# Mercury

*All surface water discharges from the PolyMet site will comply with the Great Lakes Initiative standard of 1.3 nanograms per liter for mercury. This is about eight to nine times cleaner than area rainwater (which ranges from 10 to 12 ng/L) at the site and two to three times cleaner than what is found in natural runoff from the watershed (which ranges from 3.5 to 6 ng/L).*

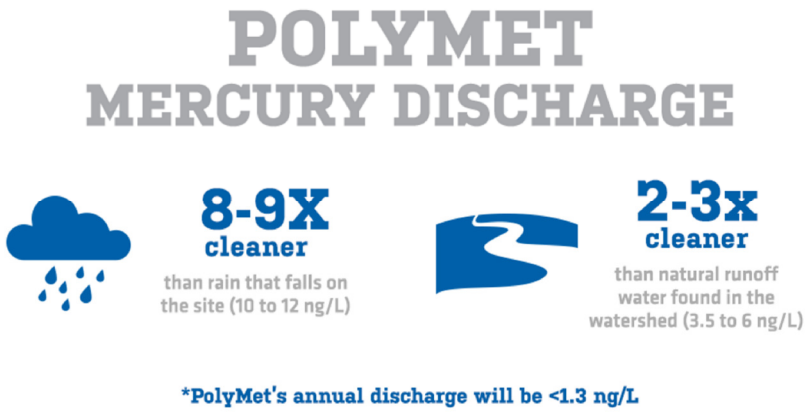
**What is mercury?**

Mercury is an element that naturally occurs in small amounts in the soil and rock found in the earth's crust. It is a neurological toxin that can accumulate in the food chain, particulary in fish. Airborne mercury created by some industrial operations or natural sources (such as volcanoes and forest fires) can travel great distances, where it is eventually deposited over land and water in rain and snow. Water runoff from land can increase the mercury concentrations in lakes. More than 99 percent of the mercury that is found in Minnesota's fish is delivered by the atmosphere – 90 percent of it from other states and countries.

Of the mercury deposited in Minnesota, 70 percent of it comes from anthropogenic (people) sources and 30 percent from naturally occuring sources.[1]

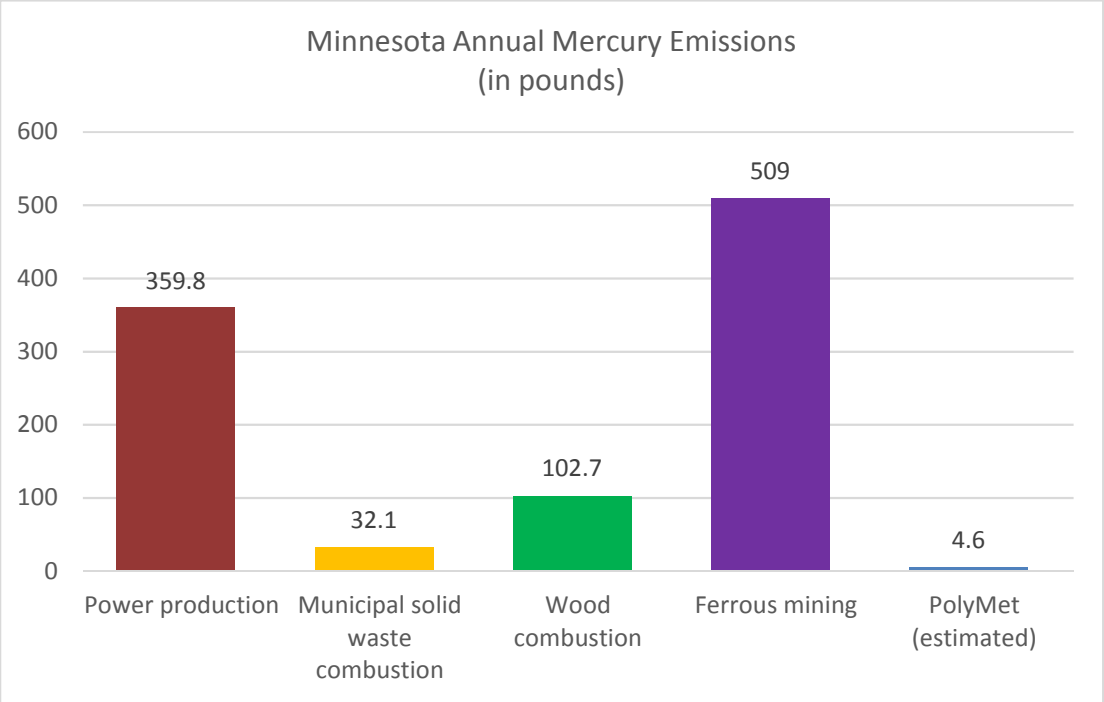
**Will PolyMet have significant mercury discharges to the air?**

- In operations, total potential mercury emissions from the NorthMet Project are estimated to be 0.53 pounds annually, which is lower than any existing taconite facility.
- The addition of hydrometallurgical processing facilities later in the project's life, which would further refine our products, would increase our total potential mercury emissions to 4.6 pounds annually. Emissions were estimated based on pilot plant processing of NorthMet ore. Pilot plant tests found that mercury emissions from the autoclave are relatively low because the temperature is lower than 500° F, the temperature at which mercury is volatilized and can be released into the air. These emissions were calculated using PolyMet's state-of-the-art two-stage mercury control technology.




[1] Minnesota Statewide Mercury Total Maximum Daily Load: Final. Written by the Minnesota Pollution Control Agency and approved by the U.S. Environmental Protection Agency March 27, 2007.

NorthMet Project mercury emissions are low compared to emissions from other sectors:




Source: MPCA Plan to Reduce Mercury Releases by 2025, Mercury Emissions Inventory for Distribution (wq-iw4-02f11). MPCA figures are estimated 2015.

**Will PolyMet increase mercury amounts in the St. Louis River?**

Because we are reusing an existing processing facility, we will actually improve existing conditions. The Final Environmental Impact Statement says: "Discharges are expected to meet the 1.3 ng/L standard for mercury, with an overall net decrease in mercury loading to the St. Louis River predicted for the NorthMet Project Proposed Action."[2]

**Will the NorthMet Project affect mercury methylation?**

Sulfur associated with air emissions and water discharges are so small that they will not cause a measurable change from background sulfur deposition, or from background methylmercury concentrations. For this reason, it is wrong to assume that increased mercury methylation will be a common occurrance as a result of the project.

- Most sulfur in air emissions from the NorthMet Project is particle-bound and will not cause higher rates of methylation because the sulfur is not readily available in the environment and may only be released relatively slowly over time, if at all.
- A study of methylmercury production and mining by the Royal Society for Chemistry found that, "chronically impacted wetlands do not appear to continually accumulate or produce MeHg at rates different from wetlands unimpacted by mining."[3]

[2] NorthMet Project Final Environmental Impact Statement, Appendix A, A-407

[3] Methylmercury production in a chronically siulfate-impacted sub-boreal wetland, Royal Society of Chemistry, Environ. Sci.: Processes Impacts, 2016, **18**, 725