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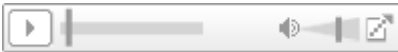
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Minnesota rich in valuable minerals - and potential pollution

by [Bob Kelleher](#), Minnesota Public Radio
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New mineral exploration suggests that Minnesota holds a world-class deposit of metals such as copper, nickel, platinum and palladium. The rock beneath northeast Minnesota may be hiding richer deposits of metals than most experts had guessed. Some think non-ferrous mining will reach a scale that rivals the state's iron mining industry.

St. Paul, Minn. — Spring is just arriving in the Superior National Forest as a small band of modern explorers gathers in the sun-warmed woods near Ely.

A red steel pole juts 5 feet out of the ground in a small clearing among green balsam fir and bare white birch trees. The pole is coming out of one of more than 100 drill holes where Duluth Metals company has pulled rock samples from as far as 4,000 feet below the surface.

Company President Rick Sandri picks up a fist-sized stone from the ground. It's dull and dark with tell-tale shiny specks.

"This is Duluth complex rock," Sandri said. "This is the rock that we're looking at, and in fact, that ... silvery gold color ... is part of the mineralization that we're looking at."

The colors indicate copper. And there's a lot more than copper hiding in the hard rock below, according to Project Director David Oliver.

"We have turned up a tremendous amount of minerals -- an unexpectedly high amount of mineralization," he said.

Something can go wrong, and if something goes wrong it's going to release enormous amounts of toxic waste.

- Brad Sagen,
Northeast Minnesotans for Wilderness

The metals were first identified by an iron mining company a couple of decades ago, but the deposit was considered too thinly spread to make recovery profitable. That's changed with new mine technology and an ever tightening world supply of these elements known as base metals.

Project Director Oliver said the local formation, known as the Duluth Complex, is turning out to be world class for the size of its metal deposits - second only to South Africa's.

Duluth Metals says it has identified more than 10 billion pounds of copper, more than 3 billion pounds of nickel and 15 million ounces of precious metals. The company pegs the total value at more than \$45 billion.

Duluth Metals has only sampled half its site, and it's only one of at least six companies actively exploring the Duluth Complex.

The Duluth Complex stretches roughly from Ely southwest to Aitkin.

Oliver said the metals they're finding are in high demand for modern technology.

"Every new wind turbine you put up is going to have a couple tons of copper in it and a ton of nickel in it. All of the hybrid cars contain copper and nickel in the components there. Every stainless steel thing contains nickel. And these in no way can be seen as frivolous or ancillary elements in our society," he said.

Duluth Metals is not necessarily overstating the potential of the Duluth Complex, according to Don Fosnacht, a metals expert who helps direct the University of Minnesota Duluth's Natural Resources Research Institute. He said the Duluth complex metals will rival the value of Minnesota's iron mining industry.

"I think there's no doubt about it because this deposit is so massive, you have many, many potential years of mining, similar to the iron district that we have. You will have comparable ... total metal value associated with this Duluth Complex," Fosnacht said.

But it's not an easy road to get from promising exploration results to a working mine. In the ground, these metals are bound to sulfur. Expose sulfide minerals to air and water and they create sulfuric acid -- a potentially deadly pollutant.

The mine companies have plans to remove and neutralize sulfuric acids, and to cover exposed tailings.

But they've yet to convince people like Brad Sagen, a nearby homeowner and board member of the group Northeast Minnesotans for Wilderness. "Something can go wrong," Sagen said, "and if something goes wrong it's going to release enormous amounts of toxic waste into the Kawishiwi River or Rainy River watersheds."

Duluth Metals hopes to be mining underground in five years or more. Another company, PolyMet, hopes to start a surface mine later this year. PolyMet's Environmental Impact Statement will be published this spring.

How well PolyMet fares in the coming months could spell the future for the local industry. As Duluth Metal's President Rick Sandri puts it, PolyMet is the snowplow, and Duluth Metals is the car behind the plow.

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