



Long-term water treatment

PolyMet's mining systems are designed to ensure water quality standards are met during operations and after closure; water modeling was performed to show that this could be accomplished in the long-term. These technologies already exist and have been proven in real-world applications. We are committed to water monitoring and treatment for as long as it takes. What's more, we are required by law to support a monitoring and treatment program after closure and provide bankruptcy-proof financial resources to fund it as long as it is needed.

Why will PolyMet have to treat water?

- When water flows through or over exposed sulfur-bearing rock it can create a chemical reaction that makes sulfuric acid, which can then dissolve other metals in the rock. Only 6 percent of our waste rock will have that potential, and even then, it would have the same acidity as beer or milk. (Please see our separate Fact Sheet on Water Quality.) This reactive waste rock will be stored on a lined facility where any runoff will be controlled and collected. Once mining ends in each pit, this waste rock will be placed back in the pit and covered with water so it cannot continue to create acid. Until then, we will collect and treat runoff from these temporary stockpiles prior to returning it back into the environment.
- To avoid water quality issues that are associated with historical mining sites, PolyMet will use modern mining methods and engineering controls to treat the water on its site. Because of these methods and controls, most of the water PolyMet will manage and treat will be in the pH neutral range – neither acidic or basic – and will contain some metals at levels above water quality standards. Without these methods and controls, the water quality could be acidic, and would therefore contain much higher levels of metals.
- The main reason for water treatment during operations and closure is to ensure that all water quality standards are met during operations and after closure, particularly the Minnesota wild rice standard for sulfate.
- PolyMet will build and operate a water treatment plant on site that uses membrane filtration to remove sulfate and metals before it's discharged into the environment during operations and closure.

Why do some people say that water treatment will be required for up to 500 years?

- Information about water models developed for the environmental review has been described incorrectly. The timeframes used in the water models have nothing to do with the amount of time water treatment is needed and everything to do with ensuring that downstream water resources are protected. *The models were not designed to determine the duration of water treatment.*
- More specifically, the models were designed to determine impacts to water quality at key reference points in the watersheds downstream of the tailings basin (Embarrass River watershed) and downstream of the mine site (Partridge River watershed). Scientists determined the amount of potential leakage, if any, would be relatively small (about the flow of a 5/8-inch garden hose) and the rate of travel to be slow (about 3 inches per day) through groundwater to these respective points, so the extended timeframes (200 years in one case and 500 years in the other) were needed in the models to represent the maximum potential impacts at the reference points.

- To be clear, the models showed that water quality standards were still being met even as far as 500 years out. Again, the modeling years have no correlation to the years that will be required for actual treatment.

For how long will the company need to monitor and treat water?

- It is estimated at this time that active/mechanical treatment will be required for 35-40 years after mining ends to continue to meet the water quality standards and commitments made, including the 10 mg/L commitment for sulfate. At that time we believe we can transition to passive treatment, which would basically mimic Mother Nature's wetlands and their natural treatment capabilities.
- The actual length of time that will be required for water treatment will be addressed during the permitting phase of the project. Bankruptcy proof financial assurance provisions ensure that water will be treated using active systems to meet applicable water quality standards for as long as it takes. (See PolyMet's separate Financial Assurance fact sheet.)
- Because of legacy issues created by iron-ore processing at the site, long-term water care is needed at the site regardless of whether the PolyMet project goes forward. Obtaining construction and operating permits will enable us to implement a comprehensive treatment program to address those legacy issues in full compliance with state and federal regulations.
- Actual treatment durations will be based on measured, rather than modeled, data.