

UNDERSTANDING PROVE IT FIRST



CONCERNS & EXISTING SOLUTIONS



MININGMINNESOTA™
RESPONSIBLE DEVELOPMENT of NATURAL RESOURCES

Concern: There is no mechanism to hold companies accountable to environmental regulations.

Existing solution: Mining companies are held accountable by the state of Minnesota through the MN Department of Natural Resources and/or the Minnesota Pollution Control Agency (MPCA). The standard tools for MPCA enforcement for air, water, and waste violations are warnings, field citations, administrative penalty orders, stipulation agreements, and consent decrees[1].

The DNR enforcement tools for land reclamation requirements are described in Minnesota Statutes 93.51 Penalties for Violation and include civil and criminal penalties[2].

Federally, the Environmental Protection Agency (EPA)[3] has a robust enforcement program based on the nation's environmental statutes that allow for both civil and criminal enforcement. These enforcement programs exist for air, water, and waste programs. As David Uhlmann, Assistant Administrator, Office of Enforcement and Compliance Assurance, stated after a recent settlement with an American vehicle engine manufacturer, "[the] EPA is committed to holding polluters accountable and ensuring that companies pay a steep price when they break the law."

Mining companies make significant investments into environmental compliance programs at their facilities. Proper enforcement of environmental regulations is welcomed by the mining industry as it ensures that high standards are held and maintained, and it ensures an even playing field for companies that are often competitors.

“[the] EPA is committed to holding polluters accountable and ensuring that companies pay a steep price when they break the law.”



Concern: The environmental review process always sets a company on a path to project approval.

Existing solution: The environmental review process, as designed by federal and state laws, was never intended to stop projects, but rather to assess and minimize environmental impacts. Per Minnesota Rules 4410.0300, Subp. 3[4], "Environmental documents shall not be used to justify a decision, nor shall indications of adverse environmental effects necessarily require that a project be disapproved. Environmental documents shall be used as guides in issuing, amending, and **denying permits** and carrying out other responsibilities of governmental units to avoid or minimize adverse environmental effects and to restore and enhance environmental quality."

Concern: Environmental regulations in Minnesota are only guidelines, not rules.

Existing solution: Title V of the Clean Air Act[5] requires legally enforceable permits with state and federal pollution control requirements. The Minnesota Pollution Control Agency (MPCA) has the primary responsibility for issuance and implementation of the state program with oversight provided by the federal Environmental Protection Agency (EPA).

Water quality is protected by the federal Clean Water Act[6], which includes the National Pollutant Discharge Elimination System (NPDES) permitting program. Mining operations with direct discharges to waters of the United States are required to obtain and maintain an NPDES permit. In Minnesota, we have a joint NPDES/State Disposal System (SDS) permit for the regulation of water discharges into both surface and groundwater. Non-point, or stormwater, discharges from both industrial and construction impacts are also regulated within these permits. Similar to air permits, NPDES/SDS permits are issued and regulated by the MPCA with oversight by the EPA.

Wetland impacts are regulated by both federal and state agencies, with the Clean Water Act Section 404 wetland permit[7] administered by the Army Corps of Engineers and the MN Wetland Conservation Act[8] administered by the DNR for mining projects .

Appropriation of water; work in public waters; regulation of dams; regulation of state protected fish, wildlife and vegetation; and regulation of mining overall are also regulated by the DNR under state statute and state rules.

When there is a federal undertaking, such as a federal permit (e.g., Section 404 permit), other laws are also triggered, including Clean Water Act Section 401 on water quality, Section 106 of the National Historic Preservation Act, and Section 7 of the federal Endangered Species Act, which are regulated by the MPCA, State Historic Preservation Office, and U.S. Fish and Wildlife Service, respectively.

**3 MW windmill requires
4.7 tons of copper.**

**Minnesota's current wind
energy (4590 MW)
requires 14,000,000+
pounds of copper.**



Concern: Minnesota's taxpayers will be held responsible for the clean-up of a mine if the owner goes bankrupt or abandons the facility.

Existing solution: Minnesota's regulators and lawmakers recognized the risk of abandoned mines during the development of the State's metallic mineral mining rules and enacted regulations to protect taxpayers and the environment. For nonferrous mining, Minn. Rules Chapter 6132.1200[9] address financial assurance, which applies to all lands within a mining operation, regardless of ownership. Financial assurance requires mining companies to provide money ahead of operating and it must be sufficient to cover reclamation costs, payable and available to the DNR when needed, enforceable under law, not dischargeable through bankruptcy, and approved by the DNR Commissioner.

The estimates are evaluated and approved by the DNR on a yearly basis to determine any necessary adjustments.[10]

Abandoned mines, most notably in the western U.S., have resulted in a significant burden on U.S. taxpayers and the environment. Citizen concerns about abandoned mines are often based on the impacts of these mining operations that occurred prior to the Federal Land Policy and Management Act of 1976.

These regulations define abandoned mines as mines that were abandoned prior to January 1, 1981, the effective date of the Bureau of Land Management's Surface Management regulations. Today's mines that are on Federal lands in the US west are regulated by the federal government and have safeguards in place to prevent this situation from occurring again.

Financial assurance requires mining companies to provide money ahead of operating and it must be sufficient to cover reclamation costs that are:

- ✓ payable and available to the DNR when needed
- ✓ enforceable under law
- ✓ not dischargeable through bankruptcy
- ✓ approved by the DNR Commissioner

Concern: Minnesota's watersheds are too valuable. We can get our copper somewhere else.

Existing solution: All watersheds are valuable watersheds that must be protected, as are the people who reside within them. The concerns about a new type of mining are valid concerns and ones that are shared around the globe as projects are proposed.

The global transformation to clean energy is dramatically increasing demand for metals such as copper and nickel and Minnesota has set its own ambitious goals that will drive that demand.

In 2021, Minnesota used 4,590 MW of wind energy to generate 21% of our state's energy needs. This wind energy equals approximately 7 million pounds of copper within the windmills only, not considering the substations and transmission lines needed to transfer that power. As only one state within one nation, we have a responsibility to consider our impact on the demand for these metals and minerals and discuss our opportunity to responsibly provide at least a portion of the supply.

**All watersheds are valuable
watersheds that must be protected, as
are the people who reside within them.**

Concern: The BWCA is too pristine of an area to put at risk.

Existing solution: Agreed. The Boundary Waters Canoe Area (BWCA) deserves additional protections from all activities upstream, whether they are mining operations or other human activities. To ensure additional protections beyond most waters within the state, Minnesota Rules^[11] identify the BWCA waters as "Prohibited Outstanding Resource Value Waters." This status means that the MPCA Commissioner "shall prohibit a proposed activity that results in a net increase in [pollutant] loading or other causes of degradation." When evaluating **any** proposed activity in the BWCA watershed, an additional layer of protection is woven into the regulations above and beyond others.

This additional layer of protection is also reflected in Minnesota's minerals management corridor^[12] that was developed by the DNR and includes lands within one quarter mile of the BWCA, principal recreational entrances and travel corridors entering the BWCA, and small surface waters that flow directly into the BWCA. There is NO proposed mining in the BWCA or in the minerals management corridor where mining is prohibited.

No company is proposing to mine non-ferrous minerals in the BWCA.

Concern: There are no copper-sulfide mines that have operated in the United States without causing pollution.

Existing solution: The vast majority of copper mining in the United States occurs in arid regions such as Arizona (70%) and Utah and are not appropriate to use as examples due to this difference. The majority of the copper production in the U.S. today comes from mines that have been in operation for decades, most of them before The Clean Air Act, Clean Water Act and other protective regulatory actions were in force.

Fortunately for Americans, they have found ways to adapt and upgrade and apply new technology to keep producing ore even as grades decline and operating costs increase. Comparing contemporary mines in the U.S. with those already in existence is like comparing the 1964 Chevrolet Corvair to a 2024 Tesla.

Regionally, there are two copper mines that are more applicable to this discussion due to their similar climate and geologic setting.

The Flambeau Mine^[13] in Ladysmith, Wisconsin was an open-pit copper-gold mine with operations beginning in July 1991 and reclamation activities wrapping up at the end of 1999. Active mining occurred from 1993 to 1997. On December 20, 2022, the Wisconsin Department of Natural Resources issued a certification of completion of reclamation for the entire operation.

From the Wisconsin DNR: Throughout the life of the project, the company has remained in substantial compliance with all permit conditions and applicable standards. There were no exceedances of any effluent (treated wastewater) limits during the period of discharge. Monitoring of water quality and other characteristics in the Flambeau River similarly did not show any impacts from the effluent discharge.

The Eagle Mine^[14] in Michigan, a nickel and copper mine, began operations in 2014 and is still an operating mine. It has operated without harm or damage to the environment. Unfortunately, due to the intentional language used within the “Prove it First” bill requiring ten years of closure, this mine is not taken into consideration when evaluating a modern mine permitted and operated under modern environmental regulations.



Flambeau Mine
Ladysmith, WI



Eagle Mine
Big Bay, MI

KEY TERMS

Sulfide minerals: Some sulfide minerals like copper sulfide and nickel sulfide are mined and are critical components of other products

Oxidation: The effect oxygen has on exposed minerals over time (i.e. iron turns rusty from air)

Neutralization: The process of reducing or buffering the level of acidity caused by ARD

Concern: Acid rock drainage is caused by sulfide mining and is unavoidable.

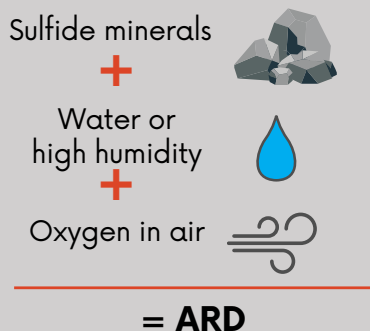
Existing solution: Copper and nickel mining is often referred to by anti-mining activists as “sulfide mining” in order to make it sound toxic and dangerous. The sulfides are a necessary component of the rock to be mined as it includes minerals that are made of metal ions combined with sulfide ions such as chalcopyrite (CuFeS_2) and pentlandite ($(\text{Fe,Ni})_9\text{S}_8$).

Acid rock drainage is formed when these sulfide minerals are exposed to air and water. The risk of acid generation is directly related to the quantity and concentration of these minerals that are exposed as well as the ability of the remaining rock to neutralize any potential acid that is formed. The ore bodies and other materials underground do not contain 100% sulfide material that will generate acid. There are other minerals such as silicates and carbonates that can buffer acid that could be generated (similar to adding baking soda to neutralize vinegar, but without the science fair imagery of a volcano erupting!).

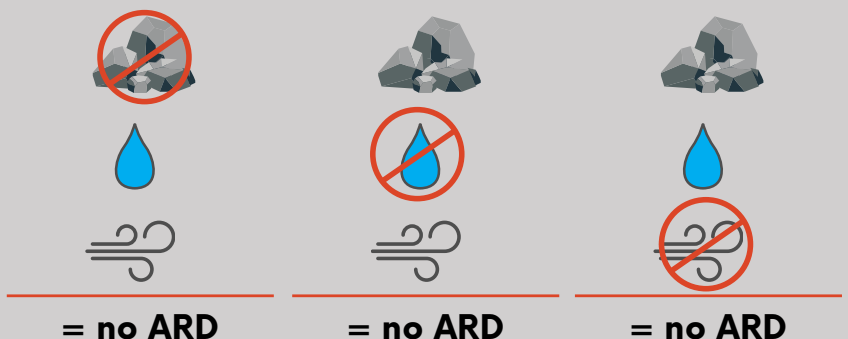
Extensive research is conducted for each proposed mining project and overseen by the MN DNR[15] on materials that are exposed during mining or after processing to understand the chemistry of the materials and their behavior upon exposure to air and water. This site-specific geochemical data supplements existing multi-decade research that has been conducted by the state.

Mine material characterization allows for the development of management practices and strategies to avoid and minimize the generation of acid or metals and their risk to the environment. Mine development, stockpiling plans, and tailing management can then be designed to take the site’s unique geology and geography into account. Examples of mitigation measures include stockpile liners, addition of limestone to waste rock, and placement of materials under water to prevent oxidation.

Acid Rock Drainage requires three essential ingredients to form:



Remove any one of these ingredients and ARD will not form:



Concern: Foreign, multi-national companies shouldn't be trusted with Minnesota's natural resources.

Existing solution: State and federal regulations do not change for companies based on where they are headquartered. Labor laws, environmental laws, and community engagement requirements are the same regardless of where a company is headquartered.

Mining and mineral processing is a much more technologically advanced industry than is often recognized by those outside of it, and one of the keys to a successful project is specialized technical knowledge and expertise, which can be bolstered by mining professionals who practice outside of the U.S. Mining is also a capital-intensive industry that requires significant financial investment and ability to invest in projects for years before a return on investment may happen (if ever).

Many of the engineers and scientists who work on the development of mining projects in our state are STEM graduates of Minnesota's colleges and universities. As employees of proposed projects, consultants, and regulators, Minnesotans shape and shepherd these projects through Minnesota and US environmental regulations to ensure that our state can do our part to provide for the clean energy future that we are driving towards.

Foreign companies invest capital in Minnesota which creates jobs just as Minnesota companies invest in other countries.



Recycling efforts must be a focus and priority for Minnesotans to ensure that once these metals come up from the ground, that they never return to it.

Concern: We don't need to mine to build clean energy infrastructure. We can rely on recycling.

Existing solution: Someday, yes, we will absolutely need to rely on recycling to keep the supply chain functioning. Unfortunately, that time is not here and is not anticipated to be here for decades as the clean energy transition requires a massive build-out of infrastructure including the generation, storage, and transmission of energy. Every phase of power generation requires copper to keep electricity flowing and once that infrastructure is in place, it will remain there.

The International Energy Agency announced in October 2023 that the world would need to double the size of its existing electricity grid by 2040 to power the globe with clean energy. This would equal 49.7 million miles of new and rebuilt transmission lines, which are copper-dependent.[16]

As a result of this massive build-out, the International Energy Agency estimates that by 2040, secondary production from recycled minerals will account for up to 7% of the nickel and 5% of the copper needed.[17]

Recycling efforts must be a focus and priority for Minnesotans to ensure that once these metals come up from the ground, that they never return to it. We have that obligation to the environment as well as the workers who will be providing us with the metals needed to run our world.

RESOURCES

- [1]<https://www.pca.state.mn.us/trending-topics/compliance-and-enforcement>
- [2]<https://www.revisor.mn.gov/statutes/cite/93.51>
- [3]<https://www.epa.gov/enforcement>
- [4]<https://www.revisor.mn.gov/rules/4410.0300/>
- [5]<https://www.epa.gov/clean-air-act-overview>
- [6]<https://www.epa.gov/laws-regulations/summary-clean-water-act>
- [7]<https://www.epa.gov/cwa-404/permit-program-under-cwa-section-404>
- [8]<https://www.revisor.mn.gov/rules/8420/full>
- [9]<https://www.revisor.mn.gov/rules/6132.1200/>
- [10]https://files.dnr.state.mn.us/lands_minerals/northmet/permit_to_mine/fact_sheets/financial_assurance_fs.pdf
- [11]<https://www.revisor.mn.gov/rules/7050.0335/>
- [12]<https://mnatlas.org/resources/bwcaw-minerals-mgmt-corridor/>
- [13]<https://dnr.wisconsin.gov/topic/Mines/Flambeau.html>
- [14] <https://www.eaglemine.com/>
- [15]https://www.dnr.state.mn.us/lands_minerals/mineland_reclamation/environmental-research/characterization.html
- [16]<https://www.iea.org/reports/electricity-grids-and-secure-energy-transitions>
- [17]<https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/reliable-supply-of-minerals>



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