

# Mount Polley Review Panel Delivers Final Report

***Group of Alaskans Say Mount Polley Mine Report Highlights Threats to Alaska Salmon, Fishing Jobs and Communities from BC Mines***

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**(SitNews) Victoria, B.C. – The Mount Polley Independent Expert Engineering Investigation and Review Panel recently delivered a Final Report on its investigation into the cause of the failure of the tailings storage facility at the Mount Polley Mine on August 4, 2014. The report was delivered to the Ministry of Energy and Mines, the T'exelc First Nation (Williams Lake Indian Band) and the Xat'sull First Nation (Soda Creek Indian Band). The report also contains recommendations on actions that can be taken to ensure a similar failure does not occur at other mine sites in B.C.**

The Panel concluded that evidence indicates the breach was the result of a failure in the foundation of the embankment, a failure that occurred in a glaciolacustrine (GLU) layer of the embankment's foundation.



*Photo from Video of Mount Polley Tailings Storage Facility Breach*  
<https://www.mountpolleyreviewpanel.ca>

According to the Panel's report released January 30, 2015: "The Panel concluded that the dominant contribution to the failure resides in the design. The design did not take into account the complexity of the sub-glacial and pre-glacial geological environment associated with the perimeter embankment foundation. As a result, foundation investigations and associated site characterization failed to identify a continuous GLU layer in the vicinity of the breach and to recognize that it was susceptible to undrained failure when subject to the stresses associated with the embankment."

The report also indicated that the failure was triggered by construction of the downstream rockfill zone at a steep slope. The Panel concluded that had the downstream slope been flattened failure would have been avoided. The slope was in the process of being flattened to meet its ultimate design criteria at the time of the accident.

In its report, the Panel also concludes that there was no evidence that the failure was due to human intervention or overtopping of the perimeter embankments and that piping and cracking, which is often the cause of the failure of earth dams, was not the cause of the breach.

In regard to regulatory oversight, the Panel found that inspections of the tailings storage facility would not have prevented failure. Regulatory staff are well qualified to perform their responsibilities and they performed as expected.

However, a diverse group of Alaskans say the report released January 30th on the Mount Polley mine disaster in British Columbia provides new evidence that mines planned and under construction in the B.C. headwaters of highly productive Southeast Alaska salmon rivers are a threat to multi-billion dollar fisheries and a way of life for thousands of Alaskans. They call for the U.S. State Department to engage in meaningful bilateral discussions with Canada that ensure better safeguards for salmon before such mines are allowed to move forward.

“[The final] report underscores that, when it comes to the safety of large-scale mines, B.C.’s track record speaks for itself. The Mount Polley disaster is a stark example of B.C.’s stewardship of a project that the government and the developer claimed was safe. We can’t let a similar accident taint the rivers of the transboundary region along the border between northwest B.C. and Southeast Alaska,” said Mark Jensen, mayor of Petersburg Borough, one of Southeast Alaska’s largest fishing communities.

The independent review panel appointed by the B.C. government concluded the dam failed due to a design flaw which was not caught in the permitting process. It stemmed from a portion of the dam’s foundation being built on glacial soil that proved to be unstable as the tailings pond grew heavier. One of the engineers on the panel described Mount Polley as a “loaded gun” waiting to go off. The panel recommended that B.C. adopt better practices and use best available technology with safety a priority over economics. Alaskans are concerned that such fundamental changes in B.C. mining practices won’t be adopted due to time and expense and that there is no guarantee that such changes will actually reduce the long-term risks of transboundary mines.

The Mount Polley tailings dam was approved by Canadian regulators to last in perpetuity, yet it failed in less than 20 years. The August 4, 2014, disaster sent an estimated 6.6 billion gallons of toxic mine waste and wastewater into the Fraser River watershed. The Fraser is one of Canada’s most important salmon-producing rivers. The environmental impacts of the spill will take years to fully comprehend, experts have said.

Mount Polley mine owner, Imperial Metals, is constructing a much larger mine, Red Chris, in the northwest B.C. headwaters of the Stikine River, one of Southeast Alaska’s most prolific salmon producers. A recent independent review of the Red Chris tailings storage facility found serious design flaws, raising concerns that a similar Mount Polley-style disaster would contaminate Alaska waters. Despite this, Imperial Metals still plans to open Red Chris mine in early 2015.

“The transboundary region supports fisheries vital to Southeast Alaska. A similar accident at a transboundary mine like Red Chris could release large quantities of tailings that are more toxic than the Mount Polley spill. The Mount Polley disaster was a clear sign that B.C. cannot assure us transboundary waters and fish won’t be polluted by the province’s aggressive mining agenda. The Sitka Assembly passed a resolution in October 2014 urging stronger oversight to ensure that Alaska resources are not harmed by upstream development in B.C. A review by the International Joint Commission would be a step in the right direction,” said Mim McConnell, mayor of the City and Borough of Sitka.

The International Joint Commission is a bilateral commission established by the 1909 Boundary Waters Treaty, charged with resolving transboundary water disputes between the U.S. and Canada.

“Under the Boundary Waters Treaty, the U.S. and Canada are both committed to not polluting waters on their own side of the border to the injury of health or property on the other side of

the border. Canada is not taking their treaty obligation seriously. We ask the State Department to work with Canada to ensure the treaty is respected and our interests are protected,” said Heather Hardcastle, a gillnetter and co-owner of Taku River Reds based in Juneau.

Even before the Mount Polley disaster, Alaskans had been pushing for the U.S. to have an equal seat at the table with Canada in discussions about how and if watersheds shared by both countries are developed. This equal footing currently doesn’t exist. The vast transboundary region is not only home to multi-billion dollar seafood and tourism industries, but to many tribal citizens, as well.

Multiple large-scale, open-pit mines like Red Chris are currently in various stages of development in the watersheds of three productive transboundary salmon rivers, the Taku, Stikine and Unuk, which flow from B.C. into Alaska. These projects raise red flags for many, including tribes, commercial and sport fishermen, tourism operators, municipalities and political leaders who have spoken out in numerous resolutions and letters.

“[Mount Polley Review Panel's] report raises more concerns than it answers. We need to halt these mines from moving ahead until our concerns are addressed. We have the right to be consulted on actions that could harm our culture and livelihoods, even if those actions are happening in Canada. This is why we need the State of Alaska and the State Department to do all they can to defend our way of life in the face of these threats,” said Rob Sanderson Jr., co-chair of the United Tribal Transboundary Mining Work Group, which includes 13 federally recognized tribes.

In late December 2014, despite thousands of objections from Alaskans and Canadians, including Alaska’s congressional delegation and legislators, the Canadian federal government approved KSM, a massive mine project just 19 miles upstream of the Alaska border. Critics compare the size of KSM to Pebble, a hugely controversial mine proposal in Bristol Bay. If built, KSM could leach acid mine drainage, heavy metals and other toxins into the transboundary Unuk River that drains into Misty Fjords National Monument near Ketchikan, Alaska.

Clay Bezenek, a Ketchikan-based gillnetter, is also frustrated with B.C.’s fast-tracked mining plans for projects like KSM.

“The Unuk River has been kept wild by the people of Southeast Alaska. The importance of the health of the Unuk to our commercial seine, gillnet and troll salmon fisheries can’t be overstated. To not have all concerned parties at the table when discussing projects of this magnitude is a mistake. I’m calling on Alaska Governor Bill Walker and on Secretary of State John Kerry to help get us to the table now,” said Bezenek.

The report focuses on the technical and engineering reasons for the Mount Polley dam failure and does not address shortcomings in Canada’s mining regulations that may have contributed to the dam failure. Although the report recommended changes to mining practices, there is no

guarantee any of these measures will be adopted at proposed transboundary mines or if such measures can ensure tailings dams will not fail over the very long term.

“The tailings dams at these mines are environmental time bombs. It’s not a question of if they are going to fail, it’s just a question of when. We just shouldn’t be putting large tailings dams near vital water sources and fish habitat,” said Marsh Skeele, a troller and vice president of Sitka Salmon Shares, a seafood company based in Sitka.

In delivering the Final Report to the Canadian government, T’xelc First Nation (Williams Lake Indian Band), and Xat’sull First Nation (Soda Creek Indian Band), the Panel fulfills its mandate as laid out in its terms of reference. The Report is authored by a review panel of three distinguished geotechnical experts and draws its conclusions and recommendations from an extensive investigation undertaken between August 2014 and January 2015. The investigation and review entailed independent engineering field investigations, data compilation, laboratory testing and analyses. It also involved the inspection of related documents in the files of the Mine, its consultants, and the Ministry of Energy and Mines. The Review Panel also solicited relevant information through a public call for submissions and conducted a number of personal interviews.

The Review Panel examined the historical risk profile of other tailings dams in B.C. and concluded that to avoid risk in the future requires the adoption of Best Applicable Practices (BAP) and the migration to Best Available Technology (BAT). Examples of Best Available Practices call for improvements of corporate design responsibilities, and adoption of independent tailings dam review boards. Examples of Best Available Technology include filtered, unsaturated, compacted tailings and a reduction in the use of water covers in a closure setting.

The Panel made seven recommendations to improve practice and reduce the potential for future failures. Recognizing that the path to zero failures involves a combination of best available technology (BAT) and best applicable practices (BAP), the Panel recommends the following:

1. To implement BAT using a phased approach:

- a. For existing tailings impoundments. Rely on best practices for the remaining active life.
- b. For new tailings facilities. BAT should be actively encouraged for new tailings facilities at existing and proposed mines.
- c. For closure. BAT principles should be applied to closure of active impoundments so that they are progressively removed from the inventory by attrition.

2. To improve corporate governance:

Corporations proposing to operate a tailings storage facility (TSF) should be required to be a member of the Mining Association of Canada (MAC) or be obliged to commit to an equivalent program for tailings management, including the audit function.

3. To expand corporate design commitments:

Future permit applications for a new TSF should be based on a bankable feasibility that would have considered all technical, environmental, social and economic aspects of the project in sufficient detail to support an investment decision, which might have an accuracy of +/- 10-15%. More explicitly it should contain the following:

- a. A detailed evaluation of all potential failure modes and a management scheme for all residual risk
- b. Detailed cost/benefit analyses of BAT tailings and closure options so that economic effects can be understood, recognizing that the results of the cost/benefit analyses should not supersede BAT safety considerations
- c. A detailed declaration of Quantitative Performance Objectives (QPOs).

4. To enhance validation of safety and regulation of all phases of a TSF:

Increase utilization of Independent Tailings Review Boards.

5. To strengthen current regulatory operations:

a. Utilize the recent inspections of TSFs in the Province to ascertain whether they may be at risk due to the following potential failure modes and take appropriate actions

1. Filter adequacy
2. Water balance adequacy
3. Undrained shear failure of silt and clay foundations

b. Utilize the concept of Quantitative Performance Objectives to improve regulator evaluation of ongoing facilities.

6. To improve professional practice:

Encourage the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) to develop guidelines that would lead to improved site characterization for tailings dams with respect to the geological, geomorphological, hydrogeological and possibly seismotectonic characteristics.

7. To improve dam safety guidelines:

Recognizing the limitations of the current Canadian Dam Association (CDA) guidelines incorporated as a statutory requirement, develop improved guidelines that are tailored to the conditions encountered with TSFs in British Columbia and that emphasize protecting public safety.

In presenting its Final Report, Panel Chair Norbert Morgenstern said on behalf of the Panel, “We have been acutely aware of our responsibilities in conducting this investigation. We set out to be thorough, focusing on the technical issues, and to report our findings in an open, transparent and timely manner.”

On the Web:

Full Final Report, Appendices, and Supporting Information  
[www.mountpolleyreviewpanel.ca](http://www.mountpolleyreviewpanel.ca)

Panel Members Biographies  
<https://www.mountpolleyreviewpanel.ca/sites/default/files/Mount%20Polley%20Final%20Report%20BG%20Panel%20Bio%20FINAL.pdf>

Mount Polly Tailings Storage Facility Breach Media Presentation  
[https://www.mountpolleyreviewpanel.ca/sites/default/files/MountPolley\\_Media%20Briefing%20Presentation\\_Jan%2030\\_Final\\_2.pdf](https://www.mountpolleyreviewpanel.ca/sites/default/files/MountPolley_Media%20Briefing%20Presentation_Jan%2030_Final_2.pdf)

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Mark Jensen, Mayor, Petersburg Borough  
[www.petersburgak.com](http://www.petersburgak.com)

Mim McConnell, Mayor, City and Borough of Sitka  
[www.cityofsitka.com](http://www.cityofsitka.com)

Clay Bezenek, commercial salmon gillnetter  
Ketchikan, AK

Rob Sanderson Jr., 2nd Vice President, Central Council of Tlingit and Haida Indian Tribes of Alaska and Co-chair, United Tribal Transboundary Mining Work Group

Marsh Skeele, commercial salmon troller and Vice President, Sitka Salmon Shares

Heather Hardcastle, commercial salmon gillnetter and co-owner, Taku River Reds

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