Acid Mine Drainage (AMD) *Fact Sheet #1*

Metallic Sulfide Mining # 1

What's Wrong With PolyMet's NorthMet Mine?

PolyMet Mining Company is the first of what is likely to become many applicants for copper/nickel sulfide mining permits in Minnesota. This large, open pit mine would be located on what is currently Superior National Forest land, surrounded on three sides by a bend in the Partridge River.

Copper/nickel sulfide mines differ from taconite mines in that they target sulfide ores. Uncovering and exposing those ores and the surrounding rock to water and oxygen results in the production of sulfuric acid, commonly known as ***Acid Mine Drainage*** or ***AMD***. When acidic water escapes into nearby soil and rock, it leaches toxic heavy metals into groundwater, streams, rivers, and lakes. In fact, even nonacidic water leaches heavy metals from these ores.

Acid Mine Drainage (AMD) in a stream

The simple reality is that the mining industry has not yet found a way to keep mine drainage out of nearby water. Mining operations excavate hundreds of millions of tons of sulfur-bearing rock, much of which is left at mine sites as waste. Segregating this rock from the surrounding environment has proven impossible for the mining industry as a practical matter.

In ***every*** sulfide mine we know of that is not located in permafrost or desert, Acid Mine Drainage has resulted in polluted water. When mining companies claim that mines have operated without violating water quality standards, it is because some states routinely exempt mines from the standards.

Nothing about PolyMet's NorthMet Mine provides reason to believe that this will be the first mine to do what no other mine has done before. Quite the opposite: after reviewing the Draft Environmental Impact Statement (EIS), the U.S. EPA wrote,

> *"[T]he proposed action will result in environmentally unsatisfactory water quality impacts. Specifically, EPA believes that the project will exceed water quality standards because of discharges during the life of the mining operation and on a long-term basis, including the post-closure period. These water quality impacts are largely related to water that contacts acid-generating waste rock and mine faces and to wastewater escaping the tailings basin through seeps and in groundwater."*
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> **United States Environmental Protection Agency**

The EPA gave the DEIS the lowest possible rating based on two findings. First, the rating "indicates that our review has identified adverse environmental impacts that are of sufficient magnitude that the EPA believes the proposed action must not proceed as proposed." Second, the rating "indicates the DEIS does not present adequate information for the EPA to fully assess the environmental impacts..." While PolyMet continues to fine tune its proposal, it has not come forward with changes to the operation or with the collection of sufficient data to address the EPA's objections.

In addition to the Acid Mine Drainage problems inherent in any sulfide mine, the NorthMet Mine as proposed would result in a number of other unacceptable impacts. For example:

PolyMet plans to dispose of its tailings in the old LTV tailings basin, which is already leaking polluted water into groundwater and tributaries of the Embarrass River.

As the EPA noted, "The levels of sulfate are well above levels that are considered protective of wild rice and will generally lead to increased mercury methylation and higher fish tissue levels of mercury in downstream water." The NorthMet operation will only make matters worse; how much worse is anybody's guess, as PolyMet has resisted collecting the information that would make an accurate prediction possible.

At the close of mining, the mine pit will fill with water and develop into a pit lake. Over time, this pit lake is predicted to exceed water quality standards for many pollutants, including arsenic, cobalt, copper, nickel and selenium. While fencing may keep terrestrial wildlife out, pit lakes like this have resulted in the deaths of hundreds of migratory birds in Montana and New Mexico. Furthermore, the pit will overflow and discharge to a tributary of the Partridge River; if a treatment system is put in place, it will have to operate for hundreds or thousands of years.

PolyMet estimates that it will destroy 854 acres of wetlands and will impact another 668 acres, for a total of 1522 acres. Because it has not studied the connections between the mine site and adjacent wetlands, however, it has no basis to conclude that dewatering the mine pit will not result in draining hundreds of additional acres. This is the largest impact to wetlands ever proposed for permitting by the St. Paul District of the Army Corps of Engineers.

The EPA considers some of these wetlands to be "aquatic resources of national importance (ARNI). . . due to the values they provide in terms of unique habitat, biodiversity, downstream water quality and flood control specifically, to the Lake Superior Watershed and the Great Lakes Basin." According to federal Clean Water Act rules, destruction of wetlands can be permitted only if the functions of those wetlands are replaced by new or restored wetlands. In this case, almost all of the new or restored wetlands will be located in the Mississippi Basin. Actual replacement of the functions of these wetlands to the Lake Superior Watershed has not even been considered.

In addition to these impacts to water resources, this and other new mines and industry that are slated for Northeastern Minnesota will have a very significant cumulative impact on air quality, greenhouse gas emissions, and wildlife habitat. Other mines are in the planning stages and are regularly touted by elected officials and the press, but have not been considered in cumulative impact analyses.

Perhaps the worst aspect of PolyMet's mine plan, however, is what remains unknown and unpredictable. While PolyMet has spent money on environmental review, it has put that money into modeling based on insufficient data and experts who will say that data isn't needed, rather than actually gathering the information that would allow us to determine what the impacts will be. For example, PolyMet had agreed to install only three monitoring wells to characterize existing groundwater quality for thousands of acres of the project site. Other sulfide mine projects proposed in the region typically use tens to hundreds of wells for this purpose.

PolyMet's Leaking Tailings Basin

If PolyMet really wanted a quick response to its permit application, it could have started collecting the necessary hydrological and water quality data years ago. But it chose not to, and it continues to choose not to. To hear PolyMet tell it, the company had no idea that this data would be needed in order to permit the mine. If that is true, it reveals a frightening lack of expertise among PolyMet's professional staff and contractors. The far more likely story is that PolyMet understands what is needed to prove that a mine will operate cleanly and safely, and chooses not to provide that information. Perhaps it fears that an accurate prediction of impacts based on actual data would result in a denial of the permit.