

**From:** [Musgrove, Kate MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Subject:** Mt. Polley Incident  
**Date:** Wednesday, August 6, 2014 9:23:12 AM

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Hi David s.22 As you are probably aware, there has been a breach of the tailings pond at Mount Polley. Minister Bennett is currently in Williams Lake. Dave N. s.22  
s.22 and will probably be in the office either this afternoon or tomorrow morning.

s.22

We may

set up a meeting for yourself and staff for Saturday morning.

Nathaniel is currently in a meeting with GCPE staff and AI, once he comes out, I am having him forward you a summary of what is currently happening in terms of communications and coordination.

Best,

**Kate Musgrove**

Executive Assistant to  
David Morel, Assistant Deputy Minister  
Ministry of Energy and Mines  
Mines and Mineral Resources Division  
250.952.0470

**From:** [Amann-Blake, Nathaniel MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Hoffman, Al MEM:EX](#)  
**Subject:** FW: Updated Com Materials for Mt Polley  
**Date:** Wednesday, August 6, 2014 10:29:37 AM  
**Attachments:** [KM MtPolleyTailingsBreach.docx](#)  
[Q&A MtPolleyTailingsPondBreach-Aug2014.docx](#)  
[Mt Polley Mine Breach Aug 5 7 pm.docx](#)  
[MA Mount Polley update Aug.6 2014 #1.docx](#)

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Hi David,

Providing latest FYI. Al is lead as A/ADM and CIM.

We are working with GCPE to group the media Q's and provide standard responses for time being.

We are also recommending that we make publicly available the permit, the Sept 2013 geotech inspection report, and the proponent's Dam Safety Report and Reclamation Report (which inc water quality). Will run by Karen's FOI group and also flag for company.

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**From:** Haslam, David GCPE:EX

**Sent:** Tuesday, August 5, 2014 7:39 PM

**To:** Bennett, Bill MEM:EX; Sandve, Chris MEM:EX

**Cc:** Chin, Ben PREM:EX; Sweeney, Neil PREM:EX; Mills, Shane LASS:EX; Southern, Evan PREM:EX; Gordon, Matt GCPE:EX; Hoffman, Al MEM:EX; Standen, Jim ENV:EX; Koncohrada, Karen MEM:EX; Groot, Jeff GCPE:EX; Amann-Blake, Nathaniel MEM:EX; Ritchie, Leanne GCPE:EX; McCaffrey, Julianne GCPE:EX; Quealey, Pat JAG:EX

**Subject:** Updated Com Materials for Mt Polley

Minister/Chris – and all. Attached are updated:

Key Messages

QA

Situation Report as of 7 pm

I will share with all GCPE com directors and managers to forward to their MO's.

## Mt Polley Tailings Breach Key Messages

### On the breach at Mt. Polley dam:

- We are devoting every appropriate resource to working with local officials to clean up the site, mitigate any impacts to communities and the environment, and investigate the cause of the breach
- We will determine the cause of the event and we are determined to prevent an incident like this from happening again
- Any potential environmental impact from the tailings pond water on the local watershed is unknown at this time but all efforts are being made to make a determination as soon as possible
- There is a precautionary water ban advisory not to drink or bathe in the water and not to allow pets or livestock to drink the water
- Water tests have been sent for analysis and will determine the full extent of potential environmental impacts with results expected later this week
- Mine Inspectors are on-site investigating the cause of the breach and I can't speculate on the findings

### On Mt Polley mine and the process moving forward:

- The investigation determining what caused the breach will take several months
- Inspectors of Mines and other agencies will undertake a comprehensive investigation of the failure to determine root causes for the breach
- Lessons learned will be applied to other mines in the province as appropriate
- Imperial Metals announced that the mine is now in care and maintenance and not operating

### On previous incidents and mine safety:

- In the last 40 years, there have been no tailings dam breaches of this magnitude in BC
- The Mount Polley mine has a valid Mines Act permit and the company has been generally compliant with the Health, Safety and Reclamation Code and their Mines Act permit conditions

- The Ministry of Energy and Mines conducted a geotechnical inspection at the mine in September 2013, which resulted in no inspection orders related to the tailings facility
- BC has some of the highest safety standards when it comes to permitting and operating mines and Imperial Metals would not have received any approvals to operate in BC if they had not measured up to those standards

Background:

Update

Minister Bennett arrived on-site on August 5<sup>th</sup>, 2014 with support from other ministry staff and Geotech Engineers are on the ground to determine cause of the breach and will conduct an investigation going forward.

Minister Bennett is in Likely attending meetings where he is engaging local residents and media about the current situation and the steps being taken to mitigate as many impacts as possible for those affected in the coming days.

Incident:

Early in the morning of August 4 the tailings pond dam at the Mt. Polley Mine site breached and released an estimated 10 Million cubic metres of water and 4.5 million cubic metres of fine sand into Polley Lake. Hazletine Creek flows out of Polley Lake and the flow of contaminated water continued into Quesnel Lake. The flow out of the breach has decreased dramatically, but has not completely stopped. This is a large breach and extremely rare. Ministry of Energy and Mines officials do not recall anything of this magnitude.

The environmental impact of the contaminated water on the local watershed is unknown at this time. Cariboo Regional District issued a water ban advisory not to drink or bath in the water.

The waterways affected by the ban, which earlier included Quesnel Lake, Polley Lake, Hazeltine Creek and Cariboo Creek, now also include the entire Quesnel and Cariboo Rivers systems right up to the Fraser River.

## **Q&A – Mount Polley Tailings Pond Breach**

### **Has it been stopped? If no, when can we expect it to?**

- The tailings flow from the dam has slowed considerably
- The ground around the breach, Polley Lake, the Hazeltine Creek is still stabilizing
- The public has been asked to stay away from this area and boaters on Quesnel Lake should stay away from Hazeltine Creek Lake and Quesnel Lake

### **When was the last time there was a major tailings pond breach like this in BC?**

- In the last 40 years, there have been no major tailings dam breaches of this magnitude in BC

### **What is Imperial Metal's track record? Have they had similar incidents?**

- In general, Imperial Metals has been compliant with the Health, Safety and Reclamation Code and their Mines Act permit conditions
- BC has some of the highest safety standards when it comes to permitting and operating mines and Imperial Metals would not have received any approvals to operate in BC if they had not measured up to those standards

### **What are the next steps in the process?**

- Inspectors of Mines and other agencies will undertake a comprehensive investigation of the failure to determine root causes if possible
- Lessons learned will apply to other mines in the province

### **How long will the process take?**

- The investigation determining what caused the breach will take several months

### **Has the mine been shut down? For how long?**

- The mine cannot operate without a location to store tailings
- Imperial Metals announced that the mine is now in care and maintenance

### **Given the incident at Mt. Polley, will you be inspecting all mines with tailings ponds....and when?**

- If the investigations shows early on that the breach was a result of a design failure or practise at Mt. Polley then directions will be given to other applicable mine sites and inspections will be undertaken at other applicable mines in BC
- Any and all lessons learned once the investigation is completed will apply to other mines in the province

### **How does BC compare to other jurisdictions on tailing pond breaches?**

- BC has experienced a very positive record. This is the first significant tailings dam failure in recent history.

**What are the potential penalties if it has been determined Imperial Metals did not follow regulations?**

- It's too early to determine whether Imperial Metals did not follow regulations
- Prosecution is possible pursuant to Section 37 of the BC Mines Act. This can be applied to a person who contravenes a provision of the Act, Code or the regulation or who impedes an investigation
- The decision to prosecute is made by Crown Counsel based on evidence that we collect

**How many other mines does Imperial Metals operate in BC?**

- Imperial Metals has a half interest in Huckleberry Mine near Houston, BC and Red Chris Mine is under construction and nearing operation status in Northwest BC

**How does this impact the economic health of the mining industry?**

- This is difficult to assess at this time. It will certainly bring more scrutiny to mine permitting processes
- Having said that, mining has a significant history and a promising future in BC
- Not only has the mining industry helped shape British Columbia over the last 150 years, it will play an important role in creating a strong and stable economic future

**What is the Mt Polley dam's track record? Have there been any deficiencies noted?**

- Mount Polley is up to date with geotechnical reporting requirements, including the annual dam safety inspection requirements. The Ministry of Energy and Mines conducted a geotechnical inspection at the mine in September 2013, which resulted in no inspection orders related to the tailings facility.
- The Mount Polley mine has a valid Mines Act permit. The company has been generally compliant with the Health, Safety and Reclamation Code and their Mines Act permit conditions.

**How was the dam at Mt Polley being operated?**

- Mount Polley Mining Corporation (the Permittee) is currently authorized by the Ministry of Environment to discharge 1.4 million cubic metres of water per year into Hazeltine Creek
- The company recently submitted an application in July 2014 to increase the volume of treated water to be discharged from the site to 3 million cubic metres per year

**What follow up actions does the ministry take and does it trigger a review of other province wide mining operations?**

- Inspectors of Mines and other agencies will undertake a comprehensive investigation of the failure to determine root causes if possible
- Lessons learned will be applied to other mines in the province as appropriate



**Who is responsible for the cleanup? Does the situation change if Imperial Metals goes bankrupt?**

- Clean up from this accident is the responsibility of the company
- The ministry holds \$14.5 million in security bonding for the Mt Polley mine in the event that the company defaults on its responsibilities.

**The 2011 Gary Olding report implies the dam was overbuilt because a water discharge permit was delayed – is this true?**

- The cause of the breach is under investigation and I can't speculate on the findings.
- Mount Polley is up to date with geotechnical reporting requirements, including the annual dam safety inspection requirements.
- The Ministry of Energy and Mines conducted a geotechnical inspection at the mine in September 2013, which resulted in no inspection orders related to the tailings facility.

**Further background on the Olding Report & Recent permit history:**

- Mt Polley has had an effluent permit (#11678) with the Ministry of Environment since 1997.
- Mount Polley mine operates with an annual water surplus, and had 6.5 Mm3 (million cubic metres) of water stored in the Tailings Storage Facility.
- In 2009 Mt Polley applied for an permit amendment to discharge up to 1,400,000 m3/y of dam seepage effluent from the tailings storage facility to nearby Hazelton Creek. The amended permit limits discharge to 35% of that creek's daily flowrate, with contaminant limits, and requires an annual discharge plan.
- Prior to this permit being granted concerns were raised about the proposal, prompting an independent report by a third party.
- This report was commissioned to provide a review of the application submitted, requesting authority to discharge water from the mine to Hazelton Creek.
- The scope of the third party review included consideration of the environmental impacts on the receiving environment, monitoring of the discharge, and management conditions pertaining to the discharge. These recommendations were considered carefully in the amendment process and provided a basis for some of the conditions in the amended permit, which was approved in 2012.
- Mt Polley has since submitted a further permit amendment request to discharge up to 3,000,000 m3/y of treated effluent (ditch water) to Polley Lake, which overflows to Hazelton Creek.
- This application was received by the ministry this summer, and is being considered.

**How many active metal mines are there in BC?**

**Ministry of Energy and Mines - Active metal Mines – as of Aug 2014**

Mine Name	Company	Commodity	Location	Production Start
Bralorne	Bralorne Gold Mines Ltd	Gold	Near Whistler/Pemberton	May 2011
Copper Mountain	Copper Mtn Mining Corp	Copper, gold, silver	Near Princeton	June 2011
Endako	Thompson Creek Minerals	Molybdenum	Near Fraser Lake	1965
Gibraltar	Taseko Mines Ltd	Copper,	Near Williams Lake	Re-opened by

		molybdenum		Taseko in 2004 (previously operated 1972– 1998)
Highland Valley Copper	Teck Resources Ltd	Copper, molybdenum	Near Ashcroft	1986 (this is when the Lornex and Valley Copper mines merged)
Huckleberry	Imperial Metals Corp	Copper, molybdenum	Near Houston	1997
Mount Polley	Imperial Metals Corp	Copper, gold, silver	Near Williams Lake	Re-opened 2005 (previously operated 1997 to 2001)
Mt. Milligan	Thompson Creek Metals Company	Copper, gold, silver	156 km northwest of Prince George	August 2013
Myra Falls	Nyrstar Inc	Copper, gold, silver, lead, zinc	Near Campbell River	circa 1966
New Afton	New Gold Inc	Gold	Near Kamloops	June 2012
Bonanza Ledge	Barkerville Gold	Gold		July 2014

**Note\*** Bonanza Ledge does not have a tailings impoundment



## **Mt. Polley Mine Dam Breach – August 5, 2014 – 7 pm**

Below is an update on the current status and steps being taken as of August 5, 2014 – 7 pm as reported out by the Ministry of Energy and Mines, Ministry of Environment, Cariboo Regional District, Emergency Management BC and Imperial Metals. Today's 9:30 am update follows. As more information becomes available it will be communicated to the public and the media.

### **Ministry of Energy and Mines Actions**

- Released a statement province-wide at 10:30 am from Minister of Energy and Mines Bill Bennett expressing government concerns and actions to date
- Minister Bennett flew to Williams Lake arriving 2:30 pm and began an extensive media availability and attended the 4 pm community meeting in Likely
- MEM GCPE arranging and confirming potential media availability in Williams Lake Aug 6 at 1 pm. Public Safety communications director will be on site to provide support if it moves forward
- Geotech Engineers are on the ground to determine cause and plans going forward.
- Local West Fraser is sending two tug boats, being deployed to gather log debris and monitor water levels
- The water flows have slowed but not stopped. Efforts are being made to keep water to 1.7m or less to prevent overflow over tails.
- 3rd party water sampling to occur on Quesnel Lake. Should be on the lake tomorrow.
- Drones will be deployed for recon.
- First Nations asked why then fish floating dead. Mine rep said not from chemicals, likely bodily injury from rush of debris -Traditional lands for Williams Lake and Soda Creek FN and said major concerns but no contact from industry. Suggested they send a liaison to the Emergency Operation Center if the Regional District agrees
- Was noted that no breach of this magnitude in 40 years

### **Ministry Of Environment Actions**

- Sent a boat crew for visual recon and collect some samples
- Samples were taken for metals and ions, as well as bacterial
- The lake profile looks doesn't look too unusual, PH levels are ok, while turbidity is slightly elevated. Additional sampling is taking place.
- No dead fish observed for the 12hrs they were on Quesnel Lake
- Northern Health notes MoE asked her what to test, asks for frankness on what is in the tailings, that turbidity is not really relevant
- FN wants Mt Polly wants to do monitoring per their agreements
- Will be collecting upstream samples as well, though priority given to downstream.
- MoE to do daily sampling and noted the company has their own contractor in place to take over.
- It was noted three days is earliest for sample results in part because it is hard to transport out of Williams Lake.
- Some samples were retained as legal samples, but those they can share they will
- -Dr Parker, Hlth, asked if safe for the kids camp on Quesnel Lake (N/E of Hazeltine lake) can swim safely. He's not comfortable saying it's safe until samples returned.
- D. Weir from water stewardship says they will be ordering containment and in absence of an MoE order, will order Polley Lake elevation levels.

### **Cariboo Regional District Actions**

- Held a 4 pm community meeting in Likely attended by about 200 people and media
- Water is being supplied to those that need it.
- There is strong desire to get the message out that the Cariboo is not closed for business/tourism
- They are communicating directly to media and via Facebook
- Parks asking if Cedar Pt Park needs to continue to be closed.
- Those along Quesnel Lake were asked to leave (three campers) due to road impacts.

### **Emergency Management BC Actions**

- Confirmed communications director for Public Safety will arrive in Williams Lake Aug 6 at 9:30 am to provide communications support

### **Imperial Metals Actions**

- Imperial Metals CEO Brian Kynock held a 3 p m press conference where the company he addressed the drinking ban, stating we should err on the side of caution.
- He stated the wastewater is not toxic and almost meets drinking water standards. But the discharge of solids remains a concern
- Kynock apologized and says he knows it's going to take a long time to earn the community's trust back.

## **Mt. Polley Mine Dam Breach – August 5, 2014 – 9:30 am**

### **Situation**

Mt. Polley Mine is owned by Imperial Metals and is approximately 30 kms from the community of Likely. The tailing pond at Mt. Polley Mine is 4 kms by 4 kms. Exact volume is unknown.

Early in the morning of August 4 the tailings pond dam at the Mt. Polley Mine site breached and released an estimated 10 Million cubic metres of water and 4.5 million cubic metres of fine sand into Polley Lake. Hazletine Creek flows out of Polley Lake and the flow of contaminated water continued into Quesnel Lake. The flow out of the breach has decreased dramatically, but has not completely stopped. This is a large breach and extremely rare. Ministry of Energy and Mines officials do not recall anything of this magnitude in at least the last 25 years.

RCMP, Mt. Polley Mine executives, Ministry of Environment, Emergency Management BC, Ministry of Transportation, Cariboo Regional District, Search and Rescue and Cariboo Dam Safety, responded to the event.

Cause of the breach is unknown at this time. The environmental impact of the contaminated water on the local watershed is unknown at this time. Effluent from copper-gold mine operations can include such harmful chemicals as arsenic, mercury, and sulphur.

Cariboo Regional District issued a water ban advisory not to drink, bath or feed livestock drawn from the following waterways - including Quesnel Lake, Polley Lake, Hazeltine Creek and Cariboo Creek, and the entire Quesnel and Cariboo Rivers systems right up to the Fraser River.

The ban does not apply to people in Williams Lake, Quesnel or other towns along the Fraser River. Fishing by First Nations along the Fraser is also not affected.

Initially it was believed the small town of Likely was not directly affected because it was unclear how many people in the town used water from Quesnel Lake. Since then, the Cariboo Regional District has decided to start delivering water to Likely because the main supplier of bottled water in the area, a small grocery store, could not keep up with the demand.

There have been no reports of injuries or people getting sick from drinking water. There have been no reports of property damage. Search and rescue crews notified campers in the immediate area, and it appears they have set up camp elsewhere without any problems.

### **Emergency Management BC Actions**

Emergency Management BC and its Northeast Provincial Regional Emergency Operations Centre in Prince George is assisting the Cariboo Regional District Emergency Operations Centre with the coordination of information and support to decision making. EMBC is also supporting search and rescue crews going door-to-door to recommend evacuation from park sites and notify water users of the water ban. Due to the influx of tourists in to the area over the long weekend, the numbers of people affected is unconfirmed but the Cariboo Regional District estimates range up to 300.

Concerns have been raised about boating safety on Mount Polley Lake and EMBC was advised August 8 a qualified individual is being brought to boom the wood debris on Quesnel Lake at the outlet of Hazeltine Creek. This work should start within the next day or two.

A public information line has been set up by the Cariboo Regional District, 250-398-5581, and updates will be posted to the Cariboo Regional District's emergency operations Facebook page.

### **Ministry of Environment Actions**

The Ministry says it further water testing will be required before the full extent of potential environmental impacts can be known. Water sampling took place the evening of Aug 4th. Samples will be sent for analysis on Aug 5th, with results expected within 3 days. MoE conservation officers are investigating the breach, with MEM mine inspectors.

### **Ministry of Energy and Mines Actions**

The Ministry of Energy and Mines sent two mine inspectors to investigate the cause and monitor the site by helicopter. The first report is expected August 5. Media have reported the Mt. Polley dam breached three months ago and that mine employees warned Imperial Metals executives it could happen again. MEM officials investigated the incident on May 24 and have said internally it was not a breach. It was a problem in how they managed the height of the water behind the dam and in a different area than the dam failure. The height of the water at the time of the breach will form part of the investigation. To date, Imperial Metals has been compliant with respect to recent orders regarding dam safety inspections.

### **Imperial Metals Actions**

Released a statement acknowledging the breach, does not know the cause, and is working with government officials. Imperial Metals CEO is now on site.

August 6, 2014

Ministry of Energy and Mines

MEDIA ADVISORY

WILLIAMS LAKE – Bill Bennett, Minister of Energy and Mines and Responsible for Core Review will provide an update on the Mount Polley tailings pond breach today in Williams Lake.

Bennett will available to province-wide media via media conference call.

Event Date: August 6, 2014

Time: 1 p.m.

Location:

XXXX

XXXX

Williams Lake, BC

Special Instructions:

Dial in numbers:

1-XXXXXXX toll free from Canada

604-XXXXXXX from Vancouver

Participant Pass Code: 64555#

Contact: Jake Jacobs  
Media Relations  
Ministry of Energy and Mines and  
Responsible for Core Review  
Ph. 250 952-0628

**From:** [Brody, Margo X MEM:EX](#)  
**To:** [dreimer@mountpolley.com](#); [afrye@mountpolley.com](#); [jlove@imperialmetals.com](#); [dparsons@imperialmetals.com](#)  
**Cc:** [Hoffman, Al MEM:EX](#); [Musgrove, Kate MEM:EX](#); [Morel, David P MEM:EX](#); [Howe, Diane J MEM:EX](#); [Booth, Richard MEM:EX](#); [Thorpe, Rolly MEM:EX](#); [Narynski, Heather M MEM:EX](#); [Rothman, Stephen MEM:EX](#); [Demchuk, Tania MEM:EX](#); [Bellefontaine, Kim MEM:EX](#); [Warnock, George MEM:EX](#); [Bunce, Hubert ENV:EX](#); [Matscha, Gabriele ENV:EX](#); [McGuire, Jennifer ENV:EX](#)  
**Subject:** FW: Mount Polley Safe work procedures  
**Date:** Thursday, August 7, 2014 5:11:24 PM  
**Attachments:** [Mount Polley August 7 2014.pdf](#)

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Hello Mr. Reimer,

In the PDF attachment is a copy of a letter signed by the Chief Inspection regarding Safe Work Procedures for Sampling.

The signed paper copy will be in the mail to you today.

Please let me know if you are unable to open the attachment.

Thank you.

**Margo Brody**

Branch Coordinator

Health, Safety and Permitting Branch

Ministry of Energy and Mines

250 952 0793

**Subject:** Mount Polley Safe work procedures



August 7, 2014

Mr. Dale Reimer  
Mine Manager  
Mount Polley Mining  
Box 12  
Likely, BC V0L 1N0

Mine: 1101163  
ORCS: 19020-40

By mail and email: [dreimer@mountpolley.com](mailto:dreimer@mountpolley.com); [afrye@mountpolley.com](mailto:afrye@mountpolley.com); [jlove@imperialmetals.com](mailto:jlove@imperialmetals.com); [dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)

Dear Mr. Reimer:

**Re: Safe Work Procedures for Sampling**

**Order One**

Pursuant to Part 1.1.2 of the Health Safety and Reclamation Code for Mines in British Columbia, the Mine Manager is ordered to submit a safe work procedure for all water or materials sampling being conducted in and around the tailings storage facility, downstream of the dam breach, Polley Lake, the outlet of Hazeltine Creek and in Quesnel Lake.

This safe work procedure shall be submitted by August 8, 2014 and prior to further sampling work requiring personnel to be in proximity of the outlet of Hazeltine Creek in Quesnel Lake.

**Order Two**

Pursuant to Part 1.1.2 of the Health Safety and Reclamation Code for Mines in British Columbia, the Mine Manager is ordered to submit safe work procedures for all work being conducted on or off the mine site related to the tailings dam breach. This is including but not limited to Polley Lake dewatering activities and construction of the temporary containment berm upstream of the dam breach.

This safe work procedure shall be submitted by August 8, 2014.

Sincerely,

Al Hoffman, P.Eng.  
Chief Inspector of Mines

.../2



Cc: Mr. David Morel, Assistant Deputy Minister, MEM  
Ms. Diane Howe, Deputy Chief Inspector of Mines, Permitting and Reclamation, MEM  
Mr. Richard Booth, A/Deputy Chief Inspector of Mines Health and Safety, MEM  
Mr. Rolly Thorpe, Deputy Chief Inspector of Mines, Health and Safety, MEM  
Ms. Heather Narynski, Senior Geotechnical Inspector, MEM  
Mr. Stephen Rothman, Senior Inspector of Mines, Kamloops, MEM  
Ms. Tania Demchuk, Senior Environmental Geoscientist, MEM  
Mr. George Warnock, Manager, Geotechnical Engineering, MEM  
Mr. Art Frye, Chief Operating Manager, Imperial Metals Corporation  
Mr. Jack Love, Environmental Superintendent, Imperial Metals Corporation  
Mr. Don Parsons, Chief Operating Officer, Imperial Metals Corporation  
Mr. Hubert Bunce, Environmental Protection, Mining Operations Director, MOE  
Ms. Gabi Matscha, Environmental Quality Section Head, Ministry of Environment  
Ms. Jennifer McGuire, Executive Director, Environmental Protection Division, MOE



<u>Name</u>	<u>Title</u>	<u>Phone Number</u>	<u>Cell Number</u>	<u>Email</u>
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Heather Narynsky	Senior Geotechnical Inspector	250-387-0883	250-893-3396	Heather.Narynski@gov.bc.ca
George Warnock	Geotechnical Engineering Manager	250-565-4457	778-679-5228	George.Warnock@gov.bc.ca
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Stephen Rothman	Senior Inspector of Mines	250 371-3780	250-319-2054	Stephen.Rothman@gov.bc.ca
Chris Carr	Contractor - Square Peg Enterprises	250 544-0763	778-679-0369	s.22
Rolly Thorpe	Deputy Chief Inspector of Mines, Health & Safety	250-952-0471	250-360-7594	<a href="mailto:rolly.thorpe@gov.bc.ca">rolly.thorpe@gov.bc.ca</a>
Haley Koppers	Provincial Health and Safety Specialist	250-387-4808	778-677-0624	<a href="mailto:haley.koppers@gov.bc.ca">haley.koppers@gov.bc.ca</a>

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**Cc:** [Hoffman, Al MEM:EX](#); [Musgrove, Kate MEM:EX](#); [Morel, David P MEM:EX](#); [Howe, Diane J MEM:EX](#); [Booth, Richard MEM:EX](#); [Thorpe, Rolly MEM:EX](#); [Narynski, Heather M MEM:EX](#); [Rothman, Stephen MEM:EX](#); [Demchuk, Tania MEM:EX](#); [Bellefontaine, Kim MEM:EX](#); [Warnock, George MEM:EX](#); [Bunce, Hubert ENV:EX](#); [Matscha, Gabriele ENV:EX](#); [McGuire, Jennifer ENV:EX](#)  
**Subject:** August 8 2014 Tailings Breach Remediation at Mount Polley  
**Date:** Friday, August 8, 2014 9:17:09 AM  
**Attachments:** [Mount Polley August 8 2014.pdf](#)

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Hello Mr. Reimer,

Please find enclosed in the attachment a letter from the Chief Inspector regarding Tailings Breach Remediation.

The signed paper copy will be in today's mail to you today. Please let me know if you are unable to open the attachment.

Thank you,

**Margo Brody**

Branch Coordinator

Health, Safety and Permitting Branch

Ministry of Energy and Mines

250 952 0793



August 8, 2014

Mr. Dale Reimer  
Mine Manager  
Mount Polley Mining  
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[jlove@imperialmetals.com](mailto:jlove@imperialmetals.com); [dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)

Dear Mr. Reimer:

**Re: Notice of Work (Polley Lake) – Tailings Breach Remediation**

I am in receipt of your August 7, 2014 letter entitled “Notice of Work (Polley Lake) – Tailings Breach Remediation”. I understand this letter is to provide notification of emergency works you will be undertaking to mitigate the risk of a breach of the tailings and debris plug located in Polley Lake.

Please continue to provide me with regular updates as the work proceeds.

I also remind you of my two orders of August 7, 2014 to ensure Safe Work Procedures are in place for all work on and off the mine related to the tailings breach.

Sincerely,

Al Hoffman, P.Eng.  
Chief Inspector of Mines

.../2

Cc: Mr. David Morel, Assistant Deputy Minister, MEM  
Ms. Diane Howe, Deputy Chief Inspector of Mines, Permitting and Reclamation, MEM  
Mr. Rolly Thorpe, Deputy Chief Inspector of Mines, Health and Safety, MEM  
Ms. Heather Narynski, Senior Geotechnical Inspector, MEM  
Mr. Stephen Rothman, Senior Inspector of Mines, Kamloops, MEM  
Ms. Tania Demchuk, Senior Environmental Geoscientist, MEM  
Mr. George Warnock, Manager, Geotechnical Engineering, MEM  
Mr. Art Frye, Chief Operating Manager, Imperial Metals Corporation  
Mr. Jack Love, Environmental Superintendent, Imperial Metals Corporation  
Mr. Don Parsons, Chief Operating Officer, Imperial Metals Corporation  
Mr. Hubert Bunce, Environmental Protection, Mining Operations Director, MOE  
Ms. Gabi Matscha, Environmental Quality Section Head, Ministry of Environment  
Ms. Jennifer McGuire, Executive Director, Environmental Protection Division, MOE

**From:** [Hoffman, Al](#) MEM:EX  
**To:** [Nikolejsin, Dave](#) MEM:EX; [Koncohrada, Karen](#) MEM:EX  
**Cc:** [Morel, David P](#) MEM:EX; [Demchuk, Tania](#) MEM:EX; [Bellefontaine, Kim](#) MEM:EX; [Howe, Diane J](#) MEM:EX; [Amann-Blake, Nathaniel](#) MEM:EX  
**Subject:** RE: Polley Lake - Tailings Breach Remediation  
**Date:** Friday, August 8, 2014 9:21:51 AM

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Dave I missed the second question.

MOE is aware of the plan to discharge to Hazeltine Creek. No one is able to confirm that the discharge will not increase contamination to Quesnel Lake; however, to be clear these efforts are to ensure that the plug of tailings at the end of Polley Lake does not fail and cause further large volumes of tailings and supernatant to be released.

Al

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**From:** Nikolejsin, Dave MEM:EX  
**Sent:** Friday, August 8, 2014 7:59 AM  
**To:** Koncohrada, Karen MEM:EX; Hoffman, Al MEM:EX  
**Subject:** Re: Polley Lake - Tailings Breach Remediation  
Thanks.

Can someone tell me the difference between the solid yellow line depicting the pipeline route, and the dashed line?

Also - can you confirm moe has seen this and are in agreement that the discharge point will NOT increase contamination in Quesnel lake?

Thanks.

Dave Nikolejsin  
Deputy Minister  
Energy and Mines

On Aug 8, 2014, at 5:41 AM, "Koncohrada, Karen MEM:EX" <[Karen.Koncohrada@gov.bc.ca](mailto:Karen.Koncohrada@gov.bc.ca)> wrote:

FYI

Begin forwarded message:

**From:** "Hoffman, Al MEM:EX" <[Al.Hoffman@gov.bc.ca](mailto:Al.Hoffman@gov.bc.ca)>  
**To:** "Haslam, David GCPE:EX" <[David.Haslam@gov.bc.ca](mailto:David.Haslam@gov.bc.ca)>  
**Cc:** "Amann-Blake, Nathaniel MEM:EX" <[Nathaniel.Amann-Blake@gov.bc.ca](mailto:Nathaniel.Amann-Blake@gov.bc.ca)>, "Narynski, Heather M MEM:EX" <[Heather.Narynski@gov.bc.ca](mailto:Heather.Narynski@gov.bc.ca)>, "Demchuk, Tania MEM:EX" <[Tania.Demchuk@gov.bc.ca](mailto:Tania.Demchuk@gov.bc.ca)>, "Bellefontaine, Kim MEM:EX" <[Kim.Bellefontaine@gov.bc.ca](mailto:Kim.Bellefontaine@gov.bc.ca)>, "Koncohrada, Karen MEM:EX" <[Karen.Koncohrada@gov.bc.ca](mailto:Karen.Koncohrada@gov.bc.ca)>  
**Subject:** FW: Polley Lake - Tailings Breach Remediation

This is the mine's plan to lower the level in Polley Lake. I have drafted a letter indicating that I have received it and that I consider it emergency work.

Al

---

**From:** Rothman, Stephen MEM:EX  
**Sent:** Thursday, August 7, 2014 1:55 PM  
**To:** Thorpe, Rolly MEM:EX; Hoffman, Al MEM:EX; Kuppers, Haley MEM:EX  
**Subject:** Fwd: Polley Lake - Tailings Breach Remediation

Sent from my iPhone

Begin forwarded message:

**From:** "Luke Moger" <[lmoger@mountpolley.com](mailto:lmoger@mountpolley.com)>  
**To:** "Rothman, Stephen MEM:EX" <[Stephen.Rothman@gov.bc.ca](mailto:Stephen.Rothman@gov.bc.ca)>  
**Cc:** "Warnock, George MEM:EX" <[George.Warnock@gov.bc.ca](mailto:George.Warnock@gov.bc.ca)>, "Narynski, Heather M MEM:EX" <[Heather.Narynski@gov.bc.ca](mailto:Heather.Narynski@gov.bc.ca)>, "Brian Kynoch" <[bkynoch@imperialmetals.com](mailto:bkynoch@imperialmetals.com)>, "Dale Reimer" <[dreimer@mountpolley.com](mailto:dreimer@mountpolley.com)>, "Art Frye" <[afrye@mountpolley.com](mailto:afrye@mountpolley.com)>, "Ryan Brown" <[rbrown@mountpolley.com](mailto:rbrown@mountpolley.com)>, "Steve.Rice@Amec.com" <[Steve.Rice@Amec.com](mailto:Steve.Rice@Amec.com)>, "ibruce@bgcengineering.com" <[ibruce@bgcengineering.com](mailto:ibruce@bgcengineering.com)>, "Daryl Dufault" <[DDufault@bgcengineering.ca](mailto:DDufault@bgcengineering.ca)>  
**Subject:** Polley Lake - Tailings Breach Remediation

Steve;

As per our conversation yesterday, please find attached a document from Dale Reimer, General Manager of MPMC, endorsed by AMEC and BGC, outlining the work MPMC will be undertaking in the reduction of the water level in Polley Lake.

Kindest Regards,

Luke

Direct: +1 (250) 790-2215 ext. 2113

Fax: +1 (250) 790-2613

E-mail: [LMoger@MountPolley.com](mailto:LMoger@MountPolley.com)

**From:** [Bellefontaine, Kim MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Hoffman, Al MEM:EX](#); [Narynski, Heather M MEM:EX](#); [Warnock, George MEM:EX](#); [Demchuk, Tania MEM:EX](#); [Howe, Diane J MEM:EX](#)  
**Subject:** Short Term Measures for Existing Permitted Tailings Impoundments  
**Date:** Friday, August 8, 2014 9:22:50 PM

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David,

Here is Heather and George's outline of proposed orders that could be issued by the Chief Inspector in the near term to increase confidence that existing tailings impoundments in the province are safe. This is not currently in the language of "orders" but shows the concepts.

Measures to Prevent Failure (Pursuant to Health, Safety and Reclamation Code Section 10.5.3)

- a) Within 90 days, require a review of the 2013 Annual Dam Safety Inspection for all mines with tailings impoundments (regardless of dam consequence classification) by an independent qualified third party professional engineer, and review the dam consequence classification. Provide a summary of the review, recommendations, along with the company's response to the recommendations and a timeline for addressing them.
- b) If a 2013 Annual Dam Safety Inspection has not been conducted, require the provision of one within 90 days, and meet the requirements of (a).
- c) Note that further orders may be issued in the future as more information becomes available on the Mount Polley tailings breach.

Emergency Preparedness (Pursuant to Health, Safety and Reclamation Code Section 10.6.8)

- d) Within 90 days, require companies that have tailings impoundments that have a dam consequence classification of high, very high, or extreme, to prepare an Emergency Preparedness Plan (EPP) and a Dam Break Inundation Study. This must be consistent with the requirements of the Canadian Dam Association, Dam Safety Guidelines.
- e) Requirement to test EPP once it is prepared.
- f) Mines with an existing EPP, must assess their EPP's for any gaps as required in (d) and submit an updated EPP within 90 days.

Additional Comments to be Made with Orders

- Advise that government will put a process in place to review all information submitted.
- Advise that all information submitted will be made publicly available.

Potential other future actions

- Hire additional Ministry Geotechnical Inspectors to conduct more site inspections.
- For tailings impoundments that have a Consequence classification of Significant, require companies to provide an EPP and Dam Breach and Inundation Study.
- Require provision of Dam Safety Reviews within one year.

***Kim Bellefontaine, M.Sc., P.Geo.***

Manager Environmental Geoscience & Permitting

B.C. Ministry of Energy and Mines

Phone: (250) 952-0489

E-mail: [Kim.Bellefontaine@gov.bc.ca](mailto:Kim.Bellefontaine@gov.bc.ca)



**From:** [Bellefontaine, Kim MEM:EX](#)  
**To:** [dreimer@mountpolley.com](#); [bkynoch@imperialmetals.com](#); [afrye@mountpolley.com](#); [rbrown@mountpolley.com](#); [Steve.Rice@Amec.com](#); [lbruce@bgcengineering.com](#); [DDufault@bgcengineering.ca](#); [lmoger@mountpolley.com](#); [jlove@imperialmetals.com](#); [dparsons@imperialmetals.com](#)  
**Cc:** [Hoffman, Al MEM:EX](#); [Morel, David P MEM:EX](#); [Howe, Diane J MEM:EX](#); [Booth, Richard MEM:EX](#); [Thorpe, Rolly MEM:EX](#); [Narynski, Heather M MEM:EX](#); [Rothman, Stephen MEM:EX](#); [Demchuk, Tania MEM:EX](#); [Warnock, George MEM:EX](#); [Bunce, Hubert ENV:EX](#); [Matscha, Gabriele ENV:EX](#); [McGuire, Jennifer ENV:EX](#); [Brody, Margo X MEM:EX](#)  
**Subject:** RE: August 8 2014 Temporary Upstream Dyke - Tailings Breach Remediation  
**Date:** Saturday, August 9, 2014 2:30:49 PM  
**Attachments:** [Letter to Dale Reimer Mine Manager Imperial Metals - Temporary Upstream Dyke August 9 2014.pdf](#)

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Mr. Reimer,

Please find attached a letter from the Chief Inspector of Mines regarding the Temporary Upstream Dyke - Tailings Breach Remediation.

The original signed paper copy will be in Monday's mail.

***Kim Bellefontaine, M.Sc., P.Geo.***

Manager Environmental Geoscience & Permitting

B.C. Ministry of Energy and Mines

P.O. Box 9320, Stn Prov Gov't, Victoria, BC, V8W 9N3

Courier: 6th Floor, 1810 Blanshard Street, Victoria, BC, V8T 4J1

Phone: (250) 952-0489 Fax: (250) 952-0481

E-mail: [Kim.Bellefontaine@gov.bc.ca](mailto:Kim.Bellefontaine@gov.bc.ca)



August 9, 2014

Mr. Dale Reimer  
Mine Manager  
Mount Polley Mining  
Box 12 Likely, BC V0L 1N0

Mine: 1101163  
ORCS: 19020-40

By mail and email: [dreimer@mountpolley.com](mailto:dreimer@mountpolley.com); [bkynoch@imperialmetals.com](mailto:bkynoch@imperialmetals.com) [afrye@mountpolley.com](mailto:afrye@mountpolley.com); [rbrown@mountpolley.com](mailto:rbrown@mountpolley.com); [Steve.Rice@Amec.com](mailto:Steve.Rice@Amec.com); [ibruce@bgcengineering.com](mailto:ibruce@bgcengineering.com); [DDufault@bgcengineering.ca](mailto:DDufault@bgcengineering.ca); [lmoger@mountpolley.com](mailto:lmoger@mountpolley.com) [jlove@imperialmetals.com](mailto:jlove@imperialmetals.com); [dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)

Dear Mr. Reimer:

**Re: Notice of Work (Temporary Upstream Dyke) – Tailings Breach Remediation**

I am in receipt of your August 7, 2014 letter entitled "Notice of Work (Temporary Upstream Dyke) – Tailings Breach Remediation". I understand this letter is to provide notification of emergency works that Mount Polley Mining Corporation will be undertaking to contain tailings in the impoundment area and prevent further release of tailings to the environment.

I also acknowledge receipt of the August 6, 2014 "Mount Polley Mining Corporation Standard Procedure Tailings Containment Dyke Construction" outlining safe working procedures in this area.

Please provide me with an updated design diagram of the temporary upstream containment dyke that shows more detail of the location, and dimensions of the structure. Please also provide me with additional information that generally shows and describes how water and tailings will be managed in this area. I would appreciate receiving this as soon as possible, and not later than August 13, 2014.

Please continue to provide me with regular updates as the work proceeds.

Sincerely,

Al Hoffman, P.Eng.  
Chief Inspector of Mines

.../2

Cc: Mr. David Morel, Assistant Deputy Minister, MEM  
Ms. Diane Howe, Deputy Chief Inspector of Mines, Permitting and Reclamation, MEM  
Mr. Rolly Thorpe, Deputy Chief Inspector of Mines, Health and Safety, MEM  
Ms. Heather Narynski, Senior Geotechnical Inspector, MEM  
Mr. Stephen Rothman, Senior Inspector of Mines, Kamloops, MEM  
Ms. Tania Demchuk, Senior Environmental Geoscientist, MEM  
Mr. George Warnock, Manager, Geotechnical Engineering, MEM  
Mr. Art Frye, Chief Operating Manager, Imperial Metals Corporation  
Mr. Jack Love, Environmental Superintendent, Imperial Metals Corporation  
Mr. Don Parsons, Chief Operating Officer, Imperial Metals Corporation  
Mr. Hubert Bunce, Environmental Protection, Mining Operations Director, MOE  
Ms. Gabi Matscha, Environmental Quality Section Head, Ministry of Environment  
Ms. Jennifer McGuire, Executive Director, Environmental Protection Division, MOE

**From:** [Bellefontaine, Kim MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Demchuk, Tania MEM:EX](#)  
**Subject:** FW: MoE Incident Action Plan and Situation Report  
**Date:** Saturday, August 9, 2014 2:52:35 PM  
**Attachments:** [MOE Incident Action Plan 9 Aug 2014.docx](#)  
[Mount Polley Situation Report 9 Aug 2014.docx](#)

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fyi

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**From:** Zacharias-Homer, Christa ENV:EX  
**Sent:** Saturday, August 9, 2014 1:40 PM  
**To:** Hoffman, Al MEM:EX; Demchuk, Tania MEM:EX; Bellefontaine, Kim MEM:EX; Morrison, Andrew JAG:EX; Cunnings, Ian JAG:EX; Bunce, Hubert ENV:EX; Cotton, Brian GCPE:EX; Crebo, David GCPE:EX; Dalal, Suntanu GCPE:EX; English, Heather ENV:EX; Halls, Lori D ENV:EX; Murphy, Bernadette GCPE:EX; Standen, Jim ENV:EX  
**Cc:** McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX; Caunce, Cassandra ENV:EX; Epps, Deb ENV:EX; Cousins, Autumn EAO:EX  
**Subject:** FYI: MoE Incident Action Plan and Situation Report  
The attached Ministry of Environment Incident Action Plan and Situation Report for August 9, 2014 are forwarded for your information.

Distribution is [internal to government only](#).

*Christa Zacharias-Homer*

Deputy Director, Regional Operations Branch

Ph: (250) 356-8174 | Fax: (250) 356-5496 | Cell: (250) 216-2467

[Christa.ZachariasHomer@gov.bc.ca](mailto:Christa.ZachariasHomer@gov.bc.ca)

 Please consider the environment before printing this email

## MOE Incident Action Plan

**(Circulation: Internal to Government Only)**

Operational Period: Aug 9, 2014 0800 hrs to Aug 10, 2014 0800 hrs

Field Operations	Analytical Data Review	Pollution Abatement Order	Media, FN, Agency Briefings	Technical Advisory Committee
<p>Field Sampling Location: Mitchell Bay + 3 other points in west arm of Quesnel Lake (see attached map)</p> <p>Media: Water at different depths; 1 sediment sample at outlet of Hazeltine Creek;</p> <p>Water sample near log booms in Quesnel lake</p> <p>Fisheries Officers: collecting fish in west arm of Quesnel Lake</p> <p>Report Impacted Fish or Wildlife; safety hazards; unique conditions</p> <p>Staff: Lana Miller; Kim Keogh; Darrel Ashworth (CO); Lee Williston (FLNRO)</p>	<p>Results for samples collected Aug 7, 2014</p> <p>2000 hrs - Summary memo to ADM:</p> <p>Staff: Cassandra Caunce; Deb Epps; Dennis Einarson; Jennifer Puhallo; Mike Sokal</p>	<p>Next Submission deadline: August 15, 2014 (Comprehensive EIA)</p> <p>Reviewing records and conducting GAP analysis</p> <p>Reviewing site mitigation plans</p> <p>Staff: Shelley Metcalfe; Debb Epps</p>	<p>0730 hrs MOE Executive 0845 hrs MOE Operational</p> <p>1100 hrs EMBC co-ordination</p> <p>1300 hrs MOE /MEM</p> <p>1330 hrs ADMs &amp; FN</p> <p>1400 hrs Media Briefing</p> <p>1500hrs MOE &amp; Mt Polley</p> <p>1600 hrs MOE and MEM operational co-ordination</p> <p>2100 hrs MOE Data Review Staff: Jennifer McGuire; Avtar Sundher; Heather English; Christa Zacharias-Homer</p>	<p>Terms of Reference under development</p> <p>Potential Members: FN, Community, Mine, MEM, Public, Scientists</p> <p>Staff: Cassandra Caunce</p>

**Activated MOE Staff:** 12

**Safety Message:** Take breaks as necessary, hydrate, use sunscreen. Self identify if you are getting tired; Aware of concern of potential release from Polley Lake "Plug" into Hazeltine Creek

**Weather Forecast:** Partly Cloudy, Max Temp 25 Celsius; winds may pick up this pm

Approved by:

MOE Incident Commander

Date: August 9, 2014

Pages 28 through 32 redacted for the following reasons:

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s.13

**From:** [Art Frye](#)  
**To:** [Art Frye](#); [Brody, Margo X MEM:EX](#); [Dale Reimer](#); [Jack Love](#); [Don Parsons](#)  
**Cc:** [Hoffman, Al MEM:EX](#); [Musgrove, Kate MEM:EX](#); [Morel, David P MEM:EX](#); [Howe, Diane J MEM:EX](#); [Booth, Richard MEM:EX](#); [Thorpe, Rolly MEM:EX](#); [Narynski, Heather M MEM:EX](#); [Rothman, Stephen MEM:EX](#); [Demchuk, Tania MEM:EX](#); [Bellefontaine, Kim MEM:EX](#); [Warnock, George MEM:EX](#); [Bunce, Hubert ENV:EX](#); [Matscha, Gabriele ENV:EX](#); [McGuire, Jennifer ENV:EX](#)  
**Subject:** RE: Mount Polley Safe work procedures  
**Date:** Saturday, August 9, 2014 4:26:16 PM  
**Attachments:** [image001.jpg](#)  
[Safe Work Proceedure - Polley Lake Water Lake Reduction.docx](#)

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Dear Mr. Hoffman;

Please accept this e-mail as a follow up on a response provided by myself on August 8, 2014 to your memorandum Re: Safe Work Procedures for Sampling dated August 7, 2014.

Order Two:

- Please find attached a safe work procedure for the Polley Lake water level reduction activities prior to the operation of the proposed system.
- Safe work procedures will continue to be submitted for all work being conducted on or off the mine site related to the tailings dam breach, as arising.

Regards,

Art

ArtBCard





**MOUNT POLLEY MINING CORPORATION  
STANDARD PROCEDURE**

**SUBJECT: Polley Lake Water Level  
Reduction**

**PROCEDURE NO:**

**EFFECTIVE DATE:**  
**August 9, 2014**

**REVISION DATE:**

**OBJECTIVE:**

- To ensure the safety of Personnel when working around areas around and downstream of the Polley Lake water level reduction pumping into Hazeltine Creek.

**Procedure**

All work performed upon on Polley Lake, in Hazeltine Creek and at the outlet of Hazeltine Creek and in Quesnel Lake will be performed in accordance with plans issued by the Mine Operations Manager or his designate. Specific requirements are outlined below:

1. All employees working within the areas as referenced above are required to read and demonstrate understanding of this procedure before beginning work.
2. No access is to be granted to the surface of Polley Lake, save for work completed upstream of the tailings plug, on foot, from the shoreline.
3. No access is to be granted on Hazeltine Creek.
4. When work is to be completed at the outlet of Hazeltine Creek in Quesnel Lake, continuous means of direct communication is to be maintained between Personnel and a spotter (deemed qualified by the Mine Operations Manager or his designate) located at the existing Hazeltine Creek discharge pipe location with an unobstructed view of the tailings plug. The spotter shall instruct such Personnel to immediately vacate the area if instability of the tailings plug or any other dangerous conditions are observed.
5. Polley Lake water elevation measurement is to be completed daily by an individual deemed qualified by the Mine Operations Manager or his designate.

*If you feel uncomfortable in performing any part of this procedure, please discuss with your Supervisor.*

**From:** [Sandve, Chris MEM:EX](#)  
**To:** [Nikolejsin, Dave MEM:EX](#); [Morel, David P MEM:EX](#); [Hoffman, Al MEM:EX](#); [Haslam, David GCPE:EX](#); [XT:Bennett, B LP:IN](#); [Shotton, Ryan GCPE:EX](#)  
**Subject:** Knight piesold letter / statement  
**Date:** Saturday, August 9, 2014 7:48:58 AM

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Letter -

[http://www.knightpiesold.com/en/assets/File/VA11-00298\\_Complete.pdf](http://www.knightpiesold.com/en/assets/File/VA11-00298_Complete.pdf)

Statement -

**August 8, 2014, Vancouver, British Columbia:** The breach of the tailings storage facility at Mount Polley is an extremely unfortunate incident and Knight Piésold Ltd. shares the concerns with respect to the effects to local communities, First Nations and the environment.

Going forward, there will be a comprehensive examination of this incident and there will be questions about the engineering and design of the tailings storage facility. As the former Engineer of Record of the tailings storage facility at Mount Polley, we feel it appropriate to provide some clarity and transparency of the role of Knight Piésold Ltd.

Knight Piésold Ltd. informed Imperial Metals that we would not continue as the Engineer of Record for the Mount Polley Mine on February 10, 2011, and subsequently ceased to perform that role. During the time we acted as Engineer of Record, the tailings storage facility at Mount Polley operated safely and as it was designed. A third party Review Panel provided independent review of the tailings impoundment design during initial construction and permitting during 1995 to 1997. In 2006, while we were Engineer of Record, an Independent Third Party Dam Safety Review by AMEC Earth and Environmental confirmed that the three embankments were well-designed and well-constructed entities from a dam safety perspective.

Since February 10, 2011, Knight Piésold Ltd. has not had any responsibility or knowledge of any aspects of the design, modifications or performance monitoring of the tailings storage facility at Mount Polley. The original engineering done by Knight Piésold Ltd. accommodated a significantly lower water volume than the tailings storage facility reportedly held at the time of the breach. Significant engineering and design changes were made subsequent to our involvement, such that the tailings storage facility can no longer be considered a Knight Piésold Ltd. design.

Upon completing all assignments as the Engineer of Record in 2010, Knight Piésold Ltd. wrote to Mount Polley Mining Corporation and to the Government of British Columbia's Chief Inspector of Mines and stated that "the embankments and the overall tailings impoundment are getting large and it is extremely important that they be monitored, constructed and operated properly to prevent problems in the future." ([See letter dated February 10, 2011](#)). A formal handover of design, construction and monitoring responsibilities was conducted on March 8, 2011 when AMEC Earth and Environmental was acknowledged as the new Engineer of Record for all future work at the Mount Polley tailings storage facility.

Knight Piésold Ltd. is not familiar with, and therefore cannot comment on, the details of the incident, or on the design, construction, operations, water management practices or any other aspects of the Mount Polley tailings storage facility.

Knight Piésold is an international consulting group providing engineering and environmental services for the mining, power, water, transportation and construction sectors. With offices around the globe, our team of over 800 experienced professionals delivers high quality specialized services and innovative solutions that respect social, environmental and economic responsibilities.

Sent from my iPhone

**From:** [Hoffman, Al MEM:EX](#)  
**To:** [Demchuk, Tania MEM:EX](#); [Bellefontaine, Kim MEM:EX](#); [Morel, David P MEM:EX](#); [Thorpe, Rolly MEM:EX](#); [Howe, Diane J MEM:EX](#)  
**Subject:** FW: Mount Polley - legal advice and legal issues  
**Date:** Saturday, August 9, 2014 10:30:43 AM

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fyi

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**From:** McGuire, Jennifer ENV:EX  
**Sent:** Saturday, August 9, 2014 10:26 AM  
**To:** Hoffman, Al MEM:EX  
**Subject:** FW: Mount Polley - legal advice and legal issues

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s.14

This message, including any attachments to it, may be confidential and subject to solicitor-client privilege. It is intended only for the use of the person or persons to who it is addressed, unless I have expressly authorized otherwise. If you have recieved this communication in error, please delete the message, including any attachment and notify me immediately by email or telephone.

**Please note that the email address provided above is provided for general email communication only and not as an address for service pursuant to Rule 4-2 of the Rules of Court.**

***Knight Piésold***  
**CONSULTING**

File No.:VA101-1/29-A.01  
Cont. No.:VA11-00298

*Suite 1400 - 750 West Pender Street  
Vancouver, BC Canada V6C 2T8*

*Tel: 604.685.0543  
Fax: 604.685.0147  
www.knightpiesold.com*

February 10, 2011

Mr. Brian Kynoch  
Mount Polley Mining Corporation  
Suite 200 - 580 Hornby Street  
Vancouver, BC V6C 3B6

Dear Brian,

**Re: Mount Polley Tailings Storage Facility Engineer of Record**

We have completed all assignments and on January 25, 2011 issued to Mount Polley Mining Corporation (MPMC) the final versions of the 'Tailings Storage Facility - Report on the 2010 Annual Inspection' and 'Tailings Storage Facility - Report on Stage 6B Construction'.

We are currently assuming that MPMC will be retaining the services of a separate individual or organization to take over as the Engineer of Record for the tailings storage facility, as a result of Knight Piésold's decision to opt out of the bidding process implemented by MPMC late last year. We would like to facilitate a formal handover to the new individual/group, as it is essential that it be recognized that Knight Piésold will not have any responsibility for any aspects of the on-going operations, or of any modifications to the facilities that are undertaken from now onwards. To date, the tailings impoundment has been developed using the observational approach, wherein the design is modified as appropriate depending on actual performance and conditions. It must be understood that Knight Piésold will no longer have any responsibility for the performance of the tailings storage facility.

The embankments and the overall tailings impoundment are getting large and it is extremely important that they be monitored, constructed and operated properly to prevent problems in the future. Knight Piésold would be happy to assist in the formal handover to the new Engineer of Record.

As we have a long relationship with the Mines Branch and the Ministry of Energy, Mines and Petroleum Resources, we consider that it is prudent to notify them of the change in status. Therefore, we have copied them on this correspondence.

We would like to thank you for our long and constructive association at the Mount Polley Mine and look forward to working together again in the future.



Signed:  
Ken Brouwer, P.Eng.  
Managing Director



Approved:  
Jeremy Haile, P.Eng.  
President

Copy To: Don Parsons (IMC), Ron Martel (MPMC), Tim Fisch (MPMC)  
Al Hoffman, Chief Inspector of Mines  
/kjb



ISO 9001, ISO 14001  
OHSAS 18001

Company	Permit No.	Application Topic
Imperial Metals Corporation	M-200	Mine Plan Work System and Reclamation Plan
Mount Polley Holding Company Ltd.	M-200	Application for Name Change
Mount Polley Holding Company Ltd.	M-200	Tailings Facility to Elevation 934 metres
Mount Polley Holding Company Ltd.	M-200	Mt. Polley Reclamation Plan
Mount Polley Holding Company Ltd.	M-200	Tailings Facility to Elevation 940 metres (GRIT 2806)
Mount Polley Holding Company Ltd.	M-200	Construct TSF to Elev. 944 metres
Mount Polley Holding Company Ltd.	M-200	Construction Design Change to the Tailings Embankment and assoc. structures <u>and</u> Tailings Cyclone Sands Geochemical Evaluation Update <u>and</u> ML/ARD Monitoring Conditions
Mount Polley Holding Company Ltd.	M-200	Mt. Polley Tailings Storage Facility, Application to Construct to Elevation 945 Metres
Mount Polley Holding Company Ltd.	M-200	Application to process IWG bulk sample
Mount Polley Holding Company Ltd.	M-200	Mining of Wight Pit (received on CD only)
Mount Polley Holding Company Ltd.	M-200	Design of Tailings Storage Facility to Ultimate Elevation (Stage 4 Construction)
Mount Polley Holding Company Ltd.	M-200	Amendment Application Northeast Zone
Mount Polley Holding Company Ltd.	M-200	Amendment Application Southeast Zone
Mount Polley Mining Corporation	M-200	Application for Name Change and Deletion of Requirement to Monitor Blasting
Mount Polley Mining Corporation	M-200	TSF Stage 5
Mount Polley Mining Corporation	M-200	Northeast Dump Extension
Mount Polley Mining Corporation	M-200	Copper Oxide Test Heap Leach
Mount Polley Mining Corporation	M-200	Boundary Road Application
Mount Polley Mining Corporation	M-200	Wight Pit Highwall Rehabilitation
Mount Polley Mining Corporation	M-200	Approving Tailings Storage Facility Stage 6 Construction
Mount Polley Mining Corporation	M-200	Transfer of Road Use, Maintenance and Reclamation Obligations
Mount Polly Mining Corporation	M-200	Pond Zone
Mt Polley Mining Corporation	M-200	Mine Permit Amendment (C2 and Boundary Zone Pits)
Mount Polley Mining Corporation	M-200	Approving Stage 8 TSF
Mount Polley Mining Corporation	M-200	Approving Stage 8A Construction
Mount Polley Mining Corporation	M-200	Boundary Zone Underground project
Mount Polley Mining Corporation	M-200	Processing 15000 Tonnes of Ore from Dome Mtn.
Mount Polley Mining Corporation	M-200	Amendment to M-200( extension of PAG dump etc)
Mount Polley Mining Corporation	M-200	TSF Dam Raise Stage 9
Mount Polley Mining Corporation	M-200	Approving Cariboo Phase 4 Expansion
Mount Polley Mining Corporation	M-200	Approving Change to Reclamation Security Schedule
Mount Polley Mining Corporation	M-200	Waste Rock and Tailings Comingling Research Project
Mount Polley Mining Corporation	M-200	Stage 10 Dam Raise
Mount Polley Mining Corporation	M-200	Water Treatment Plan



Application Date	Date Received	Permit/ Permit Amendment Date
March, 1995	April 6, 1995	August 3, 1995
	May 23, 1996	June 13, 1996
	?	September 23, 1996
April 22, 1996	May 1, 1996	July 11, 1997
March 27, 1998	April 2, 1998	April 7, 1998
May 25, 2000	June 2, 2000	June 13, 2000
December 2, 1998 February 1, 2000	January 8, 1999 ?	August 2, 2000
April 13, 2001	May 16, 2001	May 30, 2001
January 16, 2004	January 16, 2004	February 16, 2004
August 3, 2004	August 10, 2004	November 1, 2004
March 14, 2005	March 17, 2005	May 25, 2005
June 17, 2005	June 20, 2005	August 2, 2005
July 8, 2005	July 13, 2005 via e-mail	November 24, 2005
January 16, 2006	January 23, 2006	August 2, 2006
June 12, 2006	June 23, 2006	August 2, 2006
December 21, 2006	January 8, 2007	March 29, 2007
June 28, 2006	July 6, 2006	March 29, 2007
March 15, 2007	March 5, 2007	August 30, 2007
October 17, 2007	October 19, 2007	December 5, 2007
July 4, 2007	July 25, 2007	February 19, 2008
January 31, 2008	February 14, 2008	March 6, 2008
February 3, 2009	February 3, 2009	July 8, 2009
Nov 1, 2010/Dec 22, 2010	December 23, 2010	August 15 2011
April 3, 2012		June 29, 2012
September 18, 2012	September 18, 2012	October 15, 2012
August 23, 2012	August 30, 2012	March 25, 2013
February 26, 2013	February 26, 2013	April 22, 2013
November 1, 2012	November 5, 2012	July 25, 2013
September 18, 2012	April 11, 2012	August 9, 2013
January 31, 2014	February 17, 2014	March 17, 2014
March 26, 2014	March 26, 2014	March 27, 2014
June 24, 2014	March 26, 2014	June 24, 2014
July 28, 2014	July 28, 2014	Application Received - not permitted
July 29, 2014	July 29, 2014	Application Received - not permitted

**From:** [Halls, Lori D ENV:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Standen, Jim ENV:EX](#)  
**Subject:** Pollution Abatement Order  
**Date:** Sunday, August 10, 2014 2:36:59 PM  
**Attachments:** [PollutionAbatementOrder\\_20140805.pdf](#)

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David

As discussed here is the Pollution Abatement Order issued Aug. 5<sup>th</sup>. At the 3:00pm call with ADMs Jim can discuss the issue of government/oversight re: remediation. Minister Polak is clear – FNs will need to be engaged in this work. Thanks.



Date: August 5, 2014

File: 107461

MOUNT POLLEY MINING  
CORPORATION  
SUITE 200  
580 HORNBY ST  
VANCOUVER, BC  
V6C 3B6

### **POLLUTION ABATEMENT ORDER**

I have reasonable grounds to believe that pollution is being caused by the discharge of mine tailings from the tailings storage facility at the Mount Polley Mine site into the environment. The discharge is occurring from a property located approximately 5 kilometers southeast of Likely, BC and is legally described as Mineral Claim CB-20, Cariboo Mining Division, Cariboo Land District, owned and/or operated by MOUNT POLLEY MINING CORPORATION.

It has been reported to the Ministry of Environment that on Monday, August 4, 2014 mine tailings escaped an impoundment facility via a dam breach on the above-mentioned property. Further investigation has revealed that a significant volume of materials have left the property and impacted Polley Lake, Hazeltine Creek and Quesnel Lake.

Pursuant to Section 83 of the *Environmental Management Act* [SBC 2003] Chapter 53, MOUNT POLLEY MINING CORPORATION is hereby ordered to comply with the following requirements:

1. Immediately take action, under the direction of a suitably qualified professional, to abate the discharge of mine-affected materials and sediments from the impoundment facility, and specifically into Polley Lake, Hazeltine Creek and Quesnel Lake. A written summary of actions taken must be submitted to the Director on August 13, 2014
2. Immediately retain a suitably qualified professional to initiate a preliminary Environmental Impact Assessment (EIA) and provide the name of the qualified professional to the Director for approval by August 6, 2014.
3. Retain a suitably qualified professional to initiate a comprehensive Environmental Impact Assessment (EIA) and provide the name of the qualified professional to the Director for approval by August 13, 2014.

---

**Ministry of Environment**

Mining Operations  
Environmental Protection

Mailing Location/Address  
2080 Labieux Rd.  
Nanaimo, BC V9T 6J9

Telephone: (250) 751-3100  
Facsimile: (250) 751-3103  
<http://www.gov.bc.ca>

4. Upon completion of the preliminary EIA, immediately implement clean up activities, mitigation measures and management actions as required by the EIA.
5. Upon completion of the comprehensive EIA, immediately implement clean up activities, mitigation measures, site restoration and management actions as required by the comprehensive EIA.
6. Based on the preliminary EIA, develop and submit to the Director by August 6, 2014 for approval, an Action Plan detailing measures relative to the preliminary EIA to be taken to:
  - a. Characterize the materials that were released into the receiving environment (including their expected behaviour in the receiving environment, settling rates, etc.);
  - b. Recover or otherwise manage mine-affected materials and sediments currently in the receiving environment;
  - c. Mitigate residual risks to the environment;
  - d. Assess and monitor the impacts and risks posed by the mine-affected materials and sediments currently in the receiving environment, as well as from the recovery and management efforts themselves; and
  - e. Report on the implementation of Action Plan measures on a weekly basis to regulatory agencies and stakeholders.
7. Based on the comprehensive EIA, develop and submit to the Director by August 15, 2014 for approval, an Action Plan detailing measures relative to the comprehensive EIA to be taken to:
  - a. Fully characterize the materials that were released into the receiving environment (including their expected behaviour in the receiving environment, settling rates, etc.);
  - b. Fully recover or otherwise manage mine-affected materials and sediments currently in the receiving environment;
  - c. Define Site mitigation and/or mitigate residual risks to the environment;
  - d. Assess and monitor the impacts and risks posed by the mine-affected materials and sediments currently in the receiving environment, as well as from the recovery and management efforts themselves; and
  - e. Report on the implementation of Action Plan measures on a weekly basis to regulatory agencies and stakeholders

8. Prepare and submit a formal written update by September 15, 2014. The update report is to include at a minimum:
  - a. A list of all other qualified professionals who contributed to the report, and a summary of their qualifications;
  - b. A summary of the preliminary EIA and results;
  - c. A summary of the comprehensive EIA and results;
  - e. A description of clean up activities, mitigation measures, site restoration and management actions that were implemented as a result of the preliminary and comprehensive EIA;
  - f. Recommendations for additional mitigation and restoration measures, if appropriate; and
  - g. A proposed ongoing monitoring program.

Failure to comply with the requirements of this order is a contravention of the *Environmental Management Act* and may result in legal action. I direct your attention to Section 120(10) of the *Environmental Management Act*, which reads:

*“(10) A person who contravenes an order...that is given, made or imposed under this Act by a ...director...commits an offence and is liable on conviction to a fine not exceeding \$300 000 or imprisonment for not more than 6 months, or both.”*

Failure to comply with the requirements of this order may also result in an administrative penalty under the *Administrative Penalties Regulation (Environmental Management Act)* (B.C. Reg 133/2014) (Regulation). I direct your attention to Section 12(4) of the *Regulation*, which reads:

*“(4) A person who fails to comply with an order under the [Environmental Management] Act is liable to an administrative penalty not exceeding \$40 000.”*

This order does not authorize entry upon, crossing over, or use for any purpose of private or crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with you. It is also your responsibility to ensure that all activities are carried out with due regard for the rights of third parties, and comply with other applicable legislation that may be in force, such as municipal bylaws relating to the discharge of waste to municipal storm or sanitary sewers.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date notice is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

If you have any questions, please call the undersigned or Jack Green at (250) 398-4544.

Yours truly,



Hubert Bunce  
for Director, Environmental Management Act  
Vancouver Island Region

cc: Environment Canada  
Al Hoffman, Chief Inspector, Ministry of Energy and Mines  
Dale Reimer, Mine Manager  
Colleen Hughes, Environmental Coordinator

**From:** [Bellefontaine, Kim MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Hoffman, Al MEM:EX](#); [Demchuk, Tania MEM:EX](#); [Narynski, Heather M MEM:EX](#); [Warnock, George MEM:EX](#); [Howe, Diane J MEM:EX](#); [Amann-Blake, Nathaniel MEM:EX](#)  
**Subject:** RE: Mt. Polley Chronology Information  
**Date:** Sunday, August 10, 2014 5:26:20 PM

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David,

We have also established that Mount Polley had an extended Care and Maintenance period. They went into Care and Maintenance in October 2001 and the mill/production was restarted in March of 2005. This corresponds to one of the periods when there were no geotechnical inspections on the site.

Kim

---

**From:** Bellefontaine, Kim MEM:EX  
**Sent:** Sunday, August 10, 2014 1:59 PM  
**To:** Morel, David P MEM:EX  
**Cc:** Hoffman, Al MEM:EX; Demchuk, Tania MEM:EX; Narynski, Heather M MEM:EX; Warnock, George MEM:EX; Howe, Diane J MEM:EX; Amann-Blake, Nathaniel MEM:EX  
**Subject:** Mt. Polley Chronology Information  
David,

Here is some of the relevant chronology information on Mount Polley.

**Mines Act Permitting Chronology**

See attached excel file for complete Mines Act Permitting chronology.

The permit amendments that deal specifically with the tailings storage facility are as follows:

Permit/Permit Amendment Date	Permit/Permit Amendment Title	Comments
August 31, 1995	Permit Approving Work System and Reclamation Program	This is the initial Mines Act permit for the mine that approved the design and construction program for 1995 and 1996. It also approved construction of the tailings dams to an elevation of 931 metres.
September 23, 1996	Approval to Construct Tailings Storage Facility to Elevation 934 m	Permit amendment that approved the construction of the tailings dams to an elevation of 934 metres.
April 7, 1998	Approval to Construct Tailings Storage Facility to Elevation 940 metres	Permit amendment that approved the construction of the tailings dams to an elevation of 940 metres.
June 13, 2000	Approval to Construct Tailings Storage Facility to 944 metres	Permit amendment that approved the construction of the tailings dams to an elevation of 944 metres.
May 30, 2001	Approval to Construct Tailings Storage Facility to	Permit amendment that approved the construction of

	Elevation 945 metres	the tailings dams to an elevation of 945 metres.
May 25, 2005	Approving Tailings Storage Facility Stage 4 Construction	Permit amendment that approved the construction of the tailings dams to an elevation of 948 metres.
August 2, 2006	Approving Tailings Storage Facility Stage 5 Construction	Permit amendment that approved the construction of the tailings dams to an elevation of 951 metres.
February 19, 2008	Permit approving Tailings Storage Facility Stage 6 Construction	Permit amendment that approved the construction of the tailings dams to an elevation of 958 metres.
August 15, 2011	Approving Mining of the C2 and Boundary Zone Pits (**Note amendment included approval of Stage 7 Dam Construction)	Permit amendment that approved the construction of the tailings dams to an elevation of 960.5 metres.
June 29, 2012	Approving Tailings Storage Facility Stage 8 Construction	Permit amendment that approved the construction of the tailings dams to an elevation of 963.5 metres.
October 15, 2012	Approving Tailings Storage Facility Stage 8A Construction	Permit amendment that approved the construction of the tailings dams to an elevation of 965 metres.
August 9, 2013	Approving Tailings Storage Facility Stage 9 Construction	Permit amendment that approved the construction of the tailings dams to an elevation of 970 metres.

#### **Mine Inspections Chronology at Mount Polley**

Total Mines Inspections by Year (includes health and safety, geotechnical, reclamation). Note data earlier data (pre 2001) is not in MMS and is not easy to collate at this point. Some of this information would likely be off-site.

<b>Year</b>	<b>Total Number of Mines Inspections</b>
2001	22
2002	4
2003	2
2004	5
2005	15
2006	10
2007	10
2008	8



2009	9
2010	7
2011	4
2012	6
2013	14
2014	8
Total Inspections Since 2001	124

Geotechnical Inspections by Year at Mount Polley (includes TSF and other mine facilities). The mine was permitted in 1995.

<b>Year</b>	<b>Total Number of Geotechnical Mines Inspections</b>
1995	1
1996	1
1997	1
1998	1
1999	1
2000	1
2001	1
2002	0
2003	0
2004	0
2005	2
2006	1
2007	2
2008	1
2009	0
2010	0
2011	0
2012	2
2013	1
2014	0
Total Geotechnical Inspections Since Mine Opened	16

#### Engineer of Record

The following engineering companies have been involved with the Mount Polley tailings storage facility:

- Knight Piesold – engineer of record for all phases of the tailings facility up to and including Stage 6B (see attached letter to Mount Polley Mining Corporation from Knight Piesold dated February 10, 2011)

- AMEC – engineer of record for Stages 7, 8, 8A and 9 of the tailings facility
- BGC – was transitioning to be the new engineer of record for Stage 10 of the tailings storage facility (note the ministry had just received the application for Stage 10 dam raise, but it has not been reviewed or permitted). Mount Polley Mining Corporation has indicated they will be using BGC in the design of the remediation plan for the tailings facility.

#### Mine Managers

We are not able to assemble the complete history of mine managers easily.

- Dale Reimer became Mine Manager on September 3, 2013.
- Tim Fisch was mine manager previous to Dale and had been manager for quite a long period of time.
- Art Frye was acting mine manager at the time of the tailings breach.

***Kim Bellefontaine, M.Sc., P.Geo.***

Manager Environmental Geoscience & Permitting

B.C. Ministry of Energy and Mines

Phone: (250) 952-0489

E-mail: [Kim.Bellefontaine@gov.bc.ca](mailto:Kim.Bellefontaine@gov.bc.ca)

**From:** [Sandve, Chris MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Nikolejsin, Dave MEM:EX](#); [Haslam, David GCPE:EX](#); [Shotton, Ryan GCPE:EX](#)  
**Subject:** RE: Short Term Measures for Existing Permitted Tailings Impoundments  
**Date:** Sunday, August 10, 2014 5:33:17 PM

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All – spoke to David and understand what he is getting at – will talk to MBB and confirm he is OK with this.

**Chris Sandve**

Chief of Staff to the Hon. Bill Bennett

Minister of Energy and Mines and Minister Responsible for Core Review

Office: 250-356-9944 | Cell: 250-818-4306 | E-mail: [chris.sandve@gov.bc.ca](mailto:chris.sandve@gov.bc.ca)

---

**From:** Morel, David P MEM:EX

**Sent:** Sunday, August 10, 2014 5:12 PM

**To:** Sandve, Chris MEM:EX

**Cc:** Nikolejsin, Dave MEM:EX; Haslam, David GCPE:EX; Shotton, Ryan GCPE:EX

**Subject:** RE: Short Term Measures for Existing Permitted Tailings Impoundments

What we would be asking firms is that if they have done a report in the last year that they have it reviewed and signed off by another independent third party qualified engineer. (Almost all reports are currently done by independent third party experts.)

Let me provide an example of why we have structured it this way. Say company x provided us last month with an investigation report that was done by an independent third party qualified geotechnical engineer. Instead of asking them to repeat the same exercise one month later with a different expert, we would be asking them to have the one month old report independently reviewed by another independent third party and that review provided to us. This is our way of checking to make sure that report is done properly.

In cases where there has not been a report done in the last year or where it was not done independently, the company would be required to have a report completed by an independent third party qualified engineer and then have it reviewed by a second third party qualified engineer.

David

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**From:** Sandve, Chris MEM:EX

**Sent:** Sunday, August 10, 2014 4:55 PM

**To:** Morel, David P MEM:EX

**Cc:** Nikolejsin, Dave MEM:EX; Haslam, David GCPE:EX; Shotton, Ryan GCPE:EX

**Subject:** Re: Short Term Measures for Existing Permitted Tailings Impoundments

I don't think this reflects where we landed. Where we landed was no reviews of reports - everyone has to go get an inspection done by someone who is not staff and not engineer of record - period. Doesn't matter if they have a 2013 annual inspection - get it done again by someone who isn't your engineer of record

Chris

Sent from my iPhone

On 2014-08-10, at 4:52 PM, "Morel, David P MEM:EX" <[David.Morel@gov.bc.ca](mailto:David.Morel@gov.bc.ca)> wrote:

Hi Chris

We have rewritten the first bullet. Note this is a summary of the order put out for

internal discussion we should have the order late Monday or Tuesday for further review.

- a) Within 90 days, require a review of the 2013 Annual Dam Safety Inspection for all mines with tailings impoundments by an independent qualified third party professional engineer, and a review the dam consequence classification. This will be provided to the Chief Inspector along with a summary of the review, any recommendations made along with the company's response to the recommendations and a timeline for addressing them.
- b) If a 2013 Annual Dam Safety Inspection has not been conducted, a Safety Inspection Report will be provided within 90 days and reviewed as outlined in (a).

Attached is what is required in a Safety Inspection Report. These are the elements that will be reviewed.

David

**From:** [Sandve, Chris MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Nikolejsin, Dave MEM:EX](#); [Haslam, David GCPE:EX](#); [Shotton, Ryan GCPE:EX](#)  
**Subject:** MBB questions on Dam Safety Inspection List  
**Date:** Sunday, August 10, 2014 6:23:06 PM

---

Hi David

Here are MBB's questions on the Dam Safety inspection list –

Item 1(a) - what is meant by “Consequence of Failure” and would we have had this for Mt Polley dam? Am curious if the company is required to assess what the impact of a breach is, with specifics of what would be possible in environmental terms.

Item 1(d) – what is meant by “Surveillance” of major impoundments? Is this a guy walking on the dam once a day or are there camera's involved, or regular drill core samples, or xray's, etc.

Item 1(e) – What was the dam classification for Mt Polley and was there an Emergency Preparedness Plan required? How many dams do we have in the province that are classified as, “High, Very High, or Extreme Consequence”? This doesn't have to be an immediate priority but I want to know sometime in the next 3 or 4 days.

Item 2 – I assume we'd have all records of Mt Polley's construction of the dam, as they raise it and strengthen it?

Item 3 – What is meant by “representative cross sections” (drill core)?

Can you outline what is required to be undertaken to assess and ensure the structural stability of the dam – i.e. drill core samples, etc. ?

For comparison sake, do you have a list of requirements for the inspections that are undertaken every 5 years?

Thanks

Chris

**Chris Sandve**

Chief of Staff to the Hon. Bill Bennett

Minister of Energy and Mines and Minister Responsible for Core Review

Office: 250-356-9944 | Cell: 250-818-4306 | E-mail: [chris.sandve@gov.bc.ca](mailto:chris.sandve@gov.bc.ca)

**From:** [Nikolejsin, Dave MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Subject:** Fwd: MBB questions on Dam Safety Inspction List  
**Date:** Sunday, August 10, 2014 6:38:34 PM

---

Can you send me the list? Thanks

Dave Nikolejsin  
Deputy Minister  
Energy and Mines

Begin forwarded message:

**From:** "Sandve, Chris MEM:EX" <[Chris.Sandve@gov.bc.ca](mailto:Chris.Sandve@gov.bc.ca)>  
**Date:** August 10, 2014 at 6:23:02 PM PDT  
**To:** "Morel, David P MEM:EX" <[David.Morel@gov.bc.ca](mailto:David.Morel@gov.bc.ca)>  
**Cc:** "Nikolejsin, Dave MEM:EX" <[Dave.Nikolejsin@gov.bc.ca](mailto:Dave.Nikolejsin@gov.bc.ca)>, "Haslam, David GCPE:EX" <[David.Haslam@gov.bc.ca](mailto:David.Haslam@gov.bc.ca)>, "Shotton, Ryan GCPE:EX" <[Ryan.Shotton@gov.bc.ca](mailto:Ryan.Shotton@gov.bc.ca)>  
**Subject:** MBB questions on Dam Safety Inspction List

Hi David

Here are MBB's questions on the Dam Safety inspection list –

- <!--[if !supportLists]-->1. <!--[endif]-->Item 1(a) - what is meant by “Consequence of Failure” and would we have had this for Mt Polley dam? Am curious if the company is required to assess what the impact of a breach is, with specifics of what would be possible in environmental terms.
- <!--[if !supportLists]-->2. <!--[endif]-->Item 1(d) – what is meant by “Surveillance” of major impoundments? Is this a guy walking on the dam once a day or are there camera's involved, or regular drill core samples, or xray's, etc.
- <!--[if !supportLists]-->3. <!--[endif]-->Item 1(e) – What was the dam classification for Mt Polley and was there an Emergency Preparedness Plan required? How many dams do we have in the province that are classified as, “High, Very High, or Extreme Consequence”? This doesn't have to be an immediate priority but I want to know sometime in the next 3 or 4 days.
- <!--[if !supportLists]-->4. <!--[endif]-->Item 2 – I assume we'd have all records of Mt Polley's construction of the dam, as they raise it and strengthen it?
- <!--[if !supportLists]-->5. <!--[endif]-->Item 3 – What is meant by “representative cross sections” (drill core)?
- <!--[if !supportLists]-->6. <!--[endif]-->Can you outline what is required to be undertaken to assess and ensure the structural stability of the dam – i.e. drill core samples, etc. ?
- <!--[if !supportLists]-->7. <!--[endif]-->For comparison sake, do you have a list of requirements for the inspections that are undertaken every 5 years?

Thanks

Chris

**Chris Sandve**

Chief of Staff to the Hon. Bill Bennett

Minister of Energy and Mines and Minister Responsible for Core Review

Office: 250-356-9944 | Cell: 250-818-4306 | E-mail: [chris.sandve@gov.bc.ca](mailto:chris.sandve@gov.bc.ca)

**From:** [Nikolejsin, Dave MEM:EX](#)  
**To:** [Sandve, Chris MEM:EX](#)  
**Cc:** [Morel, David P MEM:EX](#); [Haslam, David GCPE:EX](#); [Shotton, Ryan GCPE:EX](#)  
**Subject:** Re: MBB questions on Dam Safety Inspection List  
**Date:** Sunday, August 10, 2014 6:41:29 PM

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Chris, one thing that MBB should know if he doesn't already is that the standards for dam safety apply equally to all dams. So hydro dams are no different.

Dave Nikolejsin  
Deputy Minister  
Energy and Mines

On Aug 10, 2014, at 6:23 PM, "Sandve, Chris MEM:EX" <[Chris.Sandve@gov.bc.ca](mailto:Chris.Sandve@gov.bc.ca)> wrote:

Hi David

Here are MBB's questions on the Dam Safety inspection list –

- <!--[if !supportLists]-->1. <!--[endif]-->Item 1(a) - what is meant by “Consequence of Failure” and would we have had this for Mt Polley dam? Am curious if the company is required to assess what the impact of a breach is, with specifics of what would be possible in environmental terms.
- <!--[if !supportLists]-->2. <!--[endif]-->Item 1(d) – what is meant by “Surveillance” of major impoundments? Is this a guy walking on the dam once a day or are there camera's involved, or regular drill core samples, or xray's, etc.
- <!--[if !supportLists]-->3. <!--[endif]-->Item 1(e) – What was the dam classification for Mt Polley and was there an Emergency Preparedness Plan required? How many dams do we have in the province that are classified as, “High, Very High, or Extreme Consequence”? This doesn't have to be an immediate priority but I want to know sometime in the next 3 or 4 days.
- <!--[if !supportLists]-->4. <!--[endif]-->Item 2 – I assume we'd have all records of Mt Polley's construction of the dam, as they raise it and strengthen it?
- <!--[if !supportLists]-->5. <!--[endif]-->Item 3 – What is meant by “representative cross sections” (drill core)?
- <!--[if !supportLists]-->6. <!--[endif]-->Can you outline what is required to be undertaken to assess and ensure the structural stability of the dam – i.e. drill core samples, etc. ?
- <!--[if !supportLists]-->7. <!--[endif]-->For comparison sake, do you have a list of requirements for the inspections that are undertaken every 5 years?

Thanks

Chris

**Chris Sandve**

Chief of Staff to the Hon. Bill Bennett

Minister of Energy and Mines and Minister Responsible for Core Review



Office: 250-356-9944 | Cell: 250-818-4306 | E-mail: [chris.sandve@gov.bc.ca](mailto:chris.sandve@gov.bc.ca)

**From:** [Demchuk, Tania MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#); [Haslam, David GCPE:EX](#); [Shotton, Ryan GCPE:EX](#)  
**Cc:** [Hoffman, Al MEM:EX](#); [Bellefontaine, Kim MEM:EX](#)  
**Subject:** Chief Inspector orders  
**Date:** Sunday, August 10, 2014 6:47:13 PM  
**Attachments:** [Mount Polley August 7 2014.pdf](#)  
[Letter to Dale Reimer Mine Manager Imperial Metals - Inspection Orders August 10 2014.docx](#)

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All,

Attached are:

1. The draft orders to be sent tomorrow (Aug. 11) regarding an investigation (Word doc)
2. The orders sent to the Mine Manager regarding safe work procedures (PDF). Note that these procedures have been received from the company.

Thanks,

Tania



August 7, 2014

Mr. Dale Reimer  
Mine Manager  
Mount Polley Mining  
Box 12  
Likely, BC V0L 1N0

Mine: 1101163  
ORCS: 19020-40

By mail and email: [dreimer@mountpolley.com](mailto:dreimer@mountpolley.com); [afrye@mountpolley.com](mailto:afrye@mountpolley.com); [jlove@imperialmetals.com](mailto:jlove@imperialmetals.com); [dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)

Dear Mr. Reimer:

**Re: Safe Work Procedures for Sampling**

**Order One**

Pursuant to Part 1.1.2 of the Health Safety and Reclamation Code for Mines in British Columbia, the Mine Manager is ordered to submit a safe work procedure for all water or materials sampling being conducted in and around the tailings storage facility, downstream of the dam breach, Polley Lake, the outlet of Hazeltine Creek and in Quesnel Lake.

This safe work procedure shall be submitted by August 8, 2014 and prior to further sampling work requiring personnel to be in proximity of the outlet of Hazeltine Creek in Quesnel Lake.

**Order Two**

Pursuant to Part 1.1.2 of the Health Safety and Reclamation Code for Mines in British Columbia, the Mine Manager is ordered to submit safe work procedures for all work being conducted on or off the mine site related to the tailings dam breach. This is including but not limited to Polley Lake dewatering activities and construction of the temporary containment berm upstream of the dam breach.

This safe work procedure shall be submitted by August 8, 2014.

Sincerely,

Al Hoffman, P.Eng.  
Chief Inspector of Mines

.../2

Ministry of  
Energy and Mines

Health, Safety and  
Permitting Branch

Mailing Address:  
PO Box 9320  
Stn Prov Govt  
Victoria, BC  
V8W 9N3

Phone: 250 952 0793  
Fax: 250 952 0491

Cc: Mr. David Morel, Assistant Deputy Minister, MEM  
Ms. Diane Howe, Deputy Chief Inspector of Mines, Permitting and Reclamation, MEM  
Mr. Richard Booth, A/Deputy Chief Inspector of Mines Health and Safety, MEM  
Mr. Rolly Thorpe, Deputy Chief Inspector of Mines, Health and Safety, MEM  
Ms. Heather Narynski, Senior Geotechnical Inspector, MEM  
Mr. Stephen Rothman, Senior Inspector of Mines, Kamloops, MEM  
Ms. Tania Demchuk, Senior Environmental Geoscientist, MEM  
Mr. George Warnock, Manager, Geotechnical Engineering, MEM  
Mr. Art Frye, Chief Operating Manager, Imperial Metals Corporation  
Mr. Jack Love, Environmental Superintendent, Imperial Metals Corporation  
Mr. Don Parsons, Chief Operating Officer, Imperial Metals Corporation  
Mr. Hubert Bunce, Environmental Protection, Mining Operations Director, MOE  
Ms. Gabi Matscha, Environmental Quality Section Head, Ministry of Environment  
Ms. Jennifer McGuire, Executive Director, Environmental Protection Division, MOE



August XX, 2014

Mr. Dale Reimer  
Mine Manager  
Mount Polley Mining  
Box 12 Likely, BC V0L 1N0

Mine: 1101163  
ORCS: 19020-40

By mail and email: [dreimer@mountpolley.com](mailto:dreimer@mountpolley.com); [bkynoch@imperialmetals.com](mailto:bkynoch@imperialmetals.com);  
[afrye@mountpolley.com](mailto:afrye@mountpolley.com); [lmoger@mountpolley.com](mailto:lmoger@mountpolley.com); [jlove@imperialmetals.com](mailto:jlove@imperialmetals.com);  
[dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)

Dear Mr. Reimer:

**Re: Chief Inspector Orders in follow-up to site inspections of August 4-8, 2014**

In follow-up to orders you may have received verbally and by email from mines inspectors attending the Mount Polley Mine site between the dates of August 4 to 8, 2014, I hereby order the following actions:

Order 1

The Mine Manager shall conduct a comprehensive investigation of the dam failure of August 4, 2014 to determine the root cause(s) of the event.

- (a) Pursuant to Part 1.7.1(4) of the Health, Safety and Reclamation Code for Mines in British Columbia (Code), the Mine Manager shall ensure that the investigation is carried out by persons knowledgeable in the type of work involved as well as the co-chairpersons of the OHSC or their designates.
- (b) Pursuant to Part 1.7.2 of the Code, on completion of the investigation the Mine Manager shall prepare, for the Chief Inspector, a report that:
  - a. to the extent practicable identifies the causes of the accident,
  - b. identifies any unsafe conditions, acts, or procedures which contributed in any manner to the accident,
  - c. makes recommendations which may prevent similar accidents, and
  - d. is forwarded to the OHSC.
- (c) The investigation report shall be submitted to the Chief Inspector no later than January 15, 2015.

.../2

Ministry of  
Energy and Mines

Health, Safety and  
Permitting Branch

Mailing Address:  
PO Box 9320  
Stn Prov Got  
Victoria, BC  
V8W 9N3

Phone: 250 952 0793  
Fax: 250 952 0491

## Order 2

Pursuant to Section 15(4)(d) of the *Mines Act* the Mine Manager must undertake to remediate the dam failure in a manner that ensures future stability of the tailings storage facility. A plan and schedule for the remediation of the tailings storage facility shall be provided to the Chief Inspector by January 15, 2014.

The Chief Inspector will also be conducting a separate investigation of this incident.

Sincerely,

Al Hoffman, P.Eng.  
Chief Inspector of Mines

Cc: Mr. David Morel, Assistant Deputy Minister, MEM  
Ms. Diane Howe, Deputy Chief Inspector of Mines, Permitting and Reclamation, MEM  
Mr. Rolly Thorpe, Deputy Chief Inspector of Mines, Health and Safety, MEM  
Ms. Heather Narynski, Senior Geotechnical Inspector, MEM  
Mr. Stephen Rothman, Senior Inspector of Mines, Kamloops, MEM  
Ms. Tania Demchuk, Senior Environmental Geoscientist, MEM  
Mr. George Warnock, Manager, Geotechnical Engineering, MEM  
Mr. Art Frye, Chief Operating Manager, Imperial Metals Corporation  
Mr. Jack Love, Environmental Superintendent, Imperial Metals Corporation  
Mr. Don Parsons, Chief Operating Officer, Imperial Metals Corporation  
Mr. Hubert Bunce, Environmental Protection, Mining Operations Director, MOE  
Ms. Gabi Matscha, Environmental Quality Section Head, Ministry of Environment  
Ms. Jennifer McGuire, Executive Director, Environmental Protection Division, MOE

**From:** [Sandve, Chris MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Nikolejsin, Dave MEM:EX](#); [Haslam, David GCPE:EX](#); [Shotton, Ryan GCPE:EX](#)  
**Subject:** Re: MBB questions on Dam Safety Inspection List  
**Date:** Sunday, August 10, 2014 6:55:53 PM

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David - MBB is ok with the approach you have outlined - I have plain language it a bit so we are all on same page - basically -

1. If you have not done an inspection in the past year, you get one done by an independent third party and you get that reviewed by another independent third party.
2. If you have had an inspection done in the past year but it was done by your engineer of record or staff, you need to get it done again by an independent third party and have it reviewed by another independent third party.
3. If you have had an inspection done in the past year and it was done by an independent third party, you do not need to do another inspection but you do need to have that inspection report reviewed by another independent third party.

Sent from my iPhone

On 2014-08-10, at 6:53 PM, "Morel, David P MEM:EX" <[David.Morel@gov.bc.ca](mailto:David.Morel@gov.bc.ca)> wrote:

Thanks Chris.  
We are working on the responses.  
David

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**From:** Sandve, Chris MEM:EX  
**Sent:** Sunday, August 10, 2014 6:23 PM  
**To:** Morel, David P MEM:EX  
**Cc:** Nikolejsin, Dave MEM:EX; Haslam, David GCPE:EX; Shotton, Ryan GCPE:EX  
**Subject:** MBB questions on Dam Safety Inspection List  
Hi David

Here are MBB's questions on the Dam Safety inspection list –

- <!--[if !supportLists]-->1.<!--[endif]-->Item 1(a) - what is meant by “Consequence of Failure” and would we have had this for Mt Polley dam? Am curious if the company is required to assess what the impact of a breach is, with specifics of what would be possible in environmental terms.
- <!--[if !supportLists]-->2.<!--[endif]-->Item 1(d) – what is meant by “Surveillance” of major impoundments? Is this a guy walking on the dam once a day or are there camera's involved, or regular drill core samples, or xray's, etc.
- <!--[if !supportLists]-->3.<!--[endif]-->Item 1(e) – What was the dam classification for Mt Polley and was there an Emergency Preparedness Plan required? How many dams do we have in the province that are classified as, “High, Very High, or Extreme Consequence”? This doesn't have to be an immediate priority but I

want to know sometime in the next 3 or 4 days.

<!--[if !supportLists]-->4. <!--[endif]-->Item 2 – I assume we’d have all records of Mt Polley’s construction of the dam, as they raise it and strengthen it?

<!--[if !supportLists]-->5. <!--[endif]-->Item 3 – What is meant by “representative cross sections” (drill core)?

<!--[if !supportLists]-->6. <!--[endif]-->Can you outline what is required to be undertaken to assess and ensure the structural stability of the dam – i.e. drill core samples, etc. ?

<!--[if !supportLists]-->7. <!--[endif]-->For comparison sake, do you have a list of requirements for the inspections that are undertaken every 5 years?

Thanks

Chris

**Chris Sandve**

Chief of Staff to the Hon. Bill Bennett

Minister of Energy and Mines and Minister Responsible for Core Review

Office: 250-356-9944 | Cell: 250-818-4306 | E-mail: [chris.sandve@gov.bc.ca](mailto:chris.sandve@gov.bc.ca)



**From:** [Sandve, Chris MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Nikolejsin, Dave MEM:EX](#); [Haslam, David GCPE:EX](#); [Shotton, Ryan GCPE:EX](#)  
**Subject:** Re: Chief Inspector orders  
**Date:** Sunday, August 10, 2014 6:58:19 PM

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Thanks - I think the key thing we need which I know Dave and Ryan are already working on is a list of all the other investigations / reports in addition to those covered by this order and a sense of what each of those entail.

Thanks

Chris

Sent from my iPhone

On 2014-08-10, at 6:51 PM, "Morel, David P MEM:EX" <[David.Morel@gov.bc.ca](mailto:David.Morel@gov.bc.ca)> wrote:

Hi Chris

Here is a copy of the current draft of order that we were discussing. Dave and Ryan are working up some points around communications. An order will have to be issued tomorrow to meet requirements of the Act.

David

**From:** [Narynski, Heather M MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Cc:** [Hoffman, Al MEM:EX](#); [Bellefontaine, Kim MEM:EX](#); [Warnock, George MEM:EX](#); [Demchuk, Tania MEM:EX](#)  
**Subject:** Response to MBB's questions  
**Date:** Sunday, August 10, 2014 9:04:07 PM  
**Attachments:** [CDA Dam Safety Guidelines Dam Classification Table 2-1.pdf](#)

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Hi David,

The response to MBB's questions are below (in red text).

Heather

**Heather Narynski, P.Eng**  
Sr. Geotechnical Inspector  
Ministry of Energy and Mines  
1810 Blanshard St., Victoria, BC V8W 9N3  
Wk: 250-387-0883  
Cell: 250-893-3396

**From:** "Sandve, Chris MEM:EX" <[Chris.Sandve@gov.bc.ca](mailto:Chris.Sandve@gov.bc.ca)>  
**Date:** August 10, 2014 at 6:23:02 PM PDT  
**To:** "Morel, David P MEM:EX" <[David.Morel@gov.bc.ca](mailto:David.Morel@gov.bc.ca)>  
**Cc:** "Nikolejsin, Dave MEM:EX" <[Dave.Nikolejsin@gov.bc.ca](mailto:Dave.Nikolejsin@gov.bc.ca)>, "Haslam, David GCPE:EX" <[David.Haslam@gov.bc.ca](mailto:David.Haslam@gov.bc.ca)>, "Shotton, Ryan GCPE:EX" <[Ryan.Shotton@gov.bc.ca](mailto:Ryan.Shotton@gov.bc.ca)>  
**Subject:** MBB questions on Dam Safety Inspction List

Hi David

Here are MBB's questions on the Dam Safety inspection list –

1. Item 1(a) - what is meant by “Consequence of Failure” and would we have had this for Mt Polley dam? Am curious if the company is required to assess what the impact of a breach is, with specifics of what would be possible in environmental terms.
  - All dams are classified by Consequence of Failure according to the Canadian Dam Association Dam Safety Guidelines (CDA Guidelines – Table 2-1 attached)
  - The consequence classification considers population at risk, loss of life, environmental and cultural values and infrastructure and economy.
  - The Mount Polley tailings dam was classified as Significant.
  - The consequence classification determines the design criteria for the dam structure (i.e. the higher the consequence the more robust the design).
2. Item 1(d) – what is meant by “Surveillance” of major impoundments? Is this a guy walking on the dam once a day or are there camera's involved, or regular drill core samples, or xray's, etc.
  - The level of surveillance and monitoring on tailings impoundments depends on the size/scale of the facility and the dam consequence classification. Some examples of what this includes:
    - Visual inspection (eg. signs of

instability, freeboard, seepage, vegetation etc.)

- Instrumentation in the dam to monitor pore water pressures and movement (eg. Piezometers, slope inclinometers)
- Compaction testing and material specifications during construction
- Monitoring of operations (eg. water balance)

3. Item 1(e) – What was the dam classification for Mt Polley and was there an Emergency Preparedness Plan required? How many dams do we have in the province that are classified as, “High, Very High, or Extreme Consequence”? This doesn’t have to be an immediate priority but I want to know sometime in the next 3 or 4 days.

- The consequence classification for the dam at Mount Polley was Significant.
- Because the dam was ranked as Significant consequence, the Health, Safety and reclamation Code (Section 10.6.8) did not require an Emergency Preparedness Plan (and dam break inundation study).
- The Mine had a current Operations, Maintenance and Surveillance Manual (OMS), which included Emergency Procedures involving a general framework for emergency response (i.e. not a specific response to a dam break).
- The following table outlines the dams that have high, very high and extreme consequence classification. The numbers are approximate. This list only includes tailings dams, water storage dams and sediment ponds for permitted metal and coal mines. Some facilities have multiple dams, and some mines have multiple facilities. There are other closed and abandoned facilities that are not included in this table.

	HIGH	VERY HIGH	EXTREME
Sediment Pond	4		
Water Storage Facility	8		
Tailings Storage Facility	34	27	6
Total	46	27	6

4. Item 2 – I assume we’d have all records of Mt Polley’s construction of the dam, as they raise it and strengthen it?

- Yes, the Ministry has copies of design reports for each stage of the impoundment design. This is what has been approved through some of the Mines Act permit amendments.

5. Item 3 – What is meant by “representative cross sections” (drill core)?

- Design drawings are required to be provided in plan view (from above), and cross sections (across the dam) at representative points.
6. Can you outline what is required to be undertaken to assess and ensure the structural stability of the dam – i.e. drill core samples, etc. ?
- The general requirements for a new tailings impoundment facility include:
    - Sub-surface investigation of foundation conditions
    - Design and stability analysis
    - Construction in accordance with the design and construction specifications with appropriate QA/QC and monitoring
    - Operations, maintenance and surveillance (i.e. visual and instrumentation monitoring) in accordance with the design and the

OMS  
manual.

7. For comparison sake, do you have a list of requirements for the inspections that are undertaken every 5 years?

- The framework and requirements for a Dam Safety Review are more comprehensive than that required for an annual Dam Safety Inspection (as required in Section 10.5.3 of the Code), and are outlined in the CDA Dam Safety Guidelines, and in the APEGBC Professional Practice Guidelines for Legislated Dam Safety Reviews in BC. Ministry geotechnical engineers were involved with the formation of these guidelines (link below).

<https://www.apeg.bc.ca/getmedia/a373a764-1869-41b5-b07d-81d36a0698c3/APEGBC-Legislative-Dam-Safety-Reviews.pdf.aspx>

- The frequency of dam safety review is dependent on the consequence classification (see table below).
- Since the consequence classification for the Mount Polley dam that breached is Significant, the frequency of dam safety review is every 10 years. The last one was completed in 2006 and the next one was due in 2016.

Dam Consequence Classification	Frequency of Dam Safety Review (DSR)
EXTREME	Every 5 years
VERY HIGH	Every 5 years
HIGH	Every 7 years
SIGNIFICANT	Every 10 years
LOW	N/A

Thanks

Chris

**Chris Sandve**

Chief of Staff to the Hon. Bill Bennett

Minister of Energy and Mines and Minister Responsible for Core Review

Office: 250-356-9944 | Cell: 250-818-4306 | E-mail: [chris.sandve@gov.bc.ca](mailto:chris.sandve@gov.bc.ca)



**From:** [Nikolejsin, Dave MEM:EX](#)  
**To:** [Morel, David P MEM:EX](#)  
**Subject:** Re: Mount Polley - Investigation into Breach  
**Date:** Sunday, August 10, 2014 10:11:10 PM

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s.22 n iPhone. Can you send this to the group before 830 so they can see it as we discuss.

Thanks.

Dave Nikolejsin  
Deputy Minister  
Energy and Mines

On Aug 10, 2014, at 8:50 PM, "Morel, David P MEM:EX" <[David.Morel@gov.bc.ca](mailto:David.Morel@gov.bc.ca)> wrote:

s.14

Pages 72 through 73 redacted for the following reasons:

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s.14