Work to curb drainage at vacant copper mine

By RUSS PARADICE

Work finished last Friday on putting a giant, $1 million "raincoat" over a portion of an abandoned Mt. Washington copper mine that is responsible for decimating fish runs on the Tsolum River.

The $64,000 question now is will the ambitious two-year project, which is at least partly experimental in nature, actually work.

Scientists and government officials are optimistic that it will. And early indications are that the huge cap placed over the site is starting to have an effect.

The environmental villain in this case is a condition known as acid mine drainage, which has been ranked as the number one environmental problem connected to B.C.'s mining industry. A 1986 report identified five operating and at least 6 abandoned hard rock metal mines in B.C. which produce acid drainage.

If the government did nothing about the Mt. Washington problem, current scientific data indicates that the acid drainage process could persist for decades to come, rendering the Tsolum River system practically uninhabitable for aquatic life.

It's no wonder then that the scientific community is eagerly awaiting the results of the Mt. Washington experiment to see if the underlying theory behind it can be applied to other sites in the province.

"It's a big, unique project," says Murray Galbraith, a mining reclamation engineer with the Ministry of Energy, Mines and Petroleum Resources who has been overseeing the job on a day-to-day basis.

"What we have done here is going to be of interest not only here in B.C. and the rest of Canada, but also other parts of the world. I think we're going to see a regular flow of scientists coming here from many places in North America."

Already, scientists and technicians from Australia, San Francisco, Montreal, Saskatchewan and elsewhere have visited the site, Galbraith says.

One person who is keeping his fingers tightly crossed is Father Charles Brandt, a Catholic priest who lives in a hermitage on the banks of the Oyster River. As chairman of a special committee formed under the local chapter of the B.C. Steelhead Society, Brandt began working in earnest back in 1984 to have the government cure the problem.

On a personal level, Brandt says of his connection to the project: "I feel I have a responsibility to the river. I've taken something out of it before (fish) and now I must put something back in."

The roots of the Mt. Washington problem date back to 1964 when the ill-starred Mt. Washington Mining Co. Ltd. was formed. The company commenced its open pit copper mining operation in 1964, on a slope about five kilometres from the Mt. Washington ski area. In April 1967, the company fell into receivership and all operations ceased.

During the life of the mine, about 1.03 million tones of waste rock and overburden were reported to have been produced, according to a report by the Vancouver-based consulting firm of Steffen, Robertson and Kirsten, who are geotechnical, mining and environmental engineers. The firm was hired by the provincial environment ministry to recommend the best way of abating the acid drainage problem.

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This overburden was dumped in huge piles beside the open pit. One of these waste rock dumping areas is where the acid mine drainage is taking place.

Acid drainage results when water and the oxygen in the air combine together and come in contact with the sulphide compounds that are in present in certain types of rock. This naturally-occuring phenomenon is intensified when these rocks are broken or crushed, as they are in the waste rock dump.

The acid produced, in turn, leaches (or frees) the copper and other metals in the rock. This deadly flow of leachates is seeping into Pyrrhotite Creek and on into other water courses before eventually entering into the Tsolum River.

Taxpayers are having to pay for the job of trying to resolve the problem because the mining company folded two years before the B.C. government introduced mine reclamation legislation in 1969.

After considering 17 possible options for combatting the problem, the Vancouver consulting firm recommended that the old waste dump be enclosed under a compacted cover of till. The theory is that the till will prevent water and oxygen from coming into contact with the waste rock, thus preventing acid drainage from occuring in the first place.

"So the object is simply to pull a raincoat over the whole site, not only to keep the rain out but to cut the oxygen off as well," Galbraith says.

Thousands of yards of glacial till, taken from two sites a few kilometres further down the mountain, have been used for the job. Glenn Gretzinger, whose Campbell River construction firm was awarded the contract for the second year of excavation work on the mountain, estimates that it took about 2,200 to 2,500 truckloads to bring the till to the site.

Three wells have been sunk through the cover to hold monitoring equipment.

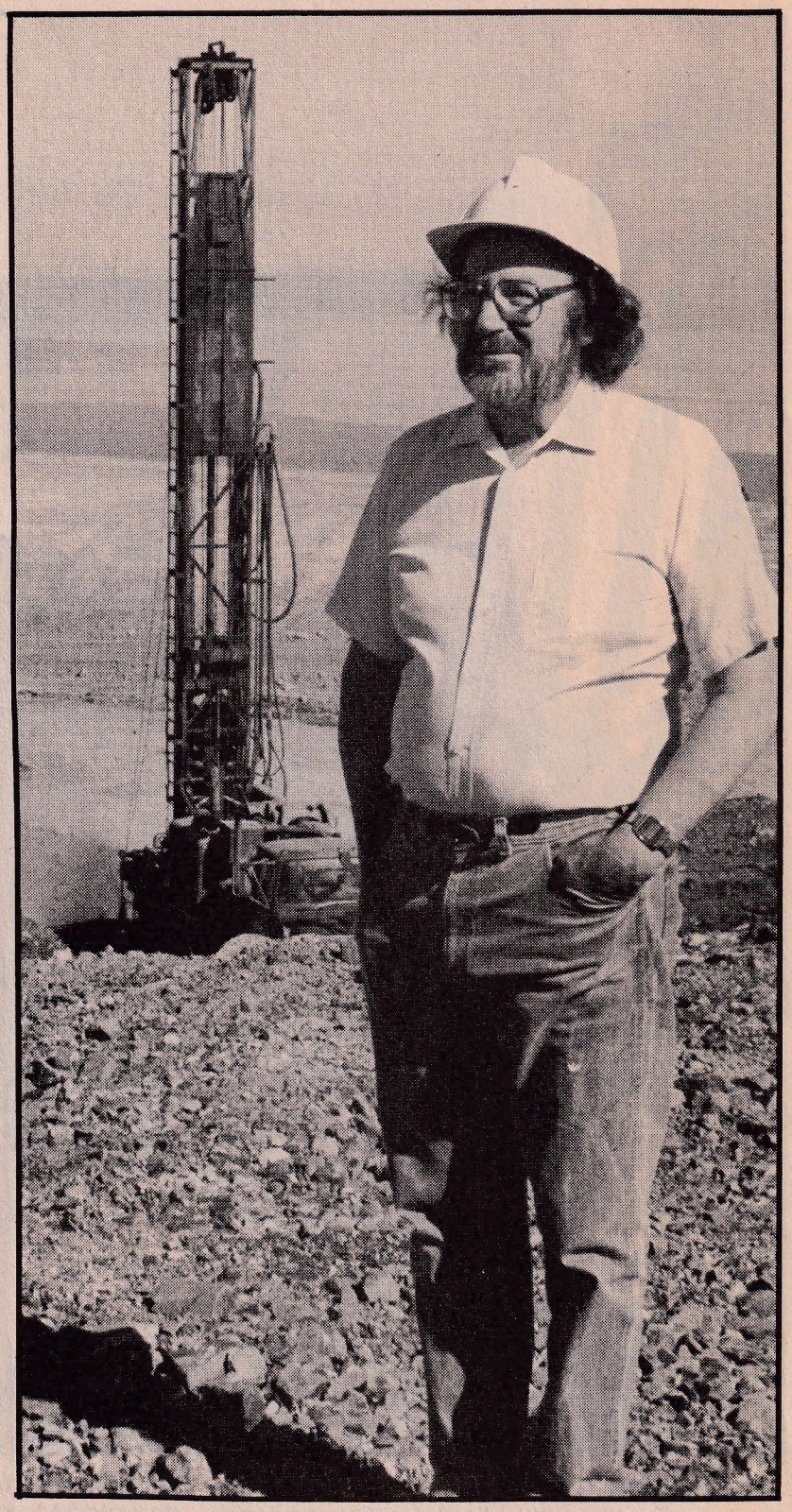
Keith Ferguson, an engineer with the environmental protection branch of Environment Canada, says the cover is starting to have at least some effect.

Prior to the cover being put on, there was basically the same level of oxygen and carbox dioxide in the waste dump as there was in the atmosphere. "Since the cover's gone on there's been a reduction of three to four per cent in the oxygen, particularly in the upper part of the dump. So it is indicating that the dump is starting to have an effect."

Officials say they really won't know whether the project has been a success for another two to three years.

Although the Mt. Washington project has been expensive, it should more than pay for itself if it works.

According to the consulting firm, a restored fishery on the Tsolum River would be worth $7,858,000 over the next 50 years in current dollars. If the project winds up eventually costing $1,655,000 as has been estimated, the province will still be more than $6 million in the black.



FATHER CHARLES BRANDT surveys project.