

British Columbia Planning Major Mining Operations, Despite Mount Polley Tailings Pond Blowout

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Photo Courtesy Imperial Metals Corp.

Hazeltine Creek, filled with waste, tailings and debris after the Mount Polley Mine spill, is undergoing rehabilitation.

Imperial Metals Corp., owner of the mine that caused Canada's worst mining disaster in history, has started limited production at an even bigger mine, which could be a threat to Alaska's \$2-billion annual salmon and tourism business.

Meanwhile, Imperial has applied for a temporary restart of Mount Polley Mine, where a tailings storage pond failed in August 2014, spewing 4.3 billion gallons of water and 10.3 million cu yd of mine tailings and construction waste into two lakes and a creek that are part of the Fraser River watershed in British Columbia.

The Mount Polley spillage affected Quesnel Lake—a fjord-type lake in which salmon spawn—dumping chromium, cobalt, copper, iron, silver, vanadium and zinc. Hazeltine Creek, between Polley Lake and Quesnel Lake, got those same minerals as well as arsenic, manganese, mercury, nickel, thallium and titanium.

However, the other British Columbia mines—under construction, in startup or still undergoing assessment—pose a greater threat: acids that are common in copper and gold mining and other metals toxic to aquatic life.

The effects from Mount Polley "may take years to be felt by salmon," thanks to the metals bound to sediment settling in the lake bottom, says Aaron Hill, executive director of Watershed Watch Salmon Society. The greater danger, he says, is with the other mines.

"Even though Mount Polley was one of the biggest environmental disasters in Canadian history, the impact would be much worse from a catastrophic failure at a project like Red Chris and KSM

[Kerr-Sulphurets-Mitchell] that are acid- draining, with much larger tailings impoundments," he says.

"KSM, which was quietly approved by the federal government over the Christmas holiday, would have two tailings impoundments around the same size as Hoover Dam," he adds.

Red Chris Mine, also owned by Imperial Metals, Vancouver, is a \$643-million, open-pit gold and copper mine in northwest B.C. It got a permit in February, effective through May, to begin filling its tailings pond "but not to go into production," the B.C. Ministry of Energy and Mines (MEM) says.

KSM is a copper, gold, silver and molybdenum mine, located 22 miles from the Alaska border and proposed by Seabridge Gold, Toronto. It would be a combination open-pit and underground mine, with a pair of tunnels, running under a glacier, connecting the work. It is projected to process 143,000 tons of ore daily for 52 years.

Harper Creek Mine, an open-pit copper mine planned by Yellowhead Mining Corp. near the North Thompson River, got a "very high" dam-hazard classification from the Canadian Dam Association. The province Environmental Assessment Office told the company to resubmit paperwork on its tailings management plans.

The tribal Tahltan Central Council held up Red Chris operations, pending a third-party review of the tailings pond. Engineer Klohn Crippen Berger's study found "a major design issue" in the foundation soils and lack of detailed documentation, emergency response plans and environmental testing. KCB made 22 recommendations for improvement.

The Red Chris tailings pond is designed for 300.7 million tons, more than treble the 99 million tons in Mount Polley's tailings pond in July 2014, according to the company.

Imperial Metals "has provided a commitment" to government ministries and the Tahltan council "to review, respond and implement, as required, the recommendations" of the Klohn report on Red Chris, says David Haslam, MEM spokesman. The ministry is not eliminating use of tailings ponds, even those still in the environmental assessment stage.

Mining companies are "being asked" to "provide a summary report by a qualified professional" on how they considered the panel's recommendations and describe any changes made and "commitments for follow-up work," he says.

However, the Independent Review Panel investigating the Mount Polley failure said, "Improving technology to ensure against failures requires eliminating water both on and in the tailings: water on the surface, and water contained in the interparticle voids. Only this can provide the kind of fail-safe redundancy that prevents releases no matter what."

The panel also predicted that, without changes, there will be two tailings-pond failures every 10 years, based on past performance. It "firmly rejects any notion that business as usual can continue."

The Ministry of Environment, with a \$10- million budget increase this year, will add staff to step up inspections, but Haslam couldn't say how many new inspectors will be hired. The ministry is asking mines to report, by June 30, if their tailings-pond foundation design is similar to Mount Polley's and if it has been properly checked for stability.

Haslam expects that only 10 of the 30 mines now in the environmental assessment and permit process "will actually proceed" in coming years.

The province also is requiring operating mines with tailings ponds to set up independent review boards. Several mines already have these boards in place, says a MEM spokesman.

The recommended dry storage would prevent water from mixing with tailings, especially when trying to protect against acid mine drainage, which is "common in mining ... ubiquitous in mining copper," says David Chambers, mining engineer and president of the Center for Science in Public Participation, Bozeman, Mont.

In fact, he says, "tailings dams fail at a rate 10 times higher than water reservoirs. There is no reason for that."

The metals that get into waterways, such as arsenic, antimony, selenium and thallium, have a longer "life," are harder to remove and are "very toxic to aquatic life," he says. "A very low concentration can cause problems."

That's why transborder rivers, including the Stikine, Unuk and Taku, are crucial to Alaska's consumer, commercial and sport fishing industries, Chambers says. Salmon is the most valued species, culturally and commercially, but steelhead and rainbow trout are also important.

Fish is a part of life for native tribes, both for subsistence and as part of their culture, he says. "These people are part of the land. Their families have been on that land for a thousand years," he adds.

Chris Zimmer, with Rivers Without Borders in Juneau, says mines in the region put fisheries, jobs, culture, water quality and salmon habitat at risk. He says, "The two main threats from the mines are water pollution and contamination of salmon habitat" from chemical, gasoline and diesel fuel spills and tailings spills.

"Tailings from mines like KSM will be a toxic, acidic stew containing heavy metals, such as copper and arsenic, that are known to be very harmful to salmon. And then there is the long-term threat of acid mine drainage after mine closure," Zimmer says. "Tailings will have to be contained essentially forever."

And mines such as KSM, Red Chris and Tulsequah Chief already have completed the environmental assessment process, so the Mount Polley Review Panel recommendations won't apply to them.