Minnesota depends on protecting our rare freshwater complex. We appreciate PCA's caution that groundwater levels have declined, and that "the prognosis turns downright grim" when the growing problem of groundwater contamination is factored in. "The bottom line on groundwater? We can run out of it." 4 If permitted, the NorthMet project would put us at substantial, and insufficiently accounted for, risk. Minnesotans should anticipate, based on the significant history of promises and non-performance by applicants for similar permits around the US, violations, exceedances, and regular permit revision applications at best, and at worst, outright failures to control pollution at unimaginable cost to our communities. The citizens of Duluth and other downstream communities are relying on the Minnesota Pollution Control Agency to fulfill its vision that "clean water, air, and land support healthy communities and ecosystems, and a strong economy in Minnesota." We urge that you deny the draft water quality permit, draft air quality permit, and draft Clean Water Act Section 401 certification (wetlands) for the proposed Northmet project. We would appreciate an opportunity to discuss our concerns with you in person as well and can be reached at the below contact information for scheduling. We have included a poem about our watershed from one of our members below.</p>	
200	Air-85 Air-90	<p>Hi, I'm Libby Bent, downstream resident of Duluth. And I oppose the issuance of any permit. As my father observed, the sheer complexity of the chemistry, hydrology, and geology involved in sulfide mining without irreversible pollution in our water rich environment boggles the mind. It's never been done because the cost would be huge, far in excess of the value of extracted metals. A more far-fetched industrial initiative is difficult to imagine.</p> <p>So, what is going on? How did this plan make it past a federal law designed to protect watersheds, headwaters on forest service land? A state law requiring sulfide mines to be maintenance free on closure and treaty rights to hunt, fish and gather on a sea of territories requiring high biodiversity lands.</p> <p>Why was the call for a health impact assessment ignored, even as 30,000 health professionals requested one? Why are warnings from mining engineers that the tailings basin design is risky and unsafe going unheeded?</p> <p>The proposed upstream design to store a slurry of toxic mine waste on top of unstable wetland soils is a Mount Polley recipe for disaster. The Mount Polley review panel warns it is not enough to tweak around the edges of what we've been doing. We cannot continue to use technology that is fundamentally -- Hello? Yes? Okay. All right. These are not</p>	<p>Comments related to the permits other than the Air Quality Emissions Permit are out of scope. For response to comment requesting a health impact assessment, please see response to Comment Number 116, above.</p>

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		<p>problems of the past. Dam failures are increasing and PolyMet has not analyzed the increased risk of dam failure from higher precipitation events due to global warming.</p> <p>Perhaps most troubling, where is the analysis of the value of one of the world's largest fresh water deposits? Water is becoming desperately scarce worldwide. 40 states could face clean water shortages in the next ten years.</p> <p>This decision will broadcast Minnesota's priorities. Do we embrace a blue economy and lead the way in mining landfills for strategic metals and investing in copper and precious metal recycling? Or do we trade multi-billion gallons of our fresh water every year for deposits containing less than 1 percent minerals, transforming our lake country into a sea of toxic waste?</p> <p>The rest of the world is choosing. El Salvador prizes water over gold saying, "We are the first country to evaluate the cost and benefits of metallic mining and say no." Buffalo, New York is transforming their city from rust to blue, embracing an economy based on the Niagara River and Lake Erie. And Minnesota, 50 years of cleaning up the St. Louis River, only to become the land of sky tainted waters? As my dad would say, it boggles the mind. This decision is irreversible. For our future and for the greatest lake in the world, we cannot get it wrong. Please do not check one more box. Please reject these permits.</p> <p>Please find enclosed an urgent new report detailing how the PolyMet Inc. NorthMet permit application did not adequately consider increasing precipitation resulting from climate change or the impact of snow melt in their tailings basin and dam design. The members of Duluth for Clean Water call for the PolyMet permit to mine to be denied. We are sharing the findings of this report in the hopes that you will join us.</p> <p>Climate change has already resulted in marked decreases in extreme cold and increasing rain in every month of the year in Northern Minnesota. Duluth for Clean Water sought to understand how the PolyMet proposal accounts for anticipated climate change impacts in the future. With indefinite water treatment planned at the copper/nickel mine tailings basin, due diligence requires consideration of the impacts of long-range climate trends on the tailings basin and dam. This is absolutely essential to protect downstream and nearby communities. Through a grant from the Indigenous Environmental Network, we engaged respected hydrologist and engineer, Tom Myers, Ph.D1 , to analyze the underlying assumptions on precipitation events as they relate to the PolyMet permit applications.</p> <p>The resulting report shows that PolyMet did not plan for climate change impacts in its tailings basin design. The report (enclosed) compares the probable maximum precipitation (PMP) predicted in the proposed PolyMet tailings basin alongside local climate change models for Biwabik, MN. Not only did PolyMet fail to account for increasing precipitation resulting from climate change, the applicant failed to consider the impacts of melting snowpack at all. The PMP reflected in PolyMet's proposed tailings basin design is only 55% of the PMP when both snowpack and increasing heavy rainfall are considered (38 inches versus 68 inches in 72 hours). Such a discrepancy would significantly increase the chance of dam failure, either by overtopping, piping, or foundation failure.</p> <p>This is unacceptable and dangerous to Minnesota, especially downstream communities. The agencies charged with protecting Minnesotans and our portion of the Lake Superior watershed have a duty to act. By not accounting for accurate precipitation events and by disregarding snowpack, the NorthMet permit as drafted is inadequate. Please join Duluth for Clean Water in speaking publicly about these concerns and request the permit be denied. Demand action from both the permitting agencies and our local, state and federal elected officials. The safety of our communities and the long-term future of Lake Superior lies in our hands today.</p>	

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		<p>The attached report to this comment, "Risk Analysis of Probable Maximum Flood and Climate Change at the PolyMet Flotation Tailings Basin", details possible risks at the tailing basins as a result of climate change.</p>	
201	Air-86	<p>Dear Mr. Stine, Arguably, the Minnesota DNR had an excuse for its weak PolyMet draft Permit to Mine. There are state laws saying that part of the DNR's mission is to encourage minerals development. The mission of the Minnesota Pollution Control Agency (MPCA) is to protect the environment and Minnesota citizens from pollution.</p> <p>The MPCA draft water pollution permit for the PolyMet sulfide mine doesn't set limits on polluted seepage through groundwater to drinking water or surface water.</p> <p>The MPCA draft water pollution permit for the PolyMet doesn't even provide appropriate monitoring; PolyMet discharge in violation of the Clean Water Act could go completely undetected.</p> <p>The MPCA draft section 401 certification ignores the deficiencies in the water pollution permit and erroneously claims that the PolyMet sulfide mine project would not violate water quality standards or degrade Minnesota water quality.</p> <p>State agencies refused to evaluate impacts on human health from the PolyMet mine project using an open and public health impact assessment (HIA) process, even though 30,000 Minnesota medical and health professionals asked for an HIA to assess pollution threats including brain damage to fetuses, infants and children from mercury contamination of fish.</p> <p>Now, the MPCA draft section 401 certification accepts PolyMet's "exclusions" and junk science to erroneously claim that the PolyMet sulfide mine project would not endanger the environment and human health.</p> <p>I oppose this permit! Please DENY the PolyMet permit!</p>	<p>Comment Noted.</p> <p>Comments related to the permits other than the Air Quality Emissions Permit are out of scope. For response to comment requesting a health impact assessment, please see response to Comment Number 116, above.</p>
202	Air-87	<p>Dear Commissioner Stine, MPCA's draft water pollution permit misses on setting contamination limits on PolyMet waste facilities seepage to wetlands and streams and doesn't even require monitoring for the quality of surface water, thus violating the Clean Water Act.</p> <p>MPCA is allowing PolyMet to skew forms allowing them to deny any threats to water quality including wetlands, wild rice, mercury in fish, and threats to the health of people. There is something dreadfully wrong when a company can be allowed, gratis, to contaminate our water. The MPCA needs to protect our waters from sulfide mine pollution!</p> <p>I strongly urge the MPCA to deny water pollution (NPDES/SDS) permit and deny the Section 401 certification for the PolyMet copper-nickel mine project.</p> <p>The proposed NPDES/SDS permit is weak and fails to control the biggest threat from sulfide mining – the seepage of contaminated wastes to groundwater and then to drinking water and surface water from mine pits, waste rock stockpiles, tailings basins and other sulfide mine waste storage facilities.</p> <p>The Section 401 certification relies on PolyMet's assumptions, exclusions and misleading information to claim that the PolyMet sulfide mine would not violate water quality standards, degrade water quality, and endanger the environment and human health.</p> <p>The PolyMet draft NPDES/SDs permit and draft 401 certification would conflict with federal and state laws and would jeopardize Minnesota water quality, natural resources, health and finances.</p>	<p>Comments related to the permits other than the Air Quality Emissions Permit are out of scope. For response to comment requesting a health impact assessment, please see response to Comment Number 116, above.</p>

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		<p>*The MPCA draft water pollution permit for the PolyMet sulfide mine wouldn't set limits on polluted seepage through groundwater to drinking water or surface water. *The MPCA draft water pollution permit for the PolyMet wouldn't even provide appropriate monitoring; PolyMet's pollution seeping from groundwater and welling up in wetlands and streams in violation of the Clean Water Act could go completely undetected.</p> <p>*The MPCA draft section 401 certification would ignore the deficiencies in the water pollution permit and erroneously claims that the PolyMet sulfide mine project would not violate water quality standards or degrade Minnesota water quality.</p> <p>*The MPCA, along with other State agencies refused to evaluate impacts on human health from the PolyMet mine project through an open and public health impact assessment (HIA) process, even though groups representing 30,000 Minnesota medical and health professionals asked for an HIA to assess threats including brain damage to fetuses, infants and children from mercury contamination of fish.</p> <p>*Now, the MPCA draft section 401 certification would accept PolyMet's exclusions, assumptions and junk science to erroneously claim that the PolyMet sulfide mine project would not endanger the environment and human health.</p> <p>Please accept your Agency's mission as a protector of Minnesota waters, fish, wild rice, wildlife, wetlands and human health not the protector of foreign mining companies seeking profit at our expense. On behalf of the people of Minnesota and clean water, I ask you to reject and deny the draft water pollution (NPDES/SDS) permit and the draft 401 certification for the PolyMet copper-nickel sulfide mine project.</p>	

<p>203</p>	<p>Air-88</p>	<p>These comments are being submitted on behalf of the following conservation organizations: Save Our Sky Blue Waters, Save Lake Superior Association, and Wetlands Action Group (hereinafter, "Organizations"). The Organizations submit these comments and Petition and Request for a Contested Case Hearing on the Minnesota Pollution Control Agency (MPCA) proposed Clean Water Act Section 401 Water Quality Certification for the Section 404 (Wetlands) Permit for PolyMet Mining, Inc.'s proposed NorthMet Project. The Conservation Organizations believe that the NorthMet Project may result in water quality standard violations on several bases. Some of these are covered by the Petition for Contested Case Hearing on the NPDES/SDS Permit that will be submitted by Minnesota Center for Environmental Advocacy, et al. We are also requesting a contested case hearing on the Water Quality Permit for the proposed PolyMet - NorthMet Mine.</p> <p>Save Our Sky Blue Waters (SOSBW) is a Duluth based grassroots non-profit organization dedicated to protecting the waters, forests, wildlife and local communities of Minnesota's Arrowhead Region. The Arrowhead Region has been known as one of the most magnificent areas of the state, for its majestic forests, wetlands, and waters and because it contains the headwaters of three great watersheds: north to Rainy River, east to Lake Superior, and south to the Mississippi. The protection of these valuable resources is SOSBW's core mission. SOSBW developed in response to proposed copper-nickel sulfide mining and exploration in northeastern Minnesota and has consistently participated at all levels in the ongoing environmental review and approval process involving the proposed PolyMet NorthMet Mine proposal. Protecting the health of the St. Louis River watershed and Lake Superior is a key component of the mission of SOSBW. Save Our Sky Blue Waters' members live, depend upon, enjoy, recreate, fish, eat and gather locally from the lands and waters, and own property in the area that would be adversely impacted by PolyMet's proposed mine.</p> <p>Save Lake Superior Association (SLSA) is headquartered in Two Harbors, MN with members residing in the three states and a province on Lake Superior's shoreline and watershed. SLSA has about 250 members, many of whom fish and recreate along the North Shore of Lake Superior, in its watershed, and in the St. Louis River estuary. The mission of SLSA is to prevent further degradation of Lake Superior and to promote its rehabilitation. SLSA was formed in 1969 to stop the discharge of taconite tailings into Lake Superior by Reserve Mining Company. This waste material contains many of the same toxins such as mercury and asbestos fibers that would be generated by the mining and processing of sulfide ore by PolyMet. As stakeholders SLSA is concerned about the potential destruction of natural habitat and the pollution of both air and water in the watershed of Lake Superior, and ultimately the Lake itself, should PolyMet be permitted. Lake Superior and its watershed are downwind and downstream from current taconite and proposed sulfide mining, both of which emit these toxic substances. Even now SLSA's members, friends, and families, especially children, must limit their fish consumption due to the continuing pollution. Many are unaware of the danger and continue to consume fish as part of their daily diet. SLSA's members, and others who visit the local parks, streams, trails, shoreline, and the lake itself, are unknowingly exposed to these toxins. The release of more toxins by new mining operations would exponentially increase the pollution of the air we breathe and the water we drink.</p> <p>Wetlands Action Group (WAG) represents citizens of Northeast Minnesota seeking to protect the region's waters, wetlands and watersheds. WAG became active following an improper decision by St. Louis County commissioners in 2006 to enter into an agreement for a wetlands mitigation plan for the PolyMet mine. Legal action by WAG and local citizens nullified this agreement.</p> <p>WAG has continued to follow, make comments, and attend meetings and hearings on the PolyMet proposal along with simultaneous wetland actions set in place to facilitate mining. Its members and supporters depend upon the water, wetlands, forests, and ecological resources of our area, and its mission is to preserve these resources for present and future generations.</p> <p>WAG's members who recreate, fish, eat wild rice, live in this area, or otherwise enjoy the Arrowhead region would be harmed by PolyMet's mine if it were approved.</p> <p>Our groups believe the permits for PolyMet's proposed sulfide mine must be denied. The proposed permits cannot and do not protect future generations from the long-term impacts of sulfide mining.</p>	<p>Comments related to the permits other than the Air Quality Emissions Permit are out of scope for this permit decision.</p> <p>Drill hole blasting emissions including heavy metals such as arsenic and nickel were evaluated during the draft permit review. Emission factors were derived from AP-42, section 11.9, Wester Surface Coal Mining and site-specific mineralogical characteristics taken from well core data. The proposed permit contains conditions related drill hole blasting in the form of visible emission (VE) checks, corrective actions as defined in the Fugitive Dust Control Plan located in Appendix B to the proposed permit, and number recordkeeping requirements associated with VE checks, number of blast holes drilled each day, meteorological conditions, and time and location of blasts.</p>
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PolyMet's permits are written to allow contamination up to the site's boundary line, which encompasses many square miles. In Minnesota, groundwater belongs to the public even when it is located within private property, just as surface water does. The permits need to address how polluted water from the PolyMet site will impact ground water.

The Environmental Impact Statement (EIS) promised that an underground wall built to contain and collect groundwater in the most polluted areas will be at least 90 percent effective. The permits deem the system acceptable if it works under "average annual conditions," effectively disregarding the potential for snowmelt and heavy rainfall to flush pollution through cracks in the wall. The permits provide no standards and no fines if the system fails -- even if surface streams become polluted as a result.

The most disturbing aspect of this plan is that there is no end point. Modeling suggests that the underground barriers will need to stay intact -- along with a continuously operating pump-and treat system -- for centuries. Also continuing for a thousand years or more are the dangers presented by the tailings basin dam. It is unconscionable to allow more liquid tailings to be stored on an outdated and contaminated existing tailings basin. We object to the State of Minnesota sanctioning this threat to future generations living downstream.

- Air emissions have not been adequately addressed. These include arsenic, mercury, sulfur, blasting compounds, and metals and dust from the blasting, hauling, crushing, and hydrometallurgical process.
- Synergistic effects upon human and environmental health have not been addressed.
- Cumulative impacts are missing, resulting in weak and/ or faulty environmental conclusions (errors).
- Air emissions will exacerbate water quality violations, but have not been figured in.
- Rail spillage is not adequately considered, although this would have broad ramifications for toxicity to the environment and water resources.
- It is contradictory to consider wetlands as mitigation for toxic metals without considering the over-all impacts to the ecological health of the wetlands themselves, and the biosystems that are dependent upon them.
- Baseline monitoring/modeling must be done on wetlands that would be impacted by PolyMet's mining.
- Mercury is a concern for the entire Great Lakes basin. No new or increased loads or discharges of mercury should be allowed. The conclusion that this project will not contribute additional mercury to the Lake Superior basin is in error.
- Nickel modeling must be redone, especially due to the fact that nickel will be the hardest to extract from the ores, so there will likely be high amounts left in plant residues.

- Seasonal and other fluctuations in water cycles must be considered in wetlands' ability to sequester toxic metals.
- Aluminum must be accurately addressed in spillage models.
- It is not sufficient to address water quality problems after they develop.

We also ask that MPCA and MDNR consolidate all of the permits and issues into one hearing. There is a great deal of overlap between the permits, including the 401 Certification.

Conclusion: The PolyMet EIS, and subsequent draft permits and proposed 401 Certification, evade the seriousness of pollution impacts to the air, surface, and waters of the NorthMet site and surrounding wetlands, forests, and waters--and the co-existent aquatic, plant, and wildlife species--as well as impacts to human health.

This environmental process, as it now stands, will only lead to the continued degradation of the environment and water of northeast Minnesota--for all future generations. Please protect the future of the people, wildlife and waters of northeastern Minnesota by saying "no" to this mine plan.

Incorporate by Reference

The Conservation Organizations incorporate by reference our comments on the PolyMet NorthMet Mine and Land Exchange EIS; the Comments of MCEA et al. on the NorthMet Dam Safety Permits submitted to the DNR on October 16, 2017; the Joint Petition of MCEA et al. for a Contested Case Hearing on the NorthMet Permit to Mine Application submitted to DNR on February 28, 2018; the Comments and Objections of MCEA et al. to the DNR on the NorthMet Mine Project Permit to Mine Application submitted to the DNR on March 6, 2018; Friends of the Boundary Waters et al. Petition for Contested Case Hearing on Section 401 Certification for the NorthMet Mine. The Conservation Organizations request that these documents be considered as part of our comments. We are submitting the Friends of BWCAW_CED Petition for CCH (2).pdf as part of our comments and petition.

Thank you for the opportunity to comment on this proposed project, which has enormous implications for the Superior National Forest, the Arrowhead region, the state of Minnesota, and the Lake Superior watershed.

We believe that a contested case hearing(s) is necessary to correct errors for the draft Water Quality Permit and 401 Certification.



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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PolyMet Draft Air Permit Comment – 4th Floor
Minnesota Pollution Control Agency
520 Lafayette Road N
St. Paul, MN 55155-4045

Re: Poly Met Mining, Inc.
P.O. Box 475
Hoyt Lakes, MN 55750-0475

PolyMet Mining, Inc.
6500 County Road 666
Hoyt Lakes, MN 55750
St. Louis County

Dear Commissioner Stine:

MPCA Comment 1

The Minnesota Center for Environmental Advocacy (“MCEA”), submits the following comments with regard to the proposed air emissions permit for Poly Met Mining, Inc. (“PolyMet”) on behalf of its own members and on behalf of the Sierra Club Northstar Chapter, the Center for Biological Diversity, and Friends of the Boundary Waters Wilderness (“Conservation Organizations”).

The Minnesota Pollution Control Agency (“MPCA”) has made the preliminary determination to issue an air emissions permit allowing construction and operation of the proposed PolyMet NorthMet copper-nickel-gold/platinum-group-metal mine. In order to issue this permit, the MPCA must find that the conditions of the permit provide for compliance with all applicable requirements and the requirements of parts 7007.0100 to 7007.1850, or include a schedule to achieve such compliance. Minn. R. 7007.1000, subp. E. Minn. R. 7007.0100, subp. 7.K. defines “applicable requirement” to include “any national ambient air quality standard adopted under section 109 of the act or increment or visibility requirement under part C of the act....” Minn. R. 7007.0800, subp. 1 states that “the agency shall include the permit conditions specified in this part in all permits, except where the requirement states that it applies only to part 70 permits or only to state permits.” Minn. R. 7007.0800, subp. 2.A. states that the permit must “include emission limitations, operational requirements, and other provisions

MPCA Comment 1

needed to ensure compliance with all applicable requirements at the time of permit issuance....” Further, Minn. R. 7007.0800, subp.2.B. states that the permit must “include any condition the commissioner determines to be necessary to protect human health and the environment.”

The most important conditions are those that ensure compliance with the National and Minnesota ambient air quality standards. Minn. R. 7009.0020 mandates that “No person shall emit any pollutant in such an amount or in such a manner as to cause or contribute to a violation of any Minnesota ambient air quality standard under part 7009.0080 beyond the person’s property line, provided however, that in the event the general public has access to the person’s property or portion thereof, the ambient air quality standards apply in those locations.”

The Conservation Organizations have reviewed the proposed permit (“Permit”) and have identified major deficiencies in its conditions. Comments were prepared by Vicki Stamper whose curriculum vitae is attached as Exhibit 13. Ms. Stamper is an independent air quality consultant and engineer with more than twenty-five years of experience spanning government and the private sector. Ms. Stamper’s experience includes ten years working in EPA’s Region VIII New Source Review Program and significant work on new source permit and air quality analysis reviews, regional haze and Class I air quality matters.

As outlined in the attached report from Ms. Stamper, the Permit is based on deficient modeling, lacks necessary terms and conditions, and fails to ensure that the source will comply with the National and State Ambient Air Quality Standards (“NAAQS”). The Conservation Organizations identify the following deficiencies in the Permit and request that these issues be resolved and the permit renoticed for public comment.

MPCA Comment 2

The deficiencies identified by the Conservation Organizations include the following:

I. The Draft Permit for Polymet Fails to Ensure the Source Will Comply with the National Ambient Air Quality Standards (NAAQS).

- A. It is not clear whether PolyMet currently has ownership or control of the ambient air boundary used to define the scope of the air modeling.*

Before issuing this Permit, MPCA must require PolyMet to document and disclose the impacts on ambient air quality now in the event that PolyMet does not gain ownership or control of the area within its currently projected “effective fenceline,” and the Permit must include other conditions as needed to protect the NAAQS that apply if PolyMet does not gain ownership or control of the effective fenceline. Until PolyMet has control of the land around the mine, MPCA cannot issue a permit based on a NAAQS analysis for an effective fenceline that PolyMet does not currently control.

B. PolyMet's air modeling failed to include the impacts of contributing sources.

PolyMet must be required to evaluate cumulative impacts on the NAAQS in all areas of ambient air in order to ensure that its permit contains adequate emission limits to ensure NAAQS will not be violated. As provided for in MPCA guidance, when a cumulative modeling analysis shows a problem with NAAQS compliance, rather than finding reasons to exclude a neighboring source's emissions, a proposed source should analyze its contributions and other neighboring source's contributions and if the proposed source contributes significantly to NAAQS exceedances, then additional emission limitations should be required in its permit.

C. The Permit unlawfully allows for dispersion techniques to protect the NAAQS.

The Permit must be changed to include fugitive emissions controls that are not prohibited "dispersion techniques" under the Clean Air Act, and mandate measures intended to continuously control fugitive dust to the levels assumed in the air modeling analysis.

D. PolyMet understated fugitive PM10 and PM2.5 emissions, which in turn means PolyMet understated PM10 and PM2.5 ambient air impacts.

MPCA must require PolyMet to revise its PM10 and PM2.5 emission projections for unpaved roads at the Plant Site and the Mine Site. For the short term average PM10 and PM2.5 NAAQS, MPCA must require that short term emissions estimates reflect worst case daily emissions at both the Mine Site and Plant Site, reflecting employee trips on unpaved roads as well as other vehicle trips related to PolyMet. MPCA must also require the use of PM10 and PM2.5 emission factors appropriate for the weight of the vehicle at the Plant Site. Further, MPCA cannot allow such a high level of PM10 and PM2.5 control from unpaved road emissions without specific enforceable requirements to ensure that 80-90% control is actually achieved.

As a result of the issues identified above, MPCA must require the modeling to be redone with appropriate assumptions before the Permit is issued to ensure that the Permit includes all conditions necessary to ensure compliance with the PM10 and PM2.5 NAAQS.

II. The Draft Permit Does Not Include Adequate Limits on the Potential Emissions of the PolyMet Facility under the Prevention of Significant Deterioration Permitting Regulations.

MPCA claims that the PolyMet source is a synthetic minor source and is thus not subject to prevention of significant deterioration (PSD) permitting requirements in Minn. Rule 7007.3000, which incorporates by reference the federal PSD permitting rules at 40 C.F.R. 52.21.¹ Under the PSD permitting program, a source is considered to be a major stationary source if the potential to

¹ These rules were first approved by EPA as part of the State Implementation Plan on September 26, 2017 (82 Fed. Reg. 44,734); see also 40 C.F.R. §52.1220(c).

MPCA Comment 6

emit of any regulated New Source Review pollutant is equal to or greater than 100 tons per year for certain source categories and 250 tons per year for all other source categories.² MPCA has stated that PolyMet is in the 250 ton-per year source category.³ A source that would otherwise be a major stationary source can take practically enforceable limitations on its potential to emit to keep air emissions below major source emission thresholds. Such a source would be deemed a “synthetic minor” source. MPCA has stated that it is issuing a synthetic minor permit for the PolyMet facility. MPCA has identified permit conditions that are necessary to ensure the PolyMet source is not a major source as “Title I conditions.” The Conservation Organizations question the adequacy of the assumptions made for the Potential to Emit and the proposed conditions to maintain the “synthetic minor” status.

MPCA Comment 7

A. The Potential to Emit of PolyMet Does Not Account for the Full Potential Emissions of the Fine Crushing Plant.

The Potential to Emit (“PTE”) calculation did not include some fine crushing lines that PolyMet has stated that it does not intend to use. With respect to determining potential to emit of the PolyMet facility, these fine crushing lines do have potential to emit air pollutants and the Draft Permit does not include any prohibition on their startup or operation as a Title I condition. Thus, these crushing lines must be included in the potential to emit of the PolyMet facility. If MPCA was to impose Title I limitations prohibiting operation of these four fine crusher lines without a permit modification, MPCA must make clear that, in the case of such a permit change, the PolyMet source must be re-evaluated for PSD applicability as though construction had not yet commenced pursuant to 40 C.F.R. 52.21(r)(4).

MPCA Comment 8

B. The Permit Fails to Take Into Account All Non-Fugitive Particulate Emissions in Determining Whether PolyMet is a Major Stationary Source under the PSD Program.

In determining if the PolyMet facility is a major stationary source under the PSD permitting requirements, PolyMet and MPCA have excluded “fugitive emissions.” PolyMet considered several sources of emissions as fugitive emissions when the emissions from those sources could be reasonably captured and vented through a vent or stack. Specifically, PolyMet considered emissions from the portable crushing plants, screening, and blasthole drilling at the Mine Site as fugitive emissions. Particulate emissions from all of these sources could be reasonably captured and vented through a stack or other functionally equivalent opening. Therefore, the potential to emit particulate (PM, PM10, and PM2.5) must be included in determining the potential to emit of the PolyMet facility.

² 40 C.F.R. §52.21(b)(1)(i).

³ MPCA TSD at 3.

C. *The Permit Fails to Adequately Limit the Potential to Emit of the Autoclave Unit and Autoclave Flash Vessel.*

At PolyMet's plant site, an autoclave will be used to process nickel flotation concentration to leach valuable minerals in the concentrate so they can be removed. The data supporting the assumptions in the Permit is deficient for a variety of reasons. MPCA must require more documentation of PolyMet's estimate of 99.06% control of PM, PM10, and PM2.5 with venturi and packed bed scrubbers. Proposed testing and operating conditions in the Permit are inadequate. Given the unknowns about this process which has never been tested at a commercial scale and the unknowns and wide variability of control of PM, PM10, PM2.5 and sulfuric acid mists across the scrubbers, the potential to emit of the PolyMet facility must be based on the worst case uncontrolled annual emissions that could be emitted from the Autoclave unit and Autoclave flash vessel under their physical and operational design.

D. *The Permit Lacks Federally and Practically Enforceable Limits on the Potential to Emit of Other Sources of Emissions at the PolyMet Facility.*

The Draft Permit contains hundreds of conditions intended to limit the PolyMet facility's potential to emit, which are labeled "Title I condition[s]." However, the number of such permit conditions and the extreme length of the permit is not indicative of whether such conditions are practically enforceable and whether such conditions will ensure that the potential emissions of the PolyMet facility are limited to less than major source emission levels. In addition to the deficiencies we raised with the permit limits on Autoclave vent and Autoclave Flash vessel discussed above, there are numerous other deficiencies in the Draft Permit that render the limits on the potential to emit as ineffective. These deficiencies include:

1. The Draft Permit contemplates the addition of "contractor activities," which are currently unidentified and which likely need to be counted in the potential to emit of the PolyMet facility, but fails to include any limitations on the emissions from such activities.
2. The Draft Permit fails to ensure that if any Title I Conditions are relaxed, the source must be evaluated for PSD applicability as though construction has not yet commenced.
3. The ore processing throughput limit does not limit the amount of ore produced at the mine, and the Draft Permit fails to include necessary conditions to limit ore throughput at the plant site.
4. The Draft Permit fails to include all provisions related to Title I conditions as Title I Conditions, which is necessary to ensure that such provisions remain in effect even if the permit expires.

MPCA Comment 10

5. The Draft Permit does not include all conditions necessary to ensure continuous compliance with emission limitations intended to limit the potential to emit of the PolyMet facility.

MPCA Comment 11

III. The Draft Permit Fails to Adequately Limit Potential Hazardous Air Pollutant Emissions of the PolyMet Facility to Less than Major Source Emission Thresholds.

The Draft Permit for the PolyMet facility also includes emission limitations intended to keep the PolyMet facility a synthetic minor source of hazardous air pollutants (HAPs) under 40 CFR 63.2. Those limits are identified in the Draft Permit as “Avoid major source under 40 CFR 63.2” and the majority of those limits apply to metal HAPs that would also qualify as particulate matter.⁴ These limits are generally control efficiency requirements for the baghouses/cartridge filters.⁵ As discussed above, those removal efficiency requirements are not enforceable requirements unless the permit requires periodic testing to ensure compliance with the control efficiency limit.

MPCA Comment 12

IV. Additional Comments on the Draft Permit for PolyMet.

The Conservation Organizations believe that it is inappropriate for the Permit to allow PolyMet up to 5 years to begin construction. Construction should be commenced within 18 months of permit issuance. The Conservation Organizations also note that the Permit could be streamlined to avoid repetitive provision to allow citizens to better understand and enforce the permit conditions.

MPCA Comment 13

Given the issues raised with regard to the modeling performed in support of the Permit, the Conservation Organizations believe that it would be appropriate for the MPCA to amend and supplement the modeling and renotice the Permit if the new modeling supports issuance.

The Conservation Organizations appreciate the opportunity to comment on the Permit.

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⁴ See, e.g., Draft Permit at Condition 5.286.6, 5.287.6, etc.

⁵ Id.

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COMMENTS ON THE MPCA DRAFT AIR PERMIT FOR POLYMET

Prepared By Vicki Stamper

03/16/2018

MPCA Comment 15

I. The Draft Permit for PolyMet Fails to Ensure the Source Will Comply with the National Ambient Air Quality Standards (NAAQS).

The Permit for PolyMet is required to include terms and conditions necessary to ensure compliance with the National Ambient Air Quality Standards (NAAQS). Specifically, Minn. Rule 7007.0100, Subp. 7.K. defines “applicable requirement” to include “any national ambient air quality standard adopted under section 109 of the act or increment or visibility requirement under part C of the act....” Minn. Rule 7007.0800, Subp. 1 states that “the agency shall include the permit conditions specified in this part in all permits, except where the requirement states that it applies only to part 70 permits or only to state permits.” Minn. Rule 7007.0800, Subp. 2.A. states that the permit must “include emission limitations, operational requirements, and other provisions needed to ensure compliance with all applicable requirements at the time of permit issuance....” Further, Minn. Rule 7007.0800, Subp.2.B. states that the permit must “include any condition the commissioner determines to be necessary to protect human health and the environment.”

Minn. Rule 7009.0020 mandates that “No person shall emit any pollutant in such an amount or in such a manner as to cause or contribute to a violation of any Minnesota ambient air quality standard under part 7009.0080 beyond the person’s property line, provided however, that in the event the general public has access to the person’s property or portion thereof, the ambient air quality standards apply in those locations.”¹

It is clear that fugitive dust sources at the PolyMet site is the primary concern for compliance with the PM10 and PM2.5 NAAQS, particularly around the mine site. Fugitive particulate emissions are projected to be very high at the PolyMet site.

Beginning at the source-wide level (mine and mineral processing plant), the uncontrolled fugitive emissions of total PM, PM10, and PM2.5 and the “controlled” level of emissions have been projected by PolyMet as follows:

¹ This Minnesota rule also states that the general public “does not include employees or other categories of people who have been directly authorized by the property owner to enter or remain on the property for a limited period of time and for a specific purpose.”

Table 1. PolyMet’s Projected Potential to Emit (PTE) and “Controlled Potential to Emit” of Particulate Matter in Tons Per Year (tpy) from Fugitive Emission Sources²

Pollutant	Fugitive Sources PTE (tpy)	Fugitive Sources “Controlled PTE” (tpy)	Percent Control of Fugitive Source PTE Assumed by PolyMet
PM	11,738.38	2,351.68	80%
PM10	3,156.84	715.21	77%
PM2.5	344.5	100.34	71%

MPCA Comment 15

Fugitive emissions at PolyMet mine site are the majority of these total plantwide fugitive particulate emissions. Table 2 below shows PolyMet’s projection of PTE and Controlled PTE of particulate matter from fugitive emission sources at the mine site.

Table 2. PolyMet’s Projected Potential to Emit (PTE) and “Controlled Potential to Emit” of Particulate Matter from Fugitive Emission Sources at the Mine Site³

Pollutant	Fugitive Sources PTE (tpy)	Fugitive Sources “Controlled PTE” (tpy)	Percent Control of Fugitive Source PTE Assumed by PolyMet
PM	8,145	1,349	83%
PM10	2,204	409	81%
PM2.5	243	63	74%

MPCA Comment 16

The bulk of the fugitive mine source PM10 and PM2.5 emissions is from unpaved mine roads and mine haul roads. By our tally of the unpaved road emissions at the mine, the uncontrolled PM10 emissions due to unpaved roads were projected to be a total of 2,040 tpy or about 93% of the total 2,204 tpy of uncontrolled PM10 from fugitive dust sources at the mine site.⁴ Uncontrolled PM2.5 emissions from unpaved roads at the mine site tally up to 209 tpy, which reflects 86% of the total 243 tpy of uncontrolled PM2.5 from fugitive dust sources at the mine.⁵ PolyMet’s PTE calculations and calculations of emission rates for input into the ambient air modeling demonstration assumed 90% control from PTE emissions for all unpaved roads, with the exception of Dunka Road for which PolyMet assumes 80% control.⁶ Those are very high levels of control to assume for unpaved road emissions, and the assumptions undoubtedly made a significant difference as to whether the PolyMet mine site modeling could demonstrate attainment of the PM10 and PM2.5 NAAQS.

² See Attachment 1 to MPCA’s Technical Support Document (TSD), Table B-1. The Fugitive Sources PTE and “Controlled PTE” was derived from subtracting the “Point Sources Only” PTE from the “Point Sources + Fugitive Sources” PTE.

³ See Attachment 1 to MPCA’s Technical Support Document (TSD), Table B-16 at page 18 of 18. The Fugitive Sources PTE and “Controlled PTE” were derived from subtracting the “PSD Point Sources” PTE from the “Point and Fugitive Sources” PTE for the mine site.

⁴ *Id.* at Table B-16. *See also* PolyMet Mine Site Calculations (V2D2) spreadsheet attached as Ex. 1. This spreadsheet was previously posted on MPCA’s PolyMet website, but does not appear to be on MPCA’s website anymore.

⁵ *Id.*

⁶ *Id.*

MPCA Comment 17

PolyMet’s modeling predicts that the maximum concentrations of the PM10 and PM2.5 would be almost at the level of the NAAQS. Specifically, the Class II NAAQS modeling of the proposed PolyMet source predicted 24-hour average concentrations of PM10 and PM2.5 that were about 90% of the NAAQS and predicted annual PM2.5 concentrations that were about 93% of the annual PM2.5 NAAQS.⁷ Given how close these predicted maximum concentrations are to the levels of the PM10 and PM2.5 NAAQS and the high levels of fugitive dust control taken into account in the PM10 and PM2.5 modeling, it is imperative that the inputs to the model accurately predict maximum allowable impacts and that the control measures of the permit are enforceable, lawful, and reasonably tied to the assumptions in the modeling.

MPCA Comment 18

It appears that these peak concentrations in PM10 and PM2.5 were predicted both adjacent to the Plant Site Effective Fence Line and adjacent to and near the Mine Site Effective Fence Line, areas which are likely to be heavily influenced by fugitive dust from unpaved roads.⁸ Our review of the emissions input to the model and the conditions of the permit finds that the permit does not adequately or lawfully limit emissions from unpaved roads at the Mine Site or Plant Site. Further, the permit will not adequately ensure that the public is restricted from the area that PolyMet did not consider to be “ambient air,” claiming it was within the Plant and Mine Fence Lines. Thus PolyMet’s NAAQS modeling is fatally flawed for not including all locations of ambient air. Moreover, MPCA allowed PolyMet to exclude impacts from other nearby sources in its modeling, which is not allowed by MPCA’s own guidance. The exclusion of both large swaths of ambient air and air impacts of nearby sources mean the maximum modeled impacts are understated. For all of these reasons as will be detailed below, the draft air permit for PolyMet does not ensure that the source will comply with the applicable requirements of the NAAQS.

MPCA Comment 19

A. It is Not Clear Whether PolyMet Currently Has Ownership of Control of the Ambient Air Boundary Used to Define the Scope of the Air Modeling in Assessing Whether the Facility Will Comply with the NAAQS.

PolyMet’s air modeling did not include receptors within the “effective fenceline.”⁹ The draft permit requires PolyMet to use fencing, control access points, conduct security patrols, place ‘no trespassing’ signage, and use remote monitoring to maintain control over the effective fenceline prior to blasting of waste rock, but no later than the initial startup of Mine Site Blast Hole Drilling (FUGI 25).¹⁰ The permit also requires development of an “Ambient Air Boundary Control Strategy Implementation Plan.”¹¹ It is apparent that PolyMet does not currently own or control all of the area of the effective fenceline. Specifically, as stated in its January 2018 Permit Application, “[t]he effective fencelines for the Plant Site and Mine Site are within property *expected to be owned or controlled by PolyMet* at the commencement of operations.”¹²

⁷ MPCA TSD for Draft Permit, Attachment 7, Class II Modeling Report (MPCA Approval) at 6-7.

⁸ See MPCA TSD, Attachment 7, Large Figures Q4-8, Q4-9, Q4-10, Q4-11, Q4-12, and Q4-13.

⁹ See PolyMet Class II Modeling Report, Large Figure Q4-5, in Attachment 7 of MPCA TSD.

¹⁰ See Draft Permit at Condition 5.1.42. See also Appendix C of Draft Permit.

¹¹ *Id.* at Condition 5.1.43.

¹² January 2018 Permit Application at 36 (Section 5.2.2) [emphasis added].

Yet, MPCA is relying on ambient air modeling that excludes the area within the effective fenceline to authorize construction and operation of the PolyMet facility without knowing for certain that PolyMet will own or have control over all of the area of the effective fenceline. In the absence of such ownership or control, PolyMet will not have authority to implement the “Ambient Air Boundary Control Strategy Implementation Plan” requirements of the Draft Permit. MPCA must require PolyMet to document and disclose the impacts on ambient air quality as it stands now in the event that PolyMet does not gain ownership or control of the area within its currently projected “effective fenceline.” The permit must include other conditions as needed to protect the NAAQS that apply if PolyMet does not gain ownership or control of the effective fenceline.

EPA defines “ambient air” as “that portion of the atmosphere, external to buildings, to which the general public has access.”¹³ Given that the NAAQS are to be met in all areas of ambient air, EPA has adopted strict policies for defining what is and is not ambient air and how public access can and cannot be precluded.¹⁴ As PolyMet stated in its December 2017 Ambient Air Boundary Control Plan, areas “owned or controlled by an owner/operator and where the owner/operator precludes [fn omitted] public access to the land or property using a fence or other effective physical barriers are not considered ambient air.”¹⁵ As EPA stated in a June 22, 2007 guidance memo, which is the reference cited by PolyMet for the above quote, under the first condition, “‘control’ of the land means that the source has certain rights to the use of the land/property, including the power to control public access to it.”¹⁶ Currently, it is not clear over what lands PolyMet has control and what the extent of that control is.

PolyMet intends to gain control of the area around the Mine Site via a land exchange with the U.S. Forest Service.¹⁷ That land exchange is still being challenged in court. The litigation is currently stayed due to legislation pending in the Senate to moot the lawsuit. Unless the legislation is signed into law, it is unclear when the litigation will be resolved and PolyMet will have control of the land around the mining operations. Until PolyMet has permanent control of the land around the mine, MPCA cannot issue a permit based on a NAAQS analysis for an effective fenceline for which PolyMet does not currently control.

¹³ 40 C.F.R. §50.1(e).

¹⁴ See, e.g., 8/30/99 letter from EPA Region V to MPCA regarding a proposed ambient air boundary at Minnesota Iron and Steel near Nashwauk, Minnesota, downloaded from EPA’s Model Clearinghouse database and attached as Ex. 2, in which EPA said it has typically found that exemptions from ambient air are only allows “for areas owned or controlled by the source and to which public access is precluded by a fence or other physical barriers.”

¹⁵ PolyMet’s December 2017 Class II Ambient Air Boundary Control Plan at 2, in Attachment 8 of MPCA TSD.

¹⁶ June 22, 2017 EPA Memorandum with Subject: “Interpretation of ‘Ambient Air’ in Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD),” Attachment at 3. (Ex. 3 to these comments).

¹⁷ See, e.g., U.S. Department of Agriculture, Final Record of Decision, NorthMet Project Land Exchange, January 2017.

Further, it appears that the PolyMet effective fenceline extends beyond the currently proposed federal land exchange and thus it is not clear in the Permit Application or the Draft Permit whether PolyMet needs to purchase and/or lease additional land. A comparison of a map of the land exchange to the map of the effective fenceline around the mine indicates the following: 1) Dunka Road is outside the boundary of the land exchange, and 2) there is an area to the southeast of the Ore Surge Pile and to the southwest of the “Category 2/3 Removed and Reclaimed” area that is not within the land exchange and for which Polymet did not own the surface rights to as of at least January 2017, and yet that area is identified as within the effective fenceline in PolyMet’s air modeling report.¹⁸ MPCA must identify the lands currently under PolyMet’s ownership and/or control and the lands projected to be under PolyMet’s ownership and/or control so that it is clear to the public what actions need to be taken by PolyMet to protect the effective fenceline. With respect to the Plant site, it is not clear if all land within the effective fenceline has already been purchased and is owned by PolyMet, if additional property still needs to be purchased, and if any area is leased. MPCA must make clear to the public what the current status of the land ownership and control by PolyMet at the boundary of and within its claimed effective fenceline.

The draft permit requires PolyMet to, have a map marking locations of controlled access points and a map marking locations of controlled access points for power line access.¹⁹ These provisions make clear that parties other than employees of PolyMet or businesses serving Polymet with temporary access, such as fuel delivery, could have access within the “ambient air boundary.” Presumably, such access would be granted using Dunka Road. Portions of Dunka Road were considered to be within PolyMet’s effective fenceline for purposes of the air modeling,²⁰ but it is not clear that PolyMet truly has control of Dunka Road.

It appears that Dunka Road is outside of the land exchange with the US Department of Agriculture.²¹ In addition, it appears that different companies own or lease parts of Dunka Road (as of 2010, Cliffs Erie, PolyMet, and Minnesota Power owned or leased parts of the road).²² It is not clear how PolyMet can preclude access to Cliffs Erie and Minnesota Power through its effective fenceline, when those companies own or control parts of the road further from Polymet. There is only one way to get from one end of Dunka Road to the other, and that is through the effective fenceline of the PolyMet Mine site. The road is presumably also used by the United States Forest Service and possibly other federal or state employees for accessing public lands. None of those parties are employees of or related to the business of PolyMet (such as a company delivering fuel to PolyMet). These other parties that would access the road are thus members of the general public with respect to PolyMet. For these reasons, it seems unrealistic that PolyMet could effectively exclude the general public from using Dunka Road. Unless it can do so, the air

¹⁸ See PolyMet’s “NorthMet Project Land Exchange” Pamphlet at 3rd page (attached as Ex. 4), posted at PolyMet’s website at <http://polymetmining.com/northmet-project/land-exchange/>, and compare to Large Figures Q4-3 and Q4-4 in PolyMet’s Class II Modeling Report in Attachment 7 of MPCA’s TSD.

¹⁹ Draft Permit at Condition 5.1.43.

²⁰ See, e.g., Large Figure Q4-3 in PolyMet Modeling Report, in Attachment 8 of MPCA TSD.

²¹ See PolyMet’s “NorthMet Project Land Exchange” Pamphlet at 3rd page (attached as Ex. 4).

²² 75 Fed. Reg. 62756 at 62758 (Oct. 13, 2010). Note that Section 3.5.3 of the Permit to Mine Application for PolyMet states that Dunka Road is owned by Cliffs Erie.

above Dunka Road must be considered ambient air – even if within the effective fenceline of PolyMet – and PolyMet’s modeling must address impacts on Dunka Road.

In evaluating a proposed ambient air boundary for an apparently similar source in terms of size and type of facility and varied approaches for precluding public access, EPA indicated a need for more details on the areas of concern with respect to the NAAQS determined through dispersion modeling and more specific details as to how the general public will be prohibited from accessing those areas of concern.²³ In the case of PolyMet, MPCA has made clear some of the areas of concern with respect to the NAAQS in its Technical Support Document (TSD) with the figures that show the modeled receptors with the highest modeled impacts. For example, it is clear that the area to the south and east of the Plant Site and the areas to the south and one area to the north of the Mine Site are projected to have high concentrations of PM_{2.5} and PM₁₀, within 90% of the NAAQS.²⁴ Presumably, modeling would show higher concentrations within the effective fenceline in those areas, potentially exceeding the NAAQS. Thus, it is imperative that the Draft Permit make clear with specific details as to how the public will be excluded from those areas of concern. Simply listing various options for controlling public access in permit conditions does not ensure the public will be prevented from accessing areas that could experience high PM₁₀ and PM_{2.5} concentrations.²⁵ Indeed, EPA has typically required much more detail in defining how the general public will be precluded from accessing an area when a source is relying on boundary controls other than a fence or other physical barrier.

For example, while EPA has found that a river can be considered a sufficient natural ambient air boundary and barrier, EPA has stated that the riverbank still must be clearly posted and regularly patrolled by plant security and “[a]ny areas where there is any question...should be fenced and marked, even if there is only a very remote possibility that the public would attempt to use this property.”²⁶ EPA has also not historically considered little public use of an area to effectively mean public access has been precluded. For example, EPA stated for the LTV Steel’s iron and steel mill which was located on both sides of the Cuyahoga River in Ohio that the company did not control the river traffic sufficiently (despite the source being on both sides of the river) to preclude the public from the river, stating specifically “[t]he fact that there is little or no recreational traffic in that area is not sufficient to say that all river traffic there is LTV traffic.”²⁷ This EPA guidance is instructive as to how rigorous the preclusion of public access must be to justify exclusion of an area from the ambient air modeling required to show compliance with the NAAQS.

²³ See 8/30/99 letter from EPA Region V to MPCA regarding a proposed ambient air boundary at Minnesota Iron and Steel near Nashwauk, Minnesota, downloaded from EPA’s Model Clearinghouse and attached as Ex. 2.

²⁴ MPCA TSD, Attachment 7, Figures Q4-8, Q4-9, Q4-11, Q4-12, and Q4-13.

²⁵ See Draft Permit at Condition 5.1.42. See also Appendix C of Draft Permit.

²⁶ April 30, 1987 EPA memorandum with subject “Ambient Air,” from G.T. Helms, EPA’s Control Programs Operations Branch, to Steve Rothblatt, EPA Region V (available on EPA’s Air Quality Model Clearinghouse Information Storage and Retrieval System, available at https://www3.epa.gov/ttn/scram/guidance/mch/new_mch/R402_Helms_30_Apr_87_.pdf).

²⁷ *Id.* at 2.

MPCA Comment 21

In summary, MPCA must document and make public which areas within the effective fenceline PolyMet currently has control or ownership of and which areas within the effective fenceline that PolyMet still needs to gain ownership or control of and how that control or ownership is to be obtained. If areas of concern for NAAQS compliance are within areas that PolyMet currently does not own or have control of, then MPCA should not issue the construction permit until PolyMet obtains ownership or control of those areas. Otherwise, MPCA will be issuing a permit with conditions that PolyMet may not be able to legally comply with and that are necessary conditions to ensure compliance with the NAAQS pursuant to Minn. Rule 7007.0800, Subp. 2.A. With respect to the portion of Dunka Road that passes within the effective fenceline, MPCA must provide additional justification to show that PolyMet truly has ownership or control of that portion of Dunka Road such that the general public (which includes employees of Cliffs Erie and Minnesota Power) will be precluded from accessing that portion of Dunka Road currently identified as within the PolyMet effective fenceline. Last, assuming MPCA finds that PolyMet has authority via ownership or control to preclude public access at the effective fenceline, the permit must include more specific requirements regarding how PolyMet will preclude the general public from accessing those areas that have been modeled to be close to (or in excess of) the NAAQS.

MPCA Comment 22

B. PolyMet’s Air Modeling Failed to Include the Impacts of Contributing Sources.

As MPCA discusses in its review of the PolyMet air modeling, PolyMet did not include all contributing sources’ impacts at all locations modeled for the PM10 and PM2.5 modeling. Specifically, MPCA states:

The Company provided language in their report to narrate how nearby source contributions were removed from the modeling evaluation. The Company followed an approach whereby they subtracted modeled nearby source concentrations from the nearby source property at and up to the property boundary. *This practice is no longer observed in Minnesota. MPCA Management allowed the Company to remove modeled nearby source concentrations from the nearby source property in recognition of historical modeling practice.* The MPCA will expect that any future cumulative ambient air quality modeling will follow the current MPCA Modeling Practices Manual (2017) to address modeled nearby source concentrations. In the event that a modeled exceedance is discovered at a nearby source facility, the MPCA has developed processes to evaluate these situations on a case-by-case basis (See Appendix A of the MPCA Modeling Practices Manual (2017)).

MPCA TSD, Attachment 7, Class II Modeling (MPCA Approval) at 3.

According to MPCA, to justify its approach, PolyMet relied on a 1986 memo from EPA which stated that “controlled property...is non-ambient air. However, property of one company is ambient air with respect to emissions from its neighbor.”²⁸

²⁸ See MPCA TSD, Attachment 7, Class II Modeling (MPCA Approval) at 2-3, citing Region V Ambient Air Issues – Dec 1986- EPA SCRAM website Model Clearinghouse, Record No. 87-V-09.

It appears the sources that PolyMet excluded pursuant to this policy are the Mesabi Nugget and the Northshore Mining sources.²⁹ It was not clear why MPCA to allow PolyMet to circumvent its modeling guidance on this issue, especially since MPCA's policy on this matter is clearly intended to ensure that all potential areas of NAAQS noncompliance are evaluated. It must first be noted that MPCA's policy as to how to address a modeled NAAQS violation on a nearby source's property has been in effect in Minnesota since at least October 13, 2015.³⁰ PolyMet's air permit application was not submitted to MPCA until August 2016 and MPCA did not find that permit application complete until September 1, 2016.³¹ In addition, PolyMet submitted revised modeling and a revised permit application to MPCA in December 2017 and January 2018.³² Thus, PolyMet clearly should have been aware of and could have readily followed MPCA's 2015 modeling policy for modeling emissions over nearby sources' property for its permit application.

MPCA did not provide a reasoned basis demonstrating why the MPCA modeling policy is inapplicable in this particular situation. PolyMet claimed that the Virginia PM10 and PM2.5 air monitors, which were used to reflect background concentrations in the modeling, capture sources "similar to" Mesabi Nugget and NorthMet Plant.³³ This blanket assertion is not supported with any technical analysis to back up PolyMet's claim that "explicitly modeling Mesabi Nugget and the NorthMet Plant Site would be in essence double counting the impacts from these sources when using the NAAQS design value from the Virginia monitor as the representative background concentration."³⁴ PolyMet did not make such a claim for the Northshore mining site and instead stated outright that the Northshore Peter Mitchell Mine has a "potential for combined" PM10 and PM2.5 impacts "with the [PolyMet Mine] Site sources," and yet PolyMet still excluded the Northshore mine's impacts from PolyMet's impacts on PM10 and PM2.5 concentrations³⁵ PolyMet thus did not provide *any* basis to justify ignoring MPCA's modeling

²⁹ See January 3, 2018 Barr Technical Memorandum with Subject: "NorthMet Class II Modeling Analysis – Model Results Post-Processing with Microsoft Excel and Lakes Environmental AERMOD View™ Multi-Chemical Utility," in Appendix Q4 of PolyMet's January 2018 Permit Application.

³⁰ See October 13, 2015 MPCA Memo with Subject: "Source Contribution Analysis for Modeled Exceedances in a Cumulative Modeling Analysis," in Appendix A to MPCA Air Dispersion Modeling Practices Manual, October 2017 (Ex. 5).

³¹ See Permit Application and MPCA Completeness Review on MPCA's PolyMet website at <https://www.pca.state.mn.us/quick-links/air-quality-permit-northmet>.

³² See PolyMet Air Permit Application v2 and PolyMet Class II Cumulative Modeling Results posted at MPCA's PolyMet website at <https://www.pca.state.mn.us/quick-links/air-quality-permit-northmet>.

³³ See January 3, 2018 Barr Technical Memorandum with Subject: "NorthMet Class II Modeling Analysis – Model Results Post-Processing with Microsoft Excel and Lakes Environmental AERMOD View™ Multi-Chemical Utility," in Appendix Q4 of PolyMet's January 2018 Permit Application at pdf page 64 and pdf page 66 of file with name "aq5-35v.pdf."

³⁴ *Id.*

³⁵ *Id.*

policy and excluding the Northshore mine's PM10 and PM2.5 impacts from the impacts of the proposed PolyMet facility in its modeling.

In reviewing MPCA's TSD for the PolyMet Air Permit, it appears that another of the contributing source's impact was excluded from the modeling submitted in PolyMet's January 2018 revised permit application, and that was for the Cliffs Erie Pellet Yard. Specifically, the PolyMet Air Quality Dispersion Modeling (AQDM) Results Form in Attachment 7 of MPCA's TSD states:

Previous modeling submitted for the NorthMet Project, including the modeling submitted with the August 2016 air permit application, incorporated emissions from the Cliffs Erie Pellet Yard based on potential to emit calculations provided by MPCA in 2011. Those emission calculations submitted by Cliffs Erie, were based on operations at the facility at the time.

On June 15, 2016, Cliffs Erie submitted a registration permit application, reflecting the current operational status of the facility. On July 18, 2016, MPCA issued the requested registration permit. Fugitive emission calculations based on current operations at the Cliffs Erie site were included with the registration permit application. Those emissions were based on 2015 actual processing rates and have been corrected for current operations at the facility. The emission rates were reported as 0.05 tons PM10/year and 0.00 tons PM2.5 per year.

The MPCA square root mean distance (SQRM-D) tool is used as a first cut to identify nearby sources for inclusion in the modeling. On Page 35 of the MPCA Modeling Practices Manual, the following statement in reference to the AQRM-D tool is included: "The Tool will remove all sources that have less than one ton per year of emitted criteria pollutants (actuals)." As shown above, in the most recent actual emission calculations submitted by Cliffs Erie, the rates of all criteria pollutants are well below one ton per year and can be accounted for in the background concentrations added to the modeled air concentrations.

Based on this information developed after PolyMet submitted and MPCA approved the protocol, PolyMet did not include Cliffs Erie in the supplemental modeling described in this report.

PolyMet Air Quality Dispersion Modeling (AQDM) Results Form in Attachment 7 of MPCA's TSD at 5.

PolyMet is reading this MPCA Guidance provision out of context with the overall intent of MPCA's modeling guidelines and does not ensure protection of the NAAQS as required under Minnesota's regulations for issuance of this permit. The Cliffs Erie emission source that PolyMet has excluded is adjacent to the PolyMet Plant site and is located at an area of peak PM10 and

PM2.5 impacts from the Polymet Plant site.³⁶ MPCA’s Modeling Guidelines first and foremost require a nearby source inventory “that accounts for all nearby emissions that may adversely affect the compliance status of the source under review.”³⁷

While there may be very limited operations currently occurring at the Cliffs Erie pellet yard, none-the-less there are sources of PM10 and PM2.5, including sources that were likely not accounted for in the registration permit. For example, windblown dust from unpaved roads and storage piles would contribute to PM10 and PM2.5 concentrations in the immediate vicinity. Second, any vehicular traffic in the pellet yard would cause fugitive dust emissions that would contribute to PM10 and PM2.5 concentrations. While operations may be limited such that Cliffs Erie projected only 0.5 tons per year of PM10, what is more important for the 24-hour PM10 and PM2.5 NAAQS is the maximum projected emissions for a 24-hour period. Given how close the modeled concentrations were to the 24-hour PM10 and PM2.5 NAAQS, MPCA must require that the peak daily PM10 and PM2.5 emissions from the Cliffs Erie Pellet Yard be included in the PM10 and PM2.5 modeling for the PolyMet Project.

PolyMet’s methodology of not including neighboring source’s emissions fails to result in a complete analysis of whether PolyMet will cause or contribute to a violation of the NAAQS and is not consistent with MPCA’s Air Dispersion Modeling Practices Manual. Specifically, MPCA’s modeling guidance states as follows:

...the nearby source property, including its nonambient portions, are considered ambient air to the project under review. A NAAQS analysis is not complete if portions of the modeling domain, determined to have a potential for a significant ambient contribution through the SIA, are then removed from areas of the analysis prior to completing the Cumulative Impact Analysis (CIA) (see Section 3.7). In this situation, the CIA would not reveal any modeled NAAQS exceedance on portions of the nearby source property where people are actually present (the nearby source). Secondly, upon completion of the CIA, the modeled nearby source contribution can be removed from its own nonambient property as part of the analysis, but not the receptors. This practice provides a better understanding of the project contribution to a modeled exceedance on a nearby source property even if that property is not ambient to the nearby source. In the event a CIA results in a modeled exceedance, please refer to **Appendix A** of this Manual.

MPCA Air Dispersion Modeling Practices Manual, October 2017, at 24.

It must be noted that PolyMet has provided no demonstration to show that the property of these neighboring sources (Northshore Mining, Cliffs-Erie, or Mesabi Nugget) is excluded from public access. If the property is not excluded from public access, then there is no question that the area

³⁶ See MPCA TSD, Attachment 7, PolyMet Class II Modeling Report, at Large Figures Q4-9, Q4-10, Q4-11, and Q4-12, as well as Large Figures 3 and 4 of the PolyMet Class II Modeling Report which shows location of Cliffs Erie Pellet Yard. These are in the MPCA with filename TSD-1.pdf at pdf pages 822-825 and 897 – 898.

³⁷ MPCA Air Dispersion Modeling Practices Manual, October 2017, at 29.

above such property is ambient air with respect to all sources of emissions that impact that air, including the sources located on that property.

Thus, it was improper for MPCA to allow PolyMet to exclude all of these contributing sources' emissions impacts from the PolyMet modeled receptors on those sources' property. PolyMet must be required to evaluate cumulative impacts on the NAAQS in all areas of ambient air in order to ensure that its permit contains adequate limits emissions to ensure no violations of the NAAQS. As provided for in MPCA guidance, when a cumulative modeling analysis shows a problem with NAAQS compliance, rather than finding reasons to exclude a neighboring source's emissions, a proposed source should analyze its contributions and other neighboring sources' contributions and if the propose source contributes significantly to NAAQS exceedances, then additional emission limitations should be required in its permit.³⁸ Because of PolyMet's flawed and incomplete modeling, MPCA cannot definitively find that it has included all limitations necessary to ensure that the draft permit includes all emissions limitations necessary to ensure compliance with the NAAQS as required by Minn. Rule 7007.0800, Subp. 2.A. Until a proper cumulative modeling analysis is completed and evaluated by MPCA, PolyMet should not be issued an Air Permit authorizing construction and operation.

C. The Draft Permit Unlawfully Allows for Dispersion Techniques to Protect the NAAQS.

The Draft Permit includes provisions for changes to pollution control measures based on the results of real-time air monitoring done on-site, which appears to be a dispersion technique. Section 123(a)(2) of Clean Air Act prohibits emission limitations under state implementation plans (SIP)s including Minnesota's air permitting program, from being affected in any manner by a dispersion technique. EPA has promulgated that requirement in 40 C.F.R. §51.118(a). EPA defines "dispersion technique" in pertinent part to mean "any technique which attempts to affect the concentration of a pollutant in the ambient air by...(ii) varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant..."³⁹ defines dispersion technique as including "any intermittent or supplemental control of air pollutants varying with atmospheric conditions." EPA regulations more specifically define dispersion technique as "any technique which attempts to affect the concentration of a pollutant in the ambient air." Essentially, the intent of this section of the Clean Air Act was to require continuous emission reductions to protect the NAAQS grounded in what was deemed necessary to ensure the NAAQS are not violated.

Condition 5.1.82 of the Draft Permit requires PolyMet to operating and maintain two real-time hourly PM10 monitors, one upwind of the mine and the other downwind of the mine. Condition 5.1.85 of the Draft Permit states that "[t]he monitored PM10 concentration data shall be used to evaluate the performance of, including the need for changes to, the Fugitive Emissions Control Plan..." Condition 5.1.87 requires PolyMet to maintain an on-site meteorological station.

³⁸ See October 13, 2015 MPCA Memo "Source Contribution Analysis for Modeled Exceedances in a Cumulative Modeling Analysis," in Appendix A of MPCA's current Air Dispersion Modeling Practices Manual.

³⁹ 40 C.F.R. §51.100(hh)(1)(ii).

According to Polymet, justification for the special purpose monitors is as follows:

A Final Environmental Impact Statement (FEIS) was prepared during the course of the Project's environmental review (Reference (1)). The FEIS included a detailed assessment of potential impacts to air quality from the Mine Site and other elements of the Project. In order to reduce potential impacts, PolyMet agreed to adopt site-specific fugitive emission control procedures for the Haul Roads at the Mine Site that result in a 90% reduction from uncontrolled emissions. These procedures are described in the Mine Site Fugitive Emission Control Plan (FEC Plan; Appendix C2). **An element of the Haul Road fugitive emission control procedures is PM10 monitoring within the effective fenceline to verify the fugitive emission control procedures performance and to provide data to support improvements to fugitive emission control procedures at the site.**

January 2018 Polymet Revised Permit Application, Appendix D at 1 [Emphasis added.]

In fact, the draft permit requires implementation of fugitive dust control measures if PM10 monitored concentrations are elevated. Specifically, Condition 5.1.92 of the Draft Permit requires that if the monitored PM10 data shows a 1-hour average PM10 concentration greater than or equal to 105 $\mu\text{g}/\text{m}^3$, then PolyMet is to investigate the cause of the monitored result by reviewing operating records and meteorological data and then take corrective actions identified in the fugitive dust control plan to reduce PM10 emissions. Condition 5.1.93 of the Draft Permit requires that if the monitored PM10 data shows a 1-hour average PM10 concentration greater than or equal to 150 $\mu\text{g}/\text{m}^3$, then PolyMet is to investigate the cause of the monitored result by reviewing operating records and meteorological data and then take corrective actions identified in the fugitive dust control plan to reduce PM10 emissions. Condition 5.1.94 of the Draft Permit requires that if the monitored PM10 data shows a 24-hour block average PM10 concentration greater than or equal to 150 $\mu\text{g}/\text{m}^3$ (which is the level of the 24-hour average PM10 NAAQS), then PolyMet is to investigate the cause of the monitored result by reviewing operating records and meteorological data and, if PolyMet sources significantly contributed to the elevated concentration of PM10, then PolyMet must propose revisions to the fugitive emissions control plan.

These permit conditions vary fugitive dust emissions controls on ambient PM10 concentrations, and are thus clearly dispersion techniques which are prohibited under the Clean Air Act. While the concept of requiring special purpose air monitoring as a double-check on the air modeling is helpful concept, the fugitive emissions controls that have been relied on to demonstrate attainment of the PM10 and PM2.5 NAAQS cannot vary based on atmospheric conditions. Instead, the fugitive emissions control must mandate measures intended to continuously control fugitive dust to the levels assumed in the air modeling analysis. As discussed below, the permit and the fugitive emissions control plan fail to ensure continuous emission reductions to the levels assumed in the air modeling analysis.

D. PolyMet Understated Fugitive PM10 and PM2.5 Emissions, Which in Turn Means PolyMet Understated PM10 and PM2.5 Ambient Air Impacts.

An analysis of the assumptions and calculations that went into PolyMet’s determination of emissions to model for fugitive emissions shows that PolyMet understated emissions. Given the likelihood that fugitive emissions are the primary driver for the maximum PM10 and PM2.5 concentrations, these deficiencies call into question the adequacy of PolyMet’s modeling and whether the Permit includes all conditions necessary to ensure attainment of the NAAQS. The areas in which PolyMet understated fugitive PM10 and PM2.5 emissions are discussed in detail below.

1. PolyMet Failed to Include Emissions Caused by Employee Driving Trips to the Facility.

In determining the number of trips on Dunka Road, PolyMet excluded the trips by employees driving to Area 2 of the plant site. This exclusion was determined by an analysis of the electronic version of the Polymet Plant Site Calculations spreadsheet, at the “Dunka Rd” tab.⁴⁰ Given that the employees getting to the site are a required component to operation of the facility and that their vehicles traveling over unpaved roads on the plant site will create fugitive dust, PolyMet should not have excluded these emissions from its calculations and modeling.

2. PolyMet Failed to Estimate and Model Peak Daily Emissions from Unpaved Roads at the Mine Site.

In determining pound per hour emission rates to model for the unpaved road fugitive emissions for the Mine Site haul roads, PolyMet used expected annual vehicle-miles-traveled (VMT) and assumed those annual VMT would be spread out evenly over all of the hours in a year (i.e., 8760 hours/year). This deficiency was determined by comparing the assumed annual VMT to the hourly VMT, and it is clear that PolyMet assumed the annual VMT would be spread out evenly across all hours of the year on the Mine Haul Roads.⁴¹ This is inconsistent with the approach PolyMet applied to determining hourly emissions to model for other haul roads, for which PolyMet did evaluate the timeframe of expected maximum hourly VMT for determining the hourly rate to model.⁴² Thus, PolyMet failed to determine worst case hourly PM10 and PM2.5 emission rates for its Mine Site haul roads, which means the 24-hour PM10 and PM2.5 modeling of emissions from the mine site are understated.

⁴⁰ See spreadsheet “PolyMet Plant Site Calculations(V2D1).xlsx,” attached as Ex. 6. This spreadsheet was previously posted on MPCA’s PolyMet website, but does not appear to be on MPCA’s website anymore.

⁴¹ See Table B-16 of Attachment 1 of MPCA TSD, at entries for “Mine Haul Roads.” See also spreadsheet for PolyMet Mine Site Calculations (V2D2) at tab “VMT Calcs_Yr 8” (Ex. 1).

⁴² See spreadsheet “PolyMet Plant Site Calculations(V2D1).xlsx,” at tab “Dunka Road” attached as Ex. 2.

3. PolyMet Used the Same PM10 and PM2.5 Emission Factors for Various Vehicle Types and Weights for the Dunka Road Fugitive Emissions at the Plant Site, when Vehicle Weight Impacts Fugitive Dust Emissions.

For Dunka Road fugitive emissions at the Plant Site, PolyMet used the same emission factor of 1.193 lb PM10/VMT and 0.119 lb PM2.5/VMT for light trucks, fuel tankers, blast mat trucks.⁴³ The EPA AP-42 particulate matter emission factors equations, which PolyMet relied on for estimating uncontrolled PM fugitive dust emissions, are based on the weight of the vehicles⁴⁴, and each of these vehicles have different and widely varying weights.⁴⁵ Thus, it does not make sense that PolyMet used the same PM10 and PM2.5 emission factors for all of these vehicle types.

4. PolyMet Assumed 80-90% Control of Fugitive Dust Emissions from Unpaved Roads, But the Fugitive Emission Control Plan and Associated Requirements in the Draft Permit Fail to Include the Necessary Requirements to Correlate with Such High Removal Efficiencies.

PolyMet assumed 80% control of fugitive dust from unpaved haul roads on the Plant Site and 90% control of fugitive dust from unpaved roads on the Mine Site, which are extremely high levels of control and there has been no demonstration that the Fugitive Emission Control Plan will achieve these high levels of control. Indeed, a review of the Fugitive Emission Control Plan and terms of the Draft Permit show that the Draft Permit does not sufficiently impose enforceable requirements that, according to the EPA, are needed to assure such high levels of PM10 and PM2.5 removal efficiency.

While both the Plant Site and Mine Site Fugitive Emission Control Plans rely on watering of roads to control fugitive dust from unpaved roads, neither the Plant Site Fugitive Emission Plan or the Mine Site Fugitive Emission Plan definitively require any set schedule for watering of the unpaved roads, nor does it indicate the amount of water to be applied per area of road. Instead, the decision on when and which roads to water is up to the discretion of the Plant Site Operator or the Mine Site Operator.⁴⁶ While the Mine Site Fugitive Emission Plan requires once per day opacity readings (something not required in the Plant Site Fugitive Emission Plan), there is no clear trigger point as to what opacity levels would trigger a need to water the roads. Moreover, neither the permit application nor MPCA's TSD provide any basis for a correlation between certain opacity ranges and percent control of fugitive dust.

⁴³ See Table B-26 of Attachment 1 of MPCA TSD, at entries for PM10 and PM2.5 Emission Factors for "Unpaved Roads, Dunka Road."

⁴⁴ See EPA's AP-42 Emission Factors, Chapter 13.2.2 (Unpaved Roads), at 13.2.2-4 (Equation 1a).

⁴⁵ See Table B-18, NorthMet Project Plant Site Mean Vehicle Weights, in Attachment 1 of MPCA TSD.

⁴⁶ See Section 1 of Section 4.3 of Mine Site Fugitive Emission Control Plan and Section 5.1 of Plant Site Fugitive Emissions Plan, both in Appendix B of the Draft Permit.

MPCA Comment 31

The Mine Site Fugitive Emissions plan also relies on the special purpose PM10 monitoring program to identify higher PM10 concentrations.⁴⁷ The Draft Permit requires that, if the real-time PM10 monitoring measures PM10 concentrations above certain levels, PolyMet must identify the culpable sources and take on or more of the corrective actions in the fugitive emission control plan.⁴⁸ As discussed in Section I.C. above, this approach of targeting emissions control implementation based on PM10 concentrations appears to be a dispersion technique which is not lawful under the Clean Air Act. Even if it was a lawful emission control method, neither the Permit Application nor the TSD identify a specific correlation between the concentration of PM10 measured by the monitors and a percent removal of fugitive dust from unpaved roads. Thus, these air monitoring provisions do not ensure 90% control of fugitive emissions from unpaved roads at the Mine Site.

MPCA Comment 32

Application of chemical dust suppressants is also identified as a potential unpaved road control strategy, particularly during the winter months, but again the application of this particulate control is at the discretion of the Mine Site manager or the Plant Site Manager.⁴⁹ There are no specific requirements for frequency of application of chemical dust suppressants. Further, neither the Mine Site Fugitive Dust Plan or the Plant Site Fugitive Dust plan include any requirements as to the type of chemical dust suppressant or how much chemical dust suppressant is to be applied to the unpaved roads.

MPCA Comment 33

The primary differences between the Mine Site Fugitive Emission Plan and the Plant Site Fugitive Emission Plan is the requirement for daily observations, recordkeeping and reporting of visible emissions at the Mine Site haul roads, as well as the use of the real-time PM10 monitor at the Mine Site which as stated above is a dispersion technique rather than a permanent control measure. The Draft permit states that “opacity \leq 20 percent” for the Dunka Road, Tailings Basin unpaved roads, Mine Site Fueling Facility Circle, and Mine Site Haul Roads.⁵⁰ However, there has been no correlation provided that keeping opacity less than or equal to 20% from unpaved roads equates to either 80% or 90% control. Further, even though the draft permit states that PolyMet will “check the fugitive source at a location in which emissions from the fugitive source would be expected to vent to the atmosphere once each day of operation for any visible emissions...,”⁵¹ neither the Draft Permit nor the Mine Site Fugitive Emission Control Plan require any specific action items that would definitively reduce PM10 and PM2.5 emissions based on the daily visible emissions monitoring. In both Fugitive Emission Control Plans for the Plant Site and for the Mine Site, the decision to employ controls on road dust is up to the discretion of the Plant Site and Mine Site supervisors.⁵² Thus, it is arbitrary for MPCA to claim that these requirements for haul roads at the Mine Site justify assuming an additional level of

⁴⁷ See Section 10 of Section 4.3 of Mine Site Fugitive Emission Control Plan, in Appendix B of the Draft Permit.

⁴⁸ See Conditions 5.1.92, 5.1.93, 5.1.94, and 5.1.95 of the Draft Permit.

⁴⁹ See Section 4.3.3.2 of the Mine Site Fugitive Emission Control Plan and Section 5.2 of the Plant Site Fugitive Emission Control Plan, in Appendix B of the Draft Permit.

⁵⁰ Draft Permit, Conditions 5.206.1, 5.207.1, 5.212.1, and 5.230.1.

⁵¹ Draft Permit, Conditions 2.206.3, 5.207.2, 5.212.3, and 5.230.5.

⁵² See Draft Permit, Appendix B, Plant Site Fugitive Emission Control Plan at Section 5.1 and Mine Site Fugitive Emission Control Plan at Section 4.3, subsection 1.

control of fugitive particulate emissions at the Mine Site haul roads compared to the Plant Site unpaved roads.

The application rate of water or chemical dust suppressants for PM control from unpaved roads is a key part of the level of pollution control expected from this control. As EPA states in its AP-42 Compilation of Emission Factors section on unpaved roads, watering and chemical suppressants “require frequent reapplication to maintain an acceptable level of control.”⁵³ With respect to watering, EPA states “[t]he control efficiency depends on how fast the road dries after water is added. This in turn depends on (1) the amount (per unit road surface area) of water added during each application; (b) the period of time between applications; (c) the weight, speed and number of vehicles traveling over the watered road during the period between applications; and (d) meteorological conditions (temperature, wind speed, cloud cover, etc.) that affect evaporation during the period.”⁵⁴ EPA’s AP-42 chapter on unpaved road emissions includes a graph that shows the relationship between the moisture ratio “M,” which is the surface moisture content of the watered road divided by the surface moisture content of the unwatered road, and the expected control efficiency due to watering.⁵⁵ To get to 90% control requires a moisture ratio of about 4.2⁵⁶, meaning that a watered road needs to have 4.2 times more moisture than an uncontrolled (unwatered) road. To get to 80% control requires a moisture ratio of approximately 2.7.⁵⁷ EPA’s AP-42 section on unpaved road emissions suggests that characterization of emissions from uncontrolled and watered unpaved roads be determined by collecting road surface material samples at various times between water truck passes, and then the moisture content ratios can be associated with a control efficiency.⁵⁸ EPA states that samples be collected during periods with active traffic on the road and that, due to different evaporation rates, samples should be collected at various times per year.⁵⁹ Neither the Draft Permit nor the Fugitive Emission Control Plans require any such analysis, and there is no evidence in the permit application or the TSD that such analysis has already been done.

With respect to chemical dust suppressants, EPA states that the control effectiveness depends on “(a) the dilution rate used in the mixture; (b) the application rate (volume of solution per unit road surface area); (c) the time between applications; (d) the size, speed, and amount of traffic during the period between applications; and (e) meteorological conditions (rainfall, freeze/thaw cycles, etc.) during the period.”⁶⁰ EPA states that other factors also affect the performance of chemical dust suppressants such as other traffic characteristics (including track-on from unpaved areas such as one would expect at the Mine Site) and road characteristics.⁶¹ EPA states that the variabilities in these characteristics and the composition of dust control products make the control efficiencies difficult to estimate. EPA states that past field testing showed that chemical

⁵³ EPA’s AP-42 at 13.2.2-8, attached as Ex. 7.

⁵⁴ *Id.* at 13.2.2-10.

⁵⁵ *Id.* at 13.2.2-11 to 12, including Figure 13.2.2-2.

⁵⁶ *Id.* at 13.2.2-12.

⁵⁷ *Id.*

⁵⁸ *Id.* at 13.2.2-11.

⁵⁹ *Id.*

⁶⁰ *Id.* at 13.2.2-13.

⁶¹ *Id.*

dust suppressants could provide 80% PM10 control efficiency when applied at regular intervals of 2 weeks to 1 month.⁶² However, there is nothing in the Draft Permit or in the Fugitive Emission Control Plans that provide any detail on application frequency of chemical dust suppressants. Chemical application is identified as a “potential control strategy” particularly during the winter months in the PolyMet Fugitive Emission Control Plans, but again the application of the control is at the discretion of the Mine Site manager or the Plant Site Manager.⁶³

EPA has long identified the specific types of requirements that should be made clear in a permit or a SIP rule for unpaved road controls, including:

1. A list of all road segments referenced on a map
2. Length of each road
3. Amount of water to be applied to each road/area and planned frequency of application, or alternatively a minimum moisture level could be specified,
4. Provisions for weather (e.g., ¼ inch of rainfall could substitute for one treatment, program suspended during freezing periods, watering frequency defined as a function of temperature, cloud cover).
5. Source of water and tank capacity.

See EPA’s Control of Open Fugitive Dust, September 1988, at 3-15 to 3-16.

For chemical dust suppressants, the plan or permit should specify the same information as in 1,2, and 4 above as well as the type of chemical to be applied to each road, the dilution ratio, application intensity, and planned frequency of application.⁶⁴ The Draft Permit and Fugitive Emission Control Plans do not specify any of this information for either watering or chemical applications to control road dust at the PolyMet site. Without such specific requirements, it is not appropriate to assume that such high levels of PM10 and PM2.5 control will actually occur at the PolyMet site.

For all of these reasons, PolyMet was not justified in assuming 80% control for unpaved road emissions at the Plant Site nor was PolyMet justified in assuming 90% control for unpaved road emission at the Mine Site, because the Draft Permit and Fugitive Emission Control Plans fail to include specific requirements and steps to take to ensure 80-90% reduction in fugitive particulate matter from these roads. Further, there has been no analyses provided to show that the conditions in the Permit for opacity limitations or PM10 monitoring levels are reflective of 80-90% control of fugitive dust emissions from unpaved roads at the PolyMet site. As a result, PolyMet greatly understated PM10 and PM2.5 emissions from unpaved roads, which means the PM10 and PM2.5 modeling understated maximum projected concentrations due to PolyMet.

⁶² *Id.*

⁶³ See Section 4.3.3.2 of the Mine Site Fugitive Emission Control Plan and Section 5.2 of the Plant Site Fugitive Emission Control Plan, in Appendix B of the Draft Permit.

⁶⁴ See EPA’s Control of Open Fugitive Dust Sources, September 1988, at 3-22.

5. Summary

MPCA must require PolyMet to revise its PM10 and PM2.5 emission projections for unpaved roads at the Plant Site and the Mine Site. For the short term average PM10 and PM2.5 NAAQS, MPCA must require that short term emissions estimates reflect worst case daily emissions at both the Mine Site and Plant Site, reflecting employee trips on unpaved roads as well as other vehicle trips related to PolyMet. MPCA must also require the use of PM10 and PM2.5 emission factors appropriate for the weight of the vehicle at the Plant Site. Further, MPCA cannot allow such a high level of PM10 and PM2.5 control to be assumed from unpaved road emissions without specific enforceable requirements to ensure that 80-90% control is actually achieved. These deficiencies in projecting PM10 and PM2.5 emissions from unpaved roads call into question the validity of the PolyMet modeling, and these issues must be addressed before MPCA can definitively find that it has included all necessary requirements in the permit to ensure PolyMet will comply with the NAAQS.

E. MPCA Must Require PolyMet to Conduct Additional Modeling for PM10 and PM2.5 so that MPCA Can Include in the Permit All Conditions Necessary to Ensure PolyMet Complies with the PM10 and PM2.5 NAAQS.

As previously stated, MPCA is required to include in PolyMet's air permit all terms and conditions necessary to ensure compliance with the NAAQS, pursuant to Minn. Rule 7007.0100, Subp. 7.K. and Minn. Rule 7007.0800, Subps. 1, 2.A., and 2.B. To know what requirements need to be imposed as permit limitations to protect the NAAQS requires a complete modeling analysis of the PolyMet facility's potential impacts on the NAAQS in all areas of the ambient air. PolyMet's modeling analysis is flawed and likely understates PM10 and PM2.5 impacts for the reasons discussed above.

The modeling conducted for the PolyMet air permit predicts PM10 and PM2.5 impacts that are approximately 90% of the NAAQS, but those impacts have been understated. The impacts have been understated in part because PolyMet did not include the impacts of neighboring sources at the receptors in those neighboring sources land. The impacts have also been understated because PolyMet understated worst case fugitive emissions of PM10 and PM2.5 from unpaved roads at the Mine Site and Plant Site, and that PolyMet assumed 80-90% control of fugitive dust from unpaved roads based on fugitive dust control requirements that are based on unlawful dispersion techniques, do not definitively require application of controls, and that have not been demonstrated to be correlated to 80-90% control in accordance with techniques set forth by the EPA. It is also unclear whether PolyMet truly has authority to block public access to all areas within the "effective fenceline" assumed for its modeling, particularly Dunka Road, and thus it is highly questionable whether PolyMet's air modeling adequately evaluated PM10 and PM2.5 impacts in all areas of ambient air.

For all of these reasons, which are discussed in more detail above, MPCA must require PolyMet to conduct revised modeling for compliance with the PM10 and PM2.5 NAAQS before it can issue an Air Permit authorizing construction and operation. In the absence of enforceable and more definitive requirements to ensure control of PM10 and PM2.5 from unpaved roads to 80-90% control, the revised modeling demonstration must be based on uncontrolled emissions or a

lower level of control reflective of the specific requirements PolyMet is willing to accept as permit conditions. MPCA must ensure that the revised modeling includes all areas of “ambient air” and that it includes all contributing source emissions in compliance with MPCA’s permitting guidance. And, with respect to control of fugitive emissions from unpaved roads, if some level of PM10 and PM2.5 control is deemed necessary to assure compliance with the NAAQS (which presumably it will be), then MPCA must impose more definitive requirements in the Air Permit that will control fugitive dust to the levels assumed in the modeling and that are not simply dispersion techniques.

Until this revised modeling is conducted and more definitive fugitive dust control requirements are imposed, MPCA cannot lawfully issue the Air Permit for PolyMet because it cannot be demonstrated that the permit includes all terms and conditions necessary to assure attainment of the PM10 and PM2.5 NAAQS.

II. The Draft Permit Does Not Include Adequate Limits on the Potential Emissions of the PolyMet Facility under the Prevention of Significant Deterioration Permitting Regulations.

MPCA claims that the PolyMet source is a synthetic minor source and is thus not subject to prevention of significant deterioration (PSD) permitting requirements in Minn. Rule 7007.3000, which incorporates by reference the federal PSD permitting rules at 40 C.F.R. 52.21.⁶⁵ Under the PSD permitting program, a source is considered to be a major stationary source if the potential to emit of any regulated New Source Review pollutant is equal to or greater than 100 tons per year for certain source categories and 250 tons per year for all other source categories.⁶⁶ MPCA has stated that PolyMet is in the 250 ton per year source category.⁶⁷ The potential to emit of a new source is defined as follows:

The maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

40 C.F.R. 52.21(b)(4), incorporated by reference at Minn. Rule 7007.3000.

A source that would otherwise be a major stationary source can take federally and practically enforceable limitations on its potential to emit to keep air emissions below major source emission thresholds. Such a source would be deemed a “synthetic minor” source. MPCA has

⁶⁵ These rules were first approved by EPA as part of the State Implementation Plan on September 26, 2017 (82 Fed. Reg. 44,734); see also 40 C.F.R. §52.1220(c).

⁶⁶ 40 C.F.R. §52.21(b)(1)(i).

⁶⁷ MPCA TSD at 3.

stated that it is issuing a synthetic minor permit for the PolyMet facility.⁶⁸ MPCA has identified permit conditions that are necessary to ensure the PolyMet source is not a major source as “Title I conditions.”⁶⁹

The following provides review and comment on the Title I conditions and other conditions of the draft permit to evaluate whether the limits address all potential point source emissions and whether the limits are technically justified and practically enforceable.

A. The Potential to Emit of PolyMet Does Not Account for the Full Potential Emissions of the Fine Crushing Plant.

As stated above, potential to emit is to be based on a facility’s physical and operational design. The PolyMet facility will be using the former LTVSM taconite ore processing facility at which there are four surplus fine crushing lines that PolyMet does not intend to use.⁷⁰ PolyMet did not include emissions from these units in its calculation of potential emissions because they “do not have any current plans to restart” the crushing equipment.⁷¹ PolyMet also states that the equipment cannot be started up “without a permit applicability analysis and applicable permitting,” and further states that “[n]o additional permit terms or conditions are necessary to prevent the use of additional unpermitted equipment without the proper review of permitting requirements as provided for by state and/or federal rules.”⁷² With respect to determining potential to emit of the PolyMet facility, these fine crushing lines do have potential to emit air pollutants and the Draft Permit does not include any prohibition on their startup or operation as a Title I condition. Thus, these crushing lines must be included in the potential to emit of the PolyMet facility.

If MPCA was to impose Title I limitations prohibiting operation of these four fine crusher lines without a permit modification, then these crusher lines could be properly excluded from the potential to emit of the PolyMet facility. However, MPCA must make clear that, in the case of a future permit change authorizing the use of any of these four crusher lines, the PolyMet source must be re-evaluated for PSD applicability as though construction had not yet commenced pursuant to 40 C.F.R. 52.21(r)(4).

B. The Permit Fails to Take Into Account All Non-Fugitive Particulate Emissions in Determining Whether PolyMet is a Major Stationary Source under the PSD Program.

In determining if the PolyMet facility is a major stationary source under the PSD permitting requirements, PolyMet and MPCA have excluded “fugitive emissions.” Emissions are considered to be “fugitive emissions” if the emissions “could not reasonably pass through a

⁶⁸ *Id.*

⁶⁹ *Id.* at 4

⁷⁰ January 2018 Permit Application at 12.

⁷¹ *Id.*

⁷² *Id.*

stack, chimney, vent, or other functionally equivalent opening.”⁷³ EPA's NSR Workshop Manual states the following regarding defining emissions as fugitive emissions:

Remember, if emissions can be “reasonably” captured and vented through a stack they are not considered “fugitive” under EPA regulations. In such cases, these emissions, to the extent they are quantifiable, would count towards the potential to emit regardless of the source or facility type.

EPA, New Source Review Workshop Manual, October 1990, at A.16.

PolyMet considered several sources of emissions as fugitive emissions when the emissions from those sources could be reasonably captured and vented through a vent or stack. Specifically, PolyMet considered emissions from the portable crushing plants, screening, and blasthole drilling at the Mine Site as fugitive emissions.⁷⁴ Particulate emissions from all of these sources could be reasonably captured and vented through a stack or other functionally equivalent opening.

Specifically, emissions from portable screening and crushing plants can be captured and controlled, by covering and routing to a baghouse. This is commonly required in the asphalt industry and could readily be used at the crushing plants at the Mine Site. Indeed, EPA has required portable screening and crushing facilities of certain capacities to use a baghouse for particulate control since at least 1985 in the NSPS for Nonmetallic Mineral Processing Plants in 40 C.F.R. Part 60 Subpart OOO.⁷⁵ When EPA was questioned in that 1985 rulemaking about the feasibility of using a baghouse control on portable plants, EPA determined it was economically feasible for portable plants with process capacities of 150 tons per hour or more.⁷⁶ This shows that particulate emissions from portable crushing plants *are* reasonably captured and vented through a stack or baghouse, and thus such emissions must be considered point source emissions. Even the emissions from blasthole drilling can be captured and routed to a baghouse.⁷⁷ Consequently, the potential to emit from the portable screening and crushing plants must be considered part of the PolyMet facility's potential to emit PM, PM10, and PM2.5.

In determining which emissions count towards a source's potential to emit for determining PSD applicability, it does not matter whether or not these emission sources are subject to the NSPS Subpart OOO requirements or other baghouse control requirements or whether it is economically feasible for these emission sources to capture emissions and route to a baghouse. Instead, the

⁷³ 40 C.F.R. 52.21(b)(20).

⁷⁴ January 2018 Permit Application at 15.

⁷⁵ 50 Fed. Reg. 31328 (Aug. 1, 1985); 40 C.F.R Part 60, Subpart OOO. Note that since at least 1980, EPA has recognized that particulate emissions from screening, crushing, and drilling could be captured and controlled by a particulate control device. *See* EPA's Air Pollutant Control Techniques for Crushed and Broken Stone Industry, EPA-450/3-80-019, May 1980, at 3-2 (Ex. 8).

⁷⁶ 50 Fed. Reg. 31328, at 31334 (Aug. 1, 1985);

⁷⁷ *See* EPA's Air Pollutant Control Techniques for Crushed and Broken Stone Industry, EPA-450/3-80-019, May 1980, at 3-2 (Attached as Ex. 8).

question is whether such emissions could reasonably be captured and directed to a stack or control device? In the case of the portable crushing plants, the screening equipment, and the blasthole drilling at the Mine Site, the answer is yes – these sources’ particulate emissions could reasonably be captured and vented to a stack or baghouse. Therefore, the potential to emit particulate (PM, PM10, and PM2.5) must be included in determining the potential to emit of the PolyMet facility.

C. The Permit Fails to Adequately Limit the Potential to Emit of the Autoclave Unit and Autoclave Flash Vessel.

At PolyMet, an autoclave will be used to process nickel flotation concentration to leach valuable minerals in the concentrate so they can be removed. According to PolyMet, “[i]n the Autoclave, pressure oxidation will be conducted in the presence of chloride to leach the valuable minerals in the concentrate into solution where they can be recovered. A Flash Vessel associated with the Autoclave will be used to bring the Autoclave discharge solution down to atmospheric pressure.”⁷⁸ Potential emissions include PM, PM10, PM2.5, SO₂, and sulfuric acid mist, among other pollutants, and can be emitted from both the Autoclave vent and the Flash Vessel.⁷⁹ Emissions from the Autoclave vent and the Flash Vessel will be controlled by a venturi scrubber and flash vessel in series.⁸⁰

This process to leach out minerals from the nickel flotation concentrate has not been used on a full-scale. PolyMet’s emission estimates are based on what it claims was “extensive sampling” during a 2005 pilot study.⁸¹ It appears that the pilot plant study was based on a 10-day pilot plant trial.⁸² Problems were encountered during a significant part of the pilot testing, with steady-state operation being achieved for 72 hours of the 10-day pilot plant trial.⁸³ It is not clear under what conditions that the air emissions testing was done, or whether air emissions were tested during various conditions to determine worst case emissions. While PolyMet applied a safety factor of 1.5 to the emission rates determined by the pilot-scale testing⁸⁴, that safety factor is really an arbitrary number. It is unknown whether that is a reasonable estimate of potential emissions. Further, PolyMet did not even provide any information on vendor guaranteed emission rates expected with the scrubbers in operation.

PolyMet determined emission factors for the Autoclave in terms of pound of pollutant per ton of gas flow, based on a scaling up of the pilot plant testing by a safety factor of 1.5.⁸⁵ However, in

⁷⁸ January 2018 PolyMet Permit Application at 19.

⁷⁹ *Id.*

⁸⁰ *Id.* at 20.

⁸¹ *Id.*

⁸² See Ferron, C.J., C.A. Fleming, P.T. O’Kane, and D. Dreisinger, Pilot plant demonstration of the Platsol process for the treatment of the NorthMet copper-nickel-PGM deposit, Mining Engineering (Littleton, CO, United States) (2002), 54(12), at 33. (Ex. 9).

⁸³ *Id.* at 37.

⁸⁴ See spreadsheet of PolyMet Plantsite calculations (V2D1), at tab “References,” at cells F245 to F250. Ex. 6.

⁸⁵ *Id.*

addition to the fact that the emissions testing was only done over a 10-day pilot plant trial (which had operational issues as discussed above), PolyMet has stated that “it was not possible to quantify the flow rate at the autoclave vent during the test program.”⁸⁶ Instead, PolyMet estimated the flow rate based on fresh solid feeds rate, the feed sulfur content, and the oxygen flow rate.⁸⁷ The same was true for the flow rate for the autoclave flash vessel in the pilot testing.⁸⁸ To estimate emissions from the Autoclave flash vessel vent, PolyMet used process flow simulation for particulate matter and other pollutant emissions because it produced higher results than the pilot plant data.⁸⁹ To our knowledge, none of that data is in the administrative record for this Draft Permit. Thus, the uncontrolled emission factors developed for the autoclave vent and flash vessel are truly estimates at this point, and there is not sufficient support in the permit record to justify those estimates.

Further, the assumed level of control for SO₂, sulfuric acid mist, and particulate matter including PM₁₀ and PM_{2.5} are estimates. The emissions from the Autoclave Vent and Autoclave Flash Vessel vent will be routed to a venturi scrubber in series with a packed bed scrubber as the air pollution control equipment.⁹⁰ PolyMet assumed 90% SO₂ control based on an engineering estimate,⁹¹ assumed 99% control for sulfuric acid mist, and assumed 99.06% control for PM, PM₁₀, and PM_{2.5}.⁹² There is absolutely no documentation provided in the Permit Application or TSD to support these levels of control. Indeed, there is not much data provided at all for the scrubbers, such as the type of reagent to be used in the packed bed scrubber and whether any reagent is to be used in the venturi scrubber.

With respect to expected PM, PM₁₀, and PM_{2.5} removal efficiencies expected, EPA has identified a range of 70% to 99% control expected for particles larger than 1 μm across a venturi scrubber and greater than 50% for particles under 1 μm.⁹³ EPA has said packed tower scrubbers are not often used for PM removal due to high particle concentrations building up on the packing and clogging the tower.⁹⁴ Similar types of scrubbers such as tray towers can achieve 97% control efficiency of particles greater than 5 μm, but such scrubbers do not effectively control submicron particles.⁹⁵ Thus, there is a wide range of expected PM, PM₁₀, and PM_{2.5} control efficiencies expected with venturi and packed bed scrubbers, and there is not support in the

⁸⁶ See November 2008, PolyMet Mining Inc., Stationary and Mobile Source Emission Calculations for the NorthMet Project – Combined Report (RS57), at 15 (attached as Ex. 10).

⁸⁷ *Id.* at 16.

⁸⁸ *Id.* at 20.

⁸⁹ *Id.* at 19-21.

⁹⁰ January 2018 Permit Application at 20.

⁹¹ See spreadsheet of PolyMet Plantsite calculations (V2D1), at tab “References,” at cells F245 to F 256.

⁹² See spreadsheet of PolyMet Plantsite calculations (V2D1), at tab “References,” at cells F247 to F249.

⁹³ See EPA’s Control Cost Manual, Section 6, Chapter 2, Mussatti, Daniel and Paula Hemmer, Wet Scrubbers for Particulate Matter, July 15, 2002, at 2-9 (Available at <https://www3.epa.gov/ttnatc1/dir1/cs6ch2.pdf> and attached as Ex. 11).

⁹⁴ *Id.* at 2-11.

⁹⁵ *Id.* at 2-9.

permit record for the extremely high levels of control assumed by PolyMet. Neither MPCA nor PolyMet has provided any data on the expected size fraction or type (filterable versus condensable) of particulate matter expected to be emitted from the Autoclave vent and Autoclave Flash Vessel, which is extremely important in estimating control efficiency of the scrubbers. It is reasonable to assume that most of the particulate matter emitted from the Autoclave vent and the Autoclave flash vessel vent will be PM_{2.5}, since it will likely be due to pollutants emitted initially as gases (formed due to the heat and pressure of the autoclave) that condense into particulate in the ductwork to the scrubbers.⁹⁶ Typically condensable particulate matter is smaller than 2.5 µm in diameter.⁹⁷ Thus, PolyMet's estimate of 99.06% control of PM, PM₁₀, and PM_{2.5} with venturi and packed bed scrubbers is highly questionable, especially for PM_{2.5}. MPCA must require more documentation to support such a claim by PolyMet.

While MPCA has proposed pound per hour limits on the autoclave scrubber stack (to which the autoclave vent, the autoclave flash vessel vent, and also the iron and aluminum precipitation tanks will be routed) for PM, PM₁₀, and PM_{2.5} which are considered Title I conditions to keep the Polymet facility a minor source,⁹⁸ the Draft Permit only definitively requires one stack test within 180 days of operation to ensure compliance with these limits under the terms of the Draft permit.⁹⁹ The Draft Permit then allows test frequency to be every 12-months, every 36 months, or up to every 60 months, apparently at the discretion of PolyMet.¹⁰⁰ None of these testing schedules is frequent enough to ensure continuous compliance with the pound per hour limits on PM, PM₁₀, or PM_{2.5}, and thus these emission limits cannot be relied upon to limit the potential to emit of these emission units.

It is not clear that the permit could mandate any level of testing for these particulate emissions that would continuously ensure compliance with the pound per hour limits. In *United States v. Louisiana-Pacific Corporation*, the Court interpreted the definition of potential to emit in 40 C.F.R. § 52.21(b)(4) to require restrictions on operating hours or production levels or types of material combusted, rather than simply imposing limits on tons of pollutants emitted per year, in order to effectively limit potential to emit.¹⁰¹ While the Louisiana-Pacific Court was focused on ton per year emission limits intended to reduce a source's potential to emit because such limits "would be virtually impossible to verify or enforce,"¹⁰² pound per hour limits are similarly

⁹⁶ See Dreisinger, David, William Murray, and Don Hunter - PolyMet Mining; Ken Baxter, Mike Wardell-Johnson, Alan Langley, and Jenni Liddicoat – Bateman Engineering; Chris Fleming, Joe Ferron, Alex Mezei, James Brown, Ron Molnar, and Dan Imeson – SGS, Metallurgical Processing of PolyMet Mining's NorthMet Deposit for Recovery of Cu-Ni-Co-Zn-Pd-Pt-Au, SGS Mineral Services, Technical Paper 2006-06, at 7, attached as Ex. 12. The chemical process equations shown identify various SO₄ compounds which are condensable particulate matter.

⁹⁷ EPA Method 202 Best Practices Handbook, January 2016, at ii, available at <https://www3.epa.gov/ttnemc01/methods/m202-best-practices-handbook.pdf>.

⁹⁸ See Draft Permit at 21.

⁹⁹ Draft Permit, Conditions 6.244.2, 6.244.3, and 6.244.4.

¹⁰⁰ Draft Permit, Conditions 6.244.12, 6.244.13, and 6.244.14.

¹⁰¹ See *United States v. Louisiana-Pacific Corporation*, 682 F. Supp. 1122, 1133 (D. Colo. 1987) (blanket restrictions on actual emissions cannot be considered in determining potential to emit).

¹⁰² *Id.*

impossible to determine continuous compliance (which is necessary to rely on such hourly limits to limit annual potential to emit) without continuous emission monitoring systems (CEMS).

Indeed, in its June 13, 1989 guidance on limiting potential to emit, EPA stated that proper limits on potential to emit must include a production or operational limitation in addition to an emission limitation “where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment.”¹⁰³ EPA stated that there are two exceptions to the prohibition on using blanket emission restrictions to limit potential to emit. One exception pertained to surface coating operations, and the other exemption applies when setting operating parameters for control equipment is infeasible. In such cases, a permit that includes “short term emission limits (e.g. lbs per hour) would be sufficient to limit potential to emit, *provided that* such limits reflect the operation of the control equipment, and *the permit includes requirements to install, maintain, and operate a continuous emission monitoring (CEM) system and to retain CEM data, and specifies that CEM data may be used to determine compliance with the emission limit.*”¹⁰⁴ In the case of the pound per hour PM, PM10, and PM2.5 emission limits in the Draft Permit applicable to the autoclave scrubbers, the limits apply to total particulates including condensable particulate emissions for which there are no CEMs available. Thus, these limits cannot be relied upon to limit potential to emit of PM, PM10, or PM2.5 from these units.

Further, because the removal efficiency of the particulate matter from the Autoclave vent and the Autoclave flash vessel vent by the venturi and packed bed scrubbers is unknown for the type of particulate matter to be emitted by these units (i.e., primarily condensable particulate matter, which is typically under 2.5 microns in diameter), the fact that the permit requires the emissions from the autoclave and autoclave flash vessels to be routed to the scrubbers cannot be relied upon to limit particulate emissions from the autoclave units to any specific amount. The Draft Permit does require that PolyMet operate the scrubbers to achieve 99.06% control efficiency of PM, PM10, and PM2.5 and to achieve 99% control efficiency of sulfuric acid mist,¹⁰⁵ but the Permit does not require periodic testing (which would require stack testing upstream and downstream of the scrubbers) to verify compliance with those removal efficiency requirements. While the Draft Permit includes requirements for specific pressure drops and water flow rates for the Autoclave Scrubbers,¹⁰⁶ neither MPCA nor PolyMet has provided data and analysis to show that those operating parameters will ensure compliance with the 99.06% removal efficiency requirement for PM, PM10, and PM2.5 and the 99% removal efficiency requirement for sulfuric acid mist.

Given the unknown PM, PM10, and PM2.5 removal efficiencies to expect across the scrubbers and the estimate of the uncontrolled emission rates based on a 10-day trial at a pilot plant, the fact that the permit requires the emissions from the autoclave and autoclave flash vessels to be routed to the scrubbers cannot be relied upon to limit sulfuric acid mist emissions from the

¹⁰³ June 13, 1989 EPA Memorandum from Terrell E. Hunt and John S. Seitz with subject “Guidance on Limiting Potential to Emit in New Source Permitting,” at 5-6.

¹⁰⁴ *Id.* at 8 [emphasis added].

¹⁰⁵ Draft Permit at Conditions 5.336.3, 5.336.4, and 5.336.7.

¹⁰⁶ Draft Permit at Conditions, 5.336.12 and 5.336.13.

autoclave units to any specific amount. There are just too many unknowns to rely on control equipment alone to limit potential to emit from the autoclave units.

All of these issues also apply to the pound per hour sulfuric acid mist limit applicable to the Autoclave Scrubber Stack in the Draft Permit.¹⁰⁷ There is no continuous emission monitoring system for sulfuric acid mist. The removal efficiency of sulfuric acid mist in scrubbers is quite variable.¹⁰⁸ Similar to the testing for compliance with the particulate matter pound per hour limits, the Draft Permit only requires one stack test within 180 days after startup, and then provides PolyMet the discretion to decide how frequently to re-test emissions and does not request testing any more frequently than once per year.¹⁰⁹ This infrequent testing is nowhere near sufficient to ensure continuous compliance with the pound per hour sulfuric acid mist limit.¹¹⁰ Given the unknown removal efficiency to expect across the scrubbers and the estimate of the uncontrolled emission rate based on a 10 day trial at a pilot plant, the fact that the permit requires the emissions from the autoclave and autoclave flash vessels to be routed to the scrubbers cannot be relied upon to limit sulfuric acid mist emissions from the autoclave units to any specific amount.

For all of the reasons discussed above, the Draft Permit fails to limit the potential to emit of the Autoclave unit and Autoclave flash vessel, and there does not appear to be an adequate method to create practically enforceable limits on emissions from the Autoclave and Autoclave flash vessel. Given the unknowns about this process which has never being tested at a commercial scale and the unknowns and wide variability of control of PM, PM10, PM2.5 and sulfuric acid mist across the scrubbers, the potential to emit of the PolyMet facility must be based on the worst case uncontrolled annual emissions that could be emitted from the Autoclave unit and Autoclave flash vessel under their physical and operational design.

D. The Permit Lacks Federally and Practically Enforceable Limits on the Potential to Emit of Other Sources of Emissions at the PolyMet Facility.

The Draft Permit contains hundreds of conditions intended to limit the PolyMet facility's potential to emit which are labeled "Title I conditions." However, the number of permit conditions and the extreme length of the permit obfuscates whether such conditions are practically enforceable and whether such conditions will ensure that the potential emissions of the PolyMet facility are limited to less than major source emission levels. In addition to the deficiencies we raised with the permit limits on Autoclave vent and Autoclave Flash vessel discussed above, there are numerous other deficiencies in the Draft Permit that render the limits on the potential to emit ineffective. The following comments detail why the Draft Permit does not include practically enforceable limits necessary to limit the potential to emit of the PolyMet facility to less than major source levels.

¹⁰⁷ Condition 5.282.5 of Draft Permit.

¹⁰⁸ See, e.g., EPRI, Estimating Total Sulfuric Acid Emissions from Stationary Power Plants, Version 2010a, April 2010, at 4-21 to 4-22.

¹⁰⁹ Draft Permit, Conditions 6.244.6 and 6.244.16.

¹¹⁰ Draft Permit, Condition 5.282.5

1. The Draft Permit Contemplates the Addition of “Contractor Activities,” Which are Currently Undefined and Likely Need to Be Counted in the Potential to Emit of the PolyMet Facility, But Fails to Include Any Limitations on the Emissions from Those Activities.

Condition 5.1.1 of the Draft Permit states as follows:

Prior to any contractor activities, not included in this permit under COMG 2, that cause or contribute to air emissions being conducted on site, the Permittee shall determine whether the contractor activities are part of the stationary source as defined in MN R 7005.01000, 42c. If contractor activities are part of the stationary source, the Permittee shall evaluate the activities to determine whether a permit amendment is needed. If a permit amendment is needed, the Permittee shall apply for and obtain the appropriate permit amendment or permit prior to allowing the contractor to conduct the activities. If the Permittee determines a permit amendment is not needed, the Permittee shall retain records of the calculations and other information used to determine a permit amendment is not needed.

This is problematic for numerous reasons. Most importantly, MPCA should not be authorizing construction and claiming that PolyMet is a minor source exempt from PSD permitting requirements when the full extent of the PolyMet facility is not known. There are several PSD requirements that must be addressed prior to beginning construction, including but not limited to preconstruction ambient air monitoring required pursuant to 40 C.F.R. 52.21(m)(1), determination of best available control technology (BACT) pursuant to 40 C.F.R. 52.21(j), and demonstrating that the facility will not cause or contribute to a violation of the Class II increments pursuant to 40 CFR 52.21(k)(2).¹¹¹

Moreover, Condition 5.1.1 of the Draft Permit leaves the regulatory decision of how additional contractor activities might impact what rules apply to the PolyMet facility entirely up to PolyMet by allowing PolyMet to “determine whether the contractor activities are part of the stationary source as defined in MN R 7005.01000, 42c.” This is simply not an appropriate condition for the permit. With Permit Condition 5.1.1, MPCA is essentially providing PolyMet with an affirmative

¹¹¹ There are other requirements that must be addressed before issuance of a PSD permit including an evaluation of whether or not the PolyMet facility will cause or contribute to a violation of the PSD increments or adversely impact an air quality related value such as visibility in a Class I area. While PolyMet provided some of those analyses for Class I areas (e.g., Boundary Waters Wilderness and Voyageurs National Park) in its permit application since they were also done for the Environmental Impact Statement (EIS), we have not reviewed or commented on those analyses because it does not appear that MPCA would have authority to address issues with Class I PSD increments or air quality related values impacts in the context of this Draft Permit for a non-PSD source. If it is later determined that PolyMet should have been permitted as a PSD source, MPCA must provide the public a new opportunity to comment on whether the proposed facility will comply with all PSD permitting requirements including Class I area requirements.

defense to any noncompliance with Minnesota air permitting rules for an expansion of the activities at its facility because it can determine that certain activities are not part of the stationary source. This condition should not be in the permit.

Instead, if PolyMet at some future date prior to commencing operation decides it needs to change or add activities to its facility, the permit must require that PolyMet submit such changes to MPCA and follow all other permitting requirements that MPCA determines apply to such change including determining whether the initial permit was a sham permit. EPA has stated that “[p]ermits with conditions that do not reflect a source’s planned mode of operation may be considered void and cannot shield the source from the requirement to undergo major source preconstruction review. In other words, if a source accepts operational limits to obtain a minor source construction permit but intends to operate the source in excess of those limitations once the unit is built, the permit is considered a sham...Additionally, a permit may be considered a sham permit if it is issued for a number of pollutant-emitting modules that keep the source minor, but within a short period of time an application is submitted for additional modules which will make the total source major.”¹¹²

2. The Permit Fails to Ensure that if any Title I Conditions Are Relaxed, the Source Must Be Evaluated for PSD Applicability as Though Construction Has Not Yet Commenced.

In the PSD program, 40 C.F.R. 52.21(r)(4) states as follows:

At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification.

The Draft Permit fails to include any provision reflective of these requirements and, instead, includes a condition that indicates changes at the source that would make the source a major source must be processed as a major permit amendment.¹¹³ If the PolyMet facility makes a change or changes that relax Title I limits or that otherwise make the PolyMet source a major source, it must get a PSD permit as though construction has not yet commenced on the source.

Permit amendments are for modifications to existing sources, and any changes to the Title conditions or other changes (such as additional activities not yet determined, as discussed above) must require a new permit as if starting from square one. Numerous requirements would apply, all of which should have applied prior to construction of the facility. It is not appropriate to indicate that the necessary permit could be issued as a Major Permit Amendment, which typically applies to emission increases at a source and not to the entire source as though

¹¹² EPA, New Source Review Workshop Manual, October 1990, Appendix C at c.6.

¹¹³ Draft Permit Condition 5.1.13.

construction has not yet commenced. Therefore, MPCA must revise Draft Permit Condition 5.1.13 to read consistently with the requirement of 40 C.F.R. 52.21(r)(4) quoted above. Otherwise, Draft Permit Condition 5.1.13 strongly implies that any changes in Title I conditions or addition of activities that could make the source major could be addressed as a modification to the source, which for a minor source could allow an increase of up to 250 tons per year without triggering PSD.

3. The Ore Processing Throughput Limit Does Not Limit the Amount of Ore Produced at the Mine, and the Draft Permit Fails to Include Necessary Conditions to Limit Ore Throughput at the Plant Site.

Condition 5.1.39 of the Draft Permit limits ore process throughput to 11.680 million tons per year of ore processed at the facility, and Condition 5.1.40 of the Draft Permit requires PolyMet to monitor and record the tons of ore exiting the coarse crusher building on a monthly basis. By monitoring the amount of ore exiting the coarse crusher building, this tons-of-ore-processed limit does not effectively limit the tons of ore produced at the mine because some of the mined ore could be shipped off-site for processing. Therefore, all of the emission estimates for mine sources used for modeling and those that are used for Title I conditions at mine site sources that rely on the 11.680 million ton per year ore processing limit are based on a limitation that does not exist in the Draft Permit. For Mine Site sources for which emissions are projected based on this ore processing limit of 11.680 million tons per year, the limit must be imposed to all ore shipped either to the Plant Site or offsite for processing from the Mine Site, with appropriate monitoring, recordkeeping and reporting and periodic calibration of belt scales or whatever other method is used for tracking weight of ore transported to the Plant Site or offsite.

Further, the 11.680 million ton per year limit of ore processed cannot be relied on to limit emissions of the coarse crusher building because the Draft Permit does not require monitoring of the weight of ore fed into the coarse crushers. Instead it only requires monitoring of the ore at the exit of the coarse crushers. The Permit should limit the weight of ore entering the coarse crusher building.

Lastly, the wording of Draft Permit Condition 5.1.40 needs to be revised because it does not definitively require constant monitoring and recording of the ore throughputs exiting the coarse crusher building. Specifically, this permit condition states that PolyMet shall “*monitor and record* the tons of ore exiting the coarse crushing building *on a monthly basis.*”¹¹⁴ Instead, this permit condition must require the *continuous* weighing of ore throughput exiting the coarse crusher building and summing of total ore throughput on a monthly basis. The permit must also require period calibration of the belt scales used for monitoring ore throughput and associated recordkeeping and reporting of such calibrations. Further, the permit must include provisions for any malfunctions or breakdowns in operations of the belt scales, including requiring prompt notification to MPCA, prompt repair of the scales, and other specific provisions indicating how PolyMet will ensure compliance with the 11.680 million ton per limit on ore processed during any periods of belt scale outage or breakdown. Without such provisions, the ore throughput

¹¹⁴ Condition 5.1.40 of the Draft Permit [emphasis added].

limitation of Condition 5.1.39 cannot be considered to be a reliable limit on potential to emit of the remainder of the ore processing facilities at PolyMet.

These conditions are especially important given that the coarse crusher lines and the fine crushing lines have more capacity than the 11.680 million ton per year ore throughput limit. Specifically, just one of the coarse crushers has hourly ore throughput capacity of 4025 tons per hour, which equates to 35.259 million tons of ore capacity per year.¹¹⁵ It appears there are two coarse crusher lines (North and South), and thus the potential capacity is two times 4025 tons per hour or 70.518 million tons of ore capacity per year. Even just the three fine crusher lines that PolyMet claims are all it will use of the seven fine crusher lines that exist in the fine crusher building have higher ore throughput capacity than 11.680 million tons per year. Specifically, the three fine crusher lines have a total capacity of 2412 tons of ore per hour¹¹⁶, which equates to 21.129 million tons of ore capacity per year. With the other four fine crusher lines that currently exist at the site (which we believe must be included in determining potential to emit of the facility unless the permit specifically prohibits their use as a Title I condition, see Section II.A. above), the ore throughput capacity is even greater.

For all of these reasons, the permit must include provisions to ensure the integrity of the ore throughput capacity limit of Condition 5.1.39 of the Draft Permit in order for it to be relied upon to either limit emissions that were considered in the ambient air modeling and/or to limit emissions in determining potential to emit of the PolyMet facility.

4. The Draft Permit Fails to Identify All Provisions Related to Title I Conditions as Title I Conditions, Which is Necessary to Ensure that Such Provisions Remain in Effect even if the Permit Expires.

The Draft Permit includes numerous Title I conditions with associated monitoring or recordkeeping requirements that are necessary to assure compliance but that are NOT listed as Title I conditions. A key component of practically enforceable limits are conditions that imposing testing and monitoring of compliance with permit conditions. Thus, the permit provisions that provide the mechanism for compliance with Title I conditions must also be listed as Title I conditions. Table 3 below lists those permit conditions that we have identified that are related to determining compliance with Title I conditions but which have not been listed as Title I conditions in the Draft Permit.

Table 3. PolyMet Draft Permit Conditions that Should Be Listed as Title I Conditions and That Are Necessary for Title I Conditions to be Enforceable

Permit Condition(s) that Should Be Listed as a Title I Condition	Description	Title I Condition(s) to Which the Permit Condition is Related
5.3.10	Requirement to conduct emission calculations for portable crushing equipment	5.3.3, 5.3.4, 5.3.5, 5.3.6, 5.3.7, and 5.3.8

¹¹⁵ See spreadsheet of PolyMet Plantsite calculations (V2D1), at tab “Process Rates,” at cell B10.

¹¹⁶ *Id.* at cells B22 and B23.

Permit Condition(s) that Should Be Listed as a Title I Condition	Description	Title I Condition(s) to Which the Permit Condition is Related
5.3.11 to 5.3.16	Equations for compliance with emission limits at portable crushing equipment	
5.3.20 to 5.3.21	Operating Hours Recordkeeping-daily and monthly	
5.146.6	Requirement for monitoring throughput for acid flocculant silo	5.146.4
5.156.5	Monitoring throughput for Plant Lime Silo	5.156.4
5.159.5	Monitoring throughput for Limestone conveyor to stacker conveyor	5.159.2
5.160.6	Monitoring throughput for Limestone Reclaim Chute	5.160.2 5.160.3
5.161.5	Monitoring throughput for Limestone Reclaim Feeder to Conveyor	5.161.2 5.161.3
5.162.4	Monitoring throughput for Limestone Tunnel Conveyor to Bunker	5.162.1 5.162.2
5.163.4	Monitoring throughput for Limestone Bunker to Crusher Feed	5.163.1 5.163.2
5.164.4	Monitoring throughput for Limestone Crusher Feed Conveyor	5.164.1 5.164.2
5.167.4	Monitoring throughput for Limestone Conveyor to Mix Tank	5.167.1 5.167.2
5.169.5	Monitoring throughput for MSFMS Lime Silo	5.169.4
5.170.4	Monitoring throughput for MSFMS Lime Transfer to Tank	5.170.3
5.172.6	Monitoring throughput for Limestone Reclaim Pocket Dump	5.172.3 5.172.4

Permit Condition(s) that Should Be Listed as a Title I Condition	Description	Title I Condition(s) to Which the Permit Condition is Related
5.175.18 through 5.180.11	Provisions requiring documentation that unit is an emergency generator under EPA's 9/6/95 PTE Memo	If emergency generators are to be considered as limited to 500 hours per year in PTE calculations pursuant to EPA's 9/6/95 guidance, these provisions must be Title I provisions.
5.181.7	Monitoring of operating hours of generator to move electrical equipment.	5.181.5
5.183.4	Monitoring process throughput of WWTS Calcite Handling	5.183.3
5.203.5	Monitoring process throughput of WWTS Lime Silo	5.203.4
5.204.4	Monitoring process throughput of WWTS Lime Transfer to Mix Tank	5.204.3
5.205.4	Monitoring process throughput of WWTS other dry material handling	5.205.3
5.226.6 and 5.226.9	Monitoring process throughput of Mine Site Surface overburden Screen #1, and recordkeeping requirements	5.226.2 5.226.3
5.227.6 and 5.227.9	Monitoring process throughput of Mine Site Surface overburden Screen #1 discharge, and recordkeeping requirements	5.227.2 5.227.3
5.237.6 and 5.237.9	Monitoring process throughput of Mine Site Surface overburden Screen #2, and recordkeeping requirements	5.237.2 5.237.3
5.238.6 and 5.238.9	Monitoring process throughput of Mine Site Surface overburden Screen #2 discharge, and recordkeeping requirements	5.238.2 5.238.3

Permit Condition(s) that Should Be Listed as a Title I Condition	Description	Title I Condition(s) to Which the Permit Condition is Related
5.239.6 and 5.239.9	Monitoring process throughput of Mine Site Surface overburden Screen #3, and recordkeeping requirements	5.239.2 5.239.3
5.240.6 and 5.240.9	Monitoring process throughput of Mine Site Surface overburden Screen #3 discharge, and recordkeeping requirements	5.240.2 5.240.3

Almost all of these requirements pertain to requiring monitoring of throughput or other information, and such a requirement is imperative to the enforceability of throughput or processing limits that are designated as Title I limits on potential to emit. Therefore, all of these monitoring requirements must be identified as Title I conditions in the permit, in addition to the Title I condition to which the monitoring requirements pertain, to ensure that the monitoring requirements necessary to ensure practical enforceability of limits on potential to emit remain in effect even if the permit expires. MPCA should review all of the Title I conditions of the permit to ensure that all conditions necessary to ensure the enforceability of an emission or production limit are listed as Title I conditions in the permit.

5. The Draft Permit Does Not Include All Conditions Necessary to Ensure Continuous Compliance with Emission Limitations Intended to Limit the Potential to Emit of the PolyMet Facility.

The Draft Permit imposes numerous pound per hour limits and control efficiency requirements for control equipment. Those limitations were, in turn, relied upon for determining potential to emit of the PolyMet facility. In the comments in Section II.C. above regarding the emission limitations on the Autoclave, we explained why the pound per hour emission limits and the requirements to route to a particulate control device were not sufficient to limit potential to emit. To reiterate, the Court in *United States v. Louisiana-Pacific Corporation* has interpreted the definition of potential to emit in 40 C.F.R. § 52.21(b)(4) to require restrictions on operating hours or production levels or types of material combusted, rather than simply imposing limits on tons of pollutants emitted per year.¹¹⁷ In its June 13, 1989 guidance on limiting potential to emit, EPA stated that proper limits on potential to emit must include a production or operational limitation in addition to an emission limitation “where the emission limitation does not reflect the maximum emissions of the source operating at full design capacity without pollution control equipment.”¹¹⁸ EPA stated that there are two exceptions to the prohibition on using blanket

¹¹⁷ See *United States v. Louisiana-Pacific Corporation*, 682 F. Supp. 1122, 1133 (D. Colo. 1987) (blanket restrictions on actual emissions cannot be considered in determining potential to emit).

¹¹⁸ June 13, 1989 EPA Memorandum from Terrell E. Hunt and John S. Seitz with subject “Guidance on Limiting Potential to Emit in New Source Permitting,” at 5-6.

emission restrictions to limit potential to emit. One exception pertained to surface coating operations, and the other exemption applies when setting operating parameters for control equipment is infeasible. In such cases, a permit that includes “short term emission limits (e.g., lbs per hour) would be sufficient to limit potential to emit, *provided that* such limits reflect the operation of the control equipment, and *the permit includes requirements to install, maintain, and operate a continuous emission monitoring (CEM) system and to retain CEM data, and specifies that CEM data may be used to determine compliance with the emission limit.*”¹¹⁹

In the case of the pound per hour emission limits in the Draft Permit that are being relied upon as Title I conditions to limit potential to emit of the PolyMet facility (of which there are numerous such limits), the permit does not require use of CEMs to determine compliance. Instead, the Draft Permit requires one stack test within 180 days of operation and then very infrequent stack tests occurring at intervals of one to five years entirely at the discretion of PolyMet.¹²⁰ Thus, the various pound per hour limits cannot be relied upon to limit potential to emit of any air pollutants in the absence of CEMs, especially with such infrequent testing, at any of the emission units at PolyMet.

The Draft Permit lacks necessary requirements to rely on control equipment requirements in the Permit to ensure compliance with the limits on potential to emit. For example, for all of the emission points of the crushing operations, PolyMet assumed particulate emissions based on “performance specifications for the baghouses that will be installed in the crushing plant of 0.0025 gr/cf of total PM...Uncontrolled emissions were estimated by assuming a control efficiency of 99% for the baghouses.”¹²¹ First, it must be noted that PolyMet has not provided any vendor guarantee for the baghouses or cartridge filters that a 0.0025 grains per cubic foot limit can be met at the crushing operations at the PolyMet Plant site. MPCA must require such information to support PolyMet’s claimed emission rate. Further, the Draft Permit fails to impose a 0.0025 grain per cubic foot permit limit on any of the cartridge filters or baghouses. While the draft permit imposes a requirement that all cartridge filters or baghouses be operated and maintained to achieve 99% control efficiency of particulate matter,¹²² the Permit does not include any provisions to determine the control efficiency of the cartridge filters or baghouses. While the Draft Permit does include other provisions regarding the operation of the baghouses or cartridge filters, such as pressure drop requirements,¹²³ neither MPCA nor PolyMet has provided any demonstration that these pressure drop requirements will ensure 99% control efficiency across the baghouse. But given that PolyMet did not properly estimate uncontrolled particulate

¹¹⁹ *Id.* at 8 [emphasis added].

¹²⁰ The Permit Conditions regarding testing for compliance are in numerous provisions in Section 6 of the Draft Permit (beginning at page 534), but all of the permit conditions that pertain to testing with pound per hour Title I limits are the same – initial test within 180 days, subsequent testing on 1 to 5 year intervals at the discretion of PolyMet. *See, e.g.,* testing requirements for EQUI 106, Railcar Loading- Copper Concentrate, Draft Permit at pp. 667-668.

¹²¹ *See* spreadsheet of PolyMet Plantsite calculations (V2D1), at tab “References,” at cells F218 to F220.

¹²² *See, e.g.,* Permit Conditions, 5.288.3, 5.288.4, and 5.288.5. MPCA seems to have required 99% control efficiency requirements for all baghouse and cartridge filters in the Draft Permit.

¹²³ *See, e.g.,* Draft Permit Conditions 5.288.7.

MPCA Comment 49

emissions, what is more important to ensuring the integrity of PolyMet's potential to emit calculations for PM, PM10, and PM2.5 at the Plant Site is ensuring that there are vendor guarantees for all of the baghouse and cartridge filters to achieve 0.0025 grains per cubic foot and to ensure periodic testing (more frequent than 1 to 5 times per five years) of compliance with the pound per hour limits at all baghouse and cartridge filter emission points.

MPCA Comment 50

Similarly, for the emission limits for the units routing emissions to TREA 53, the Plant Scrubber, the draft permit sets pound per hour emission limits for PM, PM10, PM2.5 and sulfuric acid mist,¹²⁴ but the Draft Permit only requires infrequent testing of compliance with those limits – as infrequent as once per five years.¹²⁵ The Draft Permit requires 99% particulate matter and sulfuric acid mist control efficiencies for the scrubber, but the Draft Permit fails to include any requirements for ensuring compliance with the 99% control efficiency requirements.¹²⁶ While the Draft Permit has operational requirements for the Plant Scrubber including to regulate pressure drop, water flow rate, and pH across the scrubber,¹²⁷ neither MPCA nor PolyMet has put forth any demonstration that these requirements are tied to 99% control of PM, PM10, PM2.5 or sulfuric acid mist across the scrubber. The Plant Scrubber is relied upon to control the emissions of the AuPGM precipitation tanks (EQUI 110), the CuS Cementation Tank N2 Vent (EQUI 112), the MHP Stage 1 Tank Vent (EQUI 113), and the NaHS Mix Tank/Storage Tank. With very infrequent test requirements for the particulate matter and sulfuric acid mist emission limits and no provisions for ensuring the control efficiency of the scrubber, the pound per hour emission limits cannot be relied upon to limit potential to emit.

MPCA Comment 51

For all of these reasons, the Draft Permit fails to include all conditions necessary to limit potential to emit of the PolyMet facility with practically enforceable limitations that ensure continuous compliance with emission limitations intended to keep the PolyMet facility from being considered a major source under the PSD program.

MPCA Comment 52

E. Summary Regarding the Potential to Emit of the PolyMet Source

For all of the reasons discussed above, the Draft Permit currently does not adequately limit the potential to emit of the PolyMet source. For some units, primarily the Autoclave vent and Autoclave flash vessel, the assumed controlled emission rates have not been adequately justified. Given the unknowns about this process which has never been tested at a commercial scale and the unknowns and wide variability of control of PM, PM10, PM2.5 and sulfuric acid mist across the scrubbers, it is questionable that any limits on potential to emit of the Autoclave vent and Autoclave Flash Vessel can be assumed. The uncontrolled emissions from the Autoclave Flash Vessel by itself exceed the major source emission thresholds for PM, PM10, PM2.5 and sulfuric acid mist. Specifically, PolyMet projected the uncontrolled emissions just from the Autoclave Flash Vessels as 4,033.865 tons per year of each PM, PM10, and PM2.5 and 426.470 tons per

¹²⁴ Draft Permit at Conditions 5.283.1, 5.283.2, 5.283.3, and 5.283.5.

¹²⁵ Draft Permit, Conditions 6.245.1, 6.245.2, 6.245.3, 6.245.5, 6.245.7, 6.245.8, 6.245.9, and 6.245.11.

¹²⁶ Draft Permit Conditions 5.338.3, 5.338.4, 5.338.5, and 5.338.7

¹²⁷ Draft Permit, Conditions 5.338.9, 5.338.10, and 5.338.11.

year of sulfuric acid mist.¹²⁸ Thus, it is imperative that MPCA and PolyMet justify the assumptions that went into the assumed scrubber removal efficiencies for PM, PM10, PM2.5 and sulfuric acid mist based on the most probable form of particulate matter expected from the Autoclave vent and Autoclave flash vessel of condensable particulate matter.

As previously stated, the assumed 99.06% control efficiency of the Autoclave scrubber for PM, PM10, and PM2.5 and the 99% control efficiency of sulfuric acid mist have not been justified by vendor guarantees, and the Autoclave scrubber control efficiency limits in the Draft Permit do not include provisions to make those assumptions enforceable. Further, the scrubber operational requirements have not been tied to these high levels of particulate and sulfuric acid removal, especially given the likelihood that the particulate matter will likely be condensable particulate matter that is not as readily captured in scrubbers. As it is right now (not even taking into account the other issues with the potential to emit of the PolyMet facility and the permit deficiencies discussed above), if the scrubbers only achieved 97.9% control of PM, PM10, and PM2.5, the PolyMet facility's potential to emit would be major (i.e., greater than 250 tons per year¹²⁹) for PM, PM10, and PM2.5. A particulate control efficiency of 97.9%, especially for condensable particulate matter which is likely the form of the particulate to be emitted from the autoclave flash vessel, is still a very high control efficiency to assume for the scrubbers to be installed for condensable particulate matter, and this slight change in control efficiency makes the difference as to whether the PolyMet source is major or not for PM, PM10, and PM 2.5 under the PSD program.

Thus, because of the difficulty of imposing emission limits for which compliance can continuously be demonstrated for the sulfuric acid mist, PM, PM10, and PM2.5 emissions from the Autoclave units, it is imperative that the assumed removal efficiencies for the Autoclave scrubbers for sulfuric acid mist, PM, PM10, and PM2.5 are technically justified for the form of and concentrations of particulate matter that are expected to be emitted from the Autoclave units to the Autoclave scrubbers. Vendor guarantees should be obtained and made available for public review before MPCA issues any permit purporting to impose synthetic minor limits on the PolyMet facility because the pollutant removal efficiency achieved across the control equipment is extremely important to PolyMet's potential to emit calculations being grounded in reality, especially given the fact that the process to be used in the Autoclaves at PolyMet has never been done on a commercial scale. In the absence of such vendor guarantees and unless permit conditions are imposed to ensure continuous compliance with the pound per hour limits, the potential to emit of these emission units should be based on uncontrolled emissions when determining potential to emit of the PolyMet facility.

¹²⁸ See MPCA TSD, Attachment 1, PTE Summary Calculation Spreadsheets, Table B-126 at 18 (pdf page 159 of MPCA file entitled "TSD-1.pdf.")

¹²⁹ The current potential to emit is stated as 166.31 tons per year for PM2.5. (Potential to emit is slightly higher for PM10 and PM). MPCA TSD at 3. If the scrubber only achieves 97.9% control instead of the assumed 99.06% control of PM, PM10, and PM2.5, that could increase the potential to emit just from the Autoclave Flash Vessel by 84.7 tons per year which, when added to 166.31 tons per year for PM2.5, is 251 tons per year. Potential to emit PM and PM10 would be even higher than 251 tons per year. And this estimate does not even consider the effective on emissions from the Autoclave vent.

MPCA Comment 52

In addition, MPCA must address all of the other deficiencies in the Draft Permit in limiting potential to emit of the PolyMet source in order to ensure the integrity of PolyMet's potential to emit calculations and assumptions. As it stands now, it does not appear that the Draft Permit will sufficiently limit PolyMet's emissions to less than major source emission thresholds without significant changes to the permit as discussed above and without additional support for the emissions assumptions.

MPCA Comment 53

III. The Draft Permit Fails to Adequately Limit Potential Hazardous Air Pollutant Emissions of the PolyMet Facility to Less than Major Source Emission Thresholds.

The Draft Permit for the PolyMet facility also includes emission limitations intended to keep the PolyMet facility a synthetic minor source of hazardous air pollutants (HAPs) under 40 CFR 63.2. Those limits are identified in the Draft Permit as "Avoid major source under 40 CFR 63.2" and the majority of those limits apply to metal HAPs that would also qualify as particulate matter.¹³⁰ These limits are generally control efficiency requirements for the baghouses/cartridge filters.¹³¹ As discussed above, those removal efficiency requirements are not enforceable requirements unless the permit requires periodic testing to ensure compliance with the control efficiency limit. Typically that is done by measuring emissions upstream and downstream of the pollution control device. It is not clear how to accomplish the upstream emissions from some of the sources at PolyMet such as the crushing operations controlled by cartridge filters. Further, the operational requirements applicable to the pollution control devices have not been shown to be sufficient to achieve the assumed removal efficiency. In any event, because the permit does not require testing to ensure compliance with the HAP removal efficiency requirements, those requirements cannot be relied upon to limit potential to emit HAPs at the PolyMet facility.

MPCA Comment 54

IV. Additional Comments on the Draft Permit for PolyMet.

A. MPCA Must Require PolyMet to Begin Construction within a Shorter Timeframe than 60 Months.

Condition 5.1.1 of the Draft Permit states that the permittee must start construction of the equipment authorized in this permit within 60 months (five years) after issuance or the authorization to construct will expire. Five years is a long time to allow for commencement of construction. The PSD permit provisions require construction to commence within 18 months of permit issuance or the permit to construct will expire.¹³² The reason for this limitation on the beginning of construction after permit issuance is so the information in the permit and the air quality and other analyses upon which it is based is current. While five years may be the length of time of a Part 70 permit, such Part 70 permits were not envisioned to be authorizations to construct but authorizations to operate. While it is recognized that MPCA has adopted a combined construction and operating permit program, the state still could – and should – impose a shorter timeframe for commencing of construction of the PolyMet facility. To preserve the

¹³⁰ See, e.g., Draft Permit at Condition 5.286.6, 5.287.6, etc.

¹³¹ *Id.*

¹³² 40 CFR 52.21(r)(2).

MPCA Comment 54 integrity of the modeling and to be consistent with PSD permitting requirements, MPCA should require construction commence on the PolyMet facility within 18 months of permit issuance.

MPCA Comment 55 **B. Assuming MPCA Incorporates Additional Provisions into the PolyMet Permit to Sufficiently Limit Potential to Emit below Major Source Levels, the Permit Should be Streamlined to More Readily Ensure Compliance by PolyMet.**

The Draft Permit is extremely long at 1230 pages and is also very difficult to follow, because provisions applicable to one emissions unit are found in several different parts of the permit. After going through the entire permit in detail, it is clear that many identical provisions and emission limits are repeated for different emission units. Assuming MPCA incorporated additional provisions to adequately limit potential to emit of the PolyMet facility, MPCA should also streamline repeating conditions of the permit to better ensure compliance by PolyMet. For example, The North 60” Crusher and the South 60” Crusher are subject to the same numerical particulate matter emission limits, but route their emissions to two different particulate matter controls (that also have identical requirements).¹³³ Instead of breaking those conditions up into individual permit conditions for each crusher and baghouse, these emission limits could be combined into one permit condition applicable to each Crusher on an individual basis. Indeed, the Permit could simply have a table of emission limits for all of the various emission units, which in many cases are the same limits. Also the baghouse and cartridge filters are subject to the same requirements, which could be summarized as one set of requirements applicable to each of those particulate controls on an individual basis. At the very minimum, the permit should include such a summary at the beginning to help assure PolyMet’s compliance with the Permit.

MPCA Comment 56 **V. Conclusion**

In summary, MPCA must not issue the Draft Permit for the PolyMet facility as currently proposed for several reasons. First, MPCA must require PolyMet to conduct revised modeling for compliance with the PM10 and PM2.5 NAAQS before it can issue an Air Permit authorizing construction and operation. MPCA must ensure that the revised modeling includes all areas of “ambient air” and that it includes all contributing source emissions in compliance with MPCA’s permitting guidance. And, with respect to control of fugitive emissions from unpaved roads, if some level of PM10 and PM2.5 control is deemed necessary to assure compliance with the NAAQS (which presumably it will be), then MPCA must impose more definitive requirements in the Air Permit that will control fugitive dust to the levels assumed in the modeling and that are not simply dispersion techniques. Until this revised modeling is conducted and more definitive fugitive dust control requirements are imposed, MPCA cannot lawfully issue the Air Permit for PolyMet because it cannot be demonstrated that the permit includes all terms and conditions necessary to assure attainment of the PM10 and PM2.5 NAAQS.

Second, the Draft Permit does not properly limit potential to emit of the PolyMet facility below major source levels for numerous reasons. Specifically, the permit fails to account for all sources of point source emissions existing and contemplated at the PolyMet site (e.g., portable crushing equipment at Mine Site, existing fine crushing lines at Plant Site, additional contractor

¹³³ Draft Permit Conditions for EQUI 1 and EQUI 2, and TREA 1 and TREA 2.

activities contemplated in Draft Permit). Further, the potential to emit of the Autoclave vent and Autoclave flash vessel is based on short term pilot testing for a process that has never been implemented on a commercial basis, and the permit record fails to include support for the emissions assumptions and the assumed control efficiencies of the Autoclave scrubbers. The Draft Permit also to include practically enforceable limits and associated requirements to ensure the integrity of the assumed emission rates and control equipment efficiencies from the Autoclave units, the crusher units, and several other emission units. Without proper and practically enforceable limits on the PolyMet facility, the source must be permitted as a major source under the PSD program.

In sum, there are significant changes needed in the modeling and emissions documentation for the permit as well as within the permit itself to ensure compliance with the air permitting requirements of the Clean Air Act and the Minnesota Rules. We request the ability to review and comment on that information and revised permit conditions in a new 30-day comment period.

Online Comment

Permit Portal: Air

3/16/2018

Comment:

Attached please find a cover letter and comments for the PolyMet air emissions permit. Exhibits to these comments are being mailed under separate cover due to file size limitations. That mailing has been postmarked today and placed in a mailbox pursuant to the public notice requirements.

Kevin Lee
St. Paul, 55101
United States

Attachments:

ref:0000000550:Q9a

ref:0000000550:Q9b

Fond du Lac Band of Lake Superior Chippewa

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Administration
Conservation
Enforcement
Environmental
Forestry
Fisheries
Natural Resources
Wildlife

MPCA Comment 57

March 16, 2018

SUBMITTED ELECTRONICALLY
PolyMet Draft Air Permit Comments – 4th Floor
Minnesota Pollution Control Agency
520 Lafayette Road
St Paul, MN 55155-4045

Re: Fond du Lac Band of Lake Superior Chippewa comments and objections to
PolyMet Draft Air Permit

Dear Commissioner Stine:

The Fond du Lac Band of Lake Superior Chippewa appreciates this opportunity to comment on the PolyMet Draft Air Permit. In these comments, the Band sets out its concerns and objections regarding the draft permit and the actions that the MPCA should take regarding issues raised by the draft permit, and the reasons in support of the Band's position.

The Fond du Lac Band of Lake Superior Chippewa (the Band) is a federally recognized tribe with a Reservation located in northeastern Minnesota that was established by Treaty with the United States as the Band's permanent home. By treaty, the Band retains hunting, fishing and gathering rights on more than 8 million acres of territory in Northeastern Minnesota ceded to the United States government under the Treaties of 1837 and 1854¹. Band members rely on those rights to hunt, fish and gather natural resources in the Ceded Territory for subsistence, cultural and religious purposes, and the Bands accordingly have a legal interest in protecting natural resources on which those rights depend. The Band provides governmental services to Band members and other eligible persons living on and near the Band's reservation. Among those government functions are those to protect the environment. With regard to air quality, the Band has Treatment as a State status under the federal Clean Air Act for air related activities that take place on or near the Reservation and/or other tribal lands.

¹ Treaty with the Chippewa, July 29, 1837, 7 Stat. 536, Treaty with the Chippewa, September 30, 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).

As the project proposed by NorthMet would be located directly upstream of the Fond du Lac Reservation, and within the Ceded Territories where Band members exercise hunting, fishing and gathering rights, the Band has a substantial interest in ensuring that the terms and conditions of any air permit issued to PolyMet are effective in protecting air quality. Our comments reflect our review of the draft permit, Technical Support Document (TSD), and TSD Attachments obtained from the MPCA's website. Comments are grouped according to the documents reviewed.

Class II Modeling Report

With the release of the draft air permit in late January 2018, the Band and the public saw, for the first time, the protocol used by PolyMet and apparently approved by the MPCA for Class II and Class I modeling. The MPCA website for this draft air permit, under a section titled "Class II Air Modeling" provides links to the "Class II Modeling Protocol (Mine Site)" and "Class II Modeling Protocol (Plant Site)" – both of which are dated April 2016 with a follow-up memorandum from PolyMet's consultant, Barr, dated July 2016. The MPCA website also includes a link titled "Class II Modeling Protocol Approval (Plant Site and Mine Site)". This link provides records of MPCA approval of the Class II Modeling Protocol given on August 3, 2016. Copies of these are also reproduced in the Technical Support Documents (TSD) Attachments at pages 834-876 (Mine site) and 877-923 (Plant site). As we describe in detail below, there are serious deficiencies in the Class II modeling. Specifically, PolyMet's Class II Modeling departs from proper practice with regard to inclusion of nearby sources, the removal of receptors on neighboring properties, the use of improper grid spacing for receptors, and the definition of "ambient air boundary".

In addition, while the MPCA website presents the April 2016 Modeling Protocols as the approved Class II Protocols for the Mine site and Plant site, review of the TSD Attachments suggests that the MPCA, in September or December of 2017, may have approved some modifications of these protocols. See TSD Attachments at page 808. These later documents however are not clear. They raise more questions than they answer about the elements of the Class II modeling protocol to be used, and still leave serious deficiencies in the modeling protocol. We discuss those below as well.

Receptor Spacing (PM-10 and PM-2.5)

- PolyMet, in its Air Quality Dispersion Model Protocol for the Mine Site, AQDM-01-NorthMet Mine Site Protocol, Mine Site Class II, Section F (Receptors) (reprinted in the Technical Support Document (TSD) Attachments, at pages 844-845), states that PM-10 receptors will be spaced at 100 meters (m) along the property line and 500 m at distance. This is inadequate, as illustrated when compared to the recommendations contained in the MPCA's modeling guidance (MPCA Modeling Practices Manual, 2017 – "the Manual"). Table 11 of the Manual sets out the recommended placement for ambient air receptors for a proper NAAQS (National Ambient Air Quality Standards) and MAAQS (Minnesota Ambient Air Quality Standards) analysis. See Manual at page 24, Table 11. That table recommends 10 m spacing between each receptor at the property boundary, 50 m spacing from the boundary out to 1 km, and does not allow 100 meter spacing until evaluating concentrations

1-2 km out from the source. PolyMet, in its Modeling Protocol used receptor spacing of 500 m to evaluate concentrations that were between 1-5 km from the source, whereas the Manual does not recommend 500 m spacing until evaluating concentrations 5-10 km out from the source. Further, the Band could not confirm, from the records provided with the draft permit, that PolyMet’s protocol calls for receptor placement between the fenceline and property boundary. These departures from the standards for receptor spacing set out in the Manual are extreme and no justification for them is given in the protocol. Figures J-3 and J-4 in PolyMet’s Modeling Protocol further show that the modeling grid for PM-10 does not appear to change in terms of spacing from the fence line to a distance 5 km out. Table 1 below shows the differences between the receptor spacing used by PolyMet, and the receptor spacing set out in the Manual. Please note that in this Section of PolyMet’s Modeling Protocol, items #3 and #5 provide receptor spacing details. However, these two items do not agree in all respects. MPCA does not provide any explanation of the reasons why the recommendations in the Manual were not followed with regard to receptor spacing for this project. Deviations from the guidance contained in the Manual need to be explained.

- PolyMet’s receptor spacing is also inconsistent with the MPCA modeling guidance that had been used from October 2004 until September 2016 (since September 2016, MPCA has recommended the spacing that is also set out in the current Manual discussed above.) PolyMet, in its modeling protocol, states that it was relying on the MPCA guidance in effect in 2013 (TSD Attachments at page 844). However, MPCA modeling guidance from October 2004 until September 2016, suggested the placement of receptors every 10 m along fence lines and 25 m along property lines. The righthand column in Table 1 below shows spacing suggested by MPCA from October 2004 until September 2016. These parameters are compared with the middle column, receptor spacing used in the modeling by PolyMet. The italicized rows include distance gradations that are found only in the 2004 guidance. One can see that the PolyMet modeling used receptor spacing that would not have been in accordance with MPCA guidance at any point in the last past 13 years. Note that the October 2004 guidance does not suggest spacing receptors at a distance of 500 m apart until a distance of 2.5-4.5 km away from the boundary, whereas the PolyMet modeling uses this spacing straight out from the boundary. Note that the very latest guidance available when PolyMet submitted its modeling protocol in April of 2016 (Manual, July 2013) was consistent with the October 2004 guidance, and would not have allowed the receptor spacing that PolyMet used. Although PolyMet deviated from the recommendations contained in the MPCA’s October 2004 through September 2016 guidance and used fewer receptors spaced further apart, no explanation is provided to justify why this deviation from the recommendations from twelve years’ of prior guidance was allowed.

Table 1

<u>Location</u>	<u>Spacing/Current Guidance (m)</u>	<u>Spacing/PolyMet (m)</u>	<u>Spacing/2013 Guidance (m)</u>
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<i>Along fence lines²</i>	---	---	10
Along property line	10	25, 100	25
<i>From 25-250 m</i>	50	50, 100	25
<i>From 300-500 m</i>	50	50, 100	50
<i>From 600-1000 m</i>	50	50, 100	100
<i>From 1200-2000 m</i>	100	500	200
From boundary-1 km	50	50, 100	25-100
From 1 km-2 km	100	500	200
From 2 km-5 km	250	500	500
From 5 km-10 km	500	1000	1000

- The same flaws in receptor spacing occur with the receptors used by PolyMet for PM_{2.5} (particulate matter less than 2.5 microns in diameter). PolyMet's AQDM-01-NorthMet Mine Site Protocol, Mine Site Class II, Section F (Receptors) (page 845 of the TSD Attachments), does not follow the recommendations in the Manual. Instead, the model calls for PM-2.5 receptor spacing of 100 m around the ambient boundary. From the ambient boundary out to 1 km, PolyMet uses a range of spacing of 50 m at expected maximum locations and 100 m at other locations, which does not follow the Manual's recommendation of spacing at 50 m for all locations. In addition, PolyMet's spacing of receptors at 500 m from 1-5 km distance from the ambient boundary does not follow the Manual's recommended distance of 100 m from 1-2 km out. The Manual does not recommend spacing of 500 m until 5-10 km out from the boundary. Table 2 below summarizes the substantial difference between the recommendations in the Manual and PolyMet's modeling protocol. Again, the Band was unable to confirm, from the records provided with the draft permit, that PolyMet's protocol calls for receptor placement between the fenceline and property boundary. Similar to the problems with the spacing of PM-10 receptor issues described above, no explanation or justification is provided for why this departure from the Manual was proposed or why the proposal was accepted. In addition, similar to the problems with the spacing of PM-10 receptors, PolyMet's model also deviates from the recommendations set out in the MPCA's guidance that were in effect from October 2004 until September 2016, and no explanation is provided for why such a departure was allowed. This implies that the reason these receptors were placed as they were (fewer receptors placed further apart) was solely to allow the source to model compliance with the PM-2.5 and PM-10 NAAQS/MAAQS, but that compliance might not have occurred if the modeling followed the recommendations in the guidance. Table 2 below shows the substantial differences between the MPCA Manual and PolyMet's Model. Again, note that these deviations are inconsistent with recommendations consistently made through twelve years of MPCA modeling guidance.

² Some receptor spacing ranges are found only in the older guidance. These are italicized and a best effort has been made to correlate them to the PolyMet protocol. Where the ranges are not exactly the same, they can be interpolated to the approximate range specified by the old guidance. For example, for a range covering boundary-1 km, that same spacing will cover the ranges from 25-250 m, 300-500 m, and 600-1000 m. Similarly, the range from 1200-2000 m is roughly the same as a range from 1-2 km.

Table 2

<u>Location</u>	<u>Spacing/Current Guidance (m)</u>	<u>Spacing/PolyMet (m)</u>	<u>Spacing/2013 Guidance (m)</u>
<i>Along fence lines³</i>	---	---	10
Along property line	10	25, 100	25
<i>From 25-250 m</i>	50	50-100	25
<i>From 300-500 m</i>	50	50-100	50
<i>From 600-1000 m</i>	50	50-100	100
<i>From 1200-2000 m</i>	100	12-25, 500	200
From boundary-1 km	50	50-100	25-100
From 1 km-2 km	100	12-25, 500	200
From 2 km-5 km	250	12-25, 500	500
From 5 km-10 km	500	25-50, 1000	1000

- The PolyMet model is further unclear. It raises questions about why Section F #3c states that receptors will be placed at 25 and 100 meters along the boundary if this was not actually done. Combining the receptor spacing information for PM-10 and PM-2.5 on one page (see page 845 of the TSD Attachments) is very confusing.
- There was a possible December 2017 modification to the receptor spacing at the mine site. In a later report, MPCA appears to have approved a modification to the receptor placement at the mine site. That report indicates that the ambient air boundary has been modified from the property boundary line to a smaller area called the "effective fenceline", which we discuss in more detail in the Ambient Air Boundary section below. In connection with this change, MPCA describes a change in receptor spacing, as follows: *"The Mine Site Protocol text stated that the receptor grid would use 100 m spacing from the ambient air boundary (as the boundary was formerly called) out to 1 km. After discussion with the MPCA, the receptor grid spacing from the effective fenceline out to 1 km was changed to 250 m. No changes were made to the receptor density in areas of maximum modeled concentrations."* TSD Attachments at page 808. If this modification has been approved, it reflects an even greater deviation from the recommended spacing in the Manual. The Manual recommends 50 m spacing at the fenceline or facility boundary to 1 km. No explanation is given on the reason why a deviation from the recommendations contained in the Manual is warranted here.

Relief requested. MPCA should not approve the draft air permit until the receptor spacing for this proposed project complies with the recommendations set out in Table 11 of the Manual, and updated modeling is done with receptors that are properly spaced in accord with the recommendations in the Manual. If, however, deviations are to be made, MPCA needs to provide a detailed justification explaining the basis for those deviations and provide the public with an opportunity to review and comment on them before a final decision is made on an air permit.

³ See Footnote 2.

Removal of Nearby Sources (Background Concentrations)

- PolyMet, in AQDM-01-NorthMet Mine Site Protocol, Mine Site Class II, Section J (Nearby Sources), states that some nearby sources were omitted from the Class II PM-10 and PM-2.5 modeling and refers the reviewer to Attachment J. However, as discussed below, these nearby sources were removed improperly due to the incorrect assumption that their emissions are included in background concentrations.
- Attachment J attempts to justify the removal of nearby sources by claiming that background concentration values from the PM-10 monitor in Virginia capture PM-10 emissions from relevant nearby sources. The Band does not see how this monitor can adequately and consistently reflect emissions from Louis Leustek and Sons Inc, Northshore Mining Co – Babbitt, Mesabi Nugget, or Cliffs Erie Hoyt Lakes. Attachment J states that the conditions that lead to worst-case modeling scenarios at the site are those involving low wind speeds and either southerly or northerly winds, and that these sources are captured by the monitor. But how can PM-10 emissions from these facilities be captured by the monitor during low wind speed conditions? One would think this would be the worst time for the monitor to pick these sources up. Likewise, it seems that northerly or southerly winds (see wind rose from Attachment J which indicates that the majority of winds in the area are northerly and southerly) would not be conducive for carrying these emissions to the southwest, which is where the Virginia PM-10 monitor is located.
- The Band believes that the use of data from this monitor is also not clearly representative of background levels in the area because of the great variation in distance of the other major sources in the area from the monitor, which may cause some sources to be over-represented and some to be under-represented. However, rather than make complicated arguments based on meteorological conditions, the Band suggests that it would be better to use data from a different monitor that truly represents background concentrations of this pollutant, and to then model all nearby sources explicitly. The Fernberg monitor operated by the US Forest Service would be a good indicator of true background concentrations, as it is isolated from the immediate impact of emissions from mining sources.

Removal of Nearby Sources (Due to Interpretation of Definition of Ambient Air Background)

- In the Results Review Form for PolyMet's Air Quality Dispersion Modeling (AQDM-01) (Dec. 2017) at Section 2 page 3, (TSD Attachments at page 802) MPCA comments that "*The Company provided language in their report to narrate how nearby source contributions were removed from the modeling evaluation. The Company followed an approach whereby they subtracted modeled nearby source concentrations from the nearby source property at and up to the property boundary. This practice is no longer observed in Minnesota. MPCA Management allowed the Company to remove modeled nearby source concentrations from the nearby source property in recognition of a historical modeling practice. The MPCA will expect that any future cumulative ambient air quality modeling will follow the current MPCA*

- Modeling Practices Manual (2017) to address modeled nearby source concentrations. In the event that a modeled exceedence is discovered at a nearby source facility, the MPCA has developed processes to evaluate these situations on a case-by-case basis (See Appendix A of the MPCA Modeling Practices Manual (2017)).*” MPCA here confirms that PolyMet used an improper modeling procedure - one that may have been allowed in the past but which was “no longer observed in Minnesota.” MPCA then postpones any issues with modeled non-compliance to be dealt with at some later time. This is improper and should be corrected. It adds an improperly modeled new source to an area that already has high levels of PM-10, which both complicates modeling for other facilities in the area and degrades the air quality for the residents who will deal with poor air quality. In addition, the records made available on this matter fail to provide any justification for this departure from guidance set out in the Manual. The decision here wholly: fails to explain when the alleged “historical practice” that PolyMet used was allowed under MPCA modeling protocols; fails to identify the guidance or other policy vehicle that allowed this “historical practice”; fails to address when the “historical practice” was ended and the reasons why it is no longer recommended for use; and fails to describe what factors were used to allow PolyMet to deviate from the guidance set out in the current Manual and instead rely on an unidentified and since abandoned “historical practice”.
- MPCA’s decision here to allow PolyMet to use a “practice that is no longer observed in Minnesota” raises questions about whether MPCA has made similar exceptions in other air permits in this region under which the applicant was allowed to remove nearby sources. If this has been allowed elsewhere, information should be provided to identify all such other permits – as this practice and the deviation from what is recognized as proper practices will lead to incorrect conclusions about compliance with NAAQS/MAAQS and requires a more comprehensive, and corrected, analysis. MPCA should require that PolyMet correct its modeling to address nearby source contributions in accordance with the recommendations of the Manual, and the terms of any air permit for this project should be based on the corrected model. If, however, deviations are to be made, MPCA needs to provide a detailed justification explaining the basis for those deviations and provide the public with an opportunity to review and comment on them before a final decision is made on an air permit.
 - The MPCA’s statement that “*The MPCA will expect that any future cumulative ambient air quality modeling will follow the current MPCA Modeling Practices Manual (2017) to address modeled nearby source concentrations.*” cannot be enforced, as it is not part of a regulation, nor is it official guidance. It is a statement made in a 1,500 page technical document that few people will read. MPCA’s statement further illustrates and confirms that its decision to allow this for PolyMet is not supported by any facts or reasoned justification and is wholly arbitrary. The remedy for this draft permit is to require that the proper modeling be done before any air permit is issued. And to ensure future compliance, the MPCA’s Manual should be updated to explicitly prohibit the type of modeling that PolyMet conducted, otherwise this assurance is meaningless.

- Further comments on the problems arising from the removal of nearby sources can be found in this letter, under Ambient Air Boundary.

Plant Site Class II Modeling Protocol

MPCA Comment 61

- The same flaws in the spacing of receptors that occurs with PolyMet's air quality dispersion model protocol for the mine site also occurs in PolyMet's Air Quality Dispersion Model for the Plant Site, AQDM-01-NorthMet Plant Site Protocol, reprinted in the Technical Support Document (TSD) Attachments at pages 886-887 (Section F Receptors). Receptor placement at the plant site deviates considerably from the spacing for receptors recommended in the Manual. Table 3 below shows the very substantial differences between PolyMet's receptor placement compared to what the Manual recommends. As a result, PolyMet used a fraction of the number of receptors recommended, placed at far greater distances from one another, undermining their effectiveness in measuring NAAQS/MAAQS. Large Figure 3 at page 897 of the TSD Attachments further shows the large open spaces between receptors. Again, the Band was unable to confirm, from the records provided with the draft permit, that PolyMet's protocol calls for receptor placement between the fenceline and property boundary and no explanation is provided to justify the deviation from the MPCA's guidance. In addition, similar to the problems with the spacing of receptors for the mine site, PolyMet's model also deviates from the recommendations set out in the MPCA's guidance that were in effect from October 2004 until September 2016, and no explanation is provided for why such a departure was allowed.

Table 3

<u>Location</u>	<u>Spacing/Guidance (m)</u>	<u>Spacing/PolyMet (m)</u>	<u>Spacing/2013 Guidance (m)</u>
<i>Along fence lines⁴</i>	---	---	10
Along property line	10	25, 100	25
<i>From 25-250 m</i>	50	50, 250	25
<i>From 300-500 m</i>	50	50, 250	50
<i>From 600-1000 m</i>	50	50, 250	100
<i>From 1200-2000 m</i>	100	500	200
From boundary-1 km	50	50, 250	25-100
From 1 km-2 km	100	500	200
From 2 km-5 km	250	500	500
From 5 km-10 km	500	1,000	1000

- The same problem exists with regard to receptor spacing for cumulative impacts (see page 887 of TSD Attachments). Table 4 below shows the difference in receptor spacing that is set out in the Manual from what PolyMet used for cumulative impacts. PolyMet's Large Figure 4 at page 898 of the TSD again illustrates the large spaces between receptors. PolyMet's

⁴ See Footnote 2.

model also deviates from the recommendations set out in the MPCA's guidance that were in effect from October 2004 until September 2016, and no explanation is provided for why such a departure was allowed. Phrases used to describe the spacing, such as "as necessary", "very dense", and "less dense" are not well defined, although one mention of a 500 m grid from the boundary out to 5 km is used. The protocol also calls for "receptors... at 1 km intervals out to the extent of the grid", apparently measured from the boundary, although this is not clear. Again, the Band was unable to confirm, from the records provided with the draft permit, that PolyMet's protocol calls for receptor placement between the fenceline and property boundary.

Table 4

<u>Location</u>	<u>Spacing/Guidance (m)</u>	<u>Spacing/PolyMet (m)</u>	<u>Spacing/2013 Guidance (m)</u>
<i>Along fence lines</i>	---	---	10
Along property line	10	100	25
<i>From 25-250 m</i>	50	100	25
<i>From 300-500 m</i>	50	100	50
<i>From 600-1000 m</i>	50	100	100
<i>From 1200-2000 m</i>	100	"as necessary"	200
From boundary-1 km	50	1000	25-100
From 1 km-2 km	100	"as necessary", 500, 1000	200
From 2 km-5 km	250	"as necessary", 500, 1000	500
From 5 km-10 km	500	"as necessary", 500, 1000	1000

- Section F of this modeling protocol refers to Attachment J when discussing cumulative impacts grid spacing, (see page 887 of the TSD Attachments), stating "As described in Attachment J, the extent of the cumulative impacts assessment grid will vary by pollutant, but all pollutants will be evaluated along the boundary". However, Attachment J does not give any further information as to what distances are meant by "as necessary". See TSD Attachments at pages 909-915. If this information is indeed given, it is difficult to find, as no reasonable cross-reference was provided. Here too, specific information is needed about the receptor spacing that was done, and to the extent the spacing deviates from the MPCA guidance, an explanation needs to be provided to show the reasons why this was done.
- MPCA should not approve the draft air permit until the receptor spacing for this proposed project at the plant site, and the mine site, including receptors for cumulative impacts analysis, follows the recommendations set out in the Manual, and updated modeling is done with receptors that are properly spaced in accord with the recommendations set out in the Manual. If, however, deviations are to be made, MPCA needs to provide a detailed justification explaining the basis for those deviations and provide the public with an opportunity to review and comment on them before a final decision is made on an air permit.

Table S6-1 shows that the SIL in the BWCA is 0.290, very close to the SIL of 0.3. See TSD Attachments at page 1184. This is reason for concern and calls for careful review and reassessment of the modeling protocol, including consideration of whether it was appropriate to assume 90% control of road dust and to use plume depletion for fugitive sources (see comments below on these issues).

Ambient Air Boundary

- PolyMet failed to model ambient air concentrations at receptors on its own property because it incorrectly defined the “ambient air boundary.”
- “Ambient air” is defined as “that portion of the atmosphere, external to buildings, as to which the general public has access.” 40 CFR 50.1(e). As the MPCA explains in Appendix D to the Manual, the rules for defining a “ambient air” for purposes of the placement of air quality dispersion modeling receptors has been well-established by EPA forty years. As MPCA states: *“In the 1980’s the Environmental Protection Agency (EPA) guided receptor placement modeling procedures through what has become EPA’s long-standing ambient air policy: ‘for modeling purposes, the air everywhere outside of contiguous plant property to which public access is precluded by a fence or other effective physical barrier should be considered in locating receptors. Specifically, for stationary source modeling, receptors should be placed anywhere outside inaccessible plant property. For example, receptors should be included over bodies of water, over unfenced plant property, on buildings, over roadways, and over property owned by other sources.’”* Manual, Appendix D at 1-2 (citing EPA Memorandum from Regional Meteorologists, Regions 1-X to Joseph Tikvart, Chief (MD-14) dated May 16, 1985). MPCA further explains that “EPA has been consistent in the expectation of receptor placement for NAAQS modeling,” *id* at 2, and that: *“Based on EPA policy interpretations of ambient air and public access control from the past three decades, the following key points are considered most relevant when considering the placement of receptors in a NAAQS modeling demonstration:*
 - 1) *The federal definition of ambient air is defined at 40 CFR 50.1(e) as “that portion of the atmosphere, external to buildings, to which the general public has access.”*
 - 2) *EPA has exempted a source’s area from ambient air when: (1) the source owns or controls (e.g., leasing) the land or property; and (2) precludes public access to the land or property using a fence or other effective physical barrier. The general public must be protected from areas of the facility property (owned or leased) that have modeled exceedances of the NAAQS.*
 - 3) *For the purpose of a NAAQS analysis, EPA expects receptor placement throughout the facility property if no approved fencing or effective physical barrier exists.*

MPCA further adds that: *“The EPA has applied the Federal definition of ambient air for the past four decades, clarifying their interpretation of public access and control over time. EPA has maintained fencing to be a chain-link fence, or any fencing of suitable height, to restrict public access and expects any proposed effective physical barriers to be as restrictive.”*

Manual Appendix D at 2 citing Email from Randall Robinson, EPA Region 5, to Jim Sullivan, MPCA, dated March 27, 2017.

- The ambient air boundary used by PolyMet for its Class II air dispersion modeling is not consistent with these requirements. According to the records provided with its approved April 2016 modeling protocol, PolyMet largely used its property boundary line and only undertook air dispersion modeling along the perimeter of its property boundary to points beyond that boundary. See TSD Attachments at pages 853, 854, 873, 874 (mine site) and 897 (plant site). This is contrary to EPA and MPCA requirements as the boundary of PolyMet's property is largely not fenced and does not have effective physical barriers that would serve to prevent public access⁵.
- A Technical Memorandum written to the MPCA from PolyMet's consultant Barr (dated July 17, 2016 – at page 949 of the TSD Attachments) seeks to justify PolyMet's position, but it instead shows that the ambient air boundary was not properly defined. This memorandum explains that with regard to the plant site, although some areas will be controlled by a fence or gate, much of the perimeter is not fenced. PolyMet and Barr instead assert that the lands are not accessible to the public because the eastern and northern borders, as well as the western portion of the plant site, are located generally within wetlands, consisting of bogs and swamps, which they contend provide a natural barrier against trespassing (although PolyMet also notes that these lands do include a small upland area that is periodically logged.) Memo at 2, 3. PolyMet and Barr take the same position regarding the mine site – claiming that because the northern border and southeastern borders of the mine site are located in large areas of wetlands (but with some uplands), they present a significant travel barrier. PolyMet and Barr also note the lack of roads to further support their claim that these features prevent public access. PolyMet recognizes that they are obligated to preclude public access in areas where exceedances of NAAQS/MAAQs are likely to occur, and expresses a commitment to do so prior to mine operations by measures including no trespass signs and security patrols in areas where access is not precluded by either gates and fences, or natural barriers.
- The fact that much of the land along the perimeter of the plant and mine sites are wetlands does not make them a sufficient physical barrier to allow such lands to be excluded from modeling as ambient air. Although wetlands would not be accessible by persons traveling on-foot during the spring, summer and early fall, wetlands can and in fact are accessible when persons travel by canoe or kayak. And during winter, wetlands are frozen and accessible by hiker (with or without snowshoes) or cross-country skiers or snowmobiles.

⁵ Maps that were submitted later to the MPCA, with December 2017 reports, regarding the cumulative NAAQS receptor grid, are inconsistent on which boundary was used and for what purpose. One shows receptors only from the property boundary out (TSD Attachments at page 818), while others suggest cumulative modeling used the smaller "effective fenceline" as the ambient air boundary (TSD Attachments at pages 819-826). The differences are not explained, and prevent the public from knowing what ambient air boundary was in fact used for modeling. Clear information on these issues needs to be provided to the public, and the public given an opportunity to comment before a decision is made on an air permit.

Longstanding EPA policy recognizes this, and in fact requires that air dispersion modeling receptors “be included over bodies of water.”

- Likewise, the use of no trespassing signs is not sufficient to treat the property as non-ambient air. EPA has consistently and clearly required that public access be prevented by a fence or other physical barrier. Absent these, if the general public can either intentionally or unintentionally enter the property, the property must be included within the area evaluated as ambient air. That the person entering the property may be doing so in trespass does not change the result. Minnesota Rules also make it clear that even trespassers are part of the general public who are to be protected by the ambient air boundary. Minn. R. 7009.0020. The TSD incorrectly describes this Minnesota Rule as if the ambient air boundary does not apply to trespassers. TSD at 115. That is not correct and misreads Minn. R. 7009.0020.
- The importance of properly defining the ambient air boundary also arises because a historic sugar bush site exists near the property which has been recognized as a traditional cultural property of the Chippewa Bands and eligible for listing on the National Register of Historic Places. PolyMet is well aware of this as the importance of this site and the need to protect it and provide for Chippewa access to use it has been the subject of considerable discussion with the company and the co-lead agencies on this project for many years. This is reflected in a number of documents, including the Summary Report of Cultural Resource Identification Efforts, Determinations of Eligibility, and Effects Determinations for the NorthMet Project, St. Louis County, Minnesota, USDA Superior National Forest & US Army Corps of Engineers, St. Paul District, 12/11/2013. The Tribes have also, throughout these proceedings, sought to ensure that they and their members would have continued access to this site. Although a final agreement has not yet been reached regarding specific terms for Tribal access, measures to mitigate potential harm to the sugar bush are the subject of a Memorandum of Agreement between PolyMet, the Minnesota State Historic Preservation Office, the Advisory Council on Historic Preservation, the US Forest Service and the Army Corps of Engineers made in December 2016. In addition, that Memorandum of Agreement expressly contemplates that steps will be taken by which the Chippewa will have access to this site so that the Bands and their members can engage in traditional practices of gathering and sugaring as well as maintenance and conservation of this irreplaceable living cultural resource. It is worth noting that the Summary Report of Cultural Resource Identification Efforts, Determinations of Eligibility, and Effects Determinations for the NorthMet Project, St. Louis County, Minnesota states that “the project would meet ambient air quality at the Mining and Plant Site property boundaries” and that commitment needs to continue to apply to the sugar bush site given the December 2016 MOA and even though the site needs to be fenced in order to protect this irreplaceable historic and cultural resource.
- For the company and the agencies to move ahead with modeling under the assumption that no one will ever access this historic site is disingenuous and contrary to the express purpose and intent of the December 2016 MOA.

- PolyMet improperly removed receptors from nearby sources outside its property and its model is flawed for this reason as well. In addition to failing to place receptors on its own

MPCA Comment 64

property, PolyMet also removed receptors from nearby sources. This is discussed in a memo from Barr Engineering to the MPCA (dated January 3, 2018) (page 829 of the TSD Attachments). In discussing the removal of receptors from nearby sources, Barr argued that any nearby source can impact air quality on another nearby source, but not on its own land. If this is indeed the reasoning behind this action, is not supported by either MPCA nor the EPA guidance or policies.

- PolyMet, in (Section 5, Attachment 7, Class II Modeling Report (Page 811 of the TSD Attachments) also discusses this methodology, but again no information is offered regarding the boundaries of these neighboring properties and whether they might be adequately fenced. These properties cover large areas and it is hard to believe that they are completely fenced and that these facilities are able to maintain and police these fences against people who want to gain access for one reason or another. Nothing in the MPCA Manual gives PolyMet the right to model or not model based on boundaries of other properties. This approach raises substantial questions about the model itself, and if allowed, would establish a dangerous and improper precedent.

MPCA Comment 65

- MPCA apparently, but improperly, approved the removal of these nearby source contributions from the model. As set out in the Overall Status of Results section of Attachment 7 (Class II Modeling Report), it is stated that *"Second, on July 26, 2017, the MPCA Air Managers agreed to allow the Company to remove nearby source contributions from nearby source property, irrespective of whether public access was controlled or not, in recognition of a historical modeling practice. The MPCA Management approval was unique to this situation. The nearby source modeling practice described in this report will not be acceptable for any future cumulative ambient air quality dispersion modeling demonstrations."* There are a number of troubling phrases in this statement which undermine the MPCA approval. First, the statement that: "...irrespective of whether public access was controlled or not" suggests that the MPCA did not know or was not convinced that public access is truly controlled in this situation. Second, the statement suggests that the answer to that question didn't (and doesn't) really matter – although it does under the law. Third, the assertion that this "...was unique to this situation" does not address what factors made this situation unique amongst all of the air permits that are issued annually. Fourth, the statement that this "...will not be acceptable for any future...modeling demonstrations" simply proves that this approach is so unacceptable that it will never be repeated. MPCA does not describe what factors were considered in allowing this facility to take an approach at the MPCA so clearly disapproves of, and the removal of these nearby sources should not have been approved.

MPCA Comment 66

- This same report states that *"For all pollutants, cumulative impacts were assessed on all neighboring properties with the impacts due to emissions from each neighboring facility excluded from the receptors within the facility's property boundary"* and claims that *"This methodology is consistent with the EPA guidance on ambient air"* See Overall Status of Results section of Attachment 7 (Class II Modeling Report). Because of the flaws in the way the NAAQS/MAAQS PM-10 modeling was conducted, we do not agree that "the only nearby

MPCA Comment 66

source expected to potentially have significant overlapping impacts with the Mine Site is the Northshore Mine. We believe that the nearby source originally identified by the MPCA's square root mean distance tool (TSD Attachments at page 867) will also impact the NAAQS/MAAQS. Proper modeling of these sources may indicate different locations for these monitors to be placed (see Section D1-2.1.3). Also, estimates of annual snow cover should reflect predictions for a warmer climate in the future. It is unclear whether this is the case. Snow cover will serve to reduce fugitive dust emissions. It is also unclear whether the wind rose used in modeling is appropriate for the changing climate.

MPCA Comment 67

- According to a conversation with a MPCA modeler⁶, one of the nearby sources removed from modeling was an old stockpile left from the days of LTV operation at this site. Since this stockpile is not active, there is less chance of particulate being entrained from its surface than from an active stockpile. If work on this stockpile is started up again, the facility should re-model for NAAQS/MAAQS, Class 1, and Class 2 increment. This condition should be placed in the draft permit.

MPCA Comment 68

- Also the Overall Status of Results section of Attachment 7, states: *"Lastly, in the event that a modeled exceedance is discovered on a nearby source property, it should be submitted with the modeling demonstration, along with a contribution analysis to determine if the Company is below the SIL (Significant Impact Level). If the Company is below a SIL value at the receptor(s) that exceed the applicable NAAQS, then the Company may complete their permit action. If the Company has modeled a greater than a SIL value at a nearby source receptor where a modeled exceedance exists, controls or limits may be necessary. The nearby source may also have obligations to reduce their contribution to the modeled exceedance."* The records provide with the draft permit do not indicate whether the MPCA has seen or has knowledge of any modeling that implies or demonstrates that emissions from PolyMet may cause or contribute to an exceedance at any nearby source receptor, for any criteria pollutant. This information needs to be provided.

MPCA Comment 69

- The Ambient Air Boundary Control Plan is not adequate. The facility is required to develop an Ambient Air Boundary Control Strategy- Implementation Plan. It appears that a proposed plan is submitted as part of the TSD Attachments (pages 1117-1151). This plan, and the draft permit at page 797, indicate that PolyMet has revised the Ambient Air Boundary so that includes part of the mine site and plant site from a smaller area called the "effective fenceline" extending to and beyond the property boundaries. See TSD Attachments at page 1138. The use of this "effective fenceline" is an improvement since it will require NAAQS/MAAQS compliance over a larger area, but it still has many of the same flaws as when the ambient air boundary was based on the property boundary lines. It incorrectly assumes that wetlands will prevent public access and therefore relies on wetlands as part of its "effective fenceline". See TSD Attachments at page 1133. But as discussed above, wetlands are still publically accessible by canoe or kayak or, during the winter, by hikers, skiers, or snowmobilers. While some part of the "effective fenceline" would be fenced or gated, in other areas, control is to be done only by posting no-trespass signs and security

⁶ Conversation with Jim Sullivan, MPCA, on February 28, 2018.

patrols. As to these, the Plan is written in only general terms. It does not appear to set any specifics for the items it will contain. For example, there is no requirement set on frequency of patrols or even any requirement for PolyMet to set such a number. As a result, in addition to the error in defining the “ambient air boundary,” and without waiving our objection to the “ambient air boundary” used by PolyMet, the Plan itself is not sufficiently detailed to prevent public access.

- According to page 208 of TSD Attachments, PolyMet is not required to report fenceline breeches to the MPCA unless six such breeches occur within a 12-month period. Only if a 6th breach occurs (and is observed) is the facility required to submit a report to the MPCA. Since the facility is not actually installing a fence that would fully surround the perimeter of the mine site and plant site, but is relying on wetlands, no trespassing signs, and security patrols, any draft permit should be revised to report all breeches to the MPCA. This will allow the MPCA to assess whether the so-called “effective fenceline” is truly effective or whether changes need to be made.
- The draft permit (see page 56) would allow PolyMet to extend the “effective fenceline” outward toward property boundaries, as long as they notify the MPCA 30 days prior to making the extension. No details are given as to what factors would go into this decision nor what impact such an extension would have on the modeling performed for the facility. There is also no opportunity for input by the MPCA, the general public or other regulatory authorities. The draft permit should require a review and approval process, including a list of factors that would contribute to any decision by MPCA to approve this expansion, any modeling or monitoring that will be done with regard to this decision, and should require a public comment period before any decision to allow the change is made.
- This proposed permit condition effectively extends the potential area of non-compliance to cover an even larger area than what is currently proposed. This provision indicates that PolyMet believes there may be a need in the future to address areas that cannot model or monitor compliance with the NAAQS/MAAQs or other standards. The ability to extend the “effective fenceline” outward at will also raises questions about how well-controlled this boundary really is.

Relief requested. For all of the reasons set out above, the draft air permit should not be issued until the ambient air boundary for the plant site and mine site is properly defined consistent with longstanding EPA requirements, and modeling done based on a proper delineation of the ambient air boundary which includes receptors both within PolyMet’s property and outside its property at nearby sources.

TSD Attachments, Attachment 7, Class II Modeling Report (December 2017)

- In this report on the status of the Class II Modeling, MPCA, at page 802 of the TSD Attachments, Section 1, states: “*Large Figure Q4-11 Annual PM2.5 NAAQS presents findings for the 24-hour PM2.5 NAAQS rather than the Annual standard. The MPCA has reviewed the PM2.5 Annual NAAQS modeling files and concluded that the proposed facility will comply with the applicable standard; however, this figure should be remedied for the final air quality*”

permit record." The MPCA also shows the status of this as "Incomplete." These statements are unclear and an explanation is needed to clarify what MPCA means and how the MPCA reached the conclusion that this requirement was met. In addition, since MPCA also states that "this figure should be remedied," the corrected information needs to be provided and made available for public review and comment before any final decision is made on an air permit

TSD Attachments, Attachment 7, Class II Modeling Report – Cumulative modeling

- This report also seems to address cumulative modeling (see Large Figures Q4-5 through Q4-13) (TSD Attachments at pages 818-826). However the spacing of the receptors for this modeling is not clear. An explanation is needed, as well as an explanation of how the protocol approved for this modeling compares to MPCA modeling guidance. If deviations from the guidance were made, a justification also needs to be provided.

Fiber Monitoring Plan

- The Fiber Monitoring Plan (TSD Attachments at pages 1496-1520), allows monitoring to be conducted "after operations begin at the Plant Site for a period to be determined". TSD Attachments at page 1501. The Band believes that monitoring should be contingent upon operation of not only the Plant but also the Mine Site. Whenever operations begin at either site, monitoring should be conducted.
- The draft permit contains provisions for fiber monitoring but doesn't contain any criteria for how long monitoring will continue. See Draft Permit at page 64. There is no mention in either the permit or the TSD or TSD Attachments of how or whether monitoring can be discontinued. Instead, the plan simply leaves this "to be determined". Therefore, there is nothing to stop the facility from ending the monitoring program at any time or from moving the monitor. The permit or the plan should either require that monitoring occur throughout the time that the mine or plant site are in operation, or should detail criteria under which MPCA might allow the discontinuance of the fiber monitoring. These criteria should be subject to public notice and comments.
- The draft permit requires the facility to develop and implement an Ambient Fiber Monitoring and Quality Assurance Plan but does not require the facility to provide this plan to the MPCA. See Draft Permit at page 64. Thus, neither the MPCA nor the public will not have an opportunity to review the plan and address any deficiencies before monitoring begins. This lack of agency and public input makes this monitoring effort meaningless, as the results may be indefensible.
- The draft permit does not require the facility to send fiber monitoring reports to the MPCA on any type of regular basis. The draft permit only says that the results must be provided to the MPCA within 30 calendar days of a request. This improperly shifts the burden on MPCA personnel, who are busy with other things. The facility should be required to report their findings to the MPCA within 30 days of receiving the results from the lab. These results

MPCA Comment 72

should also be made known publicly and provided to the Minnesota Department of Health and University of Minnesota for their on-going fibers study.

- The draft permit should also include action levels that would trigger further review or an examination of potential problems that may warrant a response to reduce or eliminate the problem. The information on page 131 of the TSD might help suggest some action levels, and the MPCA should use that information in consultation with the Minnesota Department of Health and the University of Minnesota which are engaged in on-going studies to develop action levels for these fibers which are incorporated into any air permit for this project.

MPCA Comment 73

- The fact sheet title Fiber requirements in the PolyMet air permit, (found on the MPCA's PolyMet website) dated February, 2018, states that the Special Purpose Monitors to be placed to measure particulate levels associated with fugitive dust will be used as a way to evaluate the effectiveness of particulate/fiber controls. Since the Special Purpose Monitoring Plan is deficient (see section below) it is not an acceptable means of evaluating whether fibers are being adequately controlled.
- Revisions should be made to the draft permit and PolyMet's proposed monitoring plan to address these issues before any air permit is approved.

MPCA Comment 74

Special Purpose (PM-10) Monitors

- Permit requirements for PM-10 monitors start on page 66 of the draft permit. The Band's first comment regarding these monitors is that an additional monitor should be placed beyond the ambient air boundary to protect the general public from excess emissions, especially given the very large amount of particulate emissions expected from this source and the inadequacy of the modeling performed.
- The draft permit does not adequately address relocation of these special purpose monitors. The Special Purpose Monitoring Plan (TSD Attachments at pages 1454-1495), states that "PolyMet may elect to add additional monitors or periodically relocate monitors to further address seasonal variation in the prevailing wind direction and/or to address differences in the monitored PM-10 concentrations versus that were estimated by modeling." Plan at page 5. The paragraph further states that "Periodic relocation of the monitors will be permissible because of their status as Special Purpose monitors." The MPCA will review proposed monitoring sites and approve or suggest options, as MPCA staff finds appropriate. The Band disagrees with this approach. While these monitors are not intended to demonstrate compliance, past experience with mine sites has shown that fugitive emissions can exceed the NAAQS/MAAQS. While the MPCA may pre-approve monitoring locations, the decision of when and where to relocate a monitor is obviously made on a case-by-case basis and should not be treated by an "off-the-shelf" decision making process, as seems to be suggested here. There are no criteria listed for the source to evaluate to determine where the culpable emissions are coming from, nor is there any type of decision tree showing how that decision will be made. While potential sites can be identified ahead of time, some technical demonstration needs to be made to prove that a change in monitor location is likely to correctly identify the true source of excess emissions. While the MPCA is to be allowed the

opportunity to review such a change before it occurs, MPCA approval is not required. The fact that very few provisions regarding this process are included in the draft permit allows the facility to essentially move monitors around at will. The draft permit and the plan should require MPCA approval in advance for any such changes, and should detail criteria for considering such changes.

- Section D1-3.2 of the Monitoring Plan (TSD Attachment at page 1464) states that GIS tools will be used to identify candidate monitoring and meteorological sites. It is unclear exactly what tools are being referred to, or why previously performed modeling results would not be used for this purpose. Modeling results would be the most effective method of determining where peak emissions could expect to be found and the plan should be revised to do this. Without knowing what GIS tools the facility is proposing to use or how they are proposing to use them, no public input can be given on the adequacy of their use.
- While Section D1-4.5 of the Monitoring Plan discusses the discontinuation of this monitoring program, it does not list any criteria the MPCA will use to determine whether it is appropriate to issue a permit amendment allowing the discontinuation of this program. This could apparently happen at any time for any reason. This issue is not addressed in the draft permit so it is unclear to the Band how the MPCA plans to deal with this situation in actuality.
- The draft permit and Section D1-4.6 (Table D1-4-1) of the Monitoring Plan list proposed action levels whereupon PolyMet will review the monitoring data to evaluate the cause of elevated results and take action. While the Band agrees that Action Level 1 (AL1) is a reasonable level for requiring some type of action, there really is no requirement that PolyMet do anything to address the situation if this level is reached. The Action uses words such as "Appropriate corrective action" and "if warranted" without defining these terms. There is also no reference to the Fugitive Emissions Control plan that the facility was required to write. It is unclear why this plan is not directly referenced and means that the facility doesn't even have to consider it when deciding what action might be "appropriate" or "warranted". Here too, the MPCA should define these terms, and require that the facility consider the Fugitive Emissions Control Plan when assessing what actions are appropriate or warranted.
- The Band believes that the degree that the air quality is allowed to deteriorate between AL1 and AL2 is excessive. AL2's associated "Action" also uses words such as "if warranted", which have no given definition.
- The Band is also concerned about AL3, which allows the 24-hour NAAQS for PM-10 (150 ug/m³) to be met or exceeded for 3 days before the MPCA is notified, and allows 60 days to pass with no further action other than performance of a root cause analysis. While a root cause analysis is an appropriate requirement, the facility should be required to implement items from its Fugitive Emissions Control (FEC) plan while this analysis is being performed. A time period of midnight-to-midnight is also specified for AL3, but not justified or explained. An Action Level at some percentage of the 24-hour NAAQS should be added as a more precautionary level so that emissions are not allowed to reach the level of the NAAQS before action is taken. The Band suggests 85% of the NAAQS as a better Action Level.

- The draft permit and the Monitoring Plan also allow eight days of PM-10 concentrations at or above the NAAQS to occur on a 12-month rolling sum before a root cause analysis is performed. Again, although the FEC plan is mentioned, there is no firm requirement for PolyMet to implement actions from its FEC plan during this time. Further, there is no justification offered for allowing the facility to meet or exceed the NAAQS for this time period before such action is taken. Although a footnote is included, an examination of the instances that this footnote references shows that one is a Federal Land Manager management tool that is used to address visibility, not health based standards. The other use of the 98th percentile worst case day per year is used for PM-2.5, not PM-10.
- In addition to allowing eight days' worth of exceedences of the NAAQS per year, both the draft permit and the Monitoring Plan divide the potential sources of PM-10 emissions into five source groups and state that "If the 12-month rolling sum number of days with action level events for *a source type* (italics added) equals eight, the Permittee shall conduct a root cause analysis..." This means that exceedences of the NAAQS will be allowed until it can be confirmed that the exceedences all come from one of the source groups before any real action is taken. This approach could allow up to 40 exceedences in a 12-month period before action is started. This is unreasonable, as the NAAQS do not allow for consideration of which source contributions are allowed to count toward violations and which are not.

Relief requested: The draft permit and the proposed Monitoring Plan should be revised to address and cure the problems set out above with revised drafts made available to the public for review and comment before an air permit is approved.

Haul Roads and Plume Depletion

- Attachment 6 (TSD Attachments at pages 792-799 – MPCA memo) describes haul road dust control efficiencies, as estimated by the MPCA. This memo describes three different levels of effort in controlling dust and the corresponding control efficiencies that can be assumed for each level. PolyMet is proposing Level III-A and III-B plans, which assume 80% and 90% control of dust, respectively.
- The draft permit should contain requirements to perform a "ground truth" analysis of road emissions and the control efficiencies that were assumed for these roads should be contained in the permit. The permit should contain requirements for evaluating the density and size fraction of the road dust, using ASTM and statistical sampling methods. This is a very important issue, as modeled compliance with the PM-10 NAAQS depends on the use of 80-90% control for haul roads.
- On page 793 (TSD Attachments) the MPCA states "Companies will assess which of their road beds are overburden and which are taconite or waste rock and differentiate these for the purposes of modeling/permitting/inventory submittals so that the appropriate emission factor is used. By certifying inventory, modeling, and permitting submittals, the company is verifying the composition of road bed material and is certifying to the accuracy of this

information.” This supports the Band’s claim that the draft permit needs to be updated to require the submittal of this information.

- In addition to including test provisions for road dust, the permit should also include a deadline for this analysis to be performed and reports sent to the MPCA, as well as action levels that would trigger re-modeling if the assumptions made regarding road dust control efficiencies cannot be supported by performance testing. The Band suggests that results showing more than a 10% variation in density and/or size fractionation should trigger re-modeling. The reports on these tests should be made public.
- Page 795 of this document states that “Level III-A Plan – The following activities will be carried out and the following information will be provided for Level III-A Plan. Information for 1-3 will be updated annually with the emission inventory submittal...” Please address how these requirements are written into the draft permit, including what emission inventory is referenced and how often it is updated.
- Section 1 of Attachment 7 at page 801 (Class II Modeling Report) states that “...future cumulative plume-depleted PM10 air quality dispersion modeling will be conditioned on the validation of plume depletion characteristics (particle size, particle density, particle fraction) through field assessment. Details of the field assessment approach will be included in the air quality permit.” However, no such requirement can be found in the draft permit.
- Section 3.2.3 of the TSD states that “...if the predicted ambient impacts (including background) are less than 95% of the NAAQS or MAAQS and the facility maintains an appropriate and enforceable fugitive dust control plan, fugitive dust from paved roads need not be included in the modeling”. Since the Band believes that the PM-10 (and possibly PM-2.5) modeling for this source was done incorrectly (see Removal of Nearby Sources sections of this letter), we cannot agree that the modeled emissions are less than 95% of the NAAQS or MAAQS. Section 3.2.5 suggests using the results of the Special Purpose Monitoring Plan to confirm the effectiveness of the fugitive emission control measures. However, we have already commented, the Band finds issues with the effectiveness of the Special Purpose Monitoring Plan, including the potential for NAAQS to be exceeded up to 40 times before any action is taken. Although modeling assumptions can be further evaluated if the root cause analysis does not identify ways to lower emissions, there is no guarantee this would happen in a timely manner or that any changes would be made at all.

Draft Permit

There are a number of requirements that are referenced in the TSD but that do not appear in the draft permit. These are:

- Page 58 of the draft permit requires modeling to be updated if there are any changes to autoclave emissions “upon initial start-up date”. This provision does not have any consequences in case of any modeled violations, but would allow the facility to continue to operate the autoclave indefinitely, even if any compliance issues arise due to changes in emissions. There is also no requirement for the AERA to be updated based on the results of this modeling, which could lead to issues with toxic or metals emissions.

MPCA Comment 77

- Given the high public interest in this project, semi-annual and annual monitoring and deviation reports should be posted for the public to review.

MPCA Comment 78

- For fugitive emission readings, on page 73 of the draft permit, the reference of 40 CFR 60.675(c) should be 40 CFR 60.675(e).

MPCA Comment 79

- There appear to be discrepancies between the TSD and the draft permit as to during which months the facility may operate between 6:00 am and 6:00 pm. In the draft permit, these hours appear to be allowed only in the months of November, December, January, February, March and April but page 541 of the TSD Attachments allows these hours of operation in the months of April-October.

MPCA Comment 80

- The draft permit (page 47) gives the facility 60 months after permit issuance to “start construction of this equipment” and references Appendix F, which lists what seems to be the entire range of functions at the proposed facility. This is a deviation from the usual permit condition allowing a facility 18 months to construct. It is also inconsistent with the rules under which a permit becomes invalid if construction is not commenced within 18 months after the permit becomes effective. See 40 C.F.R. 49.155(b). The rules make limited exceptions. For example, a facility may request one 18 month extension of this deadline and must do so well in advance of the expiration date of the permit.
- No justification is provided for the departure from the rule.
- The departure from the rule is problematic because many of the assumptions, calculations, or models used in writing this permit could change over a period of five years. These include (but are not limited to): updates to the ambient air quality models used; updates to acceptable modeling protocols and the use of default settings in the models; control equipment performance; and AP-42 emission factors. The draft permit does not make allowances for any updates to be made in any of these areas if construction extends beyond the traditional 18 months.
- The TSD, Section 3.2.6 (page 119) contains Class II Remodeling Requirements based on emission rates that are 25% of the significant emission rate threshold. However, the facility should also remodel: if the road dust analysis shows more than a 10% variation in density and/or size fractionation; if autoclave emissions change; if the facility finds that control from road dust is less than 90%; if high levels are found through special monitoring of particulate matter. These conditions should be added to the draft permit.
- On page 20 of the TSD, the facility is only required to remodel for Class I as part of the PSD program. The Band believes that the triggers for remodeling Class II impacts should also serve as triggers to remodel for Class I impacts.

AERA

- The deficiencies in PM-10 and PM-2.5 modeling that the Band has identified in this letter also call into question the validity of the AERA modeling. The Band maintains that the modeling for these two pollutants substantially underestimates their predicted concentrations.

MPCA Comment 80

- Page 1370 of the TSD Attachments discusses nearby sources included in the AERA. It is interesting that the inventory used in the AERA is not the same as that used for PM-10 and PM-2.5 regulatory modeling. The AERA inventory included Mesabi Nugget (see page 1370, TSD Attachments), whereas Nugget was not included in the ambient air quality modeling done for PM-10 and PM-2.5 (see pages 829 and 867, TSD Attachments). PolyMet excluded Mesabi Nugget from regulatory modeling because they believe that Nugget's emissions are captured by the background concentration from the Virginia monitor. Please explain the discrepancy between these two emission inventories.

MPCA Comment 81

- The AERA certification on page 1371 is not signed. The instructions for the form state that the certification should not be signed until the AERA is completed and ready for submittal. Since the certification remains unsigned, it is unclear if this document should be considered complete. If it is not yet complete, it cannot be reviewed properly.

MPCA Comment 82

Thank you for your considerations of these comments. We urge the MPCA to take the steps needed to address the issues that we have identified and provide an opportunity for public review and comment on a revised draft permit. This is essential in order for the terms of any air permit for this project to be effective in protecting air quality and complying with the law.

If you have any questions, please call me at 218-878-7108.

Sincerely,

Joy Wiecks
Air Coordinator
Fond du Lac Band

cc. Sean Copeland, Legal Affairs Office Director – Fond du Lac Band
Seth Bichler, Staff Attorney – Fond du Lac Band
Randy Robinson, Region 5 – EPA
Genevieve Damico, Region 5 – EPA
Ben Giwojna, Region 5 - EPA

\Comments on the PolyMet NorthMet MPCA Air Quality Permit

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March 15, 2018

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MPCA Comment 83

These comments are in response to the Minnesota Pollution Control Agency (MPCA)'s PolyMet NorthMet Draft Air Permit announcement for comments January 31, 2018. The mine site is still not owned by the project proponent. The project proponent still has no legal right to construct facilities at mine site. The mine site is subject to legal decisions that put proposer's access to the surface for the purpose of mining at risk. If this risk results in no access for PolyMet's mining, this MPCA action for public comment would be a waste of time, money and resources, and so also would any further action by state agencies on permits. The same is true from the beginning of the project. If PolyMet does not obtain access to the surface of the mine property, this EIS has been a waste. Minnesota Department of Natural Resources (MDNR) should have seen this in February 2005 and stopped the project when the proposer laid the environmental assessment worksheet (EAW) information in its lap, and MPCA should also have seen this when it received its first completed Air Emissions Risk Assessment from PolyMet in February 2005 (PolyMet submitted its first AERA to MPCA in February 2005 as a part of the air permit process according to PolyMet's Technical Report on the NorthMet Project, submitted to Securities Exchange Commission, Oct. 2006.)

Nonetheless, under the provisions of the Minnesota Environmental Rights Act (Minn. Stat. Ch. 116B), we also make these comments to protect Minnesota's air, water, land, and other natural resources from pollution and destruction. We comment here on the MPCA Air Quality permit to inform and notice MPCA, MDNR and responsible federal agencies of our identification of numerous illegalities identified in the Final Environmental Impact Statement (FEIS) that is the lawful basis for the Air Permit.

The state agencies, the Responsible Government Unit MDNR and MPCA, use the FEIS to inform "permitting and approval processes and describes mitigation measures that may be available"; federal agencies U.S. Army Corps of Engineers (USACE) and the US Forest Service (USFS) use the FEIS to evaluate "the potential to significantly affect the quality of the human environment" for their subsequent major federal action permitting and approval processes (FEIS, p. ES-3). The U.S. Environmental Protection Agency (USEPA) and the Minnesota Department of Health (MDH) also had critical roles in review of the FEIS. All of these agencies knew, or should have known, that this is the first copper/nickel/cobalt/ platinum group elements mine in Minnesota, and that this mine differs from other Minnesota and regional mines in many ways reasonably expected to be potentially significant for human and ecological health. The people of Minnesota expect and deserve an excellent job of evaluating impacts on the human and ecological environment, and they did their parts in providing their scientific and knowledgeable reviews through commenting. Federal and state agencies are in legal violation when they ignored the substance of many of these comments. Not providing many of the cited final documents forming the basis for the FEIS and MDNR Record of Decision for over a decade are also legal violations under the Administrative Procedure Act (APA), National Environmental Policy Act (NEPA), and

associated agency-specific regulations governing the activities of the agencies responsible for the FEIS, for review of the FEIS, and empowered to act as safe-guards against state and federal malfeasance.

Since federal and state laws, rules or requirements are violated as described below, especially crimes under Uniform Code of Military Justice (UCMJ), then Minnesota cannot proceed with any permitting until such time as federal and state infractions, illegalities and/or crimes are adjudicated and remedied.

The following violations of environmental laws and regulations by the Co-Leads and USEPA invalidate the FEIS and preclude issuance of any permits. Co-leads' and EPA's oversights, omissions and errors, irregularities, inaccuracies, incompleteness outright misuse and avoidance of environmental laws and regulations are described. We conclude the previous and following violations, alone or together, are so egregious that they constitute bad faith, waste, fraud and abuse in an effort to suppress knowledge of impacts and predetermine the outcome of the EIS. The regulation 40 CFR 1508.18 specifies that Major federal actions include the circumstance where the responsible officials fail to act and that failure to act is reviewable by courts or administrative tribunals under the Administrative Procedure Act or other applicable law as agency action.

AERA

Violation: The Co-Leads failed their responsibility for evaluation of accuracy and completeness when they allowed the federal EIS to use a state AERA process that is not recognized by the USEPA as a human health risk assessment tool; not recognized by national scholars or by federal agencies or used by such as a replacement for standard USEPA complete protocols.

MPCA is using a tool that minimizes risks – either they are hiding risk information from the public or the preparers are not competent to identify the inadequacies of the tool for this complex new-to-the-state mining project. The use of this tool in making decisions for the Air permit is inappropriate; the Air permit should be based on a full HHRA using USEPA protocols.

Law/ Regulation /Policy/Violated: APA, Sec.10(e); Action unsupported by substantial evidence is unlawful.

40 CFR 1500.1 (b) NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA

40 CFR 1502.2 (b); Impacts shall be discussed in proportion to their significance.

40 CFR 1502.22 (b) shall evaluate impacts based on theoretical approaches or research methods generally accepted in the scientific community.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

40 CFR 1506.5 (c) Federal officials are responsible for independent evaluation, scope and content of the entire EIS; Independently evaluate the information submitted; Be responsible for its accuracy; In the EIS provide the names of the persons responsible for the independent evaluation in the list of preparers; Work needs to be verified.

Minn. Stat. Ch. 116D.03 Subd 2 (2) Utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment; ... consultation with persons in appropriate fields of specialization to ensure that the latest and most authoritative findings in administrative decision making as quickly and as amply as possible.

Violation: The Co-Leads failed from the beginning of scoping to assure accuracy and completeness in the AERA – it was so incomplete in scoping that the mine dust was completely ignored and only the plant emissions AERA was included in the 2005 scoping (documented in Application for a Permit to Construct

and Operate v1 Aug 2016-1, Table 8-1). The mine AERA was not completed until 2008. Later, the Co-Leads again failed when they allowed the emissions from the mine and the plant to be addressed as two independent unrelated sources in two AERAs. In fact, the mining facility would be located on the same contiguous property and will be physically connected by railroad, roads, and piping resulting in a single large source of emissions. The artificial separation of the facility's human health impacts is not a method generally accepted in the scientific community because this allowed improper reducing of the predicted human health impacts. Thus, the federal co-leads FEIS decision of acceptable impact to human health is an arbitrary capricious abuse of discretion. There is no basis to proceed with permitting.

Law/ Regulation /Policy/Violated:

Administrative Procedures Act, Pub. L. 79-404, Sec.10(e), Action unsupported by substantial evidence is unlawful.

NEPA Sec. 101 (b) 2,3. Federal agencies are responsible to assure use of resources without risk to health. 40 CFR 1502.22 (b) shall evaluate impacts based on theoretical approaches or research methods generally accepted in the scientific community.

Violation: MDNR, USACE and USFS did not support the EIS with evidence the agencies made the necessary independent analyses for the AERA, which is only a summary, however a review of the AERA process indicates the full analysis is missing from the FEIS, so no federal responsible agency even made an effort to review the AERA at any time during the entire FEIS process.

Law/ Regulation /Policy/Violated: APA Sec.10(e); Action unsupported by substantial evidence is unlawful.

NEPA Sec. 102 (D) (iii) the responsible Federal official independently evaluates such statement prior to its approval and adoption.

40 CFR 1506.5 agency shall independently evaluate the information submitted and shall be responsible for its accuracy... acceptable work not be redone, but that it be verified by the agency.

40 CFR 1502.1, Federal officials are responsible for full and fair discussion of impacts, concise clear and to the point supported by evidence that made necessary analyses of impacts and alternatives.

40 CFR 1500.2 (f) Policy. Federal agencies shall to the fullest extent possible: ... (f) Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment.

Violation: USEPA's failure to review or comment on the AERA for completeness and accuracy with a "hard look" *, despite the Clean Air Act (CAA), Sec 309 requirement to do so, prejudiced the outcomes of the DEIS, SDEIS, and FEIS. "To correct another ambiguity of NEPA, Section 309 places the requirement to review EISs upon EPA because NEPA 'does not assure that Federal environmental agencies will effectively participate in the decision-making process. It is essential that mission-oriented Federal agencies have access to environmental expertise in order to give adequate consideration to environmental factors.' [(Sen. Rept. No. 91-1 196, 91st Cong., 2d Sess. 43, 1970)] USEPA Office of Enforcement and Compliance Assurance, July, 1999.] USEPA has jurisdiction by law and special expertise to credibly evaluate the AERA for completeness and accuracy. In fact, the USEPA is directed under section 309 of the Clean Air Act (42 U.S.C. 7609): to review and comment publicly on the environmental impacts of federal activities, including actions for which environmental impact statements are prepared. If EPA had even attempted to perform a review they would have found only summaries and no final copy presented within the FEIS or its referenced documents, resulting the AREA being impossible to review. Why did EPA look the other way on the AERA?

EPA's Section 309 Review: The Clean Air Act and NEPA, Office of Federal Activities (2251A)

Law/ Regulation /Policy/Violated: Clean Air Act (CAA), Sec 309; Administrator of the Environmental Protection Agency is directed to review and comment on EISs.

40 CFR 1507.2 (c) Comment on statements in the areas where the agency has jurisdiction by law or special expertise.

40 CFR 1503.2 Duty to comment. Federal agencies with jurisdiction by law or special expertise with respect to any environmental impact involved and agencies which are authorized to develop and enforce environmental standards shall comment on statements within their jurisdiction, expertise, or authority. NEPA Sec. 101 (b) 2,3., Federal agencies are responsible to assure use of resources without risk to health. APA 5 U.S.C, 706(2)(a); Not legal do something that is Arbitrary, capricious, abuse of discretion, or not in accordance with law.

APA Sec. 10 (e); without observance of procedure by law, unsupported by substantial evidence.

Violation: Co-Leads violated NEPA procedures that require listing of the names and credentials of those who conducted the environmental review and supporting technical documents, including significant background papers with primary preparers, their qualifications (expertise, experience, professional disciplines). Current AERAs were written by a chemical engineer employed as a consultant by the project proposer, so they have no validity. Official government reports must be prepared by proven subject matter experts. Chemical engineers are not toxicology or risk assessment subject matter experts needed to develop a major human health risk assessment for such a complex project. In fact, should this be the case for any AERAs done during the EIS process, as appears to have happened. All AERAs are now invalid. This, in turn, invalidates the EAW, scoping documents, EIS drafts, FEIS, and RODS. Permitting is now illegal based on these failures.

Law/ Regulation /Policy/Violated:

40 CFR 1502.6 EIS shall be prepared using an inter-disciplinary approach to insure integrated use of the natural and social sciences and the environmental design arts (section 102(2)(A) of the Act). The disciplines of the preparers shall be appropriate to the scope and issues identified in the scoping process (140 CFR 1500.1 (b) NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA501.7).

Violation: Co-Leads failed to assure all major report authors were included in the list of preparers. The omission of names and qualifications of the producers of major reports denies any reviewer and the public the ability to determine the qualification of the author to produce the AERA.

Law/ Regulation /Policy/Violated: APA Sec. 3 (c) matters of official record shall be available to persons concerned.

40 CFR 1502.17 List names qualifications of primary preparers of EIS or significant background papers persons responsible for a particular analysis including analyses and background papers shall be identified.....”The environmental impact statement shall list the names, together with their qualifications (expertise, experience, professional disciplines), of the persons who were primarily responsible for preparing the environmental impact statement or significant background papers, including basic components of the statement (§§1502.6 and 1502.8). Where possible the persons who are responsible for a particular analysis, including analyses in background papers, shall be identified.

40 CFR 1500.1 (b) NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA

40 CFR 1500.2(d), Agency must encourage and facilitate public involvement.

Violation: The Co-leads allowed the AERA, a state policy tool for state permitting, state EAW and state EIS, to influence the analyses and outcomes of the Federal/state EIS. “The FEIS indicates in Table 6.2.7-6 that cumulative noncancer risks do not exceed the threshold risk of 1, but simple addition indicates they do. By rounding values that exceed 1 to one significant digit, the FEIS declares a 20% exceedance of the

recommended limit to be of no concern.” (Ipsen comment). This is a mathematical addition that is required to be recorded as an exceedance requiring action.

Law/ Regulation /Policy/Violated: 40 CFR 1500.1 (b) insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

Violation: Co-Leads failed to review and identify the faults in the AERA. Removing calculated risks from AERAs, or from any risk assessment for that matter, violates standard national and state risk assessment norms with the exception of the MPCA and MDNR for state EAW and MEPA projects. NEPA does not allow such actions.

Co-leads did not use all practicable means when they incorporated results of the less accurate AERA, that eliminates small risks that might incrementally become significant for a Minnesota precedent project, instead of the more accurate, available, EPA Human Health Risk Assessment procedures. This invalidates risk findings and conclusions and any decisions based on such.

Law/ Regulation /Policy/Violated: NEPA Sec. 101(b); assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
40 CFR 1500.1 (b), insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

Violation: Co-leads USACE and USFS did not independently take a “hard look” * in evaluating the AERA to ensure that it met federal risk analysis requirements; they did not assure the full finalized and certified and final report was present in the FEIS or FEIS references.

Law/ Regulation /Policy/Violated: APA Sec. 3 (c); matters of official record shall be available to persons concerned.

40 CFR 1506.1 No action should be taken that might have an adverse environmental impact or limit the choice of reasonable alternatives.

40 CFR 1506.5 (c) Federal officials are responsible for independent evaluation, scope and content of the entire EIS.

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

Violation: The Co-leads approved the use of the AERA, which incorporated an emissions model for a combustion facility not supported by USEPA and was not designed for an open pit mine and processing plant (basically a rock crushing and smelting facility);

Law/ Regulation /Policy/Violated: NEPA Sec. 101 (b) 2,3. Federal agencies are responsible to assure use of resources without risk to health.

40CFR 1501.2 (a), Federal agencies must use a systematic interdisciplinary approach to insure proper use of science.

- 40 CFR 1502.1, Federal officials are responsible for full and fair discussion impacts, concise clear and to the point supported by evidence that made necessary analyses of impacts and alternatives.

40 CFR 1502.2 (b); Impacts shall be discussed in proportion to their significance.

Violation: The FEIS contains only summary discussions of the AREA’s. The FEIS summary references only other unsigned, summaries. Final environmental impact statements require final certified risk analyses that meet both state and federal requirements. While having no final signed report may meet state requirements, it does not meet federal requirements. The Co-Leads failed to produce a final AREA within or as an attachment to the FEIS. If the federal co-leads had attempted to review the AERA they would have found there was no final copy presented with the FEIS or its referenced documents. This

violation precludes any person, including the federal co-leads and the public, from being able to review and comment the AERA. The AREA summaries lack support with substantial evidence, an action that is arbitrary, capricious, and abuse of discretion by the Co-Leads. MPCA has no basis to proceed with permitting.

Law/ Regulation /Policy/Violated: APA Sec. 7 (c) The record should be supported by substantial evidence.

APA 5 U.S.C, 706(2)(a); Not legal do something that is (a) Arbitrary, capricious, abuse of discretion not in accordance with law.

APA Sec. 3 (c) matters of official record shall be available to persons concerned.

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

40 CFR 1502.17; 40 CFR 1506.5 Federal officials are responsible for independent evaluation, scope and content of the entire EIS.

Law/ Regulation /Policy/Violated: NEPA 102(2)(D), Officials are responsible for independent evaluation.

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1500.1 (b) NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

40 CFR 1500.2(d), Agency must encourage and facilitate public involvement.

Violation: The Co-Leads failed to protect workers on-site by allowing the FEIS to avoid measuring on-site worker human health risks. They mislead the public when the FEIS used the MNSHA and OSHA laws and regulations as an excuse not to measure the risks to workers. In fact it is the employer's responsibility to measure risks and exposures of its workers and take appropriate preventive actions during design. In addition, accurate projections can help medical professionals to evaluate worker patient illnesses. Workers have a right to know the conditions under which they are working and what to expect. The AERA addresses only a few of the risks that must be evaluated, so a full human health risk assessment including workers on-site is required to be conducted using USEPA HHRA protocols.

Law/ Regulation /Policy/Violated: 40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1500.1 (b), insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

Violation: Co-leads failed to include all cumulative effects of air emissions chemicals from nearby non-PolyMet sources.

Law/ Regulation /Policy/Violated: 1508.25 Cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.

40CFR 1506.5 (c) Federal officials are responsible for independent evaluation, scope and content of the entire EIS.

Violation: Co-leads failed to make available a final signed AERA in the FEIS for public review.

Law/ Regulation /Policy/Violated: APA Sec 3 matters of official record shall be available to persons concerned.

1500.1 (b) public scrutiny is essential to implementing NEPA

40 CFR 1500.2(d); Agency must encourage and facilitate public involvement.

40 CFR 1506.6 public involvement is required.

Violation: Co Leads failed to use the appropriate expertise to evaluate the AERAs. The FEIS list of Federal Co-lead preparers demonstrates no federal individual within the list of preparers has toxicological or human health risk assessment expertise to critically review the AERA for technical accuracy and completeness. Lacking such expertise, the federal co-leads failed to obtain independent qualified person(s) to review the AREA with a “hard look*”. This fact resulted in the federal co-leads either totally abrogating their regulatory responsibility for a “hard look *” or allowing the state or proposer or their contractor to provide the critical review of the AERA. In either case, lacking a credible review, the federal co-leads’ FEIS conclusions are an arbitrary and capricious abuse of discretion. There is no credible basis about human health impacts to proceed with permitting.

Law/ Regulation /Policy/Violated: NEPA Sec. 101 (b) 2,3 Federal agencies are responsible to assure use of resources without risk to health.

NEPA 102(2)(D), federal officer has responsibility for scope, objectivity and content of the entire statement.

APA 5 U.S.C, 706(2)(a); Not legal do something that is (a) arbitrary, capricious, and abuse of discretion, or not in accordance with law.

40 CFR 1502.1 Federal officials are responsible for full and fair discussion impacts, concise clear and to the point supported by evidence that they made necessary analyses of impacts and alternatives.

40 CFR 1507.2 Agencies shall be capable of complying or have capability of evaluating of what others do for it. Agencies must substantiate any analysis fundamental to the EIS.

40 CFR 1506.5 (a) Agency Responsibilities: When an agency asks an applicant to submit environmental information, it shall

- Independently evaluate the information submitted;
- Be responsible for its accuracy;
- In the EIS provide the names of the persons responsible for the independent evaluation in the list of preparers;
- Work needs to be verified, not redone.

Violation: Co-Leads failed to assure human health impacts to seasonal residents were completely and accurately addressed in the AERAs. The AERAs discuss the mineral districts’ boundaries for residential and farmer exposures, but do not acknowledge the many private wells north of the plant site or in other areas that indicate at least seasonal users.

Law/ Regulation /Policy/Violated: 40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1500.1 (b), insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

Violation: Co-Leads failed to assure human health impacts were completely and accurately addressed. Lacking full federally-required complete protocol HHRA and ERA, no definitive risk estimates are available and no conclusions can be made about risks. USACE’s criminal activity under UCMJ had its officials sign off on a document lacking any supporting final certified documentation showing acceptable risks via direct and indirect releases of all reasonable contaminants to air, water and soil. It is an illegal fiction to make any such legal assertions that such information is known. If known, it was not shared with the public. Another crime under UCMJ based on NEPA requirements and military regulations. MDNR, USACE and USFS did not support the EIS with evidence the agencies made the necessary analyses for the AERA, which is only a summary, however a review of the AERA process indicates this analysis would still be insufficient.

Law/ Regulation /Policy/Violated: APA, Sec.10(e);

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1500.2 (f) Policy. Federal agencies shall to the fullest extent possible: ... (f) Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment.

Violation: Co-Leads failed to assure that all practicable means were used to identify all chemicals that could have human and ecological impacts, to then subsequently analyze for importance, synergy, and cumulative calculations, exposure in all media to end points. No verified and credible list of known or expected chemicals, materials, or substances, e.g. chemicals of potential concern**, was created for the proposal from past brownfield activities, current activities or future activities, making any engineering or risk reports fiction. The AERA limits chemicals of potential concern to a list of chemicals developed only by the Minnesota Department of Health (MDH). This exclusive list eliminates chemicals listed in numerous federal and international data bases that are generally accepted in the scientific community for human health risk assessments. The Co-Leads did not insure that all blasting, flotation, and separation agents and all geological chemicals (chemicals derived from the rock geology) were included in the human health and ecological analyses, and did not observe the procedure for incomplete information; consequentially, appropriate mitigation and alternatives could not be identified and considered with feasibility and cost.

Law/ Regulation /Policy/ Violated: APA Sec. 3 (c) matters of official record shall be available to persons concerned.

NEPA Sec. 101 (b) 2,3., Federal agencies are responsible to assure use of resources without risk to health. 40CFR 1501.2 (a), Federal agencies must use a systematic interdisciplinary approach to insure proper use of science.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

40 CFR 1506.5 Federal officials are responsible for independent evaluation, scope and content of the entire EIS under NEPA;

40 CFR 1507.2 (b) Identify methods and procedures required by section 102 (2) (B) to insure that presently unquantified environmental amenities and values may be given appropriate consideration. Understanding that this regulation was promulgated in 1970 and 1977, and NEPA was last amended in 1982, USEPA subsequently produced and is continuing to produce methods to fulfill this regulation; these methods now include the USEPA human health and ecological risk assessment protocols to evaluate impacts based on research methods generally accepted in the scientific community.

40 CFR 1502.22 Incomplete or unavailable information procedures.

Violation: The Co-Leads failed to produce a final AERA within or as an attachment to the FEIS. With only a few technical reports marked final, signed by proven subject matter experts, and included in the FEIS, and many unsigned reports, signing of the FEIS is not appropriate. The AERA is a significant background paper to assess potential human health impacts. If the federal co-leads had attempted to review the AERA they would have found there was no final copy presented with the FEIS or its referenced documents. This violation precludes any person, including the federal co-leads and the public, from being able to review and comment on the AERA. The AERA summaries lack support with substantial evidence, yet the FEIS minimizes human health impacts, being an arbitrary, capricious abuse of discretion by the Co-Leads. Under the UCMJ, signature of the FEIS under these conditions is a crime since all infractions of regulations under the UCMJ are crimes. USACE personnel must also meet all local laws, rules and regulations. These two were violated when an incomplete and inaccurate FEIS was signed by USACE, another crime.

MDNR, USACE and USFS did not include the signed full AERA report in any EIS version.

Law/ Regulation /Policy/ Violated: APA Sec. 3 (c); matters of official record shall be available to persons concerned.

APA 5 U.S.C, 706(2)(a); Not legal do something that is arbitrary, capricious, an abuse of discretion, or not in accordance with law.

APA Sec. 7 (c) The record should be supported by substantial evidence.

40 CFR 1500.1 (b) NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

40 CFR 1500.1 (b) The information must be of high quality with accurate scientific analysis.

40 CFR 1500.2(d) Agency must encourage and facilitate public involvement.

HUMAN HEALTH

Violation: The Co-leads improperly used the arsenic Maximum Concentration Level (MCL) of 10 ug/l as a ground water evaluation criterion to indicate acceptable risk at NorthMet. In doing so, Co-Leads violated 40 CFR 141.11, “The maximum contaminant level for arsenic applies only to community water systems.” The reason for this regulation is that it would be too easy to minimize the potential dangers associated with arsenic. The regulatory arsenic risk level is the MCL Goal of 0.0 (zero) - there is no safe level of arsenic.

It is unlikely these violations arise out of violation of 40 CFR 1507.2 Agency capability to comply. All of the people involved in evaluation criteria selection, MDNR, USACE, USFS, ERM, and PolyMet’s advocate Barr, excluding the Tribes who were forbidden to participate in that group, ignored MDH and private party comments requesting evaluation criteria that reflected actual risk numbers pursuant to current science and the lowest statutory protective requirements, which for ground water is zero pollution by state statute.

Law/ Regulation /Policy violated: 40 CFR 141, 141.11; arsenic MCL, MCLG promulgated..

Minn. Stat. 7060.0600 Subp. 2. Ground water pollution is not allowed except by variance.

Minn. Stat. Ch. 116D.03, Subd. 2 utilize a systematic, interdisciplinary approach, consultation with persons in appropriate fields of specialization to ensure the latest and most authoritative findings.

Violation: The Co-Leads failed to identify appropriate risk-based numbers for all evaluation criteria using the MCL as the origin.

Law/ Regulation /Policy violated: applicable promulgating regulations for the MCLs.

Violation: The inappropriate use of the ground water and surface water evaluation criteria results in deceiving the public and FEIS and subsequent decision-makers into thinking these numbers reflect health risk levels and that it is acceptable to pollute up to the MCL or other standards or health-based numbers; therefore the Co-leads violated 40 CFR 1502.24 that calls for professional and scientific integrity.

Law/ Regulation /Policy violated: APA Sec. 10 Agency action, findings, and conclusions are unlawful when found to be arbitrary, capricious, and abuse of discretion, or otherwise not in accordance with law; without observance of procedure required by law; unsupported by substantial evidence, and other conditions.

40 CFR 141, 141.11 promulgated arsenic MCL, MCLG.

7060.0600 Subp. 2 No pollution in the ground water is allowed without a variance.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

Minn. Stat. Ch. 116D.03, Subd. 2 utilize a systematic, interdisciplinary approach, consultation with persons in appropriate fields of specialization to ensure the latest and most authoritative findings.

Violation: The Co-Leads failed to insure scientific accuracy when they allowed the limited capability of the AERA to be used in the 2005 Environmental Assessment Worksheet without including the full

analysis, and allowed the EAW to state without evidence that the air toxics impacts “do not have the potential for significant environmental or health effects.”

Law/ Regulation /Policy/Violated: APA Sec 10 (e); Agency action, findings, and conclusions are unlawful when found to be arbitrary, capricious, and abuse of discretion, or otherwise not in accordance with law; without observance of procedure required by law; unsupported by substantial evidence, and other conditions.;

40 CFR 1500.1 (b) The information must be of high quality with accurate scientific analysis.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

40 CFR 1506.5 (a)(c) Agencies and federal officials are responsible for independent evaluation, scope and content of the EAW and entire EIS respectively.

Minn. Stat. Ch. 116D.03, Subd. 2 utilize a systematic, interdisciplinary approach, consultation with persons in appropriate fields of specialization to ensure the latest and most authoritative findings.

Violation: MDNR, USACE and USFS failed to determine the risk to health in all media (surface water, ground water, soils, sediments) by the use of available standard human health assessment tools, and in so failing did not enable actions that protect, restore, and enhance the environment.

Law/ Regulation /Policy/Violated: 1500.1 actions that protect, restore, and enhance the environment must be enabled by the NEPA process.

Minn. Stat. Ch. 116D.03, Subd. 2 utilize a systematic, interdisciplinary approach, consultation with persons in appropriate fields of specialization to ensure the latest and most authoritative findings.

Violation: Co-Leads did not scope in a requirement for technical analysis of all reasonable releases, direct and indirect, to water for the project, making any and all risk assertions about water contamination and health risks invalid.

Law/ Regulation /Policy/Violated: 40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

40 CFR 1506.5 (a)(c) Agencies and federal officials are responsible for independent evaluation, scope and content of the EAW and entire EIS respectively.

MPCA Comment 84

Violation: The MPCA failed to demonstrate in the FEIS that its AERA and other analyses adequately define air impacts, just as MDNR has failed to demonstrate that the Water Appropriations permits on which the Permit to Mine depends is protective of human health as demonstrated by the faults in the FEIS caused by Co-Leads’ violations. Detailed violations follow.

Therefore, the permit cannot be issued.

Law/ Regulation /Policy/Violated: Minn. Stat. 103G.297(2).

NEPA Sec. 101 (b) The policy is created to “fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;” and other objectives.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

40 CFR 1502.22(b), Risk Assessment Guidance for Superfund, EPA/540/R-95/132, 1989; Framework for Metals Risk Assessment, EPA 120/R-07/001, March 2007; Background for NEPA Reviewers: Non-Coal Mining Operations, EPA/530/R-95/043, Dec. 1994; EIA Guidelines for Mining Environmental Impact Assessment Guidelines for NE Source NPDES Permits Ore Mining and Dressing, EPA 315R94 001x, Sept. 1994; Appendix B Potential Environmental Impacts of Hardrock Mining US EPA’s Hardrock Mining Framework, EPA-833-B-97-003, on line.

Violation: DNR, USACE and USFS failed to require current science with cumulative capability for human health impacts analysis using the proper scientific tools called human health risk assessment and ecological risk assessment guidance available from USEPA since 1989.

Law/ Regulation /Policy/Violated: 40 CFR 1501.2(a); Federal agencies must use a systematic interdisciplinary approach to insure proper use of science.

40 CFR 1502.6, using an inter-disciplinary approach, Risk Assessment Guidance for Superfund, EPA/540/R-95/132, 1989; Framework for Metals Risk Assessment, EPA 120/R-07/001, March 2007; Background for NEPA Reviewers: Non-Coal Mining Operations, EPA/530/R-95/043, Dec. 1994; EIA Guidelines for Mining Environmental Impact Assessment Guidelines for NE Source NPDES Permits Ore Mining and Dressing, EPA 315R94 001x, Sept. 1994; Appendix B Potential Environmental Impacts of Hardrock Mining US EPA's Hardrock Mining Framework, EPA-833-B-97-003, on line.
Minn. Stat. Ch. 116D.03 Subd 2 (2) Utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment; ... consultation with persons in appropriate fields of specialization to ensure that the latest and most authoritative findings in administrative decision making as quickly and as amply as possible.

MPCA Comment 84

Violation: Cumulative health risks cannot be performed for property not owned by a project proposer because definitive access and boundaries are necessary for modeling. All this air emissions work is fiction until such time as final ownership of surface rights to the mine site are obtained from USFS. Therefore, permitting is not permitted or valid and should stop.
According to USEPA staff, to apply for a permit and do modeling, the proposer must own or lease the surface to be able to plan facilities exactly.
According to USEPA staff, a proposer cannot do modeling if the boundary is not known.
USEPA has no guidance on modeling for a project where land is not owned or leased, with no identifiable boundary.
In summary, EPA staff confirm that modeling of any type and permit modeling is not allowed in proposals until such time as the land surface and subsurface access is owned or leased.

Violation: Agencies did not assure they had capability to comply with this major complex EIS in a systematic interdisciplinary approach by employing or contracting for a toxicologist or risk assessment specialist with the necessary experience who would address all contaminants in all media in cumulative aspects of a human health risk assessment.

Law/Regulation /Policy/Violated: 40 CFR 1501.2 Federal agencies must use a systematic interdisciplinary approach to insure proper use of science.

40 CFR 1502.6; using an inter-disciplinary approach, disciplines of the preparers shall be appropriate to the scope.

40 CFR 1507.2 Each agency shall be capable (in terms of personnel and other resources) of complying with the requirements enumerated below. Such compliance may include use of other's resources, but the using agency shall itself have sufficient capability to evaluate what others do for it, as further specified in the regulation.

Minn. Stat. Ch. 116D.03 Subd 2 (2) Utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment; ... consultation with persons in appropriate fields of specialization to ensure that the latest and most authoritative findings in administrative decision making as quickly and as amply as possible.

Violation: EPA failed use its expertise to ensure that agencies fully analyze environmental effects on minority communities, including human health.

Law/Regulation /Policy/Violated: Clean Air Act Section 309, Presidential Memorandum that accompanied Executive Order 12898; Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses, April 1998;

40 CFR 1507.2 (c) comment on statements in the areas where the agency has jurisdiction by law or special expertise.

Violation: The Co-Leads failed to produce final HHRA, ERAs, or final certified AERAs as the basis for the FEIS acceptance as required by federal laws, rules and regulations when federal agencies determine that risk assessment will be used as the basis for informed decision-making. Lacking required full HHRA and ERA written by proven subject matter experts and verified by independent, third party peer reviewers, the federal requirements for accurate scientific analysis has not been met. This fact invalidates the FEIS.

Law/Regulation /Policy/Violated: 40 CFR 1500.1 Accurate scientific analysis is required.

Violation: Co-Leads failed to utilize public scrutiny with scientific expertise and suggestions to make the EIS a high-quality document, evidenced by the brushoff that many substantial comments received in responses that told the commenters where the subject was discussed, but no changes were made.

Law/Regulation /Policy/Violated: 40 CFR 1500.1 Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

Minn. Stat. Ch. 116D.03 Subd 2 (2) Utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment; ... consultation with persons in appropriate fields of specialization to ensure that the latest and most authoritative findings in administrative decision making as quickly and as amply as possible.

FATALLY FLAWED FEIS

Procedural and technical errors in scoping invalidate all subsequent steps in the environmental review process for the NorthMet project. Scoping defines the FEIS. FEIS informs the RODs. RODs allow permitting. Permitting can only occur when all previous procedural and technical requirements are met. These comments, previous comments of these authors, and other public comments all demonstrate that at least one major procedural and/or technical requirement has been missed, performed in error, omitted, is incomplete, inaccurate, misleading, misinforming, or otherwise has not met federal and state requirements. The three Co-Lead Agencies signed off on this fatally flawed FEIS missing critical technical documents. Specifically, to point out just one example, no final certified AERA was provided through scoping or made available as text or an attachment to the FEIS, or made readily available during the public and agency review processes.

1. The Co-Leads deceived the public into thinking the FEIS (and earlier versions) documentation reports for conclusions were final. This constitutes fraud and violates both NEPA and the APA as well as civil and criminal statutes at the state and federal level.

2. The FEIS is fatally flawed because Co-Leads did not demonstrate that key documents used to establish the basis for acceptability, accuracy and completeness, especially those authored by Barr and PolyMet (FEIS Reference Disks 1 and 2), were not labeled Final, were not signed, are not provable as Final, were not proven to have been written by required subject matter experts, were not provided in final (e.g., final certified AERAs), and in fact were revised again *subsequent* to the FEIS in preparation for permitting.

3. The Co-Leads' work alleged to identify human health impacts. This intentionally misleads the public, and possibly the project proponent, constituting waste, fraud and abuse and potentially deserving of administrative, civil and criminal penalties against those involved. The agencies work addressed nothing but discussions of a few chemicals of concern and an "air emissions risk assessment" riddled with faults. The AERA systematically removed chemicals that should have been of public health concern, including chemicals for which a risk number had been calculated. To use a distorted analysis a risk assessment, screening or not, purposely misstates the nature of the work. It intentionally limits the scope of the analysis, artificially lowering the risks posed to acceptable levels. Use of appropriate EPA protocols in the first place would have remedied the project's risk errors and omissions by use of a complete analysis.

4. Similarly, the Co-Leads and EPA ignored EPA protocols for conducting a thorough and defensible ecological assessment in favor of discussing a few species and wetlands of concern, whereas ecological impairment will affect hundreds of miles of land and wetlands and hundreds of miles of waterways already impacted by mining.
5. As a result the full range of human and ecological impacts from the proposed facility is unknown, so mitigation is only a guess. Thus, no Co-lead has a legal basis for its determination of adequacy, and thus, any record of decision is invalid because the FEIS on which it is based is incomplete, inaccurate, capricious and arbitrary, and no permit can be issued.
6. Co-leads having opened the door for formal risk analysis as the basis for finding the FEIS adequate and complete, were required to follow all federal and state risk assessment production, reporting and independent peer review requirements found in such documents because USACE risk assessment manuals that for military components are legal requirements, not suggestions. Not following such requirements, under the UCMJ, are criminal acts.
7. USEPA's Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA) requirements were not followed.
8. USFS/USDA CERCLA, RCRA, AND NEPA risk assessment practices and requirements were not followed, another federal violation.
9. The Administrative Procedures Act was not followed.
10. Executive orders were ignored.
11. As a result, federal signing of the FEIS was an illegal act considering that the FEIS was signed based on a risk summary with no legal basis, which would be a final certified AERA complete with calculations.
12. Signing this FEIS is a state and federal crime.

VIOLATIONS

Violation: Co-Lead decisions and permitting based on the FEIS, its findings, and conclusions must be held unlawful and set aside because the FEIS is not in accordance with law due to the many significant violations of APA, NEPA, Clean Air Act (CAA), Council on Environmental Quality (CEQ) Code of Federal Regulations (CFR), and other laws, regulations and policies described below. Therefore, the permits cannot be issued. EAW, EIS, FEIS, and ROD deficiencies must be remedied before permitting can continue.

RECURRING ASSUMPTION

1. PolyMet's NorthMet proposal scoping acknowledged that human health risk analysis was needed to inform the FEIS when it used the plant site Air Emissions Risk Assessment (AERA) summary in the scoping Environmental Assessment Worksheet.
2. No mining site AERA or any other risk analysis was performed or provided to the public or co-leads for review and publication.
3. Air risk analyses use surface boundaries in their calculations - but there are no definitive boundaries to the mine site then or now.
4. Given the lack of all attributes legally necessary to have a project or to establish legally binding boundary related modeling, all assessment and modeling to date is based on what the proposer wants - but does not have:
"5.2.2 Receptor Grid and Ambient Air Boundary. The ambient air boundaries for the Plant Site and Mine Site (Appendix Q) are based on land expected to be owned or controlled by PolyMet at the commencement of operations." Application for a Permit to Construct and Operate v1 AUG2016-1, p. 37. Operations by the way is 18 months after construction begins (FEIS, p. ES-17).

5. Every EIS report based on non-owned non-leased land is incomplete and inaccurate based on the EPA definition of accuracy and completeness, and violates 40 CFR 1501 (b) accurate scientific analyses required, and 40 CFR 1502.24 Methodology and scientific accuracy: Agencies shall insure professional integrity, including scientific integrity of discussions and analyses.
6. Fictional and irrelevant modeling is now the basis for permitting the project.
7. According to USEPA staff, a proposer cannot do modeling if the boundary is not known.
8. According to USEPA staff, to apply for a permit and do modeling, the proposer must own or lease the surface to be able to plan facilities exactly.
9. USEPA has no guidance on modeling for a project where land is not owned or leased, with no identifiable boundary.
10. In summary, EPA staff confirm that modeling of any type and permit modeling is not allowed in proposals until such time as the land surface and subsurface access is owned or leased.
11. PolyMet never met these conditions from the first day it worked on permits and the EIS.
12. Therefore, the EAW, EIS, FEIS and permits work is invalid because it did not meet EPA requirements.

MPCA Comment 86

13. Yet MPCA appears willing and ready to actually issue an Air Permit based on an assumption that PolyMet will own or lease the mine surface by “commencement of operations”.

14. The repeated assumption of future surface control from the beginning in the EIS process is tantamount to predetermination of the desired outcome by PolyMet, MDNR and MPCA.

MPCA Comment 86

Overall, the air permit shall not be granted because the underlying basis for the air permit, the FEIS, has not met procedural and technical requirements, and, as noted in innumerable citizen comments most of which were ignored by co-lead agencies, is incomplete, inaccurate, and lacks integrity including scientific integrity. The FEIS is based on missing final certified risk analyses, missing final certified engineering analyses, missing proven expertise of subject matter authors, and missing surface lease or ownership rights with definitive boundaries for the proposed mine site. Agencies cannot permit a facility for which the project proponent lacks ownership, according to USEPA. In Minnesota, no right to surface access is obtained from the mining lease, particularly for land owned by the USFS under the 1911 Weeks Act.

MPCA Comment 86

SCOPING

Violation: Either MDNR violated MEPA’s definition of project vs plan when it proceeded with the PolyMet NorthMet proposal EAW, or PolyMet violated it when it submitted the EAW information form for an EAW and did not specify that it did not own or control the surface rights to the mine, even if it thought that it had control through the lease which specified condemnation proceedings are available to it. MPCA also should not have acted on the AERA submitted to it in February and May 2005 for the same reason. *Minnesotans for Responsible Recreation v. Dep't of Natural Res.*, 651 N.W.2d 533, 538 (Minn.App.2002) decided that the 116 C Subd. 7. Project definition was valid in requiring an activity “fixed in location.” The 2013 appeals court decision, *IN RE ENVIRONMENTAL ASSESSMENT WORKSHEET*, 838 NW 2d 212 (2013), reaffirmed the 2002 definition deciding a Minnesota mine lease with no surface access is a plan, not a project qualified for an EIS. [The 2013 decision stated “{a} lease, without more, does not constitute a project triggering environmental-review requirements.” Furthermore, under this decision, “The government’s obligation to conduct environmental review under the MEPA is tied to the environmental changes that are contemplated by the government’s action. Thus, the proper focus is not on what activity might be allowed to take place under the mineral leases, but on what activity is actually planned. As discussed above, there are no definite, site-specific environmental changes contemplated by the mineral leases. Rather, the leases transfer only the right to explore for and mine minerals from the state to the lessees, and future exploration and mining activities remain subject to the MEPA and the rules governing environmental review. Thus, we reject the analysis of the cited cases, which would have the effect of requiring the DNR to conduct environmental review with respect to all

parcels offered for lease—including those for which no bid was ultimately received—and to assume that the most extensive and invasive possible exploration activities would be undertaken on those parcels, even though past experience with mineral leases in this state suggests otherwise.”]

Rules governing environmental review at the onset of the NorthMet project required more than a lease to constitute a project worthy of proceeding. The physical act of USFS-approved exploratory drilling does not constitute “more than a lease” because it does not provide surface access for mining and definition of boundaries.

PolyMet submitted its AERA to MPCA AQ in February 2005. According to the EQB process, calculating back from the known public comment period end date, PolyMet submitted its EAW form information to DNR in late February. Item 5 of the scoping EAW is the project location – the mining area is identified as “Parts of Sections 1, 2, 3, 4, 9, 10, 11, and 12, Township 59 North, Range 13 West” but there is no clarification that surface access is not yet in place. In the EAW Project Overview PolyMet admits the proposal is “a plan that will be modified as information from various studies is developed during the EIS.” At the point of reviewing PolyMet’s EAW Information, MDNR failed to evaluate whether the NorthMet proposal was ready for a scoping EAW.

Pursuant to *Minnesotans for Responsible Recreation v. Dep't of Natural Res.*, 651 N.W.2d 533, 538 (Minn.App.2002), in which MDNR was the defendant, MDNR should have found that PolyMet did not yet have surface rights, had no definite site-specific location for the mine site (a connected action), and had no agreement with the USFS on a defined boundary (which is still undefined and continually changing throughout the life of the environmental review).

So we now have a FEIS and 10 years of work by agency staff and contractors on a proposal that was not yet qualified for the EIS and, having no agreement with USFS, *still* is not qualified in March 2018! Thus, the FEIS can no longer stand as the basis for permitting. If it is used in this manner, it faces successful court challenges.

The project proposer, contractor, state or federal government, alone or working together, did the impossible. It is impossible to have an EAW, EIS, or permitting for a proposal for which the proposer does not own the property, have full access to the property, or any chance of receiving the property at the time of proposal submission. The proposal submission has never been made publicly available, another violation of law and rule. So, the master application, written application, meeting in person application, or any other application made to the agencies by the project proposer and contractor was either misleading, incorrect, in error, false or otherwise fatally flawed in order for agencies to believe that a project without a connected action was possible. The public cannot tell what happened because, based on another MEPA/NEPA legal violation, this documentation has never been made available to the public. Should the project proposer or contractor written or oral representations have been fully correct, then the state and federal governments made fatal errors in not first completing the land transfer prior to performing an EIS on the mining project en toto. These errors, omissions, etc. rise to illegality resulting in permitting cessation until such time as the errors are fixed going all the way back to pre-scoping.

Violation: During Supplementary Draft EIS scoping and planning meetings, Co-Leads assigned project proposer and its contractor equal status and/or leadership status in determining how the project proposer and contractor would meet regulatory requirements. Federal attorneys advise that federal personnel should not have attended such meetings. Doing so is an unethical action by government staff whose rules require segregation of regulated parties and their contractors from meetings where regulated parties could influence, lead, or develop regulatory requirements for themselves.

1. During scoping and planning, Co-Leads apparently made careful choice of an EIS preparation contractor with a disclosure denying conflict of interest.

2. Despite this, Co-Leads committed actions that violate conflict of interest rules, specifically, the participation, influence and/or leadership of the project proposer and its consultant in meetings.
3. The Core Group decided what issues to ‘send up’ to the decision group. The Co-Leads enlisted Barr and PolyMet representation on every Core group. PolyMet’s representation caused undue influence where agency independence is mandated.
4. Major federal action requires there be no financial or other conflict of interest in the FEIS development and decision-making.

Law/ Regulation /Policy/Violated: 40 CFR 1506.5 (b) Contractor who prepares EIS is chosen in a manner to avoid any conflict of interest, must disclose no financial or other interest in the outcome of the project.
 40 CFR 1506.5 Agency or official shall independently evaluate the information submitted by the proposer, work done by the contractor, and the EIS and shall take responsibility for its scope and contents.

MPCA Comment 86

Violation: The Co-Leads violated NEPA by not using all practicable means consistent with national policy, including following all NEPA requirements laid out in federal laws, rules, regulations, guidance and guidelines. In fact, federal agencies appear to have completely deferred to state agency’s lower performance standards without comment. In the scoping Minnesota Environmental Assessment Work Sheet (EAW) federally known as an Environmental Assessment (EA), the Co-leads adopted a summary of the MPCA air permit screening tool Air Emissions Risk Assessment (AERA). Although the MPCA’s AERA method is used for state permits and state EAW/ EIS scoping, the AERA method falls far short of the technical quality mandated by federal risk protocols.

Law/ Regulation /Policy/Violated: NEPA Section 101(b). Use all practicable means consistent with national policy to assure for all Americans, safe, healthful surroundings.

40 CFR 1500.1 (b) The information must be of high quality with accurate scientific analysis.

Minn. Stat 116D.02 “use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which human beings and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of the state's people.”

Violation: NEPA and MEPA, public processes, were not treated as such resulting in public documents (e.g. all AERAs) being held as private documents and meeting notes during scoping not being shared with the public. The first February 2005 AERA submitted to MPCA in February 2005 was not referenced in the Scoping EAW and was not made available to the public. How this affected the scoping process is unknown. The May 2005 AERA, not made available to the public, clearly influenced scoping; the scoping EAW included the (plant site) AERA summary and statement: “ impacts associated with air emissions, that are reasonably expected to occur from this project, do not have the potential for significant environmental or health effects.” Scoping was indirectly influenced to an unknown degree by the lack of

a mine site AERA. Air only evaluations cannot inform about ground water, surface water, soil, wetland, and sediment releases and their risks. All these actions violate standard risk assessment norms practiced by almost every federal and state agency in the nation. The Co-Leads allowed the Scoping Decision Document to declare some documents that the EIS will use would be prepared outside of the EIS but say they will be used in the EIS; clearly avoiding public review of a document on which the EIS depends. These “some documents” included the AERA that was part of the permitting process and should not have been part of the EIS because it does not use full federal protocols to demonstrate acceptable human and ecological health impacts and because its conclusions affected the outcome of the EIS.

Law/ Regulation /Policy/Violated: APA Sec. 3 Public Information, fact not in record.

NEPA Section 101(b). Use all practicable means consistent with national policy to assure for all Americans, safe, healthful surroundings.

Minn. Stat Ch. 116D.02 “use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain

conditions under which human beings and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of the state's people.”

40 CFR 1500.2(d) Agency must encourage and facilitate public involvement.

Violation: The Co-Leads failed to object in writing to or otherwise reject the unsupported AERA permitting conclusion of no “potential for significant environmental or health effects” stated in the EAW that truncated further appropriate studies and prejudiced the scoping process away from methods generally accepted by the scientific community for performing a thorough scientific human health risk assessment that complies with US Environmental Protection Agency (USEPA) guidance so that *all significant* adverse environmental impacts are identified and included in appropriate calculations, enabling appropriate alternatives and mitigations. Without this EPA protocol for human health and ecological risk assessments in all media, in a project that is unique to a state and its unique geology, the identification of chemicals, via the AERA and discussions of a few selected chemicals of concern, is only a guess - and not systematic science.

Law/ Regulation /Policy/Violated: CEQ 40 questions, Q. 9. Coordination among agencies with early permit actions and early submittal of permit and approval applications is encouraged by NEPA ”to ensure early and comprehensive analysis of direct and indirect effects of the proposal and related actions... so that all relevant agencies can work together on the scoping process and preparation of the EIS.”

Permitting is to be based on the FEIS - the permit agency is encouraged to request that the scoping and EIS contain information that it needs, but the FEIS must not be limited by permit or other actions which would

1) have an adverse environmental impact – here, significant impacts are at risk of not being identified, or

2) limit the choice of reasonable alternatives – here, if the screening AERA conclusion is wrong, it puts the facility at risk of inadequate or inappropriate air quality alternatives and mitigations.

The problem with the AERA conclusion of no “potential for significant environmental or health effects” is that significant impacts may exist that the AERA does not identify, due to its inappropriate *screening* methods for this type of project, in air and other media, and due to its preparation by preparer(s) who were not expert in risk assessment required by the CFR. A Chinese wall is required between permitting and the EIS process. The process allows sharing of information. It prohibits influence on EIS decision-making as seen throughout the NorthMet EIS process.

Other reasons why the AERA is inadequate are discussed in the AERA section.

In summary, federal agencies did not act in accordance with their own legal, scientific, or ethical requirements from pre-scoping to FEIS signature. State officials, having decided to use risk assessment as the basis for FEIS adequacy decisions, violated their own statutes and guidance documents. All these facts form the basis for procedural and technical errors, omissions, and illegalities that form sufficient basis to reject the FEIS and all associated actions.

Law/ Regulation /Policy/Violated: APA Sec. 2 (g) “Agency action” includes failure to act.

APA Sec. 7 (c) Agencies must have reliable, probative, and substantial evidence.

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1502.24 Agencies shall insure professional integrity and scientific accuracy.

40 CFR 1502.2 (f) Agencies shall not commit resources prejudicing selection of alternatives before making a final decision (§1506.1).

40 CFR 1502.22 (b) use methods generally accepted in the scientific community.

40 CFR 1502.24, Agencies shall insure professional integrity including scientific integrity.

40 CFR 1506.1 Until an agency issues a record of decision, no action (e.g. permitting – 40 CFR 1508.18 (b)(4)) concerning the proposal shall be taken which would: (1) Have an adverse environmental impact; or (2) Limit the choice of reasonable alternatives.

40 CFR 1506.5 (c), Federal *officials* are responsible for independent evaluation, scope and content of the entire EIS.

Minn. Stat. 116D.03 Subd. 2 (2) Systematic interdisciplinary approach, consultation with persons in appropriate fields of specialization.

Violation: The AERA, a voluntary action apparently prepared by non-subject matter experts, was never intended to be finalized or certified during the EIS, because the AERA is a state permitting tool. Taking permitting actions within a federal EIS is federally illegal. Illegal activities in an EIS process terminate the legality of the FEIS and all associated actions.

Laws violated: 40 CFR 1502.6, using an inter-disciplinary approach, disciplines of the preparers shall be appropriate to the scope.

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1502.24, Agencies shall insure professional integrity and scientific accuracy.

40 CFR 1502.2 (f) Agencies shall not commit resources prejudicing selection of alternatives before making a final decision (§1506.1).

40 CFR 1502.22 (b) use methods generally accepted in the scientific community.

40 CFR 1502.24, Agencies shall insure professional integrity including scientific integrity.

40 CFR 1506.1 Until an agency issues a record of decision, no action (e.g. permitting – 40 CFR 1508.18 (b)(4)) concerning the proposal shall be taken which would: (1) Have an adverse environmental impact; or (2) Limit the choice of reasonable alternatives.

40 CFR 1506.5 (c), Federal officials are responsible for independent evaluation, scope and content of the entire EIS.

Minn. Stat. 116D.03 Subd. 2 (2) Systematic interdisciplinary approach, consultation with persons in appropriate fields of specialization.

Violation: During the scoping for the SDEIS, the Co-leads again failed to stop the use of a permitting action - the AERA development - outside the EIS, prejudicing focus away from needed full risk assessment.

Law/ Regulation /Policy/Violated: APA Sec. 2 (g); agency action includes failure to act.

APA Sec. 7 (c); The record should be supported by substantial evidence.

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1502.24; Agencies shall insure the professional integrity, including scientific integrity,

40CFR 1506.1 and 1502.2 (f) No action should be taken that might have an adverse environmental impact or limit the choice of reasonable alternatives.

40 CFR 1506.5 (c) Federal officials are responsible for independent evaluation, scope and content of the entire EIS.

0 CFR 1502.24, Agencies shall insure the professional integrity, including scientific integrity.

Violation: By not including experts in toxicology or risk assessment who would recognize the inadequacies of the AERA method, Co-Leads failed to insure professional integrity and scientific integrity of the EIS scoping, both initial scoping and supplemental scoping with its Impact Assessment Planning (IAP) Air Resources group decisions. The Co-Leads produced AERA documentation demonstrating that a chemical engineer, a non-subject matter expert, has written the AERAs, making the AERAS invalid for the FEIS.

Law/ Regulation /Policy/Violated: 40CFR 1506.5, Agency is responsible for scope, must verify work; Federal officials are responsible for independent evaluation, scope and content of the entire EIS.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

40 CFR 1507.2, agency shall be capable to evaluate others' products and use systematic interdisciplinary approach.

Violation: Having determined that risk assessment was essential for the NorthMet EIS (a state Superfund brownfield with soils only studies), as indicated by use of an AERA, federal agencies are required to use full HHRA and ERA processes, not a local air only process that has no validity outside the state of Minnesota or used by any other agency/authority in the state of Minnesota for other program considerations. This is a direct violation of federal laws, rules, and military regulations. Any violation of UCMJ military regulations is a crime.

CEMP-RT Engineer Manual 200-1-4, Environmental Quality Risk Assessment Handbook Volume I: Human Health Evaluation, January 1999, and EM 200-1-4 Volume II: Environmental Evaluation, 31 December 2010. Cover memos in EMs. Use in conjunction with USEPA Risk Assessment Guidance for Superfund, HHRA and ERA.

Violation: In the EIS scoping Co-Leads failed to require the risks from all potential chemicals of concern at the project (both mine and plant) to be quantified to identify human health impacts with the EPA's current scientific standards of human health risk assessment; planned discussions of how specified contaminants would meet standards with mitigation address only parts of the environmental impacts and this approach is not an appropriate method to quantify and assess all human health risks, on which mitigation is based.

Law/ Regulation /Policy/Violated: NEPA 101 (b), Use all practicable means consistent with national policy to assure for all Americans safe, healthful surroundings.

NEPA 102(2)(A) Utilize a systematic, interdisciplinary approach in planning.

NEPA 102(2)(D) Federal official has responsibilities for the scope, objectivity, and content of the entire statement and other responsibilities in the law.

40 CFR 1500.1 (b) The information must be of high quality with accurate scientific analysis.

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

Violation: Federal agencies failed to have state agency personnel order the project proposer to produce all technical reports supporting the EIS at a technical and procedural level in line with all federal civilian and military laws, rules, regulations, guidelines, guidance, federal executive orders, etc. As a result, fatally flawed procedural and technical errors and omissions occurred. These invalidate the EIS, FEIS, RODS, and permitting. No permits can be done or issued under such conditions, because even if the state condones these fatal flaws, it violates its own statutes that are similar to NEPA and its regulations:

Law/ Regulation /Policy/Violated: Minn. Stat. Ch. 116D.01-116D.05,

Minn. Stat. Ch. 116D.06 Effect of existing obligations, a statute that allows the state to adjust to federal requirements.

Violation: In the supplementary EIS scoping, Co-Leads failed to require the risks from all potential chemicals of concern at the project (both mine and plant) to be quantified to identify human health impacts with the EPA's current scientific protocols of human health risk assessment; planned discussions of how specified contaminants would meet standards with mitigation address only parts of the environmental impacts and this approach is not an appropriate method to quantify and assess all human health risks which then must have mitigation identified.

Law/ Regulation /Policy/Violated: NEPA 101 (b), use all practicable means consistent with national policy to assure for all Americans safe, healthful surroundings.

102(2)(A), utilize a systematic, interdisciplinary approach in planning.

102(2)(D), The Federal official has responsibilities for the scope, objectivity, and content of the entire statement and other responsibility under this Act.

40 CFR 1500.1 (b) Agencies must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high

quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

Minn. Stat. Ch. 116D.03 Subd 2 (2) Utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment; ... consultation with persons in appropriate fields of specialization to ensure that the latest and most authoritative findings in administrative decision making as quickly and as amply as possible.

Violation: Federal agencies failed to replace the terminated Memorandum of Agreement for the supplementary draft EIS scoping and planning. Federal agencies can only work in a state/federal NEPA project when formal MOUs are in place. Lacking such, the project should have been stopped or terminated. This is a legal violation. Since USACE was in violation, according to the UCMJ this is a crime.

Law/ Regulation /Policy/Violated: 40 CFR 1501.5(c) agencies shall determine lead and cooperating agencies by letter or memorandum.

Violation: Co-Leads allowed Bands' substantive technical input to be ignored. Specific technical corrections provided by the Bands were removed from FEIS text. Violation of tribal rights, treaties, and MEPA/NEPA public participation requirements of state and federal government.

Violation: During the supplementary EIS scoping, Co-leads failed to maintain a Memorandum of Agreement and as a result the Bands were eliminated from their rightful status as consulting and/or cooperating agencies, and were not allowed to participate in all of the supplementary EIS planning groups. Bands' substantive technical input was ignored. Specific technical corrections and information provided by tribe was removed from FEIS text to a rear chapter. Violation of tribal rights, treaties, and MEPA/NEPA public participation requirements of state and federal government.

40 CFR 1501.5(c) agencies shall determine lead and cooperating agencies by letter or memorandum.

40 CFR 1501.2 (d)(2) agency shall consult early with Indian tribes.

40 CFR 1501.7 (a) (1) agency shall invite participation of affected Indian tribes.

40 CFR 1502.16 EIS shall include discussions of conflicts between proposed action and objectives of Indian tribal treaty lands.

40 CFR 1508.5 An Indian tribe may by agreement become a cooperating agency.

GENERAL

Violation: The Co-leads failed to insure all federal statutes, rules, policy are followed in the EIS;

Law/ Regulation /Policy/Violated: NEPA 102(2)(D) Federal *officials* have responsibilities for the scope, objectivity, and content of the entire statement. No documentary evidence of these actions has been found in the public record. In fact, what is in the public record demonstrates that these federal requirements were ignored.

UCMJ makes such actions or inactions a crime.

40 CFR 1502. Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1506.5 (c) Responsible federal *officials* shall independently evaluate, and take responsibility for scope and content.

Violation: Co-Leads did not have capabilities or contract with an independent scientific expert/s to assure the required interdisciplinary approach and identify appropriate method/s for measuring and assessing

human health and environmental impacts including whether use of the AERA method for an EIS of this magnitude was appropriate. No documentary evidence of these actions has been found in the public record. In fact, what is in the public record demonstrates that these federal requirements were ignored. USACE has the requirement to hire such experts. UCMJ makes such actions or inactions a crime.

Law/ Regulation /Policy/Violated: 40 CFR 1502.6, interdisciplinary preparation; Human health risk assessment and ecological risk assessment of a unique industry including risks in all media requires a toxicologist or experienced risk assessment expert in all media.

40 CFR 1507.2 Agency shall be capable to utilize a systematic, interdisciplinary approach.

Minn. Stat. Ch. 116D.03 Subd. 2. (2) consultation with persons in appropriate fields of specialization to ensure that the latest and most authoritative findings, utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts.

Violation: Both the Co-Leads' federal officers of USACE and the USFS failed to meet their obligations to be responsible for federal NEPA requirements as agreed within the Memorandum of Understanding for the production of the EIS and as described in the regulations, as demonstrated by this entire set of listed violations. Public record demonstrates that federal authorities did not provide any list of their unique requirements to the state for inclusion in the FEIS, did not complain in writing when their standards of performance were violated, did not insist on subject matter experts writing technical reports of summarization in the FEIS, did not insist that all final documents, should they exist, be appended to the FEIS and made public, and did not even notice missing final certified reports in the FEIS. This is proof positive that federal authorities violated federal law, rules and regulations. Given that USACE did or did not do what was required, is a crime under the UCMJ. Given federal crimes, errors and omissions, the FEIS is no longer valid, stopping all permitting.

Law/ Regulation /Policy/Violated: 40 CFR Part 1500. This Part tells the Agencies and their federal officers what they must do to comply with the procedures and achieve the goals of NEPA.

Violation: The Co-leads did not assure supporting evidence reports were finalized as indicated by signatures of responsible qualified authors. With unsigned incomplete reports, the Co-Leads have no basis for making a determination of impacts in the FEIS;

Law/ Regulation /Policy/Violated: 40CFR 1506.5(c) Federal officials are responsible for independent evaluation, scope and content of the entire EIS.

Violation: Co-Leads did not assure that author and subject matter of the unsigned reports were available to reviewers and the public.

Law/ Regulation /Policy/Violated: APA Sec. 3 (c); matters of official record shall be available to persons concerned.

40 CFR 1500.2 (d) Agency must encourage and facilitate public involvement.

Violation: Co-Leads failed to assure names and qualifications of authors of significant background papers are in the FEIS list of preparers, including the AERA, a basis for FEIS statements of impact.;

Law/ Regulation /Policy/Violated: 40 CFR 1502.17;

Violation: The Co-Leads failed to assure the FEIS was completed -- it is based on many unsigned major reports; the public was denied the right to make comments during the EIS public comment period on the final reports and their conclusions about the EIS.

Law/ Regulation /Policy/Violated: APA Sec 3 (c); matters of official record shall be available to persons concerned.

40 CFR 1500.2 (d) Agency must encourage and facilitate public involvement.

Violation: The Co-Leads did not ensure that the EIS is concise, clear, and to the point when they added a separate chapter whereto the science and comments of the Bands were relegated, causing the public great

difficulty in associating important information in Chapter 8 with applicable text in Chapters 1-7, the opposite of clarity and organization.

Law/ Regulation /Policy/Violated: NEPA sec 102 (a);
40 CFR 1500.2 (b); Agency must encourage and facilitate public involvement.
40 CFR 1502.2 (a), analytic rather than encyclopedic. (c). concise.

Violation: Co-Leads failed to ensure that legitimate scientific and other comments from the Bands must be included in a full and fair analysis of environmental impacts;

Law/ Regulation /Policy/Violated: 40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

Minn. Stat. Ch. 116D.03, Subd. 2 utilize a systematic, interdisciplinary approach, consultation with persons in appropriate fields of specialization to ensure the latest and most authoritative findings.

UNDUE INFLUENCE

Violation: Project documents state that the project proposer and proposer's contractor took part and leadership roles in interagency meetings to determine their requirements for a successful FEIS product. Co-leads failed to assure the EIS was deliberated and decided without undue influence, by allowing PolyMet and its contractor with fiduciary interests to be actively participating members in the Interagency Planning Groups (IAP) as opposed to information providers in the scoping process. Their presence directly and indirectly affected both full and fair discussion and also rigorous exploration and objective evaluation of impacts. USEPA, USFS, and USACE staff involved should have recognized this impropriety, objected and walked out.

Law/ Regulation /Policy/Violated: APA Sec. 10 (e) Agency action, findings, and conclusions are unlawful when found to be arbitrary, capricious, and abuse of discretion, or otherwise not in accordance with law; without observance of procedure required by law; unsupported by substantial evidence, and other conditions.

40 CFR 1502.14 (a) Agencies shall rigorously explore and objectively evaluate all reasonable alternatives

40 CFR 1506.5 Agency shall independently evaluate/verify for accuracy the information, issues, scope, content of EAW and EIS. Independent means not looking to others for one's own opinions (Webster's Dictionary), here especially avoiding conflict of financial or other interest (drawing on the inference from 40 CFR 1506.5 (b) the required disclosure of the selected contractor to prepare the EIS).

40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses.

40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in the EIS.

Personal knowledge, Maureen Johnson as former MPCA Superfund project manager. Federal employees and state employees who conduct federal actions know they must avoid even the *appearance* of conflict of interest.

Violation: In the draft scoping EAW, Co-Leads failed to independently evaluate and identify that the included summary of an AERA was produced under the MPCA-administered air quality permit action with the major effect that the Co-Leads accepted, without evidence of the complete report with calculations, the permit-based recommendation that air emissions would not have potential for significant impact, potentially prejudicing selection of alternatives by eliminating an alternative that might require more mitigation. If a complete HHRA were performed by a qualified preparer, it would show whether or not alternative(s) is sufficient.

Law/ Regulation /Policy/Violated: APA Sec. 10 (e) Court will hold unlawful agency action unsupported

MPCA Comment 86

by substantial evidence.

40 CFR 1506.5 Agency shall independently evaluate/verify for accuracy the information, issues, scope, content of EAW and EIS.

40 CFR 1506.1, No action (e.g., permitting) in EIS Agencies shall commit resources prejudicing selection of alternatives.

40 CFR 1508.18(4) defines actions with effects that may be major and which are potentially subject to federal control and responsibility that are not allowed during the EIS, including permit or other regulatory decision.

Violation: In the EIS, Co-leads failed to assure major supporting evidence reports were finalized as indicated by signatures of responsible qualified authors. Furthermore, numerous unsigned incomplete drafts within the FEIS demonstrate the Co-Leads violated federal regulations by using proposer's unfinished permitting products in the EIS, for which the EIS presented no evidence of verification of the work, which committed resources that prejudiced the FEIS findings and limited the selection of alternatives.

Law/ Regulation /Policy/Violated: 40 CFR 1506.5(c) Agency official is responsible for scope, content, must independently evaluate work.

40 CFR 1502.17 Names of persons responsible for particular analyses including background papers shall be identified.

40 CFR 1506.1, No action (e.g., permitting) in EIS Agencies shall commit resources prejudicing selection of alternatives.

40 CFR 1508.18(4) defines actions with effects that may be major and which are potentially subject to federal control and responsibility that are not allowed during the EIS, including permit or other regulatory action.

NEPA Sec. 101 (b) 2,3., Federal agencies are responsible to assure use of resources without risk to health. NEPA 102(2)(D), federal officer has responsibility for scope objectivity and content of the entire statement.

40CFR 1501.2 (a), Federal agencies must use a systematic interdisciplinary approach to insure proper use of science.

Violation: Co-leads deceived the public into thinking the PolyMet project would have less impacts than the Cliffs Erie taconite facility. Agencies failed to require the no action alternative as described in CEQ's 40 questions. Q. 3 requires the no action alternative would be the Cliffs Erie site condition after implementation of site closure/cleanup regulatory requirements. Instead, Co-Leads describe the no action alternative as the Cliffs Erie site with no cleanup, which would not happen and it violates the Q. 3 requirement.

40 CFR 1502.14 (d) Agencies shall include the alternative of no action.

CEQ Memorandum, March 16, 1981, Questions and Answers About the NEPA Regulations, 3. No action alternative.

Violation: MDNR, USACE and USFS failed to insure professional integrity when they designed the coordination and communication plan so that the proposer and its advocates, with financial interests in mining promotion could participate, lead, negotiate and influence scoping and planning meetings and outcomes.

One might argue the DNR's mission of promoting mining puts their Lands and Minerals staff and leadership in conflict of interest to perform as decision-maker for mining EISs.

Law/ Regulation/Policy/Violated: 40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity.

Violation: Co-Lead failed to respect the Bands' expertise and to honor treaty rights when they invited Indian Tribes (Bands) to seek participation as cooperating agencies, then limited Bands' participation in

areas in which the Bands are the experts; they are federally authorized to manage water quality on their reservations, and possess unequaled knowledge of the treaty 1854 Ceded Territories in which they live. Co-Leads made the determinations in the Bands' areas of expertise without the Bands' input. (FEIS, Band comments)

Law/ Regulation/Policy/Violated: Executive Order 13175 of November 6, 2000, President William Clinton, Consultation and Coordination With Indian Tribal Governments,

(a) Agencies 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. (Sec. 10. Judicial Review. This order is intended only to improve the internal management of the executive branch, and is not intended to create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law by a party against the United States, its agencies, or any person.)

40 CFR 1508.5 An Indian tribe may by agreement become a cooperating agency, with responsibility under 40 CFR 1501.6.

40 CFR 1501.6 (a) environmental analysis and proposals using special expertise, to the maximum extent possible.

(b) Each cooperating agency shall

(1) Participate in the NEPA process at the earliest possible time.

(2) Participate in the scoping process (described below in §1501.7).

(3) Assume on request of the lead agency responsibility for developing information and preparing environmental analyses including portions of the environmental impact statement concerning which the cooperating agency has special expertise.

(4) Make available staff support at the lead agency's request to enhance the latter's interdisciplinary capability.

(5) Normally use its own funds.

40 CFR 1502.9 (a) The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action.

Violation: In its review of Co-Leads' proposed action under Section 309 of the Clean Air Act, USEPA failed to identify environmental justice conflicts between the Co-Leads and the Bands or even to read the Bands comments which indicated the issues, so it failed to ensure that the agencies have fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects, and in defining the area of potential effects. In human health, USEPA failed to review the permitting screening AERA for this complex project, and in so reviewing USEPA should have found there was no final complete AERA to review.

Law/ Regulation/Policy/Violated: Clean Air Act, Section 309;

Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses, April 1998.

Violation: Co-leads failed to use cooperating agencies' expertise and insure environmental justice when they did not allow consulting parties the Bands, to participate in Geochemistry, Geotechnical, and Evaluation Criteria workgroups. Critical negative effects were the losses of Bands' scientific knowledge from inclusion in the FEIS and an opportunity to demonstrate cultural respect for water and earth with a long view of the 1854 Treaty lands and tribal rights. The Co-Leads' conduct disgraces their agencies. As scientists, we the authors are embarrassed by the disrespectful conduct of the Co-Leads.

Law/ Regulation/Policy/Violated: 1501.6 (a) (2) Co-Leads shall use the environmental analysis and proposals of cooperating agencies with jurisdiction by law or special expertise, to the maximum extent possible.

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," President Clinton February 11, 1994.

Violation: During scoping Co-leads failed to use cooperating agencies' expertise and insure environmental justice when Co-Leads determined without any evaluation or consultation with the Bands that there would be no effect to usufructuary rights or natural resources of importance to the Bands. Law/ Regulation/Policy/Violated: 1501.6 (a) (2) Co-Leads shall use the environmental analysis and proposals of cooperating agencies with jurisdiction by law or special expertise, to the maximum extent possible.

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," President Clinton February 11, 1994.

Violation: Co-Leads failed to include scientific evidence provided by commenters. Without identifying all known or likely contaminants to water, no mitigation can be planned and found to be adequate. Co-Leads failed to identify during the environmental justice evaluation that the FEIS did not evaluate increases in specific conductance due to mitigation that will likely cause changes in aquatic life with subsequent changes in preferred edible fish species and aquatic plants abundance for the Bands, minority populations and low-income populations.

Law/ Regulation/Policy/Violated: Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," President Clinton February 11, 1994. 40 CFR 1502.22(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

Violation: Agencies actively worked to include project proposer interests in project document development and actively excluded the public and tribes from getting their substantive additions/changes in the record and final documents. MDNR, USACE, USFS and USEPA officials, as opposed to agencies, responsible for objectivity of the EIS, allowed the proposer and its advocate, with financial interests in the success of this project, to have undue influence in the SDEIS scoping, planning and content, affecting the objectivity of the process and the ultimate content of the FEIS, and allowed the appearance of conflict of interest to enter the scoping process.

Law/ Regulation /Policy/Violated: NEPA Title 1, Section 102 (D), 40 CFR 1506.5 Agency shall independently evaluate/verify for accuracy the information, issues, scope, content of EAW and EIS. 40 CFR 1502.1 Agencies are responsible for EIS full and fair discussion of impacts and alternatives, concise, clear and to the point, supported by evidence that agencies made necessary analyses. 40 CFR 1502.9 (a) The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action.

Violation: MDNR, USACE and USFS failed to comply with the itemized Federal Council on Environmental Quality (CEQ) regulations in this list of violations. All these violations of laws and rules demonstrate bad faith, putting the entire FEIS and its inaccurate and incomplete science into unacceptability. The Co-Leads failed to maintain and support professional scientific interpretations of the analyses.

Law/ Regulation /Policy/Violated: 40 CFR 1507.1 All agencies of the federal government shall comply with these regulations.

Violation: Courts require a hard look* by government agencies performing an EIS. State and federal agencies worked hand in glove with the project proposer to cherry-pick data, manipulate data using averages instead of ranges (no wonder the P90 came out so well – it is based on the P90 ability to meet standards with the averages of data, not the highs that cause standard exceedances), and exclude data that would provide anything other than the pre-determined outcome (improperly deleted outliers reflect the heterogeneity of the rock); all to create acceptable risks and imagine sufficient adaptive engineering

solutions including perfect control of contaminant releases all of the time with unlimited funding to correct noncompliance. The asterisked Hard-Look* discussion below will demonstrate, using factual examples**, how state and federal agencies actively evaded court-required hard look at actual data and site-specific information.

NEPA Sec. 101 Use all practicable means and measures, fulfill the responsibilities of each generation as trustee of the environment for succeeding generation assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; Sec. 102 all agencies shall do this list; Sec. 104 comply with criteria or standards of environmental quality.

Minn. Stat. Ch. 116D.01 Promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of human beings;

116D.02 Use all practicable means and measures, foster and promote the general welfare, to create and maintain conditions under which human beings and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of the state's people; Subd. 2 (2) assure for all people of the state safe, healthful, productive, and aesthetically and culturally pleasing surroundings.

**Hard-Look Doctrine is a principle of Administrative law that says a court should carefully review an administrative-agency decision to ensure that the agencies have genuinely engaged in reasoned decision making. A court is required to intervene if it “becomes aware, especially from a combination of danger signals, that the agency has not really taken a ‘hard look’ at the salient problems.” The Administrative Procedure Act instructs federal courts to invalidate agency decisions that are “arbitrary” and “capricious”. (USLegal.com definition)*

WAIT Radio v. F.C.C., 418 F.2d 1153, 1157 (D.C.Cir. 1969)) A hard look entails complete discussion of relevant issues, as well as meaningful statements regarding the actual impact of proposed projects. ((Earth Island Inst. V. U.S. Forest Serv., 442F.3d 1147, 1172 (9th Cir. 2006))

*** Example*

Identifying Chemicals of Potential Concern

The FEIS discusses and summarizes an AREA that was performed for the FEIS. An AERA itself is a novel application developed by MPCA. An AERA might work for emissions that are chemically simple. However this project is chemically complex. The AERA has no way to deal with multiple chemicals in multiple pathways.

This one example, and there are many more, is only describing some basic concepts. The PolyMet NorthMet mine site will produce a plethora of chemicals of potential concern. This includes but is not limited to the minerals and individual chemicals contained within the ore and waste rock. Upon blasting these chemicals will be released directly or indirectly into the air, soils, sediments, surface water, ground water and wetlands. The FEIS states that blasting of rock will occur 2 to 3 times a week. Each blast will produce 200,000-300,000 tons of broken rock (FEIS 3.0, p 3-42).

A MDNR report stated about the sulfate mineral Norite, a combination of minerals and sulfide minerals commonly found where PolyMet will mine in the Duluth Complex: “reducing norite rock particle size to less than 0.5 mm leads to near complete exposure of the majority of the sulfide mineral surfaces.” (Wentz, 2013). It is reasonable to predict that blasting will release large volumes of this size particle. This size particle is available for dissolution in water or in such as lungs or organs, and a 2.5 mm particle is able to go to the deepest parts of the lungs, so this Norite size is even smaller.

While searching published geological documents on the Partridge River Intrusion we have located 43 individual chemicals and average maximum and minimum concentrations of each found in the non-

mineralized rock (waste rock) (Severson,1990). The FEIS identifies another 15 minerals and their concentrations (percentages), found in the rock (PolyMet 2007b, table 3). From this data it is reasonable to expect that blasted rock will release large amounts of fine particulates into the air and ultimately will be deposited onto the soils, wetlands, surface waters, and sediments.

Additionally, the blasting agents used are Ammonium Nitrate Fuel Oil, a chemically unidentified “booster”, and “unidentified emulsion”. Their use will be at the following rates: ANFO, 833,333 lb/month; Booster, 1,555 lb/month; Emulsion, 387,500 lb/month (FEIS Table 5.2.13-1). This totals 1,222,388 lb of blasting agents used per month. A number of articles in the published literature have examined residues from the use of ANFO blasting in wet environments. One such study demonstrated that toxic fumes from blasting contains: NO, NO₂, CO, bis(2-ethylhexyl)phthalate, C12 to C28 aliphatic hydrocarbons, methane, benzene, toluene, ethylbenzene, xylene. In addition, undetonated ANFO, which always occurs in a blast, can deposit in surface and ground water as nitrates, nitrite, ammonium (Defense R&D Canada 2010).

The chemicals of potential concern from our brief review above total 68. The AERA summary identified only 11 chemicals of concern at the mine site (Barr 2013i). There is no complete listing of the list of potential chemicals of concern in the AREA, nor is there a discussion of how each was assessed. As a result it is impossible for co-lead or federal agency, the MDNR or the public to give a “hard look” to review the accuracy or completeness of the AREA.

As a result it is reasonable to state a major omission exists since:

Blasting agents will release significant quantities of chemicals to the human environment (air, soil, wetlands, surface water, sediments, and groundwater, waste rock and ore rock).

The AREA cannot be reviewed for accuracy or completeness;

An analysis of human health impacts related to soils, surface water, sediments and groundwater were not performed.

In summary,

1. Only a very rudimentary review of potential chemicals of concern at the mine site from blasting and geochemistry alone finds 68 potential chemicals of concern. Both the concentrations of each combined with the sheer mass of rock to be blasted describes potential impacts.

Thus the AERA is not sufficiently robust to capture necessary releases and risks to humans and ecological receptors.

2. No human health risk assessment has been performed on the proposed project that includes direct and indirect impacts to soil, surface and ground water, and sediments.

3. With no supporting full report with calculations in the FEIS, the AERA cannot be reviewed for accuracy and completeness.

4. The AERA fails to satisfy the requirements of the federal laws and regulations nor the DNR’s own operating statute MN Stat. 103G.297 (2) Water appropriation permit cannot be issued only be issued if the project cannot be shown to protect public health. As a result the DNR has a lack of foundation to proceed with water appropriation permits or any other permit.

References:

(Defence R&D Canada 2010) Assessment of ANFO on the Environment, Sylvie Brochu, Defense R&D Canada- Valcartier, Technical Memorandum, DRDC Valcartier™ 2009-195, January, 2010.

Severson, 1990, GEOLOGY, GEOCHEMISTRY, AND STRATIGRAPHY OF A PORTION OF THE PARTRIDGE RIVER INTRUSION, Mark J. Severson and Steven A. Hauck, Natural Resources Research Institute, University of Minnesota, Technical Report NRRI/GMIN-TR-89/11, Tables 2-5.

Wenz, 2013, ROCK COMPOSITION, LEACHATE QUALITY AND SOLUTE RELEASE AS A FUNCTION OF PARTICLE SIZE FOR THREE WASTE ROCK TYPES: AN 18-YEAR LABORATORY EXPERIMENT, Zach Wenz, Kim Lapakko, David Antonson, Minnesota Department of Natural Resources, Division of

Lands and Minerals, December 2013, p. i.

Online Comment

Permit Portal: Air

2/24/2018

Comment:

2/24/2018 Dear Commissioner Stine, I live northwest of PolyMet's proposed mine site, in western Cook County. I ask you not to issue the air quality permit for NorthMet. We who live downwind from the proposed mine sites think about what would be blowing our way. Emissions that can be captured would be inconsistently and incompletely filtered or treated, but not so the fugitive emissions rising from the various operations sites and roads between. They would contain arsenic, cadmium, lead, mercury and probably those asbestos-like fibers that have caused such misery and expense, and there is no way to ensure they won't enter the environment. The fugitive emissions control plan lists remedies like sprinkling water on gravel roads and containment basins, which would help. But there would be circumstances and conditions when that wouldn't be enough. If you watch a mining operation you'll see great explosions of debris from blasting, a dirty look to the horizon, clouds of dust above roads, and the belching diesel exhaust from heavy equipment and trucks. As much as ¼ of that would settle on adjacent vegetation, rivers and streams, contributing to their burden of pollution, and the rest would be carried by the wind to fall out across the forest and human communities.

Recent studies in Cook County have found airborne pollutants in remote lakes that must have originated hundreds of miles away. Older studies document decades of air pollution. If toxic particles from the Polymet Northmet operation fall across the forest - as they will if you permit it, they wouldn't be alone - there would be cumulative impacts to the health of forest ecosystems. Mining would add a new stress to a forest system already stressed by climate change, non-native invasive species, a disrupted fire regime, and so on. Apparently you think that simply listing conditions and requiring PolyMet to self monitor and report would preserve our air quality. I'm one of many citizens who have no faith at all that this will work. Look at Minntac's variance request. They want to continue to pollute to the degree to which they've become accustomed - over the decades. No state agency has stopped them. Minntac is in a different category of the mining industry than NorthMet, but it's a great example of the shameful behavior all these companies tend to engage in: This is a predatory delay - a strategic, deliberate dragging of the feet when it comes to meeting obligations, keeping promises, and following the law, with the sole purpose of maximizing profits for as long as possible - while preying on others who will have to foot the bills and clean up the mess - that is, we citizens and our descendents. There is a long and well-documented record of sulfide ore copper-nickel mining that predicts that we should expect the same behavior from PolyMet. I didn't find anything in the draft permit that convinced me otherwise. The state's failure to enforce sulfate standards is another example of unreliable or nonexistent enforcement that gives a clear warning that regulations on the books don't mean no pollution in the air and on land and waters. It's discouraging when environmental standards in laws and permits aren't enforced - and when agencies that are meant to be about land stewardship enable a proposal like PolyMet's to get so far. But the wildlife, the forests, the traditional land uses, the clean waters and fresh air and our descendents that would be hurt so badly by this kind of mining are so precious to us that we have to persevere, and ask that even at this late stage you thoughtfully consider the many unresolved problems with NorthMet, and deny this

MPCA Comment 87

MPCA Comment 88

MPCA Comment 88

permit. Thank you for the opportunity to comment. Sincerely, Ellen Hawkins PO Box 2142 Tofte, MN 55615 eehawkins22@gmail.com

Ellen Hawkins
Tofte, 55615
United States
eehawkins22@gmail.com

Attachments:



File Code: 2580
Date: March 16, 2018

Draft PolyMet Air Permit Comment
4th floor, Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St Paul, MN 55155

MPCA Comment 89

Dear Staff:

PolyMet Mining, Inc. (PolyMet) is proposing to develop the NorthMet copper-nickel-gold/platinum-group metal mine and associated processing facilities in northeastern Minnesota for the NorthMet Project (Project). The Project area includes the Mine Site, Plant Site, and the Transportation and Utility Corridors. The Mine Site is located approximately 6 miles south of the City of Babbitt and directly south of the Peter Mitchell Mine, which is an active taconite/iron mine. The Plant Site is located southwest of the Mine Site at the former LTV Steel Mining Company taconite facility, which PolyMet purchased from Cliffs Erie LLC.

The air permit action for the Project is an initial Part 70 Permit. Limits on emissions and throughput were established in this permit to prevent the facility from being classified as a major source under New Source Review (NSR). If permit limits were not established the Project would be classified as a major source under NSR, a Class I area analysis would be required to quantify impacts at nearby Class I areas (e.g. Voyagers National Park and the Boundary Waters Canoe Area Wilderness - BWCAW). Nevertheless PolyMet completed a Class I area analysis, as part of a mitigation commitment made during the environmental review process, to show the emissions from the proposed PolyMet operations will not adversely impact any Class I areas. The original evaluation was completed as part of the environmental review process, and updated and verified as part of preparing the draft air permit.

The Supervisor of the Superior National Forest is the Federal Land Manager for the BWCAW. She has “an affirmative responsibility to protect air quality related values (including visibility) of such lands and to consider, in consultation with the Administrator (Minnesota Pollution Control Agency - MPCA and Environmental Protection Agency - EPA), whether a proposed source or modification will have an adverse impact on such values” [40 CFR 52.21(p)(2)].

We reviewed the air permit application submitted to the MPCA, and the draft air permit and technical support document (TSD) for the Project. Our comments are below.

Class I Area Analysis

The Class I area analysis covered:

- Class I increment,
- Acidic effects of sulfur and nitrogen on terrestrial and aquatic ecosystems, and



MPCA Comment 89

- Visibility impacts.

The visibility results were the most notable. The analysis showed a change of 4.94-4.98% in visibility. Our concern threshold is greater than 5% (see, https://www.nature.nps.gov/air/Pubs/pdf/flag/FLAG_2010.pdf). Information from the Final Environmental Impact Statement (EIS) was used by the MPCA in conjunction with the permit application to inform the permit. The Final EIS identified several commitments specific to air quality that were addressed as part of the air permit. These mitigation commitments were used in the Class I area modeling demonstration and resulted in unique conditions as part of the permit. The individual items included:

- limiting the emissions from mobile sources,
- upgrading the insulation in the existing Crusher and Concentrator buildings,
- utilize low-NOX space heating equipment,
- use of Tier IV certified engines for any mining fleet equipment,
- use of efficient gen-set locomotives,
- reducing dust collector exhaust for heating demand reductions,
- use of pollution control equipment, and
- use of fuel in their mobile equipment with a sulfur content not to exceed 15ppm.

Because of the very small margin between the modeled visibility impact and our concern threshold, it is important that PolyMet stays in compliance with the permit conditions associated with these items. Any non-compliance would jeopardize the model results and assumed impacts.

Since the visibility impacts are so close to our visibility threshold, we would like to see the permit contain Class I remodeling language that is related to the margin in that analysis. There was remodeling language in previous drafts of permit terms for the Project. The criteria used for Class II remodeling is not appropriate because it does not take into account any site specific criteria as suggested by the MPCA (see section 4.4 of MPCA Air Dispersion Modeling Practices Manual, October 2017). The key pollutants in the Class I analysis (such as sulfur and nitrogen) are different than the Class II analysis.

MPCA Comment 90

Public Posting of Key Permit-Related Reports

Because permit-required reports are generally not readily available and because this project has generated the most public interest of any air permit in state history, we ask that you post the following reports to the PolyMet air permitting website:

- performance test results,
- changes made to monitor locations,
- changes to the location of the effective fenceline,

MPCA Comment 90

- semiannual monitoring reports,
- semiannual deviations report, and
- annual compliance certification.

Information in these reports ties directly to assumptions made in the modeling and therefore the assumed impacts to air quality.

MPCA Comment 91

Mercury

Superior NF staff have participated for nine years on the MPCA Oversight Board for implementation of the statewide mercury total maximum daily load (TMDL) program. The TSD states that the taconite plants have successfully piloted mercury controls. The Oversight Board has an update from the taconite industry at every meeting and we believe that this information has not been presented. Please provide more information regarding the pilot projects referred to in the TSD.

Thank you for consideration of these issues.

Sincerely,

/s/ Richard Periman (for)
CONSTANCE CUMMINS
Forest Supervisor

cc: Paul Strong, Don Shepherd



March 16, 2018

Minnesota Pollution Control Agency
PolyMet Draft Air Permit Comment – 4th Floor
520 Lafayette Road North
St. Paul, MN 55155-4045
Re: Comments on Draft Air Individual Permit 13700345-101

Dear Sir or Madam:

Thank you for providing the opportunity to comment on draft air individual permit 13700345-101 for the Poly Met Mining, Inc. (PolyMet) NorthMet project. PolyMet appreciates the significant time and effort the MPCA has dedicated to this draft permit and PolyMet supports issuance of the permit. The following are PolyMet's specific comments:

MPCA Comment 92

1. The draft permit includes an annual ore processing limit at the Total Facility Level (TFAC 1) of 11.68 million tons per year (Permit Term 5.1.39 with associated monitoring and record keeping under Permit Terms 5.1.40 and 5.1.41). The cited regulations for this limit include 7009.0020-0090 (Minnesota and national ambient air quality standards) and a Title I Condition to avoid major source status under 40 CFR 52.21(b)(1)(i) and Minn. R. 7007.3000. PolyMet suggests this limit is unnecessary, but if it should be applied, it should be applied to the operations at Rail Transfer Hopper (FUGI 17 and/or FUGI 18), and the Title I condition should be removed. The basis for the limit would then be limited to the assumptions made in the Class II dispersion modeling, which included an annual throughput of 11.68 million tons at the Rail Transfer Hopper and citation to Minn. R. 7009.0020-0090 would remain. It is not necessary to have this limit at the Total Facility level or to have it as a Title I synthetic minor limit to avoid major source status under 40 CFR Part 52 for the reasons described below:
 - a. Emissions downstream (in terms of process flow) from the Rail Transfer Hopper do not rely on the modeling-based limitation of the Rail Transfer Hopper to ensure the facility remains a synthetic minor PSD source. Emissions from the crushing and concentrating facilities (Crusher/Concentrator) were determined by calculating the airflow required to collect the dust from the equipment operating at maximum design capacity and assuming a PM, PM₁₀ and PM_{2.5} concentration in the air exiting the dust collectors equivalent to the performance specification for the dust collectors of 0.0025 grains per dry standard cubic foot. The permit establishes a mass emission rate limit based on the calculated airflow and the dust collector performance specification for PM, PM₁₀ and PM_{2.5}. These limits are included in the draft permit for each stack or other dust collector exit point in the Crusher/Concentrator.
 - b. The maximum design capacity for the equipment in the Crusher/Concentrator is shown in the attached Figure 1. There are two general categories of equipment shown on the figure:

MPCA Comment 92

- 1) existing equipment from the former LTV Steel Mining Company (LTVSMC) taconite processing operation (blue symbols) and 2) new equipment to be installed specifically for the NorthMet Project (red symbols). The design of the upgraded dust collection systems for former LTVSMC equipment is based on the maximum design capacity of the equipment as it was operated by LTVSMC. As shown on Figure 1, the new equipment was designed to handle, with allowances for short term feed variations, the ore throughput associated with the mine plan.
- c. All modeling conducted for the Crusher/Concentrator was based on the airflow as calculated for the maximum design capacity of the equipment, assuming emissions at the controlled potential to emit for 8760 hours per year. Emissions calculations performed to show the facility qualifies for a synthetic minor permit were conducted in the same manner. No throughput restrictions or reductions in operating hours or emissions were included in the calculation of the controlled potential to emit.
- d. The draft permit requires that stack testing be conducted on each stack and/or control equipment outlet in the Crusher/Concentrator for PM, PM₁₀ and PM_{2.5} to show compliance with the emission limitations in the permit. The operating throughput for each piece of equipment tested will be recorded during the performance test and future operation of the equipment will be potentially limited by the throughput during the stack test per Minnesota Rules 7017.2025. The pressure drop across each dust collector will also be recorded during the stacks tests.
- e. PolyMet is required by the permit and/or applicable regulations to keep operational records including process throughput and dust collector pressure drop as ongoing demonstration that the facility continues to be operated consistent with the permit limits. Each dust collector in the Crusher/Concentrator will also be equipped with a bag leak detector to provide additional indication of any need for corrective action on the dust collector. Any required corrective action will be conducted consistent with the Operation and Maintenance plan required by the draft permit for the pollution control equipment.
- f. Based on the paragraphs above, the permit provides sufficient ongoing demonstration that the facility will meet appropriate synthetic minor permit limitations without a Title I limit on ore processing throughput at the Total Facility level. Again, as noted above, these downstream emission units are limited appropriately in a manner unrelated to the capacity of the Rail Transfer Hopper. The Crusher/Concentrator sources have independent limitations that are adequately and appropriately enforceable. PolyMet requests that the limit be modified to remove the Title I condition and that the applicable sources be limited to those at the Rail Transfer Hopper (i.e. FUGI 17 and/or FUGI 18). The associated monitoring and recordkeeping requirements are appropriate, but should also be listed under the Rail Transfer Hopper source or sources with the same requested removal of the Title I synthetic minor citation as provided for the limit itself.

MPCA Comment 93

2. The draft permit has separate limits for mobile sources for NO_x, SO₂ and PM₁₀ that are unnecessary, provide no additional environmental benefit and reduce operational flexibility. (Permit Terms 5.1.60, 5.1.61 and 5.1.62). These limits apply to: 1) Ore Haul and Switcher locomotives, 2) Mine Fleet Mobile Sources and 3) Tailings Basin Construction Mobile Sources. The separate limits for NO_x and SO₂ should instead be a combined limit with a separate limit for PM₁₀. The items below provide further support for this proposed change:

a. Magnitude of Emissions – NO_x has by far the highest daily emissions rate and drives the Class I analysis. All mobile sources included in the Class I analysis will use ultra-low-sulfur diesel fuel (<= 15 ppm sulfur) per the draft air permit requirement, so contribution from SO₂ as a byproduct of diesel fuel combustion is minimal.

	NO _x (lb/day)	SO ₂ (lb/day)	PM ₁₀ (lb/day)	%NO _x + SO ₂	% NO _x
Mining Vehicles	852.98	2.21	8.21	99.0%	98.8%
Tailings Basin Construction	521.36	1.2	5.01	99.1%	98.8%
Locomotives	166.20	0.31	6.69	96.1%	96.0%
Total	1540.54	3.72	19.91	98.7%	98.5%

b. Nature of Emissions: both NO_x and SO₂ are gaseous pollutants that form ammonium compounds in the atmosphere, which can affect visibility. These pollutants show similar dispersion and undergo similar chemical reactions in CALPUFF using the MESOPUFF II chemistry methods, both limited by the availability of NH₃ in the atmosphere. In general, NH₃ not converted to sulfate (preferentially scavenged) is available for conversion to nitrate. Given their common limitation on conversion, it is appropriate to group them together.

c. Per the IMPROVE visibility calculations implemented in CALPOST, the ammonium compounds that NO_x and SO₂ convert to in the atmosphere have the same weighting factors and they share Relative Humidity-based adjustment factors in CALPOST, so NO_x and SO₂ derived compounds would be expected to have the same potential contribution to visibility degradation.

d. Tailpipe emissions of some AERA pollutants (e.g. PAHs) are independent of the vehicle criteria pollutant emissions. The use of additional fuel as allowed by the purchase of lower emitting vehicles and a combined NO₂ and SO₂ limit could potentially increase emissions of some AERA pollutants from vehicle tailpipes. However, permit condition 5.1.71 addresses that concern by requiring PolyMet to calculate and record the total monthly fuel usage in the locomotives, Mining Vehicles and Tailings Basin Construction Equipment and calculate the 12-month rolling sum diesel fuel usage. Permit condition 5.1.72 requires PolyMet to recalculate the AERA results if the calculated 12-month rolling sum diesel fuel usage is greater than the value assumed in the emissions inventory (4,507,527 gallons).

MPCA Comment 93

- e. SO₂ emissions are only a function of diesel fuel sulfur content and fuel usage, so a separate SO₂ limit is functionally equivalent to a fuel usage limit, which effectively places a second restriction of fuel usage that is unnecessary considering the other requirements imposed on the diesel-powered equipment.
- f. The Minnesota Ore Operations - Keetac Air Emission Permit No. 13700063-5 has combined NO_x and SO₂ emission limits for mobile sources. Per the Keetac permit TSD: *"The NO_x and SO₂ emission rates have been combined into one emission limit in this case due to the similar atmospheric transport, transformation and visibility impact characteristics between the two; insignificant amount of SO₂ emissions in comparison to NO_x (0.30 lbs/hr of SO₂ compared to 397.40 lbs/hr NO_x); and the minute amount of potential variability in emission rates between the two, bounded by a backstop limit on the fuel sulfur content."* Those same rationales apply here.
- g. Removing these unnecessary flexibility barriers by instituting a combined limit for NO_x and SO₂ makes it easier for PolyMet to purchase more environmentally beneficial equipment.

MPCA Comment 94

3. The draft permit has a limit on the pH range for TREA 52 of 5.0 to 6.0 (Permit Term 5.337.14). This control device is a packed bed scrubber, which is the second stage in the Autoclave emission control system. The design for this scrubber does not call for caustic addition to control pH; scrubber chemistry can be maintained replacing a portion of the recirculated water with fresh water. Therefore, a pH limit is not appropriate for this control device.

MPCA Comment 95

4. The draft permit identifies a limit on the pH range of 5-6 on TREA 53 (Permit Term 5.338.11) – PolyMet feels that a minimum pH value is more appropriate, as the removal efficiency of the gas phase pollutant controlled by this scrubber (SO₂, H₂SO₄, H₂S) generally increases with higher pH. Therefore, the permit should specify a minimum pH of 5.0. This value can be adjusted as indicated by the manufacturer's recommendations and/or the performance testing on the scrubber as described in the draft permit.

MPCA Comment 96

5. PolyMet identified the following items as technical and/or typographical errors in the permit:
 - a. EQUI 143 (Limestone Crusher) (Permit Term 5.165.6) has a 0.0265 lb/hr PM_{2.5} limit expressed as a 24-hr block average. This limit arises from the modeling to demonstrate compliance with the annual PM_{2.5} NAAQS. This limit should be expressed as an annual average. The unit has an annual throughput limit so the annual modeling based PM_{2.5} limit is redundant – the annual limit takes into account throughput limit. There is a similar issue for STRU 43 (Limestone Unloading Baghouse Stack) (Permit Term 5.284.4), which has a PM_{2.5} limit of 0.0189 lb/hr expressed as a 24-hr block average. This limit should also be expressed as an annual average. PolyMet acknowledges that the modeled emissions rates for the annual PM_{2.5} modeling were incorrectly reported under the 24-hr modeling on the MPCA AQDM-02 Form submitted with the application on Jan 11, 2018, but were correct in the model input files.
 - b. EQUIs 188 and 190, (Fire Pumps) (Permit terms 5.177.10 and 5.178.10) reference the EPA "emergency generator" guidance memo¹. It should be made clear that these are "emergency

¹ "Calculating Potential to Emit (PTE) for Emergency Generators". USEPA. September 6, 1995.

MPCA Comment 96

- engines" (i.e. fire pumps) that operate with similar inherent restrictions as "emergency generators". This should also be discussed in the TSD.
- c. The FUGI 1 VMT limit (Permit Term 5.206.2) for "Light and Medium-Duty Vehicles" should be 389 vmt/day. This is a result of the summation of the following vehicle miles traveled as indicated by the previously submitted emission inventory: (258 (light trucks) + 22.2 (fuel tankers) + 22.2 (blasting material trucks) + 86.9 (Lime Trucks)).
 - d. The FUGI 5 VMT Limit (Permit Term 5.209.3) does not include bentonite hauling. This VMT limit should be inclusive of this as indicated in submitted emission inventories and as shown by the following: 9427 (dam/buttress construction) + 59.2 (bentonite hauling) = 9486.2.
 - e. Pan conveyors EQUI 21, 22, 23 and 24 vent to TREA 9. EQUI 24 was omitted in permit condition 5.294.1 (note: a flow arrow was missing on the GI-02 drawing submitted with the permit application).
 - f. TREA 42 also controls EQUI 80 (permit condition 5.327.1).
 - g. The FUGI 26 (Mine Haul Roads) – permit conditions 5.230.8 and 6.205.1 refer to material handling record keeping and reporting. They should refer to VMT reporting as that is the parameter tracked for the Mine Haul Roads.
 - h. Permit Term 5.1.6 has an incorrect reference to 40 CFR, Part 1068.101(b)(3) {1068.010(b)(3) in draft permit}.

MPCA Comment 97

6. PolyMet has the following comments on the draft Technical Support Document (TSD):
- a. Section 2.7.2 Air Emission Risk Analysis. The TSD does not make it clear that the AERA was required at MPCA's discretion. PolyMet requests that the first sentences of the final two paragraphs of this section be edited as shown below:
 - i. *An MPCA policy requires an AERA is required when an EIS is required by Minn. R. 4410.4400 and the project increases air emissions of a single pollutant (excluding greenhouse gases) by 250 tons per year or more after the use of control equipment.*
 - ii. *Although the project did not increase emissions of a single pollutant by 250 tons per year, due to the high level of public interest in the project, As a result, an AERA was completed for the PolyMet EIS and updated and verified as part of preparing Air Emissions Permit 13700345-101.*
 - b. Section 3.3 Class I Dispersion Modeling. The third paragraph of this section should be edited as follows to clarify the reason why the Class I analysis was conducted: *Class I modeling was not required by the Clean Air Act as part of this non-PSD permit. PolyMet completed Class I dispersion modeling as part of a mitigation commitment made during the environmental review process to show the emissions from the proposed PolyMet operations will not adversely impact any Class I areas.*

MPCA Comment 98

c. Section 3.3.1 Class I Increment Analysis. The end of the first paragraph of this section be edited as follows to clarify the basis for the Class I increment analysis: ... *Therefore, an analysis of the cumulative impact from all sources of PM₁₀ (past and present, increases and decreases) on the Class I areas was prepared. As noted above, the Class I analysis was performed as part of the environmental review process and was not necessary for Clean Air Act permitting purposes. As such, any requirements related to Class I modeling are state only requirements and are not enforceable by the U.S. Environmental Protection Agency (EPA) Administrator and citizens under the Clean Air Act.*

MPCA Comment 99

d. Section 3.8 Amphibole Mineral Fibers. The final paragraph of Section 3.8.2 be edited as follows to clarify that the fiber requirements are not being implemented based on a known risk to human health: *The inclusion of fine particulate controls as permit conditions for controlling fiber emissions is a state-only requirement that MPCA is requiring pursuant to Minn. Stat. § 116.07, subd. 4a(a) Minnesota Rule 7007.0800, subp. 2(B)....*

Please contact me at (218) 471-2162 or kpylka@polymetmining.com if you have any questions.

Sincerely,



Kevin Pylka
Manager of Environmental Permitting and Compliance

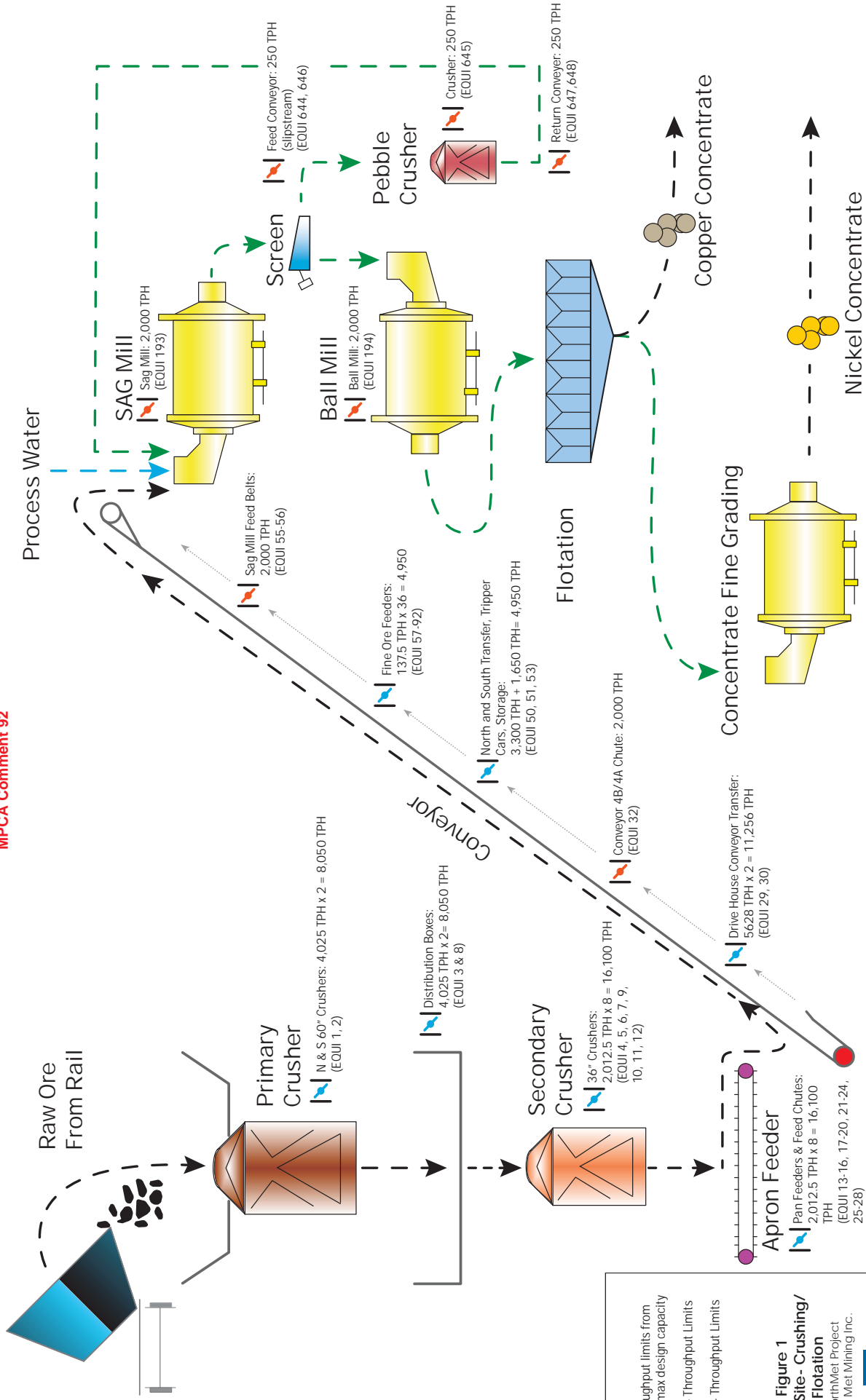


Figure 1
Plant Site - Crushing/Flotation
NorthMet Project
Poly Met Mining Inc.

Key
TPH throughput limits from G1-05B max design capacity
A - Throughput Limits
B - Throughput Limits

BARR

Online Comment

Permit Portal: Air

1/31/2018

Comment:

MPCA Comment 100 Polymet proposes a hard rock, open pit mine in an area of the state that has already been heavily impacted by iron ore mining in the past. That mining has stripped all of the high grade iron ore from the region, thus most of the near-by towns have been left in an economic depression as iron mining ended its best day. Polymet promises to them high paying mining jobs and a restoration of their economic vitality. Copper mining in this area is vastly different from iron mining. The ore body being mined has sulfur in it make up, and that sulfur, beyond the harm of the digging itself, is what provides the problem. Run off from this mine will be laced with sulfur as long as water and the mine refuse exists. Sulphur will enter the environment though rain run off, local water ways, and in the underlying aquifer leaching other chemicals into the environment. This sulfur pollution will not end with the closure of the mine. Tailings ponds, reservoirs will not contain it. It will always be a part of that mines legacy. It will do harm to the people, flora, and fauna of the entire run off area. Money and a strong economy are excellent arguments for opening this mine. It will make investors a great deal of money that they can use for their own pleasure. It will give 200-300 people good jobs for a few years. On the other hand, this mine threatens to wreck the BWCA for the next millennium, perhaps destroy the underlying aquifer, and diminish the St. Louis River Valley from mine sight to St. Louis Bay on Lake Superior. I think the risk far out weight the worth of the metal and the jobs. I think it is a short sighted mistake to open this area to copper and other heavy metal mining. I think that the mining industry has no way to clean up the mess that they will necessarily make with this mine, and that future generation of Minnesotans, far from the mine site will pay the cost in their health and their tax dollars for the sake of a few men getting richer..

Patrick Stevens
Moose Lake, 55767
United States
stevensp05@msn.com

Attachments?

Online Comment

Permit Portal: Air

1/31/2018

Comment:

MPCA Comment 101

As a Minnesota resident and an annual visitor to the Biwabik area, I would like to state my support for the Polymet mine. The job generation opportunity is important to the area and should move forward as long as the project is in full compliance with all federal, state, and local laws and regulations. I firmly believe that a sound technical solution can be found to any environmental concerns about the project.

Joshua Brand
MINNEAPOLIS, 55448
United States
jswede@gmail.com

Attachments?

Online Comment

Permit Portal: Air

1/31/2018

Comment:

MPCA Comment 102 NO NO NO NO NO! No sulfide mining near the BWCAW. This mine will fail as all sulfide mines in the past have. The wilderness will be irreparably harmed costing generations of jobs. The state will be on the hook for the cleanup costs as the mining company will have declared bankruptcy and moved on.

Chris Loudon
Duluth, 55812
United States
cloudon1262@charter.net

Attachments?

Commenter ID: Air-10

Online Comment

Permit Portal: Air

1/31/2018

Comment:

MPCA Comment 103

I believe polymet mine is a good project. The mine and all the hard working employees will protect the air quality. This mine will provide good paying construction jobs and good paying permanent jobs. Thank you.

Ronald Namchek
Grand Rapids, 55744
United States
Rfnamchek@gmail.com

Attachments?

Online Comment

Permit Portal: Air

2/1/2018

Comment:

MPCA Comment 104 Dear Sir or Madam The Boundary Waters Canoe Area and the surrounding lake country is a national treasure. It deserves the most protection available to it. The earth and the thousands of people, from all over the world who visit here, deserve to have it protected ! The earth, and the worlds people need it protected. The PolyMet mine is not in anyone's best interest, nor the interests of the Boundary Waters Canoe Area. The mine company says they will protect the air and water at the proposed mine site. However mining's track record with mines is deplorable. The Rio Tinto is a river in Spain polluted by a copper sulfide mine. It runs red and dead, with a ph of 2. The Phoenicians, then the Romans, started to mine here 3000 years ago. Is this the possibility we want to see in Minnesota ? Please do not let this ill advised mine proceed. Please stop the PolyMet Mine ! Regards Jim Bambenek

Jim Bambenek
Winona, 55987
United States
jbambenek@yahoo.com

Attachments?

Online Comment

Permit Portal: Air

2/3/2018

Comment:

MPCA Comment 105

I believe polymet mine is a good project. I believe polymet mine has a good plan in place for the air quality. I believe the jobs are needed in this area of the state. We all need and use these precious metals this mine will produce. Please pass this plan so hard working Minnesota can get back to work.

Ronald Namchek
Grand Rapids, 55744
United States
Rfnamchek@gmail.com

Attachments?

Commenter ID: Air-13

Online Comment

Permit Portal: Air

2/3/2018

Comment:

MPCA Comment 106

Excellent project, time to mine

Susan Licari
Embarrass, 55732
United States
Licari@frontiernet.net

Attachments?

Online Comment

Permit Portal: Air

2/3/2018

Comment:

MPCA Comment 107 I believe polymet mine is a good project. The air quality at polymet will be great. This mine is needed for the high quality jobs. Polymet will take care of the mine and it's workers.

Donald Namchek
Grand Rapids, 55744
United States
donnamchek@gmail.com

Attachments?

Online Comment

Permit Portal: Air

2/5/2018

Comment:

MPCA Comment 108 PolyMet cannot assure protection of the environment, especially vulnerable water resources. The
MPCA Comment 109 previous reviews and application were incomplete and inadequate. To date no such operations have proved safe, that is not to contaminate the surrounding air and water. Do not permit PolyMet to build the mine that irredeemably destroys the water resources of northern Minnesota including Lake Superior.

Jacqueline Falk
Duluth, 55812
United States
jhfalk@charter.net

Attachments:

Online Comment

Permit Portal: Air

2/6/2018

Comment:

MPCA Comment 110 I fully support the polymet project moving forward to completion and operation. There is plenty of environmental safeguards in place and I have full confidence in the continued oversight by our governing agencies

keith HOVLAND
WADSWORTH, 44281
United States
khovland@neosolutionsinc.com

Attachments:

Online Comment

Permit Portal: Air

2/6/2018

Comment:

MPCA Comment 111

My comments are made based on providing positive environmental solutions to restarts of dormant mining projects focussed on the process operational impacts. The fact this property has existing equipment while having extreme value to the effectiveness of the project and subsequent returns on investments, it will require special applications of new technologies. For the past 25 plus years we have been installing and refurbishing equipment in plants that have ranged in age from the 50's thru 2017. The existing assets are valuable and with proper care can be operated very effectively and environmental sound practices. They can also be upgraded to "new world class standards" for pollution controls, fugitive dust and air and water discharge qualities. The time period from it's shutdown until now should not be a big issue in restarting, areas of which an analysis, if not already done and anticipated, should focus on are, as it pertains to the process area: 1. Lead paints and Transite siding, often found in building older than 1980 2. Inspections and Cleaning of piping process and discharge 3. Areas to have improvement in operational closed loop water management systems 4. Changes in Federal MSHA safety requirements thru out the site 5. Changes within Electrical codes and upgrades How solutions can be found, while of course I would like for the group to employ someone like ourselves, Vezer Industrial Professionals, relying on experts and consultants that can compress the cycle time and provide the most cutting edge solutions that the project can afford within it's aggregate budget and be in full environmental compliance and stewardship. The community can take confidence that it's interests are being dealt with first by having such solution, in anticipation of their questions, people knowing that you are consulting with the best companies that have serviced the mining industry & other process industries in many countries will add confidence. These many mines have had similar meeting and community discussions. Yes, communities want the jobs that can ensue, but they want the confidence that past or historic interests that did not address the existing environmental concerns, have been thought out by management (which often is viewed by the community as self serving and profit driven) and solutions are already anticipated and budgeted for. These solutions may not necessarily come from the gene pool of the area but can benefit from Global invitations of other operators and professionals, that can be pipelined to your meetings as a backup so that immediate expert answers can be provided. My comments are personal and do not necessarily reflect the views of Vezer Industrial Professionals, other than we commonly share the desire to see good world class environmentally sound process operations in restarting of mining operations. I do not have any direct or indirect interest other than as a tiny shareholder that believes in the value this will bring to the local, state and federal GDP. This project, besides creating skilled well paying jobs, contributes to our country's exports and domestic consumption of valuable resources that we the people should have safe access to benefiting from for generations. If anyone should want to reach out to me for further comments or observations, I am George Petker, 67, cell phone 775-685-6651. Thank you for this opportunity to express my viewpoint being unable to attend. George Petker

George Petker
Fairfield, 94534
United States
vppd2000@me.com

Attachments:

Online Comment

Permit Portal: Air

2/6/2018

Comment:

MPCA Comment 112

Hello, my name is Darryn and I am putting forth my comment of FULL support of the PolyMet/NorthMet Air Quality Permit! I as a former citizen of the metropolitan area in Princeton, MN, and now current resident of Buhl, MN as a iron ranger for the previous three years of my life completely support the acceptance of this Air Quality Permit. Growing up near the Twin Cities and having seen life on the Iron Range has been a real eye opener on the importance of this mine coming to fruition. We currently rely on our precious metals we need for everyday life and security to come from other countries where there is no such thing as environmental protections or worker's health standards. We have those regulations and protections here in MN and are some of the strongest in the nation. I have never experienced such clean water and clean air as there is in northern MN, We have been mining here for almost the last 200 years and have some of the cleanest resources there are. This is proof that mining can be done responsibly without excessive harmful pollution. With the large scale mining projects that have existed like Minntac, Hibbing Taconite, Keetac, Minorca, and the Thunderbird Mine, and all the previous smaller mines that have opened and closed since, if pollution was certain as a result of mining companies, it would be here as we speak and as I write this comment. But it is not, We have some of the cleanest freshwater and air in the country and world. Polymet has shown and proven they have a plan to responsibly finance, build and construct, and operate the Copper/Nickle mine without harm. Please approve this permit so we can continue to have great family supporting jobs in northern MN and fuel our nation independently with the resources we need. Please let this letter participate in the final decision of this Permit. Thank you Thank you,

Darryn Ochsner
Buhl, 55713
United States
dochsner13@gmail.com

Attachments:

Online Comment

Permit Portal: Air

2/7/2018

Comment:

MPCA Comment 113

I have studied Polymet for years. I believe that they have done everything correctly to open a successful and profitable mine. They will provide jobs for many over the years to come. I hope Polymet gets approved by the Senate and the President. I am looking forward to great things from this company!
Sincerely, Steve Antolak

Steve Antolak
Deer Park, 54007
United States
antolak@amerytel.net

Attachments:

Online Comment

Permit Portal: Air

2/7/2018

Comment:

MPCA Comment 114

Mining so near to a world-class national (and international!) treasure should be a crime. The permanent damage this sort of mining will certainly do to our state's natural resource gem should not be allowed: if this company shuts down and moves- it is the people of Minnesota who will have to clean up this mess- for GENERATIONS (if it's even possible to clean up at all). NO to PolyMet's permit to mine. Yes to clean air and the future of clean and pristine air and water in Minnesota.

Kristin Pursell
Northfield, 55057
United States
kacorn13@yahoo.com

Attachments:

Online Comment

Permit Portal: Air

2/8/2018

Comment:

MPCA Comment 115

Dear Commissioners Landwehr and Linc Stine, Today, I write in support of the NorthMet project's major draft permits under review, and urge DNR and MPCA to move forward with their issuance. As the elected Member of Congress representing the proposed NorthMet project site and its surrounding communities, I have a longstanding interest and involvement in its development and progress. I also wish to commend both of you and your agencies on the extensive work and open process that has led to the ongoing comment period and public meetings being held in northeastern Minnesota. As both of you are well aware, these draft permits follow a decade of extensive and thorough environmental review that successfully determined the NorthMet project could move forward to this next stage. Under public review and comment today is the "fine print" spanning thousands of pages outlining how PolyMet will comply with strict state and federal laws that protect and ensure the quality of our region's precious waters and air. Below are my specific views on these permits and why I believe they should be issued to help power the next generation of mining on the Iron Range. The Draft Permit to Mine (PTM) contains a comprehensive summary of the project, the mining and reclamation plan, environmental and natural resource management and protection, and PolyMet's proposed approach to financial assurance. It also describes in detail specific regulatory standards governing various aspects of the project and the basis of design and/or operational protocols that PolyMet will use to meet these requirements. The issuance of a PTM will bolster Minnesota's efforts to diversify its mineral economy through long-term support of mineral development, production, and commercialization as set forth in Minnesota Statutes. Additionally, consistent with the policies set forth in Minnesota Rules, the project will promote the orderly development of nonferrous metallic mineral mining by using mining and reclamation best practices to minimize and mitigate adverse environmental effects and to preserve and protect natural resources through each phase of the project. The NorthMet Draft Air Permit (13700345-101) contains the specific parameters PolyMet will comply with to ensure operations from mining and processing comply with the Clean Air Act and additional state-specific air requirements. The draft permit demonstrates that adjacent National Parks and Wilderness Areas – which are subject to more stringent air quality requirements – will not be negatively affected by the operation of the project. The NorthMet Draft Water Quality Permit (MN0071013) is a draft National Pollutant Discharge Elimination System /State Disposal System (NPDES/SDS) permit to construct and/or operate wastewater treatment facilities and to discharge into waters of the State of Minnesota. It contains the specific parameters PolyMet will comply with to reduce pollutant levels in point source discharges and protect water quality in accordance with the federal Clean Water Act (CWA), Minnesota statutes and rules, and additional federal laws and regulations. After years of modeling and engineering work, PolyMet has shown it will be able to utilize its Wastewater Treatment System to treat and release certain water back into the surrounding environment even cleaner than it was received by using a combination of membrane separation treatment technologies (such as reverse osmosis). This engineering technology is vital to protecting downstream water quality and the Great Lakes Basin. The NorthMet Draft 401 Certification

(MVP-1999-05528-JKA) contains the conditions and monitoring regime PolyMet will comply with in accordance with Sec. 401 the Clean Water Act, which is closely interrelated with protecting wetlands under Sec. 404 of the CWA. To receive this certification, PolyMet has proposed to purchase wetland credits from the Superior Mitigation Bank, which is located in the St. Louis River watershed. PolyMet will also be required by the 401 Certification to monitor surrounding wetlands to determine whether indirect impacts will result from the Project. Collectively, the 401 Certification, individual NPDES, general NPDES, and other permits (including the CWA 404 permit) for the NorthMet project will ensure compliance with state and federal surface water pollution control statutes and regulations. In fact, these draft permits are proof that we have the brains, science and technology to create good paying jobs and protect the environment on the Iron Range for generations to come. Our Nation requires these strategic Minnesota minerals to strengthen our national security and economy, but perhaps one of their most critical uses will be to propel the next generation of “green” technologies in our society. For example, new hybrid cars contain more than 1 ton of iron, steel, copper, nickel, and nickel-based aluminum. Wind turbines contain hundreds of tons of steel and copper – and reduce our air pollution and dependency on fossil fuels. And practically every one of the appliances and devices that power our modern way of life rely on iron ore and precious metals. We have limited choices on how we get these strategic minerals. Though we can recycle a certain percentage, recycling will never be able to take the place of mining – not even by half. Therefore, we are left with two options. Either we can primarily import our strategic minerals from foreign countries with terrible environmental standards and worker protections. Or we can mine them right here at home, where we control the process, create good paying American jobs, and follow the toughest environmental rules and regulations in the world. In my judgement, the latter choice makes the most ethical, moral, and economic common sense. I therefore urge you to finalize these permits and continue the progress we have made to date. Thank you for your review and consideration of my views, and again, for all of your own individual work and that of your agencies on this project. Sincerely, Richard M. Nolan Member of Congress

Richard Nolan
Washington, 20515
United States

Attachments:

Online Comment

Permit Portal: Air

2/10/2018

Comment:

MPCA Comment 116

10 February 2018 Minnesota Pollution Control Agency, I write to you today while thinking of my granddaughter. We both live in Duluth, downstream of the proposed PolyMet mine. We know that children in the Arrowhead are already overexposed to mercury pollution. Will this mine increase our children's exposure to mercury and other toxins? We really do not know. We do not know because we have not asked the question by doing a Health Impact Assessment. This assurance that the mine's water and air pollution will not effect people in the Arrowhead has been supported by 30,000 doctors, nurses and health care professionals. Granting the air or water quality permits without doing a Health Impact Assessment needlessly exposes our children to unknown risks. Our granddaughter is just one year old. When she is old enough to be looking for a job, PolyMet will be closing down. Instead of a high paying job, we will be leaving her and her grandchildren a leaking tailings basin and the almost-certain danger of a catastrophic mine collapse in the St. Louis River watershed. One generation of jobs for hundreds of people means generations of pollution for all of us. For a grandfather, this is a short sighted bargain. We need an evidentiary hearing to examine the facts of the benefits versus the dangers of this type of mining before granting the permit to mine. Sincerely, Jay Newcomb 1230 East 8th Street Duluth 55805 218-724-6141

Jay Newcomb
Duluth, 55805
United States
jaynewcomb.mn@gmail.com

Attachments:

Online Comment

Permit Portal: Air

2/11/2018

Comment:

MPCA Comment 117

Dust from tailings piles will contaminate nearby communities and forest biomes. The dust will contain heavy metals - mercury, lead, phosphorus. When mixed with water (rainwater or water on the ground) the mercury sulfate will methylate to mercury sulfide.

Robert Stodola
Duluth, 55812
United States
bstodola@Hotmail.com

Attachments:

Online Comment

Permit Portal: Air

2/11/2018

Comment:

MPCA Comment 118 Regarding "restoration" when the PolyMet DOES in the future contaminate and destroy the environment....remind yourself what is happening today...and supposedly the science at the time was "god!" BAD will only come from what may happen if the permits are allowed....and most important, there is NO guarantee after PolyMet or any simiilar company destroys the safety and quality of the water, they will EVER have the money to pay for it...LET ALONE IT MAY NOT BE FIXABLE!!!! WE OPPOSE ANY TYPE OF COPPER-SULFIDE MINING....

MPCA Comment 119 Below is the article about the toxic problems trying to be paid for due to contamination by 3M...you know how bad it WILL be if PolyMet is allowed to mine, or any copper-sulfide mining company. This was in the Duluth News Tribune, Sunday, February 11, 2018 Minnesota vs. 3M: A guide to the \$5B trial: State's biggest environmental lawsuit, over company's PFCs in groundwater, starts this month By Bob Shaw / St. Paul Pioneer Press on Feb 10, 2018 at 4:25 p.m. ST. PAUL — Call it the \$5 billion Teflon trial — Minnesota's biggest environmental lawsuit ever. When the trial of the State of Minnesota vs. 3M Co. starts Feb. 20, it will pit the state against what may be its most-loved company. The state attorney general will be taking on a \$145 billion corporate behemoth and charging it with fouling the state's water. The lawsuit hinges on the alleged damage caused by chemicals found in household items such as nonstick cookware and stain repellent. The state says the chemicals were made by 3M, dumped by 3M and consumed by 67,000 local water-drinkers and have now spread around the world. 3M, according to Attorney General Lori Swanson, should abide by the Pottery Barn rule: "If you break it, you pay for it." 3M says the chemicals are indeed widespread — but harmless. Ultra-high concentrations do cause diseases in laboratory animals, it says, but it's not possible that the parts-per-trillion traces in water have hurt humans, fish or even plants. The trial, says 3M, is about a bogus health scare. A key element of the trial will be the alleged 3M cover-up. The state says 3M knew the chemicals caused cancer and didn't tell health officials. 3M says it did tell officials — and for more than 50 years kept them informed about every aspect of its chemical testing and disposal. The trial is expected to last six weeks. How big is this case? "This is huge. This is about as high-profile as it gets," said -Jeremy Greenhouse, partner in the Environmental Law Group of -Mendota Heights, which handles environmental lawsuits. At \$5 billion, it is one of the -largest in U.S. history. Other -mega-suits have involved environmental catastrophes, including: The Deepwater Horizon disaster. The 2010 explosion of an offshore oil rig in the Gulf of Mexico led to more than \$19 billion in state and federal lawsuits — not including billions more in cleanup costs and other lawsuits. Eleven workers were killed, and oil was spewed along the coastline of five states. In 1989, the Exxon Valdez ran aground and spilled 11 million gallons of oil in a bay in Alaska, resulting in \$507 million in damages. The oil eventually spread to 1,300 miles of shoreline. Were those cases similar to 3M's? Not really. In those cases, there was no debate about whether harm had occurred. In the 3M case, there is. The state says the environment was harmed by a 15-mile plume of groundwater pollution in Washington County. The virtually indestructible chemicals have spread to people and animals around the world. 3M agrees with most of that — but it says that those chemicals at those amounts are harmless. What is this stuff?

These are chemicals used to make nonstick cookware, firefighting foam and stain repellent. They are called perfluorochemicals, or PFCs. Did they come from 3M? Yes. 3M admits this, although there are other companies that also make PFCs. Did 3M dump the chemicals? Yes. 3M admits it put the chemicals into dump sites — legally — ending in 1975. In 2004, pollution was discovered in drinking water from Lake Elmo to Hastings. The PFCs had apparently seeped down from the dump sites. Hasn't 3M already won in court? Only in a very different case. In 2009, a group of residents sued 3M, claiming the pollution hurt their property values. Joining them in the suit were about 1,000 residents who claimed that the PFCs had caused them health problems, although none of them claimed personal injury in the trial. In that case, a jury sided with 3M. Do the chemicals hurt people? The 2009 trial did not make that charge, and neither will the coming \$5 billion trial. The trial is about damage to the environment, not personal injury. 3M says there are no known studies proving that PFCs are dangerous at parts-per-trillion levels in local water. Indeed, 3M says there are no studies proving harm to people at any dose. The state says PFCs are indeed harmful. It will point out findings by the federal Environmental Protection Agency calling the chemicals a "probable" or "likely" cause of various diseases. To win the case, said attorney general spokesman Ben Wogoland, the state doesn't have to prove the PFCs are harmful. It has to show only that 3M knew the PFCs had the potential to cause harm, or "may" cause harm. How can 3M be so sure they are harmless? Scientists knew that massive doses of PFCs caused diseases in mice. So they kept repeating the experiments until they found a dose that caused no effects. They then calculated what the no-harm dose would be for a 110-pound human — 500,000 8-ounce glasses of the polluted water every day. 3M scientists made that calculation in 2007. The safety limit at that time was 420,000 times smaller than the calculated no-harm dose. That sounds like guessing. It is, but it's the best estimate that can be made. Of course, a more accurate method would be to give human subjects gradually increasing amounts of a chemical to make them sick. Ethically, that can't be done. Has anyone tested the effects of ultra-low levels? No. No one can prove the impact of a micro-dose of anything. It's like assessing the health impact of a single cigarette or cookie. But 3M argues that if large doses are found to be harmless, then smaller amounts are even more likely to be. The state says that even low doses have been declared dangerous by the EPA. Minnesota officials cited those recommendations when it set the limit for one type of PFC at 27 parts per trillion. Did you say "trillion?" Yes. A part-per-trillion is a stupendously small amount. A trillion inches would circle the planet more than 600 times. Can't small amounts build up in the body? Yes. One type of PFC has a half-life — the time it takes to cut the content in half — of five years. That means if a person stopped consuming PFCs, it would take five years to cut the level of the chemicals in half. If PFCs build up, wouldn't that make a person sick? Theoretically, yes. The state says that the potential for illness is there. But 3M says this has never happened. 3M monitored the health of employees who worked for years in factories and had PFCs in their bodies that were up to 20 times higher than in residents drinking the polluted water. No adverse health effects were reported from the PFCs. This includes harm to fetuses, birth defects, cancer and other ailments. Doesn't the state imply that people were harmed? This is a bit confusing. The state is claiming damages for harm to the environment, and not for personal injuries to any individual person. But as background material, it will cite the health impact of PFCs in Oakdale. A professor of the University of California, Berkley will testify that PFCs caused increases in cancers of the bladder, breast, kidney and prostate between 2001 and 2016. To argue that Oakdale residents were not harmed, 3M might cite a 2007 finding by the Minnesota Department of Health. It said that there were no increases in the rate of any ailment — including cancer, thyroid problems or birth defects — in the area. This was echoed as recently as Wednesday. In a news release, the state health department reported that PFCs

"pose a risk to human health" but said that there were no increases in the rate cancer or low birth weights in Washington County. Did 3M cover up the dangers of these chemicals? Both sides agree that 3M continually tested PFCs, and found they can cause harm to laboratory animals. 3M says it shared this information with state officials, as well as the disposal locations and methods. The state said 3M concealed known health hazards from officials. Following the Pottery Barn rule, has 3M done anything to "pay for it"? It stopped making the most worrisome types of PFCs in 2002 — two years before they were discovered in groundwater. 3M has spent more than \$100 million on a filtration system for Oakdale city water, hook-ups to city water supplies in Oakdale and Lake Elmo, bottled water and home filters for residents, and a system to pump out and filter groundwater in Woodbury. Have there been similar lawsuits in other states? Yes. DuPont manufactured and disposed of the same chemicals, which were found in the groundwater of Ohio and West Virginia. As of January, DuPont had paid almost \$1 billion in various settlements for personal injury, punitive damages and health-monitoring costs. If the state wins, how will the \$5 billion be spent? The attorney general's office says it doesn't yet know. It has hired Covington & Burling LLP, based in Washington, D.C., on a contingency-fee basis.

Ben and Barry Wolfe
Duluth, 55812
United States
bwolfe@d.umn.edu

Attachments:



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

1. Fill out your name, city and zip code. Email is optional.
2. Use the front and back side of the comment form for your comment on the draft air quality permit.
3. If you would also like to comment on MPCA's draft 401 certification, draft water quality permit, or DNR's draft permit to mine, please complete the comment form that corresponds to each of those permits.
4. Turn comment form in at the comment box or mail it to:

Minnesota Pollution Control Agency
PolyMet air quality permit comment – 4th floor
520 Lafayette Road
St. Paul, MN 55155

Comments accepted through March 16, 2018. The legal public notice, including the draft air quality permit, is available online at www.pca.state.mn.us/public-notices.

The MPCA considers all comments it receives before finalizing the permit. In addition, all comments become part of the public record and are public data under the Minnesota Government Data Practices Act.

NAME (FIRST AND LAST)

CITY

ZIP CODE

EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 120

Polymet should be allowed to go forward as they have gone above & beyond to show that mining can go along with clean air.

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

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NAME (FIRST AND LAST) THOMAS GENTILINI

CITY EVELETH

ZIP CODE 55734

EMAIL (OPTIONAL)

MPCA Comment 121

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

THIS PROJECT MEETS ALL STANDARDS
LET'S GET ~~IT~~ IT GOING



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

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NAME (FIRST AND LAST) *Mark DeLucca*
CITY *Virginia*
ZIP CODE *55792*
EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 122

*Allow polymet to proceed as standards
are met*

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST) *Tom RUKAVINA*
CITY *Virginia, MN.*
ZIP CODE *55792*
EMAIL (OPTIONAL)

MPCA Comment 123

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

After 14 years of doing everything that current law & rules asked of them, it is time to issue the air permits & move forward. We are all consumers of these metals and no one knows how to mine more safely than Mn. Our laws are some of the strictest on the planet,

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

1. Fill out your name, city and zip code. Email is optional.
2. Use the front and back side of the comment form for your comment on the draft air quality permit.
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520 Lafayette Road
St. Paul, MN 55155

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NAME (FIRST AND LAST) *Kathy Tuttle*
CITY *Babbitt*
ZIP CODE *55706*
EMAIL (OPTIONAL) *kandmptg@hotmail.com*

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 124

I support the Polymet Mine project.



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST) *Karl J. Luthin*
CITY *Balbrin MN.*
ZIP CODE *55706*
EMAIL (OPTIONAL)

MPCA Comment 125

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

I support the Polymet Mine Project



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST) Ryan Fink
CITY Gilbert
ZIP CODE 55741
EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 126

I support The Air Quality Permit for
PolyMet



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

1. Fill out your name, city and zip code. Email is optional.
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NAME (FIRST AND LAST) KEN VOGL
CITY VIRGINIA
ZIP CODE 55792
EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 127

POLYMET'S PROPOSED SULFIDE MINING OPERATION IS A TERRIBLE IDEA WHICH WILL ENRICH MULTI-NATIONAL CORPORATE ENTITIES AT THE EXPENSE OF OUR CLEAN WATER AND AIR. THE FEW, TEMPORARY, NON-UNION JOBS CREATED WILL NOT OFF-SET THE DESTRUCTION OF SIGNIFICANT AREAS OF THE SUPERIOR NAT'L FORREST AND THE RAINY RIVER WATERSHED AND WETLANDS, AS WELL

AS HABITAT LOSS FOR COUNTLESS SPECIES OF
FLORA AND FAUNA SPEEDING UP MASSIVE EX-
TINCTIONS ALREADY DECIMATEING LIFE ON THIS
PLANET DUE TO GLOBAL WARMING, IT IS A
PRICE JUST TOO HIGH TO PAY!

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST)

Virgil Sohm

CITY

Tower, MN

ZIP CODE

55790

EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 128

Generating capital income for a select few is not feasible to the overall air quality of Northern Minnesota. We do not want neurological toxin in our air. We ask for a complete **EIS** Environmental Impact Statement and allow us a full review of a mercury mitigation plan.

MPCA Comment 129



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST) *Mary Klausen*
CITY *Two Harbors*
ZIP CODE *55616*
EMAIL (OPTIONAL)

MPCA Comment 130

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

IF you let this company do it, you'll be opening the floodgates to multiple more greedy destroyers to swoop in on the action & wreck the remainder of the most important source of clean water our nation & maybe the world will have to depend on someday. There is no way to safely mine this product. Stop it now before it's too late. NO, NO, NO, NO.



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST) Joanne Isdahl
CITY Plymouth
ZIP CODE 55444
EMAIL (OPTIONAL)

MPCA Comment 131

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

Please DENY all permits
We cannot risk our health on an
incredibly toxic industry.
Please consider the long term effects
of this & do the right thing &
deny all permits

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

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NAME (FIRST AND LAST)

Paul Christensen

CITY

Shakopee

ZIP CODE

55379

EMAIL (OPTIONAL)

paulcpbc54@gmail.com

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 132

This type of mining does NOT belong in Minnesota.

The toxic pollution from the mine will last hundreds of years. PolyMet & Glencore are only in this for short-term profit.

Please do NOT issue the permits. Thank You.

MPCA Comment 133



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

1. Fill out your name, city and zip code. Email is optional.
2. Use the front and back side of the comment form for your comment on the draft air quality permit.
3. If you would also like to comment on MPCA's draft 401 certification, draft water quality permit, or DNR's draft permit to mine, please complete the comment form that corresponds to each of those permits.
4. Turn comment form in at the comment box or mail it to:

Minnesota Pollution Control Agency
PolyMet air quality permit comment – 4th floor
520 Lafayette Road
St. Paul, MN 55155

Comments accepted through March 16, 2018. The legal public notice, including the draft air quality permit, is available online at www.pca.state.mn.us/public-notice.

The MPCA considers all comments it receives before finalizing the permit. In addition, all comments become part of the public record and are public data under the Minnesota Government Data Practices Act.

NAME (FIRST AND LAST) *Kim Davis*
CITY *Shakopee*
ZIP CODE *55379*
EMAIL (OPTIONAL) *kkmdavis@gmail.com*

MPCA Comment 134

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

Please do not allow this type of mining in Minnesota! The toxic pollution from the sulfide mining will last hundreds of years. Please do not issue the permits! Thank you!

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

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NAME (FIRST AND LAST) Tanera Mamdani
CITY Fridley
ZIP CODE 55432
EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 135

What we understand is that the surface will be ground to a fine powder, only to extract 1% of copper, nickel, etc. The grinding will cause breathing and lung issues to humans & animals alike. Horrible!



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

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NAME (FIRST AND LAST)

Jason Wall

CITY

Duluth

ZIP CODE

55805

EMAIL (OPTIONAL)

jaswall@mac.com

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 136

The model day did not take into account prevailing Northwest winds that will carry the particulate matter over Duluth and Lake Superior. More particulate in air in urban areas = more hospitalizations and more acid rain. Inversions of air in certain seasons will create awful air quality that could linger for days to weeks.



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST) *Wendy Saliin*
CITY *Duluth, MN*
ZIP CODE *55805*
EMAIL (OPTIONAL) *wsaliin@hotmail.com*

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 137

The prevailing Northwest winds will carry particulate matter over Duluth and Lake Superior. More particulate in air and urban areas = risk to human health and more acid rain. Why would we ever take this risk to so many citizens' health in order that a few can profit?



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST)

Barry Lesar

CITY

Hoyt Lakes

ZIP CODE

55750

EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 138

I believe the science is there to protect the environment and mine Copper Nickel at the Northmet project. It is time to grant the permits & start mining & processing the ore

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST) *Floyd Litter*
CITY *Babbitt*
ZIP CODE *55706*
EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 139

Support



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

1. Fill out your name, city and zip code. Email is optional.
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NAME (FIRST AND LAST) *Donna Littler*
CITY *Baldwin Mn,*
ZIP CODE *55706*
EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 140

Support



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST)

Ronald ~~Childs~~ Childs

CITY

Hill city, mn.

ZIP CODE

55748

EMAIL (OPTIONAL)

Rchilds@mnpower.com

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 141

I support Polymet 100%.

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

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NAME (FIRST AND LAST) Jeffrey LeDoux
CITY Pengilly MN
ZIP CODE 55775
EMAIL (OPTIONAL) pts@scicable.com

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 142

I want to thank all of the people that have put this information together. To see it all shows due diligence. I feel confident that this project will succeed. So once again

Thank you all

Online Comment

Permit Portal: Air

2/16/2018

Comment:

MPCA Comment 142

I do not support Polymet mining for copper and nickel. I am an active user of the Boundary Waters and do not want to see it environmentally compromised. While I understand people's desire for good jobs, I do not believe the long-term risk is worth taking for a limited number of jobs in the short-term. Also, looking at the history of mining operations around the world, I do not trust Polymet to supply the funds needed for potential clean-up. They might promise the world, but it is another thing to actually come through with promises when the time comes.

MPCA Comment 143

Liv Mostad-Jensen
Grand Rapids, 55744
United States
lmostad_jensen@hotmail.com

Attachments:

Online Comment

Permit Portal: Air

2/16/2018

Comment:

MPCA Comment 144

This permit proposes to monitor discharges in the Laurentian area from this project's copper-sulfide mining of low grade ore in an extremely water-dependent area of the world at the headwaters of the Great Lakes and the St Lawrence Seaway. Infrastructure including rails and roads will be required. Among the facilities referenced in this draft, the following: o A beneficiation plant o A hydrometallurgical plant o A flotation tailings basin (FTB) including Seepage Capture Systems o A hydrometallurgical residue facility (HRF) o A waste water treatment system (WWTS) – discharge of which will be routed through pipes to maintain flows in Trimble Creek, Second Creek, and Unnamed Creek, with some being recycled directly to FTB pond. o Other ancillary facilities (eg Colby Lake water pipeline): o Mine water filtration train o Tailings basin seepage treatment train o Wastewater treatment solids/byproducts: from the tailings basin seepage treatment train including waste from filters and membrane cleaning and concentrate, which will be routed to FTB pond and mine water chemical precipitation treatment train. Can we rely on a for-profit corporation to monitor itself? The permittee, Polymet, is expected to report all data from the required monitoring stations, whether favorable or not. If reported accurately and standards are not met, then Polymet will be required to monitor again until standards are met. What worthy and worthwhile actions will be taken at the "end of the day?" If the unfathomable number of reports (essentially required just to monitor the discharge from this mining operation) are maintained accurately with regularity, consistency and competency, what truly effective actions can be taken when standards are exceeded? What of the monitoring stations that have no set standards as guidelines? What of those that are not enforceable? What actions are possible that will return the water to its base levels when the degradation becomes apparent to us all? What amount of money in the form of fees or financial guarantees can reclaim what is lost? In addition, there is little that anyone can do to prevent natural processes and disasters from occurring, or human error whether knowingly or not; and so, by any standard, this mine will degrade our water resources in Minnesota and beyond. Can any permit for such a mine adequately address these issues? Once copper mining has run its course in the Arrowhead by setting precedent with Polymet, the first of many to come, what will remain and what can truly be reclaimed? "Downstream," the St Louis River estuary and Lake Superior, the largest body of fresh water in the world? "Downstream," the BWCA, and the Rainy River Watershed, the Superior National Forest and Voyageurs, the most pristine wilderness areas on the planet? Can we afford this mine? There are hundreds of pages listed in the water permit draft of essential equipment and gauges required just to monitor pollution on a continuing basis daily, monthly and/or annually through the life of this mine and beyond. This alone speaks for itself and cannot be reconciled with the safety of our greatest natural resource. I respectfully request that MPCA deny this permit to pollute our waters.

Anita Tillemans
Minneapolis, 55410

United States
ansuti@yahoo.com

Attachments:

Online Comment

Permit Portal: Air

2/22/2018

Comment:

MPCA Comment 145

One of the great joys in visiting northern MN is breathing in the clean air! I fear that constant trucking required by the Polymet operation will greatly affect the air quality of the area, not to mention the initial construction air pollution. Also of concern is noise and light pollution that will occur with Polymet mining which will upset the whole ecology of the region including wildlife and plantlife. I implore you to withhold any permits to Polymet. The risk is too great. Thank you.

Linda Forcier
Stillwater, 55082
United States
jlforcier@gmail.com

Attachments:

Online Comment

Permit Portal: Air

2/25/2018

Comment:

MPCA Comment 146

Dear MN DNR, From the MN DNR website Mission Statement: "DNR manages the state's water resources, sustaining healthy waterways and ground water resources." The MN DNR should not allow mining that has the potential to damage the massive, unique and ecologically fragile watersheds of Northern Minnesota. The financial risk of unintended watershed pollution to the public is unacceptable. The ecological risk to the watershed is unacceptable. Clean fresh water is the single most important non-atmospheric resource in our state. The potential to put up to 10% of the world's fresh water resource at risk in exchange for the limited job and profit economic opportunities of copper and nickel mining in Northern Minnesota is totally unacceptable. There is no historical precedent that this type of sulfide mining can be done without ground water contamination. There is no proof that this enterprise can successfully prevent the ecological damage that has come about from every other sulfide mining operation. I do not want my children, and theirs, to potentially be responsible as taxpayers for dealing with another avoidable SuperFund site. I respectfully request that the MN DNR deny the Northmet Draft Permit to Mine. Sincerely, Dr. Michael Overend Two Harbors, MN

Michael Overend
Two Harbors, 55616
United States
drmoverend@gmail.com

Attachments:

Online Comment

Permit Portal: Air

2/25/2018

Comment:

MPCA Comment 147

Air Quality Permit p. 767, p. 781 “ PolyMet may periodically revise the Plant Site FEC Plan, either as part of the annual review process or due to other reasons.” Why is this allowed? There are no enforcement provisions in any of the permit applications. There should be a provision for a qualified, neutral third party to perform periodic, unannounced inspections through the entire mining period and closure.

MPCA Comment 148

William Duatin
LAKE ELMO, 55042
United States
william.dustin@ethicofcitizenship.com

Attachments:

Online Comment

Permit Portal: Air

2/26/2018

Comment:

MPCA Comment 149

Dear interested parties, The exhibits at the Aurora and Duluth Polymet Mining Hearings did not show any evidence of stress testing the permits as crafted by the mine sponsoring organizations. The first precaution should be a DNR certified water sample from all wells in the watersheds that could be impacted by mining operations or the disposal of mining by products. This would be a public notice period where residents through out the Minnesota Arrowhead would be able to provide well water samples for testing to be documented PRIOR to mining operations. This establishes a control data base for future comparisons. The program would be voluntary. Residents would have to comply with certain measures to meet a control standard for certification PRIOR to mining operations. Second, the "stress test" of all permits should be accomplished using Monte Carlo Simulation where variables, probabilities, and the costs in extreme events would show the likelihood of a disaster in the mining operations. This information is likely in use by the environmental insurance underwriters. These insurance measures were available at the exhibit hall. However, no stress test evidence was present. Also, the insurance underwriters were unwilling to insure the project for the extremes and probabilities of a Monte Carlo Simulation. That is because the likelihood of a mining disaster, from which no recovery is possible to achieve the pre-disaster level of environment, could occur. In summary, residents would have pre-mining data certification of their well water for post mining comparisons. A voluntary program. Monte Carlo Simulation would show, in understandable probabilities, the likelihood of a mining failure. This stress test shows due diligence rather than untested acceptance of a insufficiently bonded mining operation. Paul F. Renneisen 954-812-2674

Paul Renneisen
Schroeder, 55613
United States
flight587truth@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/2/2018

Comment:

MPCA Comment 150

I strongly object to PolyMet copper sulfide mining. It is very toxic to the land, water and air. Citizens health will be severely affected as well as damaging to wildlife.

Diana Schansberg
Otsego, 55330
United States
Ddschansberg71@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/3/2018

Comment:

MPCA Comment 151

I support the polymet mine and support the state granting of the air quality permit

Dan Taisey
Hibbing, 55746
United States

Attachments:

Online Comment

Permit Portal: Air

3/4/2018

Comment:

MPCA Comment 152

To whom it may concern: It concerns me that we would even contemplate taking a chance of any kind of risk close to the boundaries water's. Once it is contaminated polluted or destroyed we will be left to try to re-create a pristine wilderness. A priceless area that can't be re-created once destroyed.

Tom Wojahn
Bloomington, 55437
United States
babyzack4@yahoo.com

Attachments:

Online Comment

Permit Portal: Air

3/4/2018

Comment:

MPCA Comment 153

<http://www.twin-metals.com/poll-shows-strong-support-for-copper-nickel-mining-in-northeastern-minnesota/> The PolyMet North Met project is desperately needed to bring jobs back to the Iron Range to keep our communities healthy and to allow our country to utilize the much-needed metals we have right here. Using foreign resources is not the way to keep our country strong plus they pollute the air that we all breathe around the globe. The Poll above shows how much Minnesotans support this project. I believe PolyMet has gone above and beyond the requirements for safe mining.

Robin Popovich
Aurora, 55705
United States
freshairre@yahoo.com

Attachments:

Online Comment

Permit Portal: Air

3/5/2018

Comment:

MPCA Comment 154

Regarding the Air Quality Permit, As this is the first mine of this type, I request that the most stringent requirements be made for all the ways air quality will be impacted at this mine. From dust from the mine to evaporation into the air from the pits besides any smoke stacks. There will be more mines so now is the time to set a good standard. Thanks

Dan Nelson
Crystal, 55427
United States
dannelson99@live.com

Attachments:

Online Comment

Permit Portal: Air

3/6/2018

Comment:

MPCA Comment 155

Dear DNR, I strongly urge you to reject the PolyMet NorthMet sulfide-ore air quality permit application. It is immoral for us as a society to create a contaminated site that will last for centuries when we cannot know that our current economic and regulatory systems will be there as long as needed to take care of it. New content or unresolved issues that still need to be addressed include but are not limited to the following: " Require PM to prove it can meet minimum air quality standards relating to dust from increased vehicle traffic, train exhaust, and facility air pollution at the proposed mine and plant sites. Mines usually promise high, and perform low. Meaning, PolyMet plans to use the same technology that other mines have used, nothing new, nothing better, yet claims it will achieve what has never been achieved before. Reject the permit application and require proven Best Available Technology be used to achieve minimum air pollution standards: " Conduct a Health Impact Assessment - even Alaska does

MPCA Comment 156

these for proposed sulfide-ore mines. Human health is at great risk with this proposal's air pollution impacts. Air pollution from PolyMet will affect people living nearby, and those who feel the air deposition of pollution in far away lands. These people deserve to know what health risks will be placed upon them due to PolyMet's air pollution; I have paddled the Partridge River, as have many others have. It's quite beautiful and the air is quite clean. This river lies directly downstream of PolyMet's proposed mine site and offers publicly accessible clean air. PolyMet plans to pollute air that belongs to the public. And, during the course of these many years of public hearings, over 100,000 citizens have commented to agencies that we do not want PolyMet's pollution. I hope you listen to the people and deny the PolyMet air quality application. Respectfully, Tonia Kittelson

Tonia Kittelson
Duluth, 55801
United States
tonia@friends-bwca.org

Attachments:

Online Comment

Permit Portal: Air

3/6/2018

Comment:

MPCA Comment 157

Hello, My name is Gary LaFave and I am a journeyman pipefitter. My wife Cathy and I are life-long residents of northern Minnesota and we are both in favor of the Polymet NorthMet Project. Polymet has proven its' commitment to northern Minnesota by complying with every one of Minnesota's strict environmental standards and are doing more than what is expected by addressing the current water quality issues created by legacy mining. Their water quality will generate a net decrease in mercury and sulfate that may reach the St. Louis River and Lake Superior. All water on the NorthMet Project site will have low concentrations of mercury. All water discharges will comply with the Great Lakes Initiative standard of 1.3 nanograms per liter of mercury. Because of this treatment process, all discharged water will be about 8-9 times cleaner than the rainwater that falls on the site and will also be 2-3 times cleaner than the natural runoff within the watershed. Polymet is also protecting the environment by using an existing basin that has been stable for over 40 years. They will also replace every acre of wetlands distributed by the project at a greater than one-to-one ratio. No other country in the world has stricter environmental standards than those here in the United States, and if we cannot produce the raw materials needed manufacturing electronics, etc. in this country we'll be forced to get them from countries who could care less about the environment or the air we breathe. Polymet's NorthMet Project will create up to 1,000 very much needed jobs in this region of our state. These jobs will play an important role in sustaining the viability of the Iron Range, not to mention the \$515 million boost to St. Louis county annually. Polymet is a solid company that is wholly committed to doing the right thing for our environment and the people of Minnesota. That is why I am in favor of Polymet's NorthMet Project.

D. Gary LaFave
Grand Rapids, 55744
United States
lafave.gc@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/7/2018

Comment:

MPCA Comment 158

There has been ample time for investigating and evaluating Polymets mining proposals. Time to issue the permit and bring the good jobs and needed resources to this state.

George Carlberg
Aitkin, 56431
United States
helpfulgeorgere@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/8/2018

Comment:

MPCA Comment 159

I fully support the PolyMet mining project! The mineral resource is needed. The jobs are needed. The boost to the the northeast MN economy is needed. All this permitting process has dragged on for far too long! Try to imagine the many great projects that were accomplished over the decades. The Hoover Dam,the Highway System,the Great Lakes Canal System,Nuclear Power plants,Iron Ore mining and many,many more. Had all these projects been subjected to all the scrutinizing,study after study,public opposition,permit upon permit,such as the PolyMet project has had to endure,they never would have become a reality. Enough is enough!! All this redundancy within the studies,permitting processes and environmentalists opinions have run their course.It's long overdue to inject some GOOD OLD COMMON SENSE, SOUND REASONING and the AMERICAN CAN DO SPIRIT into this equation!!! Myself and most people I know support this project wholeheartedly!! We may be the "silent majority" but remember the "screaming minority" doesn't win elections! Donald Trump proved that hadn't he??

MPCA Comment 160

todd danielson
grand marais, 55604
United States
crabbercowboy@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/11/2018

Comment:

MPCA Comment 161

We need clean air to breathe. We need clean water to drink. You know that PolyMet will poison our water and air, and our children and grandchildren. Do NOT give our children's future to this filthy corporate monster. Our health should not be for sale. I will not vote for the people who support PolyMet. I will not accept a global corporation's greedy destruction. Sulfide mining equals death for the land and people of Minnesota. NO! NO! NO!

Cynthia Ellingson
Minneapolis, 55419
United States
ski2thegoddess@aol.com

Attachments:

10873 Main Street

Glenville, MN 56036

5 March 2018

MN Department of Natural Resources
Division of Lands and Minerals
500 Lafayette Road, Box 45
St. Paul, MN 55155-4045

MAR - 6 2018
CENTRAL OFFICE - LAM

Refuse/Revoke all of the following permits. For REST. (freedom from stress).

Comment on the following NorthMet/PolyNet draft permits:

DNR Permit to Mine

MPCA Air Quality Permit

MPCA Water Quality Permit

MPCA 401 Certification (wetlands)

Open through March 16, 2018

Enclosure : Simchat Torah Beit Midrash 12 Tribes of Israel in Modern Times 16 Month Calendar & Study Guide 2018/5778 September 2017-December 2018

MPCA Comment 162

Notice that the 10 Commandments are an index to 613 Statutes found in Genesis to Deuteronomy.

Rest is required in God's Government...Not only in the daily cycle, weekly cycle and holidays...But in freedom from worry/stress...

This type of mining causes worry...It causes stress...It causes pollution...I am concerned... Minnesota is the epitome of outdoor rest and relaxation...We all need places go to get away from stress and to

hear God's quiet voice...And that in these outdoor areas the WATER AND AIR MUST STAY PURE AND LAND UNTOUCHED. These things represent what God is doing in our lives, making us pure and holy and we need untouched outdoor areas to communicate with God and to hear His quiet voice.

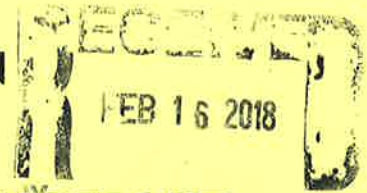
You did not consult God, our Creator about whether it is good to pollute the earth. You do not have a right to give away what is not yours to give. The various agencies involved in this process are only stewards of God's resources. God is the owner. When God created the earth He did it in 6 days and it only takes two chapters to tell about it (Genesis 1-2). This has taken thousands of pages and wasted our public servant's time and the time of hard working people.

TRUTH is for the purpose of freeing us from sin. God's word is truth (John 17:17). Jesus is the word (John 1:1). He created and redeemed us from sin. He is coming soon to take us to His Father's house, heaven (John 14:1-3). Because of Jesus blood I am free to choose God with all my heart, mind, soul, body, spirit, and strength. God's law shows love. God's 10 Commandments (Exodus 20) are an index to 613 Statutes. These are the law of heaven (Revelation 11:19) God instituted rest in the daily cycle as well as in the weekly cycle and in holidays that He set up. The sign of God's dominion is the Sabbath-Friday sundown to Saturday sundown (Genesis 1,2; Revelation 11:19) He commands us to spend time with Him to enjoy relationship...The CONSEQUENCES of ADDING to the truth, plagues...of TAKING AWAY from the truth, your name will be removed from the Book of Life (Revelation 22:17-18) . God communicates in a still small voice (1 Kings 19:11-12)... I need rest and quiet to hear God myself, and also for my family and for my



community to hear God.
DNR/MPCA permits.

Please deny the requests for
Linda M Goude



COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

1. Fill out your name, city and zip code. Email is optional.
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3. If you would also like to comment on MPCA's draft 401 certification, draft water quality permit, or DNR's draft permit to mine, please complete the comment form that corresponds to each of those permits.
4. Turn comment form in at the comment box or mail it to:

Minnesota Pollution Control Agency
 PolyMet air quality permit comment – 4th floor
 520 Lafayette Road
 St. Paul, MN 55155

Comments accepted through March 16, 2018. The legal public notice, including the draft air quality permit, is available online at www.pca.state.mn.us/public-notices.

The MPCA considers all comments it receives before finalizing the permit. In addition, all comments become part of the public record and are public data under the Minnesota Government Data Practices Act.

NAME (FIRST AND LAST)

Karin Krueger

CITY *Aurora*

ZIP CODE *55715*

EMAIL (OPTIONAL)

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

MPCA Comment 163

IF Polymet has met all ~~that~~ State & Federal guidelines, then they should be allowed to mine.

COMMENT ON DRAFT POLYMET AIR QUALITY PERMIT

Instructions:

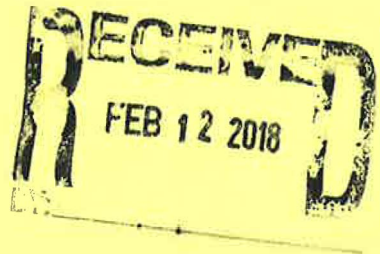
1. Fill out your name, city and zip code. Email is optional.
2. Use the front and back side of the comment form for your comment on the draft air quality permit.
3. If you would also like to comment on MPCA's draft 401 certification, draft water quality permit, or DNR's draft permit to mine, please complete the comment form that corresponds to each of those permits.
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The MPCA considers all comments it receives before finalizing the permit. In addition, all comments become part of the public record and are public data under the Minnesota Government Data Practices Act.

NAME (FIRST AND LAST) *Elizabeth Kuehse*
 CITY *Coon Rapids*
 ZIP CODE *55448*
 EMAIL (OPTIONAL) *etkuehse@yahoo.com*



MPCA Comment 164

COMMENT ON MPCA DRAFT POLYMET AIR QUALITY PERMIT

I am very concerned about the air pollution that will be caused from this polymet sulfide mine. Concerns include lead and mercury air pollution that is very toxic to living things (all) people plants + animals

PS. If you don't have clean air to breath, nothing else really matters

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Online Comment

Permit Portal: Air

3/12/2018

Comment:

MPCA Comment 165

I am 100% opposed to the Polymet mine. After the company is finished mining the citizens of Minnesota will be left with the degraded land and the pollution that will go for perpetuity. No mining company can ever put enough money aside for the treatment of polluted water runoff that will go on for ever. When the mining company has made their profits they will leave the state, change their name, file for bankruptcy and keep their profits. A few years employment for a few miners for an eternity of pollution is plainly wrong.

Philip Romanek
Floodwood, 55736
United States

Attachments:

Online Comment

Permit Portal: Air

3/12/2018

Comment:

MPCA Comment 166

My understanding of hydrogen fuel cells is that they can produce electricity in great abundance with no exhaust pollution whatsoever - just pure water and heat. Zero carbon footprint. Zero air pollution. Also, that this technology is available as an add on to trucks and train locomotives. Is this technology suitable for Polymet? If so, could they install a fuel cell energy park on their vast land holdings and provide off-grid electricity to their proposed plants and even to the surrounding area, i.e. Hoyt Lakes, Duluth, St. Louis county? These are questions, not a proposal. Three companies produce fuel cell energy in North America. They are Plug Power (PLUG) Ballard (BLDP) and Fuel Cell Energy (FCEL). Congress recently authorized a tax break for around 30% for renewable energy including hydrogen fuel cells, solar power, and wind power. All of the above relates to the air quality surrounding the Polymet mine. Thank you.
Steven Ulmen

Steven Ulmen
Mankato, 56001
United States
sulmen2001@hotmail.com

Attachments:

Online Comment

Permit Portal: Air

3/12/2018

Comment:

MPCA Comment 167

Born and raised in MN and a long time visitor of Duluth and northern MN, I understand there is concerns on both sides of this. However after hearing and reading both side of this issue, I strongly believe there are significantly more positives to approving this project than negatives. While there are environmentally risks, I feel confident that Poly Met has and will take the necessary measures to reduce/eliminate the impact to the environment. On the other side, I believe this will bring a significant amount of jobs and resources to MN that outweigh the potential risks. I strongly advocate for this project to be approved and finally be allowed to move forward!

Jeff Engel
Plymouth, 55442
United States

Attachments:

Online Comment

Permit Portal: Air

3/13/2018

Comment:

MPCA Comment: 168

We have been following and closely watching and researching the entire Polymet project almost from day 1 and have been very impressed with the care and diligence the company has shown throughout the entire process including "over the top" scientific data showing how the company intends to protect the natural resources of Minnesota. We feel they have achieved all the necessary requirements to be granted the proper permits to begin this project and also believe the MNDNR and MNPCA have done their due diligence necessary to not only protect the environment of Minnesota but also the citizens of Minnesota. We firmly support the Polymet project for Minnesota and feel all permit requests should be granted. Chris and Debbie Engel

chris engel
CHANHASSEN, 55317
United States
engelcj55@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/14/2018

Comment:

MPCA Comment 169

This permit is stands against everything the state of Minnesota says it is. It is no clean air, no clean water, no legacy for our children and grandchildren. Please stop this madness while you still can. The number of promised jobs will be lost to robotics and automation. This permit goes against the will of the people of Minnesota. John Dorival

John Dorival
Hutchinson, 55350
United States
Dorival@hutchtel.net

Attachments:

Online Comment

Permit Portal: Air

3/15/2018

Comment:

MPCA Comment 170

Minnesota Pollution Control Agency PolyMet Draft Permit Comments — 4th Floor 520 Lafayette Road North St. Paul MN 55155-4194 The board of directors for the Range Association of Municipalities & Schools (RAMS) is proud to stand with PolyMet with the attached resolution of support for the NorthMet project. Our RAMS member communities and schools also stand in support and those resolution are also attached. The 51 public sector members of RAMS supports the mining industry and looks forward to the opening of PolyMet's copper-nickel mine in Hoyt Lakes. This project will strengthen our community by providing good-paying jobs to many hard-working men and women while producing the metals we all use every day. The project will also contribute to our local and state economy with millions of dollars in earnings and tax revenue and will do so while meeting or exceeding Minnesota's strict environmental standards. Mining supports our way of life and we support mining. Please expeditiously move to issue final permits so PolyMet can move forward. RAMS supports the issuance of MPCA permits for the project covering air, water and wetlands. Sincerely, Steve Giorgi Executive Director Range Association of Municipalities & Schools sgiorgi@ramsmn.org 218.780.8877

Steve Giorgi
Mt Iron, 55768
United States
sgiorgi@ramsmn.org

Attachments:

ref:0000000487:Q9a

Online Comment

Permit Portal: Air

3/15/2018

Comment:

MPCA Comment 172

JOB

JASON Quiggin
Mt. Iron, 55768
United States
lu589bm@uanet.org

Attachments:

Online Comment

Permit Portal: Air

3/15/2018

Comment:

MPCA Comment 172

RE: Comment on NorthMet Draft Air Permit To Whom It May Concern: The NorthMet Project has been in process of application for many years now, because the project will cause unusual problems, and because it will imperil wilderness lands, waters, air, wildlife and the economies that depend upon clean air, water and healthy ecosystems. Permitting a copper mine will set precedent and change the land use forever. Since the copper deposits in Minnesota are of low grade, the process will naturally require removal of more rock than copper.

MPCA Comment 173

By Polymet's own estimate the NorthMet ore body comprises 275 million tons of Proven and Probable reserves grading 0.28 percent copper with Measured and Indicated Mineral Resources of 694 million tons grading 0.27 percent copper and 0.08 percent nickel. Since Polymet intends to mine and process 32,000 tons of ore per day (11,680,000 tons of ore per year) what does this mean for the air quality surrounding the Project?

MPCA Comment 174

According to the reports put forth for this permit, the NorthMet project will require ammonium nitrate and fuel oil for blasting every two to three days. Large excavator shovels with up to 30-cubic-yard-capacity and large front-end loaders will then load the ore into diesel-powered haul trucks, each having the capacity to carry 240 tons of material in a single load, all loaded onto 100-ton side dumping railcars. Sixteen-car trains pulled by locomotives will then transport the ore approximately six miles to the processing facility 20 times each day. In all, PolyMet plans to mine approximately 225 million tons of ore over a 20-year mine life. This plan can be revised at any time as long as notice is given and approved by our regulators. No mine has ever been shut down by regulators once begun in Minnesota. According to the relevant reports, processing starts once the ore is transported to the LTV site where it will be offloaded into the Coarse Crusher Building. A series of crushers then reduce the ore to approximately 2.5 inches diameter feeding these particles by conveyor to the coarse ore bin located in the Fine Crusher Building. From the Fine Crusher Building, the ore will be conveyed to the Concentrator Building used since the 1950s to process taconite. There, the ore will be reduced into particles about the diameter of a human hair before being transported by chute to other buildings where impurities will be removed using chemicals and large quantities of water. Imagine this fine dust in transport. As documented in this permit, this facility, then, will require a number of filtrations systems including HEPA, cartridge and fiber, all of which will be expected to comply with standards within each building and require their own handling.

MPCA Comment 174

Outside of these buildings where there are no filters, fugitive emissions are even more difficult to control. Fugitive source emissions from mining operations stem from the blasting of rock and the debris that these operations create, loading and unloading of rock, truck traffic, preparation, crushing and screening activities and excavating. Traffic, road building and repair will contribute naturally and this will exceed the boundaries of the NorthMet Project site where no truly effective organic and sustainable control is possible in most situations, physics the determining factor. Fugitive sources of emissions at the processing plant can be found during construction activities, crushing and screening, along with wind erosion during flotation tailings basin operation, miscellaneous truck traffic, and SAG and ball mill grinding of the ore. The list of unusual problems and effects goes on in the permit reports, unintentionally illustrating why copper

MPCA Comment 174

sulfide mining would be a major contributor to air pollution in this wilderness, and all the while presuming to make a case for protection. How much of the regulation in place on spot filtration systems and their filters will be effective? How much of the fugitive emissions and noise will cause untenable situations for wilderness tourism, which is the backbone of this country? Only time will tell after all. If experience has taught us anything, these systems will fail or be neglected in time while the mining effects will continue into perpetuity

MPCA Comment 175

Just a list of the vehicles required in this operation will tell us enough about the effects: 2300HP mine haul trucks run on 25.4 gallons of fuel/hour. 1550HP diesel drills, 19.8 gallons/hour, and 646HP truck dozer graders, 31.2 gallons/hr. And then there will be excavators, rubber tire dozers, transfer loaders, backhoes with hammers, water/sand trucks, and integrated handlers with their own fuel usage and emissions not to mention the noise that will be a daily experience for all within earshot. Besides vehicles, there will be a great need for space heaters, too many to count for this comment, feed chutes, conveyors, mills, grinders, crushers, rail cars and locomotives, mix tanks and dewatering stations, a lube house, direct and indirect heating equipment using electric, natural gas and propane, degasifiers, a (huge) gasoline tank, bentonite (fine clay dust) handling, and miscellaneous buildings. There will be a fence patrolled to keep the public out.

MPCA Comment 176

Polymet will monitor itself. There is no restriction on hours of operation for portable crushing spread operations May to October and other operations are given the time needed to process almost 12,000,000 tons of ore each year. Much of the monitoring is not enforceable in this permit or on a practical level. So where are the real safeguards? The winds will blow, the climate will do its thing and Polymet will be forgiven in a force majeure situation. We are told that this ore will be processed in an environmentally sound manner. We are told that if limits are exceeded, they will be remedied by the miner except in the case of unforeseeable circumstances that prevent them from fulfilling their contract. Will they monitor and police themselves without regard to profits? If fugitive emissions are found to degrade the environment outside of the parameters of their fence line, will this too be remedied? What will the meaning of going up North hold for citizens once this mine starts construction?

MPCA Comment 177

Wetlands abound along this copper deposit, with thousands of flora and fauna, many rare and uncommon all depending on clean air and water, in a wilderness of outstanding quality. There are orchard orioles, killdeer, snow geese, loons, woodcocks, purple finch, mink, great blue heron, broad-winged hawks, eagles, partridge, beaver, wolves, moose, bear, Canadian lynx, coyotes, blue bills, mallards, night hawks, snowy owls, white-throated sparrows, deer, blueberries, bearberry, rock ferns, caribou moss, and so many other species of plants and animals. What is the potential harm to these populations if the fragile balance of this ecosystem is destroyed, an ecosystem so interconnected with the health of its waters and its air? Do we sell or do we protect? This is what this decision concerning the NorthMet Project comes down to, essentially.

MPCA Comment 178

There are no guarantees that Polymet or theirs will be around to pay for the damage that acid rain and other hazards of mining for decades in this area will cause. They are a corporation, after all, developed to limit liability. Ongoing treatment, passive or aggressive, will never return this region to its original state. Observe ongoing pollution witnessed from mining in the area already. What financial or political assurances would suffice in a tragedy of the scale that sulfide mining would unleash?

MPCA Comment 179

We have waste on this earth that could be recycled without destroying our environment, our home. Have we come to a crossroads in our handling of this planet, an ecosystem that we so dearly need for our survival? Isn't this priceless wilderness more important than any profit we can make from mining? Once understood that we cannot mine in this area without devastating results, perhaps we will favor sane and ecologically sound solutions to those challenges that engage us? We could speak of the beauty, the wild, the spirit of something greater than ourselves, the sustenance we all gain from these masterpieces. Such

MPCA Comment 179

is the Arrowhead of Minnesota. What profit is there if not life itself? It is undeniable that people in the area need jobs ... although, who of these long term residents came with the intent to mine this jewel? If given the opportunity to work in a sustainable activity, who would not choose to do so? What kind of opportunities could be created with a mindset that encourages positive long term results over short term gains and financial profiteering? Don't we owe it to ourselves and life itself to make the effort? For the reasons outlined in this comment, I request that the Draft Air Permit for the NorthMet Project be denied.

Anita Tillemans
Minneapolis, 55410
United States
ansuti@yahoo.com

Attachments:

Online Comment

Permit Portal: Air

3/16/2018

Comment:

MPCA Comment 179

PolyMet Air Quality Permits I am requesting that you deny PolyMet an air quality permit. In Butte Montana, at the Berkeley Pit a fog phenomena occurs emanating from the mine pit lake. It has been proposed that because of the relative weight of the heavy metals that they do not become air born although no definitive study, it is claimed, has been done. There actually has been a relevant study done in Spain at a mine site which emits the same type of fog. There the researchers found that toxic levels of heavy metals in fact are lifted in the fog. I have read about this study where the mist was actually condensed and analyzed although I have misplaced the citation. The agencies have inadequately accessed the air quality hazard that will occur with PolyMet mining. Heavy metals do in fact become air born from the effects of blasting. This is what explains the elevated levels of mercury in the blood of north shore children. Past taconite mining has blasted mineral formations including mercury which is directly inhaled by persons downwind. The downwind phenomena is the only plausible explanation for why, say, Lake Superior South shore children are not effected as severely from just eating Lake Superior fish. If mercury can be propelled from, say, China in a smoke stack it is just as likely that it would be propelled just 50 miles to the Lake Superior north shore from blasting. Included with the higher levels of mercury will be higher levels of arsenic and other heavy metals. It has been discovered that the modern era of copper mining in Chile is chronicled in ice cores from Antarctica. It is consistent that it should be expected that the blasting of arsenic containing sulfides at PolyMet and other prospective mine sites in the area would produce airborne arsenic as occurred in Chilean mining operations much further away. I have been having trouble lately locating arsenic references to the PolyMet deposit lately because of the volume of information. However, my friend, retired from the MPCA, has indicated to me glittering rock walls he observed in the 1970's at the AMAX bulk sampling and now Teck Cominco site to the east of PolyMet indicating a rich presence of pyrite containing arsenic (reference arsenopyrite). The Wetlegs deposit shown on the following map to the West of PolyMet is close to PolyMet as you can see from the link: http://sosbluewaters.org/Deposit_map.pdf The following report indicates that Wetlegs is rich in Arsenic: <http://forum.amiminerals.it/viewtopic.php?t=12078> The Cities of Superior, Duluth, and Cloquet are I am told by a representative of PolyMet 170 river miles downstream. Anafogosta Chile has experienced serious and ongoing health issues resulting in large numbers of premature death from arsenic flowing 180 miles downstream: http://www.academia.edu/10724720/Arsenic_enrichment_in_waters_and_sediments_of_the_Rio_Loa_Second_Region_Chile Research indicates that arsenic alone will kill a conservative 50 but more likely closer to 100 people per year in the Duluth, Superior, Cloquet area, i.e thousands of people in Superior WI over the next 300 years. Your help can save lives in exposing this (PolyMet) criminal venture. Arsenic has been linked to a variety of illnesses including diabetes and heart disease. <http://www.bmj.com/content/342/bmj.d2431> There is no known safe amount of arsenic: <http://www.reuters.com/article/us-chile-cancer-idUSTRE80N1YJ20120124> The PolyMet Supplemental Draft EIS indicated that Arsenic and Mercury would be removed with reverse osmosis. In the Final EIS it

was acknowledged the RO would not do the job and a reference to Greensand Filtering was made with a denial contrary to the 1960's Chilean experience that the Arsenic would not make the 170 river miles to the drinking water intakes of Duluth, Superior, and Cloquet. Even with greensand filtering which is simply promised and not guaranteed A 1999 study of methods highlighting greensand filtering indicates the complications in arsenic removal and one of the main conclusions of greensand filtering was "the technology discussed here is probably not cost effective."

<http://www.usbr.gov/research/AWT/reportpdfs/report041.pdf> Third world African countries are fighting the importation from Chile of arsenic laced copper concentrate.

<https://www.lusakatimes.com/2015/06/22/dont-demonise-kcms-motive-to-import-toxic-copper-concentrates-from-chile-sinkamba/> Speaking of third world journalism. Although the EPA regional director indicated guarded approval of the PolyMet project as a result of political pressure she has since resigned as a result of suppressing a report in the Flint, MI case which has gone unreported in Duluth/Superior and her PolyMet report continues to be cited by PolyMet supporters.

<http://www.clickondetroit.com/news/breaking-epa-regional-administrator-for-flint-resigns> In addition to the dangers of Arsenic questions linger regarding the synergistic effects of heavy metals. In one study it was determined that rats exposed to an amount of mercury that would kill 1% of rats combined with lead that would kill 1% of rats killed 100% of rats. <http://amalgam.org/education/scientific-evidenceresearch/synergistic-effects-of-mercury-other-toxic-exposures/> A big deal is being made about sulfides inhibiting the growth of wild rice, but if a strain of wild rice is found that will grow in these sulfate waters/arsenic waters they will be poison from an uptake of arsenic.

http://www.huffingtonpost.com/2012/09/20/arsenic-rice-toxic-element-inside-grain_n_1900654.html

Arsenic and mercury will rain down in the blast residue to effect rivers other than the St. Louis on the north shore of Lake Superior. Breathing arsenic has an even more severely intensified effect on producing lung cancer in particular as well as negatively effecting the intellectual development of children. The blast produced arsenic will more severely impact the drinking water of the St. Louis river downstream consumers which will be impacted by the extremely and dishonestly stated toxic waste water outputs and consumption. Tailings basin seepage treatment train at the WWTS estimate of 4000 gpm during operations is underestimated at 5,760,000 gallons per day. This amount seems unrealistically optimistic given the treatment demands for a much smaller amount of process material at the Humboldt Mill in Michigan will take 2.8 million gallons a day and does not include treatment of water from a very large mine. The PolyMet mine is planning to process 32 thousand tons of ore per day while the Humboldt mill only processes 2 million tons. This indicates that PolyMet is claiming to be 7-8 time more efficient even though they have no experience in mineral processing. This much larger amount of water to be treated will inundate the system. These claims are consistently underestimated with the low estimates proven to be wrong at the Humboldt Mill and at the Resolution mine site as necessary. These dishonest estimates are a dangr to the public and it must not be acceptable for PolyMet simply to be expected to be allowed to simply dump tens of millions of gallons of tainted water into the St. Louis River water shed to poison downstream water consumers with heavy metals and arsenic from this high arsenic mineral formation and processing. The current 4000 gpm estimate is less than one-third of the Polymet processing capacity. The PolyMet projected water consumption and toxic waste water discharge should be expected and planned for at as much as 300 million gallons per day or 9.E10 per year from mine pumping and ore processing which the tailings basin needs to be expected to hold. 300 million gallons is the equivalent of 920 acre feet of water. This amount of water invalidates the Environmental impact findings and estimated engineering specifications, environmental impact notices,

due process, media discussions and is a fraudulent infraction on PolyMet's part for which it should pay a penalty to the public that it has deceived.

Dennis Szymialis
Duluth, 55806
United States
shrimpshadow@hotmail.com

Attachments:



Red Cliff Band of Lake Superior Chippewa Indians

88455 Pike Road

Bayfield, WI 54814

Phone: 715-779-3700 Fax: 715-779-3704

Email: redcliff@redcliff-nsn.gov

March 16th, 2018

Minnesota Pollution Control Agency
PolyMet Draft Permit Comments — 4th Floor
520 Lafayette Road North
St. Paul MN 55155-4194
Via Electronic Submission

RE: Public Comment on NorthMet draft Air Quality Permit, Draft Water Quality Permit (NPDES/SDS), and Draft 401 Certification

MPCA Comment 180

Boozhoo (Greetings) from the Red Cliff Band of Lake Superior Chippewa (Red Cliff). Please accept the following comments in regards to the NorthMet draft air quality permit, draft water quality permit (NPDES/SDS), and draft 401 Certification. Although Red Cliff is not located in the state of Minnesota, we retain hunting, fishing, and gathering rights among other usufructuary rights in the Lake Superior basin. Red Cliff is located at the top of the Bayfield Peninsula in northern Wisconsin and is enclosed by 22 miles of Lake Superior shoreline. In the ceded territory, Red Cliff has a legal and cultural interest in protecting treaty resources for the next seven generations. We, as with other Tribes and Nations, have lived in the Lake Superior basin for hundreds of years, and have relied on Lake Superior, its tributaries, and ecosystems for subsistence and cultural uses. Red Cliff is submitting the following comments.

Draft Air Quality Permit

1. Fugitive emissions control plan

The fugitive emissions control plan as described in Appendix B of the draft air quality permit does not include the use of fence line or near roadside monitors to aid in determining fugitive emissions concentrations. Although the permit states that a trained observer will monitor site and road dust levels and take appropriate action, PM10 and PM2.5 levels can easily exceed National Ambient Air Quality Standards (NAAQS). This fact coupled with any potential high wind activity, can distribute these emissions over a wide range. Red Cliff requests that the permit includes use of mobile and personal monitors to correctly identify true sources of excess emissions and consequently determine appropriate action.

MPCA Comment 181

2. *Section F: Receptors (RE Pathway)*

According to MPCA Modeling Practices, Table 11, there is a discrepancy in the meter spacing listed in the manual and the meter spacing described in the permit. We request that this discrepancy be remedied or an explanation provided as to why this is allowable for PolyMet.

MPCA Comment 182

3. *Section J: Nearby Sources*

In this section, it is stated that some nearby sources were omitted from particulate modeling. We would like to know why these items were omitted and what protocols were used. Please provide information on the policy for removing nearby sources, which permitting actions support this decision.

MPCA Comment 183

4. *Plant Site Class I Modeling Protocol*

There are several instances where spacing of receptors around property boundaries, within 1 km of the boundary, and from 1-5 km out differs widely from the MPCA's Air Dispersion Modeling Practices Manual. There is no justification for these extreme exceptions to be made. Please explain this discrepancy.

MPCA Comment 184

Draft Water Quality Permit

1. *Unsupported and unenforceable inward flow claims*

The modeling in the EIS assumes that PolyMet will maintain an inward hydraulic gradient of contaminated groundwater at the flotation tailings basin and at the waste rock stockpiles. The effectiveness of this proposed containment system is defined by this assumption and also by the assumption that if a breach in a containment wall were to occur, the contaminated water would flow into the basin rather than the surrounding environment. Red Cliff is concerned that these claims of PolyMet to maintain a constant inward gradient are both unsupported and unenforceable. This unrealistic assumption does not model the consequences of scenarios in which the gradient may be reversed, such weather events like heavy rainfall or snowmelt, nor does the permit provide detailed language regarding such scenarios. For example, page 41 of the NPDES/SDS permit states that this system (in regards to the Category 1 Waste Rock Stockpile) will take into account "temporary conditions that may result from short-term precipitation or snowmelt events." However, this language is not specific enough to gain our confidence that a constant inward flow gradient will be maintained and that contaminated groundwater will not flow in the reverse direction into surficial aquifers and groundwater. Therefore, this permit cannot be based solely on the assumption of this system operating without failure, and these claims cannot be supported without more specific language to support the assumptions and enforce any violations of such claims.

2. Great Lakes Initiative and Minnesota mercury standard

The proposed PolyMet project area is located in the Lake Superior Basin, and therefore any water discharges from the project area must meet the protective Great Lakes Initiative and Minnesota mercury standard of 1.3 nanograms per liter (ng/L). Attachment 1 under the Wastewater Treatment System (WWTS) section of the NPDES/SDS draft permit document states that the daily maximum limit will be 2,000 ng/L and calendar monthly average limit will be 1,000 ng/L. These limits are 1,000 times more than the Great Lakes Initiative and Minnesota mercury standard of 1.3 ng/L. Red Cliff must ensure protection of treaty resources and requests MPCA to review this monitoring requirement and rewrite to comply with Great Lakes Initiative and Minnesota mercury standards.

3. Bedrock Monitoring Wells

The Draft NPDES/SDS Fact Sheet outlines the summary of all Mine Site Groundwater Monitoring. In regards to the Bedrock Monitoring Wells, Red Cliff is concerned about the proposed frequency in which the samples would be taken. As listed in Table 11 on page 53, Group B wells are monitored quarterly and Group C wells are monitored annually. We are concerned that this frequency would not accurately capture potential contamination if the bedrock is breached or fissured due to seismic activity from blasting. Therefore we request that the frequency of this monitoring be increased during all blasting phases to adequately capture any seepages of contaminated waste that may infiltrate groundwater and drinking water.

4. Annual Groundwater Evaluation Report and Annual Comprehensive Performance Monitoring Evaluation Report

Red Cliff requests that all annual reports be accessible to the public. This includes the Annual Groundwater Evaluation Report as well as the Annual Comprehensive Performance Monitoring Evaluation Report. As stated in the NPDES/SDS Permit Fact Sheet on page 69, the purpose of these reports is to utilize all available data to fully evaluate the performance of the facility and to assess the potential for or existence of any unauthorized discharge to surface waters. Red Cliff disagrees with the claim that this annual evaluation will provide early identification of potential impacts so that adaptive management or mitigation can take place. This 'early' identification of potential impacts requires the addition of continuous flow monitoring and increased frequency of water quality monitoring (see below comments). However, we still request that the annual reports to be made available to the public. This would include any needed changes to the monitoring network, evaluation of compliance with groundwater standards, monitoring data, assessment of spatial distribution of groundwater quality, and the current assessment on the potential for a north flow path in the bedrock or surficial aquifer north of the Partridge River. It is a concern that a north flow path in the bedrock is a likely possibility, underscoring the need for all information and analyses regarding such an outcome to be made accessible.

Draft 401 Certification

1. Inadequate water quality monitoring and response time

Red Cliff is concerned that the proposed monitoring strategy is inadequate and will not allow for detection of discharges, depositions, or impacts to water quality with enough time to allow for adaptive mitigation as planned. The Section 401 Draft Water Quality Certification states that if surface water conditions exhibit deviations from baseline conditions that are attributable to Project factors, then adaptive management may be required. Continuous flow monitoring is necessary and should be required in order to detect these changes in real time. If monitoring data indicate that the Project has caused or contributed to a violation of water quality standards in Minn. R. chs. 7050 and 7052, the permittee must report as follows: a violation endangering the human health or environment must be reported within 24 hours; and other violations must be reported within 30 days and an adaptive management plan must subsequently be submitted within 30 days. These monitoring and reporting timelines do not adequately protect the impacted adjacent wetlands and downstream waterbodies from discharge violations. If a violation occurs that jeopardizes the water quality standards, despite the 24 hour reporting requirement, and the samples are only taken monthly or quarterly, then it is highly likely that the impact was occurring for a longer period of time. In order to accurately monitor and prevent detrimental impacts to water quality, there must be continuous flow monitoring as well as increased frequency of water quality monitoring. If not, the claims that adaptive mitigation can take place in time are not validated.

2. Accuracy of wetland delineation

The Draft 401 Certification includes details about PolyMet's plan for mitigation of wetland impacts. In regards to impacted wetlands, the wetland report completed by Barr Engineering (Barr) for the EIS does not indicate that Lidar data was one of the sources used to map the wetland areas. However, in 2011, detailed Lidar derived elevation data was collected and was utilized by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) to identify further areas inside the project boundary that may be wetlands not identified by Barr Engineering. GLIFWC's analysis identified 12% more wetland areas within the mine site project boundary and 12% more wetland areas within the direct impact footprint. Assuming that all areas identified originally by Barr and subsequently by GLIFWC are wetlands, then the wetland area may be 28% more than what is listed. Upon receipt of a Technical Memorandum describing GLIFWC's findings in August 2017, the United States Army Corps of Engineers had instructed PolyMet to reevaluate the wetland area estimation with the tools utilized by GLIFWC. However, Barr has yet to submit this report. If the number of wetlands is indeed different, a highly likely scenario, then mitigation plans must be adapted. Given this evidence, these permits cannot be approved without first checking the accuracy of the current wetland delineation. Red Cliff

requests these discrepancies be reviewed to most accurately account for impacted wetlands, and mitigation plans adjusted accordingly.

We appreciate the opportunity to comment and thank you for reviewing and considering the above comments.

Sincerely,



Richard A. Peterson
Red Cliff Tribal Chairman

CC: Chad Abel, TNR Administrator
Linda Nguyen, Environmental Director
Allissa Stutte, Environmental Justice Specialist
Ernie Grooms, Air Quality Manager

Online Comment

Permit Portal: Air

3/16/2018

Comment:

See attached.

Allissa Stutte
Bayfield, 54814
United States
allissa.stutte@redcliff-nsn.gov

Attachments:

ref:0000000526:Q9a

Online Comment

Permit Portal: Air

3/16/2018

Comment:

MPCA Comment 185

March 16, 2018 I write to oppose MPCA's draft water pollution (NPDES/SDS) permit, and MPCA's draft CLEAN WATER ACT SECTION 401 CERTIFICATION for the PolyMet sulfide mine project, as currently proposed. The Mission of the Minnesota Pollution Control Agency (MPCA) is to protect the environment and Minnesota citizens from pollution. From what I read and study, the MPCA has proposed a draft water pollution permit that does not set limits on polluted seepage through groundwater and a draft certification that the PolyMet project would not harm water quality, increase mercury contamination of fish, affect the environment or impair human health. The MPCA's draft water pollution permit not only fails to set limits for contamination that would seep from PolyMet waste facilities to wetlands and streams; the MPCA would not even require monitoring of surface water quality in the places closest to the PolyMet tailing basin or concentrated waste storage facilities. Without surface water monitoring, even if PolyMet pollution violates the Clean Water Act, it could be many years before that contamination of our waters is detected. And in the meantime, we will have failed our children, our elders, our water, our tribal people and their treaty rights, the wild rice and wetlands, our traditional cultural properties, the air we breathe and the trees and fauna which bless us with possibilities to meet the very real climate change which challenges our "usual ways" of doing things. It was Aldo Leopold who said, "When we see land as a community to which we belong, we may begin to use it with love and respect." And the movement of peoples at Standing Rock birthed the wisdom phrase, "Water is Life." And, from Pope Francis, "Fresh drinking water is an issue of primary importance, since it is indispensable for human life and for supporting terrestrial and aquatic ecosystems... [A]ccess to safe drinkable water is a basic and universal human right, since it is essential to human survival and, as such, is a condition for the exercise of other human rights." I suggest that we can do better, in protecting the very elements which stand threatened by PolyMet's sulfide mine project. We all need to gather around the mission to protect the environment for Minnesotans and for all up-river and down-river dwellers, for time to come. Water flow has no political boundaries. We are all connected. In summary, I oppose MPCA's draft water pollution (NPDES/SDS) permit, and MPCA's draft CLEAN WATER ACT SECTION 401 CERTIFICATION , as currently proposed for the PolyMet sulfide mine project. Thank you for this opportunity to comment.

Lois Dalsin
St. Paul, 55105
United States
jandalsin@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/16/2018

Comment:

MPCA Comment 186

Please protect our clean air from toxic airborne pollution from PolyMet. The mission of the MPCA is to. Protect the environment and citizens of Minnesota from toxic pollution. Thank you. Sincerely, Lisa Fitzpatrick

Lisa Fitzpatrick
Duluth, 55804
United States
Lfitzpat@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/16/2018

Comment:

MPCA Comment 187

I am absolutely opposed to the Polymet Mine air quality permitting. The potential risk to Minnesota's air quality is tremendous and would have severe consequences to the health of humans and wildlife and to the environment in general. The harmful effects have not been sufficiently studied. I am not at all reassured and have great concern about air pollution from this type of caustic mining.

Phyllis Saliin
Duluth, 55804
United States
prsaliin@gmail.com

Attachments:

Online Comment

Permit Portal: Air

3/16/2018

Comment:

MPCA Comment 188

Statement of Interest: The writer breathes are in various parts of Minnesota. The public notice for this permitting actions (https://www.pca.state.mn.us/sites/default/files/Public%20Notice_71.pdf) indicates that the total limited potential to emit will be approximately 5.7 million pounds per year. (I have presumed that "PM" refers to Total Suspended Particulate and that the PM10 and PM2.5 quantities listed are not additive. Also, this total does not include 161,000 tons--322 million pounds--per year of carbon dioxide equivalent.) Emissions of this magnitude would make PolyMet one of the largest point sources of air pollution in Minnesota.

Remarkably, PolyMet is near four Class I areas (which have special protections under the Clean Air Act): Boundary Water Canoe Area Wilderness, Voyageurs National Park, Isle Royale National Park, and Rainbow Lake Wilderness. Nonetheless, the MPCA claims in "Overview of PolyMet's air permit" (<https://www.pca.state.mn.us/sites/default/files/aq5-36q.pdf>) that: "The Class I modeling demonstrates that PolyMet's emissions, as limited by its permit, will not deteriorate air quality in nearby Class I areas. In addition, visibility impacts will be below perceptible levels. This conclusion is implausible.

In the same document the PCA claims "PolyMet's Class II modeling demonstrates its stack and fugitive emissions will not exceed air quality standards." This conclusion is implausible. The MPCA also claims that "Each health impact evaluation showed PolyMet's emissions, as limited by its permit, would not result in unacceptable risks to human health." This conclusion is implausible.

I am not clear on whether railroad equipment emissions and truck emissions on the PolyMet sites have been fully included in the fugitive emissions inventory. If not, as "on site" emissions they should be included. It does not appear, from the magnitude of the projected emissions, particularly the particulate emissions, that serious efforts to minimize emissions have been designed into this project.

In many respects the proposed PolyMet project is in an area as sensitive to air quality impacts as it is to water quality impacts. The draft permit should not issue without serious re-evaluation. Respectfully submitted, Alan Muller

Alan Muller
Red Wing, 55066
United States
alan@greendel.org

Attachments:

Online Comment

Permit Portal: Air

2/12/2018

Comment:

MPCA Comment 193

AGAINST PolyMet: the wrong mine in the wrong place. Deny the permits. There are inadequate funds to be set to be aside regarding state financial assurance regulations. PolyMet's proposed \$75M in cash for financial assurance was always a joke, and even with the DNR increase of several hundred million, this amount would not even begin to cover the inevitable environmental damage, including widespread air pollution. Further, much of the information in PolyMet's applications for permits is ten years old. Using incorrect information for such an important decision is misleading at best. Take, for example, the assessment of directly impacted wetlands if permitting and construction proceed, most recently conducted by the Corps of Engineers. These results should be made available and should be public knowledge. However, the Corps is not allowing access to this information which almost certainly reveals that larger areas that originally estimated will be impacted. It's time for meaningful reinvestment on the Range instead of allowing permits for PolyMet and other similar mines.

Kathryn Stodola
Duluth, 55812
United States
kzstodola@ualr.edu

Attachments:

MPCA Comment 194

1 should be crystal clear to all of us that we will be
2 left to deal with the mess. We cannot trust these
3 companies to simply do the right thing.

4 Plus, our current political power in
5 Washington, D.C. and St. Paul is bent on eliminating
6 environmental regulation and handcuffing our
7 enforcement agents.

8 Therefore, it would be in everybody's best
9 interest to approach, wouldn't it, with -- our best
10 approach would be to let -- never let PolyMet begin
11 mining in the first place.

12 PolyMet has been preying upon our
13 desperate workforce by offering them exclusive jobs
14 like a carrot on a stick. So let's understand fully:
15 They are only mainly there for profit. Thank you.

16 MARY THOMPSON: Mary Thompson from
17 Duluth. I cede my time to Virgil.

18 VIRGIL SOHM: Hello. My name is
19 Virgil Sohm, V-I-R-G-I-L, S-O-H-M, and I'm from Tower,
20 Minnesota.

21 I'm here to represent seven generations of
22 our people. I am an enrolled member of the Lake
23 Superior Band of Ojibwe, and I have great concern for
24 all of our grandchildren. I want to thank you,
25 commissioners, representatives, people here with open

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1 hearts that are listening. We need to hear the truth.
2 We need to get away from scientists that
3 are leading us down a scorched path. When I go up to
4 Lake Vermillion, when I go up to our land at Net Lake,
5 which is a prime rice lake, I know that our
6 grandfathers are continuing to watch over us, and they
7 will continue to be here with us.

8 We do not need a toxic environment. We
9 need good wild rice, we need to be able to hunt moose,
10 our wolves need land to live on.

11 I've driven by your PolyMet site many
12 times, and I know the area. I know the way that the
13 rivers flow through there and the creeks, and you do
14 not have permission to have that water to flush out
15 some crud that's in the ore and throw away 99 percent
16 of it. Miigwech.

17 RACHEL BURROUGHS: Hello. I'm
18 Rachel Burroughs from Duluth.

19 I'm here tonight as a Duluth resident to
20 speak for the protection of the water, to speak out
21 against corporations and colonialism, even when I've
22 benefited from it.

23 In the land of 10,000 lakes, we do not
24 often think about water scarcity, but I think about
25 seven generations and beyond, and the world that we

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1 will leave believe for them.

2 We can't drink poisoned water. Those
3 future generations won't be able to drink poisoned
4 water, and they should not have to pay corporations in
5 order to have access to this life-sustaining resource.

6 This corporation wants you to believe that
7 this project is about jobs. This company, with
8 foreign interests, will close up shop and leave its
9 mess behind for generations and few jobs. It's time
10 to say no. I speak for the water. Water is life.
11 The water sustains us. Mni Wiconi.

12 CHRIS URBAS: I'm Chris Urbas, a
13 resident of Ely, Minnesota, born and raised. I
14 support PolyMet, and I defer my time to Tony Kwilas.

15 TONY KWILAS: Good evening. My name
16 is Tony Kwilas, K-W-I-L-A-S, and I am the director of
17 environmental policy at the Minnesota Chamber of
18 Commerce.

19 First of all, I'd like to thank the
20 Department of Natural Resources and the Pollution
21 Control Agency for having this consolidated draft
22 public hearing on the draft permit to mine, the draft
23 air permit, the draft water -- or NPDES permit -- and
24 the 401 certification.

25 Because this is the perfect example of one

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MPCA Comment 197

MPCA Comment 197

1 of the efficiencies that the chamber has been asking
2 for: Instead of having four separate public hearings,
3 to have one consolidated hearing, and we thank you for
4 listening to us and having -- this is one, just,
5 perfect example of when we think of efficiency in the
6 system.

7 Second of all, I'd like to thank you for
8 having multiple public hearings, which you didn't have
9 to do, and went above and beyond what was required in
10 state law. But we thank you for doing that, and
11 especially having it in the region where the proposed
12 project is located. Hearing from stakeholders that
13 have daily interactions with this proposed project is
14 invaluable.

15 The environmental review and environmental
16 permitting process has been adhered to by state
17 statute and rule. Some say, along with the chamber,
18 that it's taken too long and cost too much, but no one
19 can argue that this process has not been followed and
20 closely adhered to.

21 We have a tremendous opportunity before us
22 to develop a world-class resource, the NorthMet ore
23 body, and in turn, capitalize on one of the largest
24 economic development project proposals in this state
25 in recent years, all the while protecting the great

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MPCA Comment 197

1 natural resources that we all enjoy.

2 The economic impact to this project is
3 invaluable and could create over 600 construction jobs
4 and 360 permanent jobs at the facility. There will be
5 numerous auxiliary benefits also to local cities,
6 counties, school districts, businesses, as well as to
7 the state of Minnesota.

8 In regards to the four permits -- on the
9 permit to mine, I'd like to thank the Department of
10 Natural Resources, Commissioner Landwehr and Assistant
11 Commissioner Naramore, for your staff for putting
12 together this document. I know it was no easy task.

13 But the most important part of that permit
14 to mine is the financial assurance provision. The
15 financial assurance provisions ensure that the state
16 of Minnesota will be protected from the process when
17 the facilities and the mine are properly closed and
18 maintained. It is important to note that this
19 provision could be revisited yearly and adjusted by
20 the State.

21 In regards to the draft air permit, the
22 company has set -- has met all the details required by
23 the draft air permit. The potential emissions are
24 identified and have set limits on those and they are
25 legally enforceable.

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1 How much was hushed to get us to this day?
2 How far would be the breaking point for you? Contort
3 the draft and with it science lay. Whatever reason
4 facts tell us to do.

5 You do your job but still reach to sleep
6 fair, so keep the struggles with all laws concealed.
7 Deep dives minutia of design and their false sense of
8 calm kill qualms about the real.

9 But what alone soft voice resolved could
10 say? No model holds the world and all its flaws. The
11 thought of ground you stood and lives you changed be
12 foremost on your mind retirement day.

13 Before you lies a whistle and our home.
14 Our eyes ask: Who has the courage to say no? Thank
15 you.

16 CINDY WHITING: My name is
17 Cindy Whiting, and I'm here to do what I can to
18 protect our clean water.

19 I would like all of you to think for a
20 moment where any of us would be, jobs or not, without
21 our clean water. I would -- and that goes to the
22 risk, Representative Tom Bakk. Where would you be
23 without clean water? And if there's any further
24 question on that, any of us could ask Cape Town, South
25 Africa.

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MPCA Comment 197

1 On the draft water quality permit, or the
2 NPDES permit, we thank you for establishing the
3 specific limits and protection of surface and
4 groundwater. But in the end, it is clear that the
5 process established by the State --

6 EMILY NORTON: My name is
7 Emily Norton. I'm a citizen of Duluth, and I'm out
8 here asking the DNR to oppose the permits to mine, all
9 the things the scientists have said.

10 What's at stake here, from a DNR
11 standpoint, is the pristine wilderness that we want to
12 preserve, and I don't think we will regret preserving
13 the wilderness, but we're probably going to regret the
14 mine.

15 I would like to defer the rest of my time
16 to Bridget Holcomb, who will speak for Duluth for
17 Clean Water. Thank you.

18 BRIDGET HOLCOMB: My name is
19 Bridget Holcomb, B-R-I-D-G-E-T, H-O-L-C-O-M-B. I'm
20 from Duluth.

21 This is my first sonnet, and I think it's
22 appropriate that I wrote my first sonnet for public
23 servants, and I recognize that these public servants
24 have enough flex in the law. You can make this
25 decision either way.

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1 I've been at this for a while and I would
2 like, and encourage everyone, to go online and Google
3 some of the destruction that has happened by sulfide
4 mining in Canada. You will be astounded.

5 Please, please do not allow this
6 permitting to go forward. Clean water.

7 I defer the rest of my time to Kevin Lee.

8 KEVIN LEE: Thank you. My name is
9 Kevin Lee. The last name is L-E-E.

10 I've heard a lot today about this project
11 complying with the highest standards in the world, so
12 I'd like to talk about that for just a moment.

13 In 2015, there was a panel of expert mine
14 engineers that issued a report that outlined how we
15 can learn from the mistakes of the past. Most of the
16 mining industry listened. PolyMet and Glencore have
17 not.

18 The first item on this expert's list:
19 Don't store mine waste with water, but PolyMet won't
20 listen. They want a permit to create a mine waste
21 lake 900 acres large, 250 feet in the air, and keep it
22 there forever.

23 The Mining Association of Canada, an
24 industry trade group, now requires its members to have
25 their mining practices audited by outside experts.

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March 16, 2018

VIA US MAIL AND E-MAIL

Commissioner John L. Stine
Minnesota Pollution Control Agency
Division: Commissioner's Office
Location: St. Paul -- 6
520 Lafayette Road
St. Paul, MN 55155
info.pca@state.mn.us
John.Stine@state.mn.us
Phone: 651-757-2014

Re: NorthMet Draft Air Quality Permit, Water Quality Permit, and 401 Certification

MPCA Comment 199

Dear Commissioner Stine,

Duluth for Clean Water objects to the draft water quality permit, draft air quality permit, and draft Clean Water Act Section 401 certification (wetlands) related to the PolyMet Mining Co. NorthMet proposal. Our objections center on two fundamental problems with the permits as drafted: 1) long-term health impacts of the proposal on the residents of downstream communities are unknown, and 2) long-term water treatment of the proposal is undefined and unreliable.

Duluth for Clean Water is a Minnesota nonprofit based in Duluth, with volunteers and members around the Duluth area. Our mission is to promote a safe and healthy future for the St. Louis River Watershed, Lake Superior, and the communities who reside thereon. We have participated in the administrative processes concerning the NorthMet Mine proposal by submitting comments, retaining expert consulting services, and attending and speaking at public hearings. Our members live downstream from the proposed PolyMet operation. We drink water from, eat fish from, and rely fully upon the St. Louis River and Lake Superior for our future.

Our position is that the NorthMet draft permits are insufficient to protect Minnesota, especially downstream communities, and should be denied.

1. Cumulative human health impacts have not been assessed.

PCA's mission to “protect and improve the environment and enhance human health” based on the core value that “decisions and policies are supported by data and analysis” is instructive and should guide this decision.

Heavy metals are neurotoxins that affect brain development. Pregnant and nursing mothers, infants, and young children would be most impacted by exposure to these metals. Mine waste, especially from nonferrous hardrock mining, poses a significant human health threat downstream. Given these realities, we are extremely concerned that PCA and other state agencies have so far declined to evaluate impacts to human health from the proposed NorthMet project through an independent Health Impact Assessment.

We are grateful that PCA promotes a “health in all policies” approach, and we are grateful for the work of the Minnesota Academy of Family Physicians (and other medical professionals) who requested that a “comprehensive, independently produced HIA be completed for the PolyMet NorthMet Project out of a concern for the health of Minnesotans.”

It is effectively impossible for us to respond fully to this new-to-Minnesota proposal for impacts to air and water quality, when the cumulative impacts to human health have not been analyzed and presented. There is ample reason to conclude -- based on the history of this type of mining as the nation’s most toxic industry¹ -- that an HIA is a necessity for a data-driven analysis of these draft permits. The lack of an HIA for this dangerous proposal is a clear failure in the process.

Our position is that it would be an unconscionable failure to issue permits for this proposal to bring this toxic and unfamiliar industry to Minnesota when long term health impacts have not been studied or communicated. We object.

2. Water Quality Permit would not protect downstream communities.

It appears that the draft water quality permit would not set limits on polluted seepage through groundwater to drinking water or surface water, and would not provide necessary monitoring, meaning that pollution seeping from groundwater and upwelling in wetlands and streams in

¹ EPA Toxics Release Inventory, data source 2016, released 2018.
https://iaspub.epa.gov/triexplorer/tri_release.industry

violation of the Clean Water Act could go undetected. We object to the draft water quality permit on this basis.

3. The draft water quality permit violates Minnesota law requiring maintenance free closure.

Minnesota Administrative Rule 6132.3200 requires that a mining area “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.” Closure is defined as “the process of terminating and completing final steps in reclaiming any specific portion of a mining operation. Closure begins when, as prescribed in the permit to mine, there will be no renewed use or activity by the permittee.”

The NorthMet proposal currently anticipates cessation of activity at year 30, meaning “closure” would theoretically be at that date. The DNR's permit to mine, meanwhile, has no set term, effectively meaning that there is no closure defined at all.

Here is a scenario that concerns us, and one which we would request that you consider: Let's imagine that an applicant has an extensive system of water controls that they plan to use, and, if everything goes perfectly, things would be mostly fine for a while. The question, especially for downstream communities, is, what do those controls look like in twenty years? Problems with non-performing mines develop over decades, and applicant companies have a history of abandoning controls as soon as they are legally, or just financially, able. Claims about the future study of “passive controls,” and an incredibly extensive system of liners, trenches, pumps, caps, and pipelines -- all of which would require perpetual maintenance to work -- do not reassure us.²

The permits as drafted anticipate water treatment for centuries or longer, maintaining hydrologic impacts, release of substances, and continuing to pose potential hazards beyond any (undefined) “closure” date. This is a clear violation of Minnesota law, including with regard to the draft water quality permit. It appears, then, that under this permit regime as drafted, PCA's enforcement of any water quality permit it may issue would be difficult if not facially impossible.

² Please see also Minnesota Center for Environmental Advocacy discussion of the May 18, 2016, Barr Engineering memorandum regarding “Non-Mechanical Treatment,” attached to MCEA's comment dated March 16, 2018.

We are, quite simply, not protected by these draft permits over the longer term. That's not only a legal problem under Minnesota's closure requirements, it is clearly an ethical problem as well. We object.³

4. Downstream communities have not provided consent.

Duluth, Carlton, Cloquet, and the many other communities downstream of the NorthMet proposal have not been directly consulted on the PolyMet proposal, and some have vocally objected. Simply put, these communities have not consented. This includes the sovereign Fond du Lac Band of Lake Superior Chippewa, whose concerns have not been fully integrated into permits or the NorthMet project design.

Copper sulfide mining would be new to Minnesota, and the legal and regulatory regime is untested and dated. Downstream consultation and consent should be required for a proposal as dangerous as this. We view the lack of downstream consent, including the absence of downstream consent with regard to the so-far-undetermined cumulative health impacts, as a fundamental failure in this process to date, and we request that PCA recognizes this failure in its evaluation of the proposal. We object to the draft NorthMet permits on the basis of the lack of consent of downstream communities and urge that they be denied.

Conclusion.

The future health and prosperity of northeastern Minnesota depends on protecting our rare freshwater complex. We appreciate PCA's caution that groundwater levels have declined, and that "the prognosis turns downright grim" when the growing problem of groundwater contamination is factored in. "The bottom line on groundwater? We can run out of it."⁴

If permitted, the NorthMet project would put us at substantial, and insufficiently accounted for, risk. Minnesotans should anticipate, based on the significant history of promises and non-performance by applicants for similar permits around the US, violations, exceedances, and regular permit revision applications at best, and at worst, outright failures to control pollution at unimaginable cost to our communities.

³ We request a direct response to this comment in particular.

⁴ MPCA "Seven Green Myths," Myth #4: Minnesota Has Plenty of Water So We Don't Need to Conserve." <https://www.pca.state.mn.us/featured/seven-green-myths>

The citizens of Duluth and other downstream communities are relying on the Minnesota Pollution Control Agency to fulfill its vision that “clean water, air, and land support healthy communities and ecosystems, and a strong economy in Minnesota.” We urge that you deny the draft water quality permit, draft air quality permit, and draft Clean Water Act Section 401 certification (wetlands) for the proposed Northmet project.

We would appreciate an opportunity to discuss our concerns with you in person as well and can be reached at the below contact information for scheduling. We have included a poem about our watershed from one of our members below.

Thank you.

Sincerely,

Libby Bent, PhD, Inorganic Chemistry, Duluth for Clean Water

John Doberstein, Realtor, Duluth for Clean Water

Deanna Erickson, MEd, BS Natural Resource Mgmt, Duluth for Clean Water

Mae Gackstetter, MS, PA(ASCP), BA Biochemistry, Duluth for Clean Water

JT Haines, JD MPP, Duluth for Clean Water

Bridget Holcomb, MPA, BS Biology, Duluth for Clean Water

Duluth for Clean Water

11 E. Superior Street, Suite 563

Duluth, Minnesota, 55802

(218) 464-4203

duluthforcleanwater@gmail.com

Watershed Song

The blood of Lake Superior
runs in veins
under forests
reaches beyond the blue horizon,
seeps deeper than what we know.

The Lake of unpredictable winds,
and iron ships,
the famous outline on vacationers' t-shirts

on forearm tattoos,
the Lake to whom we pledge allegiance
the Lake with whom we live
is limited only by topography.
She is held only by gravity.

The Lake is pooling in snowmelt
in my backyard this afternoon.
She is roaring down northern canyons,
spreading quietly into estuaries.
She is seeping through rocks,
through tailings piles,
eroding the land that feeds her
and deepening her own indentation into sand and volcanic stone.

Rivers as her arteries, each with a year-long heartbeat,
high water, then low.
Rivers as her children
named
Baptism,
Nipigon,
Caribou,
Brule,
Kaministiquia
Partridge,
Savannah,
St. Louis.

Children from whom there is no separation.

Rivers as gifts
as warmth
as shelter
as legacy
Rivers both birth and death carried to her shore.

-- *Deanna Erickson, Duluth*

(written for the *One River, Many Stories* journalism project focused on the
St. Louis River in Duluth, MN.)

1 instruments. To adapt an old saying: In God we
2 trust, PolyMet, please bring cash.
3
4 BLANCHE WILCOX: Hi, my name is
5 Blanche Wilcox, and I defer my time to J.T. Haines.

MPCA Comment 198

6 J.T. HAINES: Hi, my name is
7 J.T. Haines. I live in Duluth, and I'm a volunteer
8 with Duluth for Clean Water. I spent some of my early
9 years growing up on the Iron Range in Mountain Iron.
10 I have very fond memories of growing up in Mountain
11 Iron.
12
13 The basic comment that I want to make
14 today is that those of us in this area, we live
15 downstream of this proposal, and as such, I think that
16 the very serious concerns you're hearing from
17 downstream communities need -- deserve special
18 respect.
19
20 I have three brief comments about the
21 permits. First, as you know, medical professionals
22 around the state have called for a health impact
23 assessment on this project to measure cumulative
24 impacts to humans. That study has not happened. I
25 view this as a failure in the process and something
the draft permits do not adequately address.
Second, the U.S. Forest Service recently
found that 28 percent of dams for this type of mining

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1 pause. We'll set your timer again. Everybody okay?
2
3 J.T. HAINES: Charlie, are you okay?
4
5 MODERATOR GOURLAY: Someone tripped.
6
7 It's okay. We don't want to interrupt your speaking
8 time, so we'll --

MPCA Comment 198

9 J.T. HAINES: Thank you. I just
10 want to acknowledge this has been a long process, but
11 I think it's really important, Commissioners, that we
12 recall that this is the moment of decision, and it's
13 required of all of us, elected officials and
14 commissioners, that we give it a fresh look with the
15 final details now, and I expect you to do that.
16
17 And I want to say that I regret that my
18 advocacy for the children of this area feels like
19 advocacy against the children from my old home town.
20 That is not my intent.
21
22 I like to think that as Minnesotans we
23 could agree that if our jobs harm or threaten our
24 neighbor's children, as painful as it might be, maybe
25 those aren't the right jobs.
Glencore is not a good company. They have
a horrible record of mistreating labor and the
environment. I think it's obvious they would say
anything for profit. I do not trust them. I don't
think anyone in here should trust them, either blue

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1 failed in the U.S. That rate is unacceptable in a
2 water-rich environment.
3
4 Since this process began, agencies have
5 updated climate data which confirms increasing
6 frequency of heavy precipitation events in our area.
7 My understanding is that these draft permits do not
8 address the increased risk of dam failure to
9 downstream communities. That is clearly a failure in
10 this process.
11
12 Third, and finally, there has been no
13 emergency response-planning education with downstream
14 communities like Fond du Lac, like Cloquet, Esko,
15 Duluth, and others. The threat of dam failure is
16 high, and the threat of spills and leaks is,
17 essentially, 100 percent.
18
19 It is unconscionable that downstream
20 communities have not been educated and informed about
21 dam failure rates, inundation analysis, and emergency
22 response planning. How has that not happened?
23
24 This is a fundamental failure in the
25 process, and the permits should be denied on that
basis alone. This has been a long process, but I
think it's important that we remember -- are we okay
here?

MODERATOR GOURLAY: Take a quick
KIRBY KENNEDY & ASSOCIATES
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MPCA Comment 198
hat or orange scarf.

1
2 Commissioners, we believe this process has
3 failed in fundamental ways, especially with regard to
4 downstream communities. I urge you to reject the
5 permits. If this goes forward, I believe we will have
6 sold Minnesota to the lowest bidder and nothing would
7 ever be the same again. We need a better option.
8 Thank you.
9
10 KORII NORTHRUP: So where do I
11 start? You tell me.
12
13 MODERATOR GOURLAY: Well, say your
14 name and city, and we'll start after you start
15 speaking.
16
17 KORII NORTHRUP: Okay. My name is
18 Korii Northrup, K-O-R-I-I, Northrup. I come from the
19 Fond du Lac band of Lake Superior Chippewa. I live
20 over there on the reservation. I've been there about
21 four years, but I was born and raised in Duluth, so,
22 you know, obviously, Duluth has a big part of my
23 heart.
24
25 I've heard a lot of people talk today
about 500 years from now, and I stand here in front of
you as, sort of, a relative 500 years from the past.
500 years ago, we didn't worry about poisoned water.
We didn't worry that we would not have enough wild

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1 P R O C E E D I N G S (Cont.)
 2 ALAN ANDERSON: Hello, I'm Al
 3 Anderson from Hermantown, Minnesota. I'm not much of a
 4 speaker, but I've got to say what I need to say.
 5 MODERATOR GOURLEY: Get a little
 6 closer to the mic.
 7 ALAN ANDERSON: I'm Alan Anderson
 8 from Hermantown, Minnesota. I hunt and fish in this
 9 area. I'm grateful for the miners for what you did in
 10 the past for making steel and everything for the wars we
 11 went through, but this is a different animal, this is
 12 sulfide mining.
 13 Sulfide mining, you've got to make
 14 the dams, whatever, last 500 years, whatever. I talked
 15 to these people out here and they said, "Oh, there's
 16 going to be a 255 berm? I didn't know that." They're
 17 DNR people. Am I supposed to trust these people? I'm
 18 not sure.
 19 I went through the -- what, the
 20 school, trust land thing back about four or five weeks
 21 ago. And I said, "Is this land going to be for mining
 22 or anything?" Well, yes, it was. They didn't tell me
 23 that. They were dishonest with me. Don't trust them.
 24 Because I found out a couple weeks
 25 later, Twins Metals had interest in it. Did I know

87

1 that? Were they honest with me? No, they put up a
 2 facade on. I don't trust the DNR. I used to, not no
 3 more.
 4 Now, my thing is, water is precious.
 5 When I grew up population in the United States was 225
 6 million, now it's 325 million. So, water is a more
 7 precious resource in the long-term, more people, very
 8 precious. We need water.
 9 We're downstream living in the Duluth
 10 area, the St. Louis River, it's going to be polluted,
 11 heavy metals. We have more rains. We have heavy rains.
 12 I think 1970s we had a ten-inch rain. Back a few years
 13 ago we had a ten-inch rain. Those dams can hold? I
 14 think not.
 15 I'm pretty good at stats. And you
 16 can crunch the numbers. Is these dams going to hold for
 17 500 years, 200 years? I rather doubt it.
 18 In Dubuque, Montana, they got that
 19 mine up there. It's a hazardous waste, it's a Super
 20 Fund. They tried to clean it. In Canada, British
 21 Columbia, the dam break up there, more pollution. Can
 22 we fix? No. Once it gets deep in aquifers, we can't
 23 clean it. How can you do that?
 24 Minnesota is going to be stuck with a
 25 Super Fund site eventually. What can we do about it?

88

1 The taxpayers will be held holding the bag. These
 2 corporations, if they got too much -- sue too much,
 3 they'll go bankrupt. Who's holding the bag then? We've
 4 seen that happen many times.
 5 I don't know what to do. I'm just
 6 putting my word out here. I'm not much of a public
 7 speaker, like I say, but I know what's wrong and what's
 8 right. But I'm grateful for the miners and what they
 9 did in the past, but this is a different animal, as I
 10 said. Thank you.
 11 (Applause)
 12 ALEX HAVERON: Hello, my name is Alex
 13 Haveron, I'm a resident of Duluth, Sheet Metal Local 10.
 14 I support PolyMet and I defer my time to Mike French.
 15 MIKE FRENCH: Good evening. My name
 16 is Mike French and I'm a civil engineer with LHB here in
 17 Duluth. I'm here to speak as a member of the consulting
 18 engineering and environmental services community and for
 19 the industrial clients that I have the privilege of
 20 serving.
 21 There are many passionate voices
 22 speaking tonight and those that have spoken for many
 23 nights over many years now on this topic. To that
 24 lengthy conversation I'd simply like to add my three
 25 points.

89

1 One, as an engineer, I'm a big fan of
 2 process. That is, following rules, procedures and the
 3 implementation and guidelines of best practices.
 4 Guidelines and rules are important in that they take the
 5 guesswork out of problems, not controversy, but they
 6 take away the randomness.
 7 It is in this mind-set that I wish to
 8 voice strong support for the approval and completion of
 9 PolyMet's permit to mine on the basis of following the
 10 procedures.
 11 Mining is a significant part of our
 12 shared heritage in Minnesota. And I have to say that
 13 I've only been a Minnesotan since 2004. So, in my 14
 14 years of being a Minnesotan, I've never known a period
 15 when PolyMet wasn't working on getting their permits.
 16 It's quite a time.
 17 As time has progressed the rules and
 18 standards that administer mining continue to evolve,
 19 whether on the matter of worker safety or environmental
 20 impact mitigation.
 21 We have state agencies and federal
 22 agencies that establish and enforce standards and lay
 23 out a clear path for reviewing and issuing permits. If
 24 an enterprise like PolyMet is committed to following the
 25 rules, to funding its environmental commitments, to

90

1 ensuring worker safety, then it needs to be allowed to
2 engage in that business.

3 In the absence of following our own
4 established rules, how is any enterprise to have
5 confidence that they would want to locate in Minnesota?
6 I believe our permitting and review process is robust
7 and it works. It's time to end the debate and move
8 forward with the permit to mine.

9 Two, I support allowing PolyMet to
10 advance their project as it relates to the benefits of
11 improvements to regional infrastructure. We've heard
12 many calls for approving this project on the basis of
13 jobs. And I absolutely agree.

14 But heavy industry like PolyMet
15 supports us in many ways. Industry supports the
16 expansion and protection of our harbor with products
17 coming in and out. Heavy industry like PolyMet supports
18 the construction and safety of rail.

19 Heavy industry like PolyMet supports
20 education and research, like that at NRRI. And heavy
21 industry like PolyMet supports the robust electric
22 infrastructure providing significant reliability for
23 which all Minnesotans benefit. Thank you.

24 (Applause)
25 JOHN ROSENE: Thank you so much. My 91

MPCA Comment 200

1 a slurry of toxic mine waste on top of unstable wetland
2 soils is a Mount Polley recipe for disaster. The Mount
3 Polley review panel warns it is not enough to tweak
4 around the edges of what we've been doing. We cannot
5 continue to use technology that is fundamentally --

6 MODERATOR GOURLAY: Hold the timer.
7 The mic just cut out. Her time was not up. In the
8 back, the mic just cut out. Is that one working? Do a
9 test MPCA Comment 200

10 LIBBY BENT: Hello? Yes? Okay. All
11 right. These are not problems of the past. Dam
12 failures are increasing and PolyMet has not analyzed the
13 increased risk of dam failure from higher precipitation
14 events due to global warming.

15 Perhaps most troubling, where is the
16 analysis of the value of one of the world's largest
17 fresh water deposits? Water is becoming desperately
18 scarce worldwide. 40 states could face clean water
19 shortages in the next ten years.

20 This decision will broadcast
21 Minnesota's priorities. Do we embrace a blue economy
22 and lead the way in mining landfills for strategic
23 metals and investing in copper and precious metal
24 recycling?

25 Or do we trade multi-billion gallons 93

1 name is John Rosene, I will proudly defer my time to
2 Libby Bent.

MPCA Comment 200

3 LIBBY BENT: Hi, I'm Libby Bent,
4 downstream resident of Duluth. And I oppose the
5 issuance of any permit. As my father observed, the
6 sheer complexity of the chemistry, hydrology, and
7 geology involved in sulfide mining without irreversible
8 pollution in our water rich environment boggles the
9 mind.

10 It's never been done because the cost
11 would be huge, far in excess of the value of extracted
12 metals. A more far-fetched industrial initiative is
13 difficult to imagine.

14 So, what is going on? How did this
15 plan make it past a federal law designed to protect
16 watersheds, headwaters on forest service land? A state
17 law requiring sulfide mines to be maintenance free on
18 closure and treaty rights to hunt, fish and gather on a
19 sea of territories requiring high biodiversity lands.

20 Why was the call for a health impact
21 assessment ignored, even as 30,000 health professionals
22 requested one? Why are warnings from mining engineers
23 that the tailings basin design is risky and unsafe going
24 unheeded?

25 The proposed upstream design to store 92

1 of our fresh water every year for deposits containing
2 less than 1 percent minerals, transforming our lake
3 country into a sea of toxic waste?

4 The rest of the world is choosing.
5 El Salvador prizes water over gold saying, "We are the
6 first country to evaluate the cost and benefits of
7 metallic mining and say no."

8 Buffalo, New York is transforming
9 their city from rust to blue, embracing an economy based
10 on the Niagara River and Lake Erie. And Minnesota, 50
11 years of cleaning up the St. Louis River, only to become
12 the land of sky tainted waters?

13 As my dad would say, it boggles the
14 mind. This decision is irreversible. For our future
15 and for the greatest lake in the world, we cannot get it
16 wrong. Please do not check one more box. Please reject
17 these permits.

18 (Applause)
19 DAVID IVONEN: Like many of the other
20 people here, I'm not really accustomed to public
21 speaking, but this is an issue that's really tough for
22 me. I grew up on the Iron Range, Chi sholm.

23 My grandfather drove or engineered
24 trains from The Range to the Superior area. Another
25 grandfather worked in the underground mines, a pioneer 94

From: Udd, Jeff (MPCA)
To: [Robin, Jim \(MPCA\)](#)
Subject: FW: PolyMet Water Pollution and Degradation
Date: Friday, March 9, 2018 2:42:34 PM

From: Clarizio, Michele (MPCA)
Sent: Friday, March 09, 2018 1:13 PM
To: Udd, Jeff (MPCA) <jeff.udd@state.mn.us>; Smith, Jeff J (MPCA) <jeff.j.smith@state.mn.us>
Subject: FW: PolyMet Water Pollution and Degradation

For the record...

From: Croitiene ganMoryn [<mailto:adanto@jps.net>]
Sent: Thursday, March 08, 2018 5:08 PM
Cc: Stine, John (MPCA) <john.stine@state.mn.us>
Subject: PolyMet Water Pollution and Degradation

Dear Mr. Stine,

MPCA Comment 201

Arguably, the Minnesota DNR had an excuse for its weak PolyMet draft Permit to Mine. There are state laws saying that part of the DNR's mission is to encourage minerals development. The mission of the Minnesota Pollution Control Agency (MPCA) is to protect the environment and Minnesota citizens from pollution.

- The MPCA draft water pollution permit for the PolyMet sulfide mine doesn't set limits on polluted seepage through groundwater to drinking water or surface water.
- The MPCA draft water pollution permit for the PolyMet doesn't even provide appropriate monitoring; PolyMet discharge in violation of the Clean Water Act could go completely undetected.
- The MPCA draft section 401 certification ignores the deficiencies in the water pollution permit and erroneously claims that the PolyMet sulfide mine project would not violate water quality standards or degrade Minnesota water quality.
- State agencies refused to evaluate impacts on human health from the PolyMet mine project using an open and public health impact assessment (HIA) process, even though 30,000 Minnesota medical and health professionals asked for an HIA to assess pollution threats including brain damage to fetuses, infants and children from mercury

contamination of fish.

- Now, the MPCA draft section 401 certification accepts PolyMet's "exclusions" and junk science to erroneously claim that the PolyMet sulfide mine project would not endanger the environment and human health.

I oppose this permit! Please DENY the PolyMet permit!

Sincerest Regards,

Croitienne n. ganMoryn

From: Udd, Jeff (MPCA)
To: [Robin, Jim \(MPCA\)](#)
Subject: FW: PolyMet draft permit - a citizen comment
Date: Monday, March 12, 2018 9:18:59 AM

From: Clarizio, Michele (MPCA)
Sent: Saturday, March 10, 2018 11:37 AM
To: Udd, Jeff (MPCA) <jeff.udd@state.mn.us>; Smith, Jeff J (MPCA) <jeff.j.smith@state.mn.us>
Cc: Stine, John (MPCA) <john.stine@state.mn.us>
Subject: FW: PolyMet draft permit - a citizen comment

From: Amelia Kroeger [<mailto:ackroeger@aol.com>]
Sent: Saturday, March 10, 2018 7:53 AM
To: Stine, John (MPCA) <john.stine@state.mn.us>
Subject: PolyMet draft permit - a citizen comment

MPCA Comment 202

**Dear Commissioner Stine,
MPCA's draft water pollution permit misses on setting contamination limits on PolyMet waste facilities seepage to wetlands and streams and doesn't even require monitoring for the quality of surface water, thus violating the Clean Water Act.**

MPCA is allowing PolyMet to skew forms allowing them to deny any threats to water quality including wetlands, wild rice, mercury in fish, and threats to the health of people.

There is something dreadfully wrong when a company can be allowed, gratis, to contaminate our water. The MPCA needs to protect our waters from sulfide mine pollution!

* * * * *

I strongly urge the MPCA to deny water pollution (NPDES/SDS) permit and deny the Section 401 certification for the PolyMet copper-nickel mine project.

The proposed NPDES/SDS permit is weak and fails to control the biggest threat from sulfide mining – the seepage of contaminated wastes to groundwater and then to drinking water and surface water from mine pits, waste rock stockpiles tailings basins and other sulfide mine waste storage facilities.

The Section 401 certification relies on PolyMet's assumptions, exclusions and misleading information to claim that the PolyMet sulfide mine would not violate water quality standards, degrade water quality, and endanger the environment and human health.

The PolyMet draft NPDES/SDs permit and draft 401 certification would conflict with federal and state laws and would jeopardize Minnesota water quality, natural resources, health and finances.

***The MPCA draft water pollution permit for the PolyMet sulfide mine wouldn't set limits on polluted seepage through groundwater to drinking water or**

surface water.

***The MPCA draft water pollution permit for the PolyMet wouldn't even provide appropriate monitoring; PolyMet's pollution seeping from groundwater and welling up in wetlands and streams in violation of the Clean Water Act could go completely undetected.**

***The MPCA draft section 401 certification would ignore the deficiencies in the water pollution permit and erroneously claims that the PolyMet sulfide mine project would not violate water quality standards or degrade Minnesota water quality.**

***The MPCA, along with other State agencies refused to evaluate impacts on human health from the PolyMet mine project through an open and public health impact assessment (HIA) process, even though groups representing 30,000 Minnesota medical and health professionals asked for an HIA to assess threats including brain damage to fetuses, infants and children from mercury contamination of fish.**

***Now, the MPCA draft section 401 certification would accept PolyMet's exclusions, assumptions and junk science to erroneously claim that the PolyMet sulfide mine project would not endanger the environment and human health.**

Please accept your Agency's mission as a protector of Minnesota waters, fish, wild rice, wildlife, wetlands and human health not the protector of foreign mining companies seeking profit at our expense.

On behalf of the people of Minnesota and clean water, I ask you to reject and deny the draft water pollution (NPDES/SDS) permit and the draft 401 certification for the PolyMet copper-nickel sulfide mine project.

Sincerely,

**Amelia Kroeger
10720 Toledo Court
Bloomington MN 55437
952-884-3406**



MPCA Draft NPDES/SDS Permit (MN0071013)
MPCA Draft Air Permit (MN13700345-101)
MPCA Draft Section 401 Certification
Petition for Contested Case Hearings

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

March 15, 2018

In the Matter of the PolyMet NorthMet Copper-Nickel Mine Project

Dear Commissioner Stine,

Re: 401 Certification, draft Air and Water Quality Permits for the PolyMet - NorthMet Mine

MPCA Comment 203

These comments are being submitted on behalf of the following conservation organizations: Save Our Sky Blue Waters, Save Lake Superior Association, and Wetlands Action Group (hereinafter, "Organizations"). The Organizations submit these comments and Petition and Request for a Contested Case Hearing on the Minnesota Pollution Control Agency (MPCA) proposed Clean Water Act Section 401 Water Quality Certification for the Section 404 (Wetlands) Permit for PolyMet Mining, Inc.'s proposed NorthMet Project. The Conservation Organizations believe that the NorthMet Project may result in water quality standard violations on several bases. Some of these are covered by the Petition for Contested Case Hearing on the NPDES/SDS Permit that will be submitted by Minnesota Center for Environmental Advocacy, et al. We are also requesting a contested case hearing on the Water Quality Permit for the proposed PolyMet - NorthMet Mine.

Save Our Sky Blue Waters (SOSBW) is a Duluth based grassroots non-profit organization dedicated to protecting the waters, forests, wildlife and local communities of Minnesota's Arrowhead Region. The Arrowhead Region has been known as one of the most magnificent areas of the state, for its majestic forests, wetlands, and waters and because it contains the headwaters of three great watersheds: north to Rainy River, east to Lake Superior, and south to the Mississippi. The protection of these valuable resources is SOSBW's core mission. SOSBW

developed in response to proposed copper-nickel sulfide mining and exploration in northeastern Minnesota and has consistently participated at all levels in the ongoing environmental review and approval process involving the proposed PolyMet NorthMet Mine proposal. Protecting the health of the St. Louis River watershed and Lake Superior is a key component of the mission of SOSBW. Save Our Sky Blue Waters' members live, depend upon, enjoy, recreate, fish, eat and gather locally from the lands and waters, and own property in the area that would be adversely impacted by PolyMet's proposed mine.

Save Lake Superior Association (SLSA) is headquartered in Two Harbors, MN with members residing in the three states and a province on Lake Superior's shoreline and watershed. SLSA has about 250 members, many of whom fish and recreate along the North Shore of Lake Superior, in its watershed, and in the St. Louis River estuary. The mission of SLSA is to prevent further degradation of Lake Superior and to promote its rehabilitation. SLSA was formed in 1969 to stop the discharge of taconite tailings into Lake Superior by Reserve Mining Company. This waste material contains many of the same toxins such as mercury and asbestos fibers that would be generated by the mining and processing of sulfide ore by PolyMet. As stakeholders SLSA is concerned about the potential destruction of natural habitat and the pollution of both air and water in the watershed of Lake Superior, and ultimately the Lake itself, should PolyMet be permitted. Lake Superior and its watershed are downwind and downstream from current taconite and proposed sulfide mining, both of which emit these toxic substances. Even now SLSA's members, friends, and families, especially children, must limit their fish consumption due to the continuing pollution. Many are unaware of the danger and continue to consume fish as part of their daily diet. SLSA's members, and others who visit the local parks, streams, trails, shoreline, and the lake itself, are unknowingly exposed to these toxins. The release of more toxins by new mining operations would exponentially increase the pollution of the air we breathe and the water we drink.

Wetlands Action Group (WAG) represents citizens of Northeast Minnesota seeking to protect the region's waters, wetlands and watersheds. WAG became active following an improper decision by St. Louis County commissioners in 2006 to enter into an agreement for a wetlands mitigation plan for the PolyMet mine. Legal action by WAG and local citizens nullified this agreement. WAG has continued to follow, make comments, and attend meetings and hearings on the PolyMet proposal along with simultaneous wetland actions set in place to facilitate mining. Its members and supporters depend upon the water, wetlands, forests, and ecological resources of our area, and its mission is to preserve these resources for present and future generations. WAG's members who recreate, fish, eat wild rice, live in this area, or otherwise enjoy the Arrowhead region would be harmed by PolyMet's mine if it were approved. Our groups believe the permits for PolyMet's proposed sulfide mine must be denied. The proposed permits cannot and do not protect future generations from the long-term impacts of sulfide mining.

PolyMet's permits are written to allow contamination up to the site's boundary line, which encompasses many square miles. In Minnesota, groundwater belongs to the public even when it

is located within private property, just as surface water does. The permits need to address how polluted water from the PolyMet site will impact ground water.

The Environmental Impact Statement (EIS) promised that an underground wall built to contain and collect groundwater in the most polluted areas will be at least 90 percent effective. The permits deem the system acceptable if it works under "average annual conditions," effectively disregarding the potential for snowmelt and heavy rainfall to flush pollution through cracks in the wall. The permits provide no standards and no fines if the system fails -- even if surface streams become polluted as a result.

The most disturbing aspect of this plan is that there is no end point. Modeling suggests that the underground barriers will need to stay intact -- along with a continuously operating pump-and-treat system -- for centuries.

Also continuing for a thousand years or more are the dangers presented by the tailings basin dam. It is unconscionable to allow more liquid tailings to be stored on an outdated and contaminated existing tailings basin. We object to the State of Minnesota sanctioning this threat to future generations living downstream.

- Air emissions have not been adequately addressed. These include arsenic, mercury, sulfur, blasting compounds, and metals and dust from the blasting, hauling, crushing, and hydrometallurgical process.
- Synergistic effects upon human and environmental health have not been addressed.
- Cumulative impacts are missing, resulting in weak and/ or faulty environmental conclusions (errors).
- Air emissions will exacerbate water quality violations, but have not been figured in.
- Rail spillage is not adequately considered, although this would have broad ramifications for toxicity to the environment and water resources.
- It is contradictory to consider wetlands as mitigation for toxic metals without considering the over-all impacts to the ecological health of the wetlands themselves, and the biosystems that are dependent upon them.
- Baseline monitoring/modeling must be done on wetlands that would be impacted by PolyMet's mining.
- Mercury is a concern for the entire Great Lakes basin. No new or increased loads or discharges of mercury should be allowed. The conclusion that this project will not contribute additional mercury to the Lake Superior basin is in error.
- Nickel modeling must be redone, especially due to the fact that nickel will be the hardest to extract from the ores, so there will likely be high amounts left in plant residues.
- Seasonal and other fluctuations in water cycles must be considered in wetlands' ability to sequester toxic metals.
- Aluminum must be accurately addressed in spillage models.
- It is not sufficient to address water quality problems after they develop.

We also ask that MPCA and MDNR consolidate all of the permits and issues into one hearing. There is a great deal of overlap between the permits, including the 401 Certification.

Conclusion: The PolyMet EIS, and subsequent draft permits and proposed 401 Certification, evade the seriousness of pollution impacts to the air, surface, and waters of the NorthMet site and surrounding wetlands, forests, and waters--and the co-existant aquatic, plant, and wildlife species--as well as impacts to human health.

This environmental process, as it now stands, will only lead to the continued degradation of the environment and water of northeast Minnesota--for all future generations. Please protect the future of the people, wildlife and waters of northeastern Minnesota by saying “no” to this mine plan.

Incorporate by Reference

The Conservation Organizations incorporate by reference our comments on the PolyMet NorthMet Mine and Land Exchange EIS; the Comments of MCEA *et al.* on the NorthMet Dam Safety Permits submitted to the DNR on October 16, 2017; the Joint Petition of MCEA *et al.* for a Contested Case Hearing on the NorthMet Permit to Mine Application submitted to DNR on February 28, 2018; the Comments and Objections of MCEA *et al.* to the DNR on the NorthMet Mine Project Permit to Mine Application submitted to the DNR on March 6, 2018; Friends of the Boundary Waters *et al.* Petition for Contested Case Hearing on Section 401 Certification for the NorthMet Mine. The Conservation Organizations request that these documents be considered as part of our comments. We are submitting the *Friends of BWCAW_CBD Petition for CCH (2).pdf* as part of our comments and petition.

Thank you for the opportunity to comment on this proposed project, which has enormous implications for the Superior National Forest, the Arrowhead region, the state of Minnesota, and the Lake Superior watershed.

We believe that a contested case hearing(s) is necessary to correct errors for the draft Water Quality Permit and 401 Certification.

Respectfully submitted,

Elanne Palcich
Director
Save Our Sky Blue Waters
P.O. Box 3661
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LeRoger Lind
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llind@yahoo.com
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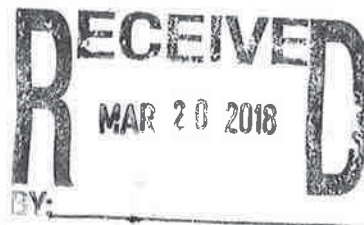
Bob Tammen
President
Wetlands Action Group
23 6th Ave.
Soudan, MN 55782
bobtammen@frontiernet.net
218-753-2393

Subject: PolyMet MPCA Permits (Water, Air, and 401 Certification).

1. The One Hundred Mile Swamp was cut off before it crossed the Laurentian Divide on 10 Environmental Impact Statement (EIS) maps; these maps could have been corrected before the Final EIS was released to the public, but they were not. Minnesota's agencies have already allowed removal of bedrock pillars by taconite mining at the Peter Mitchell mine, essentially removing the Laurentian Divide. If permitted, PolyMet's toxic sulfide mining pollution could flow north, not only through the Peter Mitchell pit to Birch Lake, but also by way of the One Hundred Mile Swamp, following the directional flow of groundwater determined by geologic rock types and their associated structures beneath the Laurentian Divide. The contaminant migration pathways have had little to no scrutiny in PolyMet's EIS, and cannot be known with any certainty without detailed onsite hydro-geologic investigations.

2. "The BWCAW and Voyageurs National Park are located in different watersheds than the NorthMet Project area. Surface water flow and surficial groundwater flow from the NorthMet Project Proposed Action would not directly, indirectly, or cumulatively affect the water in these areas. Potential bedrock groundwater flow from the Mine Site north to the Northshore Mine, if determined possible through monitoring, would be prevented." (PolyMet) Prevented how? "Adaptive management strategy" is meaningless, unscientific, and makes all risk assessments invalid. All contamination management issues must have scientifically proven plans in place before permitting, not after. A mythical water mound will not stop contamination from seeping into the Peter Mitchell Pit to be released into Birch Lake—into the Kawishiwi River watershed—flowing to the Boundary Waters Canoe Area Wilderness. The entire PolyMet permit has been based on PolyMet not polluting two watersheds. Only polluting waters of the St. Louis River watershed, as if that was acceptable. Absolutely not the Kawishiwi River/Rainy River watershed! The people of Minnesota are being deceived with an unproven, improbable scenario and with altered maps of a significant wetland area at the NorthMet mining site.

3. PolyMet testwork showed that LTVSMC tailings leached arsenic; indicating the basin should not be disturbed, nor the tailings used for covers and dams, due to the high potential for toxic releases of arsenic to groundwater—releases above water quality standards. Documented elevated arsenic risks—discussed within the agencies at the beginning of the permitting process— were tied to the No Action Alternative. Yet the agencies went ahead with a plan to deliberately disturb the basin and use the tailings for other purposes. **Was the public ever informed in the EIS of this serious arsenic issue?** The No Action Alternative was the only valid choice from the beginning; it is still the only valid choice. (Or building a new tailings basin.) It is not scientifically valid to reuse the LTVSMC tailings basin for copper-nickel sulfide mining. Apparently, since the LTVSMC tailings basin is already leaking, the agency solution is to risk releasing high levels of arsenic—then add massive amounts of toxic sulfide mining waste to the already leaking basin—and then capture the basin's legacy pollution, including arsenic, at the same time that PolyMet collects and treats the entire overwhelming mess. Whenever that may be. It is delusional.



4. Adding massive amounts of toxic sulfide mining pollution to an already leaking, polluted basin while risking the release of arsenic—then collecting everything—is scientifically impossible on such a scale. Where is the scientific proof, where has it been done on such a scale in a like environment? To experiment with Minnesota's waters is not in the best interest of the people of Minnesota. Requiring Cliffs Erie to put in a collection system and to clean up the mess it assumed responsibility for would have been the best choice for Minnesota. It is fiscally irresponsible for the state of Minnesota to permit sulfide mining. The monetary losses would far outweigh the gains. Our waters are Minnesota's most valuable resource, environmentally, economically, and strategically.
5. It is false that virtually all of the pollution can be collected. And if by some miracle that could occur, it would only weaken a tailings basin that is designed to leak for stability. Once tailings are deposited in the LTVSMC basin there are two choices, let the basin leak or return all polluted waters to a basin that would then only become increasingly unstable, leaving Minnesota with an ever greater risk of catastrophic failure.
6. NorthMet would become a toxic pit; there is no feasible way to keep the exposed Virginia Formation from turning pit waters into a death trap for wildlife, particularly waterfowl.
7. The Duluth Complex is a sole-source aquifer. Exploration drilling has turned the area into a contamination network for proposed sulfide mining pollution. Destroying a region's water supply is criminal.
8. No cost/benefit analysis has been done for PolyMet.
9. The number of projected mining jobs would be highly questionable; the amount of mining waste generated annually by PolyMet's proposed NorthMet Project fluctuates significantly over the proposed 20 years of operations, which translates to fluctuating mining layoffs with significantly unstable economic benefits. This fact was not made clear in PolyMet's Environmental Impact Statement.
10. No adequate risk assessment (including for human health) has been done for PolyMet. PolyMet has not done a risk assessment, they have many disparate reports, and none are cumulatively put together as a human health or environmental risk assessment. A complete Human Health and Ecological Risk Assessment needs to be done to assess cumulative impacts to the human environment, as required under NEPA. The Air Emissions Risk Assessment (AERA) in the FEIS cannot be reviewed for accuracy or completeness by anyone because the full report has not been provided anywhere. The AERA does not qualify as a human health risk assessment such as the USEPA uses (USEPA Risk Assessment Guidance for Superfund, EPA/540/R95/132PB96-963203), and the LTVSMC plant site is a superfund site. The MPCA AERA process is not written in Rule but is an agency administrative policy. The AERA lacks outside scientific peer review by such agencies as USEPA. Thus the use of the AERA resulted in an inadequate human health evaluation for the air in PolyMet's Final EIS. No other risk assessments have been performed for soils, sediments, surface or groundwater, even though impacts are documented currently

in the FEIS references in both the surface and groundwater from the existing LTVSMC plant site. These impacts must be added to PolyMet's proposed use of tons of additional chemicals including the surfeit of waste minerals and elements that have been identified within in the rock from numerous reports from such sources as DNR minerals and the NRRI. These wastes will require perpetual treatment as stated in the FEIS. NEPA requires EIS's to protect the human environment (NEPA sec. 2). This requirement has not been met, and is a major omission invalidating PolyMet's FEIS. Since there was not a standard human health risk assessment performed on the air, soils, sediments, surface or groundwater, the DNR cannot certify that human health will be protected. The lack of protection of human health in air, soils, sediments and water means the DNR cannot issue PolyMet water appropriation permits under MN. Statute 103G.297 Subd. 3 (2) & (3). Nor can the MPCA issue an air quality permit, a water quality permit, or a 401 Water Quality Certification for PolyMet.

11. No comprehensive, independent Health Impact Assessment has been done for the PolyMet Project, despite repeated requests from Minnesota's health professionals; all requests were denied, denying the utmost protection to the public, particularly to Minnesota's children.
12. The addition of toxic sulfide mining waste—including dozens of chemicals that were unidentified in the EIS—to a basin already contaminated with high levels of arsenic, is putting the children of Minnesota at extreme risk for physical and neurological impairment. Also, chemicals associated with the PolyMet Project—identified and unidentified in the EIS—have not been studied synergistically. Total toxicity has been vastly under reported.
13. No cost/benefit analysis has been done for a sulfide mining industrial complex.
14. No cumulative impact/risk assessment, inclusive of human health, has been done for a sulfide mining industrial complex. The public needs to know what the probable impact of a sulfide mining industrial complex would be, before we begin to permit such a complex with PolyMet. A cumulative risk assessment—including for health—is critical for a massive sulfide mining industrial complex in such a rare water-rich environment as northeastern Minnesota. It is false to claim each mine is permitted on its own merits when the agencies are well aware that once the standards are set for PolyMet they are set for all sulfide mining companies seeking permits in Minnesota.
15. Minnesotans have not been given an accurate way to gauge the true cost of what the public is risking. The only acceptable financial assurance under such unknown risk—for a high-risk industry in a high-risk location—is total projected costs in cash—including reclamation costs—upfront. Or no permit. Must also include insurance for catastrophic failures or natural disasters, which it is highly doubtful PolyMet could obtain. Minnesota must not take on the industry's risk. All cash up front or no permit. The proposed financial assurance is far too low, and payment comes far too late in the mining process.

16. Who is lying? The taconite industry that says it cannot use reverse osmosis. Or PolyMet that claims it could use reverse osmosis for sulfide mining, but then uses taconite tailings leachate-contaminated water for its "Successful Water Treatment Plant." PolyMet cannot be permitted when its 'successful' use of reverse osmosis is suspect and unverifiable. And the concentrated contaminants that would remain after reverse osmosis have unknown levels of toxicity, and therefore unknown disposability. There are no other examples of sulfide mines of this scale in a comparable water-intensive environment and climate that have not polluted surrounding waters. The entire EIS is based on PolyMet's ability to use reverse osmosis successfully. No proof. No permit.
17. When I asked for an explanation as to why information from Barr Engineering contradicted the DNR classification for a 100-year event, the DNR refused to answer. I was questioning the assertion in the Duluth News Tribune that PolyMet was now designing its tailings dam to withstand a 1,000-year event, and asking how that determination had been made. Initially the DNR sent me a portion of an email from Barr, "the proposer," to explain why a Duluth News Tribune article suddenly referenced a PMP. Part of that email stated the following: "The Flotation Tailings Basin has been designed to hold the 72-hour Probable Maximum Precipitation (PMP) event, which is approximately 38 inches, without overtopping. The PMP does not have an assigned return period. 10 year – about 4" in 72 hours, 100 year – about 6" in 72 hours, 1000 year – about 9" in 72 hours, PMP – 38" in 72 hours." I then questioned the fact that the PolyMet EIS consistently referred to a 100-year event as being in 24 hours. As did the DNR website, "A 24-hour duration 100-year storm for most Minnesota communities is roughly six to seven inches." It was when I asked the following questions that the DNR became less than forthcoming. I asked, "Why then has Barr or proposer decided to state that a 100-year event is about 6 inches in 72 hours, rather than 6 inches in 24 hours?" I added, "I am also wondering how it is possible to upgrade PolyMet's tailings basin to a so-called PMP, without also upgrading the entire interconnected EIS, which was based on a 100-year event?" The DNR response was as follows. "Thanks for your interest and questions. We will be addressing all comments during the permitting process." (I was responding to an email I received from the DNR, not a draft permit application.) So, why has Barr/proposer decided to state that a 100-year event is about 6 inches in 72 hours, rather than in 24 hours? It appears such a change would skew the results of a PMP. Spreading six inches over 72 hours, instead of six inches of rainfall in 24 hours, certainly makes a difference in flooding potential. Again, I am wondering how it is possible to upgrade PolyMet's tailings basin to a so-called PMP, without also upgrading the entire interconnected EIS, which was based on a 100-year event not a 1000-year event?" I am also aware that a 100-year event or a 1000-year event can occur at any time, it is a matter of percentages. 500-year events are no longer rare, yet PolyMet's EIS is still based on a 100-year event.
18. Which raises the point that an EIS largely based on a 100-year event is wholly inadequate in a time of great climate change, when 500-year events are becoming more and more frequent, and 1000-year events are occurring as well.

Submitted by:
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P.O. Box 336
(1177 Ring Rock Road)
Ely, Minnesota 55731



RECEIVED
MPCA

MAR 07 2018

March 6, 2018

Dear *John,*

Commissioners
Office

MPCA Comment 200

Please find enclosed an urgent new report detailing how the PolyMet Inc. NorthMet permit application did not adequately consider increasing precipitation resulting from climate change or the impact of snow melt in their tailings basin and dam design. The members of Duluth for Clean Water call for the PolyMet permit to mine to be denied. We are sharing the findings of this report in the hopes that you will join us.

Climate change has already resulted in marked decreases in extreme cold and increasing rain in every month of the year in Northern Minnesota.

Duluth for Clean Water sought to understand how the PolyMet proposal accounts for anticipated climate change impacts in the future. With indefinite water treatment planned at the copper/nickel mine tailings basin, due diligence requires consideration of the impacts of long-range climate trends on the tailings basin and dam. This is *absolutely essential* to protect downstream and nearby communities.

Through a grant from the Indigenous Environmental Network, we engaged respected hydrologist and engineer, Tom Myers, Ph.D¹, to analyze the underlying assumptions on precipitation events as they relate to the PolyMet permit applications.

The resulting report shows that PolyMet did not plan for climate change impacts in its tailings basin design. The report (enclosed) compares the probable maximum precipitation (PMP) predicted in the proposed PolyMet tailings basin alongside local climate change models for Biwabik, MN.

Not only did PolyMet fail to account for increasing precipitation resulting from climate change, the applicant failed to consider the impacts of melting snowpack **at all.**

The PMP reflected in PolyMet's proposed tailings basin design is only **55%** of the PMP when both snowpack and increasing heavy rainfall are considered (38 inches

¹ Dr. Myers C.V. <https://www.scribd.com/document/93352229/Tom-Myers-Ph-D>

versus 68 inches in 72 hours). Such a discrepancy would significantly increase the chance of dam failure, either by overtopping, piping, or foundation failure.

This is unacceptable and dangerous to Minnesota, especially downstream communities. The agencies charged with protecting Minnesotans and our portion of the Lake Superior watershed have a duty to act. By not accounting for accurate precipitation events and by disregarding snowpack, the NorthMet permit as drafted is inadequate. Please join Duluth for Clean Water in speaking publicly about these concerns and request the permit be denied. Demand action from both the permitting agencies and our local, state and federal elected officials.

The safety of our communities and the long-term future of Lake Superior lies in our hands today.

Sincerely,

Libby Bent, PhD, Inorganic Chemistry

Deanna Erickson, MEd, BS Natural Resource Management

JT Haines, JD MPP, Co-Lead Organizer

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Duluth for Clean Water is an all-volunteer not-for-profit organization registered in the state of Minnesota.

**Risk Analysis of Probable Maximum Flood and Climate Change
at the PolyMet Flotation Tailings Basin**

February 27, 2018

Prepared for Duluth for Clean Water

Prepared by Tom Myers, PhD, Hydrologic Consultant, Reno NV

Table of Contents

1.0 Executive Summary	4
2.0 Introduction	5
3.0 Background	6
3.1 Tailings Pond Failures	6
3.2 Probable Maximum Precipitation and Floods	7
4.0 PolyMet Tailings Impoundment	9
4.1 Flood Estimate and Design at the PolyMet Tailings Impoundment	9
5.0 Climate Change in the Project Area	15
5.1 Precipitation	17
5.11 Probable Maximum Precipitation	23
5.2 Flooding	25
6.0 Effects of Climate Change at PolyMet	27
7.0 Conclusion – Qualitative Risk Assessment of the Potential Damages of a PMP	30
8.0 References	30

Figures

<i>Figure 1: Portion of Figure 3-1, Barr (2008) Attachment A-5, showing the current drainage areas and land use to the tailings impoundment.</i>	8
<i>Figure 2: Portion of Large Figure 1 (PolyMet 2017) showing the Plant Site and area to the east that drains to the plant site.</i>	9
<i>Figure 3: Portion of PolyMet (2017) Large Figure 7 showing the Water Management Plan for the Plant, at full buildout after 20 years.</i>	10
<i>Figure 4: Relation of drainage area, storm duration and probable maximum precipitation depth (Weaver 2011).</i>	11
<i>Figure 5: Global mean temperature estimates based on land and ocean data (AGU Blogosphere, January 18, 2018, https://blogs.agu.org/wildwildscience/2018/01/18/2017-another-year-amazing-heat-not-natural-greenhouse-gases/)</i>	13
<i>Figure 6: Figure 3 from Interagency Committee on Climate Change (2017) showing total temperature change by region and season.</i>	13
<i>Figure 7: Observed temperature change over the past century (EPA 2016)</i>	14
<i>Figure 8: Figure 2.12 from Walsh et al (2014) showing the annual precipitation changes for 1991-2012 compared to the 1901-1960 average.</i>	15
<i>Figure 9: Figure 4 from Interagency Climate Adaptation Team (2017) showing average annual Minnesota precipitation.</i>	16

2

<i>Figure 10: Figure 2.18 from Walsh et al (2014) showing percent increases in very heavy events from 1958 through 2012.</i>	16
<i>Figure 11: Figure 2.17 from Walsh et al (2014) showing the observed changes in the annual amount of precipitation that falls in very heavy events.</i>	17
<i>Figure 12: Figure 2.19 from Walsh et al (2014) showing the projected change in heavy precipitation events for the period 2018-2100 for two potential emissions scenarios. The scale is a multiplier, meaning that frequency will be multiplied by the value in the legend</i>	18
<i>Figure 13: Figure 5 from Interagency Climate Adaptation Team (2017) showing changes in heavy precipitation frequency and intensity for Minnesota.</i>	19
<i>Figure 14: Figure 1 from Kunkel et al (2013). Thirty-year maximum PW for 1971-2000 (mm) averaged over seven climate models (top), fractional change in 12 hour precipitable water (middle) and 6-hour upward motion (bottom) for 2071-2100 relative to 1971-2000, respectively.</i>	21
<i>Figure 15: Top of Figure 2 (Kunkel et al 2013). Fractional change of simulated maximum daily precipitation, for 2071-2200 relative to 1971-2000.</i>	22
<i>Figure 16: Figure 2.21 from Walsh et al (2014) showing trends in flood magnitude.</i>	23
<i>Figure 17: Slide from Powerpoint Presentation, Climate System Research Center and UMass Amherst (undated).</i>	24
<i>Figure 18: Snowfall accumulations at Babbitt MN, as labeled. From www.weather.gov/dlh/ accessed 1/23/18</i>	26
<i>Figure 19: Snowfall accumulations at Babbitt MN, as labeled. From www.weather.gov/dlh/ accessed 1/23/18</i>	26

1.0 Executive Summary

The proposed PolyMet mine is in northeastern Minnesota near the towns of Babbitt and Embarrass, near the topographic divide between the Partridge and Embarrass River in an area that has experienced significant climate change. Temperatures and annual precipitation has increased substantially, as has the intensity of storms.

Probable maximum precipitation (PMP) is the greatest accumulation or depth of precipitation for a given time duration that is meteorologically possible for an area or a point. The largest potential flood for an area is often considered the probable maximum flood (PMF), which is not simply the runoff resulting from a PMP on a watershed, but depends on the antecedent conditions within the watershed, including soil wetness, snowpack, and temperature during the storm (for melting snow), although precipitation tends to be higher when the atmosphere is warmer.

A PMP may be determined by estimating the precipitation that would occur if atmospheric moisture, transport of moisture into storms, persistent upward motion, and strong winds where orographic uplift is important are optimized for a particular place and situation. Simple scaling allows the precipitation from a heavy storm to be scaled upward by multiplying the observed precipitation by the ratio of probable maximum precipitable water (PW) to PW observed for the storm.

Global warming caused by an increase in greenhouse gases increases the ocean heat content which also increases atmospheric water vapor. Because changes in wind are unlikely to counter the effects of increasing the atmospheric water vapor, PMP estimates are likely to increase proportional to the water vapor increase. The current PMP estimate can be scaled upward according to projected increase in PW due to global warming to estimate the PMP likely in the future.

The PolyMet tailings basin is effectively a closed basin with no inflow other than possibly during its first few years. It would be constructed on top of an existing taconite tailings impoundment rather than on a firm foundation. Freeboard will vary depending on the initial conditions, but if there is a 100-year snowpack or a substantial storm occurring six days prior to the PMP, as described above, it is likely to be minimal.

The relevant PMP is effectively that for a single point without considering runoff. Precipitation will either pond or seep into the surface of the impoundment, therefore the relevant storm is the longest significant one over a small area, meaning the 72-hour event. Considering the northern location, snowpack could also be relevant for a late spring PMP on snowmelt event.

Using the standard methods, PolyMet estimated the PMP to be 38 inches in 72 hours. Climate change will add up to 30% to that, bringing the PMP to 49.4 inches in 72 hours. A reasonable snowpack estimate would add a snow water equivalent of about 18.8 inches. The total PMF that would end up in the tailings basin is the sum of 49.4 and 18.8, or 68.2 inches, within 72 hours. This is almost twice the value analyzed by PolyMet for the PMP/PMF.

The global warming enhanced PMF runoff would increase the hydrostatic pressure by at least an additional 30 inches on top of the already rapid increase caused by the PMP. This substantially increases the potential for a piping failure of the impoundment. Depending on the amount of tailings beach and other runoff area, the additional rainfall could be sufficient to exceed the freeboard and cause a dam overtopping or at least the use of the spillway.

Regardless of the specific mechanism, the PMP with global warming significantly increases the chance of dam failure, either by overtopping, piping or foundation failure. PolyMet has not analyzed these potential risks.

2.0 Introduction

On August 4, 2014, the tailings impoundment at the Mt Polley Mine in British Columbia failed, releasing 10 million cubic metres of water and 4.5 million cubic metres of slurry into Polley Lake, from which the waste continued to flow through Hazeltine and Cariboo Creek into Quesnel Lake. A four-kilometer tailings impoundment emptied into and contaminated water bodies for miles downstream. Even though the failure was not due to flooding, the failure increased awareness of the potential for large tailings impoundments to fail and destroy downstream water bodies.

The PolyMet Copper/Nickel mine proposes to construct a copper/nickel mine in sulfide ore near the headwaters of the Embarrass River. A flotation tailings basin (FTB) ultimately holding 225,000,000 tons of tailings would be constructed on top of an existing taconite tailings impoundment (Figure 1). Flood analyses for the FTB considered the probable maximum flood (PMF), it did not consider how the probable maximum precipitation (PMP) that drives the PMF would change in the future due to global warming.

The purpose of this report is to consider how climate change increases the risks of flood failure for the PolyMet FTB. This report describes the design of the FTB at PolyMet and how the climate is changing both globally and in Minnesota near the project. The report considers how a PMP is estimated and how it is used to estimate the PMF for tailings dam construction. The report also discusses the factors of PMPs and PMFs that will change as the climate warms. The report estimates the increases in PMP and PMF that will occur at PolyMet over the next 100 years.

Modern dams, both tailings and water storage, are designed with the assumption of climatic stationarity by using a static design value of PMP. Currently accepted PMP values are significantly increased when future changes in dew points from observational trends or numerical models are taken into account (Stratz 2014).

3.0 Background

3.1 Tailings Pond Failures

Over 400 tailings dams have failed worldwide over the past several decades (Rico et al 2008). Tailings dams fail like water storage dams, but they are not constructed and operated like water storage dams, and the differences lead to them being more vulnerable to failure than water storage dams. The differences include their embankments being formed by locally derived fill, the dam being raised in multiple stages which create contact points between construction layers, less regulation than water storage dams, dam stability requires constant monitoring, and because remediation after mining ceases is very costly (Rico et al 2008).

Many factors cause tailings impoundments to fail, including flooding, piping, overtopping, liquefaction, or a combination (Rico et al 2008). Mt Polley failed due to a failure in the foundation (IEEIRP 2015). Tailings dam failures discharge polluted water and tailings with a variety of textural and physical-chemical properties. The amount of water in the impoundment is as important as the volume of tails and the dam height, in most instances (Rourke and Luppnow 2015).

The damage caused by a tailings dam failure depends on the amount of the dam that is released and how far it flows downstream. The water content of tailings helps control the length of run-out during a failure, with more water leading to longer run-out (Rico et al 2008). Floods into the tailings impoundment can increase the water content and make for a highly variable consistency, with some mostly water and some being primarily a tailings paste. Run out also increases with the height of the dam.

A larger pond area, meaning ponded water on the surface of the tails, as a proportion of the tailings impoundment surface area, leads to large amount of tailings released upon failure (Rourke and Luppnow 2015), in addition to increasing the hydrostatic pressure on the dam. As the moisture in the tailings increases beyond a certain point, dependent on the type of tailings, decreases the cohesion in tailings making them more likely to slide. These factors indicate that flood events can lead to failures even if they do not cause overtopping.

3.2 Probable Maximum Precipitation and Floods

Probable maximum precipitation (PMP) is the greatest accumulation or depth of precipitation for a given time duration that is meteorologically possible for an area or a point (Kunkel et al 2013). It may also be considered to be the maximum precipitation that is potentially possible for an area. The largest potential flood for an area is often considered the probable maximum flood (PMF). The PMF is not simply the runoff resulting from a PMP on a watershed, but rather depends also on the antecedent conditions within the watershed, including soil wetness, snowpack, and temperature during the storm (for melting snow), although precipitation tends to be higher when the atmosphere is warmer. Clavet-Gaumont et al (2017) define a PMF as the flood resulting from either a PMP on top of a 100-year snowpack or a 100-year rainfall on top of a “mature probable maximum snow accumulation”. They also found seasonal differences that relate to northern watersheds, with the highest precipitable water in a storm event occurring in late spring when snowpack is close to maximum and to being ripe. (In a tailings basin with no inflow, the PMF may simply be the depth of the added rainfall, or equal to the entire PMP over the contributing area.)

PMPs can be estimated in two ways, using either statistical or physically-based methods. A statistical method involves fitting observed data, usually precipitation for a relevant storm duration, to a probability distribution. Then, storms are stochastically generated using the probability distribution (Beauchamp et al 2013). This means that using a probability distribution that describes the storm amounts occurring in an area and a random number generator, a series of storms are created for analysis.

A physically-based method is one in which an observed severe weather event is analyzed and upgraded using a series of “what if” considerations. Specifically, how much more water could have been advected into the storms? That may be considered with precipitable water (PW) measurements and estimates. PW is the total depth of water in a column of the atmosphere. Wind speeds and directions could also be adjusted to maximize orographic effects. A physically-based model may be better than a statistical model estimate because it must adhere to physical limits. The laws of physics do not present an upper limit to a time series based on a probability distribution. A bounded probability distribution could possibly be used, but a problem with that is a generated long time series could include several PMPs as the bound could be reached more than once. Another problem with using a probability distribution to simulate extreme events with climate change is it assumes the underlying probability distribution will not change due to climate. That means that the factors controlling precipitation remain stationary, which is demonstrably not true (Kunkel et al 2013).

The first three links found on a google search for PMP were to reports from the late 1970s and early 1980s - Hydrometeorological Report (HMR) 51 (Schreiner and Riedel 1978), HMR52 (Hansen et al 1982), and HMR53(Ho and Riedel 1980). These original physically-based methodologies are still in common practice. This demonstrates however how out-of-date the methodology is.

PMP estimation using the HMR methods involves moisture maximization, transposition and envelopment (Schreiner and Riedel 1978). Moisture maximization involves increasing the maximum moisture in the atmosphere for an observed storm to a value consistent with the location. This means determining the maximum PW in a storm. During a storm it depends on air temperature, which controls the amount of water the air can hold, and the rate that moisture can move into the storm to replace the falling rain. The highest PW occurs for the highest temperature air masses. PW is generally higher during summer when the air is warmer.

Transposition means moving that maximum precipitation so that it lines up over the watershed of interest. Topography and distance from a water source is a primary control. HMR51 applies in all areas of the US east of the 105th meridian, but it is not appropriate for example to transpose an observed storm on the coast to Minnesota because both distance and the Appalachian Mountains prevent movement of the moisture. It is reasonable to consider the Great Lakes as a source in Minnesota.

Envelopment means that there is a smooth transition of storm amounts to duration of storm over the area. In other words, a storm of a given length will be broken into smaller time periods with storm depths that are consistent with the principles of moisture maximization and transposition. This is done by creating contour maps of equal maximum precipitation or moisture maximized precipitation of different durations.

Kunkel et al describe estimating it best: "The general approach, using data and physical judgment, is to estimate the precipitation that would occur if all the relevant factors in a particular place and situation achieved their optimum values simultaneously and remained in place for the specified duration over the basin area" (Kunkel et al 2013, p 1402). The factors as described above are "atmospheric moisture, transport of moisture into storms, persistent upward motion, and strong winds where orographic uplift is important" (Id.).

PMF estimation is the estimated runoff resulting from the PMP being applied to the watershed of interest. Translating low-frequency precipitation events to flooding depends highly on the nature of the watershed, including antecedent conditions and anthropogenic impacts such as the amount of watershed that has been developed or the amount of watershed that has been affected by recent fire (Kundzewicz et al 2014).

PMF also depends on temporally distributing the PMP to maximize the flood hydrograph, both in delivery of precipitation during the event and in the timing of the PMP in the meteorology of the area (Beauchamp et al 2005). A common method for estimating soil moisture conditions for the PMF is to assume a storm equal to half the PMS (probable maximum storm) occurs six days prior to the PMS (Beauchamp et al 2005). The intervening six days are dry and the soil is modeled to be drying (Id.). A more realistic method may be to insert the PMS into an observed or stochastically generated climate regime so that soil water conditions are truly randomly estimated.

Rainfall/runoff models are usually calibrated to conditions that have been seen previously in the watershed, so storms that are larger than those used to calibrate the model will stress the model beyond its calibration point. PMP rainfalls amounts are far outside the range of calibration for the models. Therefore, the PMF prediction is likely very inaccurate. Infiltration may not occur at the rates simulated and overland flow routing may consider the flow to occur too slowly. These, and other factors, would cause the predicted runoff peak to be larger than simulated. Stressing a model beyond its range of calibration may cause a very high uncertainty band on the predictions.

4.0 PolyMet Tailings Impoundment

The proposed PolyMet tailings impoundment would be developed on top of an existing taconite tailings impoundment (FEIS, p 3-89). It had been developed in three stages beginning in the 1950s, with perimeter starter dams and iron-ore tailings placed directly on native soil (Id.). The tailings basin has been closed except for ongoing closure operations since January 2001 (Id.).

The taconite tailings basin had been constructed using the upstream-type dam construction method, the least safe of three traditional methods (Chambers 2015, p 2). Because the existing basin will form the base of the proposed basin, the safety of the future operations would depend on the existing structure. The proposed tailings basin would also be wet tailings. Because of the low permeability of the tailings, the impoundment would likely remain saturated throughout the operating period and long into the closure period. PolyMetPolyMet expects the seepage catchment system to capture seepage for centuries, indicating that wet conditions would occur for a long time.

4.1 Flood Estimate and Design at the PolyMet Tailings Impoundment

The PolyMet tailings basin would lie within the Embarrass River watershed at the topographic divide with the Partridge River watershed. In fact, some of the impoundment embankments are or would be on the topographic divide. The groundwater divide may not coincide with the topographic divide due to the seepage of tailings water as the existing impoundment was built

up (Radue and Pin 2009, p 3). Figure 1 shows a map of the tailings basins and currently contributing tributary areas and land use. Figure 2 provides a different view of the area, showing the offsite area draining to the tailings basin as Spring Mine Creek, with a stormwater flow arrow showing the inflow between Cell 1E and Cell 2E. If the boundary in Figure 2 accurately depicts the watershed for Spring Mine Creek, the ponds that lie east of the creek are not part of the tailings watershed¹. Figure 3 shows that at full buildout, there will be dam embankments that prevent most offsite runoff from reaching the tailings basin.

Construction would occur in increments over the 20-year operating plan (PolyMet 2017, p 7). Dams would be constructed using existing coarse tailings (PolyMet 2017, p 8). The increments would include freeboard, but also include increments that create failure surfaces at each point where a new layer is added. The minimum specified freeboard would be 5.25 feet for a full PMP (Id.). Tails would be placed into the impoundment as a wet slurry, ranging from 28 to 32% solids by weight (PolyMet 2017, p 10).

¹ Figures 2 and 3 and other figures in PolyMet (2017) show a stream entering the pond east of the tailings that flows across the divide between the Embarrass River and Partridge River watershed. This indicates there is uncertainty around what would currently flow onto the tailings impoundment.

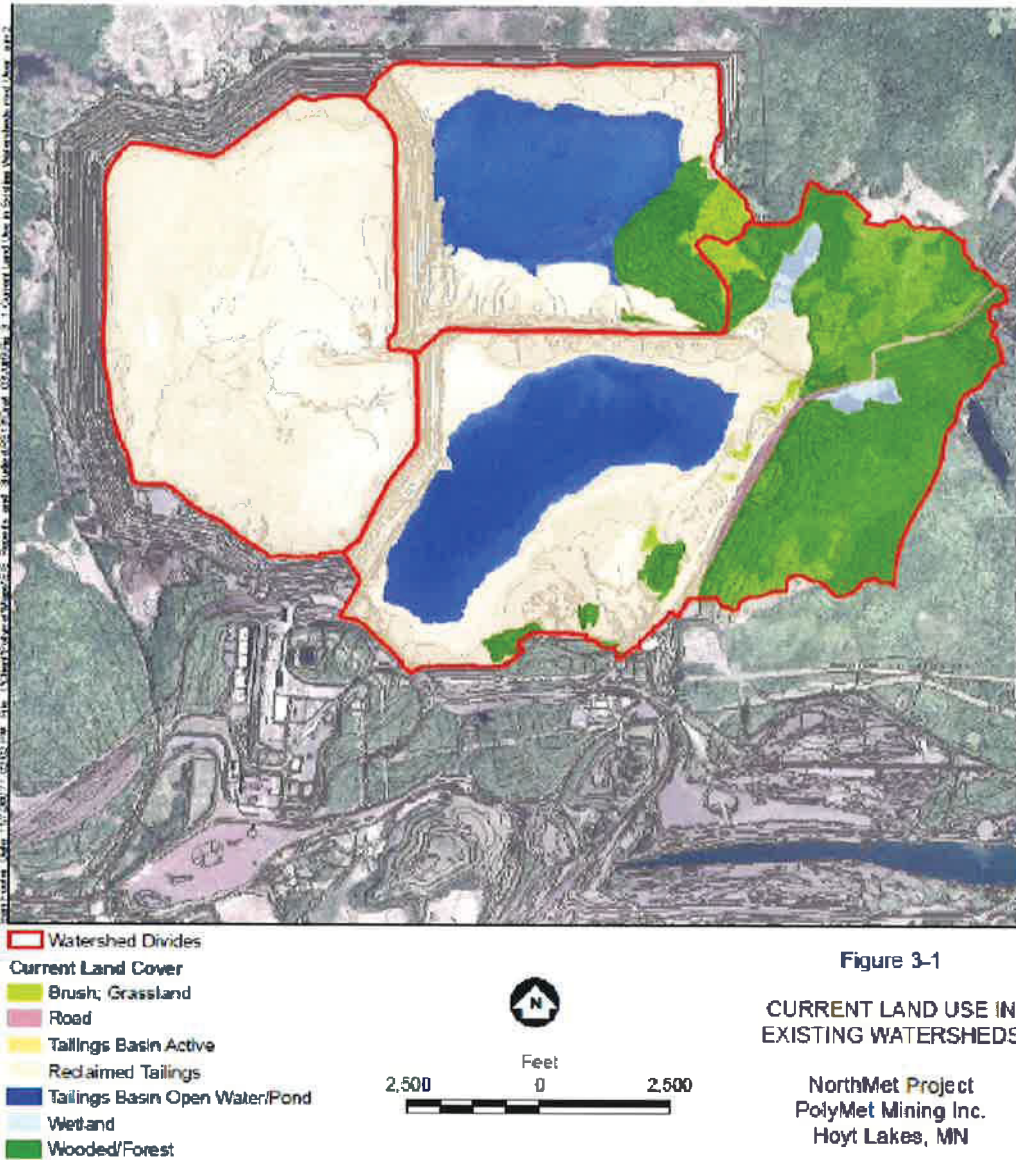
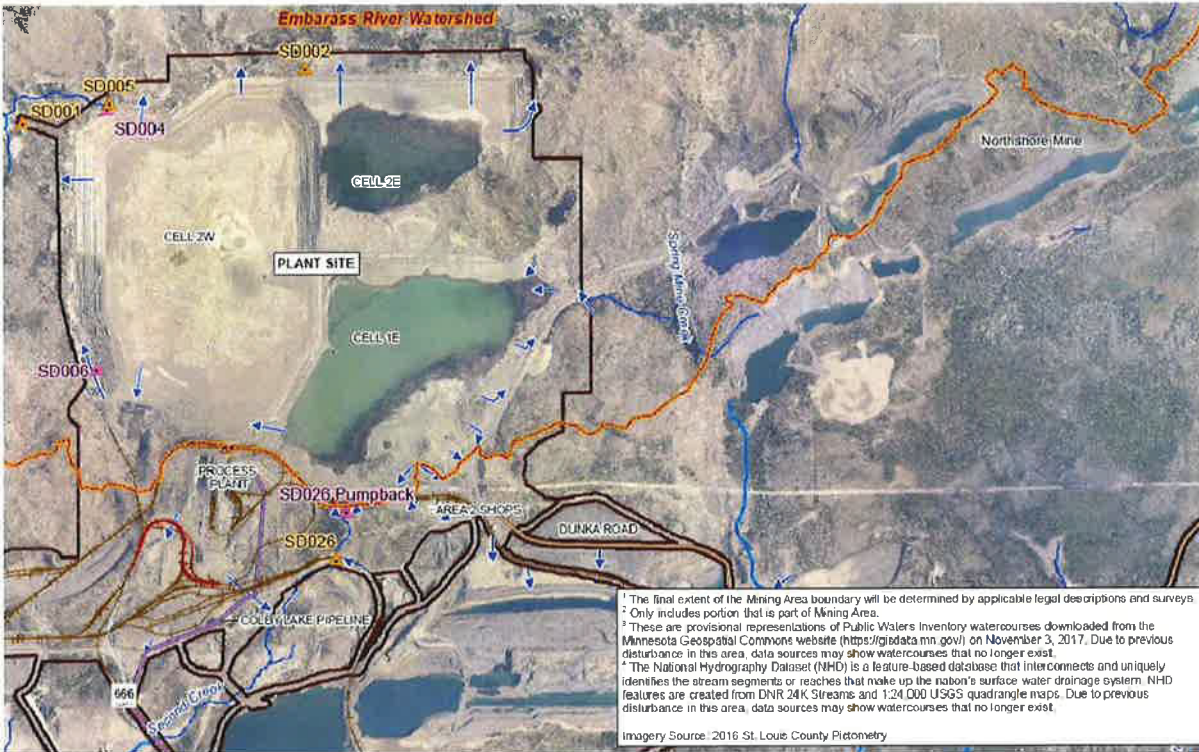
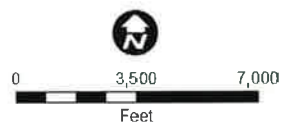


Figure 1: Portion of Figure 3-1, Barr (2008) Attachment A-5, showing the current drainage areas and land use to the tailings impoundment.



Divide
 ers Inventory (PWI) Watercourses²
 ydrography Dataset (NHD)
 treams⁴



EXISTING TAILINGS BASIN
 NorthMet Project
 Poly Met Mining, Inc.

Large Figure 1
 Water Management Plan – Plant

Figure 2: Portion of Large Figure 1 (PolyMet 2017) showing the Plant Site and area to the east that drains to the plant site.

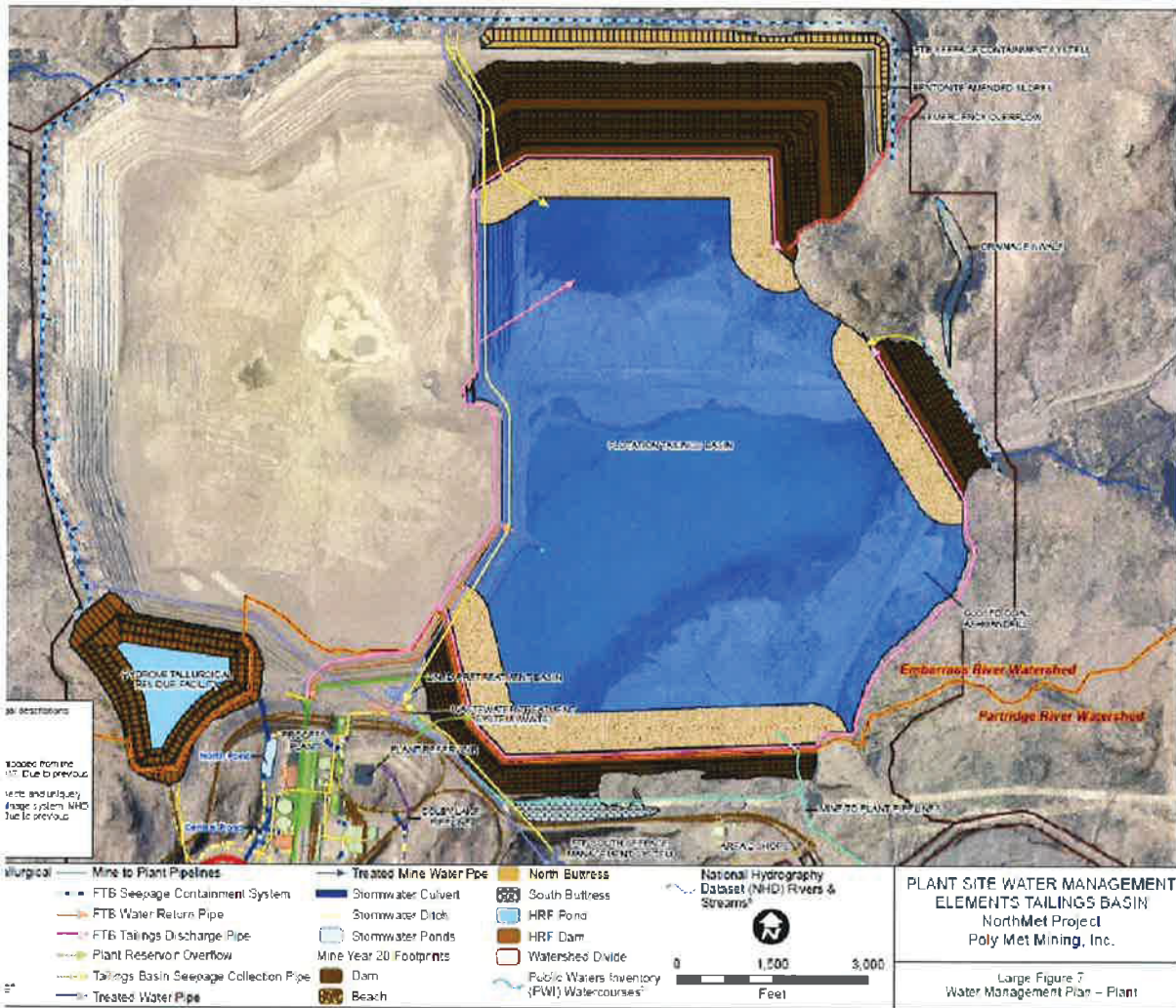


Figure 3: Portion of PolyMet (2017) Large Figure 7 showing the Water Management Plan for the Plant, at full buildout after 20 years.

For water balance for the tailings basin, Barr (2008) estimated only the watershed yield, which did not consider severe storm runoff. Although they considered actual climate data from 1977-1996, they used monthly time steps which would have masked the high flows from a heavy storm. Large, short-term changes in water contained in the impoundment would not have been considered. Drainage area to the Tailings Basin includes the upland area east of Cells 1E and 2E (Barr 2008). The actual area draining to the tailings basin will vary with time and some tributary area may be diverted from the tailings into the future (Barr 2008, Attachment A-5). Total existing area, including the tailings cell and offsite area, currently draining to Cell 1E, Cell 2E, and Cell 2W is 1590.5, 747, and 957.7 acres, respectively. The land cover area will vary with time as more of it becomes covered with tailings basin pond.

The FEIS for the proposed PolyMet mine does not present an analysis or discussion of the PMF, other than to say there would be a spillway in case a flood event exceeded freeboard (FEIS, p 3-120, p 5-103). Minimum freeboard would apparently be 5.25 feet (PolyMet 2017). PolyMet completed a dam break analysis for the 72-hour PMP event, with and without a dam break in tailings cell 2E (PolyMet 2017, p 20). A dam break would inundate 34 houses (Id.). They also did a seepage stability analysis based on the ponding that would result from the PMP (PolyMet 2017).

The tailings design at PolyMet relied on PMP estimates based on HMR51 (Weaver 2011). The total PMP depth depends on storm duration and the area the precipitation falls over. The largest storm depth occurs when the smallest areas are considered (Figure 4). For the small watershed relevant at the proposed PolyMet tailings impoundment, the smallest areas are most relevant. Weaver (2011) chose to use the 38-inch, 72-hour storm for a one square-mile watershed upstream from the FTB. Values for a two and three square-mile watershed were estimated to be 36 and 35 inches, respectively. Values for a 10 square-mile watershed were 32.2 inches (Weaver 2012).

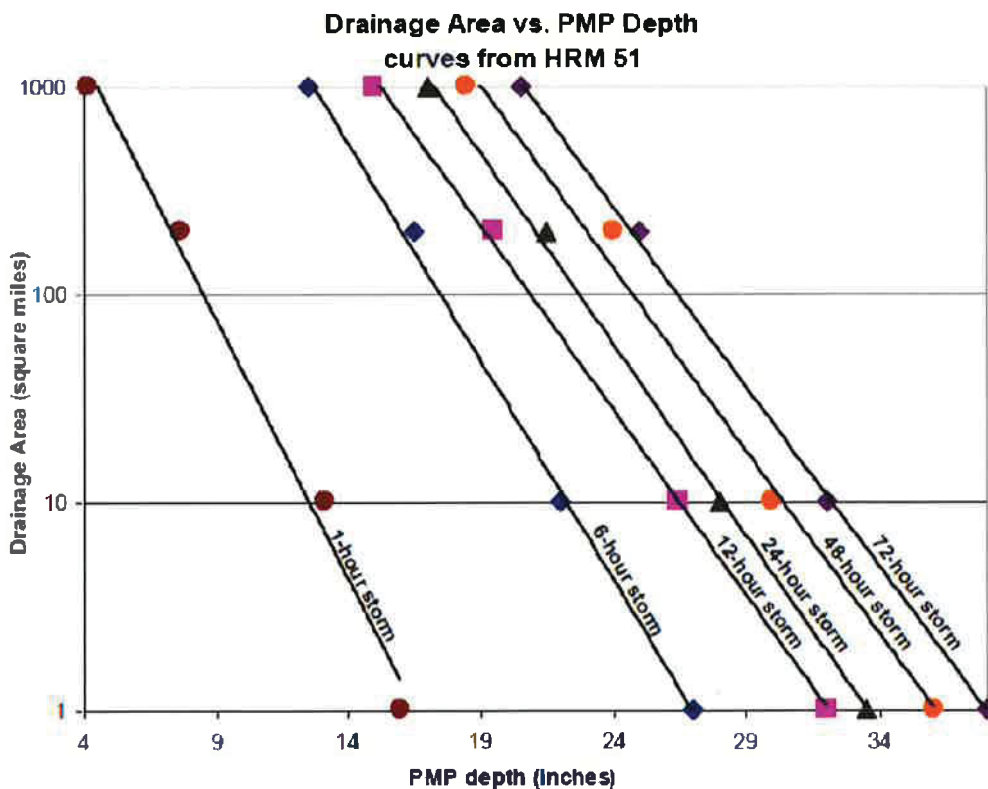


Figure 4: Relation of drainage area, storm duration and probable maximum precipitation depth (Weaver 2011).

The most likely and most impactful dam break would be one that occurs on the north side of the tailings (Weaver 2012, p 4). During closure, the FTB would cover 1400 acres and have an average of about 10 feet of freeboard over 160 feet of tailings (Id.). The dam break analysis assumed that all precipitation is contained within the FTB in the freeboard (Weaver 2012, p 5). Weaver analyzed failure as if it would be due to piping, which is seepage through the dam eroding soils from the dam, so the dam does not have to be overtopped (Id.). . One error is that they completed the analysis using a water surface profile analysis program called HEC-RAS; this program is not designed to simulate the unsteady flow that results from a dam break. The inundation map based on these assumptions and simulated in HEC-RAS, Figure 3 in Weaver (2012), shows that much of the area between the tailings impoundment and Embarrass River, east of Trimble Creek, would be covered in tails. If the PMP value is higher than analyzed, the area of inundation would be higher. Also, if the PMP is higher, the factors of safety used to design the dam (PolyMet 2012) would be less than designed.

The Mt Polley failure noted above suggests a different failure mode for the PolyMet FTB. The foundation at Mt Polley failed and a failure to analyze properly the geotechnical strength may have been the cause. The FTP at PolyMet would be constructed on top of existing tailings, therefore the foundation will be an impoundment with foundation design and construction methods from the 1950s. The PolyMet design would add substantial pressure to that foundation and large flood flows would increase that pressure.

5.0 Climate Change in the Project Area

Global temperatures have been increasing for most of the 20th century and first part of the 21st century (Figure 5). There is no longer any legitimate debate about that trend. Minnesota's temperatures have significantly increased in the recent past, with global warming manifesting in higher temperatures and many concomitant climate changes (Interagency Climate Adaptation Team 2017, EPA 2016) (Figures 6 and 7). Temperatures have increased a quarter degree Fahrenheit per decade since 1895 (Id.). A decrease in severe cold weather has caused the increase in temperature. The largest changes have occurred in northern Minnesota (Figure 6). This observation holds even at the national scale (Figure 7).

The Minnesota Interagency Climate Adaptation Team (2017) lists the highest confidence in a rapid decline in severity and frequency of extreme cold and that extreme rainfall is becoming larger and more frequent. The second highest confidence is in heavy snowfall events becoming more frequent. Annual precipitation has also been increasing, but with various unique vagaries, as discussed in the following section.

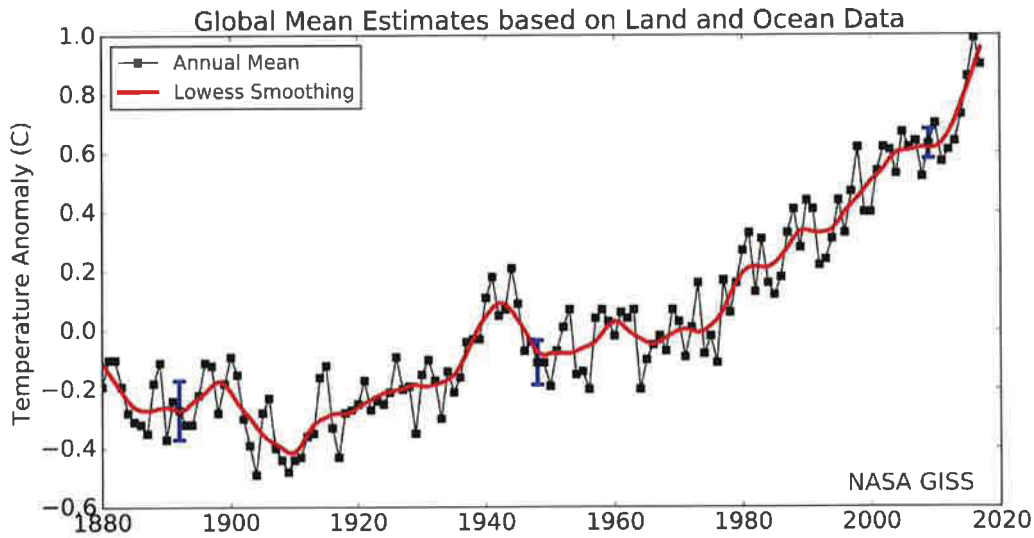
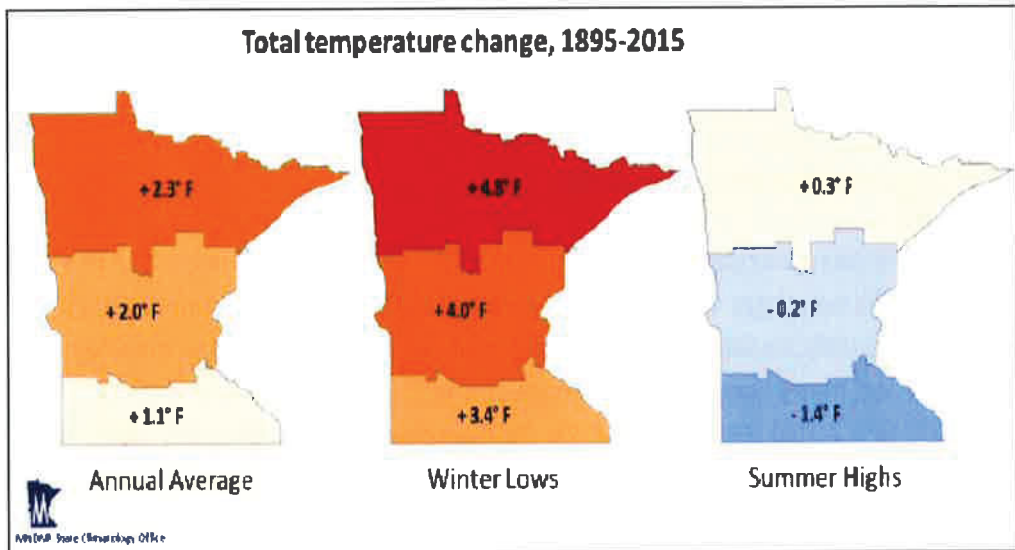
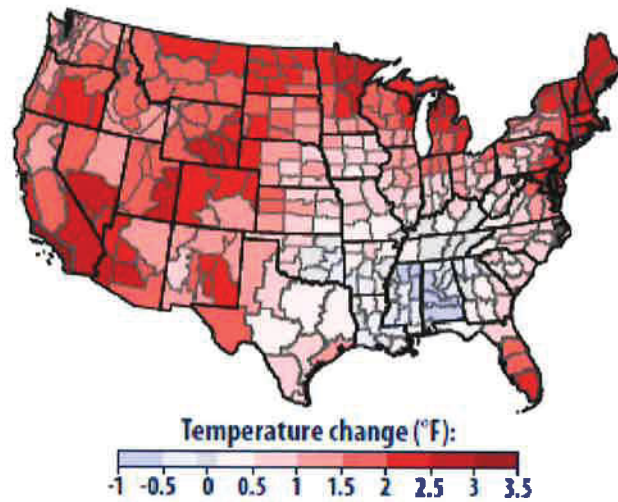


Figure 5: Global mean temperature estimates based on land and ocean data (AGU Blogosphere, January 18, 2018, <https://blogs.agu.org/wildwildscience/2018/01/18/2017-another-year-amazing-heat-not-natural-greenhouse-gases/>)



Comparisons of total change between 1895 and 2015 using 30-year averaging periods, for annual average temperature, winter low temperature, and summer high temperatures over the northern, central, and southern portions of the state. Values were obtained by subtracting the average of the first 30 years of record (1895-1924) from the average of the last 30 years of record (1986-2015). Each region is a blend of three climatic divisions, as defined by the National Centers for Environmental Information (<https://www.ncdc.noaa.gov/monitoring-references/maps/us-climate-divisions.php>), which is also the source for the divisional climate data used (<http://www.ncdc.noaa.gov/coq/time-series>). Maps prepared by Minnesota State Climatology Office.

Figure 6: Figure 3 from Interagency Committee on Climate Change (2017) showing total temperature change by region and season.



Rising temperatures in the last century. Northern Minnesota has warmed more than twice as much as southern Minnesota. Source: EPA, Climate Change Indicators in the United States.

Figure 7: Observed temperature change over the past century (EPA 2016)

5.1 Precipitation

A general rule of thumb regarding climate change is that wet areas will become wetter and dry areas will become drier. Most global climate models predict that precipitation intensity will increase with global warming (Groisman et al 2005). For the US, annual precipitation has increased the most in the Northeast, Midwest and southern Great Plains than in the rest of the country, especially the Southwest and Southeast, which have experienced decreases in annual precipitation (Figure 8). Average annual precipitation in Minnesota has increased about 0.25 in/decade since 1895 (Figure 9).

Additionally, the amount of precipitation which falls during heavy rainfall events has increased, with the largest increase occurring the upper Midwest and Northeast (Walsh et al 2014) (Figures 10 and 11). EPA has noted:

Changing the climate is likely to increase the frequency of floods in Minnesota. Over the last half century, average annual precipitation in most of the Midwest has increased by 5 to 10 percent. But rainfall during the four wettest days of the year has increased about 35 percent. During the next century, spring rainfall and annual precipitation are

like to increase, and severe rainstorms are likely to intensify. Each of the factors will tend to further increase the risk of flooding. (EPA 2016)

The amount of rainfall occurring during heavy events will increase even in areas that overall experience less precipitation because warmer temperatures hold more moisture which can lead to higher rainfall amounts. The observed change in very heavy precipitation has increased 37% in the Midwest (Figure 10). Projections are that by 2081-2100, the frequency of precipitation that will occur in very large events will increase by more than 3 times in the eastern portion of Minnesota (Figure 12).

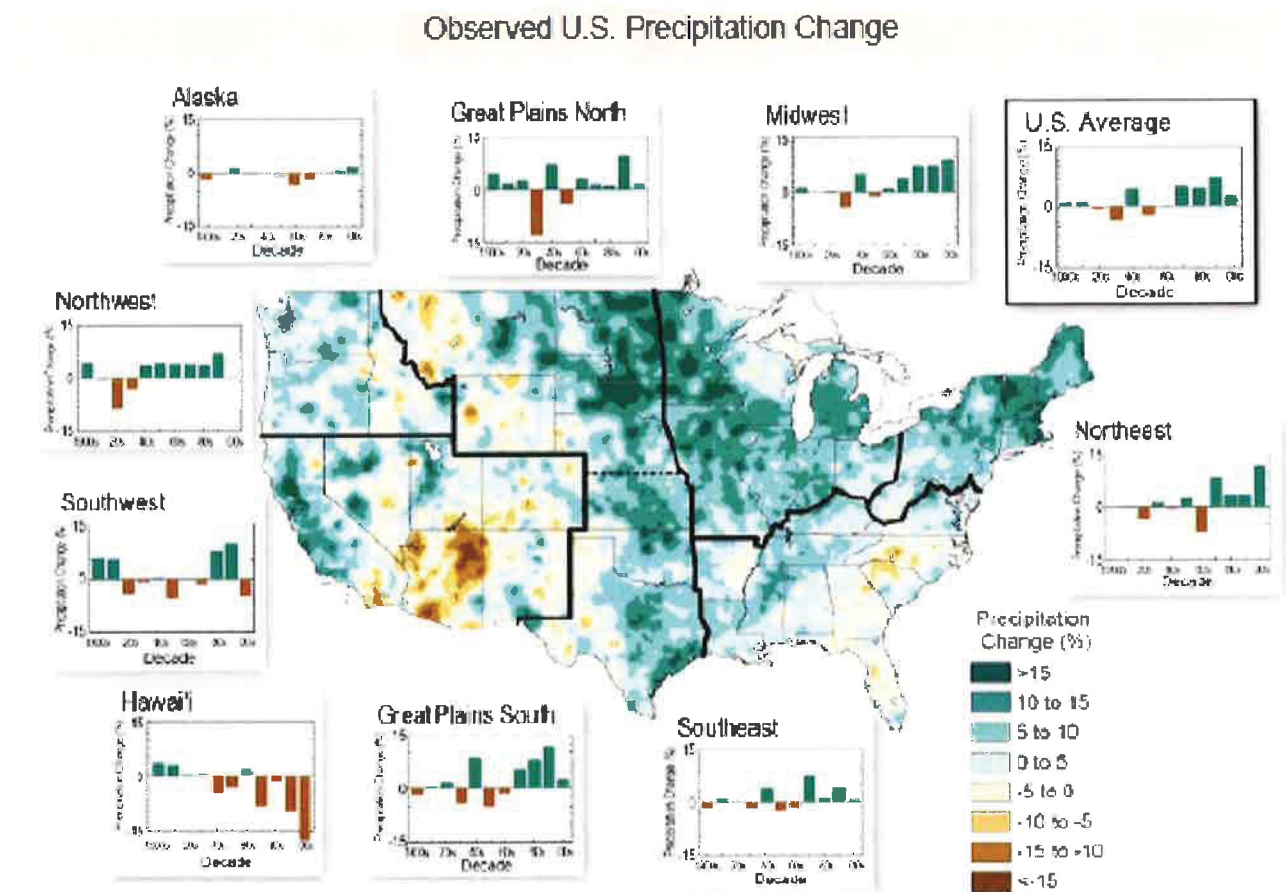
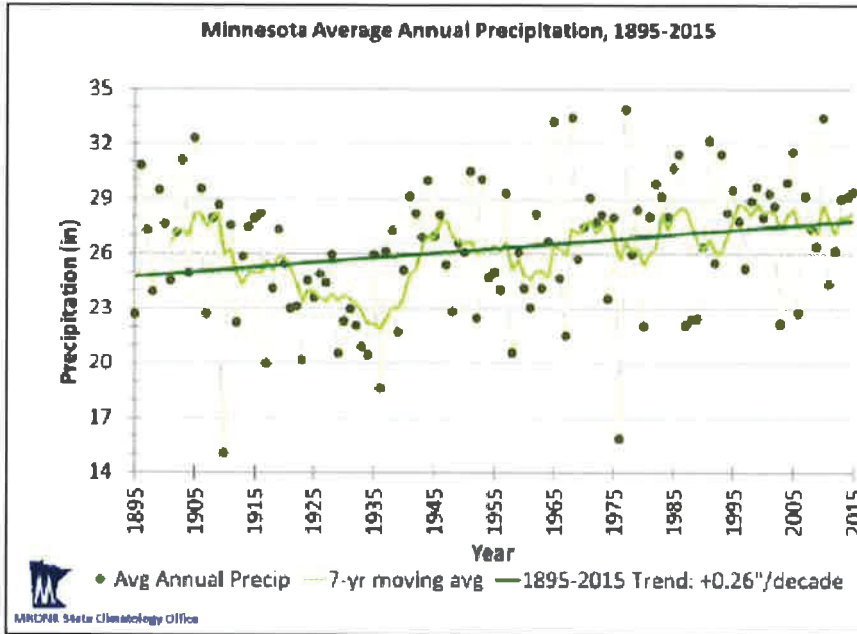


Figure 2.12. The colors on the map show annual total precipitation changes for 1991-2012 compared to the 1901-1960 average, and show wetter conditions in most areas. The bars on the graphs show average precipitation differences by decade for 1901-2012 (relative to the 1901-1960 average) for each region. The far right bar in each graph is for 2001-2012. (Figure source: adapted from Peterson et al. 2013¹⁶).

Figure 8: Figure 2.12 from Walsh et al (2014) showing the annual precipitation changes for 1991-2012 compared to the 1901-1960 average.



Statewide average annual precipitation, 1895-2015. The 1895-2015 trend (solid dark green line) is based on linear statistical techniques and does not imply an exact decade-by-decade precipitation increase. Source: National Oceanic and Atmospheric Administration (NOAA) Climate at a Glance (<http://www.ncdc.noaa.gov/cag/>)

Figure 9: Figure 4 from Interagency Climate Adaptation Team (2017) showing average annual Minnesota precipitation.

Observed Change in Very Heavy Precipitation

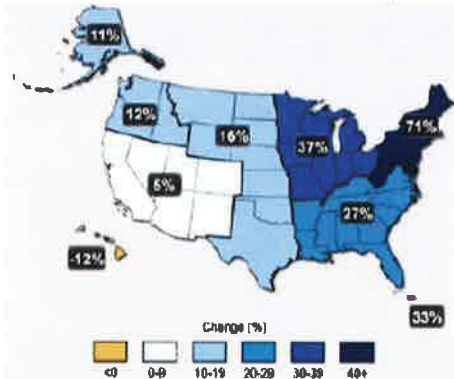


Figure 2.18. The map shows percent increases in the amount of precipitation falling in very heavy events (defined as the heaviest 1% of all daily events) from 1958 to 2012 for each region of the continental United States. These trends are larger than natural variations for the Northeast, Midwest, Puerto Rico, Southeast, Great Plains, and Alaska. The trends are not larger than natural variations for the Southwest, Hawai'i, and the Northwest. The changes shown in this figure are calculated from the beginning and end points of the trends for 1958 to 2012. (Figure source: updated from Karl et al. 2009).

Figure 10: Figure 2.18 from Walsh et al (2014) showing percent increases in very heavy events from 1958 through 2012.

Observed Change in Very Heavy Precipitation

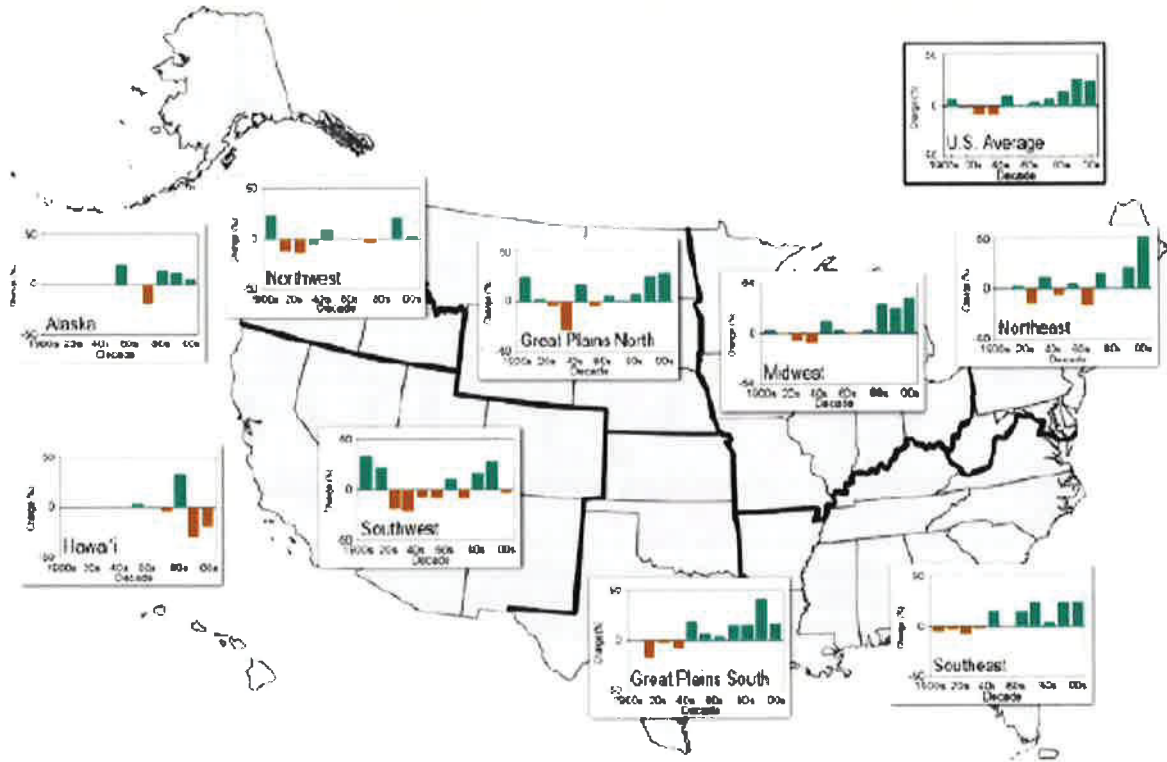


Figure 2.17. Percent changes in the annual amount of precipitation falling in very heavy events, defined as the heaviest 1% of all daily events from 1901 to 2012 for each region. The far right bar is for 2001-2012. In recent decades there have been increases nationally, with the largest increases in the Northeast, Great Plains, Midwest, and Southeast. Changes are compared to the 1901-1900 average for all regions except Alaska and Hawai'i, which are relative to the 1951-1980 average. (Figure source: NOAA NCDC / CICS-NC).

Figure 11: Figure 2.17 from Walsh et al (2014) showing the observed changes in the annual amount of precipitation that falls in very heavy events.

Projected Change in Heavy Precipitation Events

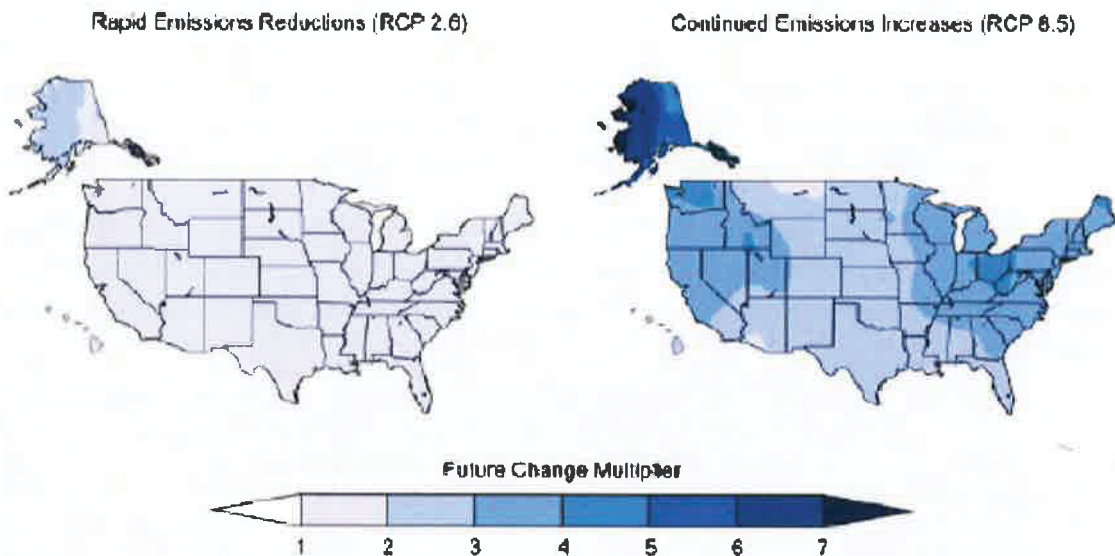


Figure 2.19. Maps show the increase in frequency of extreme daily precipitation events (a daily amount that now occurs once in 20 years) by the later part of this century (2081-2100) compared to the later part of last century (1981-2000). Such extreme events are projected to occur more frequently everywhere in the United States. Under the rapid emissions reduction scenario (RCP 2.6), these events would occur nearly twice as often. For the scenario assuming continued increases in emissions (RCP 8.5), these events would occur up to five times as often. (Figure source: NOAA NCDC / CIACS-NC).

Figure 12: Figure 2.19 from Walsh et al (2014) showing the projected change in heavy precipitation events for the period 2018-2100 for two potential emissions scenarios. The scale is a multiplier, meaning that frequency will be multiplied by the value in the legend

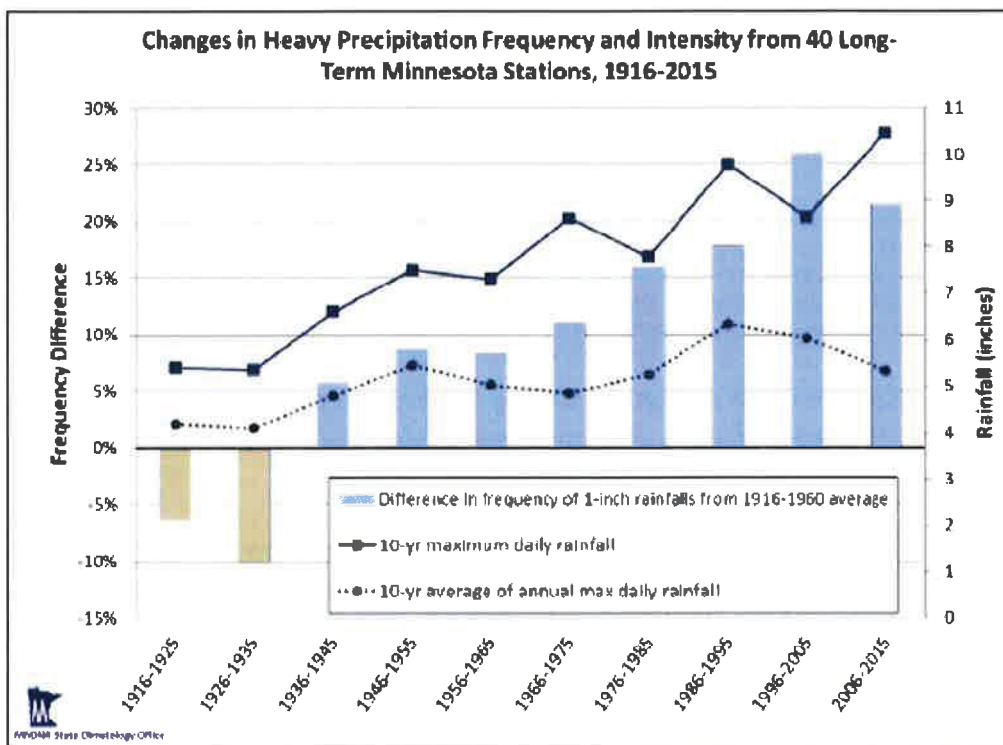
Groisman et al (2015) found there has been a widespread, around the globe, increase in the frequency of very heavy precipitation during the past 50 to 100 years. They describe the trend in the wettest day per year and the wettest five consecutive days per year as a “consensus change” over North America (Groisman et al 2015, p 1340). This finding holds for wet and dry regions and in areas where annual precipitation has increased or decreased. The trend toward more precipitation occurring in low frequency events holds regardless of changes in annual precipitation. These observations have been confirmed with GCM models.

Groisman et al (2005) provides the following physical explanation for an increase in heavy precipitation with global warming:

Global warming, which has been especially pronounced during the recent decades in extratropical land areas and in minimum temperatures, is related to a reduction in spring snow cover extent, and thus to an earlier onset of spring- and summerlike weather conditions. Warming also relates to a higher water vapor content in the atmosphere, which has been documented in many regions of the world. This in turn results in an increase in the frequency of

Cumulonimbus clouds, which is related to the general increase in thunderstorm activity. This development can explain an observed widespread increase in very heavy precipitation in the extratropics. Furthermore, in humid regions an increase in summer minimum temperatures is related to an increase in the probability of severe convective weather and is likely related to changes in the frequency of heavy and very heavy rain events. It is difficult to directly relate estimates of changes in very heavy precipitation with flooding. However, great floods have been found to be increasing in the twentieth century. Groisman et al 2005, p 1343-1344)

By the 2081 to 2100 period, heavy precipitation events will increase across the US (Figure 12). Projections are that the increase will be from three to four times in eastern Minnesota, meaning that a storm that now occurs once in 20 years will now occur up to four times as often (Figure 13).



Changes in the frequency of one-inch rainfalls relative to the 1916-1960 average (vertical bars), from 40 long-term stations in Minnesota. Also shown are the 10-year average (lower dotted line, right axis) and 10-year maximum values (upper solid line, right axis) of the heaviest single rainfall amount recorded each year at any of the 40 stations. Note that the 10-year maximum value has doubled from just over five inches at the beginning of the record, to just over 10 inches at the end of the record. Courtesy of Minnesota State Climatology Office.

Figure 13: Figure 5 from Interagency Climate Adaptation Team (2017) showing changes in heavy precipitation frequency and intensity for Minnesota.

5.11 Probable Maximum Precipitation

Observed precipitation depths are increasing and simulations of the future show that these depths will continue to increase. Kunkel et al (2013) is the most comprehensive discussion regarding probable changes in PMP with climate change. As noted above in Section 3.2, PMP values depend on available moisture, moisture transport into the storms, upward motion, and strong winds for orographic forcing.

Regarding atmospheric moisture:

The radiative energy imbalance caused by increases in greenhouse gas concentrations is highly likely to continue the increases in ocean heat storage and a rise in sea surface temperatures that have already been observed. The warming ocean will in turn lead to a rise in evaporation and atmospheric water vapor content, ... A probable consequence is the intensification of the hydrologic cycle and PMP over land and ocean. (Kunkel et al 1404, references omitted)

Simulations with GCMs showed there would be increases in maximum PW over all model grid cells, which indicates a general global moistening of the atmosphere (Kunkel et al 2013, p 1404) (Figure 14, middle). The highest absolute moisture value occurs in the tropics up to about 30° latitude, with significant excursions of high moisture further north along the east side of the continents including eastern North America where higher moisture extends north into southern Canada (Figure 14, top). This includes Minnesota. The highest fractional changes, while always positive, occur near the poles and in the driest parts of the globe, like the western US and the Sahara of northern Africa (Figure 14, middle).

Changes in PW therefore indicate a high likelihood that PMP will increase with global warming. Only changes in wind could offset the moisture effect, but GCM simulated changes show that the vertical wind direction changes in the higher latitudes are generally positive, but not high (Figure 14, bottom), and are unlikely a check on an increase in PMP (Kunkel et al 2013). In Minnesota, the wind speed changes appear to be between 0 and 10% positive.

The largest positive changes in vertical wind speed are along the intertropical convergence zone near the equator (Figure 14, bottom). This will increase the transport of moisture into the atmosphere and in addition to increasing the moisture in storms near the equator will increase the transport of moisture at upper atmospheric levels away from the equator.

GCM simulations show that the maximum daily precipitation will increase across most of the globe, with Minnesota being in the 10 to 30% range (Figure 15). This verifies the simulated PW increases and that changes in wind speed will not counter the effect of increasing PW with respect to high rainfall periods.

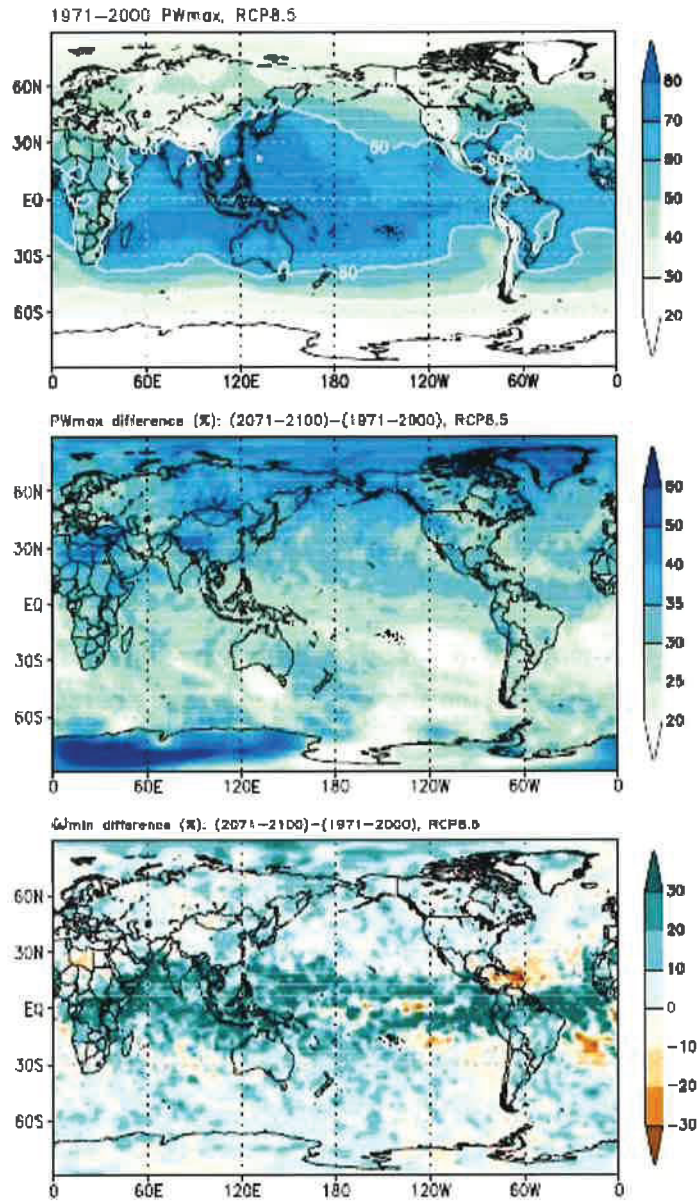


Figure 14: Figure 1 from Kunkel et al (2013). Thirty-year maximum PW for 1971-2000 (mm) averaged over seven climate models (top), fractional change in 12 hour precipitable water (middle) and 6-hour upward motion (bottom) for 2071-2100 relative to 1971-2000, respectively.

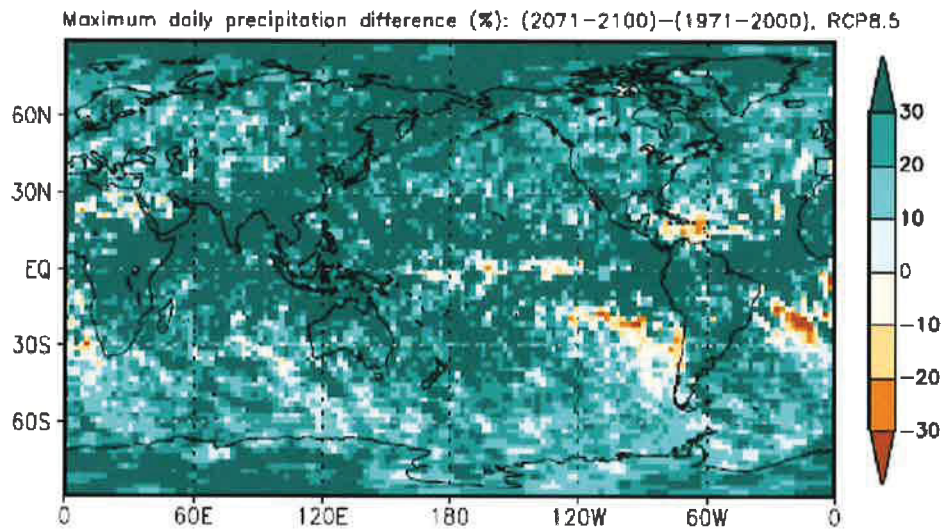


Figure 15: Top of Figure 2 (Kunkel et al 2013). Fractional change of simulated maximum daily precipitation, for 2071-2200 relative to 1971-2000.

Thus, global warming caused by an increase in greenhouse gases will increase the ocean heat content which will increase atmospheric water vapor. Because change in wind are unlikely to counter the effects of increasing the atmospheric water vapor, PMP estimates are likely to increase proportional to the water vapor increase. Simple scaling estimates are that the precipitation from a heavy storm can be scaled upward by multiplying the observed precipitation by the ratio of probable maximum PW to PW observed for the storm. The estimate becomes one of estimated probable maximum PW. Design storm intensity estimates can simply be multiplied by a climate change factor. For example, for a case study on a watershed in Malaysia, a CCF ranging from 1.03 to 1.28 was applied to the intensity/duration/frequency relation (Ghazvine et al 2016). On one watershed in Quebec, GCM simulations only increased the PMP up to 6% (Beauchamp et al 2005).

As concluded by Kunkel et al (2013), “the most scientifically sound projection is that PMP values will increase in the future and raise the risk of damaging floods. These conclusions apply not only to the U.S., but also globally to almost all other areas.”

5.2 Flooding

The general and obvious point is that heavier rain leads to a larger fraction of the rainfall running off, which could lead to more flooding. The caveat is that higher temperatures could lead to drier antecedent conditions which could lead to more precipitation evaporating. If this increase in ET exceeds the amount of additional runoff, in some areas the proportion of rainfall becoming runoff may remain similar. Kundzewicz et al (2016) found that extreme precipitation

has trended upward due to climate change, but noted there is little gage-based evidence for a concomitant increase in floods. However, Walsh et al (2014) noted an observed substantial increase in annual floods, especially in the northeastern third of the US (Figure 16). Some of the more substantial increases occur in western Minnesota, probably along the Red River.

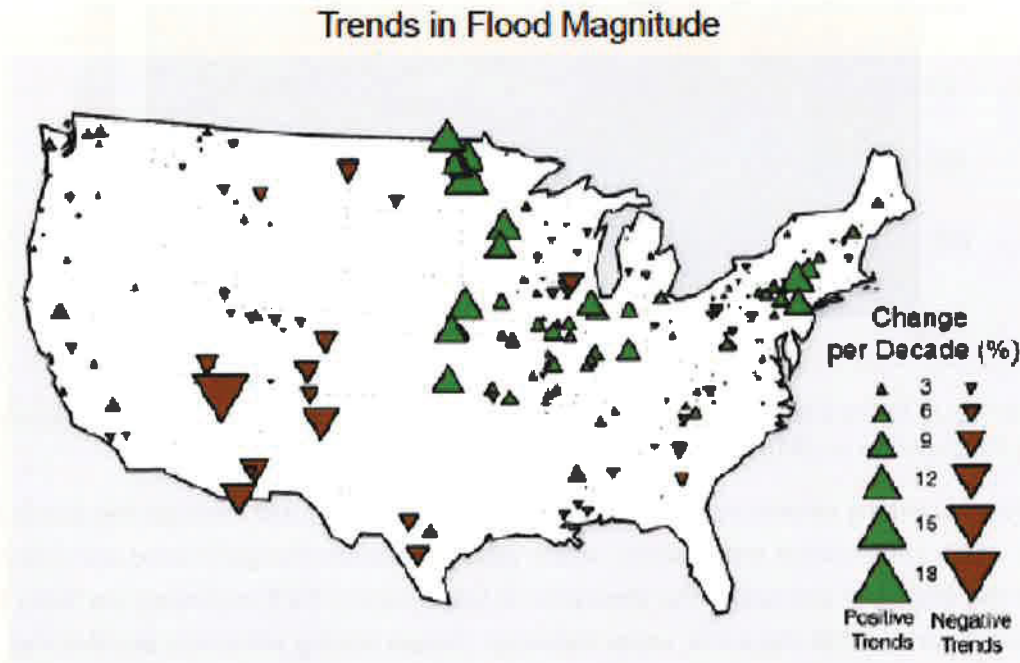


Figure 2.21. Trend magnitude (triangle size) and direction (green = increasing trend, brown = decreasing trend) of annual flood magnitude from the 1920s through 2008. Local areas can be affected by land-use change (such as dams). Most significant are the increasing trend for floods in the Midwest and Northeast and the decreasing trend in the Southwest. (Figure source: Peterson et al. 2013⁴⁴).

Figure 16: Figure 2.21 from Walsh et al (2014) showing trends in flood magnitude.

Many studies point to specific of flooding becoming worse due to climate change. Georgakakos et al (2014, p 70) note that, among many things:

- Annual precipitation and river-flow increases are observed now in the Midwest and the Northeast regions. Very heavy precipitation events have increased nationally and projected to increase in all regions.
- Flooding may intensify in many U.S. regions, even in areas where total precipitation is projected to decline.

Northern Minnesota is projected to have a small increase in annual runoff due to climate change (IPCC 2007). Increased precipitation and temperature can have variable effects depending on the relative and seasonal changes, with increased ET decreasing runoff at some parts of the year while increased precipitation can increase runoff at other times.

Minnesota streamflow has a linear relationship with non-winter precipitation and summer temperatures (Nichols and Verry 2001). Historic stream flow data shows that summertime rainfall runoff peaks have increased as have summertime baseflows (Novotny and Stefan 2007). This is primarily due to increased precipitation, which manifests as heavier individual events rather than more storm events. Increased precipitation in general would increase moisture in the soil, including in an above ground waste or tailings impoundments.

Observed increases in flood losses are mostly due to increased vulnerability, essentially meaning more people are living near flood-prone areas whether or not those areas are growing (Kundzewicz et al 2014). Flood damages can vary greatly for non-climate change related reasons.

6.0 Effects of Climate Change at PolyMet

PolyMet is in northeastern Minnesota, an area that has experienced significant climate change. Temperatures have increased, primarily due to an increase in winter time low temperatures. Annual precipitation and the intensity of storms has also increased. Recent flooding on the Zumbro River and at Duluth exemplify that flooding (Figure 17).

The Zumbro River overflows and floods Hammond and Zumbro Falls, MN, 2010



Flash Flooding creates sinkholes in roads, swallowing cars in Duluth, MN, 2012



Figure 17: Slide from Powerpoint Presentation, Climate System Research Center and UMass Amherst (undated).

The PolyMet tailings basin is effectively a closed basin with no inflow other than possibly during its first few years. Therefore, the relevant PMP is effectively a point PMP. Also, there is no

issue with simulating rainfall/runoff because precipitation will either pond or seep into the surface of the impoundment. Because the drainage basin is not important and because there is no outlet from the basin until the spillway is reached, the relevant storm is the longest one over a small area, meaning the 72-hour event. PolyMet (2017) recognized this, but did not consider the PMP that will likely result with climate change.

Considering the northern location, snowpack could also be relevant (Clavet-Gaumont et al 2017), for a late spring PMP on snowmelt event. As noted above, the maximum runoff could be the PMP on top of a 100-year snowpack. At the PolyMet tailings basin, all precipitation and melting snow would be retained until it overtops the spillway or seeps into the tails. PolyMet did not consider snowpack as part of its PMP simulation.

Figure 3 shows the final layout of the tailings basin, or flotation tailings pond, constructed on top of the eastern portion of the original impoundment, in stages as described above in Section 4.1. Freeboard will vary depending on the initial conditions, but if there is a 100-year snowpack or a substantial storm occurring six days prior to the PMP, as described above, it is likely to be minimal.

A 30% climate change factor applied to PolyMet's estimated PMP of 38 in/72 hours increases the PMP to 49.4 inches in 72 hours. PolyMet has not estimated the 100-year snowpack, and doing so is beyond the scope of this report. For a rough estimate, I considered the maximum snowfall recorded for a year at Babbitt MN, which was in 2000-01 and equaled 110 inches accumulated by near the end of April (Figure 18). The average snowfall is 42 inches with most recorded by early March. Average precipitation by early March is about 7.2 inches (Figure 19). During an average year, the ratio of snowfall to precipitation is therefore about 5.8. If a similar ratio holds for 110 inches, the snow water equivalent would be about 18.8 inches. This ignores snowmelt that could have occurred, but it should also be recognized that much of that snowmelt would be contained within the tailings. The snowpack considered to be combined with the PMP for this analysis is 18.8 inches, but due to the length of record at Babbitt, this is likely to be less than a 100-year snowpack.

The total PMF that would end up in the tailings basin is the sum of 49.4 and 18.8, or 68.2 inches, within 72 hours. This is almost twice the value analyzed by PolyMet for the PMP/PMF. The additional 30.2 inches of runoff applied to the FTB within 72 hours may not exceed the freeboard, but it would increase the hydrostatic pressure by at least an additional 30 inches on top of the already rapid increase caused by the PMP. This substantially increases the potential for a piping failure of the impoundment. Depending on the amount of tailings beach and other runoff area, the additional rainfall could be sufficient to exceed the freeboard and cause a dam overtopping or at least the use of the spillway. Flows over the spillway are a spill, whether or not the dam fails.

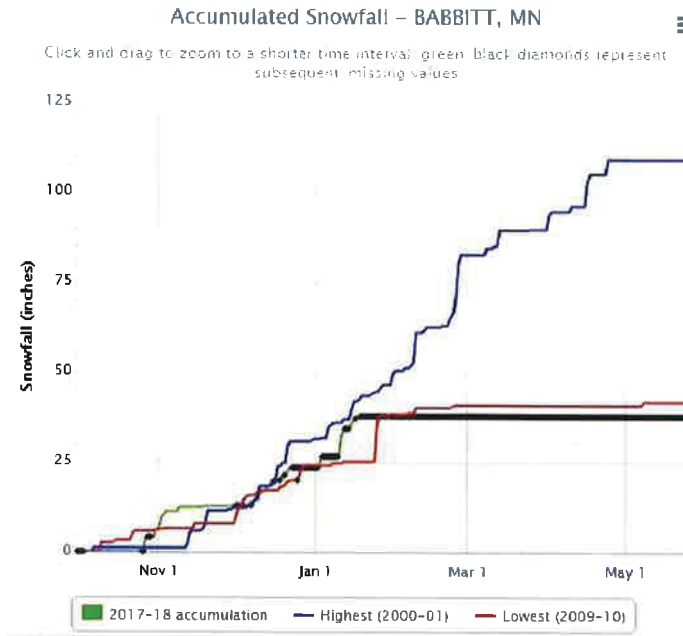


Figure 18: Snowfall accumulations at Babbitt MN, as labeled. From www.weather.gov/dlh/ accessed 1/23/18

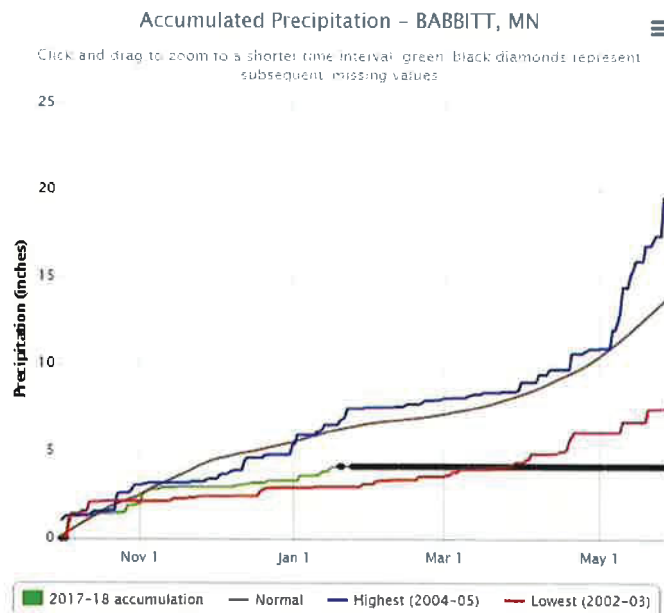


Figure 19: Snowfall accumulations at Babbitt MN, as labeled. From www.weather.gov/dlh/ accessed 1/23/18

7.0 Conclusion – Qualitative Risk Assessment of the Potential Damages of a PMP

PolyMet has not considered the effect that climate change could have on PMP that could affect the PolyMet flotation tailings basin. Instead of 38 inches in 72 hours running into the basin, the total could actually be closer to 68 inches. This extra amount includes snow melt that would result from a 100-year snowpack on the tailings basin.

The water level in the basin would increase very rapidly. This would lead to rapid changes in hydrostatic pressure and seepage through the impoundment. PolyMet has not analyzed dam stability for such a rapid change. Freeboard could be exceeded as well, depending on initial conditions and the exact configuration of the basin.

The PMP with global warming significantly increases the chance of dam failure, either by overtopping, piping or foundation failure. PolyMet has not analyzed these potential risks.

8.0 References

Barr (2017) NorthMet Dam Safety Permit Application, Flotation Tailings Basin, Prepared for Poly Met Mining, Inc. May 2017.

Barr Inc (2008) Tailings Basin-Mitigation Design, RS13B, Draft-01. Prepared for PolyMet Mining, Inc. September 8, 2008. Minneapolis, MN.

Beauchamp J, Leconte R, Trudel M, Brissette F (2013) Estimation of the summer-fall PMP and PMF of a northern watershed under a changed climate. *Water Resour Rec* 49:3852-3862, doi:10.1002/wrcr.20336.

Chambers D (2015) 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. Prepared for Friends of the Boundary Waters Canoe Area Wilderness. Center for Science in Public Participation, Bozeman MT

Clavet-Gaumont J, Huard D, Frigon A, Koenig K, Slota P, Rousseau A, Klein I, Thiemonge N, Houdre F, Perdikaris J, Turcotte R, Lafleur J, Larouche B (2017) Probable maximum flood in a changing climate: An overview for Canadian basins. *J Hydrol Reg Stud* 13:11-25, dx.doi.org/10.1016/j.ejrh.2017.07.003

Climate System Research Center, UMass Amherst (undated) Minnesota Climate Report, Powerpoint.

(EPA) Environmental Protection Agency (2016) What Climate Change Means for Minnesota, EPA 430-F-16-025.

Georgakakos A, Fleming P, Dettinger M, Peters-Lidard C, Richmond T, Reckhow K, White K, Yates D (2014) Ch 3: Water Resources. *Climate Change Impacts in the United States: The Third National Climate*

Assessment. Melillo JM, Richmond TC, Yohe GW (Eds) US Global Change Research Program, 69-112. Doi:10.7930/JoG44N6T.

Ghazvinei PT, Darvishi HH, Hasim RB, Musavi Jahromi SH, Aghamohammadi N (2016) Assessment of climate change and land use development effects on dam reliability. *Hydrol Earth Syst Sci*, doi:10.5194/hess-2015-481.

Groisman PY, Knight RW, Easterling DR, Karl TR, Hegerl G, Razuvaev VN (2005) Trends in intense precipitation in the climate record. *J Clim* 18:1326-1351.

Hansen EM, Schreiner LC Miller JF (1982) Application of probable maximum precipitation estimates - United States east of the 105th meridian. *NOAA Hydrometeorological Report* No. 52, National Weather Service, National Oceanic and Atmospheric Administration, US Department of Commerce, Silver Spring, MD

(IEEIRP) Independent Expert Engineering Investigation and Review Panel (2015) Report on Mount Polley tailings storage facility breach. January 30, 2015. Province of British Columbia.

Interagency Climate Adaptation Team (2017) 2017 Report of the Interagency Climate Adaptation Team. State of Minnesota.

Intergovernmental Panel on Climate Change (IPCC) (2007) *Climate Change 2007: Synthesis Report*.

Kunkel KE, Karl TR, Easterlin DR, Redmond K, Young J, Yin X, Hennon P (2013) Probable maximum precipitation and climate change. *Geophys Res Lett* 40:1402-1408, doi:10.1002/grl.50334.

Kundzewicz ZW, Kanae S, Seneviratne SI, Handmer J, Nicholls N, Peduzzi P, Mechler R, Bouwer LM, Arnell N, Mach K, Muir-Wood R, Brakenridge GR, Kron W, Benito G, Honda Y, Takahashi K, Sherstyukov B (2014) Flood risk and climate change: global and regional perspectives. *Hydrol Sci J* 59(1):1-28, doi:10.1080/02626667.2013.857411

PolyMet Mining, Inc. (2017) NorthMet Project Water Management Plan – Plant, Version 7. December 2017.

PolyMet Mining Inc. (2012) NorthMet Project Geotechnical Data Package Vol 1 – Flotation Tailings Basin (v3). November 2012.

Nichols DS, Verry ES (2001) Stream flow and ground water recharge from small forested watersheds in north central Minnesota. *Journal of Hydrology* 245:89–103

Novotny EV, Stefan HG (2007). Stream flow in Minnesota: Indicator of climate change. *Journal of Hydrology*, 334(3), 319-333.

Radu T, Pint T (2009) Technical Memorandum: Tailings Basin Area Geologic and Hydrogeologic Setting. Barr Engineering Co. April 2, 2009.

Rico M, Benito G, Diez-Herrero A (2008) Floods from tailings dam failures. *J Haz Mat* 154:79-87.

Rourke J, Luppnow D (2015) The risks of excess water on tailings facilities and its application to dam-break studies. Paper presented at Tailings and Mine Waste Management for the 21st Century, Sydney, NSW.

Schreiner LC, Riedel JT (1978) Probable maximum precipitation estimates, United States east of the 105th meridian. Hydrometeorological Branch, Office of Hydrology, National Weather Service, Washington DC

Stratz SA, Hossain F (2014) Probable maximum precipitation in a changing climate: Implications for dam design. *J Hydrologic Eng* 19(2)

Walsh JD, Wuebbles D, Hayhoe K, Kossin J, Kunkel K, Stephen G, Thorn P, Vose R, Wehner M, Willis J, Anderson D, Doney S, Feely R, Hennon P, Kharin V, Knutson T, Landerer F, Lenton T, Kennedy J, Somerville R (2014) Ch 2: Our Changing Climate. *Climate Change Impacts in the United States: The Third National Climate Assessment*, Melillo JM, Richmond RC, Yohe GW (Eds). US Global Change Research Program, 19-67. Doi:10.7930/JOKW5CXT.

Weaver R (2012) FTB Dam Break Analysis. Barr Engineering Company. December 4, 2012.

Weaver R (2011) FTP Pond Bounce Analysis for Freeboard Determination. Barr Engineer. September 15, 2011.

Zbigniew WK, Kanae S, Seneviratne SI, Handmer J, Nicholls N, Peduzzin P, Mechler R, Bouwer LM, Arnell N, Mach K, Muir-Wood R, Brakenridge GR, Kron W, Benito G, Honda Y, Takahashi K, Sherstyukov B (2014) Flood risk and climate change: global and regional perspectives. *Hydrol Sci J* 59(1):1-28, doi:10.1080/02626667.2013.857411.

Zhang Q, Yin G, Chen Y, Geng W, Wang W (2011) Experimental study on the affecting factors of the shear strength of unsaturated tailings. In *Proceedings of 2011 International Symposium on Water Resource and Environmental Protection*; Chang'an University Press: Xi'an, China, 2011; Volume 1, pp. 89–93.