Report on Mount Polley Spill Notes Root Causes, Makes Recommendations



On Aug. 4, 2014, a dam at a tailings pond at the Mount Polley Mine failed, releasing more than 21 million cubic metres of wastewater, contaminated sand and debris into nearby lakes, creeks and rivers.

On Nov. 30, 2015, the Chief Inspector of Mines released his final report on the investigation of the spill. The 200+ page report covers, among other things, the root causes of the release and includes recommendations for mine operators, the mining industry, professional organizations and regulators. Some of these findings have value for all workplaces regardless of industry sector.

Root Causes of Spill

The investigation found that the root causes of this event were organizational:

- Mistaken belief that adequate foundation studies were completed
- Misplaced faith in the 'Factor of Safety' that resulted
- Overconfidence in the reliance on professional judgment
- A narrow planning perspective in mine management
- Failure to adequately understand and act on risk.

More specifically, as to the mining company, the inspector

found that:

- It was the company’s responsibility to maintain a safe structure, irrespective of its reliance on external geotechnical engineering expertise. But it didn’t fulfill this responsibility.
- Delegation of engineering tasks to a contractor with the skills, knowledge and abilities to perform a required task’even when the contractor is licensed and regulated as a professional engineer’doesn’t release the mine from this responsibility.
- The company didn’t recognize the risk of the excavation for the buttress foundation, resulting in a small reduction in the Factor of Safety.
- The company didn’t identify or manage risks associated with changing engineers of record at the tailings storage facility.
- Employees identified concerns regarding steep slope, dam construction material availability, buttress sub-excavation, and supervision but these issues weren’t elevated for action by senior management.
- The mine failed to conduct a risk assessment, which may have been sufficient to identify concerns about the steep geometry, the toe sub-excavation left open and unfilled, and the absence of sufficient site investigations.

Inspector’s Recommendations

The inspector’s recommendations for the mining company, which could apply to other companies, focus on these areas:

Operations manual. The mine manager should ensure that the Operation, Maintenance and Surveillance manual complied with applicable guidelines and includes an annual risk assessment/risk management plan. And the emergency response section of the manual should be written so that it can be effectively utilized during an emergency and be integrated

into the Mine Emergency Response Plan. The inspector noted that an effective and well-implemented operations manual will make all related personnel more attuned to hazard identification and mitigation, knowledgeable in potential downstream consequences and capable in emergency response.

Emergency response plan. An effective emergency response plan gives responding site personnel an actionable plan to implement during an emergency, which can be key to protecting lives and the environment. To that end, the inspector recommended that the mine manager ensure that the Mine Emergency Response Plan:

- Adheres to applicable regulations
- Is maintained on a regular basis for currency
- Incorporates appropriate response measures to emergencies
- Is written and distributed in such format as to serve as a procedural guide during an emergency or other event.

In addition, emergency response plans should be practiced and integrated across possible eventualities at the site allowing for coordination of resources. Training should also be provided to improve effective emergency response. (See, Emergency Response Plan Checklist)

Risk recognition. All mine personnel have a role to play in recognizing and reporting risk conditions, especially those that could affect health, safety and environmental protection, and should be educated in the recognition of conditions and events that could impact safety or violate permits, laws and regulations. An effective reporting mechanism for employees' safety or environmental concerns about the workplace'whether directly or anonymously'should be established, implemented and monitored.

For information on preventing spills such as this one and responding when they do happen, see:

- 6 steps to take to create a spill prevention plan
- Answers to 11 frequently asked questions about responding to spills
- Model spill response and reporting policy
- Environmental incident reporting checklist.