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Water not a barrier in exploration for minerals

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ON BIRCH LAKE — Surrounded by the deep-blue waters and lush shoreline of a northern Minnesota lake, Dan Olson and two fellow drillers toiled last week inside a small metal enclosure in 92-degree heat.

“Sweaty,” was how Olson described working conditions inside the massive drill rig atop 7,000-acre Birch Lake near Babbitt. “It’s what they call the weight-control plan.”

In coming years, hundreds of workers could be sweating in copper, nickel and precious metals operations in Northeastern Minnesota.

Franconia Minerals Corp. of Spokane, Wash., is again drilling test holes about 2,000 feet beneath Birch Lake and on nearby land, to define what’s believed to be a 183 million-ton deposit of copper, nickel and precious metals.

Drilling in past years — as far back as 1960 — by other companies found copper, nickel, gold, palladium and platinum near the Birch Lake site.

Franconia’s exploration work isn’t the only metals project proposed for Northeastern Minnesota.

It’s been known for decades that low-grade copper, nickel and precious metals deposits exist in the region. But low metals prices made the deposits unattractive to developers.

An increase in demand, especially in developing Asian countries, along with new processing technologies and strong metals prices, has made it financially attractive in recent years to consider mining the ore.

Estimates are that about 4 billion tons of mineable copper, nickel and precious metals exist in the region, according to MiningMinnesota, a trade group representing copper, nickel and precious metals producers.

“Pricing is strong and demand is strong” said Frank Ongaro Jr., MiningMinnesota executive director. “Private investors have put millions of dollars into these publicly traded companies who are doing the development. From both an economic and environmental standpoint, I hope that all interested parties take the time to find out the true and accurate information on these projects.”

Since 2001, Franconia has drilled 11 holes deep beneath the lake bed.

“A hole we drilled in 1998 from the shore out into the lake confirmed that the geology extended out into the lake,” said Ernest Lehmann, Franconia Minerals’ director.

The geologic formation is part of the Duluth Complex, a 1.1 billion-year-old structure.

An additional 31 holes have been drilled on land near the lake since 2000.

If additional drilling and testing prove the project feasible and permits are obtained, the \$616 million underground mine could begin operating in 2011.

The mine and a processing facility would take two years to build and require 1,000 construction workers, according to projections.

If built, the facility would employ about 550 full-time workers.

Potential for acid

But not everyone is convinced that metals mining would be good.

There's potential for sulfur within the ore to come in contact with air and water and turn into acid runoff, said Clyde Hanson of Lutsen, co-chair of the Sierra Club North Star Chapter Mining Without Harm campaign.

"Our concerns are significant," Hanson said. "We're talking about a potential, perpetual pollution source for the Boundary Waters. If anything goes wrong, that lake could be polluted forever."

Sulfur content within the ore is about 1 to 2 percent, Lehmann said.

That compares to 12 to 20 percent sulfur content at a proposed copper and zinc mine in Crandon, Wis., he said. That project had been proposed for 28 years until it was halted in 2003 by a \$16.5 million land and mineral rights purchase by two American Indian tribes.

If the Franconia mine were developed, about half of the waste rock and tailings from ore processing would be placed back into the underground mine, Lehmann said. The other half would be treated and stored in on-land impoundments.

"We don't want to have sulfur in the tailings [waste product] because we need the sulfur in the concentrate for our hydrometallurgical process," Lehmann said. "It would then be neutralized with limestone to form gypsum."

20-year mine lives

A commercial-size copper, nickel and precious metals mine has never been developed in Minnesota. But two other metals projects are on the drawing board.

PolyMet Mining Corp. of Vancouver, British Columbia, plans to develop a \$380 million open-pit copper, nickel and precious metals mine south of Babbitt. PolyMet would process its ore using portions of the former LTV Steel Mining Co. taconite plant near Hoyt Lakes.

Duluth Metals, a Toronto-based exploration company, is working to develop a 347 million-ton ore reserve near Ely.

Like Franconia, the Duluth Metals mine would be underground.

The mines would pump millions of dollars into the local and state economies, provide good-paying jobs and produce metals used for a variety of applications, such as electrical products, surgical instruments, jet engines and catalytic converter pollution controls.

"On the economic side, one of the criticisms of copper-nickel mining is that it's boom and bust," MiningMinnesota's Ongaro said. "But both the PolyMet and Franconia projects have 20-year mine lives — perhaps longer — and are great-paying jobs. There would be over 800 full-time, good-paying jobs, not to mention the spin-off jobs and the tens of millions of dollars in tax revenue each year that go to state and local governments."

Skepticism expected

For more than 100 years, Northeastern Minnesota has been home to iron mines, where iron-containing pellets are produced and shipped to steel mills to be turned into steel. But the industry, which currently employs about 4,400, has lost nearly 12,000 jobs since 1998.

A new type of mining could help replace some of the jobs and rejuvenate communities and schools with new residents and students, metals industry officials said.

Franconia Minerals' Lehmann said he's confident that the Birch Lake Deposit and a nearby site known as the Maturi Deposit could be developed without harm to the environment. Each of the sites would have a surface footprint of about 5 acres, he said. A processing plant would require about 30 acres.

Franconia has about 15,000 acres of surface and lake-bed property under lease.

"We expect questions and we do expect there will be some [environmental group] challenges," Lehmann said. "But we

hope on the process side that with PolyMet, a lot of questions in the public's mind and the regulatory agency's mind will be answered. We are confident that we can develop it from a standpoint of the deposit being as far under the lake as it is."

Ongaro said the industry must follow strict environmental regulations already in place.

"Every indication is that there's still a strong feeling that there should be additional restrictions mandated on non-ferrous mining," he said. "The industry believes that the state's environmental standards are strict, exacting and that no additional regulations are necessary. We have a strong regulatory system in place."

That, however, may not be enough of a guarantee for some.

Metals company drill holes to "find out where the profits are," but they don't drill enough holes to find underground fractures that could cause long-term leaching problems, Hanson said.

"If you make a mistake, it's forever," said Hanson. "Our challenge to them is to prove that it's going to be safe forever."

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