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Iron Ore Company vs. the Changing Times: U.S. Court Will Decide on Right to Pollute

By JANE E. BRODY

Special to The New York Times

SILVER BAY, Minn., Aug. 7—In 1947, after extensive public hearings, Minnesota's environmental watchdogs gave the Reserve Mining Company permission to use the pristine waters of Lake Superior as a dumping ground for thousands of tons of rocky waste each day.

Now, a quarter-century later, new, pollution-minded officials who want to keep this lake one of the purest in the world, are trying to end the practice condoned by their predecessors. The Government's action against Reserve has now come to trial in United States District Court in Minneapolis in what is regarded as a classic case in the annals of pollution.

Reserve had requested the dumping permit in the first place because it wanted to build a huge plant along the lake's shore here to extract iron from a hard rock called taconite. And Minnesota's politicians, ever happy to give the new industry every possible opportunity to revive the state's once-prosperous Mesabi Iron Range.

Other Plants Begun

Reserve now employs 3,200 persons in northern Minnesota, and each year it produces 1.1 million tons of iron-rich taconite pellets that in turn account for about 15 per cent of the nation's steel production. Reserve's success spawned five other taconite plants that collectively have made northeastern Minnesota an economically viable area, in addition to providing the nation with much-needed iron.

Five years ago, state and Federal officials decided that it was time for Reserve to stop dumping its taconite waste—77,000 tons each day—into the lake whose waters freshen the other Great Lakes.

Scientists at the Federal Environmental Protection Agency have reportedly spent several million dollars in an effort to prove that Reserve's taconite waste is polluting the lake in violation of water quality standards. Early this summer, Government studies took a new and frightening turn. Large quantities of asbestos fibers were found in the drinking water of the city of Duluth and other communities that use Lake Superior water. The Government contends that Reserve's tailings are the source of the fibers. Reserve maintains that if there were asbestos fibers in the lake, they come not from the tailings but from feeder streams and leaching of the Canadian shoreline.

Inhalation of asbestos fibers is known to cause cancer of the lungs and the gastrointestinal tract, and although there is as yet no known hazard associated with drinking asbestos, announcement of the finding of asbestos in municipal water supplies resulted in a momentary panic and a temporary surge in Duluth's consumption of bottled water.

Concern Spreads

The finding also raised pressing questions about the asbestos content of water supplies throughout the country. In the Southwest, most municipal water supplies are carried through asbestos pipes; in many Northern communities, asbestos-containing rock is used to sand roadways in winter, with asbestos fibers possibly contaminating streams and reservoirs.

The E.P.A. is now trying to figure out how it can test the drinking water of perhaps 50,000 communities during the next year to determine how widespread the potentially harmful fibers are. At the same time, scientists at Mount Sinai Medical Center in New York are working around the clock in an attempt to learn whether the consumption of microscopic asbestos fibers is indeed a health hazard.

Asbestos, when it is inhaled, "is a time-bomb effect—it does



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not show up as an obvious cancer risk until 20 to 30 years after the first exposure. (Reserve has been dumping its tailings for 17 years.) Since the causes of most cancers are unknown, some experts fear that accumulated exposure to asbestos, whether inhaled or consumed, might be an important cause of cancer in the general population.

Meanwhile, here in Silver Bay, the suburban-like community of 3,273 that Reserve created and almost solely supports, the residents are waiting for more evidence on the asbestos question.

"We feel it will be proven harmless, just like everything else that's come up," remarked the village's mayor, Frank H. Scheuring. The asbestos scare, he explained, was preceded by unsubstantiated reports of mercury, arsenic, lead, copper—"almost any chemical there is"—as contaminants of the tailings that were purportedly polluting the lake.

A Grawling Concern

Mr. Scheuring added that in the week the asbestos report came out, Silver Bay merchants sold only one-half gallon of bottled water—"and that was to a lady who used it in her steam iron."

While residents of Silver Bay and other communities continue to drink Lake Superior water, some in defiance and some in disbelief ("I've drunk it for 17 years now and nothing's happened to me yet," a Duluth secretary remarked), the growing concern about asbestos has emerged in the local gallows humor: "A Two Harbors man died, and when they tried to cremate him, he wouldn't burn." My gosh, I put that water in my can. Oh well, he alcohol will kill me anyhow."

The Mayor of Duluth, Ben Boo, says that citizens of his city—the metropolitan hub and economic center of the iron range, have adopted a somewhat different attitude. "It doesn't matter whether the tailings are proven harmful or not, we just want them to stop dumping," he said. The mayor pointed to a recent poll that showed 67 per cent of the state residents questioned to be against the dumping, with more opposition the farther from Silver Bay they live.

Filtration Planned

Mr. Boo said that Duluth had always been proud of the fact that it could drink the "raw" water from the lake, but now he is planning to install a filtration system to remove mineral fibers.

While Mayor Boo of Duluth says "it's time for Reserve to find a better place to dump" (and he thinks the Government should help the company do it since it allowed the current procedure in the first place), Mayor Scheuring of Silver Bay is not happy about the prospect of Reserve's dumping the tailings on land, as do the other taconite plants.

The village of Silver Bay, as one of 11 intervenors in the case on Reserve's behalf, maintains that an on-land tailings pond would have to be placed in the hills above the town, destroying needed recreational area and creating an air pollution problem. It would also present the constant threat that the dam holding back the tailings would break and bury the town under an avalanche of crushed rock.

Reserve has argued that on-

land disposal is economically unfeasible and has proposed instead that the tailings be slumped with chemicals, carried some distance offshore and dumped into an underwater valley in the lake.

Reserve deliberately located its plant along a mile or so of Lake Superior shore so that it could use the lake not just as an industrial sewer but also as the source of the 453 million gallons of water needed each day to process taconite.

Reserve mines taconite, one of the world's hardest rocks, at Babbitt, Minn., 47 miles northwest of here. Reserve's railroad, built especially to haul the rock, brings it to Silver Bay.

Taconite became of interest as a potential natural resource when the state's once-rich iron ore deposits neared depletion after World War II. Iron ore contains about 50 per cent pure iron in condensed, readily usable form. Taconite contains 20 per cent to 30 per cent iron scattered through the rock in microscopic particles.

Geologists say that the iron ore deposits were formed by natural leaching of the rock, leaving pockets of iron behind. In extracting iron from taconite, man concentrates into a few hours the process that took nature millions of years to achieve.

At the \$350-million Silver

Bay plant here, a visitor was shown how the rock is first crushed into pebbles and then slumped with water and ground into loose mud containing flour-sized particles. The mud then passes over a series of magnetic extractors that separate the magnetic iron (magnetite) from the rest of the rock's minerals. The magnetic mud is dried, rolled into marble-sized pellets and baked at 2400 degrees Fahrenheit to change the magnetite to hematite, the iron oxide most commonly found in iron ore. The resulting taconite pellets contain 60 to 65 per cent iron, and can be used to produce twice as much pig iron as the old iron ore could.

Waste Ratio 2 to 1

What is left after the magnetite is extracted from the mud are the tailings, a combination of water and mineral particles of various sizes. For every ton of taconite pellets produced, two tons of tailings must be disposed of.

At the Reserve plant, the tailings are carried like twigs in the muddy rivers down huge sluices ways into Lake Superior. Joe Nesek, a research biologist at the Reserve, explained that about one-half the tailings—the largest and heaviest—are deposited on the shore in the early days of Reserve's operation. The rest of the tailings are carried by the current into the lake, where they are carried by the current into the lake, where they are carried by the current into the lake.



The Reserve Mining Company's mile-long taconite processing plant on the shore of Lake Superior at Silver Bay, Minn.

particles, he said, form a "density current" heavier than water and settle to the lake bottom, which has risen from a 100-foot to a 50-foot depth as a result of accumulated tailings.

Mr. Nesek directs a 32-foot research launch, the Alma, that Reserve uses to study the effects of the tailings on the physical and biological properties of the lake. Thus far, Mr. Nesek said, he has found no changes of any consequence, although some local residents believe that the green areas along the shore are greener now because of the tailings. Until June the case against Reserve was based on such biological measures as the par-

asbestos content of the water and the contention that the tailings encouraged the growth of unfavorable algae, hastening the "death" of the lake.

The finding of asbestos, however, made the case infinitely more complicated, as well as more urgent. A major problem has been that few laboratories have the equipment or the expertise needed to accurately identify an asbestos fiber at a distance of 100 feet, presumably innocuous mineral fibers. Consequently, the public here has been besieged by claims and counterclaims about mineral fibers found in various places when it is not known whether any of these fibers are actually

Dr. Irving Selikoff's laboratory at Mount Sinai is one place that can properly identify asbestos, and it has been called upon to aid the Government in its case.

In identifying asbestos, Mount Sinai researchers explain, first the beam of a transmission electron microscope must show a fiber with a layered structure characteristic of amosite-type asbestos. Then, a scanning electron microscope sends an electron beam point by point through the fiber, which excites X-rays typical of the chemistry of the atom it passes through. A computer analyzes the X-ray pulses and enables the scientist to identify the chemical composition of the fiber.

Findings So Far

Thus far, according to informed sources, the Mount Sinai laboratory has found no amosite asbestos in the lake water at Grand Marais, 60 miles north of Silver Bay, an as yet unquantified amount is present in the water supply at Beaver Bay, four miles south of Duluth, 55 miles down Silver Bay, and 20 to 200 times more fibers are present in the lake there, than in most other water supplies thus far tested.

Dr. Selikoff's colleague, William Nicholson and his assistants are also analyzing the tissues of Duluth residents who have died to see if they accumulated asbestos fibers through the years, and Duquesne University is studying air samples from places, such as the fountain in front of the St. Louis County Court House in downtown Duluth, where evaporating water may place asbestos fibers in the air.

The judges in the case, Miles Lord, has agreed to hear arguments charging that the smokestacks at Reserve's plant are polluting the air with asbestos, and the United Steelworkers of America, which represents the taconite workers, has requested inside-the-plant tests, particularly of the crushing operation, to see if workers may be breathing dangerous amounts of asbestos.

Regardless of the outcome

of the present case, it is clear that it will have little effect on the allegiance of Silver Bay residents to the Reserve Mining Company. Through the years, Reserve has been a benevolent employer operating a company town without the negative connotations that usually accompany that phrase.

Indeed, it now appears that the Government, and particularly the Environmental Protection Agency, has been dubbed "an enemy of the people" here. In Henrik Ibsen's play of that title, written nearly a century ago, a physician discovers that the local baths, the town's major source of livelihood, contain contaminated water that is killing those who come to be refreshed in the supposedly healthful spa.

As thanks for his revelations, the physician is ostracized as an enemy of the people and all those who try to remain his friend are similarly scorned.