

Issue: Minnesota, Copper, Nickel Mining

Copper, Nickel and Strategic Metals Mining in Minnesota: A Very Short Tutorial

Introduction

Iron mining has been a prominent industry in northeastern Minnesota since the late 1800's, but the mining of heavier metals—copper, nickel, and strategic metals such as gold, cobalt, platinum and palladium—has never taken hold. Two mining companies are attempting to get permits to mine and process those metals, which are abundant in an ore body close to active or previously-active taconite (low grade iron ore) mines. The difficulty is that the proposed mines are also close to valuable water resources: in one direction, the Boundary Waters Canoe Area Wilderness (BWCAW); and in the other direction, tributaries to Lake Superior.

The arguments for and against the proposed operations have broken into a classic jobs-vs.-environment debate.

Background

Mining inevitably generates waste rock, initially to gain access to the desired ore and then to liberate the metals in question from the minerals that contain them. While iron mining generates large amounts of waste rock that requires management, the waste material is largely nonreactive. The copper, nickel and associated metals proposed to be mined from the Duluth Complex, however, are all combined with sulfur. Sulfide ores and their waste products are known to react with air and water in such a way as to generate acid after being fractured and exposed to atmospheric conditions. Acid mine drainage has been a persistent problem with copper mines over the history of mining in North America, affecting both groundwater and surface water. Special handling and long-term monitoring are required to manage them safely over the long run.

Two mining companies are currently working toward permitting and development of their proposals.

- PolyMet Mining has purchased facilities formerly used for iron mining and proposes to develop an open-pit mine similar to other mines along the Iron Range.
- Twin Metals proposes to develop an underground mine near Ely, at the edge of the BWCAW. The proposed mine will be underground and partially beneath Birch Lake. The proposed location of the processing plant is next to the Kawishiwi River, which flows into the BWCAW.

Arguments against mining of copper and nickel

Opponents of the mining proposals argue that:

- There has never been a copper mine so successfully managed that it did not cause long-term environmental damage to the surrounding area.
- Once the door is opened for a single copper-nickel mining operation then others will surely follow, and many other companies are already interested in developments in the area.

- The U.S. Forest Service must first complete an environmental assessment worksheet on the potential impact of copper mining on the BWCAW.
- Acid drainage—or industrial spills—would be particularly disastrous to the pristine waters of the BWCAW or to Lake Superior, with their abundant wildlife and thriving tourist economies.
- The owner corporations are foreign entities, so will be much more difficult to force to keep their promises of environmental stewardship over the long run. (Poly Met Mining, LLC, is a wholly-owned subsidiary of PolyMet Mining Corp, a Canadian company; Twin Metals is a wholly-owned subsidiary of Antofagasta, a Chilean company).
- The Twin Metals proposal adds an extra level of hazard because of its underground design and immediate proximity to the BWCAW.
- In short, the risks far outweigh any potential benefits.

Arguments for mining of copper and nickel

The proponents of the mining projects argue that:

- The environmental review processes identify the hazards and ways to manage them, and the permitting agencies are able to ensure that the companies manage their materials properly.
- The mines represent good jobs and income for residents—as direct employees, as contractors, and as support businesses such as groceries and schools—in an area where iron mining has begun to decline. An independent study by the University of Minnesota's David Lebowitz School of Economics indicates that the PolyMet operation alone accounts for 360 direct jobs, over 600 indirect jobs, which would contribute \$515 million annually to St. Louis County.
- The metals to be extracted are crucial to modern life, and consumers use them daily in such items as electronics, cars and medical devices. If they are not mined in a place with rigorous environmental and health protection they will be mined elsewhere—in countries where the workers and environment are not so carefully protected. Unless society is willing to forgo the benefits of electronics made possible by the metals in question, it should accept the responsibility for ensuring that the materials are produced as safely and cleanly as possible.

Sources

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