
ACTION BORÉALE – ALASKA TROLLERS ASSOCIATION – AMNESTY INTERNATIONAL CANADA – BC FIRST NATIONS ENERGY & MINING COUNCIL – BRITISH-COLUMBIA ENVIRONMENTAL NETWORK – CANADIAN ASSOCIATION OF PHYSICIANS FOR THE ENVIRONMENT – CANADIAN COALITION FOR NUCLEAR RESPONSIBILITY – CANADIAN PARKS & WILDENESS SOCIETY – CENTER FOR ALTERNATIVE MINING DEVELOPMENT POLICY – CLAYOQUOT ACTION – COALITION FOR A CLEAN GREEN SASKATCHEWAN – COALITION POUR QUE LE QUÉBEC AIT MEILLEURE MINE – COMITÉ MINE DE RIEN DE ST-CAMILLE – COMITÉ POUR LES DROITS HUMAINS EN AMÉRIQUE LATINE – COMITÉ VIGILANCE DE MALARTIC – COMMITTEE FOR FUTURE GENERATIONS – COUNCIL FOR PUBLIC HEALTH IN MINING COMMUNITIES – COUNCIL OF CANADIANS - QUILL PLAINS CHAPTER – DAVID SUZUKI FOUNDATION – EARTHWORKS – ECOSYSTEM DEFENSE DIRECTOR – FAIR MINING COLLABORATIVE – FONDATION RIVIÈRES – FOREST PROTECTION ALLIES – FRASER RIVERKEEPER – FRIENDS OF THE CLEARWATER – FRIENDS OF THE EARTH CANADA – GRAND RIVERKEEPER LABRADOR – GROUPE DE THÉOLOGIE CONTEXTUELLE QUÉBÉCOISE – GROUPE SOLIDARITÉ JUSTICE – INTER-CHURCH URANIUM COMMITTEE EDUCATIONAL CO-OPERATIVE – JUST ONE WORLD – KAIROS – KIPAWA LAKE PRESERVATION SOCIETY – MARITIMES-GUATEMALA BREAKING THE SILENCE SOLIDARITY NETWORK – MINING INJUSTICE SOLIDARITY NETWORK – MININGWATCH CANADA – NORTHERN CONFLUENCE – NORTHWATCH – NUCLEAR INFORMATION AND RESOURCE SERVICE – OKANOGAN HIGHLANDS ALLIANCE – ONTARIANS FOR A JUST AND ACCOUNTABLE MINERAL STRATEGY – PATAGONIA AREA RESOURCE ALLIANCE – PEACE-NB – POLARIS INSTITUTE – PRIMATE'S WORLD RELEASE AND DEVELOPMENT FUND – QUESNEL RIVER WATERSHED ALLIANCE – RAPIDE-BLANC PRODUCTIONS – REGROUPEMENT JUSTICE/ENVIRONNEMENT DES SŒURS DE SAINTE-CROIX – REGROUPEMENT POUR LA SAUVEGARDE DE LA GRANDE BAIE DE SEPT-ÎLES – RENEWABLE POWER INTELLIGENT CHOICE – RÉSEAU ŒCUMÉNIQUE JUSTICE ET PAIX – RIVERS WITHOUT BORDERS – ROCK CREEK ALLIANCE – SAVE OUR SKY BLUE WATERS – SCIENCE FOR PEACE – SEPT-ILES SANS URANIUM – SIERRA CLUB – SOCIÉTÉ POUR VAINCRE LA POLLUTION – SOUTHEAST ALASKA CONSERVATION COUNCIL – SQUAMISH ENVIRONMENT SOCIETY – UNION OF BC INDIAN CHIEFS – WATERSHED WATCH SALMON SOCIETY – WEBER SUSTAINABILITY CONSULTING –

July 20, 2015

Canadian Energy & Mines Ministers

- Hon. Bill Bennett, British Columbia Minister of Energy & Mines
- Hon. Margaret McCuaig-Boyd, Alberta Minister of Energy
- Hon. Bill Boyd, Saskatchewan Minister of Energy and Resources
- Hon. Dave Chomiak, Manitoba Minister of Mineral Resources
- Hon. Michael Gravelle, Ontario Minister of Northern Development and Mines
- Hon. Pierre Arcand & Luc Blanchette, Quebec Ministers of Energy, Mines & Natural Resources
- Hon. Donald Arseneault, New Brunswick Minister of Energy and Mines
- Hon. Michel Samson & Zach Churchill, Nova Scotia Ministers of Energy & Natural Resources
- Hon. Paula Biggar & Robert Mitchell, Prince Edward Island Ministers of Energy, Land and Environment
- Hon. Derrick Dalley, Newfoundland Minister of Natural Resources
- Hon. Monica Ell, Nunavut Minister of Energy & Mines
- Hon. Michael Miltenberger, Northwest Territories Minister of Environment & Natural Resources
- Hon. Scott Kent, Yukon Minister of Energy, Mines & Resources

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Re: Changes needed to mine waste management following Mount Polley tailings site failure

Dear Canadian Energy & Mines Ministers,

We are writing on behalf of thousands of Canadians, First Nations representatives, and other concerned organizations regarding the implications of the catastrophic failure of the tailings dam at the Mount Polley mine in British Columbia in August 2014, and the implications for tailings dam design and operational safety at mines throughout Canada.

Based on the findings and recommendations of the [Independent Expert Review Panel](#)¹ of the Mount Polley tailings dam failure – the biggest in Canadian history – we urge Energy & Mines Ministers from all provinces and territories in Canada to take immediate measures to assess and prevent the threat posed by similar tailings disposal sites at existing and proposed mines in Canada.

¹ <https://www.mountpolleyreviewpanel.ca/final-report>

In January 2015, a Panel of independent experts released [its findings](#) from its investigation of the Mount Polley tailings dam failure, a modern impoundment that breached and released over 24 billion litres of solid and liquid mining wastes (tailings) into the surrounding salmon-bearing lakes and rivers. The full extent of impacts and damages caused by this massive failure are still being assessed and could last for decades.² Overall direct and indirect costs are climbing in the hundreds of millions of dollars to date, in addition to a steep cost on the industry's reputation and public trust.³

The Panel concluded that the dam failed because of a faulty design that didn't account for the instability of the glacial till on which it was constructed. The failure and its effects were also exacerbated by unsafe operational practices, including storage of excess water in and on top of the tailings, as well as over-steep dam slopes. The Panel also concluded that the technology itself – wet tailings contained by large dams – was fundamentally and unacceptably dangerous.

The results of the Mount Polley investigation are of significant importance to mine management all across Canada for a number of reasons:

- Like the Mount Polley mine, there are many proposed and existing mines in Canada that are similarly located on potentially unstable foundation materials and/or using large dams and water cover for tailings disposal.
- Long term safety and stability of tailings disposals is a crucial public and environmental safety issue, yet there are no independent agencies responsible for oversight of tailings sites.
- Costs of tailings failures are enormous, both environmentally and economically, and current regulations are not up to speed with best available technologies to prevent them; proper contingency plans and appropriate financial assurance are also lacking.

The Independent Expert Review Panel firmly rejected any notion “that business as usual can continue,” and urged the industry and all regulators to change the way mining tailings facilities are designed, operated, and regulated in order to avoid any future failures: “The Panel does not accept the concept of a tolerable failure rate for tailings dams. To do so, no matter how small, would institutionalize failure. First Nations will not accept this, the public will not permit it, government will not allow it, and the mining industry will not survive it.” The Panel identified critical risk factors and made a number of key recommendations, including:

- Creating Independent Tailings Review Boards (ITRBs) to evaluate tailings facilities' safety.
- Using Best Available Technology (BAT) that fundamentally shifts tailings storage away from tailings ponds that store water to dry tailings, such as recommendations to:
 - a. Eliminate surface water from the impoundment,
 - b. Promote unsaturated conditions in the tailings with drainage provisions, and
 - c. Achieve dilatant conditions throughout the tailings deposit by compaction.

² <http://www.theglobeandmail.com/news/british-columbia/pollutants-from-mount-polley-breach-may-have-long-term-effects-study/article24272988/>, <http://www.theglobeandmail.com/news/british-columbia/mount-polley-tailings-spill-effects-could-last-for-decades/article20596892/>, see also: <http://www.unbc.ca/releases/36934/study-documents-impacts-tailings-impoundment-spill-on-quesnel-lake>, <http://onlinelibrary.wiley.com/doi/10.1002/2015GL063345/abstract>

³ <https://www.biv.com/article/2014/8/prospecting-for-damage-control-in-bc69336/>, <http://globalnews.ca/news/1498222/mount-polley-mine-tailings-pond-breach-is-one-of-the-worst-in-the-world-experts/>, <http://www.vancouversun.com/business/Imperial+Metals+hammered+news+Mount+Polley+mine+waste+breach/10091440/story.html>, <http://www.vancouversun.com/technology/Imperial+Metals+pegs+Mount+Polley+cleanup+cost+million/10389778/story.html>,

- Evaluating tailings facilities for these potential failure modes:
 - a. Undrained shear failure for dams with silt and clay foundation soils.
 - b. Water balance adequacy, including provisions and contingencies for wet years.
 - c. Filter adequacy, especially for dams containing broadly graded soils or mine waste.
- Applying design, construction and safety standards developed specifically for tailings dams, rather than adapting those used for water retention dams.
- Maintaining a detailed tailings dams and facilities inventory database readily accessible for the public and potentially affected communities.
- Permitting tailings facilities based on a bankable feasibility with a detailed evaluation of all potential failure modes and management for all residual risks, ***“including a detailed cost/benefit analyses of best available technologies for tailings and closure options, recognizing that the results of the cost/benefit analyses should not supersede BAT safety considerations.”***

In the wake of the Mount Polley disaster and the Expert Panel report, the British Columbia government has called for an immediate investigation of the safety of all 123 tailings dams within the province, and recently appointed a Mining Code Review Committee to determine how best to implement the Panel’s recommendations. In the words of the B.C. Mine Minister Bill Bennett: ***“It is up to us to ensure that we take a leadership role in Canada and internationally to learn from the Mount Polley incident and do everything we can to ensure it never happens again.”***⁴ The potential for tailings site failures anywhere, including transboundary effects of upstream tailings spills, are also a concern, and the United States and international authorities are also being pressed for parallel commitments.⁵

Consequently, we urge all Energy & Mines Ministers to:

- 1. Work together to support and implement all of the Mount Polley Independent Expert Review Panel’s recommendations to avoid any future similar catastrophic tailings failure in Canada;**
- 2. Take immediate measures to assess the safety of existing and proposed tailings sites in each of the provinces and territories, and maintain an inventory of sites and review results accessible to public;**
- 3. Create Independent Tailings Review Boards, including International Joint Commission reviews for transboundary mines located on the Canada-U.S. border that present a risk to either country’s waters.**
- 4. Recognize that there are certain places where the downstream values are too great to expose to the risks associated with the disposal of tailings sites that must be maintained in perpetuity.**

We look forward to your response and welcome the opportunity for a more detailed discussion on these matters.

Sincerely,

Signed:⁶

⁴ <https://news.gov.bc.ca/stories/government-appoints-mining-code-review-committee-members>

⁵ https://www.earthworksaction.org/media/detail/obama_administration_must_act_to_avoid_mine_waste_disasters

⁶ Organized per province & territory (West to East), then per organizational name (alphabetical)

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This photo shows Hazeltine Creek near the Mount Polley mine site on Sept. 22, 2016. (Jacinda Mack). It also included comments that geochemical studies of mine tailings at the bottom of Quesnel Lake are physically and chemically stable and not releasing metals into the water. Tests conducted by B.C. officials after the disaster also said water quality met provincial guidelines. She said the changes were based on the 25 recommendations of a task force report by Auditor General Carol Bellringer. "We've put more boots, more eyes on the ground," said Mungall. Operations suspended at B.C.'s Mount Polley mine as copper prices decline. Tailings, Mine Waste Management & Mine Closure. Home. Our Expertise. Tailings, Mine Waste Management & Mine Closure. Challenges. More work is needed to make them suitable for today's modern mining operations. Adding to the challenge is the fact that ore grades are continuing to decline as older, higher-grade deposits are being exhausted. These suboptimal grades need significantly larger throughputs at the plant to maintain profitability. Recent failures in the industry are pushing for more highly regulated and lower risk methods of managing tailings. We all must do our part to minimize liability and ultimately eliminate the potential for catastrophic impacts to the environment and downstream communities. Capabilities. Tailings management. The massive tailings pond collapse at British Columbia's Mount Polley mine that spilled millions of cubic metres of waste and water into waterways could face more scrutiny with the release of a major investigation report. B.C. mines inspector tables report on Mount Polley tailings dam failure. The Canadian Press Published Thursday, December 17, 2015 7:45PM EST. Share PDF | Mining environmental management primarily focuses on concerns over the impact of waste disposal on the surface, in the form of tailings and waste | Find, read and cite all the research you need on ResearchGate. Transforming Mining Systems for Waste Management, International Journal of Surface Mining, Reclamation and Environment, 17:2, 123-135. To link to this article: <http://dx.doi.org/10.1076/ijsm.17.2.123.14129> sequence of tailings dam failures in recent years have heightened this awareness. The paradigm has been proposed that "mining companies are waste management companies" [1]. The growth in larger, surface-mined deposits at very low grade has prompted this viewpoint. 20 Tailings dam failures 25 Mine tailings management and disposal 38 Risk, rewards and responsibility 47 Life cycle of mine waste and tailings dams 53 Driving forces for tailings management 58 Opportunities for better tailings management 63 References 65. Tailings dams are complex systems that have evolved over the years. Acknowledging community concerns over the impact of tailings dam failures, such as at Mount Polley and Samarco, this report seeks to examine and explain why tailings dam failures continue to occur. It provides an accessible and balanced description of the complexities surrounding tailings dam failures, informing the global community of the issues.