

## Hayes, Dana GCPE:EX

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**From:** Shotton, Ryan GCPE:EX  
**Sent:** Friday, August 8, 2014 7:10 PM  
**To:** Haslam, David GCPE:EX; GCPE Comm Directors; GCPE Comm Managers  
**Subject:** RE: Mt Polley Communications Materials  
**Attachments:** Q&A\_MtPolleyTailingsPondBreach-Aug2014.docx; KM\_MtPolleyTailingsBreach.docx

All – attached are updated KMs and QA – thanks

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

### **General:**

#### **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

#### **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

#### **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

#### **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.

### **Mt. Polley Mine & Imperial Metals**

#### **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.

### **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

### **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

### **Is imperial required to ensure contents of pond within these guidelines at all times, how is this monitored / ensured, what action is taken when guidelines not met?**

- Wastewater stored in a Tailings Storage Facility (commonly referred to as a tailings pond) is not required to meet drinking water standard of water quality guidelines
- The purpose of including the drinking water standard of Water Quality Guidelines was to describe the relative toxicity of the effluent released from the Mount Polley Tailings pond during this weekend's breach.
- The water quality guidelines are also considered when Environmental Management Act statutory decision makers determine the authorized effluent discharge quality from a Tailings Storage Facility into a water body.
- The authorized limit is situation specific and allows for an initial dilution zone in the water body. The authorized effluent discharge may not be the same as the drinking water standard of respective water quality guideline.
- If the company discharges effluent that does not meet the requirements of the permit or discharges without a permit, compliance measures will be taken as per the Environmental Management Act.

### **How many times has Mt. Polley been inspected over the past several years?**

- Since the mine was permitted in 1995, there have been 16 geotechnical inspections conducted by Ministry Geotechnical Inspectors. 7 geotechnical inspections took place before the mine went into care and maintenance in 2001 and 9 geotechnical inspections have taken place since it re-opened in March 2005.

### **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

## **Unsafe practices at Mt Polley Mine**

### **An ex-employee alleged that water actually overtopped the dam in May 2014 – is that true?**

- A Ministry inspector completed an investigation after the concern was brought to his attention. There was no evidence to show that the dam was overtopped.
- The company has indicated that there were no incidents.

### **Is there any other way to confirm whether or not water went over the dam?**

- This will form part of our investigation. We will conduct further interview employees and review records to determine if there is any evidence to suggest that the dam was overtopped.

### **What is the May 24 incident the minister keeps referring to? What happened?**

- Following reports of an overtopping of the tailings dam in May 2014, Ministry of Energy and Mines officials investigated the incident and determined it was not a breach but an incident of when the height of the water within the tailings pond was above the permitted requirements. This occurred in a different area of the facility than the August 4th dam failure.
- At the time of the May incident, the distance between the water elevation and the crest of the dam (freeboard) was less than one meter. A letter from the mine confirms that the water returned to authorized levels on July 4, 2014. Mine records show that the operation was carrying out visual dam inspections and measuring freeboard at an increased frequency, following the May incident.
- The Ministry of Energy and Mines is not aware of any overtopping incidents of the tailings dams at Mount Polley.

## **Water quality and Ongoing Sampling**

### **What are the latest water results?**

- All Do Not Use water restrictions are rescinded north on the Quesnel River where it narrows and is shallow. This area is described as including and north of 6236 Cedar Creek Road on the Quesnel River and the balance of the Quesnel River system to the Fraser River have been removed
- This means that water drawn from the Quesnel River, including and North of 6236 Cedar Creek Road on Quesnel River in Likely may be consumed per normal practice, and is now safe for recreational purposes from a health perspective. However, given the presence of debris on these waters, recreational users are advised to avoid these areas.
- The communities that are still under the ban include Winkley Creek, Abbott Creek, Mitchell Bay and the East Arm of Quesnel Lake
- Until further notice, a Do Not Use order for drinking water, personal and recreational use remains in effect for Polley Lake, Hazeltine Creek, Cariboo Creek all parts of Quesnel Lake and points south of 6236 Cedar Creek Road on the Quesnel River in Likely
- The public should also continue to refrain from using the waterways for recreational purposes. This includes swimming and fishing

### **What were the initial results of the water samples?**

- Preliminary results from initial water quality samples indicate there are no concerns with drinking water quality
- Samples collected near the Town Site of Likely and on the North Shore of Quesnel Lake indicate that none of the analysed contaminant concentrations exceeded BC or Health Canada Drinking Water Guidelines

### **If the water quality samples indicate there are no concerns, why hasn't the ban been lifted?**

- While this is good news, the drinking water ban continues until more results are available confirming it is safe to use
- Daily water sampling will take place in accessible locations for the foreseeable future, with those results shared with Interior Health and the Cariboo Regional District so they can make informed decisions about whether or not to rescind the water ban

### **What about fish and marine life, are they in danger? Will salmon in the Fraser River be impacted?**

- Preliminary results from water testing also show contaminant concentrations were below aquatic life guidelines at all sites tested and any impact to aquatic life and fish is not expected
- While impacts to the Fraser River are not expected, a sampling plan is being developed that would see locations downstream of Quesnel Lake sampled including the Fraser River
- Current flows in the Fraser River are expected to provide additional high levels of dilution to any of the water resulting from the breach – thus water resulting from the breach is not expected to impact fish currently in, or entering, the Fraser River
- Fish tissue samples have not yet been collected; however, tissue sampling is planned in the near future

### **Mt Polley Tailings Pond Dam and Ongoing Risks**

- All decisions on the ground are being made on a day to day and hour to hour basis.

### **What is the estimated time for the completion of the berm to plug the hole in the wall of the dam by the company?**

- This is a large structure that will take some time to build completely and preliminary estimates state it could take approximately two weeks to construct.
- It will be 100 meters across and will require one million tonnes of non-acid generating rock
- It is critical that it be constructed properly so that workers, the environment and the public are not placed at further risk.

### **What is the plan for the diking of the tailings silt that has slid down towards but not yet into Polley Lake?**

- This will need to happen soon since rain is in the forecast.
- The short term efforts at the moment focus on containing remaining tailings in the impoundment and reducing the water level in Polley Lake.
- The plan to address the tailing in the scoured creek channel will take some time to develop.

- It is not safe to access and evaluate this area because of the risk of the plug failure in the material blocking Polley Lake.

#### **What is the problem with Polley Lake?**

- Sediments and debris have created an unstable blockage at Polley Lake that has resulted in a build-up of water that could result in a sudden uncontrolled breach making it unsafe for staff to take water samples.
- It will be necessary to pump out the excess water in Polley Lake in order stabilize it and to avoid a potential release of more sediments and debris into the surrounding waterways.

#### **How are they going to deal with the excess water at Polley Lake?**

- Currently water is being pumped out of Polley Lake into White Pit and Springer Pit, two historic pits.
- Pipe is now being put into place to pump water out of Polley Lake into Hazeltine Creek and eventually into Quesnel Lake.

#### **Why is extra water in Polley Lake an issue and why do they need to pump water out?**

- An uncontrolled release could carry more tailings pond sediments into nearby Quesnel Lake and potentially compromise water quality and lengthen the water ban.
- A controlled release of excess water into will reduce the risk of sediments reaching Quesnel Lake and help officials stabilize the area and begin clean-up and restoration.

#### **Cleanup and Environmental Impacts**

##### **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

##### **What actions does the Pollution Abatement Order instruct Mt Polley to carry out?**

- The Ministry of Environment has issued a Pollution Abatement Order to Mount Polley Mining Corp. This order requires immediate action to stop the further release of mine tailings into nearby waterways and to submit environmental impact assessments and clean-up action plans to the ministry.
- It also requires the company to submit a written summary of actions taken to stop the release of mine tailings and to undertake preliminary environmental impact assessment and submit an action plan by today. The company must also submit a detailed action plan by Aug 15, and it is required to report weekly on the implementation of action plan measures.

**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 Mm<sup>3</sup> (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 m<sup>3</sup>/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 Hazeltine 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 m<sup>3</sup>/y of treated effluent (ditch water) to Polley Lake, which overflows to Hazeltine Creek.
- This application was received by the ministry this summer, and is being considered.

**Regional Issues**

**The Caribbo Regional District has declared a State of Emergency – what does that mean/involve?**

- The Cariboo Regional District (CRD) declared a state of local emergency (SOLE) allowing it the exceptional powers to suspend certain rights and freedoms in the interest of ensuring public safety.
- In this case, the CRD required the ability to gain access to private property in order to provide heavy equipment support to the West Fraser Mills forest company that is deploying tub boats for collection/control of woody debris from Lake Quesnel.
- Additionally, the declaration allows the CRD better enable a fair distribution of potable water to the residents of Likely.

**Is the Likely Bridge in danger with all the floating debris?**

- At this point, there is no imminent threat to the structure
- Good progress is being made by West Fraser to boom the debris in Quesnel Lake and prevent it from reaching the bridge

- The Ministry of Transportation has two excavators stationed at the Likely Bridge to respond should any significant accumulations of debris threaten the bridge

### **Broader Mining in BC Issues**

#### **Is water treated before it flows out of a tailings pond or is it simply given enough time to settle out then released?**

- Wastewater stored in a Tailings Storage Facility (commonly referred to as a tailings pond) is not required to meet drinking water standards of water quality guidelines.
- The water quality guidelines are considered when Environmental Management Act statutory decision makers determine the authorized effluent discharge quality from a Tailings Storage Facility into a water body.
- The authorized limit is situation specific and allows for an initial dilution zone in the water body. The authorized effluent discharge may not be the same as the drinking water standard of respective water quality guideline.
- If the company discharges effluent that does not meet the requirements of the permit or discharges without a permit, compliance measures will be taken as per the Environmental Management Act.

#### **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 are the potential penalties if it has been determined regulations were not followed?**

- 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

#### **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

#### **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 applied to other mines in the province as appropriate

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

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, molybdenum	Near Williams Lake	Re-opened by 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 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
- 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:

- Energy and Mines Inspectors are starting the interview process in conjunction with the Conservation Service
- This will involve interviewing mine staff and the review of all applicable documentation on the mine site
- Inspectors of Mines and other agencies will undertake a comprehensive investigation to determine causes for the breach – this will take several months
- 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

#### On latest water samples – Aug 8

- All Do Not Use water restrictions have been rescinded north of 6236 Cedar Creek Road on the Quesnel River and the balance of the Quesnel River system to the Fraser River have been removed
- This means that water drawn from the Quesnel River, including and North of 6236 Cedar Creek Road on Quesnel River in Likely may be consumed per normal practice, and is now safe for recreational purposes from a health perspective. However, given the presence of debris on these waters, recreational users are advised to avoid these areas.
- The communities that are still under the ban include Winkley Creek, Abbott Creek, Mitchell Bay and the East Arm of Quesnel Lake
- Until further notice, a Do Not Use order for drinking water, personal and recreational use remains in effect for Polley Lake, Hazeltine Creek, Cariboo Creek all parts of Quesnel Lake and points south of 6236 Cedar Creek Road on the Quesnel River in Likely
- The public should also continue to refrain from using the waterways for recreational purposes. This includes swimming and fishing

#### On water quality results:

- Preliminary results from initial water quality samples indicated there are no concerns with drinking water quality
- Samples collected near the Town Site of Likely and on the North Shore of Quesnel Lake indicate that none of the analysed contaminant concentrations exceeded BC or Health Canada Drinking Water Guidelines
- Preliminary results from water testing also show contaminant concentrations were below aquatic life guidelines at all sites tested and any impact to aquatic life and fish is not expected

- A full list of the contaminants tested can be found on the ministry website dedicated to this incident; they include total and dissolved metals as well as pH and turbidity
- Sampling has been taken from four different depths at some locations in Quesnel Lake
- Daily water sampling will take place in accessible locations for the foreseeable future, with those results shared with Interior Health and the Cariboo Regional District so they can continue to make informed decisions

#### On impacts to the Fraser River and migrating salmon:

- Current flows in the Fraser River are expected to provide additional high levels of dilution to any of the water resulting from the breach – thus water resulting from the breach is not expected to impact fish currently in, or entering, the Fraser River
- Fish tissue samples have not yet been collected; however, tissue sampling is planned in the near future
- Generally, bio-accumulation of contaminants in fish occurs over a longer exposure time than a few days and given that the water meets drinking water guidelines it is unlikely there will have been any short term effects.
- Reported fish kills are likely to be due to physical issues, such as increased turbidity, and not chemical contamination
- The Province will work with First Nations around long-term monitoring of fish health
- Through the pollution abatement order, the ministry is ensuring proper monitoring will be in place and that public health and the environment will be protected

#### On continued water sampling:

- To-date, sampling has been done in areas where the highest levels of run-off from the tailings pond are expected to be located

- Due to safety concerns around accessing Polley Lake, no samples have been taken from that location. Environment staff will begin sampling as soon as it is safe to do so
- Environment Ministry staff have directed officials to obtain results as quickly as possible, however, it is important that the protocols for legal sampling are followed so we get accurate results
- The Ministry of Environment will provide results to Interior Health officials and the Cariboo Regional District Emergency Operations Centre when they become available
- The Ministry will continue to conduct water sampling tests daily to determine the impacts on water quality
- The Ministry is also working with Imperial Metals to develop both short-term and long-term plans for further water quality testing
- The Ministry intends to post results on our website, including a map of the sampling locations
- Further information is expected to be available in the coming days

#### Mt Polley Tailings Pond Dam and Ongoing Risks

- All decisions on the ground are being made on a day to day and hour to hour basis.
- Imperial Metals is constructing a berm to plug the hole in the wall of the dam by the company
- This is a large structure that will take some time to build completely and preliminary estimates state it could take approximately two weeks to construct
- It will be 100 meters across and will require one million tonnes of non-acid generating rock
- It is critical that it be constructed properly so that workers, the environment and the public are not placed at further risk

### Polley Lake Excess Water

- Sediments and debris have also created an unstable blockage at Polley Lake that has resulted in a build-up of water that could result in a sudden uncontrolled breach making it unsafe for staff to take water samples
- As a result, it will be necessary to pump out the excess water in Polley Lake in order to stabilize it and to avoid a potential release of more sediments and debris into the surrounding waterways
- Currently water is being pumped out of Polley Lake into White Pit and Springer Pit, two historic pits
- Pipe is now being put into place to pump water out of Polley Lake into Hazeltine Creek and eventually into Quesnel Lake
- This is necessary because an uncontrolled release could carry more tailings pond sediments into nearby Quesnel Lake and potentially compromise water quality and lengthen the water ban
- A controlled release of excess water into will reduce the risk of sediments reaching Quesnel Lake and help officials stabilize the area and begin clean-up and restoration

### On the Pollution Abatement Order:

- The Pollution Abatement Order issued to Mount Polley Mining Corp. requires immediate action to stop the further release of mine tailings into nearby waterways
- It also requires the company to submit environmental impact assessments and clean-up action plans to the ministry
- A written summary of actions taken to stop the release of mine tailings and to undertake preliminary environmental impact assessment and submit an action plan must also be submitted
- The company must also submit a detailed action plan and it is required to report weekly on the implementation of action plan measures

Background:

Update

Not Responsive

Aug 7: Premier Clark and Environment Minister Mary Polak landed in Williams Lake today and spent the day assessing the damage and meeting and engaging with residents impacted by the breach. A community event was held in Likely at 3pm where water results were revealed to be good news, although a precautionary drinking water ban remains pending further test results.

Not Responsive

Not Responsive

From: Groot, Jeff GCPE:EX [mailto:Jeff.Groot@gov.bc.ca]

Sent: Thursday, August 07, 2014 08:38 PM

To: Bennett, Bill; Hancock, Tom ENV:EX; Sandve, Chris MEM:EX; Fraser, John Paul GCPE:EX; Gordon, Matt GCPE:EX; Haslam, David GCPE:EX; Chin, Ben PREM:EX; Mills, Shane; Cadario, Michele PREM:EX; Grant, Wade PREM:EX; Crebo, David GCPE:EX; Jabs, Ryan GCPE:EX; Wanamaker, Lori JAG:EX; Polak, Mary ENV:EX; McGuire, Jennifer ENV:EX  
Subject: Imperial mtg summary

Sorry for delay folks. Just got found a signal on way back to WL. Attachments are photos of their handout. I believe they are what the company posted online, but wanted to be sure. Please note bold italics of things I want to flag.

Summary:

Brian and Steve (speakers)

Water results announced today reflect our sampling.

Apologize for inconvenience.

Focused on mitigating effects.

2 things at mine aren't safe. Been busy working on stabilization efforts.

Board of directors meeting - has same determination as I do to make this right This event is a shock to our corp. will do everything we can to make it right.

Steve:

Initial phase of action plan. Just part of what will be a long process.

There will be more meetings where we will update you.

Wood recovery...

- wood mostly to south toward Mitchell bay
- had boom boats on lake which have cleared up most of big logs
- 4 small crafts going after smaller logs
- tomorrow individuals will go door to door to ask if they can help with clean up.
- high priority areas first (Mitchell bay)
- saw mill, chipper (hog fuel) or pulp mill are 3 outcomes for logs

Water level in polley lake...

- lake raised 1.7m
- tailings formed blockage
- 1. Pump water into springer pit at pipeline



- 2. Redirect water into hazeltine creek
- build a rock dike on inside of impoundment to stop tailings from going outside
- no good time estimate yet but hopeful it will go relatively quickly

Water and sediment sampling...

- taking sediment samples around recreation sites
- will be first set used to model what is going on

Adding to team...

- bringing in more experts, aquatic, toxicity, etc

QA:

Q. Water releasing into hazeltine creek?

Doing clean water diversion. The water released will meet prov standards. Will be water testing.

Prov made decision on water testing. They want to be cautious. We don't have any control over it.

Q. Couldn't hear

Toxic sludge is not our terminology. We think community needs to understand competition. Tailings are effectively ground up rock. Non acid generating.

Tailings expected to be washed out in first rain event. We want to bypass the blockage and divert clean water around.

Human safety is an issue. Need to de-water polley lake to make it safe to get in there.

Really want to get level down before a rainstorm. We are taking it up the hill as well into the pit.

Q. Couldn't hear

Working closely with province. Have filed action plan. Are coordinated in our efforts. Initiated water sampling program at polley lake today.

Committed to clean this up and make it safe.

Q. Why don't you use a helicopter to test the water?

That's why we need to lower the level of the lake. It is a huge risk of the plug going down. The pits won't hold it all.

Our problem is a big rainstorm that sludge -- those tailings could go down the hill.

Q. How are you paying for the cleanup?

We have insurance coverage and have made claims. Right now is through corporate funds.

Q. Couldn't hear

We can't fix the breach without de risking the situation. Will take longer than a few days.

Q. What happens if a rain hits?

That's why we are doing these things. We want to minimize risk.

Q. If everything goes well how long to reopen?

Too soon to tell. Going to make sure it is done right.

Q. Will MEM be a barrier?

No. Ministry works for people of BC. They have a job to do. Will work as cooperatively as possible. At the same time, they are policing us.

Q. How much is your insurance coverage and do you have money to recover?

Tens of millions in insurance. We don't have \$400m in the bank so we will have to get mine running if that's how much it costs. But we don't know what cleanup would cost yet.

Q. Workforce?

The guys we can keep in work we will. We will call our own people first.

Q. Will you block the creek permanently?

Erosion in hazeltine creek most likely down to native soil as well. When area is safe we will go in to assess any evidence of tails in that area. Want to get it back to natural state ASAP.

Q. Fixing ditch road?

Haven't incorporated that into planning yet. Safety first. Will be incorporated into our rehab plans.

Q. What is pond made of?

3 sides damn, one side hillside. Outer shell of damn made of waste rock.

Q. Why did it fail?

Can't answer. Can't speculate.

Q. Are you going to use employees at other operations?

Can fulfill our needs with existing staff.

Q. PCC said you have insurance bond of \$13m?

That's a reclamation bond in place in case we can't perform. That is not accessible until/unless we couldn't perform.

Q. Did anyone recommend changes following original design?

We built dam according to design. It is still the original design. We haven't exceeded design. If we would've been told to build a bigger dam, we would've

Q. Was there enough rock put down?

For the dam we have, yes. At any given time, we had the right amount.

Q. 7 yrs ago we had a mtg about mount polley being opened. They said because of neglect, one of the ponds was full?

The pond was never neglected. Every year pond is inspected. Not neglected by MEM either.

Q. If you were having problems, is next consideration to send tailings down hazeltine?

No. We are building dike on inside of breach area. Our intent with polley lake is to get it back to what it was.

Q. Won't water you are diverting be toxic?

No. Will be mixed with polley lake water. Just below drinking water standards.

Q. Why don't you fill pumper trucks and take the water to your house?

Safest is around hazeltine creek. Trucks couldn't take 4m cubic meters.

Q. How much water fits in the pit?

Don't know. Time is the issue. Could take months if we do trucks. Nothing will be pumped until province approves water quality.

Q. What will you do?

Building a pipeline. Told them to do it in days. Line is 22" or 24". Tomorrow morning will pump as much as we can into the springer pit.

Q. Hazeltine is right down to bedrock?

Thin layer of tailings between plug and delta. Most tailings in plug or in delta.

Q. How do you know that?

We are doing it by aerial observation. Can't work til we deal with polley lake water levels.

Q. Your immediate risk is sockeye. Isn't dumping water a problem?

Water quality is good water. That is a key part of our plan. What we are doing cannot have downstream effects - that is an ongoing focus of our plan.

Q. Would it not be safer to divert water through the forest?

At the rate we need to pump, that isn't an option. It would find a channel in the forest and create erosion.

Q. How many pits? Could they not hold it and let you build a treatment plant?

2 working and an underground operation. Elevation gain to get it into the pits means it is slow pumping. Couldn't get it up there before the next rain.

Q. You have suffered a breach of community trust. Would you let community elect liaisons to oversee what you are doing?

A lot of our employees are your neighbours.

Q. But they could be fired.

We are committed to open communication and keeping regulators involved. We can't have community members run the mine. We will make every effort to keep you comfortable. I understand there is a trust issue and we want to overcome that.

Q. So our feedback will come over a head table?

I'm progressive. Open to ideas. We will take idea of elected liaisons under advisement. We will get back to you.

Q. Would like to see the numbers supporting your argument that pumping to pits isn't an option.

We can work on that.

Q. Fed and Prov govt's assured us you would pump a lot into those pits.

To the extent we can, we will.

Q. How big are the pits?

I'll get that to you. If it wasn't for the time issue, I would pump it back into the pits. But I'm frightened about the rain. We can't have another debris torrent. I don't want that to happen again. We will do it as quickly as the province lets us. We need province to ok this.

Q. Which pit?

Springer.

Q. What are future operations of the mine?

Can't discuss. Ultimate plan is back in operation. Dealing with today's issue right now. I don't know.

Q. How is polley draining?

It isn't. Lucky that weather has held and it is staying level. We have to achieve aquatic life guidelines. Without that, governments won't let us pump it. I will contact ENV tomorrow to see if we can get their samplers if you don't trust us.

Q. Booming on Quesnel lake?

Most of big logs free floating have been boomed.

Q. How are you cleaning up the wood debris?

2 boom boats and 4 smaller crafts. That has cleaned up most of floating logs. Equipment at the narrows and 24hr log watch at the bridge. Threat there is almost nil but we are continuing the watch.

Q. Concern of toxicity with debris?

No. Worst would be tailings and they are relatively benign.

Q. No trust. Did you listen to the guys that were working on building the dam that had put forth complaints?

There is a time where we will be judged. Feel we have done a diligent job and had best work practices. Can't deal with those accusations at this time.

Q. At Mitchell Bay, larger masses of logs are in the bay. Only one boat. Are you aware?

We aren't aware. We have folks out there who are aware.

Q. Just rumour, but was original plan that brought the mine here one that included on releasing of any water?

You are correct. Until closure, and then there would be a place. The first time we had a permit was last year.

We now don't have to model what the water release looks like.

Q. Does that not suggest your plan was tainted?

Mine lasted longer than plan. We would've been closed and discharged by now if we hadn't found more ore.

Q. Are you operating in overflow conditions? Did you align with Olding report?

Engineers on our dam never told us to change. If they had, we would've changed.

Q. Is there fish in polley lake? Any dead ones?

No reports we have of dead fish. We haven't seen. Wouldn't surprise me if some fish were killed by impact.

Q. Estimate of cleanup costs?

Too early. This is only the first phase.

Q. Is there a plan to rebuild the tailings dam?

Dike is first priority.

Q. Berm? How big? How long?

Berm (dike) is 16m thick at top. 600m wide. 25-35m high. 2-3 weeks to build. We will propose: investigate, design, permits, build permanent solution.

Am only thinking about making it as safe as possible as quickly as possible.

Whether mine goes or not, the breach needs to be permanently sealed.

Q. Have you proposed this plan to govt? How long til you get approval?

I believe we have permission for pits. We have permission for berm/dike. I expect permission for pumping into creek.

Q. Are all the guys back at work?

Entire mining crew is back. Milling dept is a part-crew.

Q. How many ppl out of work?

35-40

Q. How quick will work be done?

Abatement order sets deadlines for us.

Q. Would you budget for two remote mics?

Excellent idea.

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Figure 1

**MOUNT POLLEY MINE****Tailings Impoundment Solids Analysis (2013)**

		Average
<b>Metals</b>		
Aluminum (Al)	%	2.01
Antimony (Sb)	ppm	0.46
Arsenic (As)	ppm	10.63
Barium (Ba)	ppm	199.45
Beryllium (Be)	ppm	0.71
Bismuth (Bi)	ppm	<0.20
Cadmium (Cd)	ppm	0.13
Calcium (Ca)	%	2.67
Chromium (Cr)	ppm	20.63
Cobalt (Co)	ppm	17.55
Copper (Cu)	ppm	810.91
Iron (Fe)	%	5.14
Lead (Pb)	ppm	4.85
Lithium (Li)	ppm	16.05
Magnesium (Mg)	%	1.08
Manganese (Mn)	ppm	522.55
Mercury (Hg)	ppm	0.07
Molybdenum (Mo)	ppm	5.54
Nickel (Ni)	ppm	9.06
Phosphorus (P)	%	0.13
Potassium (K)	%	0.23
Selenium (Se)	ppm	1.14
Silver (Ag)	ppm	0.31
Sodium (Na)	%	0.16
Strontium (Sr)	ppm	247.82
Thallium (Tl)	ppm	<0.50
Tin (Sn)	ppm	2.25
Titanium (Ti)	%	0.17
Uranium (U)	ppm	1.03
Vanadium (V)	ppm	197.55
Zinc (Zn)	ppm	51.13



Figure 2  
Tailings Impoundment Water Quality (August 2009 - May 2014)

Date/Time	Mean	Maximum	Minimum	Drinking Water Quality Guidelines (BC/Canada)
Physical Parameters				
Conductivity (in situ) (µs/cm)	1352	2001	766	
pH (in situ) (pH)	8.54	9.94	7.30	
Temperature (in situ) (Degrees Celcius)	9.0	21.8	1.2	
Hardness (as CaCO3) (mg/L)	543	970	313	
Total Suspended Solids (mg/L)	9.5	54.9	1.5	
Total Dissolved Solids (mg/L)	1080	2450	730	500
Anions and Nutrients				
Chloride (Cl) (mg/L)	27.7	44.0	17.7	250
Sulphate (mg/L)	647	1100	397	500 (aesthetic)
Ammonia (as N) (mg/L)	0.284	0.719	0.0348	
Nitrate (as N) (mg/L)	5.68	8.15	3.42	10
Nitrate and Nitrite (as N) (mg/L)	6.29	8.33	4.44	
Nitrite (as N) (mg/L)	0.140	0.917	0.016	1
Total Nitrogen (mg/L)	7.05	10.50	3.62	
Phosphorus (P) Total (mg/L)	0.0236	0.0850	0.0035	
Dissolved Metals				
Aluminum (Al)-Dissolved (mg/L)	0.0191	0.0547	0.0082	0.2
Iron (Fe)-Dissolved (mg/L)	0.015	0.015	0.015	
Total Metals				
Antimony (SB) - Total (mg/L)	0.00222	0.00516	0.00087	0.006
Arsenic (As) - Total (mg/L)	0.00223	0.00377	0.00125	0.01
Barium (B) - Total (mg/L)	0.0780	0.108	0.0392	1
Cadmium (Cd)-Total (mg/L)	8.970E-05	0.0005	0.00001	0.005
Copper (Cu)-Total (mg/L)	0.0137	0.0641	0.0020	0.5
Chromium (Cr)-Total (mg/L)	0.0005386	0.00209	0.0003	0.05
Iron (Fe)-Total (mg/L)	0.266	1.69	0.033	3 (aesthetic)
Lead (Pb)-Total (mg/L)	0.00018	0.00115	0.000025	0.01
Mercury (Hg)-Total (mg/L)	1.7857E-05	0.000025	0.000005	0.001
Manganese (Mn)-Total (mg/L)	0.0350	0.1160	0.0063	0.05 (aesthetic)
Molybdenum (Mo)-Total (mg/L)	0.205	0.287	0.125	0.25
Nickel (Ni)-Total (mg/L)	0.00062	0.00165	0.00025	
Silver (Ag)-Total (mg/L)	0.0000126	0.000049	0.000005	
Selenium (Se)-Total (mg/L)	0.0241	0.0346	0.0158	0.01
Sodium (Na)-Total (mg/L)	89.8	119.0	55.9	200 (aesthetic)
Zinc (Zn)-Total (mg/L)	0.0024	0.0062	0.001	5 (aesthetic)
Organics				
Dissolved Organic Carbon (mg/L)	5.98	10.70	2.45	

Notes:  
1) Parameters exceeding water quality guidelines (on average) are shown in red

## **Introduction**

- Thank you for coming
- Introduce:
  - Jennifer McGuire, Environmental Protection Division, Ministry of Environment
  - Al Richmond, Chair Regional District
- Acknowledge:
  - Minister Oakes
  - MLA Barnett
- Want to provide an update on the work underway to address and mitigate impacts to the community and the environment
- Also want to provide an update on investigations into the cause of the breach
- We are devoting every appropriate resource to addressing this incident
- This should not have happened and we are determined to prevent an incident like this from happening again

## **Water Quality and Water Samples**

- The current water ban is necessary as we err on the side of caution
- Environment Ministry staff took initial water quality samples on August 4 from the waterways impacted by the tailings pond spill
- These samples were sent to Vancouver on Tuesday morning for analysis and we have directed officials to obtain results as quickly as possible
- Given the nature of the issue, it is important that the protocols for legal sampling are followed so we get accurate results
- We may get preliminary results as early as tomorrow; however, this is not confirmed
- The Ministry of Environment will provide results to Interior Health officials and the Cariboo Regional District Emergency Operations Centre when they become available

- The Ministry continues to conduct water sampling tests daily to determine the impacts on water quality
- The Ministry is also working with Imperial Metals to develop both short-term and long-term plans for further water quality testing

### **Polley Lake**

- Due to the large amount of tailings in Polley Lake, the water level has risen
- Water levels are being monitored and appear to be stabilizing
- Mine management in consultation with Geotech consultants and Ministry geotechnical engineers are reviewing options to lower the water level in Polley Lake
- This may include pumping the water into a historic empty pit on the site or pumping or diverting the water to the Hazeltine Creek

## **Tailings pond**

- The flow out of the tailings pond has decreased, but has not completely stopped
- Imperial Metals continues to work to stop flow out of the pond
- Forecast of rain could cause further tailings to flow out of the pond
- Mine management in consultation with Geotech consultants and Ministry experts are reviewing a plan to build a berm to prevent further tailings from flowing into Hazeltine Creek

## **Debris in water and threat to Likely bridge**

- Debris in the water are being cleared and contained
- Ministry staff are monitoring the Likely Bridge
- Good progress is being made by West Fraser to boom the debris in Quesnel Lake and prevent it from reaching the bridge

- We have two excavators stationed at the Likely Bridge to respond should any significant accumulations of debris threaten the bridge
- At this point, there is no imminent threat to the structure, and we're taking proactive steps to ensure public safety and access to and from the community

### **What is in the tailings?**

- Still determining what levels of possible harmful substances exist in the tailings
- Imperial Metals has indicated they are confident the levels are safe
- Once water sample results are obtained, we will know more on this and will share it with you

### **Emergency Management BC**

- Emergency Management BC continues to provide support to the Regional District as needed

- Emergency Management assisted with the coordination and exchange of information to the Regional District and First Nations from mining executives, related agencies and ministry officials
- Emergency Management has also provided a provincial liaison officer to the regional district emergency operations centre to provide direct guidance and linkages to provincial resources

### **Ongoing investigation by MEM inspectors**

- MEM Inspectors are starting the interview process in conjunction with the Conservation Service.
- This will involve interviewing mine staff and the review of all applicable documentation on the mine site
- Inspectors of Mines and other agencies will undertake a comprehensive investigation of the failure to determine root causes for the breach
- The investigation determining what caused the breach will take several months

- 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
- It is important to note – the number of inspections conducted by the Ministry is as frequent today as it was 5 years ago and has remained consistent over the past few years

### **Previous dam incident at Mt Polley**

- I also want to provide further clarification with regards to instances of non-compliance at the Mt Polley Mine.
- There has been one incident where the height of the tailings pond was above authorized levels
- The other incidents reported by the Ministry of Environment do not concern the tailings pond – they have to do with other components of the mine facility
- May 24, 2014: The ministry issued an advisory to Mount Polley Mining Corporation for exceedance of the height of effluent within the tailings



impoundment. The effluent level returned to authorized levels commencing June 30, 2014.

- April 18, 2014: The ministry issued an advisory to Mount Polley Mining Corporation for bypass of authorized treatment works. The site experienced high flows due to spring freshet which caused the pump system to become blocked and resulted in an overflow of effluent to the long ditch. Flow did not reach the creek and was directed into Till Borrow Pit.
- January and April 2012: The ministry issued an advisory to Mount Polley Mining Corporation for not submitting monitoring data for one of the groundwater monitoring wells (GW05-1).
- Aug. 30, 2012: The ministry issued a warning to Mount Polley Mining Corporation for failure to report exceedance of the height of effluent for the perimeter pond (E7). This perimeter pond overflowed, releasing approximately 150 cubic metres of effluent over 13 hours to ground

## **Olding report**

- There have also media reports regarding the Technical Assessment Report prepared by Brian Olding and Associates
- In 2009, Mount Polley applied for a permit amendment to discharge up to 1,400,000 m<sup>3</sup> per year of dam seepage effluent from the tailings storage facility to Hazeltine Creek
- The recommendations in the Olding report were considered and provided a basis for some of the conditions in the amended permit which was issued in 2012.
- The cause of the breach is under investigation and it is not possible at this time to provide any definitive answers on possible contributing factors
- What I can tell you is that:
  - Mount Polley was 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

### **Clean up and pollution abatement order – Environment lead**

- Have Jennifer McGuire here to speak about clean up
- A Pollution Abatement Order has been issued by the Ministry of Environment to Imperial Metals
- Jennifer will provide further details shortly
- Would like to reiterate we are devoting every appropriate resource working with local officials to clean up the site, mitigate any impacts to communities and the environment

### **JENNIFER SPEAKS**

## **Regional District**

- Doing a great job – public is understandably upset and they are working hard to help residents
- Appreciate and value the ongoing coordination
- Will let them speak to current operations taking place right now
- Introduce AI