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Tailings dam failures to continue, experts say

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A year after Imperial Metals' (TSX: III; US-OTC: IPMLF) Mount Polley copper-gold mine released 25 million cubic metres of waste into B.C.'s Fraser River watershed after its tailings dam broke, a new report claims that the worldwide rate of serious tailings dam failures is increasing.

The report — produced by the Center for Science in Public Participation, a non-profit corporation that provides technical assistance on mining and water quality to public interest groups and tribal governments — warns there will be 11 “catastrophic” tailings dam failures globally between 2010 and 2019 that will cost US\$6 billion to clean up — or an average of US\$543 million for each failure.

“Unless there is a significant change in the way that the industry does business and have safety drive the construction and design of tailings dams, these accidents are going to continue to happen at an increasing rate,” David Chambers, the nonprofit’s president and co-author of the report, says in a telephone interview from his home in Montana.

Chambers, a geophysicist, and colleague Lindsay Newland Bowker, director of Bowker Associates, Science & Research in the Public Interest, found that half of the 67 serious tailings dam failures in the last 70 years occurred between 1990 and 2009.

“These tailings dams fail at a rate that is roughly 10 times that of water supply reservoirs, which just shouldn’t be,” he says.

Indeed, just two days after the disastrous spill at Mount Polley, the Buenavista del Cobre mine in Mexico’s Sonora state — owned by a subsidiary of Grupo Mexico — spilled 40,000 cubic metres of copper sulphate acid into the Sonora and Bacanuchi rivers, 40 km south of the border with Arizona.

Forbes magazine quoted Mexican Environment Minister Juan Jose Guerra Abud describing the spill as “the worst natural disaster provoked by the mining industry in the modern history of Mexico.” Forbes said the contamination “turned the waterways orange and affected the water supply of 24,000 people in seven communities along the rivers, forcing schools to close for several weeks while environmental authorities cleaned up the mess.”

Chambers argues that when mining companies can’t pay for all of the clean-up, taxpayers are saddled with a “subsidy” to the industry. “If companies can pay for it that’s great, but so far that’s not what happens with most of these failures. The public ends up paying for part or all of it. Mount Polley is the exception, not the rule.”

Imperial Metals says it has spent \$61 million on rehabilitation at Mount Polley as of June 30. Steve Robertson, the company’s vice-president of corporate affairs, told *The Northern Miner* he expects a \$67.4-million clean-up bill, though this figure may be revised.

Jack Caldwell, an engineer at Robertson GeoConsultants Inc., a Vancouver-based consulting firm, says improving mine-waste facilities will cost a fortune, but that the cost is “trivial by comparison with the estimated cost of dealing with a breach.”

Caldwell argues that until tailings dams are designed and managed to the highest standards of practice seen at water dams, the statistics on failure rates likely won’t change.

He says that at least all stages of tailings dam design, as well as all reports and drawings, should be peer-reviewed by in-house design consultants, and become an integral part of construction.

An annual tailings facility construction report also should be prepared, he says, and be peer-reviewed by the company preparing it, or a reputable consultant if the mining company prepares it. Then the annual report should be delivered to the regulators and made public.

There should also be an independent tailings review board that is at least as active as those that are in place for the oilsand mines, he argues, and it should report to senior executives at the mining company. “They should report to senior mine management, but their deliberations should not be required to be made public, for they may have tough-love stories to tell,” Caldwell says.

There should also be a report written every four months by a consultant that is independent of the mining company and its design consultants. The reports should document the current condition of each tailings facility, as well as issues considered to exist, and compliance with operations and construction documents. “These reports should be delivered to the regulators and made public immediately — much as it is currently done in South Africa,” he says.

Caldwell recommends that regular dam safety reviews be held by a committee that includes regulators, senior independent engineers, the mine's consultants and mine personnel, and that the dam safety reviews be made public.

"Failing this," he says, "no amount of advice, good will and good practice manuals will change the rate of mine waste management failures."

Caldwell has written papers about tailings dam failures each year for the last three years, and calculates that three or four tailings dam failures occur every 365 days.

Moreover, the failures aren't limited to active tailings dams at producing mines. Last month, millions of gallons of toxic mining waste from an abandoned gold mine in southwestern Colorado spilled into the Animas River, a source of drinking water and irrigation for the surrounding community.

"Some would argue that mine waste management failures come out of nowhere and nobody anticipates them, and the systems don't seem to be able to catch them, in spite of everything we do, say, read and write. And despite regulations and government action, these things seem to slip through the cracks," he says. "Yet long years of statistics seem to support the conclusion that such failures are not black swans, so it follows that mining ingenuity should prevent such failures."

- See more at: <http://www.northernminer.com/news/tailings-dam-failures-expected-to-increase-experts-say/1003703723/#sthash.ByOxI44B.LOJSfvAC.dpuf>