

# Future 'optimistic' for copper-nickel

Duluth News 1-27-79

The director of a mineral exploration firm Friday expressed cautious optimism over the future of copper and nickel mining in northeastern Minnesota.

Jack Malcolm, director of Minnamax for Amax Exploration, Inc., shared that optimism with an estimated 150 business, labor and government leaders at a resource development center sponsored by Northeastern Minnesota Development Corp. and area chambers of commerce at the Radisson Duluth Hotel.

Malcolm said that Amax is evaluating the mining prospects in the

Babbitt area where the firm took over an interest in copper-nickel mining from Bear Creek Mining Co.

To date Amax has spent approximately \$16 million in the evaluation project, Malcolm said. Some 110 miles of core have been drilled and the first phase of the evaluation is almost finished.

If the mining goes ahead, Malcolm predicted a daily product of 45,000 tons from open pit and 15,000 tons from underground. Between 1,500 and 2,000 jobs would be generated.

He said approximately 25,000 acres of land will have to be acquired from federal, state, county and private owners.

Also, a highway connecting Babbitt and Hoyt Lakes as well as a feeder line of the Duluth, Missabe and Iron Range Railroad will be essential, he said. Water could be obtained from the Peter Mitchell Mine of Reserve Mining Corp., just a few miles away.

One problem Malcolm noted is that the the grade of the deposit is marginal. He said the type of ore is different from any ever used commercially.

"Should the price of metals improve, a suitable metal facility be designed and all environmental questions be properly addressed, we may be able to reach a decision to go or not to go by the end of 1982," he said.

"There are so many questions to be answered before going ahead with a venture of this magnitude that unfortunately the final answer won't be known until all the work has been completed," he said.

"The earliest an operation could begin at Minnamax would be mid-1985 or '86," he added.

Despite those formidable problems, Malcolm was hopeful.

"If I weren't optimistic, I couldn't have been in mining so long."

In another presentation at the seminar Rocky Mountain Energy Co. representatives explained explorations for uranium in the Bar-num area.

Under consideration are about 500 square miles of land with topography similar to that found in uranium deposits in Saskatchewan and northern Australia, said Clark Bolser, manager of environmental services.

If ore is found, Bolser said, emphasizing the word if, it will be at

See MINING page 7A

## MINING

From Page One

least 10 years before any ore would be mined.

He said lease agreements have been made with area property owners and exploratory drilling, which began in 1977, will be resumed in February.

But Bolser said the chances of finding a marketable body of ore are only about one in 200 or 250. He said the company will know better after the next drilling.

# Copper-nickel study will be ready by April

Daily  
Journal

1-31-79

ST. PAUL (AP) — A lengthy environmental report on proposed copper-nickel development in northeastern Minnesota will be completed in late April, according to the director of the project.

Robert Poppe, director of the \$4.3 million state-funded study, said Tuesday that the report is being drafted and will contain about 3,000 pages. The study was begun in January 1976.

Poppe told the House Environmental and Natural Resources Committee that the study of the 2,000-square mile area in St. Louis County and neighboring Lake County is primarily fact-finding. It will not contain a recommendation as to whether mining of the wilderness area should be permitted.

Poppe said 13 companies have conducted test drillings in the area dating

back to the early 1950s and the majority of them have voluntarily shared their data with the state.

International Nickel Company, U.S. Steel and Amax Exploration, Inc., are among the firms.

**THE MINERAL VEIN** runs some 40 miles from near Hoyt Lakes northeast to Ely. Poppe said private parties control 32 percent of the mineral rights, while the federal government owns 24 percent, state government 15 percent and 26 percent are in conflict, primarily between the federal government and private parties.

Poppe said the test drillings indicate that 27 percent of the ore is within 1,000 feet of the surface and open-pit mining can be utilized while 73 percent is recoverable by underground mining.

The state official said there are about 18 million metric tons of copper and 3

million metric tons of nickel in the area, with a total value of around \$50 billion.

However, at current prices, underground copper mining would not be economical but open-pit mining apparently would be feasible, he said.

Any mining and smelting operation would face stringent state and federal permitting procedures.

**POPPE SAID** his staff had been conducting extensive tests of the environment. He said acid rain has been detected in the area. "Ecological damage is occurring—how severe we don't know yet," he added.

Poppe said a preliminary analysis indicated that pollution is coming from other parts of Minnesota as well as the Chicago-Gary area and the Ohio River Valley. He described the pollution as a national, if not a global problem.

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## Copper-nickel ore body estimated at \$50 billion

By GERALD KOPPLIN

ST. PAUL (UPI) — The copper-nickel mother lode of northeast Minnesota contains \$50 billion in resources, a state researcher told the House Environment and Natural Resources Committee Tuesday.

Robert Poppe of the Environmental Quality Board told lawmakers they would be wrestling with policy questions governing copper-nickel mining, and could expect to see mining companies applying for permits as early as next year.

Based on a computer-model study, open pit copper-nickel mining will be economically feasible in the mid to late 1980s, Poppe said.

But, he said, underground mining would not be cost-effective until the copper price doubled from the current level of about 77-cents a pound.

Open pit mines could reach 27 percent of the copper-nickel deposits which are within 1,000 feet of the surface, he said. The remaining minerals are below 1,000 feet and reachable only

through underground mines.

Poppe presented an hour-long slide presentation on the future of copper-nickel mining in northeast Minnesota and said a detailed, 3,000-page report will be available by the end of April.

The three-year \$4.3 million study was funded by the Legislative Commission on Minnesota Resources.

In summary, he said copper-nickel mining will have an impact on the local work force of northeast Minnesota different from the taconite in-

dustry.

"Taconite mining absorbed available laborers from previous mining days," Poppe said.

"Copper-nickel mining will require an influx of new labor. Only about 10 percent to 20 percent of the labor will come from communities around the mines."

Residents in northeast Minnesota have sought new jobs to make up for the loss in timber harvesting.

"But a sawmill in Ely, for example, that closed down and

put 12 people out of work because of no more logging in the BWCA is not going to be able to provide the labor needed for a large open pit mine," Poppe said.

He said such a mine capable of producing 20 million metric tons of copper a year would require between 2,000 and 2,500 permanent laborers. In the start-up construction phase, 3,000 temporary employees would be needed.

For a community like Ely, he said, such a mine would provide

\$7 million in new spending through direct mining wages and secondary spending.

Minnesota \$50 billion in copper-nickel resources, he said, is a small part of the discovered ore in North America. Minnesota has 5 percent of the North American supply of copper and 25 percent of the supply of nickel.

AMAX Inc. will likely begin applying for permits next year for a mine near Babbitt, he said. International Nickel Co. has holdings southeast of Ely which are in the heart of some of the best copper-nickel ore deposits, he said.

The Duluth complex of copper-nickel resources begins from Duluth and heads due north to Hoyt Lakes, he said. Then it starts arcing northeast and basically parallels the taconite mining operations by Erie Mining and Reserve Mining, and follows Birch Lake and the South Kawishiwi River into the Boundary Waters Canoe Area near Ely.

The richest ore is located in a 50-mile long stretch from south of Hoyt Lakes by the St. Louis River to the border of the BWCA on the South Kawishiwi River.

That presents a problem for environmentalists.

On the question of pollution in northeast Minnesota, Poppe told the 24-member committee chaired by Rep. Willard Munger, DFL-Duluth, that open pit mines can cause potential problems for up to 400 years through leaching from waste rock.

But, he said, the much-talked-about acid rain affecting lakes in northeast Minnesota "probably is caused by other than regional" smelters and coal-fired generating plants.

"We are experiencing very severe acid rains," Poppe said. "But only a small percent of the sulfur dioxide pollution comes from the region. Most of it comes from out-of-state, probably originating from the Ohio River valley."

He said all the talk about pollution from the coal-fueled power plant at Atikokan, Ont., was not as severe a problem as the pollutants coming from industry in the United States.

"I'm waiting for the Canadians to tell the United States that the major source of pollution is 'south of the border' affecting Canadian lakes, not Canada industry harming United States lakes," he said.

Poppe said major clouds of air pollution from the Ohio River area sweep over Minnesota during periods of high pressure systems and are cleansed out of the air by rain when a cold front approaches the state.

"Maybe the local pollution is the straw that breaks the camel's back, but removing it entirely would not take away the acid-rain problem," he said.

Poppe said preliminary drafts of the detailed report will soon be available on a chapter by chapter basis to planners in St. Louis and Lake counties, the Arrowhead Regional Development Commission in Duluth.

Ann Meyers  
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Page 1C

# Duluth News-Tribune

Our 110th year — Number 136

Thursday, September 6, 1979

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## Copper operations seen causing minimal damage

BY DOUG SMITH  
Of the News-Tribune staff

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A major copper-nickel mining industry could be developed in Northeastern Minnesota and still meet strict environmental standards, according to a massive \$4.3 million, 3½-year state study released in Duluth Wednesday.

However, the report points out the new industry — which could have a far-ranging impact on northern Minnesota's economy — could also affect the area's fragile and presently clean environment.

Completion of the study ends a three-year moratorium on copper-nickel development in the state and clears the way for mining companies to propose specific developments in the rich copper-nickel areas south of Babbitt and Ely.

The study of the 2,100-square-mile area was ordered by the Minnesota Environmental Quality Council in 1974 to determine the environmental, social and economic impact of mining copper-nickel. Several mining companies have expressed an interest in develop-

ing the industry, and test drill sites have been made south of Babbitt.

The study was not intended to approve or reject copper-nickel mining or establish any state policy, said Bob Brenner, a state planning agency official. Rather it was intended only to examine all the complex issues in a neutral manner, he said. Brenner and other agency officials presented a summary of the study to about 15 elected officials from northern Minnesota.

"The document makes no recommendation," Brenner said. "It does indicate copper-nickel mining is possible in northern Minnesota."

The study said development of an underground or open pit mine, mill and smelter could be done if best use is made of present technology and there are no other sources of pollutants in or outside the region.

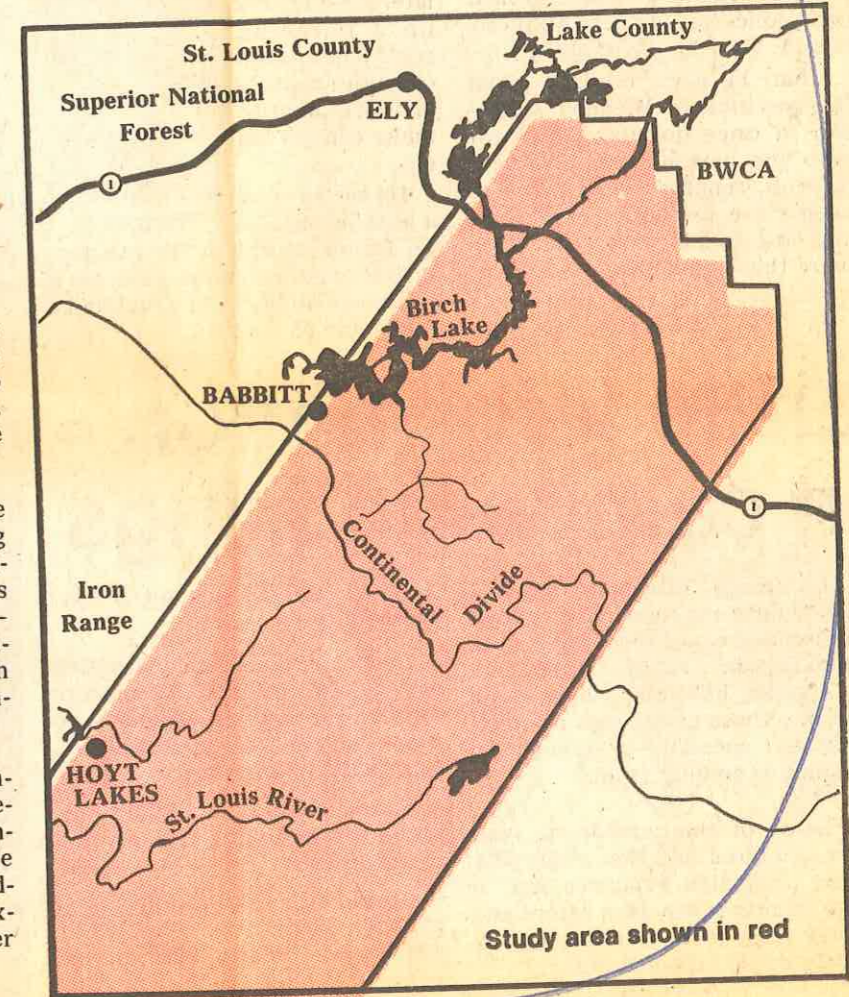
However, the impact of copper-nickel development, together with new and expanding industrial activities, could create significant environmental consequences, the study said.

The state officials said there are a number

of economic versus environmental tradeoffs which will have to be weighed by the state and local governments in deciding whether to go ahead with copper-nickel development. These include the potential impact on the nearby Boundary Waters Canoe Area.

The proximity of the BWCA to the prime mining areas may well prohibit the locating of a smelter nearby, Brenner said. The smelter would emit sulfur dioxide. As a wilderness area, the BWCA has been labeled Class I — which means almost no additional air pollution is allowed. Other developed areas, such as Duluth, are Class 2 and are permitted higher pollution levels.

Even a smelter with modern pollution controls may not meet the strict Class 1 requirements, officials said. Also pollution from other industries could "eat up" the allowable pollution levels in the area — again precluding any further development that would exceed the allowable pollution levels, Brenner



See Copper Page 7A

# Copper

From Page 1A

said.

"This situation may prevent locating any new sulfur dioxide emissions sources . . . in parts of Northeastern Minnesota," the study stated.

Waters in the BWCA may be affected by development north of the Laurentian Divide. Any pollution of heavy metals in waters north of the divide could flow north to the BWCA, while pollution of waters south (of the divide) could flow to Lake Superior, according to the study.

Heavy metals introduced into the environment could pose long-term problems. The study states that water could seep through waste rock and pollute the environment.

A copper-nickel smelter in the area could also aggravate existing acid rain problems in the fragile lakes and rivers, the study states. Acid rain is produced when sulphur dioxide released into the air returns to lakes and streams as highly acidic rain, which can kill off fish. Other studies have shown that the lakes are being affected by the pollution, which is often produced in industrial areas far away.

Although 95 percent of the sulfur dioxide produced by a copper-nickel smelter can be controlled, the study said, even small

amounts could add to the problem. The air pollutants could also affect forest vegetation.

Still other potential problems include the effects of mineral fibers produced by a mining operation. Mineral fibers produced could present the same human health issues as those raised by the Reserve Mining asbestos problem, planners said, since the mineral fibers pose a potential hazard to human health.

Despite all of the potential impact on humans and the environment, the study says that it is the workers in the mines who are most likely to have their health affected by copper-nickel development.

Accident rates in underground mines have been traditionally high, and nickel dust has caused lung cancer, the study reports. Other dusts have caused chronic respiratory diseases and people living near smelters have had increased levels of heavy metals in their bodies, the study states.

If development occurred near the BWCA, noise produced in the operation could be another consideration.

All the economic and environmental impacts must be carefully weighed in making any development decisions, the planners said.

# \$50 billion copper mining seen for state

9-6-79  
Duluth  
McG. 2

BY DOUG SMITH  
Of the News-Tribune staff

A \$50 billion copper-nickel mining industry that could change the face of Northeastern Minnesota moved a step closer to reality Wednesday.

A \$4.3 million, 3½-year regional copper-nickel study released in Duluth Wednesday indicates copper-nickel mining could be developed to meet strict environmental standards.

The impact to the area could be phenomenal, second only to the impact of the iron ore industry. The population of the area could be increased by 12,000 and towns like Ely and Babbitt could double in size. One operation alone could bring in \$60 million to \$300 million in direct or indirect tax revenues.

However, the study points out potential environmental harm resulting from development. It concludes that the hefty economic benefits will have to be weighed against the possible environmental impacts before any decision is made.

Despite the great inflow of tax money, towns in the area could run into revenue shortages to pay for the increased services demanded by the new population, the study states. Mining companies are expected to say this is untrue.

Completion of the study, presented to local elected officials yesterday, ends a three-year moratorium on copper-nickel development in the state and clears the way for mining companies to propose specific developments in the rich copper-nickel areas south of Babbitt and Ely.

The copper-nickel would be mined in either open pit or underground operations. Any proposal still must go through the full environmental assessment process and comply with state and local requirements.

The study of the 2,100-square-mile area was ordered by the Minnesota Environmental Quality Council in 1974 to determine the environmental, social and economic impact of mining copper-nickel. Several mining companies have expressed an interest in developing the industry, and test drill sites have been made south of Babbitt.

There are an estimated five billion tons of copper-nickel ore in a band three miles wide and 50 miles long stretching from near Duluth to the Boundary Waters Canoe Area.

The Minnesota State Planning Agency said copper reserves in the area total about one-fourth of the total U.S. reserve. The nine million tons of nickel ore are 50 times larger than existing U.S. reserves.

The study was not intended to approve or reject copper-nickel mining or establish any state policy, said Bob Brenner, a state planning agency official. Rather it was intended only to examine all the complex issues in a neutral manner, he said.

"The document makes no recommendation," Brenner said. "It does indicate copper-nickel mining is possible in northern Minnesota."

The study said development of an underground or open pit mine,

# Copper From IA

mill and smelter could be done if best use is made of present technology and there are no other sources of pollutants in or outside the region.

However, the impact of copper-nickel development, together with new and expanding industrial activities, could create significant environmental consequences, the study said.

Because the BWCA is nearby, the location of a smelter, which produces sulfur dioxide, is critical. It would likely have to be located elsewhere, possibly in or near Duluth, officials said.

Another concern is water. Waters in the BWCA may be affected by development north of the Laurentian Divide, according to the study. Even small amounts of pollution introduced into the water could flow into the BWCA and harm the lakes, the study said.

Heavy metals introduced into the environment could pose long-term problems. The study states that water could seep through waste rock and pollute the environment.

A copper-nickel smelter in the area could also aggravate existing acid rain problems in the fragile lakes and rivers, the study states. Acid rain is produced when sulphur dioxide released

into the air returns to lakes and streams as highly acidic rain, which can kill off fish. Other studies have shown that the lakes are being affected by the pollution, which is often produced in industrial areas far away.

Although 95 percent of the sulfur dioxide produced by a copper-nickel smelter can be controlled, the study said, even small amounts could add to the problem. The air pollutants could also affect forest vegetation.

If development occurred near the BWCA, noise produced in the operation could be another consideration.

Still other potential problems include the effects of mineral fibers produced by a mining operation. Mineral fibers produced could present the same human health issues as those raised by the Reserve Mining asbestos problem, planners said, since the mineral fibers pose a potential hazard to human health.

Despite these potential problems, the study says that it is the workers in the mines who are most likely to have their health affected by copper-nickel development.

Accident rates in underground mines have been traditionally high, and nickel dust has caused lung cancer, the study reports. Other dusts have caused chronic respiratory diseases and people living near smelters have had increased levels of heavy metals in their bodies, the study states.

Although the study points out potential environmental problems, John B. Malcolm, project manager for AMAX Exploration Inc.'s Minnamax project near Babbitt, said new technology makes it possible to construct an environmentally acceptable mine, mill and smelter.

He said the devastation to the environment caused by copper-nickel operations elsewhere would not occur in northern Minnesota. A plant could be built to meet all state standards, he insisted.

ed.

Malcolm said his company is not yet ready to submit a proposal, but will make a decision this fall. The company has already spent millions exploring the area for a possible site.

State officials said the next step is for the mining companies to make specific proposals. The study says this will likely occur since the copper and nickel markets through 1985 range from cautiously optimistic to highly encouraging.

9-10-79

Duluth News-Tribune

## Editorial/Opinion

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# Copper road map

At least we now have a better map to help plot our region's future.

That map can be found in a study released by the Minnesota Environmental Quality Council last week on copper-nickel mining development in northeastern Minnesota. The study examined a 2,100-square-mile tract south and west of Ely in St. Louis and Lake counties. It cost the state \$4.3 million and took more than three years to complete.

The study makes no recommendations on whether such mineral development should be allowed. But, according to state planner Bob Brenner, "it does indicate copper-nickel mining is possible in northern Minnesota."

The mineral resources exist, state planners say, to support a \$50 billion copper-nickel mining industry. That industry would provide 2,000 to 2,500 new jobs when in full production and generate from \$60 million to \$300 million in tax benefits to the state. And that industry could be developed, the planners report, to conform to current stringent state and federal environmental protection standards.

But the report also outlines numerous potential hazards the mining could pose to the region's fragile eco-system. It also suggests methods to minimize or remove such hazards. Those dangers include pollution of air, land and water in the mineral district and in the neighboring Boundary Waters Canoe Area. Other related issues which the planners cite as having possible adverse effects on the area include

drastically altered land-use policies and over-taxation of local government services required by a rapid influx of new workers and their families.

The state study outlines in great detail both the pros and cons of copper-nickel development. This attention to detail and the unbiased presentation of data both favorable and unfavorable to mining interests are what make the study a valuable road map for regional development.

The report proves that the state is now unwilling to give free reign to the mining industry. That should be reassuring to all area residents, especially in the historical light of unbridled development in iron and taconite mining which spawned a long line of undesirable side effects. The 10-year court battle to halt Reserve Mining Co.'s disposal of taconite wastes in Lake Superior is only the most recent example of such unwanted and unnecessary problems.

The report should not, however, be used as a base for preservationist or anti-development factions to attempt to thwart development by forcing the state to tighten its already strict environmental standards. Those laws already provide a sound means to balance environmental protection and industrial expansion.

Copper-nickel is now known to be a valuable resource in northeastern Minnesota. The state's copper-nickel study should be used to chart development of that resource while preserving the high quality of our environment.

September 19, 1979

# St. Paul Pioneer Press

Minnesota's First Newspaper

Final

## Vast mineral vein lies near BWCA

By Mike Sweeney  
Staff Writer

Minnesota's Arrowhead Region contains a mineral rich 50-mile strip that holds the nation's largest nickel and cobalt reserves and the potential to make the state the second largest copper producer in the country, according to a long-awaited state copper-nickel study to be released Thursday.

Mining the strip would curtail an expected popu-

lation decline in the region and bring more money into the state, but also could cause severe environmental and health problems, the study says.

**THE STUDY ESTIMATES** that the three-mile wide strip contains more than \$50 billion in copper-nickel reserves.

The strip, running through Superior National Forest from just south of Hoyt Lakes north-northeast past Babbitt to the edge of the Boundary Waters

Canoe Area southeast of Ely, also could yield smaller quantities of gold, silver and platinum, the study continues.

These findings and others are contained in a 93-page executive report of a \$4.3 million study of mining the state's copper-nickel reserves.

The study is expected to be the subject of much debate and controversy among state officials, environmentalists, mining companies and the general public as state legislators and state agencies wres-

tle with the problem of defining the state's copper-nickel mining policy.

The report is scheduled to be presented to the Minnesota Environmental Quality Board Thursday, an action that would lift a five-year moratorium on copper-nickel mining in the state.

"DEVELOPMENT applications for mining companies are expected within the next year and it is now time to prepare for this new resource manage-

See Study, Page 4

# Study: Deposits lie near BWCA

Continued from Page 1

ment," concludes a brief summary of the report.

Two mining companies, Amax Exploration Inc. and International Nickel Co. want to mine copper-nickel in the area. Amax currently operates a 1,700-foot test shaft near Babbitt and INCO has applied to operate an open-pit mine near Ely.

State Planning Agency officials said completion of the study lifts the moratorium on environmental impact statements for copper-nickel mining at specific mining sites and companies will be free to pursue their plans.

One official said Amax has indicated it wants to open a test mining operation in Minnesota, but INCO has given no indication of its plans. Neither company could be reached for comment.

The lengthy, expensive study resulted from concerns by state officials, environmentalists and mining companies about the future of copper-nickel mining in Minnesota. It was designed to provide basic information about the state's copper-nickel resources and the effects of mining them. It makes no recommendations, but was not meant to.

**THE STUDY SUMMARY** says copper-nickel mining could meet current environmental standards if available technology is used wisely and there are no other sources of pollutants.

"However," the summary continues, "the impacts of copper-nickel development in combination with new and expanding industrial activities could exceed established environmental guidelines in significant respects."

For example, the study says land and water use associated with copper-nickel mining could adversely affect the environment. From 5,000 to 10,000 acres of land would be necessary for an open pit mine as opposed to much less land use by underground mines.

Water needs would be at least 1 billion gallons a year per mine and an increased water demand could become a problem if waters flowing into the BWCA are needed or if water is required for taconite or other industrial development.

**THE STUDY SAYS** low levels of sulfur dioxide currently exist in the region but development plans, particularly for coal-fired power plants and the conversion of the taconite industry to coal from natural gas and oil, will increase the sulfur dioxide level in the region.

"This situation may prevent locating any new sulfur dioxide emission sources, such as a copper-nickel smelter, in parts of northeastern Minnesota," the study says.

The study says major pollutants caused by copper-nickel mining — dust, tailings basins, open pit mines, stockpiles, mill and smelter particulates — could prevent mines from locating near existing operations that spread similar pollutants.

There also is the possibility of long term effects on plants, animals and humans.

**POSSIBLE HEALTH** threats mentioned in the study range from underground mining accidents and lung cancer caused in the past by nickel dust to chronic respiratory diseases caused by dust, sulfur dioxide and sulfuric acid mist.

People living near smelters in the U.S., particularly children ages 1 to 4, have registered higher levels of heavy metals in their system, the study says.

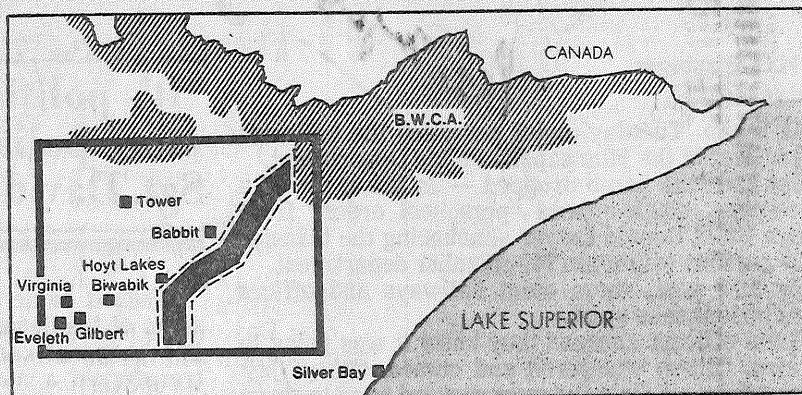
"Except in the case of lead," the study says, "the health implications (if any) of these increased body concentrations are not well understood."

The study said the possibility exists that copper-nickel mining could cause health problems because of fibers produced by mineralization of copper and nickel.

"Bench scale and modeling suggests that fiber levels in air and discharge waters from a copper-nickel development could be similar to those from Reserve Mining," the report says.

**WATERS IN THE BWCA** could be affected by copper-nickel mining, the study says, because many of the lakes could not withstand moderate pollution.

"On the other hand," it continues, "there is a high level of water flow in this area which could dilute metal levels to acceptable levels in some cases."



Chuck Logan/Pioneer Press

## Map locates big deposit of nickel and cobalt.

A copper-nickel mine would create from 2,000 to 2,500 jobs, the study says, which could increase general population by about 12,000.

"Several copper-nickel developments would reverse the (area's) expected population decline in the 1990s and provide for population growth," the study says.

A single mine or mill would generate from \$63 million to \$108 million and a smelter from \$100 to \$200 million in tax revenue over its operational life, the study says, but most of that money would go to the state.

"AN ANALYSIS of revenues versus costs of services indicates that all but one of the cities and school districts in the study area will face revenue shortfalls if

copper-nickel development occurs," the report continues.

A smelter will be required if copper-nickel mining is begun in the state, the study says, although smelters could be located elsewhere in the state or outside the state.

In assessing which types of mines could be used, the study says open pit mines have certain advantages because they can be brought into production quickly, have the highest recovery of resources, can be operated profitably with lower quality ore and have better worker safety records.

"On the other hand," the study continues, "underground mines produce less waste rock, use less land and do not leave open pits."

# Mining study hits a lode of debate

By JEFFREY KUMMER and  
NANCY LIVINGSTON  
Staff Writers

A new state study on the future of mining and mineral development in Minnesota's Arrowhead Region seems likely to rekindle the passions that exploded during last year's Boundary Waters Canoe Area debate.

The report, to be presented to the Minnesota Environmental Quality Board Thursday, drew both criticism and praise today as it suggested that the region holds a 50-mile strip of nickel and cobalt reserves and vast deposits of copper.

THE STUDY appeared today to have all the earmarks of reopening the recent bitter feud between Twin Cities environmentalists and northern Minnesotans who believe the mining ventures would boost a sagging economy.

"It's going to be the same bloody mess all over again," said Rod Loper, president of Clear Air, Clear Water Unlimited, a Twin Cities-based environmental watchdog group.

But others like Babbitt Mayor Mathias Kapsch said he would welcome mining companies to north-

See Mining, Page 2

# Mining: Lode of debate

Continued from Page 1

ern Minnesota, saying the development could make his city a boom town.

The 93-page executive report included in the study, which took more than three years and cost over \$4 million, concluded that mining operations would stymie population declines in the region and bring millions of dollars into the state. But the study also warned that mineral development could cause critical environmental and health problems.

**OTHER FINDINGS** in the study included:

- The strip running through Superior National Forest from just south of Hoyt Lakes past Babbitt to the edge of the Boundary Waters Canoe Area near Ely contains more than \$50 billion in copper-nickel deposits. There may also be smaller amounts of gold, silver and platinum.

- Copper-nickel mining could meet environmental standards if modern technology is used wisely and there is no other pollution source. But the combined effects of mining and new industrial growth could cause serious environmental problems.

- Open pit mines, stockpiles mill and smelter particulates could prevent mines from being developed in some locations too near other sources of pollution. The study also said it is possible the pollutants could have a long term effect on plants, animals and humans.

- Waters in the BWCA could be affected by copper nickel mining because many of the lakes could not withstand even moderate pollution. But the study also said that the heavy water flow into the area could dilute metal level in some lakes to acceptable measures.

The study now lifts the 5-year-old moratorium on environmental impact statements for copper-nickel mining at specific mining sites, allowing mining companies to resume their plans for development.

Still, state officials say it will be at least two years before a mining company could secure all of the permits and environmental impact studies necessary to begin full operations.

"There will be no mines opened overnight, that's still a long way off," said Bob Benner, assistant director for the state Environmental Planning Board.

**IT IS ALSO** expected that at least several court battles may arise in an effort to stop mining in the region before it begins.

Loper said his group and others were preparing lawsuits aimed at challenging permits issued by the state Pollution Control Agency.

Loper was also critical of the study, saying it was "shaded" in favor of mining and development interests.

"We don't think that area needs this type of large scale development, either economically or environmentally," he said.

"This study was a compromise version of a study that has been shaded by politics, special interests and a bunch of baloney from mining company PR men," Loper said. "There is a lot of pressure being exerted on all fronts to get this thing through."

Loper said the mining company most active in the area, Amax Exploration Inc., has established a pattern of irresponsible environmental action elsewhere in the U.S. and Canada, and that further study is necessary before allowing the "into the region."

"A LOT OF PEOPLE up there think this will be a great thing," Loper said. "But it is a frontier-type mentality of progress at all costs."

Amax spokesman Jack Malcolm, stationed in Babbitt, said it will be at least five years before his company decides whether it will proceed with the mining venture.

The first step toward that decision, a \$17 million environmental, economic and mineral study of the area was recently completed by Amax. Plans for a \$25 million pilot plant and open pit mine will be announced later this year.

The final phase would be construction of the company's main plant near Babbitt, where Amax already operates a 1,700 foot test shaft.

On the state report, Malcolm said Amax was satisfied with most of the study but contends that the researchers may have overstated the taxing requirements and needs of the area. He indicated that the mining firm will attempt to amend those areas at Thursday's meeting.

"NO ONE WANTS to pay any more than they have to, and this will be a big operation," Malcolm said. "We are going to have to decide whether it is go or no go; whether the operation is economical or not."

Malcolm said he also disagreed with some of the environmental questions raised in the study, saying that the project used old-fashioned methods to assess possible damage.

"There have been some horror stories in the past, I can't deny that," he said. "But with modern methods, there is no reason that we should have significant problems."

Malcolm defended the mining company as one of the leaders "during the last 10 or 12 years" in advanced mining techniques and its record of ecology.

**BABBITT MAYOR** Kapsch said today that if Babbitt becomes a boom town as a result of copper-nickel mining in the northeastern part of Minnesota, it's all right with him.

"Babbitt could become one of the bigger communities on the range," said Mayor Kapsch, an employee of the Reserve Mining Company. "The Amax (Exploration Inc. mining) plants would all be located within our city limits. If the smelter is located here, too, it will have a large impact on our real estate taxes — bring-

ing them down for most people — and also tripling our tax base."

Kapsch said the town of Babbitt, population 3,100, is split about 50-50 on the issue of copper-nickel mining. "About half the people would like to see it," said Kapsch. "They feel the economic development in the area would be great and would lead to more commercial-retail outlets, which the city needs."

"The other half doesn't want to spoil the small-town atmosphere."

"I WOULD LIKE to see the mining go in. The city is capable of handling a 100 percent increase in population with our sewer, waste water and fresh water plants. We have 250 (undeveloped residential) lots now that have sewer and water into them."

"And if a (home) builder came in for Amax, he would have to put in streets, sidewalks and add to our fresh water capacity. It would be no great strife on our city or school district."



mining on the Boundary Waters Canoe Area Wilderness (BWCA) and questions about the potential environmental impacts of a smelter. A smelter is a refining plant that separates metal from raw ore and its impurities, and environmentalists contend that a smelter could discharge large amounts of air pollutants.

"Direct impacts to the BWCA ... are highly unlikely because of federal and state mining prohibitions within this wilderness area," the study says. "Nevertheless, significant indirect impacts can occur from copper-nickel (and other development) located outside the BWCA."

It goes on to say that specific criteria for protecting the BWCA from such hazards do not exist on either the state or federal level, except for some air pollutants.

"The lakes, streams and forests of the BWCA are presently in jeopardy because of acid rain probably caused by air pollution sources throughout the Midwest," the report says. "If the precipitation in the region continues its trend of increasing acidity, then the impacts on the BWCA caused by large-scale copper-nickel development will be small in comparison, both in magnitude and the area affected."

Poppe said the study shows that it would be "fairly difficult, if not impossible, to locate a smelter in the study area. The state has to make the tough choice of which industries get to use the remaining increment for air-quality degradation. Should it be copper-nickel or taconite?"

He pointed out that, because of federal laws, only a certain amount of additional industry can locate in the region — if that industry raises pollution levels to the allowable limit. Taconite mining in the region is undergoing a major expansion, and that could push air pollution to the limit. The advent of copper-nickel mining might, in effect, be prohibited if it pushes air-pollution levels beyond that.

While completion of the study formally lifts the moratorium on copper-nickel mining that was imposed in 1974, it does not actually open the door to such mining. The moratorium was imposed by the EQB to allow completion of the study.

Before any such mining might be permitted, the state will have to prepare an environmental-impact statement on a mining company's specific proposal. Such an environmental study will be needed if, for example, AMAX Exploration, Inc., seeks to mine copper and nickel at its test site near Babbitt.

That study — called a "site-specific" impact statement — would focus specifically on AMAX's proposal, and would take as long as a year to prepare.

Also, even if the state approved such

a site-specific impact statement, then the company would still have to obtain permits from such state units as the Department of Natural Resources and Pollution Control Agency.

Still, AMAX is in by far the best position to be the first company to begin mining of copper-nickel in Minnesota. It has sunk a 1,700-foot-deep test shaft near Babbitt to explore for the two minerals, and early next year should decide whether it wants to proceed with full-scale mining.

The only other mining company to express a clear desire to mine copper-nickel in Minnesota is International Nickel Co. (INCO). It had proposed — but never made a firm commitment — to dig a huge open-pit mine about 12 miles southeast of Ely. That site is along the South Kawishiwi River, and just outside of the BWCA.

But INCO suspended its Minnesota project in 1976, blaming "sweeping changes" in state policy on copper-nickel development.

Originally, AMAX had envisioned a copper-nickel operation at the Babbitt site that each day for 40 years would produce about 45,000 tons of copper and 15,000 tons of nickel. That ore would come from a combination of two mines: one underground, the other an open pit.

The open-pit mine would provide 75 percent of the two mines' daily ore production. It would be up to three miles long and 1,500 feet deep, and the over-all project would require up to 25,000 acres of land for the mines, waste-rock disposal areas, processing plant and other facilities — including a large ore smelter.

Such a large operation would require an initial capital investment of about \$800 million.

However, AMAX has stepped back a bit from that earlier proposal — which Project Manager Jack Malcolm calls "The Big One."

"We haven't rejected The Big One," he said yesterday. "But the current message we're getting is that we can't conceive of any type of operation in Minnesota that would fly at today's prices."

"We're not just throwing this out for public relations purposes, but at today's low copper and nickel market prices, The Big One just isn't feasible," said Malcolm. "The resource here is huge, but the price is too low."

It would be a marginal operation."

Steve Chapman, an environmentalist who has closely followed the copper-nickel study, said yesterday that he will urge the EQB to set up a task force to review the study to determine if it is lacking any needed information.

Chapman, a director of Clear Air-Clear Water, Unlimited, said that group should include state-agency officials and representatives from the mining industry and environmental groups. Malcolm said he believes such a group would be useful.

One environmental organization, the Minnesota Public Interest Research Group (MPIRG), concluded in a recent study that the state has "the bargaining power to raise taxes on copper-nickel mining without discouraging mining companies from developing the state's deposits."

The MPIRG study contended that, in most cases, mining-produced tax revenues going to local governments in the mining area will not pay for the expanded local services required by the population increase resulting from the ore development.

"Either the level of services will decline, or local property taxes will have to go up," the study said. "The revenues from mining, inadequate as they are, will lag behind the initial costs of expanding local services" such as streets and roads, police and fire protection and water, sewer and refuse facilities.

# Copper-nickel mines could be a bane or a bonanza for state

9.20.79  
By ROBERT OSTMANN JR.  
Minneapolis Star Staff Writer

Full-scale mining of copper and nickel in northeastern Minnesota could bring wealth to a handful of corporations and serious environmental problems to the land and people of that wilderness lake country.

A voluminous, \$4.3-million, three-year study of the possible impacts of copper-nickel mining, released today, also concludes that there is more than \$50 billion worth of metal waiting to be blasted out of the earth in an arc three miles wide by 50 miles long from Duluth northeast into the Boundary Waters Canoe Area.

The study concludes that a copper-nickel industry in northeastern Minnesota could comply with most state and federal environmental laws if the most up-to-date (and most expensive) pollution controls were used in the most efficient way and if the region received no new pollution.

If that less-than-realistic condition is not met, say the state and university researchers who produced the study, the copper-nickel industry could have significant, adverse, and long-term environmental impacts.

Mining and processing of the rich ore deposits could, among other things:

- Disrupt the land on a scale much larger than iron mining on the Iron Range.
- Aggravate already serious damage to the region from acid rain.
- Produce air pollution that may damage human health.

The copper-nickel study will be the focus of an intense debate among environmentalists, mining companies, trade unions and local government officials. The debate will be particularly important because the mining area is located on the border of the BWCA, the largest wilderness area in the eastern United States.

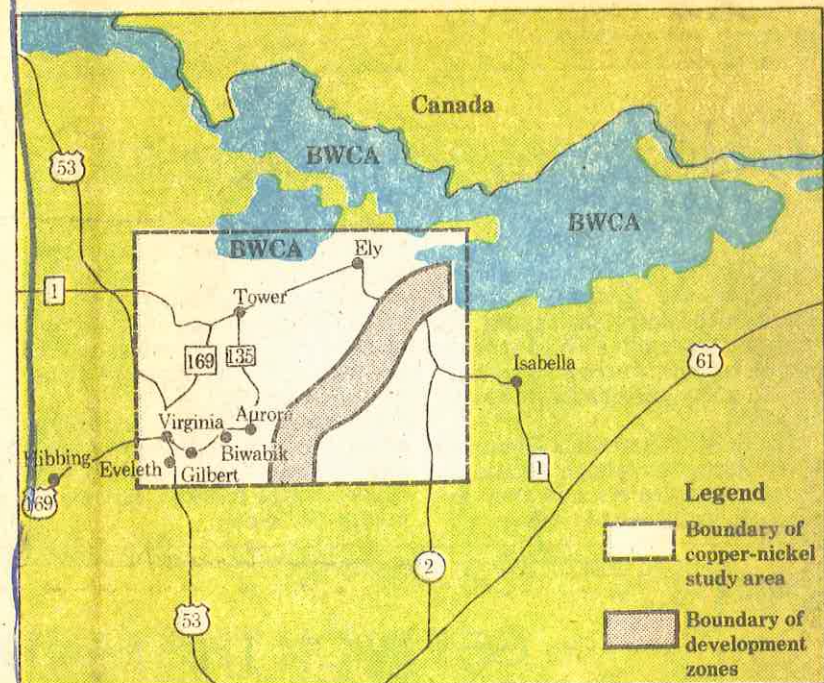
Since 1974, there has been a moratorium on development of copper-nickel mining plans in Minnesota. Once the study has been officially accepted by the state Environmental Quality Board, companies will be allowed to apply to begin mining.

Elwood Rafn, director of mineral leasing for the state Department of Natural Resources, said Wednesday that he expects mining companies to soon begin leasing land for mining.

Mining giants such as Amax, INCO, U.S. Steel and Exxon have

**Mining**

Turn to Page 6A



Boundary Waters Canoe Area (BWCA)

Star Map by Donald Walker

# Copper-nickel mines—a bane or bonanza?

(Mining, from Page 1A)

expressed interest in mining the deposits that are more than 100 feet thick in places.

And, according to the state study, the hunger of area communities for job-producing industries and the almost certain future increases in the market price of copper and nickel will make the Minnesota lode more and more attractive.

In fact, the study states that about the only development that could pop Minnesota's mineral dream would be the mining of metal nodules from the ocean floors.

For beneath Minnesota lies what seems to be one of the largest deposits of the two metals in the world. The estimated 28 million tons of copper in the area, for instance, are one-fourth of the total U.S. reserves. The 9 million tons of nickel are 50 times more than the total U.S. reserves and are 12 percent of all the known nickel in the world.

In addition, the Minnesota deposit holds substantial quantities of cobalt—none of which is now mined in the United States—and lesser quantities of highly valuable gold, silver, platinum and titanium, all of which could be easily extracted from the processed copper-nickel ore.

Copper—an excellent conductor of heat and electricity—and nickel—a silver-white metal used in metal-plating and batteries—were discovered in northern Minnesota in the late 19th century, but it wasn't until the early 1950s that serious geological exploration and mapping by private companies and the state and federal governments began.

In the 1960s, there was some leasing of land for copper-nickel mining and in 1974, the Amax and INCO mining companies told the state they were ready to proceed with mining plans.

At that point the state put a halt to any further copper-nickel min-

ing activity except for a test shaft dug by AMAX to obtain ore samples for analysis.

The area of the copper-nickel deposits, just east of the Mesabi Range, is no stranger to mining. But copper-nickel mining presents a set of environmental problems not seen in the state's extensive iron mining industry.

For example, the open pits needed to mine roughly one-third of the copper-nickel ore (the rest would have to be mined underground) will have to be much larger and deeper than the iron pits. The state study estimates that canyons up to 1,500 feet deep—deep enough to stand two IDS buildings end-on-end—and several miles long will have to be cut in the land.

If each mine operates 20 to 50 years, as the study forecasts, there is enough ore in the deposit to require two to five such pits.

Since the metals are present in such small quantities in the ore, almost 97 percent of the rock removed from a pit would have to be dumped somewhere as waste. In addition to copper and nickel, the waste rock contains other poisonous metals, such as mercury and zinc. Water leaching through mounds of this material several hundred feet high could flush many times the natural amount of these toxic metals into area streams and lakes. The state study warns that "leaching from waste rock or lean ore stockpiles could occur for many years after a mine is closed down."

But the study adds that "treatment of large amounts of runoff to remove heavy metals to existing background levels may be prohibitively expensive."

Reclamation of the pits themselves when mining is finished may also be impossible. The pits will be so deep and the sides so steep that regrading the landscape would not be possible. And if the gashes are allowed to fill up with water and become lakes, the concentration of toxic metals could

render them unsafe.

Underground mining of the copper-nickel ore would be more expensive, less efficient and possibly more dangerous than pit mining, the study says, but would require much less land, produce much less metal-bearing wastes and provide more jobs.

One of the most serious threats to the environment posed by a copper-nickel mining and processing industry is an increase in the damage caused by acid rain, already causing widespread destruction in northeastern Minnesota.

State researchers sampled rain and snow in the area during the three-year study and found that almost 80 percent of the samples were acidic, most of them as acidic as precipitation in New York, Ontario and Scandinavia, where so-called "acid rain" has killed off life in hundreds of lakes.

Northern Minnesota—especially the area adjacent to the copper-nickel deposits—is extremely vulnerable to the effects of acid rain. Some lakes are already showing signs of becoming incapable of supporting life and many others are expected to be dead by 1990.

The acid precipitation is thought to be caused primarily by air pollution from power plants and factories in the lower Midwest and the Ohio Valley, which is carried by the wind into Minnesota.

The copper-nickel study states, however, that if smelters are built near the BWCA to purify the mined metal, the sulfur pollution from the smelters and the coal-fired power plants needed to run them would aggravate the existing acid rain problem there.

Even if the sulfur emissions from a smelting complex—estimated to be about 2,000 tons a year—are within the limits to protect human health, they will substantially add to the load of sulfuric acid falling on the wilderness.

There also may be pressure to bypass some environmental laws to allow smelters in northern Minnesota, the study points out, because the entire northern part of the state is an area in which little or no deterioration in air purity is allowed.

If a proposed industrial project would boost pollution beyond the legal increase, the project cannot be allowed unless the government grants the company a variance.

## Threats to health

The copper-nickel study indicates that variances may be necessary because of the pollution that would be generated by one or more copper-nickel smelters. Without the variances, the study says, "this situation (high air quality standards) may prevent locating any new sulfur dioxide emission sources, such as a copper-nickel smelter, in parts of northeastern Minnesota."

Aside from sulfur pollutants, two types of airborne contaminants from a mining-smelting complex are considered the most direct threat to human health.

Mineral fibers—similar to the asbestos-like fibers that figured prominently in the controversy over Reserve Mining Co.—would be released into the air during the course of mining, crushing, and disposing of copper-nickel ore.

The lengthy Reserve trial produced much evidence that such fibers may cause cancer.

The other form of pollution cited as dangerous to humans was metal particles in the air.

Copper, nickel, cobalt, zinc, mercury, arsenic, cadmium, and lead are among the metals the researchers are worried about. They expect smelter workers and people living near the plant to be most vulnerable to metal poisoning.

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Hibbing Daily  
6/14/79

# Copper-nickel study will be released in autumn

By GEORGE BOOSEY

ST. PAUL (UPI) — The results of a \$4.3 million study on copper-nickel mining will be presented to the Environmental Quality Board this fall — but it will not tell state officials whether such mining should be allowed in Minnesota.

Meanwhile, Amax Corp. is continuing its exploring in the Iron Range to see if the quality of copper and nickel ore found in Minnesota is sufficient to justify the multi-million dollar expense of beginning a full operation.

"The report draws conclusions of a technical nature, but will not say whether or not copper-nickel mining should be allowed," said Bob Poppe, who is directing the EQB study. "Those type of value decisions are being left up to the Legislature and the regulatory agencies."

Poppe began his study 3½

years ago. He said the report will be presented to the Environmental Quality Board in September or October. "We are sort of at the whim of the printer," he said.

Poppe's report will not deal with the feasibility of copper-nickel mining in the iron range, but rather the environmental and socio-economic impact of such a development.

The decision on whether to mine copper and nickel in the area near Babbitt will be up to the Amax.

"We have found a large resource, but there is a difference between that and a large ore deposit," said John Malcolm, director of Amax's Minnamax project. "The amount is there; it is a question of quality."

Malcolm said after five years of exploring and testing, Amax officials are "cautiously optimistic" about the deposit. But,

he said, it would be "another four years" before a recommendation could be made on whether to open up a large mining operation in the iron range.

He said such a development would cost \$7 million to \$8 million. "It would have to be a huge operation to make it go," Malcolm said. "It would be a big investment."

Copper and nickel deposits are found together only in northern Minnesota and Canada, Malcolm said. He said in Canada there is more nickel than copper, while the Minnesota project shows more copper than nickel.

Copper mining in the United States is generally confined to the western part of the country in such states as Arizona, Utah, New Mexico and Nevada, Malcolm said. He said there is some nickel in Oregon,

but most of the nickel used in the United States is imported.

About half of the potential copper-nickel mining area in Minnesota is on state-owned land, leased to Amax through the Department of Natural Resources. Because of this, Malcolm has invited the state Executive Council to tour the area this summer.

No date has been set for the tour by Gov. Al Quie, Lt. Gov. Lou Wangberg, Attorney General Warren Spannaus, Secretary of State Joan Growe, Treasurer Jim Lord and Auditor Arne Carlson.

Malcolm said the firm would have to go through six federal agencies and four state agencies for various permits before beginning any mining. He also said the firm would have to get permission to mine on DNR-owned land and would have to comply with the Minnesota Land Reclamation Act.

# Minneapolis Tribune

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Saturday, September 22, 1979

## Next step in copper-nickel

When the state's massive copper-nickel study was submitted to the Minnesota Environmental Quality Board Thursday, most of the discussion was over procedures. Should the board, for example, formally accept the extensive report (it did), or wait for a month or more?

The more important question is whether the Legislature now will seriously address the three-year, \$3.4-million study. Legislators, to their credit, authorized the ambitious research project in 1975, when two companies seemed about to apply for mining permits. But later, when mining plans were postponed, legislative interest waned in the complicated questions about copper-nickel mining.

The study sets out important environmental and economic issues. In brief, they include potential effects of mining on air and water quality in the nearby Boundary Waters Canoe Area Wilderness; the differing impacts of open-pit and underground mining; air pollution from a smelter, which almost surely must be located a considerable distance from any mine near the canoe area; the possibility that copper-nickel mining and expanded taconite operations could compete for the remaining amount of legally allowable air pollution; the in-

creased taxes, jobs and residents that copper-nickel mining would bring; and the growth-related costs for local cities and schools.

The study also contains a mountain of information that the Legislature can use to help decide such issues. The alternative to legislative action promises to be one battle after another over various mining permits, fought before state boards and within state departments, with each decision helping to set state policy: exactly what the study was designed to avoid.

What's needed now is plenty of legislative study and discussion, *before* state agencies come under the pressure of deciding on permits. Then the Legislature should enact laws establishing clear state policies on copper-nickel mining — policies within which the agencies must operate. House and Senate environmental protection, natural resources and economic-development committees all have a role to play. But the Legislative Commission on Minnesota Resources, which financed the copper-nickel study, should take the lead in beginning this process — promptly, before legislators face the inevitable distractions of other business in the 1980 session.

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# St. Paul Sunday Pioneer Press

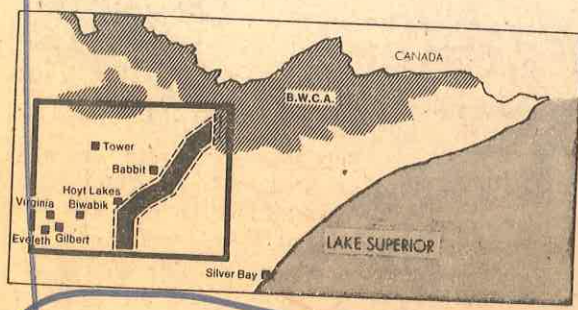
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## Cheers, fears and mining

The nice thing about studies is that they remove controversy into some sort of limbo for a time and permit a certain amount of reduction in tension. But after the study comes report time and then the controversy resumes. So it was and is with a state study and report on the future of mining and mineral development in the North-east.

A great number of people in the small towns and cities of northeastern Minnesota have been dreaming dreams of a revitalized mining industry for many years now. The report, citing significant deposits of nickel-copper and other minerals in the area around Babbitt and Ely, has produced heavy breathing in the jackpine. But conservationists see their worst nightmares given life: a North Woods gouged with mine holes, covered with tailings and blanketed by smelter smoke.

Truly, this is a sensitive matter. It involves the livelihood of residents of the area; it involves the economic welfare of a large part of the state, and it involves the physical treatment of the most beautiful part of Minnesota. The citizen battlelines are well-formed and hardened from earlier fights over the BWCA and other environmental issues. And one must assume the mining companies have more than a casual interest in how it all works out.



Chuck Logan/Pioneer Press

Study area outlined; development zone shaded

Now, it seems here that the only way this can work out to the maximum advantage of all concerned and with minimum damage to the state is if one and all can stay cool and insist at all times on knowing the truth. Both these objectives are tough: tempers still are hot from previous debates and a dozen hours after it was released the state report was being attacked as dishonest.

Northern Minnesota will get its mines. The companies will act when market conditions warrant it — and they'll close down when they choose. That is the basic truth about mining companies and there is no reason for Minnesota to sell out its physical heritage to speed the start or slow the end.

The land must have adequate protection and this starts with knowing precisely what Co. X intends to do and insisting that everything be done right. There are chunks of northern Minnesota, such as the BWCA, that must be regarded as inviolate, but there is no way the whole piney woods is going to be turned into a park. Environmental groups have to choose their battlegrounds or suffer in the end great loss of support.

The people of the jackpine have to face some truths, too, starting with the fact that the rest of the state shares an interest in what many seem to feel is theirs and theirs alone. Beyond that, they, too, must beware the con, lest they lose the woods and waters and their big dream as well. From now there can on be no more dodging questions about smelters or vague talk about how many jobs a mine will "create."

People must insist on knowing what kind of jobs are likely, and for how long, and where the workers are to come from. Those municipalities that are panting to become boom towns, too, must look at all the effects of mining "development" on their people, on their environment and on their finances: booms mean income, but they also mean expenses.

Mining is a frontier activity, but Minnesota no longer is frontier. Let us pray for enough sophistication to handle this opportunity-challenge wisely.

# And now, copper's price soars

During the week that the price of gold soared to the \$400-per-ounce mark, the big news was the price of a pound of copper.

Several major copper producers raised the price of that more mundane metal to \$1.05 a pound and one producer went as high as \$1.10. Just a week earlier copper was selling for 89 cents a pound.

Why get excited? Well, many more people are affected directly by a big jump in copper prices than by an increase in the price of gold. While nobody really *must* buy gold bullion, gold coins or gold jewelry, a great many people find themselves needing copper wire, copper tubing and copper pipe. An upward movement in the price of copper would be a significant addition to the American consumer's general burden of inflation.

There are other causes for concern. For example, if the price of copper reaches \$1.75 per pound, our one-cent coin will contain one cent's worth of copper. It's not hard to imagine Americans hoarding cents to sell for "bullion" in the

same fashion pre-1965 silver coins have been hoarded and sold.

Minnesotans have additional cause to be concerned. The rich vein of copper ore recently documented in northern Minnesota will become increasingly valuable as copper prices soar. That will be wonderful for the mining companies, but it will make it more difficult to protect the land from the ravages of mining and smelting.

What caused the sudden jump in copper prices? Nobody knows for certain, but it appears that many commodities investors may have decided that gold and silver prices have peaked and are turning their attention to copper.

"We don't know what's going on," said one commodities analyst.

"An awful lot of traders left silver and gold alone and went into copper futures," said another.

Gold and silver prices have risen rapidly because of a combination of panic, loss of faith in the dollar and clever market manipulation. Millions of consumers will pay the speculators' profits if the same thing happens to copper.

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# Editorial

M64.2

## Copper-nickel: Let's not rush

Northern Minnesota seems destined to be perpetually embroiled in blockbuster-size natural resource disputes.

Carrying on in the tradition of the Boundary Waters, Voyageurs National Park, Reserve Mining and peat development is the issue of whether the state will allow copper and nickel mining. The two valuable minerals are richly located in a 20-by-40-mile strip of land in St. Louis and Lake Counties.

A \$4.3-million study is in the hands of the Minnesota Environmental Quality Board (EQB) and will serve as one of the major points of debate when the Legislature begins final decision-making.

The stakes are both familiar and high:

AS MANY AS 2,500 jobs at a single mining operation.

TOTAL VALUE estimated at \$50 billion, one of the largest deposits in the world.

POTENTIAL for major environmental damage at the edge of the sensitive BWCA.

COMPETITION WITH the existing taconite industry.

Regarding the latter, competition may be less important in the traditional sense than in the degradation of air quality.

The EQB team said federal laws allow only a certain amount of additional industry in the area lest BWCA air quality be jeopardized. And if copper-nickel raises pollution to the ceiling, the taconite plants, which have been expanding at a rapid rate, might be curtailed.

As a result of federal regulations, the BWCA is pretty well protected. Anti-mining groups can be counted on to talk loudly about the BWCA but the truth is it's a straw issue.

The EQB report said: "Direct impacts to the BWCA ... are highly unlikely because of federal and state mining prohibitions within the wilderness area."

Nor does the issue of increased acid rain seem substantial. In effect, the report said pollution sources of acid rain are spread across the middle section of the nation and that the little additional contribution of copper-nickel "will be small in comparison with both the magnitude and the area affected."

However, all the ingredients exist for a debate that probably will exceed the Reserve Mining case in complexity and in competing technological claims.

A key point seems to be the EQB conclusion that the copper-nickel mining and smelting could come up to, snuff in environmental terms if the best of



today's technology is employed.

To employ anything less, of course, would be totally out of keeping with Minnesota's system of values. Besides, environmental groups have the political moxie to block anything short of the best.

The Legislature can't afford to wait much longer in bringing the issue to a head. The state has been in a holding pattern for nearly five years. A moratorium on all but exploratory copper-nickel projects has been in effect for the duration of the now-completed study.

At least one company has indicated a serious interest in mining, and others are expected to begin leasing land in anticipation of a lifting of the moratorium.

If the state fails to act soon, it will lose the initiative and may find itself on the defensive with some big companies. Those mentioned include Amax, INCO, U.S. Steel and Exxon.

The size of the issue shouldn't be awesome to northern Minnesotans. Big-scale mining is meat and potatoes in these parts. And while not without drawbacks, Minnesota has shown as much aptitude at management of the problems as any state and more than most.

However, it's too early to choose sides on this issue. Those who are doing so reveal themselves to be unwilling to judge all the evidence.

The immediate need is to strip the issue of emotions and environmental prejudices.

In essence, the state needs to assure itself that proper health and pollution restrictions can be written. It also needs to decide a tax policy that compensates for depletion of a resource and protects local government against demands of a new industry.

If those decisions are made even-handedly, the price of mining Minnesota copper-nickel will have been established, and it will be up to the world market to decide if it's worthwhile.

# Copper-nickel state revenues bonanza seen

By Gary Dawson  
Staff Writer

There is widespread new interest in mining Minnesota's copper, nickel and other mineral resources and the industry could be flourishing by the 1990s, the State Executive Council was told Tuesday.

Once mining companies are able to obtain leases and necessary air and water pollution control permits, mining could be conducted over a wide area of Minnesota, according to Elwood F. Rafn, director of the Mineral Division of the Department of Natural Resources. The revenues to the state could far exceed what has thus far been collected from the iron mining industry, he said. The leases on state land would compliment the companies' private holdings.

Rafn said by the end of the year he will bring a number of copper-nickel lease proposals to the Executive Council for approval. The council, made up of the six elected DFL and Independent-Republican statewide office holders, must approve all leases of public lands.

**INTEREST IN MINERAL** resources, including copper, nickel, zinc, gold, silver and, more recently, uranium, has perked up with rises in refined metal prices and completion last month of a multi-million-dollar state copper-nickel study. A moratorium on mining leases expired with the state completion of the study.

Although metal ore is deep underground in most locations in the state and not believed to be highly concentrated, it soon will be economically feasible to mine, according to DNR and mining company estimates. AMAX Inc. of Colorado has

shown the most interest in copper-nickel reserves and has conducted exploratory drilling.

The state has hundreds of thousands of acres of public land to lease and that prospect has provoked argument between environmentalists and those supporting development of the resources. An AMAX spokesman told the council that his company is ready to meet Minnesota's tough air and water quality standards.

**BUT TREASURER** Jim Lord said he is worried about the lack of a state policy on mineral leasing and the state's lack of information on the value of mineral deposits. Much of that information is a competitive secret among mining companies. The council appeared to agree and will meet Nov. 13 to discuss its course of action.

Deputy DNR Commissioner Steve Thorne also briefed the council on uranium exploration, mainly concentrated in Carleton, Pine and Kanabec counties, but with reserves also believed to exist in Aitkin and Benton counties.

He said one concern is radiation pollution of underground and surface water supplies from test borings and that legislation is being proposed to control the drilling. A federal Energy Department survey done under state contract indicated higher radiation levels in water supplies near possible mining areas, but there were no health or safety conclusions drawn from the study, Thorne said. The highest levels were recorded in the Willow River area on both sides of Interstate 35E, he said.

Thorne said uranium exploration is about five years behind the search for other minerals in Minnesota.

OCT 18 1979

# Big crowd expected at copper-nickel forum

ELY — Area residents will get their first in-depth look at a \$4.3 million regional copper-nickel study Oct. 27 at Washington Junior High School here.

forum, according to Dr. Ralph Doty, Vermilion Community College president and program coordinator.

A large crowd is expected to attend the forum which will begin at 9 a.m. in the school auditorium.

Featured speakers include Robert Poppe, Minneapolis, study director; Jack Malcolm, manager of the Minnamax Copper-Nickel Evaluation Project near Babbitt;

Peter Doran, director of the Environmental Analysis Program at Vermillion; Sen. Douglas Johnson, DFL-Cook; and panelists from area cities and towns.

Doty said that while there have been news media accounts of the copper-nickel study, "there has

been virtually no public opportunity to react to the report. This forum will change that."

The forum is funded jointly by a Vermilion College and by a grant from the Minnesota Humanities Commission. Ten area organizations are also co-sponsoring the forum.

# editorial

## Copper-nickel

m 64.2

Plans for extensive copper-nickel mining in northeastern Minnesota may be slowed if the state Legislature chooses to heed its \$4.3-million study of the issue. At a house committee hearing last Thursday, the chief author of the study said that copper-nickel mining should be restricted to one operation over the next 20 years. He also encouraged lawmakers to prevent copper-nickel mining near the Boundary Waters Canoe Area (BWCA) Wilderness.

Those are good suggestions for a number of reasons. In a short-range analysis, the proposed restrictions would prevent a deteriorating of the surrounding wilderness. The copper-nickel reserves lie in a 40-mile band running from the BWCA to the Virginia area. Any mining in the belt's northern reaches could damage water and air quality in a region scientists call environmentally sensitive.

In the early '70s, International Nickel Company of Canada (INCO) began tests along the Kawishiwi River in

preparation for an open-pit mine. Such a massive project would no doubt affect the large area drained by the Kawishiwi, some 1,376 square miles in the southern BWCA. The house study recommends blocking development of the pit mine and tightening pollution control standards on cobalt released by such operations into nearby streams.

In the long run, pacing the growth of Minnesota's newest mineral resource industry may prove wiser than allowing widespread and immediate exploitation. Minnesotans, like other Americans, have learned the hard way that a hands-off policy on private resource development yields numerous hidden costs as well as monetary benefits. At a time when these costs are more readily recognized, local residents can use the proposed mining moratorium to determine a development plan that keeps environmental damage to a minimum.

Experts say that \$51 billion in copper and nickel reserves lie beneath the forests in St. Louis and Lake counties.

# minnesota daily

Editorial writers: Don Clark, Val Crawford, Jeremiah Creedon, Jeff Goldberg, Mark Spartz, Kate Stanley

10-22-79



No doubt local communities could use the revenue generated by mining those reserves. State government also benefits from tax money provided by mining industry. Billions of dollars in taxes have been paid over the years by iron-mining firms in the form of taxes; copper-nickel tax revenues, although not as large, would also add to state monies.

But the house committee study stresses

what many others have suspected for some time: Imprudent development in the region will cost the state more by damaging its valuable wilderness resources and encouraging a short-term boom-town economy. Both short-comings can be avoided by a local population and state Legislature willing, if necessary, to mandate responsibility among private developers.

10-28-79

# Copper-nickel forces trade-offs

DULUTH BY GEORGIA SWING  
Of the News-Tribune staff

ELY — "Trade-off" was a word heard again and again Saturday at a forum here on copper-nickel mining in Northeastern Minnesota.

Copper-nickel authority Robert Poppe used it to describe the prospect of adding pollution from the \$50 billion industry to existing emissions from taconite pelletizing plants.

Ely Mayor Jack Grahek referred to it when he said with feeling: "The environment is important, but jobs are just as important." A single large mining operation could create 2,000 to 2,500 jobs.

And Vermilion Community College instructor Peter Doran said that's what it comes down to — a trade-off — when decid-

ing whether to set aside for a single mine 5,000 to 10,000 acres that could be harvested for timber, land that harbors many species of wildlife, some of them endangered.

"Trade-off" — it means winning one thing will probably cause you to lose another. The stakes discussed Saturday were high: clean air, thousands of jobs, billions of dollars.

Starting point for the debate was a \$4.3 million, 3½-year state study of the effects that copper-nickel mining would have on the region.

The full-day forum provided an in-depth look at the copper-nickel study to more than 200 persons who braved early morning snow flurries to meet in Ely's Washington Junior High School auditorium.

There are an estimated five billions tons of copper-nickel ore in a band three miles wide and 50 miles long stretching from near Duluth to the Boundary Waters Canoe Area, the copper-nickel study reported in September.

The new industry could cause population of the area to increase by 12,000 and towns like Ely and Babbitt to double in size. A single operation could bring in \$60 million to \$300 million in direct and indirect tax revenues.

The study, however, also warned of problems: revenue shortages in burgeoning small towns, worsening of present acid rain problems in the vulnerable BWCA rivers and lakes, and other health and safety hazards posed by underground and open pit copper-

See Mining "eventually decided to"

# Mining

From Page 1A  
nickel mining.

One of the operation's major sources of air pollution would be the smelter: a fact that spurred Robert Poppe, chief author of the study, to suggest after its release that the smelter not be built in the study area or on the Mesabi Iron Range.

A smelter, he explained, would produce sulfur dioxides that fall to the earth as "acid rain," particularly harmful to the sensitive waters of the BWCA.

He has suggested that the industrialized west end of Duluth be studied as a possible location for a smelter. The area seemed like "a logical place" for the smelter, Poppe said during a break in the discussion Saturday.

Other advantages are the city's access to water and rail transportation, its labor force and less sensitive environment.

Duluth's unique location between lake and bluffs, however, could cause pollutants to be trapped in the air under certain weather conditions, Poppe said, adding that this possibility will have to be examined.

Wherever the smelter is located, its assessed valuation of about \$50 million would provide a big boost to the local government's tax base.

For that reason, Iron Range officials at the forum argued for its location near the mining sites — in their backyards.

"If the smelter can meet the environmental standards of the state of Minnesota," said Ely Mayor Grahek, "there's no reason it couldn't be built right here rather than somewhere else."

State Sen. Douglas Johnson, DFL-Cook, who described the state copper-nickel taxes — and concluded that distribution of tax revenues needs revision — said: "A copper-nickel smelter near the mine site would improve the tax picture because it would increase the tax base. I would insist that this remain in the area."

Amid discussion of the various merits of an industry that could affect Northeastern Minnesota like none other since iron ore mining came another voice:

"We've not addressed the issue of the need for copper-nickel," said Carol Hepokoski Beauduy, assistant to the director of the Iron Range Interpretative Program in Eveleth.

"Today we seem to be planning some sort of attack on the earth without addressing the patterns of thought in our culture that allow us to do that," Beauduy called those patterns "out-of-control consumption."

Speaking next, Superior National Forest Supervisor Robert Rehfeld of Duluth backed her point.

He urged those who might eventually be involved in the copper-nickel mining to use the talent and technology available so that "we leave more than a big hole in the earth when it's all over with."

# State legislators face copper-nickel tax problems

By TEDDY BROX  
MDN Staff Writer

m64.2

BABBITT — Minnesota senators will have their hands full of copper-nickel tax problems when the state legislature convenes in January.

Tax considerations for the \$50 billion copper-nickel industry proposed for northeastern Minnesota in 1989 was held in Babbitt Tuesday night at a public hearing before the State Minerals Tax Subcommittee.

Chairman of the committee, Sen. Doug Johnson, DFL-Cook, said the preliminary hearing was held to discuss possible changes in the present copper-nickel tax structure, how it could be changed and how it could be distributed.

Presently, the state of Minnesota requires a production, occupation and royalty tax on copper-nickel production. Production taxes are based and distributed according to the 1965 taconite production tax.

Providing a smelter is developed in Minnesota, based on 1979 prices, copper-nickel direct and indirect taxes would total between \$18 million to \$33 million per year. "We are talking production eight years away. At six or seven percent inflation increase, it should double," said Charles Berry, Denver, AMAX exploration representative.

Copper-nickel sells for 65 cents per pound on the open market. Berry said with the 1979 tax figures it would be uneconomic for AMAX to mine in Minnesota if they could not get \$1.25 per pound. The \$1.25 price would also double by 1989.

Sen. Neil Dieterich, South St. Paul, asked if exporting the minerals to another state for smelting and refining would reduce operational costs in Minnesota. Berry said it would lower the cost in Minnesota, but prices at another smelter would probably be costly.

Fred Cina, Range Association of Municipalities and Schools, recommended copper-nickel taxes should be reformed with an escalating tax. He also recommended distribution between the city that has the smelter, cities where employees come from,

county, homeowners relief fund, and the IRRRB.

Mayor Matt Kapsch, Babbitt, and Superintendent of Babbitt Schools Dan Mobilia, agreed that if a smelter is developed, the tax structure must be redeveloped and redistributed.

Kapsch urged the committee to act quickly on their decisions, "We want to answer the needs of our people in the first half of the '80s," he said.

Bill Larson, president of the local Steelworkers Union, recommended the committee develop a special fund for possible future environmental, health and safety problems should they occur.

The Minnesota tax base would benefit if a smelter was developed in the state, but environmental questions were also of concern to the committee.

Jack Malcom, project director at AMAX Exploratory Shaft in Babbitt, said, "Problems still do exist."

He said controlling sulphur dioxide emissions and leachates of heavy metals into the northern waters were the most serious problems.

Japanese smelters, some of the most technologically advanced in the world, emit from 20 to 150 parts per million of sulphur dioxide. On a national level, the environmental pollution control standards are higher than 650 parts per million. Presently, however, Minnesota standards are lower than the national standards.

"It seems we should not send our minerals to a place where environmental standards are lower than the ones we have in our own state," Johnson said.

Tom Rochovino, Tower, asked the committee to consider the entire impact on surrounding communities. He questioned how many local residents would benefit from employment and what part growing Range populations would have on the environment.

"I'm afraid it's going to get too big and then what will happen to my grandchildren in 40 years when the copper runs out and in 50 years when the taconite runs out?" Rochovino asked.

# Over 200 Persons Attend Ely Copper-Nickel Forum

A large contingent of Vermilion Community College students, with a sprinkling of local citizens, comprised an estimated 200 persons who attended the Oct. 27 public forum at the Washington Auditorium. The subject was "The Copper-Nickel Study: What It Means."

Following a welcome by VCC President Ralph Doty, and an introduction by UMD Professor Dr. Thomas Bacig, Peter Ashbrook of the Minnesota State Planning Agency gave a summary of the \$4.3 million state copper-nickel study involving the estimated \$50 billion underground mineral resource.

Robert Poppe, director of the study, opened the debate with an address entitled "Where Do We Go From Here?" Poppe recommended the smelter be located out of the mining area. A panel consisting of: Dr. William, Doyle, Babbitt; Mayor J.P. Grahek, Ely; Fr. Kenneth Jackson, Ely; Mayor Matt Kapsch, Babbitt; and John Penninger, Ely, discussed various aspects of the study and the views presented by Poppe.

Mayor Grahek argued for the construction of a smelter in the mining area "if it can meet state environmental standards." Grahek and Babbitt Mayor Kapsch both were optimistic that the anticipated population increases and demands on schools, utilities, housing and other facilities could be adequately met in the local communities.

Officials of AMAX, present copper-nickel developers, had previously made the point that the mining operation was geared to an on-site smelter. It is the contention of AMAX that available technology will reduce mining and smelter wastes to acceptable levels.

Jack Malcolm, Manager of the industry's evaluation project listed the steps leading to full operation of copper-nickel mining.

Peter Doran, instructor at Vermilion Community College and a former biologist employed by involving environmental studies, cautioned the group that even small amounts of waste emissions, over a long period of time, could have a detrimental effect on the air, water, vegetation, soil and wildlife. Doran said flatly that emissions of sulphates and heavy metals could destroy some of the biotic systems. He recommended continual monitoring of the mining as it progresses.

State Senator Doug Johnson, a mining advocate,

claimed that current tax levels are not high enough. Looking at the mining project from the standpoint of state and local revenue, Johnson advocated restructuring the mining laws to provide more tax income. Under the present set up it is estimated that state and local taxes would amount to somewhere between \$60 million and \$300 million.

Superior National Forest Supervisor Robert Rehfield, within whose jurisdiction the mining operation is taking place, expressed concern over the long-term effects of the mining and the ultimate results when the ore is removed and the mines closed. Rehfield's view is that he does not want to see the national forest left with a "big hole in the ground" and an impaired timber and recreational resource. He recommended close supervision of the project as it develops, with all safeguards possible in use.

## Babbitt To Host Copper Tax Session

State Senator Doug Johnson (DFL-Cook) announced today that the Minerals Tax Subcommittee of the Senate Tax Committee will be holding a copper-nickel taxation hearing in Babbitt at Babbitt High School on Tuesday, November 6 at 7:30 pm. Johnson, who is the chairman of this special subcommittee, said, "Copper-nickel can be a very important resource to the people of northeastern Minnesota. Besides providing employment, it will also provide needed tax revenues for cities, school districts, townships and local citizens."

Johnson continued, "A number of influential state senators will be attending the hearing in Babbitt on November 6th including Senator Bill McCutcheon, chairman of the Senate Tax Committee. We want to hear from local elected officials, as well as citizens, about their feelings on copper-nickel, particularly as it relates to the distribution of these tax revenues but also their general thoughts on the potential development of copper-nickel. One very important area the subcommittee would like to hear about is the public's feeling on whether a smelter should be developed on the Iron Range, if copper-nickel development occurs. This would result in greater tax revenues and employment opportunities on the Iron Range but would have to be balanced against potential pollution problems."

Johnson concluded, "It is extremely important that the citizens of northeastern Minnesota try to attend this hearing in Babbitt on November 6th even if they do not desire to testify. It is a regular legislative hearing and the input received from citizens will have a bearing on any final decisions reached by the subcommittee." The Minerals Subcommittee members will also be touring AMAX and Reserve's Milepost 7 site on November 7th, before returning to St. Paul.

ELY MINER

Wednesday November 14, 1979

# Legislators tackle Copper-Nickel tax questions

The meeting of the minerals tax subcommittee of the state Senate Tax Committee at the Babbitt High School last Tuesday was highlighted by an attractive Copper-Nickel tax revenue estimate of \$33 million by AMAX mining officials and several citizen protests over the need or desirability of Copper-Nickel mining.

Senator Doug Johnson, DFL-Cook chaired the subcommittee meeting and stated the purpose as an examination of all natural resource taxation including minerals, and a hearing on what the public wants done with Copper-Nickel. Major

questions that must be answered, said Senator Johnson, are how should the present Minnesota tax laws apply to Copper-Nickel mining and what, if any, revisions and changes should be made.

Charles Berry an official from AMAX explorations in Denver, testified before the subcommittee and gave estimates of AMAX's projected operations in the Babbitt area. Mr. Berry gave figures for two sizes of operations: a large 9 million ton, 2100 employee operation, and a smaller 21,000 ton 1400 employee operation. The tax

revenues were determined on the basis that a smelter would be located at the mine/mill complex, and that for every direct mining job, 1.5 indirect jobs would be created. By utilizing property, sales, and income taxes of the indirect and direct jobs, in addition to all the taxes that presently apply to Copper-Nickel mining and a smelter operation, Mr. Berry arrived at an annual tax sum of \$33 million for the large operation. The smaller 21,000 ton operation would generate \$18 million in taxes. Both figures are in 1979 dollars.

Dan Mobilja, superintendent of the Babbitt school

district testified before the committee and requested the legislators to insure that the Copper-Nickel taxes stay in the state of Minnesota, and that the majority should stay on the Range. A similar plea

was made by Fred Cina of the Range Association of Municipalities and Schools. Mr. Cina was instrumental in developing the tax law for taconite mining which was passed in 1967. He thinks the present mining laws should be changed if there is going to be a Copper-Nickel smelter because they were based on taconite production.

Mayor Matt Kapsch of

Babbitt testified that he believes the States regional Copper-Nickel study to contain exaggerated revenues, and that the problems of the communities today cannot be answered with money that will arrive sometime in the future. "We want to answer the needs of the people in the first half of the 1980's," said Kapsch.

Spokesman for AMAX, Jack Malcolm presented the subcommittee with a thumbnail sketch of proposed AMAX development, and told of the present market for copper and nickel and the costs involved in mining the relatively low grade ore here.

A mill by AMAX would concentrate the ore into two types, one a concentrate of copper, and the other a nickel concentrate containing a host of other trace metals such as cobalt, silver, platinum and gold. Problems would be involved with the nickel concentrate because it may be too costly to separate the trace minerals.

Charles Berry also pointed out that copper presently brings 65 cents per pound, on the open market, and with the 1979 mining taxes, AMAXC would have to receive \$1.25 per pound in order to have an economic

operation.

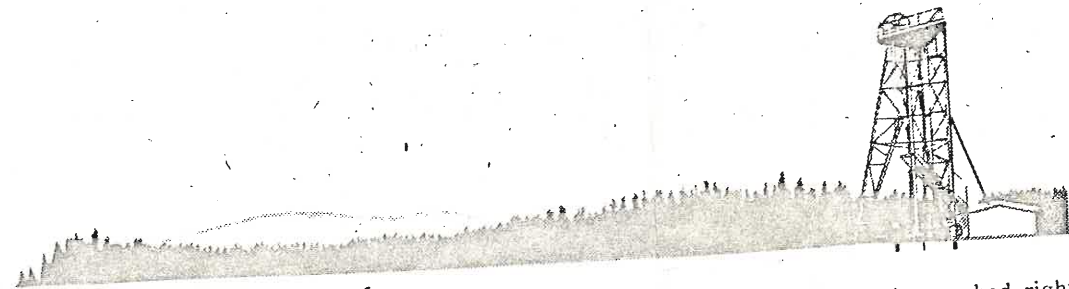
Environmental problems that AMAX must deal with include sulphur dioxide stack emissions from a smelter and the leaching of heavy metals from waste rock piles. Jack Malcolm has toured ore smelting industries in Japan and said their technology has reduced sulphur dioxide stack emissions to a level many times lower than the United States national pollution control standards.

Several private citizens testified before the subcommittee against Copper-Nickel development. Tom Rochovino of Tower, asked the subcommittee why Copper-Nickel

mining is being pushed right now, and gave the opinion that many people on the Range are not in favor of Copper-Nickel mining and do not want to see the populations of this area grow larger.

Bill Larson of Babbitt recommended that the committee set up a separate fund for future unforeseen problems that might develop in regards to environmental, health and safety problems.

"I think mining companies will not clean up any more than they have to - it's the responsibility of the government to force them to be clean," said Larson.



# AMAX labels steel plant site 'prime'

DULUTH  
BY SUSAN STEINWALL  
Of the Herald staff

11-14-77

AMAX Inc., a company contemplating copper-nickel mining in Northeastern Minnesota, announced Tuesday it will sign an option to buy the abandoned U.S. Steel plant in Duluth.

Although AMAX's announcement touched off speculation that the multinational firm may be interested in locating a copper-nickel smelter in Morgan Park, the company said it plans to study the property's investment potential and the feasibility of reopening U.S. Steel's defunct coke plant.

The 500-acre Morgan Park site

is a "prime piece of industrial property," said one AMAX official this morning. "We will be studying whether or not to purchase the property. It has nothing to do with Minnamax."

For the past five years, AMAX's Minnamax project has been evaluating the feasibility of mining the copper-nickel vein near Babbitt.

"Because the Minnamax project is still in the early stages of development, it is premature to consider the possibility of processing copper-nickel concentrates in Duluth or other locations," said Herbert Kay, AMAX vice president for engineering

and technology Tuesday. "We're looking at the (U.S. Steel) property's potential as a self-supporting and profitable investment quite independent from other AMAX work in Minnesota."

John Malcolm, Minnamax project manager, said Wednesday AMAX has hired the Koppers Co. of Pittsburgh, Pa., to study the economics of reopening the coke plant and purchasing the property. He said AMAX may renew the option should its preliminary study prove favorable.

If AMAX decides to purchase the U.S. Steel property, a seven-year effort to find another use for the sprawling industrial site will

come to an end. U.S. Steel began closing its Morgan Park works in 1972. U.S. Steel finished pulling out of Duluth in May when it closed its coke plant — explaining it is unwilling to make the multimillion-dollar investment needed to bring the company up to state-ordered air pollution standards.

Hallett Forge, Dock, Mineral and Wire Products companies, Zalk-Josephs and the Duluth, Missabe and Iron Range Railway and Abrasion Dynamics lease facilities at the steel plant industrial park. Louis Walsh, U.S. Steel

See AMAX Page 2A

## AMAX From 1A

Realty's Duluth representative, said the AMAX option will not affect those companies' "at this point."

The \$50,000, six-month AMAX option expires April 30.

City officials — who have long been interested in luring industry to the abandoned U.S. Steel site — hailed Tuesday's announcement as good news.

"That's going to be a good project," said Mayor Robert Beaudin, calling AMAX "very civic-minded."

Since the coke plant closed in May, Beaudin and Jerome Marks, industrial developer for the Seaway Port Authority of Duluth, have been trying to find a firm to reopen the plant and salvage some 250 high-paying industrial jobs.

The city was to have sold \$15 million in industrial revenue bonds to help Standard Machine and Equipment Co. of Uniontown, Pa., take over the coke plant but financing could not be arranged and, in October, the deal fell through.

Minnamax's Malcolm said it's still too early to tell whether copper-nickel mining in northern Minnesota would be profitable. He said the earliest AMAX could decide whether to begin mining

near Babbitt would be in 1985 or 1986, with actual operations starting up three to four years later.

AMAX has sunk a 1,700-foot test shaft near Babbitt, about 50 miles northwest of Duluth, to explore for copper and nickel. The company estimates that it could produce up to 100,000 tons of copper-nickel ore a year.

He added that Minnamax is considering building its smelter near Babbitt.

Some environmentalists say a copper-nickel smelter could cause widespread air pollution and acid rain, a form of pollution that has harmed lakes and farmland.

But mining company officials have said new technology would allow a smelter to operate in some parts of the state without causing environmental harm.

AMAX, headquartered in Greenwich, Conn., has offices and mines in at least 22 states and 13 countries. According to its 1978 annual report, the company mines molybdenum, nickel, tungsten, copper, lead, zinc, iron ore, coal and potash. It also produces oil and natural gas and harvests forest products. Net earnings of \$160 million were recorded.

# Duluth U.S. Steel plant optioned to mining firm

m 64.2  
11-15-79  
file

DULUTH (AP) — AMAX Inc., a company contemplating copper-nickel mining in northeastern Minnesota, triggered a flurry of speculation Tuesday by announcing the signing of an option to buy the abandoned U.S. Steel plant in Duluth.

At least one Duluth official close to the negotiations said he believes the agreement may be a first step in the development of a copper-nickel smelting operation at the site.

But AMAX officials said the six-month option will be used to do a study not directly related to copper-nickel development. A statement from the company said the study will examine only the "feasibility of operating the coke plant on the property as an investment opportunity."

The plant had been run by U.S. Steel to produce coke from coal. But it closed in 1972 because of conflicts with the Minnesota Pollution Control Agency and because the operation was outmoded. Its closing forced 5,000 people out of work and was a serious economic blow to the Duluth area.

Duluth Mayor Robert Beaudin said the option agreement with AMAX is a good sign for Duluth.

"We're very anxious for them to do the study. It will provide a leg up for Duluth if there were to be a smelting operation," he said.

The option on the 500-acre site cost AMAX

\$50,000. It binds neither AMAX nor U.S. Steel purchase contract.

If AMAX were to buy the plant and use it as a copper-nickel smelter, it would be an important investment in Duluth. But any attempt to build a smelter there could create considerable controversy, largely because of possible air pollution.

Some environmentalists say a copper-nickel smelter could cause widespread air pollution and acid rain, a form of pollution that has harmed lakes and farmland.

Mining company officials have said new technology would allow a smelter to operate in some part of the state without causing environmental harm. And several groups have suggested that the heavily industrialized west end of Duluth, where the present plant is located, would be more environmentally sound than a plant at the mining site.

AMAX has sunk a 1,700-foot-deep test shaft near Babbitt, about 50 miles northwest of Duluth, to explore for copper and nickel. The company estimates that it could produce up to 60,000 tons of copper-nickel ore each day. After smelting and refining, that would yield up to 286 tons of copper and 50 tons of nickel a day. The company will not decide until next year whether it wants to proceed at the Babbitt site.

m 64.2

# It's a wet trip down, and a hard haul up for Minnamax

DULUTH

BY BILL BECK

11-25-79

Of the News-Tribune staff

There's one thing you notice immediately when dropping more than 1,700 feet to the bottom of Minnamax's copper-nickel mine near Babbitt.

It's pouring rain.

Actually, explained Jamie Sturgess, senior project ecologist for Minnamax, the water dripping on our heads as we descended into the shaft was part of the 11 gallons of moisture per minute that seeps into the mine. Most of that — 8 gallons a minute — seeps into the shaft, while the remainder seeps into the drifts.

But there is a minor rainstorm created in the shaft when the warm air — a constant 55 degrees F. — rises and meets the cooler air at the surface. At any rate, it's wet on the three-minute trip in the steel cage down to 1,710 feet where Minnamax has mined almost 60,000 tons of rock to get copper-nickel ore samples.

Let that sink in a minute — 1,710 feet. It's not a deep shaft by any means. Some of the gold mines on the Witwatersrand in South Africa and copper mines on Michigan's Keweenaw Peninsula went down a mile or more. But 1,710 feet is deep enough to accommodate three Minneapolis IDS towers stacked on top of each other.

Sturgess said the engineers worry less about the rain than about rock falling down the shaft, so the first 20 feet of the shaft beneath the surface is lined with a concrete collar while the rest of the shaft is lined with galvanized cyclone fence bolted to the rock.

Therein lies an interesting tale of the challenges faced by ecologists on a project the scope of the Minnamax test mine. Sturgess said water samples taken in the mine showed minute traces of zinc in places they weren't supposed to show up. After much trial and error, the Minnamax people discovered that the zinc was leaching out of the fencing.

In the drifts — horizontal tunnels at the 1,710 foot-level used to gain access to the ore bodies — there is water, but not nearly as much as in the shaft. There are four drifts covering some 3,600 feet in the mine while a gutter carries off the excess water and makes rubber knee boots mandatory for visitors.

At one time, mining operations went on 24 hours a day here, with as many as 20 contract miners engaged in excavating the rock. Massive drills were disassembled at the surface and lowered to the drifts where they were put back together and used to break up the 60,000 tons of rock that was hauled to the surface.

Today, the tunnels are silent and the rock face is scarred with plugged-up drill holes. Sturgess stops to point out veins of chalcopyrites and bornite, the mineral-bearing rock, while a solitary miner tested the pumps farther down the drift toward the shaft.

Sturgess said the test mine is all but closed now, visited twice a week by a maintenance crew and periodically by special interest groups — like college geology classes.

"I guess I've met more state legislators down here than I'll ever meet again," Sturgess said.

# He hopes for more years to bring off the AMAX dream

BY BILL BECK

Of the News-Tribune staff

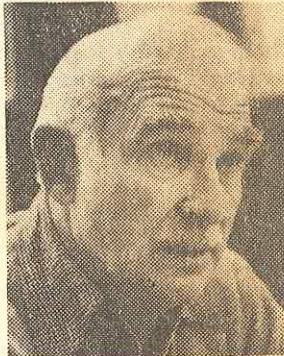
BABBITT— Jack Malcolm has given almost six years of his life to developing the copper-nickel test mine near here for AMAX.

He hopes to spend his last six years with the multi-national mining company bringing the project into full production.

"We're \$17.5 million in, and we want to spend \$40 million more — if our company will allow it," Malcolm said recently. Malcolm met with officials of AMAX Exploration Co., the Denver-based subsidiary of the parent company, earlier this month about the next stage of the Minnamax project.

That stage, which will take several years, will involve sophisticated testing of the rock brought up from the 1,700-foot shaft on the property and the methods needed to mill and smelt it.

A native of South Dakota's Black Hills, Malcolm came to the AMAX project "one January



Malcolm

morning in 1974."

He describes himself as just "a goddamn hardrock miner," and a recitation of his work history sounds like a guided tour of the world's mining industry: mining copper in Mexico and Chile, stone along the Amazon in Brazil, tungsten in North Carolina, copper-zinc in Maine. He's also worked with the U.S. Army in administering the Austrian mining industry just after World War II.

Malcolm said he will go back to Denver with further proposals for the next stage of the project after the first of the year. But he stressed that AMAX will make its decisions to go ahead based on economics.

"We're seeing costs at \$1 a pound," he said. "We'd have to see (copper) prices at \$1.50 a pound."

Late last week, copper prices were hovering at just over \$1 a pound.

The Minnamax plan for full production beginning sometime in the late 1980s calls for mining either 60,000 tons of crude ore per day, or 26,000 tons of ore per day. Under the 60,000 tons per day model, the company would mine 15,000 tons per day from two rich underground deposits — code-named Bathtub and Tiger Boy — and 45,000 tons per day from a three-mile long, 1,200-foot deep open pit.

"That's a deep, damn hole," Malcolm said,

See AMAX Page 4D

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11-25-79

# AMAX

From Page 1D

adding that Reserve Mining Co.'s Peter Mitchell taconite pit, located adjacent to the AMAX property, is 11 miles long, but only 250 feet deep.

Although 60,000 tons per day may sound like a lot, Malcolm points out that mineralization of the deposit is only about 1 percent. The copper content of the underground deposit is eight-tenths of 1 percent, while the nickel content is only two-tenths of 1 percent. That works out to a maximum of 16 pounds of copper and four pounds of nickel per ton of ore mined.

The content is even less in the open pit — a maximum of 9 pounds of copper per ton and 2.8 pounds of nickel.

Still, the AMAX property could be a major source of U.S. copper — a commodity the United States imports heavily from Africa and South America — and would dwarf the only other U.S. nickel mine.

Also, Malcolm said, the AMAX reserves contain small but marketable deposits of gold, silver, platinum, palladium and cobalt — as much as an estimated 3,000 ounces of gold and 900,000 ounces of silver annually.

Developing the 60,000 tons per day facility would cost AMAX

\$800 million in 1979 dollars, Malcolm said. Development of a smaller 26,000 tons per day mine and mill would cost \$500 million.

Malcolm stressed that economics would dictate the future development of the Duluth Gabbro copper-nickel deposit, and that AMAX has a number of projects in the fire.

The company — the largest producer of molybdenum in the free world and the third largest coal producer in the United States — is developing a molybdenum prospect near Crested Butte, Colo., a tungsten-tin mine in England and a phosphate deposit in Florida.

The company is involved in a cooperative venture with the Colville Confederated Tribes in Washington state to explore and possibly develop a copper-molybdenum deposit near Mt. Tolman, Wash. Last week, the company announced the deposit was three times as big as first thought and said it expected to spend \$48 million on the project by the end of next year.

"We're competing for money from AMAX," Malcolm said.

AMAX agreed in 1974 to pay Bear Creek Mining Co., a subsidiary of Kennecott Copper, \$5 million to explore the Babbitt site.

Substantial portions of the site are leased from the state, but those leases, dating to 1966, are held by Bear Creek rather than AMAX.

Minnamax pays Bear Creek \$200,000 a year for the right to the state leases, and the 25-page agreement gives Bear Creek the right to a 49 percent financial participation in the development of a mine on the property. Minnamax also pays Longyear Mesaba Co., a mining exploration firm, just over \$100,000 a year for private leases at the Babbitt site.

The large Exxon Corp. and American Shield Corp., a Duluth-based exploration firm, also hold state copper-nickel leases in the area.

Malcolm said that U.S. Steel Corp. is interested in copper-nickel development on some of its own land, but that the company is following the dictum of founder Andrew Carnegie in not trying to be a pioneer in the field.

Even with the uncertainties, Malcolm has no doubt that copper-nickel will be mined commercially from northern St. Louis County.

"I can make a statement right now that it (copper-nickel mining in the area) will go," he said. "The only question is when."

# Mining boom's impact expected to be large

11-25-79

ml 2

BY DOUG SMITH

Of the News-Tribune staff

BABBITT — The overall impact of a copper-nickel mining operation in northern Minnesota is expected to be dynamic.

Populations will increase, business will boom, and cities like Babbitt, Ely, Hoyt Lakes, Virginia, Biwabik and Aurora will have to provide more homes and services.

However, it may not cause the ripples through the small communities as predicted by the recently completed three-year state copper-nickel study, according to AMAX officials.

The state study predicted the population of the immediate area from Virginia to Babbitt and north to Ely and Tower would increase by 12,000 by 1990. The study also suggested that some of the towns would be financially strapped to pay for new roads, sewers, water lines, school classrooms and other services for the new residents.

The study said the result could be revenue shortages for some local governments. Bob Benner, a

state planner, agreed the revenue shortage possibility was the most controversial finding of the report. AMAX officials strongly disagreed with the finding.

The population increase may be only 6,000 instead of 12,000, said Jack Malcolm, AMAX project manager at Babbitt.

"I see the social impacts as a lot more minimal than the copper-nickel study indicated," Malcolm said.

Malcolm agrees with the state study that about 2,100 persons will work directly in a mining operation. He disagrees that two additional non-related jobs will be created for each direct job, as the state estimated.

The state study missed badly as far as the schools are concerned, Malcolm said. The study assumed schools in the area are at full capacity, meaning new schoolrooms would have to be built to accommodate students.

But Malcolm said schools are not near capacity and have plenty of room for additional students. Babbitt is at 75 percent capacity, Ely 66 percent, Aurora-Hoyt

Lakes 64 percent and Tower-Soudan is at 90 percent.

The area schools have room for 17,265 students, but only have 10,700 now, he said, a 62 percent occupancy rate.

That figure is projected to fall to 51 percent without copper-nickel development, Malcolm said. However, even with copper-nickel, Malcolm figures the occupancy rate will actually drop from the current level to 58 percent.

Malcolm says a copper-nickel operation will directly help local communities by increasing school aid with the increased student population.

Still, populations will increase significantly by 1988 if all goes according to AMAX's plan. Malcolm projects Babbitt will increase by 1,400, from about 3,100 to 4,500. Ely will add 840 people, Tower 195, Hoyt Lakes 960 and Aurora 615.

Malcolm said the impact of the increased population could be spread out over the area by adding a new highway from Hoyt Lakes to Babbitt.



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## New battles over mining

Minnesota's eternal mining triangle is warming up.

First, there are the copper-nickel mining companies. Second, there are the residents from economically depressed northern Minnesota who are anxiously awaiting the jobs increased mining activity in their region would create. Finally, there are the concerned residents and environmentalists who worry about what mining and processing the ores would do to such beautiful, untainted areas as the Boundary Waters Canoe Area.

A recent issue of *Business Week* shed additional light on the unfolding drama. Things could become pretty intense, especially since the Minnesota Legislature is now just beginning to formulate policy concerning future mining operations within the state.

As in poker, tensions mount when the stakes grow. The stakes in the Duluth Gabbro mineral lode, a 50-mile-long, three-mile-wide strip just south of the BWCA, are indeed staggering. According to *Business Week*, that vein of copper-nickel sulfides is worth \$50 billion — and that's at today's prices. If most of the ore could be mined, it would increase U.S. copper reserves by 25 percent. U.S. nickel reserves, on the other hand, would skyrocket an incredible 45 times. And then there are significant deposits of such rare — and highly prized — metals as cobalt,

platinum and palladium, none of which are presently being mined in the U.S.

Balancing the growing euphoria over underground wealth is the knowledge that copper-nickel mining creates a tremendous potential for pollution, not to mention ugly open pits. Toxic chemicals can leach from huge piles of waste rock. Copper smelters belch forth huge clouds of sulfur gases, which unite with moisture in the air to form the acid rains presently killing lakes in northern Minnesota.

Amex, Inc., the company seeking to tap the ore vein, claims its proposed smelter is based on Japanese technology and is almost pollution free. If necessary, company officials add, they'll build the smelter in Duluth, 50 miles from the BWCA. They are anxious to placate pollution fears.

"Certainly we want mining in Minnesota," state Department of Natural Resources Commissioner Steven Thorne told the magazine. "But we aren't willing to accept acid rain or any other environmental risks in the bargain."

With the economic and strategic pressures for mining building, environmentalists are facing a monumental struggle. But a quick rehash of the serious and costly problems that grew out of the Reserve Mining fiasco ought to cool the wild-eyed enthusiasm for simply going in there and bulldozing our way to economic security.

# Mining boom seen great for Babbitt

By NANCY LIVINGSTON  
Staff Writer

Babbitt Mayor Mathias Kapsch said today that if Babbitt becomes a boom town as a result of copper-nickel mining in the northeastern part of Minnesota, it's all right with him.

A state copper-nickel study to be released Thursday said that Minnesota's Arrowhead Region contains a 3-mile-wide strip that holds more than \$50 billion in copper-nickel reserves.

The study says the mineral-rich strip has the potential of making Minnesota the second largest copper producer in the country.

"Babbitt could become one of the bigger communities on the range," said Mayor Kapsch, an employee of the Reserve Mining Co. "The Amax (Exploration Inc. mining) plants would all be located within our city limits. If the smelter is located here, too, it will have a large impact on our real estate taxes — bringing them down for most people — and also tripling our tax base."

**KAPSCH SAID THE** town of Babbitt, population 3,100, is split about 50-50 on the issue of copper-

See Mining, Page 2

## Mining: Boom welcomed

Continued from Page 1

nickel mining. "About half the people would like to see it," said Kapsch. "They feel the economic development in the area would be great and would lead to more commercial-retail outlets, which the city needs.

"The other half doesn't want to spoil the small-town atmosphere.

"I would like to see the mining go in. The city is capable of handling a 100 percent increase in population with our sewer, waste water and fresh water plants. We have 250 (undeveloped residential) lots now that have sewer and water into them. We are capable of financially developing these.

"And if a (home) builder came in for Amax, he would have to put in streets, sidewalks and add to our fresh water capacity. It would be no great strife on our city or school district. We have one empty school now."

**KAPSCH SAID** the land south of Babbitt that Amax wants to mine is "basically uninhabitable for humans. It's the northern part of Hundred-Mile Swamp and has small and large pockets of swamp and scrub trees."

He said that if copper-nickel mining comes into the area in a big way, Babbitt would get the

most population, followed by Ely and Aurora. The Tower area, too, would get some increase, he said.

He said Amax plans to build a first-class highway between Hoyt Lakes and Babbitt.

Kapsch said he wasn't worried about the open-pit mining and underground mining operations spoiling the area. "Modern Japanese technology has got the (discharged smoke) down to 20 parts per million in particulates. That won't bother us."

**HE SAID** most of the water needed to operate the mines will come from waste water at Reserve Mining's Peter Mitchell mine.

Amax officials told Kapsch that their copper-nickel mining plans are in three phases. Phase one, the company's \$17-million environmental, economic and mineral evaluation of the area, has just been completed.

Next comes phase two which entails building a \$25 million pilot plant and an open pit mine. Plans for this project will be announced later this year.

Phase three includes construction and eventual operation of the company's main plant.

Amax is already operating a 1,700-foot test shaft near Babbitt.

Completion of the study, which will go to the state's Environmental Quality Board Thursday, reopens the possibility for actual mining to be done in the area. There had been a moratorium, instituted five years ago, on copper-nickel mining in the area pending the study.

# 11-member panel will review study on copper-nickel mining

By Dean Rebuffoni  
Staff Writer

Minnesota's major study on copper-nickel mining will be reviewed by an 11-member committee named Thursday by the state's Environmental Quality Board (EQB).

The committee is made up of state officials, environmentalists, a mining industry representative and city and county officials from northeastern Minnesota, a region that contains an estimated \$50 billion worth of copper and nickel ore.

The group is to advise the EQB on the accuracy and thoroughness of the \$4.3-million study, which was recently completed. It also will recommend how the state might revise its environmental and tax policies if copper-nickel mining becomes a reality.

The committee is to complete its review within three months, after which the Legislature may take up the copper-nickel issue.

The copper-nickel study was launched in 1974 because of concern that mining of the two minerals could harm the environment. It concluded that such harm is possible, but also said the mining could meet environmental standards if mining companies use the best available pollution-control technology and develop a sound plan for protecting the waters of northeastern Minnesota.

The review committee includes two environmentalists: Steve Chapman of Clear Air-Clear Water, Unlimited, and Alden Lind of the Save Lake Superior Association. The mining industry is represented by Jack Malcolm, manager of AMAX Exploration's exploratory project near Babbitt, Minn.

AMAX has sunk a test shaft about 50 miles northwest of Duluth to explore for copper and nickel. It is in the best position to be the first company in Minnesota to mine the two minerals if the state decides to allow development of its copper-nickel deposits.

The committee also will consider whether a smelter should be built in the state. A smelter is required to process copper and nickel ore.

AMAX recently signed an option to buy the abandoned U.S. Steel plant in Duluth and there is speculation that the company may want to build a smelter at that site. AMAX has said that while it is studying the Duluth site, that study is not directly related to copper-nickel development.

Also serving on the committee is Babbitt Mayor Matt Kapsch and Marvin Hall, a St. Louis County commissioner. The remaining committee members are officials of the state and five other state units: the Department of Natural Resources, the Economic Development and Trade Commission and the Pollution Control State Planning Agencies.

The committee plans to hold three meetings, although no date has been set.