

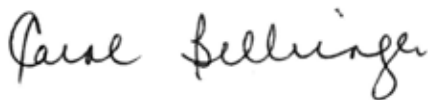
## AUDITOR GENERAL'S COMMENTS

After the failure at Mount Polley and during our audit, we felt it necessary to review MEM's performance as regulator for this site. We noted the same issues in the Mount Polley file as we did throughout the audit – that is, too few resources, infrequent inspections, and lack of enforcement.

Our advice, to reduce the risk that unfortunate and preventable incidents like Mount Polley don't happen again, is for government to remove its compliance and enforcement program for mining from MEM. MEM's role to promote mining development is diametrically opposed to compliance and enforcement. This framework, of having both activities within MEM, creates an irreconcilable conflict. Because compliance and enforcement is the last line of defence against environmental degradation, business as usual cannot continue.

I am therefore disappointed in the resistance to this overall recommendation as it is consistent with many other jurisdictions' response to similar incidences. In addition, it is disconcerting that government will not be disclosing its rationale for decisions that it makes in the public's interest under section 137 of the *Environmental Management Act*. The next opportunity to discuss these and other areas of disagreement and the contents of this report, will be at a meeting of the Select Standing Committee on Public Accounts.

This was a very large and involved audit. I appreciate the dedication and commitment that everyone, both in the ministries and my Office, showed to see it through to completion.



Carol Bellringer, FCPA, FCA  
Auditor General  
May 2016

## SUMMARY

### OTHER COMPLIANCE AND ENFORCEMENT MATTERS

The impacts of an ineffective regulatory regime are increased risks to the environment and the potential for deterioration of the province's water systems, loss of wildlife habitat, and damage to culturally significant areas and values. In recent years, this risk has become a reality and resulted in actual environmental damage, such as at the Mount Polley mine site and in the Elk Valley.

#### Compliance and enforcement at the Mount Polley Tailings Dam

On August 4, 2014, a breach occurred within the Perimeter Embankment of the **tailings storage facility (or tailings dam)** at the Mount Polley copper and gold mine in south-central B.C. The breach resulted in the release of an estimated 25 million cubic metres of wastewater and tailings. The mining company has since been working on the clean-up from this event, but the full extent of the environmental repercussions from the breach are still not known.

In response to this event, government convened an independent, expert, engineering investigation and review panel (panel) to determine the mechanics of **how** the dam failed. Their conclusion was that the primary cause of the breach was dislocation of a part of the Perimeter Embankment due to foundation failure. The specifics of the failure were triggered by the construction of the downstream rockfill zone at a steep slope. They noted that had the downstream

embankment slope been flattened in recent years as proposed in the original design, failure would have been avoided.

Our assessment differed from the panel's review in that we focused on **why** the dam failed and the Ministry of Energy and Mines' (MEM) overall compliance and enforcement activities. We found that the ministry did not ensure that the tailings dam was being built or operated according to the approved design, nor did it ensure that the mining company rectified design and operational deficiencies. MEM continued to allow the mine to operate and to approve permit amendments to raise the tailings dam.

In relation to the Perimeter Embankment where the dam failed, MEM's weak regulatory oversight allowed inconsistencies with the intended dam design to persist over several years. This included: an over-steepened Perimeter Embankment slope and inadequate management of the tailings beach. At the Main Embankment, in addition to accepting a steep embankment slope and an inadequate tailings beach, MEM also did not ensure that buttressing was built to the height and extent included in the dam design.

We concluded that MEM did not enforce the design due to the following:

#### Over reliance on qualified professionals

It is not MEM's practice to carry out its own technical review (or to oversee an independent technical review) to confirm that tailings dams are built in accordance with the design.

## SUMMARY

### Inadequate standards to guide both inspectors and industry

We expected that MEM would have ensured that their design standards were clear for both industry and inspectors to enforce. However, MEM had adopted the Canadian Dam Association's Dam Safety Guidelines for dam construction that were not specific to the conditions in B.C. or specific to tailings dams. These guidelines were open to interpretation by the Engineer of Record and MEM inspectors, and this resulted in a tailings dam that was built below generally accepted standards for tailings dams.

### Inspections did not meet policy

MEM performed no geotechnical inspections for a number of years, even though their policy requires a minimum of an annual inspection. Although these inspections would not have identified the weak foundation layer, staff could have identified that the operator was not actually building or operating the tailings dam to the prescribed design and was raising the dam without any long-term planning. Also, additional inspections would have provided MEM the opportunity for increased onsite vigilance.

### Lack of enforcement culture

MEM has adopted a collaborative approach to compliance and enforcement that emphasizes cooperation and negotiation. In the case of Mount Polley, this approach failed to produce the desired results. MEM has the ability to compel a mining company to take corrective action when necessary, and has done so in the past using enforcement mechanisms under the Act, Code and permit. However, at Mount

Polley, MEM did not use most of these enforcement mechanisms to compel the mine operator to build or operate the dam as designed and intended.

### MoE has not publicly disclosed the risks associated with permitting coal mines in the Elk Valley

Lack of sufficient and effective regulatory oversight and action by MoE to address known environmental issues has allowed degradation of water quality in the Elk Valley. Coal mining, which has been underway in the area for over 100 years, has resulted in high concentrations of selenium in the water system. As selenium accumulates up the food chain, it can affect the development and survival of birds and fish, and may also pose health risks to humans.

For 20 years, MoE has been monitoring selenium levels in the Elk Valley and over that time has noted dramatic annual increases of selenium in the watershed's tributaries. MoE tracked this worsening trend, but took no substantive action to change it. Only recently, has the ministry attempted to control this pollution through permits granted under the *Environmental Management Act*.

We examined the Line Creek Expansion Permit, the Area-Based Management Plan and the Area-Based Management Permit (Valley Permit)<sup>1</sup> to understand how they support MoE's responsibility to minimize risks to the environment. We found that these documents do not address several risks, including the following:

- ◆ MoE staff, with input from external experts, concluded that the selenium levels in the

<sup>1</sup> Line Creek mine is one of five coal mines that Teck Resources Ltd. is operating in the Elk Valley.