

Overview of PolyMet’s air permit

Poly Met Mining Inc. (PolyMet) is proposing to develop a mine and processing facility for the extraction of copper, nickel, and platinum group elements from the NorthMet Deposit in northeastern Minnesota. The purpose of this fact sheet is to provide information about air permitting and some key elements of PolyMet’s air permit.

Air permitting basics

An air permit is a legal document that describes how a facility must operate in order to meet federal and state air quality requirements. The type and quantity of pollutants emitted determines what type of permit is needed and what regulations apply. On August 24, 2016, PolyMet submitted an air permit application to the Minnesota Pollution Control Agency (MPCA) for its proposed project. The application contains information about the sources of air pollution at the facility and any pollution control measures that will be used to reduce emissions.

When reviewing the application materials, the MPCA determines how each piece of equipment must operate, often setting maximum production rates, emission limits, monitoring, and recordkeeping requirements. The MPCA drafts an air permit detailing these requirements and a technical support document (TSD) which contains the justification for the permit requirements. The draft permit and TSD are made available for public review and comment for at least 30 days. The MPCA considers all written comments it receives during this period when making the decision whether to issue the permit. Public comments may result in changes to the draft permit. A permit can only be issued if the facility is able to meet all applicable requirements.

Most of the time, and in the case of PolyMet, an air permit must be issued before a facility can be constructed. The permit is issued for a five-year term, after which it can be renewed for another five years.

PolyMet’s air emissions

Sources of air emissions at the PolyMet facility include emissions from equipment such as crushers used to grind the rock into fine powder, space heaters used to warm buildings, and an autoclave, which is a high-pressure, high-temperature vessel used to process the ore. Emissions control equipment such as fabric filters and scrubbers are used to decrease emissions from these types of sources. The permit requires that control equipment be installed, operated, and maintained to ensure emissions are reduced.

Air emissions that cannot be exhausted through a stack are called fugitive emissions. PolyMet’s fugitive emissions include sources such as dust blowing off stockpiles and unpaved roads. Fugitive emissions are controlled by using water or a dust suppressant and work practices to minimize emissions. The fugitive dust control plan details the actions PolyMet must take to minimize fugitive dust. At the mine, where most of the air emissions are fugitive, PolyMet will operate air monitors to inform whether current dust control measures are working or whether additional actions are needed to control fugitive dust. Fugitive emissions do not count toward applicability of some federal regulations.

The draft air permit contains requirements that limit the facility’s emissions in order to meet ambient air quality standards, comply with state and federal rules that apply to specific types of equipment, and avoid being subject to regulations that apply to the largest emitters.

The table below shows maximum emissions the draft permit allows as well as the facility’s expected actual emissions.

PolyMet Emissions Summary, in tons per year

	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	CO _{2e}	VOC	Single HAP	All HAPs
Maximum emissions, excluding fugitive emissions	179	170	166	7	101	113	160,679	49	5	19
Maximum emissions, including fugitive emissions	2,530	885	267	8	107	114	160,679	50	5	19
Estimated actual emissions, including fugitive emissions	2,468	826	209	5	41	49	NA	42	NA	NA

Particulate matter (PM), particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide equivalents (CO_{2e}), volatile organic compound (VOC), hazardous air pollutant (HAP)

PolyMet's impact on air quality

Air dispersion modeling is used to quantify how a facility's emissions will affect nearby air quality. Before a facility does any air modeling, the MPCA must agree to the technical approach and the data used. When it receives results, the MPCA determines whether the approved protocols were followed and whether the predicted pollutant concentrations meet standards. PolyMet did two different types of modeling to quantify its impact on air quality called Class I modeling and Class II modeling.

Class I modeling evaluates the impact of PolyMet's emissions in places with special air quality protections. 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. 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.

Class II modeling determines whether PolyMet would cause exceedances of air quality standards near the facility, where the highest emissions occur. The U.S. EPA sets air quality standards, which are the maximum allowed concentration of pollutants. PolyMet's Class II modeling demonstrates its stack and fugitive emissions will not exceed air quality standards. The permit contains requirements that detail what changes at the facility, such as adding or changing emissions sources or changing stack height, would require PolyMet to re-model.

PolyMet's impact on health

An Air Emissions Risk Analysis uses a scientific process to estimate the potential human health risks from air pollution emitted by a proposed project. This analysis evaluates health risks posed to individuals who work at and live around the facility. Each health impact evaluation showed PolyMet's emissions, as limited by its permit, would not result in unacceptable risks to human health.

Evaluating compliance with the permit

To determine whether PolyMet is meeting its emission limits and complying with its permit, the air permit requires monitoring, documentation, and reporting, including:

- Conducting stack tests to measure actual emissions
- Monitoring control equipment operating parameters to tell us whether it is operating correctly
- Tracking and recording material throughput, hours of operation, miles traveled, etc. when the permit contains a restriction
- Operating ambient monitors to evaluate the effectiveness of the fugitive emissions controls
- Submitting regular notifications and reports disclosing any time it did not meet its permit requirements.

In addition, the MPCA conducts on-site inspections to evaluate whether PolyMet is complying with its permit requirements.