

Fiber requirements in the PolyMet 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. On August 24, 2016, PolyMet submitted an air permit application to the Minnesota Pollution Control Agency (MPCA) for its proposed project. The purpose of this fact sheet is to provide information about fibers and the fiber requirements contained in PolyMet's air permit.

What are fibers?

PolyMet proposes to mine and process ore that contains amphibole minerals, a common mineral found throughout the world. When the ore is processed it is possible that amphibole mineral particles, or fibers, will be released in the particulate emissions from the facility.

This is of interest because amphibole minerals are found in two different forms: asbestiform and non-asbestiform. PolyMet's ore body contains non-asbestiform amphibole minerals. It is not known whether inhalation of non-asbestiform minerals has any impact on health. However, inhalation of asbestiform amphibole minerals, like commercial asbestos, is known to increase the risk of lung cancer and mesothelioma.

Therefore, as a precautionary measure, the PolyMet Environmental Impact Statement committed the company to activities to minimize the release of airborne fibers and monitor their concentration in the air. These requirements are contained within the air permit for PolyMet.

PolyMet's fiber requirements

Any potential impacts of fiber emissions are anticipated to be minimized based on the use of high efficiency particulate control equipment, the implementation of a robust fugitive emission control plan, and ongoing fiber monitoring.

Minimize particulate emissions

Fibers are about the same size as fine particulate matter (PM_{2.5}), a common pollutant emitted and controlled by industrial facilities. For this reason, we believe any actions PolyMet takes to minimize PM_{2.5} emissions will also minimize fiber emissions. The permit requires installation of the best available PM_{2.5} control equipment on sources that have the potential to emit fibers.

At the processing plant, this means installing, operating, and maintaining control equipment on activities and equipment associated with crushing, concentrating, and handling the ore. Particulate control equipment required by the permit includes fabric filters on sources that vent air to the exterior of a building, and high efficiency particulate air (HEPA) filters when air is recirculated inside buildings. Throughout the draft permit, there are requirements to operate and maintain these controls.

Minimize fugitive dust

Fibers are also associated with some sources of fugitive dust, which is particulate matter that is not emitted from a stack or building vent, like dust from unpaved surfaces. To minimize emissions of fibers from fugitive dust PolyMet is required to follow a robust fugitive emission control plan. This plan describes the actions it will take to prevent and minimize fugitive dust emissions. PolyMet is required to document all fugitive dust control activities.

In addition, PolyMet must operate ambient particulate monitors at the mine site to evaluate the effectiveness of the fugitive emissions controls. If the ambient monitors measure elevated levels of particulate, PolyMet must take additional action to reduce fugitive dust. Fugitive emission control plans for the plant site and the mine site are attached to the permit. The requirement to conduct onsite particulate monitoring is found in the total facility requirements section of the permit.

Monitor fibers

PolyMet must also monitor fibers concentrations in the city of Hoyt Lakes when the plant starts operating. This will give us information whether the concentration of fibers in ambient air in Hoyt Lakes changes as a result of the facility's operation. The facility will develop and follow an ambient monitoring plan and must use MPCA-approved monitoring and laboratory methods. The fiber monitoring requirements are in the total facility requirements section of the permit.