

Weir, David J FLNR:EX

From: Trigg, Dirk FLNR:EX
Sent: Wednesday, August 6, 2014 10:19 AM
To: Hamm, Mark FLNR:EX; Vanderburgh, Ken FLNR:EX; Venos, Gerry FLNR:EX; Stewart, Rodger W FLNR:EX; Hill, Douglas J FLNR:EX
Cc: Stolar, Harold B FLNR:EX; Schafthuizen, Jim FLNR:EX; Pedersen, Mike FLNR:EX; Weir, David J FLNR:EX; Pratt, Gordon FLNR:EX; Kansky, Kevin J FLNR:EX
Subject: RE: Important request from Mount Polley

Gerry and Mark,

Talking to Jim it sounds like you have it under control and are on the right track.

I think you have been talking about using a Forestry Licence to Cut under Sec. 47.6(2.11) of the Forest Act.

This can be issued by the District Manager or RED.

This section is tied to timber that is already down on the ground or water for whatever reason, it does not provide authority to cut standing timber down. Because it is set up for the removal of already downed timber the Forest Act has not put any limitation on the amount of volume that can be removed under this authority. This section of the Forest Act provides for direct award of this type of Forestry licence to cut.

From: Hamm, Mark FLNR:EX
Sent: Tuesday, August 5, 2014 11:12 AM
To: Vanderburgh, Ken FLNR:EX; Venos, Gerry FLNR:EX; Stewart, Rodger W FLNR:EX; Hill, Douglas J FLNR:EX
Cc: Stolar, Harold B FLNR:EX; Trigg, Dirk FLNR:EX; Schafthuizen, Jim FLNR:EX; Pedersen, Mike FLNR:EX; Weir, David J FLNR:EX
Subject: Re: Important request from Mount Polley

Thanks, Ken. I assume nothing further is needed from the district, in this regard at least.

M

From: Vanderburgh, Ken FLNR:EX
Sent: Tuesday, August 05, 2014 11:09 AM
To: Hamm, Mark FLNR:EX; Venos, Gerry FLNR:EX; Stewart, Rodger W FLNR:EX; Hill, Douglas J FLNR:EX
Cc: Stolar, Harold B FLNR:EX; Trigg, Dirk FLNR:EX; Schafthuizen, Jim FLNR:EX; Pedersen, Mike FLNR:EX; Weir, David J FLNR:EX
Subject: RE: Important request from Mount Polley

We will issue an order under Section 9 of the Water Act to remove the material. David Weir is in contact with Polley

From: Hamm, Mark FLNR:EX
Sent: Tuesday, August 5, 2014 10:30 AM
To: Venos, Gerry FLNR:EX; Vanderburgh, Ken FLNR:EX; Stewart, Rodger W FLNR:EX; Hill, Douglas J FLNR:EX
Cc: Stolar, Harold B FLNR:EX; Trigg, Dirk FLNR:EX; Schafthuizen, Jim FLNR:EX; Pedersen, Mike FLNR:EX
Subject: RE: Important request from Mount Polley

Gerry and I spoke with Jim Schafthuizen and he is going to see what authorisation is appropriate and get back to Gerry.

My thinking is that we should give Mt Polley permission now to begin collecting the logs and debris from the lake, before they reach the bridge at Likely. The authorisation may not be in place today but the company has the go-ahead to being salvaging and collecting the wood at West Fraser's reload on Quesnel Lake.

If you have any concerns about that please let me know.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Pedersen, Mike FLNR:EX
Sent: Tuesday, August 5, 2014 10:12 AM
To: Venos, Gerry FLNR:EX
Cc: Pedersen, Mike FLNR:EX; Vanderburgh, Ken FLNR:EX; Stolar, Harold B FLNR:EX; Hamm, Mark FLNR:EX; Trigg, Dirk FLNR:EX
Subject: Re: Important request from Mount Polley

Ken may want to connect with MOE and Rodger around the salvage. My thought is they want to get the material before it hits the bridge at Likely.

We are connecting with tenures in Kamloops to see what we need as authorities.

Sent from my iPhone

On Aug 5, 2014, at 10:05 AM, "Venos, Gerry FLNR:EX" <Gerry.Venos@gov.bc.ca> wrote:

I just spoke with Penny Carpenter two minutes ago.
Mount Polley does want to salvage the wood at this time but want permission to contain it to prevent further damage downstream.
She told me that Rick Welke of West Fraser gave them permission to use their reload.

Gerry Venos R.P.F.
Revenue Forester
Cariboo-Chilcotin Natural Resource District
Phone:(250)-398-4406
Fax:(250)-398-4790
E-mail:Gerry.Venos@gov.bc.ca

From: Pedersen, Mike FLNR:EX
Sent: Tuesday, August 5, 2014 9:57 AM
To: Venos, Gerry FLNR:EX

Cc: Stolar, Harold B FLNR:EX; Hamm, Mark FLNR:EX; Vanderburgh, Ken FLNR:EX

Subject: Re: Important request from Mount Polley

Would it be a water salvage permit? Check with Area Tenures Gerry and see what we would need to provide.

Sent from my iPad

On Aug 5, 2014, at 8:38 AM, "Venos, Gerry FLNR:EX" <Gerry.Venos@gov.bc.ca> wrote:

What is kind of permission does Mount Polley need?

Gerry Venos R.P.F.
Revenue Forester
Cariboo-Chilcotin Natural Resource District
Phone:(250)-398-4406
Fax:(250)-398-4790
E-mail:Gerry.Venos@gov.bc.ca

From: Penny Carpenter s.22
Sent: Tuesday, August 5, 2014 8:08 AM
To: Venos, Gerry FLNR:EX
Subject: Important request from Mount Polley

Hi Gerry

I am trying to contact you regarding the dam breach at Mount Polley. Mount Polley is requesting the permission to contain, and remove the log debris from the lakes as soon as possible.

I have been asked to try and get all the required permits/permission for them to move forward with this as soon as possible as the logs have the potential to damage bridges etc,

When you get in will you call me asap. 250-296-0111 OR 250-303-1475.

Thanks Penny

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Wednesday, August 6, 2014 10:18 AM
To: Symonds, Brian FLNR:EX
Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Hamm, Mark FLNR:EX
Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Hi Brian, I am heading up right now to Mt Polley. I am taking a sat phone for Stephen who is the mines contact Sat number **s.15**. Can we provide Stephen with a daily detailed weather forecast through the river forecast center? I am thinking that if the forcast center does the daily and long term forecast then we can have the fire center provide thunderstorm warnings locally as they track lightning strikes?

On the road now.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Symonds, Brian FLNR:EX
Sent: Wednesday, August 6, 2014 9:59 AM
To: Ethier, Tom FLNR:EX
Cc: Cameron, Valerie Z FLNR:EX; Mason, Wenda FLNR:EX; Bekker, Pieter FLNR:EX; Weir, David J FLNR:EX
Subject: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Please find attached rudimentary local area maps and a copy of the Declaration of State of Local Emergency for your information.

Brian Symonds
Director , Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

Weir, David J FLNR:EX

From: Mason, Wenda FLNR:EX
Sent: Wednesday, August 6, 2014 10:07 AM
To: Symonds, Brian FLNR:EX
Cc: Cameron, Valerie Z FLNR:EX; Bekker, Pieter FLNR:EX; Weir, David J FLNR:EX; Ethier, Tom FLNR:EX
Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure
Attachments: Area map of Mount Polley Incident.docx

Hi Brian

There is an error in the attached google map - the lake labelled 'Polley Lake' is actually Bootjack Lake. Polley Lake is the one on the east side of the mine.

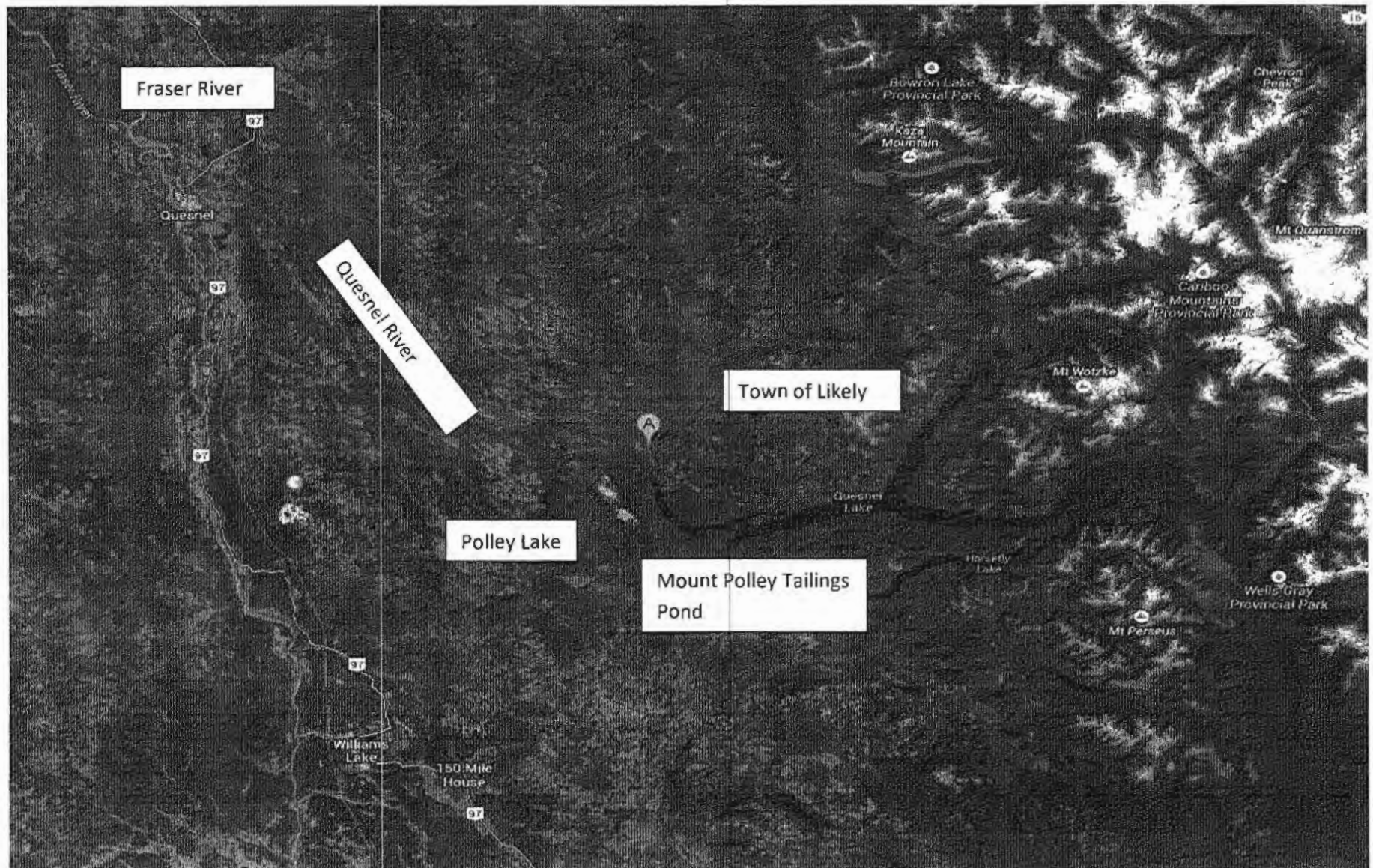
W.

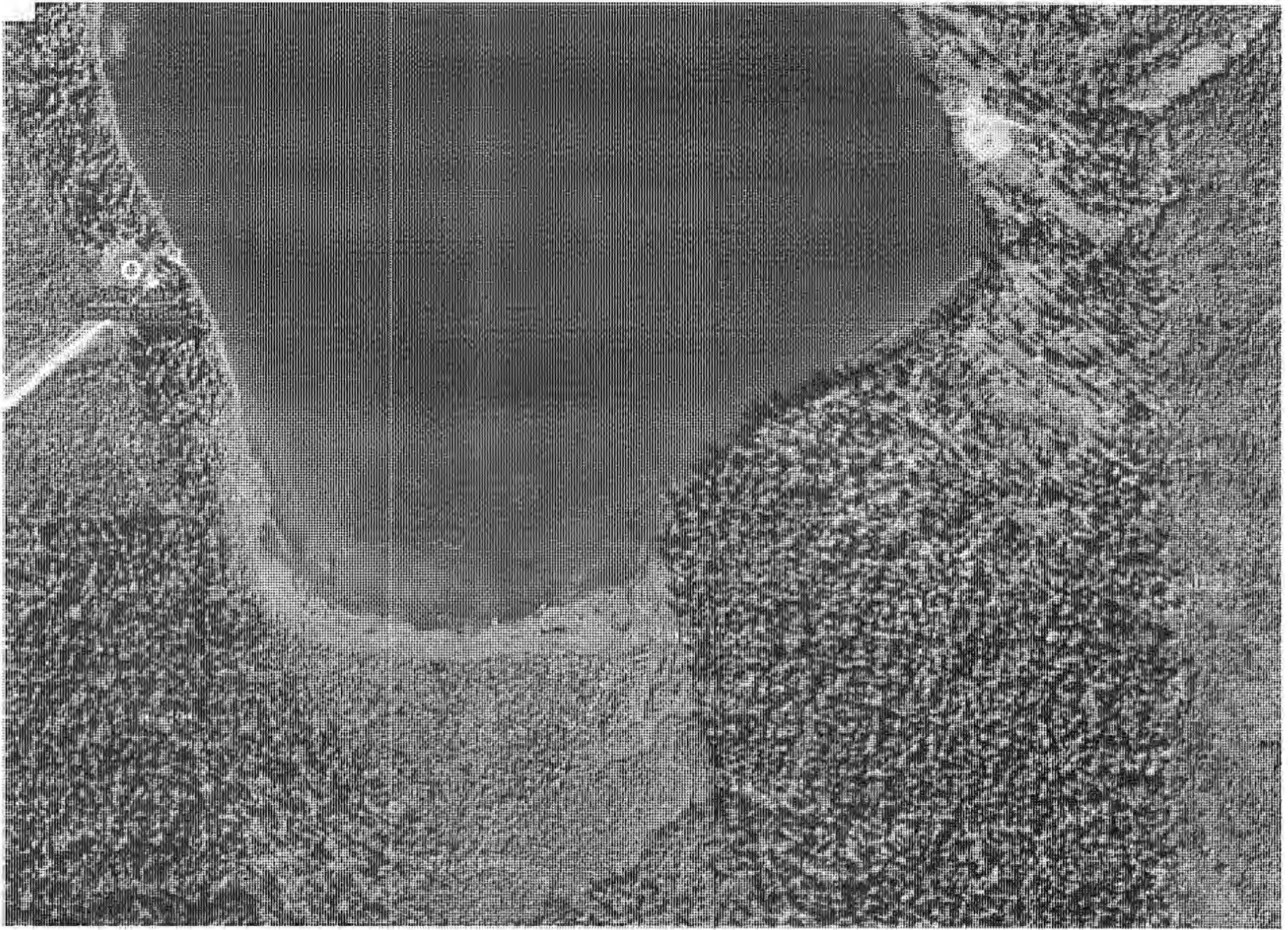
From: Symonds, Brian FLNR:EX
Sent: Wednesday, August 6, 2014 9:59 AM
To: Ethier, Tom FLNR:EX
Cc: Cameron, Valerie Z FLNR:EX; Mason, Wenda FLNR:EX; Bekker, Pieter FLNR:EX; Weir, David J FLNR:EX
Subject: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Please find attached rudimentary local area maps and a copy of the Declaration of State of Local Emergency for your information.

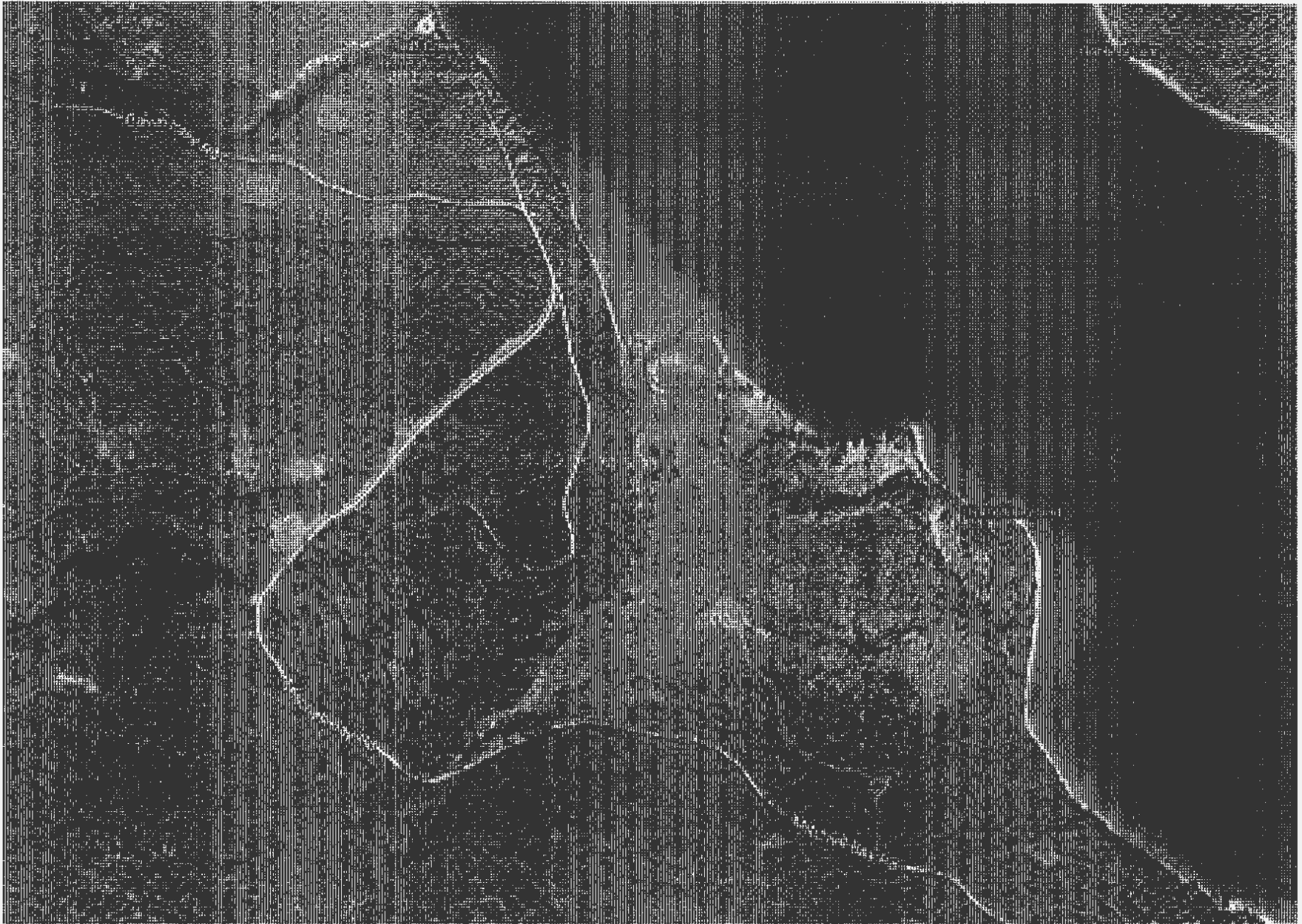
Brian Symonds
Director , Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

Map of Mount Polley Tailings Pond Incident

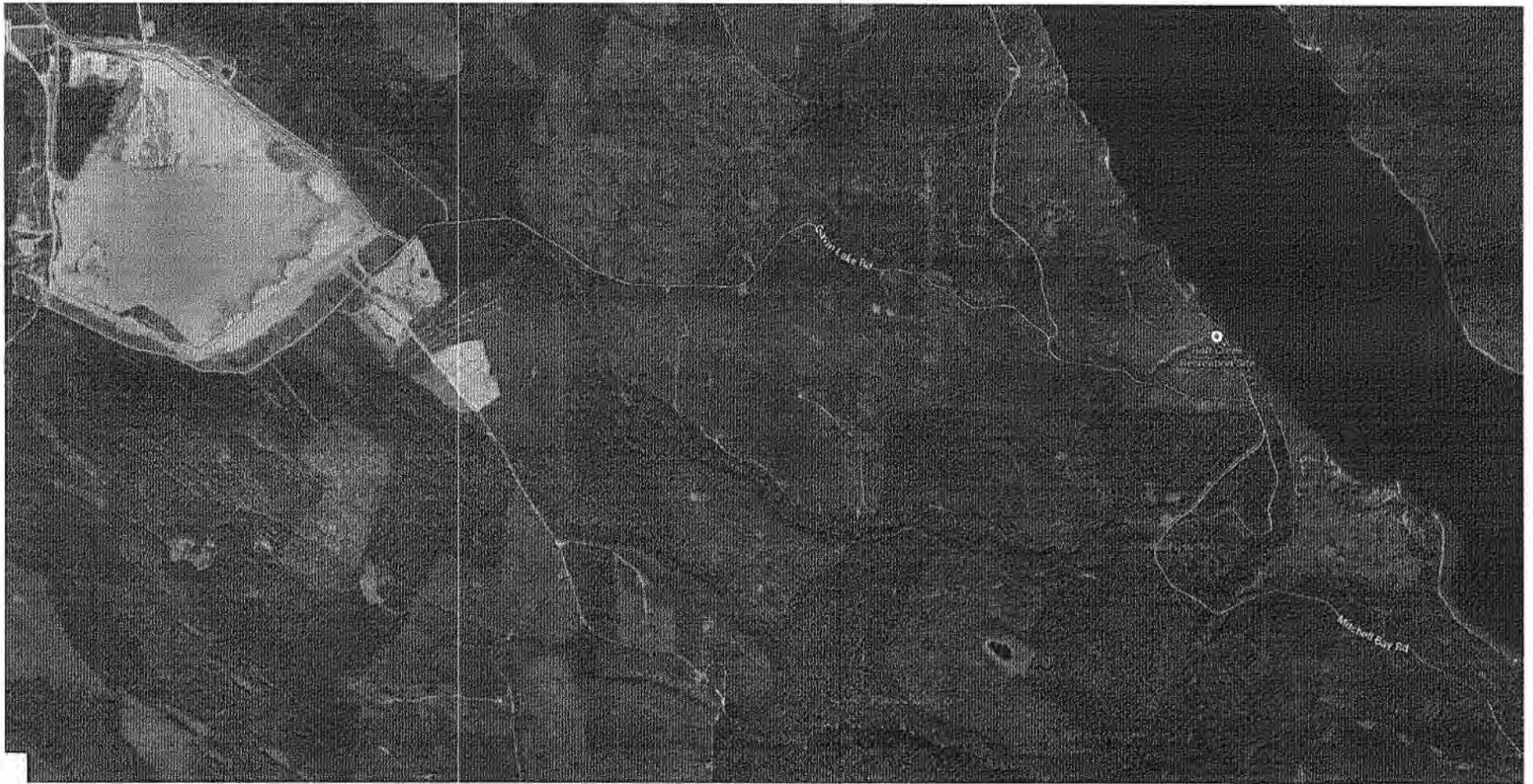


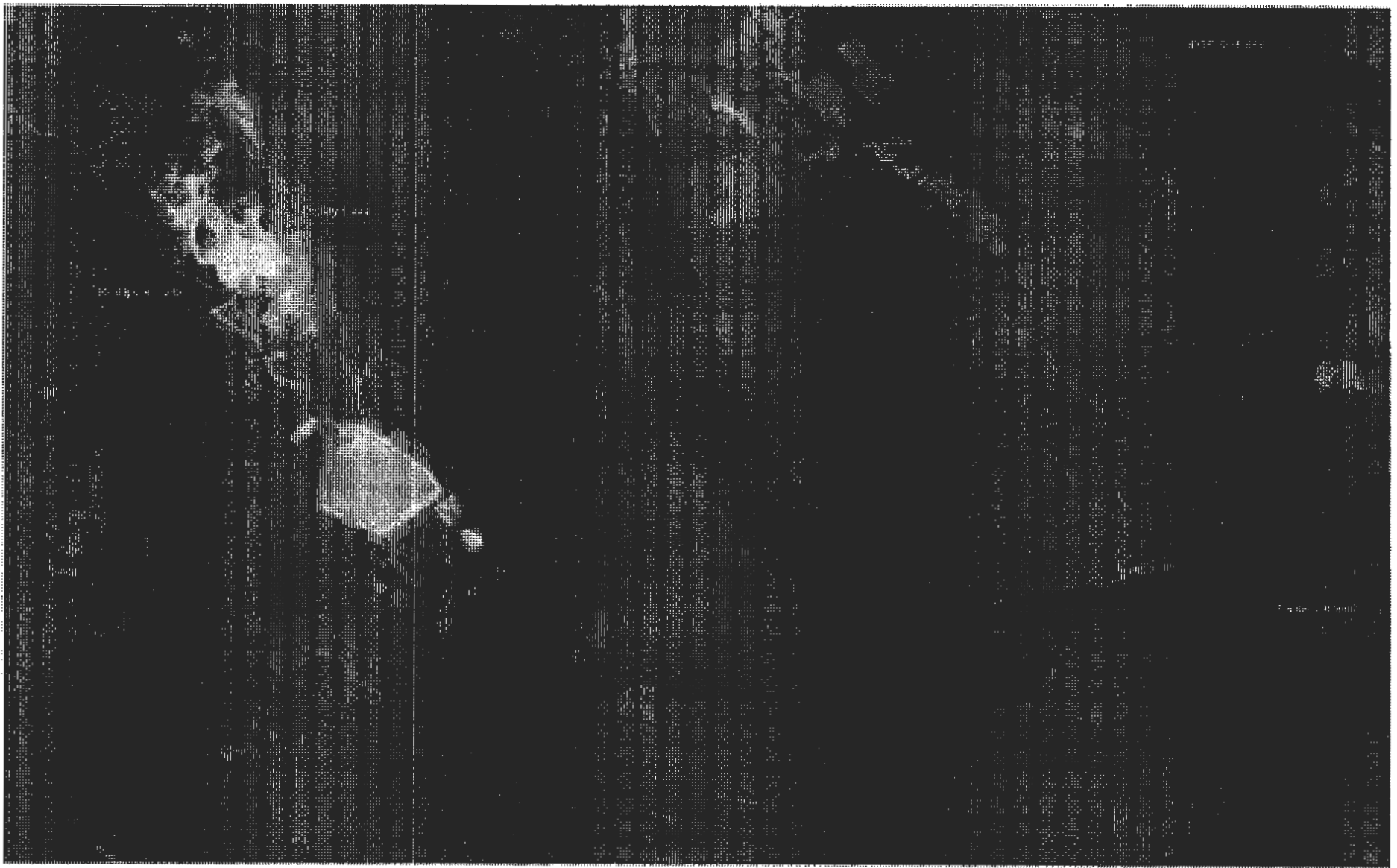




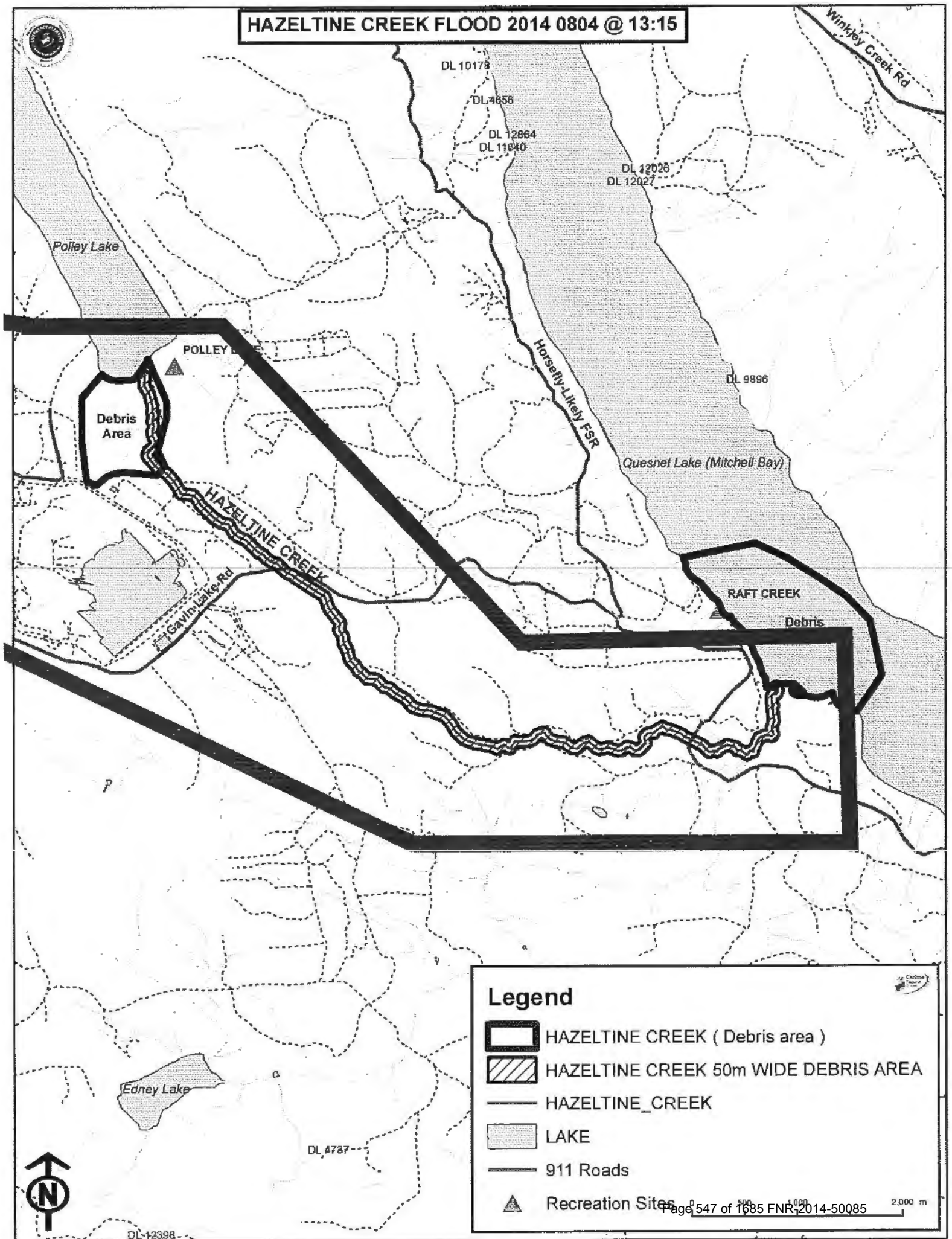








HAZELTINE CREEK FLOOD 2014 0804 @ 13:15



Cheers
Brad

Brad Hlasny, P.Eng., CLS | Manager, Base Mapping & Cadastre | GeoBC | Ministry of
Forests, Lands and Natural Resource Operations
Street/Courier: 3400 Davidson Ave., Victoria BC V8Z 3P8
Mail: PO Box 9375 STN PROV GOVT, Victoria, BC Canada V8W 9M2
Phone: (250) 952-6520 | **Fax** (250)952-4261 | **Mobile** (250) 812-4637 | **Email:**
brad.hlasny@gov.bc.ca | **WWW:** <http://geobc.gov.bc.ca>

Weir, David J FLNR:EX

From: MacDougall, Gerry L FLNR:EX
Sent: Wednesday, August 6, 2014 4:42 PM
To: Vanderburgh, Ken FLNR:EX; Hill, Douglas J FLNR:EX
Cc: Stewart, Rodger W FLNR:EX; Weir, David J FLNR:EX
Subject: Fwd: Mount Polley Mine Failure - GeoBC Image Acquisition
Attachments: 235970663-Hazeltine-Creek-Flood-map-August 4 2014_FlyingArea.pdf; ATT00001.htm; MountPolley-ExistngProvincialImagerySamples.pdf; ATT00002.htm

any other products needed?
Ken, if so, can you RSVP Brad?
Thank you,

g

Sent from my iPad

Begin forwarded message:

From: "Hlasny, Brad FLNR:EX" <Brad.Hlasny@gov.bc.ca>
Date: August 6, 2014 at 4:25:51 PM PDT
To: "MacDougall, Gerry L FLNR:EX" <Gerry.MacDougall@gov.bc.ca>
Cc: "Calarco, Andrew FLNR:EX" <Andrew.Calarco@gov.bc.ca>, "Edquist, Kevin FLNR:EX" <Kevin.Edquist@gov.bc.ca>
Subject: FW: Mount Polley Mine Failure - GeoBC Image Acquisition

Gerry

An update and some information for those that need materials/mapping/orthos/etc
I expect an update from the contractor in a bit as to what was captured (or not)
Feel free to share and let me know if there are others that would require any products from this sortie.
Regards
Brad

From: Hlasny, Brad FLNR:EX
Sent: Wednesday, August 6, 2014 4:16 PM
Subject: Mount Polley Mine Failure - GeoBC Image Acquisition
Importance: High

Here is a quick update of what is being done and delivered.

An update on the imagery acquisition/mapping.
Attachment#1 – general mining area with debris areas identified
Attachment#2 – word document with recent (pre-disaster) imagery available from our archive

Basic Information

Weir, David J FLNR:EX

From: Symonds, Brian FLNR:EX
Sent: Wednesday, August 6, 2014 5:43 PM
To: Ethier, Tom FLNR:EX; Cameron, Valerie Z FLNR:EX; Mason, Wenda FLNR:EX; Bekker, Pieter FLNR:EX; Weir, David J FLNR:EX
Subject: FW: CCG Call #2 - Mt. Polley Mine Incident

Interesting Fact Sheet providing a situation update in the second attachment.

Brian Symonds
Director, Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

From: Mohrmann, Ralph JAG:EX
Sent: Wednesday, August 6, 2014 4:30 PM
To: 'Andrew Hannan'; 'BCY DRT Director'; Carby, Shawn W HLTH:EX; 'Crowe, Dennis RMCP'; Davidson, Glen W FLNR:EX; Duffy, Chris D JAG:EX; Duncan, Dave TRAN:EX; Dusterhoft, Carrie JTST:EX; Gilmore, Tena ABR:EX; Gleeson, Kelly T GCPE:EX; Haslam, David GCPE:EX; Henderson, Lori JTST:EX; Hoffman, Al MEM:EX; Ihssen Williams, Karen ABR:EX; Knox, Graham G ENV:EX; Kriese, Kevin FLNR:EX; 'Lyne Dube'; MacLaren, Les MEM:EX; McCaffrey, Julianne GCPE:EX; McGuire, Jennifer ENV:EX; Miska, Ed TRAN:EX; Nyland, Dirk TRAN:EX; Parnell, Grant AGRI:EX; Quealey, Pat JAG:EX; 'Patricia-McCourt'; Pauliszyn, Robert GCPE:EX; Poss, Angie ENV:EX; Ritchie, Leanne GCPE:EX; Rothe, Karen-J CSCD:EX; Salem, Rod J EHS:EX; Schultz, Fern NRTS:EX; Standen, Jim ENV:EX; Symonds, Brian FLNR:EX; 'Wayne Hirlehey - Public Safety Canada'; Wieringa, Paul MEM:EX
Subject: RE: CCG Call #2 - Mt. Polley Mine Incident

Good afternoon,

Please find some further information pertaining to the Polley Mine Incident for this afternoon's call at 1700. Thanks,
Ralph



Quesnel Lake
Area 5.pdf



2014MEM0020-...

Ralph Mohrmann

Emergency Management British Columbia
www.embc.gov.bc.ca

-----Original Appointment-----

From: Mohrmann, Ralph JAG:EX
Sent: Wednesday, August 6, 2014 09:52
To: 'Andrew Hannan'; 'BCY DRT Director'; Carby, Shawn W HLTH:EX; 'Crowe, Dennis RMCP'; Davidson, Glen W FLNR:EX; Duffy, Chris D JAG:EX; Duncan, Dave TRAN:EX; Dusterhoft, Carrie JTST:EX; Gilmore, Tena ABR:EX; Gleeson, Kelly T GCPE:EX; Haslam, David GCPE:EX; Henderson, Lori JTST:EX; Hoffman, Al MEM:EX; Ihssen Williams, Karen ABR:EX; Knox, Graham G ENV:EX; Kriese, Kevin FLNR:EX; 'Lyne Dube'; MacLaren, Les MEM:EX; McCaffrey, Julianne GCPE:EX; McGuire, Jennifer ENV:EX; Miska, Ed TRAN:EX; Nyland, Dirk TRAN:EX; Parnell, Grant AGRI:EX; Quealey, Pat JAG:EX;

'Patricia McCourt'; Pauliszyn, Robert GCPE:EX; Poss, Angie ENV:EX; Ritchie, Leanne GCPE:EX; Rothe, Karen J CSCD:EX; Salem, Rod J EHS:EX; Schultz, Fern NRTS:EX; Standen, Jim ENV:EX; Symonds, Brian FLNR:EX; 'Wayne Hirlehey - Public Safety Canada'; Wieringa, Paul MEM:EX

Subject: CCG Call #2 - Mt. Polley Mine Incident

When: Wednesday, August 6, 2014 17:00-17:45 (UTC-08:00) Pacific Time (US & Canada).

Where: Conf. Call: **s.17**

Good morning,

CCG conference call at 1700 today to discuss the Mt. Polley Mine Incident. It is estimated the call will be for approximately 30 - 45 minutes. Please find attached rudimentary local area maps and a copy of the Declaration of State of Local Emergency for your information.

<< File: 20140805stateofemergency-signed.pdf >> << File: Detailed map of site.docx >> << File: Area map of Mount Polley Incident.docx >>

s.17

Agenda:

- | | |
|---------------------|--------|
| 1. Introductions | - EMBC |
| 2. Situation update | - EMBC |
| 3. Energy and Mines | - MEM |
| 3. Environment | - MoE |
| 4. Health | - MoH |
| 5. other | |

Thank you, Ralph

Ralph Mohrmann

250-952-4895

Emergency Management British Columbia

FACTSHEET

For Immediate Release
2014MEM0020-001140
August 6, 2014

Ministry of Energy and Mines
Ministry of Environment

Mount Polley tailings pond situation update

WILLIAMS LAKE – Government and Cariboo Regional District officials continue to work together to address the breach at the Mount Polley tailings pond, to test the local drinking water to determine if it is safe for locals to drink or bathe in, and to help ensure the safety and well-being of local residents.

This factsheet will be updated daily with the latest information available.

New today:

1. 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.

1. 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.

1. Tug boats have been working in the area to boom the debris in the water and excavators are on standby in the event they are needed as well. Significant progress has been made.
2. Polley Lake: the mine's management, in consultation with Geotech consultants and government geotechnical engineers, are reviewing alternatives to lower the water level in Polley Lake. These may include pumping the water into a historic empty pit on the site or pumping or diverting the water to the Hazeltine Creek.
3. Tailings Pond: the mine's management in consultation with Geotech consultants and government experts are reviewing a plan to build a berm to prevent further tailings from flowing into Hazeltine Creek.
4. Ministry of Energy and Mines inspectors continue their investigation. They have now

begun the interview process in conjunction with the Conservation Service. This will involve interviewing mine staff and a review of all applicable documentation on the mine site.

5. Quesnel Lake & Likely Bridge: 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. At this point, there is no imminent threat to the structure.

Current situation:

- The flow out of the breach has decreased dramatically, but has not completely stopped. Imperial Metals continues to work to stop flow out of the pond.
- A small amount of tailings backed into the mouth Polley Lake and the main slurry flow went down Hazeltine Creek where it meets Quesnel Lake. The slurry and a large debris pile appear to be stationary at this point. Hazeltine Creek was originally about four feet wide and is now up to 150 feet wide.
- The cause of the breach is still unknown at this time. Ministry of Environment conservation officers are investigating the breach along with Ministry of Energy and Mines mine inspectors, two of whom have been monitoring the site by helicopter.
- Water sampling took place the evening of Aug. 4 and samples were sent for testing early yesterday morning. Drinking water testing continues and results are expected tomorrow or Friday morning at the latest. Until that point, the environmental impact of the contaminated water on the local watershed remains unknown.
- In the meantime, the CRD has issued a water ban advisory not to drink, bath or feed livestock drawn from the following waterways: Quesnel Lake, Polley Lake, Hazeltine Creek and Cariboo Creek. The entire Quesnel River system right up to the Fraser River is under a do not drink advisory. ****Note: boiling will not help****
- There have been no reports of injuries or people getting sick from drinking water. There have been no reports of property damage.
- The cost of the cleanup of the breach is the responsibility of Imperial Metals, and is not a cost borne by B.C. taxpayers.

Water Ban:

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.

Search-and-rescue volunteers continue going door to door to recommend evacuation from park sites and notify water users of the water ban. They are also supporting water delivery efforts.

Due to the influx of tourists in to the area over the long weekend, the numbers of people affected is unconfirmed but the CRD estimates it could range up to 300.

Regional infrastructure and waterways:

Waterways affected by this event include Quesnel Lake, Polley Lake, Hazeltine Creek and Cariboo Creek.

Additionally the Horsefly Likely Forest Service (Ditch Road) has been washed out at Hazeltine Creek and the Gavin Lake Forest Service Road was washed out closer to the dam breach area. The Likely Bridge is **not affected** at this time.

Previous site inspections:

Following reports of a previous breach at the mine, Ministry of Energy and Mines officials investigated an incident on May 24, 2014, and determined this was not a breach. It was a one-day period where the height of the effluent within tailings pond was above regulation.

To date, Imperial Metals has been compliant with respect to recent orders regarding dam safety inspections. The last inspection by government mining officials took place in September 2013.

Here is a list of recent advisories to Mount Polley from the Ministry of Environment, only one of which was related to height of the tailings pond. The Ministry of Environment is responsible to ensure no unauthorized effluent discharge from the tailings pond structure:

- 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.
- 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. This perimeter pond overflowed, releasing approximately 150 cubic metres of effluent over 13 hours to ground.

Additional background:

Early in the morning of Aug. 4, the tailings pond dam at the Mount 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. Hazeltine Creek flows out of Polley Lake and the flow of contaminated water continued into Quesnel Lake.

The Mount Polley Mine is owned by Imperial Metals and is approximately 30 kilometres from the community of Likely.

The tailing pond at Mount Polley Mine is 4 kms by 4 kms. This is a large breach and extremely rare.

Officials with the Ministry of Energy and Mines do not recall anything of this magnitude in at least the last 40 years.

Media Contacts:

Jake Jacobs

Media Relations

Ministry of Energy and Mines and Responsible

for Core Review

250 952-0628

Cariboo Regional District

Communications

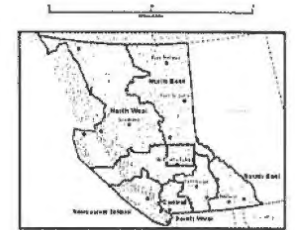
250 305-8151

sburich@cariboord.ca

Connect with the Province of B.C. at: www.gov.bc.ca/connect

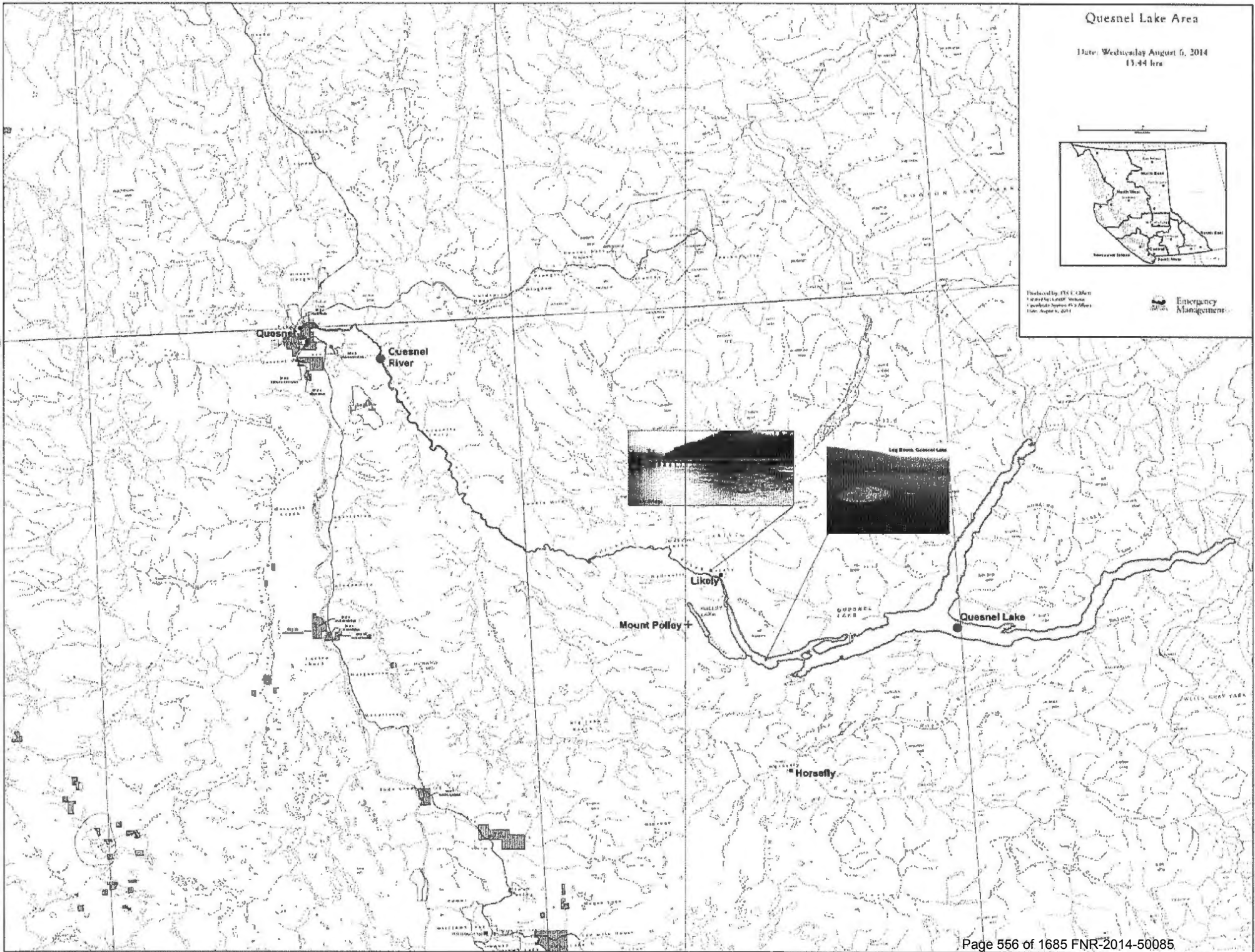
Quesnel Lake Area

Date: Wednesday August 6, 2014
13:44 hrs



Produced by: DCC - CMR
Map of the Quesnel Lake Area
Map Date: August 6, 2014

Emergency
Management



Weir, David J FLNR:EX

From: Beadman, Krista FLNR:EX
Sent: Thursday, August 7, 2014 8:54 AM
To: Weir, David J FLNR:EX
Subject: RE: RMT update for this morning

I have my computer hooked up to the projector and there is also a whiteboard

Krista Beadman
Regional Administrative Assistant
Cariboo Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-398-4327

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 8:53 AM
To: Beadman, Krista FLNR:EX
Subject: RE: RMT update for this morning

Will there be a white board or a computer and projector?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Beadman, Krista FLNR:EX
Sent: Thursday, August 7, 2014 8:52 AM
To: Weir, David J FLNR:EX
Subject: RE: RMT update for this morning

Barry and Doug are both unable to make it this morning, so it looks like it's just you. Whatever you think you need Dave will be fine. I'm sure there will be lots of questions for you to answer.

Krista Beadman
Regional Administrative Assistant
Cariboo Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-398-4327

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 8:50 AM
To: Beadman, Krista FLNR:EX; Trenholm, Barry FLNR:EX
Cc: Hill, Douglas J FLNR:EX
Subject: RE: RMT update for this morning

Do we need to bring anything with us to present or are we just answering questions?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Beadman, Krista FLNR:EX
Sent: Thursday, August 7, 2014 8:25 AM
To: Trenholm, Barry FLNR:EX; Weir, David J FLNR:EX
Cc: Hill, Douglas J FLNR:EX
Subject: RMT update for this morning

Good morning Barry and Dave
Doug Hill spoke with me quickly this morning about having a Mt. Polley update at the Face to Face RMT meeting today. I have time at 9:30 am for a 40 minute block. Doug is unsure if he will be able to make it, but if you both could attend and provide an update for the RMT, it would be appreciated.
The meeting is held in the Cariboo Room. Please let me know via email if you will be able to attend.
Thank you,
Krista

Krista Beadman
Regional Administrative Assistant
Cariboo Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-398-4327

Weir, David J FLNR:EX

From: Cameron, Valerie Z FLNR:EX
Sent: Thursday, August 7, 2014 8:53 AM
To: Weir, David J FLNR:EX
Cc: Symonds, Brian FLNR:EX
Subject: RE: Heads up: Spot forecast for Mount Polley and Water up date

Good work Dave. Thanks for being proactive. With the weather forecasts being provided directly from Wildfire Branch, I will not need to provide them now. Please let me know if you need any support from Brian or myself.

FYI, Wenda Mason has asked Charles Luo to do an analysis of the Polley Lake watershed and tribs to help assess the responsiveness of the watershed and what kind of inflow (i.e. from precip) would be required to raise the lake to levels that might exacerbate the risk of further breach. Not sure when that info will be available.

Valerie

-----Original Message-----

From: Weir, David J FLNR:EX
Sent: Wednesday, August 6, 2014 6:12 PM
To: Palesch, Dan TRAN:EX; Henley, Margaret TRAN:EX; 'rbastien@cariboord.bc.ca'
Cc: Vanderburgh, Ken FLNR:EX; Rothman, Stephen MEM:EX; Hamm, Mark FLNR:EX; Symonds, Brian FLNR:EX; Cameron, Valerie Z FLNR:EX; Kelly, Robert J JAG:EX
Subject: FW: Heads up: Spot forecast for Mount Polley and Water up date
Importance: High

Please find the attached. Stephen received this directly from Mark. I was onsite today with Ministry staff but was unable to fly potentially impacted areas but it looked like there was more than enough people onsite already. Most of you will be aware of this anyways but I visited the Likely Bridge and although some debris is accumulating at the bridge equipment was onsite to manage the debris. Generators and lights were onsite and it appears that a night watch will be set just in case debris reaches the bridge tonight. They were not onsite when I was there.

It does not appear that the issue of the Polley Lake levels has been addressed yet and company representatives were not aware if the lake was still rising at the time I asked them. It appears they do have a plan for managing the lake levels over the short term but it is not clear if the plan is feasible given the volume of water involved. To be fair the Geotechnical Professionals were in the air at the time so they may be fully apprised of all risks etc. The question remains unanswered as to the risk of secondary failure at the sediment plug in the outlet of Polley lake and I advise that someone should determine this risk. Water has done what it can to assist and advise on this issue.

We have provided Stephen with a Sat phone which he will be passing on to his replacements to be returned to us when no longer needed for this issue.

I would advise also that some measures be put in place to curb any urges to act rashly with respect to safety and impact to the environment. The company seems to have a handle on this but is easy to get caught up in the magnitude of the event even though the pace of required action does not require risk to safety or to the environment. If someone rolls a hoe in the Quesnel River pulling debris away from the bridge no one will benefit.

I don't have anymore outstanding commitments for this event and will now await any requests for assistance from Local Government or other agencies as I am needed.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations Williams Lake , BC David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

-----Original Message-----

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 6, 2014 2:35 PM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Stolar, Harold B FLNR:EX
Subject: Heads up: Spot forecast for Mount Polley
Importance: High

Dave and Steve -- please confirm that you've received this.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: Isfeld, Kurtis FLNR:EX
Sent: Wednesday, August 6, 2014 2:33 PM
To: Hamm, Mark FLNR:EX; Palesch, Dan TRAN:EX
Subject: FW: Spot forecast for Mount Polley

Here is your spot forecast as requested.

Kurtis Isfeld, RFT
Manager
Cariboo Fire Centre
BC Wildfire Management Branch
Forests, Lands & Natural Resource Operations
W: 250-989-2655 | Cell: 250-267-5389

-----Original Message-----

From: Bardossy, Robert FLNR:EX
Sent: Wednesday, August 6, 2014 2:26 PM
To: Isfeld, Kurtis FLNR:EX
Subject: Fw: Spot forecast for Mount Polley

----- Original Message -----

From: WXVanEaton s.22

Sent: Wednesday, August 06, 2014 02:23 PM

To: Bardossy, Robert FLNR:EX

Subject: Spot forecast for Mount Polley

As requested. I'm not sure if it's normal to extend the valid times beyond the standard 13/17 PDT when we're sending them out this late, let me know if you guys need this done.

Christina

--

Christina Van Eaton

Fire Weather Forecaster

s.22

(778) 475-2718

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 8:53 AM
To: Symonds, Brian FLNR:EX
Subject: Mt Polley water licence

I talked to operations staff at the mine site and was told the water licence has not been used for several years. I do not know what the state of the works were at the time of the failure. Several of the mines here are holding old water licences with large volumes without making diligent use.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Beadman, Krista FLNR:EX
Sent: Thursday, August 7, 2014 8:52 AM
To: Weir, David J FLNR:EX
Subject: RE: RMT update for this morning

Barry and Doug are both unable to make it this morning, so it looks like it's just you. Whatever you think you need Dave will be fine. I'm sure there will be lots of questions for you to answer.

Krista Beadman
Regional Administrative Assistant
Cariboo Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-398-4327

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 8:50 AM
To: Beadman, Krista FLNR:EX; Trenholm, Barry FLNR:EX
Cc: Hill, Douglas J FLNR:EX
Subject: RE: RMT update for this morning

~~Do we need to bring anything with us to present or are we just answering questions?~~

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Beadman, Krista FLNR:EX
Sent: Thursday, August 7, 2014 8:25 AM
To: Trenholm, Barry FLNR:EX; Weir, David J FLNR:EX
Cc: Hill, Douglas J FLNR:EX
Subject: RMT update for this morning

Good morning Barry and Dave
Doug Hill spoke with me quickly this morning about having a Mt. Polley update at the Face to Face RMT meeting today. I have time at 9:30 am for a 40 minute block. Doug is unsure if he will be able to make it, but if you both could attend and provide an update for the RMT, it would be appreciated.
The meeting is held in the Cariboo Room. Please let me know via email if you will be able to attend.
Thank you,
Krista

Krista Beadman
Regional Administrative Assistant
Cariboo Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-398-4327

Weir, David J FLNR:EX

From: SG PEP NEA PREOC Liaison 1 SG:EX
Sent: Thursday, August 7, 2014 8:22 AM
To: Weir, David J FLNR:EX
Subject: Out of Office: EMBC Coordination Call @ 11:00, 7 August 2014 Mount Polley Mine Incident

This PREOC position is currently not active. If this email is related to an emergency please contact the Emergency Coordination Centre at 1-800-663-3456 and ask to speak to the Regional Duty Manager for your area.

For administrative matters, please call the North East Regional Office at 250-612-4172 during regular business hours.

Weir, David J FLNR:EX

From: Henley, Margaret TRAN:EX
Sent: Wednesday, August 6, 2014 7:50 PM
To: Weir, David J FLNR:EX
Subject: Re: Heads up: Spot forecast for Mount Polley and Water up date

Thank you David.

Sent from Margie's iPhone

> On Aug 6, 2014, at 6:12 PM, "Weir, David J FLNR:EX" <David.J.Weir@gov.bc.ca> wrote:

>

> Please find the attached. Stephen received this directly from Mark. I was onsite today with Ministry staff but was unable to fly potentially impacted areas but it looked like there was more than enough people onsite already. Most of you will be aware of this anyways but I visited the Likely Bridge and although some debris is accumulating at the bridge equipment was onsite to manage the debris. Generators and lights were onsite and it appears that a night watch will be set just in case debris reaches the bridge tonight. They were not onsite when I was there.

>

> It does not appear that the issue of the Polley Lake levels has been addressed yet and company representatives were not aware if the lake was still rising at the time I asked them. It appears they do have a plan for managing the lake levels over the short term but it is not clear if the plan is feasible given the volume of water involved. To be fair the Geotechnical Professionals were in the air at the time so they may be fully apprised of all risks etc. The question remains unanswered as to the risk of secondary failure at the sediment plug in the outlet of Polley lake and I advise that someone should determine this risk. Water has done what it can to assist and advise on this issue.

>

> We have provided Stephen with a Sat phone which he will be passing on to his replacements to be returned to us when no longer needed for this issue.

>

> I would advise also that some measures be put in place to curb any urges to act rashly with respect to safety and impact to the environment. The company seems to have a handle on this but is easy to get caught up in the magnitude of the event even though the pace of required action does not require risk to safety or to the environment. If someone rolls a hoe in the Quesnel River pulling debris away from the bridge no one will benefit.

>

> I don't have anymore outstanding commitments for this event and will now await any requests for assistance from Local Government or other agencies as I am needed.

>

> David Weir

> Water Section Head,

> Ministry of Forest Lands and Natural Resource Operations Williams Lake

> , BC David.J.Weir@gov.bc.ca

> (250) 398 4924

> Cell 250 267-5925

>

> -----Original Message-----

> From: Hamm, Mark FLNR:EX

> Sent: Wednesday, August 6, 2014 2:35 PM

> To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Vanderburgh, Ken

> FLNR:EX; Stolar, Harold B FLNR:EX

> Subject: Heads up: Spot forecast for Mount Polley

> Importance: High
>
> Dave and Steve -- please confirm that you've received this.
>
>
> Mark
>
>
> Mark Hamm, R.P.F.
> Resource Manager
> Cariboo Chilcotin District
> (Williams Lake)
> Ministry of Natural Resource Operations
> tel 250-398-4399
> mob 250-398-0817
> fax 250-398-4790
> <mailto:Mark.Hamm@gov.bc.ca>
>
>

> -----Original Message-----

> From: Isfeld, Kurtis FLNR:EX
> Sent: Wednesday, August 6, 2014 2:33 PM
> To: Hamm, Mark FLNR:EX; Palesch, Dan TRAN:EX
> Subject: FW: Spot forecast for Mount Polley

> Here is your spot forecast as requested.

>
> Kurtis Isfeld, RFT
> Manager
> Cariboo Fire Centre
> BC Wildfire Management Branch
> Forests, Lands & Natural Resource Operations
> W: 250-989-2655 | Cell: 250-267-5389
>
>

> -----Original Message-----

> From: Bardossy, Robert FLNR:EX
> Sent: Wednesday, August 6, 2014 2:26 PM
> To: Isfeld, Kurtis FLNR:EX
> Subject: Fw: Spot forecast for Mount Polley
>
>
>

> ----- Original Message -----

> From: WXVanEaton [s.22](#)
> Sent: Wednesday, August 06, 2014 02:23 PM
> To: Bardossy, Robert FLNR:EX
> Subject: Spot forecast for Mount Polley
>

> As requested. I'm not sure if it's normal to extend the valid times beyond the standard 13/17 PDT when we're sending them out this late, let me know if you guys need this done.
>

> Christina
>
> --
> Christina Van Eaton
> Fire Weather Forecaster
> s 22
> (778) 475-2718
>
> <Mount Polley Spot Fcst August 6, 2014.doc>

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Wednesday, August 6, 2014 6:12 PM
To: Palesch, Dan TRAN:EX; Henley, Margaret TRAN:EX; 'rbastien@cariboord.bc.ca'
Cc: Vanderburgh, Ken FLNR:EX; Rothman, Stephen MEM:EX; Hamm, Mark FLNR:EX; Symonds, Brian FLNR:EX; Cameron, Valerie Z FLNR:EX; Kelly, Robert J JAG:EX
Subject: FW: Heads up: Spot forecast for Mount Polley and Water up date
Attachments: Mount Polley Spot Fcst August 6, 2014.doc
Importance: High

Please find the attached. Stephen received this directly from Mark. I was onsite today with Ministry staff but was unable to fly potentially impacted areas but it looked like there was more than enough people onsite already. Most of you will be aware of this anyways but I visited the Likely Bridge and although some debris is accumulating at the bridge equipment was onsite to manage the debris. Generators and lights were onsite and it appears that a night watch will be set just in case debris reaches the bridge tonight. They were not onsite when I was there.

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David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations Williams Lake , BC David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

-----Original Message-----

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 6, 2014 2:35 PM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Stolar, Harold B FLNR:EX
Subject: Heads up: Spot forecast for Mount Polley
Importance: High

Dave and Steve -- please confirm that you've received this.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: Isfeld, Kurtis FLNR:EX
Sent: Wednesday, August 6, 2014 2:33 PM
To: Hamm, Mark FLNR:EX; Palesch, Dan TRAN:EX
Subject: FW: Spot forecast for Mount Polley

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Kurtis Isfeld, RFT
Manager
Cariboo Fire Centre
BC Wildfire Management Branch
Forests, Lands & Natural Resource Operations
W: 250-989-2655 | Cell: 250-267-5389

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Sent: Wednesday, August 6, 2014 2:26 PM
To: Isfeld, Kurtis FLNR:EX
Subject: Fw: Spot forecast for Mount Polley

----- Original Message -----

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Sent: Wednesday, August 06, 2014 02:23 PM
To: Bardossy, Robert FLNR:EX
Subject: Spot forecast for Mount Polley

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Christina

--

Christina Van Eaton
Fire Weather Forecaster
s 22
(778) 475-2718

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: August 6, 2014

Valid: 2:30 pm

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | | | |
|--|-----------------------|-------------|-----------------------------|----------------------------------|----------------|
| Fire/Proj # | n/a | Request by: | Robert Bardossy | Date: | August 6, 2014 |
| Location Name: | Mount Polley | | | | |
| Representative Wx Stn | Likely, Gavin | | | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | | | |
| Slope% | 10% or less | Aspect | | Valley Orientation | |
| Elevation(s) for forecast | 1040 metres | | Other? tailings pond breach | | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 6 | | Select (PDT) | 1300 1700 2100 0100 0500 0900 | |

SYNOPSIS

Heights continue to fall today over the area as the upper ridge moves eastward and we see a broad upper trough settle in this afternoon. Tomorrow the broad upper trough remains over the province and a surface low develops in northeastern BC which pushes a weak surface trough down into interior regions of the province. This trough will move southeastward as the low associated with it pushes eastward over the northern prairies, creating a wind shift late in the day tomorrow over the area. Smokey conditions will continue although we should see some minor improvement as the upper flow increases over the area and transports it away.

TODAY

A mix of sun and cloud with isolated afternoon showers. Risk of a thundershower. High near 25. Minimum rh near 32%. Winds west to northwesterly 10 to 15 km/h with local afternoon gusts to 25 km/h.

TONIGHT

Variable cloudiness with isolated showers tapering off late evening. Low near 10. Maximum rh 85 to 90%. Winds northwest 5 to 10 km/h easing to calm toward morning.

TOMORROW

A mix of sun and cloud. Scattered showers and thundershowers developing near mid-afternoon. High near 22. Minimum rh near 40%. Winds light and variable in the morning becoming northwest 10 to 15 km/h in the afternoon with local gusts to 25 km/h. Local gusts to 50 km/h near thundershowers.

OUTLOOK: Friday to Sunday

Friday sees an upper trough continue over the area continuing slightly cooler temperatures. Saturday we see temperatures start to climb once again as an upper ridge builds over the province, warming a few degrees more for Sunday as the ridge builds in amplitude, and we'll see a return to dryer conditions.

SPOT FORECAST

Wednesday August 6

| | | | | | | | | |
|-------|------|----|----|----|------|----------------|---------------|----|
| 13:00 | TEMP | 24 | RH | 42 | WIND | WNW 10 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 29 | RH | 23 | WIND | WNW 13g25 km/h | % CHANCE RAIN | 30 |

DISCUSSION:

The surface trough that drops down into the area tomorrow afternoon will make wind direction very challenging in the area as the trough will set up very nearby. Light and variable winds may be the story for a good part of the day before the trough moves off and we see a light northwesterly flow into the region. Very isolated showers for today, more scattered tomorrow with the risk of a thundershower better for tomorrow as well. The area lies just very near the edge of the area of potential lightning for today, and likely won't see anything.

Upper winds at Williams Lake valid 1700h PDT:

2000m NW 15 km/h 3000m WSW 30 km/h

Forecaster: Christina Van Eaton (778) 475-2718

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 7, 2014 3:42 PM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: Question: Daily weather forecasts for Polley Lake
Importance: High

If this is the case, please let me know - as the WMB forecaster has her hands full already.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations

tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 2:12 PM
To: Hamm, Mark FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: RE: Info: Daily weather forecasts for Polley Lake

My understanding from Andrew Morrison is that from now on Environment Canada (Dan Carlisle?) will be able to address all the PREOC weather needs so the Wildfire forecast shouldn't be needed anymore? Feel free to correct me if I'm wrong.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 6, 2014 12:08 PM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX

Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX

Subject: Info: Daily weather forecasts for Polley Lake

Wildfire Management Branch's forecaster has the Mount Polley forecast in her workplan, and should have a forecast by around 14.00. There will be a 14.00 weather update today that you can call in to at 1-250-953-3192.

You can view the most recent daily (morning) weather briefing at this link.
<http://fwxwww1.hpr.for.gov.bc.ca/scripts/menu/BC/ShowPage.asp?page=wxbrief>

Dan, I believe you were looking for this info also.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations

tel 250-398-4399

mob 250-398-0817

fax 250-398-4790

<mailto:Mark.Hamm@gov.bc.ca>

From: Cameron, Valerie Z FLNR:EX
Sent: Wednesday, August 6, 2014 11:44 AM
To: Hamm, Mark FLNR:EX; Weir, David J FLNR:EX; Symonds, Brian FLNR:EX
Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX
Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Hi Mark,

That would be preferable to me passing on a second hand report. Please let us know if and when the WMB reports are produced. In the short term, I will continue to pass on whatever information I can.

Valerie

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 6, 2014 11:36 AM
To: Cameron, Valerie Z FLNR:EX; Weir, David J FLNR:EX; Symonds, Brian FLNR:EX
Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX
Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Valerie, just so you know, I'm looking into whether we can get a daily spot forecast for precipitation from WMB over the next week or so.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Cameron, Valerie Z FLNR:EX
Sent: Wednesday, August 6, 2014 10:25 AM
To: Weir, David J FLNR:EX; Symonds, Brian FLNR:EX
Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Hamm, Mark FLNR:EX
Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Hi Dave,

I just got off the Fire Weather conference call, which is held at 10 a.m. each morning. They are predicting some thunderstorm activity in the vicinity and over the next few days. I will have to go back into the recorded session to get details about precipitation amounts and temperatures, but it won't be posted until a little later today. I'll pass on the information as I receive it.

Valerie

From: Weir, David J FLNR:EX
Sent: Wednesday, August 6, 2014 10:18 AM
To: Symonds, Brian FLNR:EX
Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Hamm, Mark FLNR:EX
Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Hi Brian, I am heading up right now to Mt Polley. I am taking a sat phone for Stephen who is the mines contact Sat numbers **s.15**. Can we provide Stephen with a daily detailed weather forecast through the river forecast center? I am thinking that if the forecast center does the daily and long term forecast then we can have the fire center provide thunderstorm warnings locally as they track lightning strikes?

On the road now.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Symonds, Brian FLNR:EX
Sent: Wednesday, August 6, 2014 9:59 AM
To: Ethier, Tom FLNR:EX
Cc: Cameron, Valerie Z FLNR:EX; Mason, Wenda FLNR:EX; Bekker, Pieter FLNR:EX; Weir, David J FLNR:EX
Subject: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Please find attached rudimentary local area maps and a copy of the Declaration of State of Local Emergency for your information.

Brian Symonds
Director , Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

Weir, David J FLNR:EX

From: Vanderburgh, Ken FLNR:EX
Sent: Thursday, August 7, 2014 1:17 PM
To: Weir, David J FLNR:EX
Subject: FW: Water Quality Tables and Memo
Attachments: Results for Aug 4_2014 water samples w AL GLs.xlsx; Results for Aug 4_2014 water samples w DW GLs.xlsx; Memo - Quesnel Water Quality Aug 4_2014 - DW_AL.doc

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 7, 2014 1:12 PM
To: FLNR Cariboo RMT
Subject: FW: Water Quality Tables and Memo

Just fyi - confidential until 15.00.

All is well.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Halls, Lori D ENV:EX
Sent: Thursday, August 7, 2014 1:01 PM
To: Hamm, Mark FLNR:EX
Subject: FW: Water Quality Tables and Memo

Mark

From: Matscha, Gabriele ENV:EX
Sent: Thursday, August 7, 2014 1:00 PM
To: Halls, Lori D ENV:EX
Subject: Water Quality Tables and Memo

Lori,

I created only one memo for both, drinking water and aquatic life but have two tables, one for each.

Do I need to divide the memo into two as well?

We have received two more E.coli data, which are slightly above the raw drinking water guideline. I explain in the memo though, that it is not likely due to the mine.

This is new information and changes my statement of yesterday slightly.

Gabi Matscha, R.P. Bio
Impact Assessment Section Head – Mining
Ministry of Environment
Ph: (250) 371-6296
Cell: (250) 851-6692

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 10:35 AM
To: Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX
Subject: Mt Polley

I double checked and yes the Mine confirms they have my order and are complying with it. There is some confusion around Polley lake as they may already be siphoning water which is good but at the time of my visit they had not done so.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 10:31 AM
To: 'rbastien@cariboord.bc.ca'; Rothman, Stephen MEM:EX; Palesch, Dan TRAN:EX
Subject: FW: Spot Forecast for Mount Polley August 6
Attachments: Mount Polley Spot Fcst August 7, 2014.doc

Please find the attached. I am working on getting you both a long range forecast and a storm warning from the Wildfire center for individual cells. If you want them.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations Williams Lake , BC David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

-----Original Message-----

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 7, 2014 10:28 AM
To: Vanderburgh, Ken FLNR:EX; Rothman, Stephen MEM:EX; Weir, David J FLNR:EX
Subject: Fw: Spot Forecast for Mount Polley August 6

Please forward as necessary.

Thank you, Christina.

Mark

----- Original Message -----

From: WXVanEaton [s.22](#)
Sent: Thursday, August 07, 2014 10:25 AM
To: RWCOCAR HPR P FLNR:EX; FCRCAR FCA P FLNR:EX; PLAN5, CAR FLNR:EX; Hamm, Mark FLNR:EX
Subject: Spot Forecast for Mount Polley August 6

As requested.

Christina

--

Christina Van Eaton
Fire Weather Forecaster

[s.22](#)
(778) 475-2718

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: August 7, 2014

Valid: 10:30 am

REQUEST (*Don't request preparation for early in the morning unless you need it then!*)

| | | | | | |
|--|-----------------------|-----------------------------|-------------------------------|--------------------|----------------|
| Fire/Proj # | n/a | Request by: | Robert Bardossy | Date: | August 7, 2014 |
| Location Name: | Mount Polley | | | | |
| Representative Wx Stn | Likely, Gavin | | | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | | | |
| Slope% | 10% or less | Aspect | | Valley Orientation | |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | | | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 7 | Select (PDT) | 1300 1700 2100 0100 0500 0900 | | |

SYNOPSIS

Heights will fall a little further today in the upper levels over the area, while a weak surface trough forms this afternoon creating some wind shifts in the region before moving off into the overnight period. This trough will potentially also allow some light, but locally gusty winds to continue through the overnight period. Cool temperatures today will cool a few degrees more tomorrow as a more defined upper trough moves in, bringing showers with it.

TODAY

Mostly sunny with increasing cloud and scattered showers developing late afternoon. Accumulations less than 1mm. High near 22. Minimum rh near 32%. Winds westerly near 5 km/h this morning becoming northwest 10 to 13 km/h later this afternoon with local gusts to 25 km/h.

TONIGHT

Mostly cloudy with scattered showers tapering off near midnight then re-developing toward daybreak. Accumulations near 1mm. Low near 10. Maximum rh 85 to 90%. Winds northwest 5 to 10 km/h with local gusts to near 20 km/h.

TOMORROW

Scattered morning showers over northern sections tapering off to isolated in the afternoon. Accumulations 1 to 2mm. High near 18. Minimum rh near 42%. Winds north to northwesterly 8 to 10 km/h becoming northeasterly 10 to 12 km/h in the afternoon with local afternoon gusts 20 km/h.

OUTLOOK: Saturday to Monday

Friday's upper trough departs very quickly and Saturday sees an upper ridge build back in over the province, with temperatures rebounding quickly and a return to sunshine. Temperatures into the upper 20s are forecast to return by Sunday to the area. We'll also likely see humidities trend downward quite quickly with no showers or lightning in the forecast for all three days.

SPOT FORECAST

Thursday August 7

| | | | | | | | | |
|-------|------|----|----|----|------|----------------|---------------|----|
| 13:00 | TEMP | 20 | RH | 40 | WIND | W 7 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 22 | RH | 32 | WIND | WNW 12g25 km/h | % CHANCE RAIN | 60 |

DISCUSSION:

The surface trough dropping down into the area this afternoon will make wind direction very challenging in the area as the trough will set up very nearby. Light and variable winds may be the story for a good part of the day before the trough moves off and we see a light northwesterly flow into the region. Additionally we could see light, gusty winds throughout the overnight period until the trough completely departs the area. Daytime high temperatures for today are very dependent on when the cloud cover and showers arrive, so we could see an early daytime high before temperatures fall late afternoon with the arrival of the cloud and precipitation. Very small chance of some isolated lightning today, although it all looks like it will stay well to the south. Tomorrow should see any lightning stay well to the east near the Fire Centre boundary.

Upper winds at Likely valid 1700h PDT:

2000m SW 5 km/h 3000m W 35 km/h

Forecaster: Christina Van Eaton (778) 475-2718

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 7, 2014 10:28 AM
To: Vanderburgh, Ken FLNR:EX; Rothman, Stephen MEM:EX; Weir, David J FLNR:EX
Subject: Fw: Spot Forecast for Mount Polley August 6
Attachments: Mount Polley Spot Fcst August 7, 2014.doc

Please forward as necessary.

Thank you, Christina.

Mark

----- Original Message -----

From: WXVanEaton [s.22](#)
Sent: Thursday, August 07, 2014 10:25 AM
To: RWCOCAR HPR P FLNR:EX; FCRCAR FCA P FLNR:EX; PLANS, CAR FLNR:EX; Hamm, Mark FLNR:EX
Subject: Spot Forecast for Mount Polley August 6

As requested.

Christina

--

Christina Van Eaton
Fire Weather Forecaster
[s.22](#)
(778) 475-2718

Weir, David J FLNR:EX

From: Cameron, Valerie Z FLNR:EX
Sent: Thursday, August 7, 2014 9:51 AM
To: Weir, David J FLNR:EX; Symonds, Brian FLNR:EX
Subject: FW: Quick question re: Mt Polley incident

I just spoke to Bob Kelly and he is going to ask Doug Lundquist to give a weather report at the daily PREOC coordination calls. Thanks for the suggestion Dave.

Valerie

From: Cameron, Valerie Z FLNR:EX
Sent: Thursday, August 7, 2014 9:35 AM
To: Kelly, Robert J JAG:EX
Subject: Quick question re: Mt Polley incident

Hi Bob,

Background:

I've asked our Water Section Head in Williams Lake, Dave Weir, what support he needs from Victoria in responding to the Mt Polley incident. He said that weather forecasts that can predict winds on Quesnel Lake (for debris movement) and precipitation amounts for Polley Lake (to predict lake rise) would be needed. He said that although FLNRO's Wildfire Branch is doing spot weather assessments for the Polley Lake area, they may not be providing the complete information that the communities may need.

My question:

Before me getting involved by calling Doug Lundquist for more detailed forecasts, I just wanted to know if you already had weather covered on your PREOC coordination calls. Dave is not on the calls and doesn't know if weather is being covered in this incident. Please let me know. I don't want to interfere unnecessarily.

Thanks,
Valerie

Valerie Z Cameron, P. Geo.

Water Stewardship Manager
Resource Stewardship Division
BC Ministry of Forests, Lands and Natural Resource Operations
PO Box 9340 Stn Prov Govt Victoria BC V8W 9M1

Phone (250) 387 5506
Fax (250) 356 0605
Email valerie.cameron@gov.bc.ca

Water for BC: Safe, Sustainable and Valued By All

Weir, David J FLNR:EX

From: Symonds, Brian FLNR:EX
Sent: Thursday, August 7, 2014 9:23 AM
To: Weir, David J FLNR:EX
Cc: Cameron, Valerie Z FLNR:EX; Mason, Wenda FLNR:EX
Subject: RE: Mt Polley water licence

Thanks David.

Good to know. The individuals assessing the failure will still need to consider whether any of the licenced works, whether in use or not, may have been a factor in the failure. Even though the works may not have been used for some time there is always the issue of ensuring they are being properly inspected and maintained until such time as they are permanently decommissioned. For example, checking to see if there piping developing along the supply line which may have been a contributing factor. The potential for piping can also become more of a concern if the head differential along the pipe increased due to higher levels of storage in the reservoir than originally anticipated in the design.

Brian Symonds
Director , Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 8:53 AM
To: Symonds, Brian FLNR:EX
Subject: Mt Polley water licence

I talked to operations staff at the mine site and was told the water licence has not been used for several years. I do not know what the state of the works were at the time of the failure. Several of the mines here are holding old water licences with large volumes without making diligent use.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 9:20 AM
To: Rothman, Stephen MEM:EX
Subject: FW: Mt Polley

Can you confirm that the mine got this?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Weir, David J FLNR:EX
Sent: Tuesday, August 5, 2014 3:15 PM
To: XT:Carpenter, Penny FLNR:IN; Rothman, Stephen MEM:EX
Cc: Vanderburgh, Ken FLNR:EX; Stewart, Rodger W FLNR:EX
Subject: RE: Mt Polley

Hello, at this time it is our understanding that Stephen Rothman has the authority under the mines act to order the necessary measures to contain and remove the debris in Quesnel Lake and to authorize the management of the water level on Polley lake.

However: to remove any confusion and to address any shortcoming that might exist between the Mines Act, Water Act and the MOU that guides there coordination I order under Section 85 as follows;

Subject to the requirements of the Mines Act and MOU

http://iwww.env.gov.bc.ca/wsd/sla_mou/mempr_mou%202009.pdf and as it is in the public interest for the protection of safety and the integrity of Hazeltine Creek, Polley Lake, Quesnel Lake and the Quesnel River, recognizing the Mt Polley Mine's willingness to undergo the required work at their own cost and save the province harmless:

- 1) Under the direction of suitably qualified professionals licenced in the Province of BC the corporation is ordered to collect and remove such debris from Quesnel Lake, as a result of the Mt Polley tailings pond failure, as would threaten road infrastructure and stream channel stability. The manner and nature to be suitable to impacted parties Federal Agencies and the Province.
- 2) Under the direction of suitably qualified and experienced professionals licenced in the Province of BC; maintain the Lake level of Polley Lake in a manner that prevents further mass movement of material from Polley lake and Hazeltine Creek.
- 3) This order does not superseded any other legislation, agency, or government authority nor does it save them harmless.
- 4) This order is not intended to mitigate or limit the future punitive action of government with respect any non compliance by Mt Polley Mine.
- 5) This order is a temporary measure and is subject to cancelation or modification under the authority of the Water Act Mines Act or the MOU.
- 6) This order doe not authorize the entry onto private lands.

If necessary a more formal and document can be provided at a future date and in the absence of any direction to the contrary it should be considered to be expired as of August 22nd 2014 if not renewed. In addition to the general protection of public interest the specific purpose is to protect the bridge at Likely and to prevent secondary mass movements of material from the failure.

If there are any questions or you feel there is error please contact me. Keeping in mind the rushed nature of this document.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Penny Carpenter s.22
Sent: Tuesday, August 5, 2014 12:46 PM
To: Weir, David J FLNR:EX
Subject: RE: Mt Polley

Hi David
The Mines Gentleman Steve Rothman will be contacting you regarding the breach of the tailing pond. He will be able to fill you in and maybe it will help the work load so things are not getting duplicated.
Penny Carpenter

From: Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]
Sent: August-05-14 11:41 AM
To: XT:Carpenter, Penny FLNR:IN
Subject: Mt Polley

As per our discussion

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: MacDougall, Gerry L FLNR:EX
Sent: Thursday, August 7, 2014 9:13 AM
To: FLNR Cariboo Region All Staff
Subject: Mt Polley
Attachments: Aug 6 2014 polley spill info.pdf

Information to Cariboo Region FLNR staff:

There is considerable coverage in the media on the recent Polley tailings spill.

This email is to provide a brief summary of the provincial ministries' responses, for your interest.

Given the media coverage of the Mt Polley event, you will have noted that the Cariboo Regional District has taken the lead through their Emergency Operations Center to help residents deal with emergency issues such as water quality and safety. <http://cariboord.ca/news/whats-new-3> The CRD emergency response works under the Provincial Emergency Program mandate which is administered by BC Ministry of Justice.

The Ministry of Energy and Mines is very active, working with Imperial Metals on the emergency response on the mine site.

The Ministry of Environment has the lead on environmental protection outside of the mine site, and have recently issued Pollution Abatement Order. To follow Ministry of Environment's response please see the link provided below.

<http://www.env.gov.bc.ca/eemp/incidents/2014/mount-polley.htm>

If the public requires information on how to respond to sighting of wildlife in distress, please refer them to the RAPP line:

<http://www.env.gov.bc.ca/cos/rapp/rapp.html> Dial Toll Free 1-877-952-7277 (RAPP) or Report Violators [Online](#)

FLNR will continue to support MEM and MoE on the response and remediation. Examples to date have included activities related to Recreation (safety evacuations), Water, Wildlife, Fisheries and Forest Acts (road closures).

A press release is attached that may be of interest.

For more information, please contact your manager and we can arrange more detailed briefings as required. In the meantime, many of our staff are very occupied in supporting the Ministries of Environment and Energy and Mines.

Thank you,

Gerry MacDougall

Executive Assistant Krista Beadman 250-398-4327

Direct 250-398-4355

Regional Executive Director, Cariboo Region

Ministry of Forests, Lands and Natural Resource Operations

FACTSHEET

For Immediate Release
2014MEM0020-001140
August 6, 2014

Ministry of Energy and Mines
Ministry of Environment

Mount Polley tailings pond situation update

WILLIAMS LAKE – Government and Cariboo Regional District officials continue to work together to address the breach at the Mount Polley tailings pond, to test the local drinking water to determine if it is safe for locals to drink or bathe in, and to help ensure the safety and well-being of local residents.

This factsheet will be updated daily with the latest information available.

New today:

1. 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.

1. 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 tug 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.

1. Tug boats have been working in the area to boom the debris in the water and excavators are on standby in the event they are needed as well. Significant progress has been made.
2. Polley Lake: the mine's management, in consultation with Geotech consultants and government geotechnical engineers, are reviewing alternatives to lower the water level in Polley Lake. These may include pumping the water into a historic empty pit on the site or pumping or diverting the water to the Hazelton Creek.
3. Tailings Pond: the mine's management in consultation with Geotech consultants and government experts are reviewing a plan to build a berm to prevent further tailings from flowing into Hazelton Creek.
4. Ministry of Energy and Mines inspectors continue their investigation. They have now

begun the interview process in conjunction with the Conservation Service. This will involve interviewing mine staff and a review of all applicable documentation on the mine site.

5. Quesnel Lake & Likely Bridge: 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. At this point, there is no imminent threat to the structure.

Current situation:

- The flow out of the breach has decreased dramatically, but has not completely stopped. Imperial Metals continues to work to stop flow out of the pond.
- A small amount of tailings backed into the mouth Polley Lake and the main slurry flow went down Hazeltine Creek where it meets Quesnel Lake. The slurry and a large debris pile appear to be stationary at this point. Hazeltine Creek was originally about four feet wide and is now up to 150 feet wide.
- The cause of the breach is still unknown at this time. Ministry of Environment conservation officers are investigating the breach along with Ministry of Energy and Mines mine inspectors, two of whom have been monitoring the site by helicopter.
- Water sampling took place the evening of Aug. 4 and samples were sent for testing early yesterday morning. Drinking water testing continues and results are expected tomorrow or Friday morning at the latest. Until that point, the environmental impact of the contaminated water on the local watershed remains unknown.
- In the meantime, the CRD has issued a water ban advisory not to drink, bath or feed livestock drawn from the following waterways: Quesnel Lake, Polley Lake, Hazeltine Creek and Cariboo Creek. The entire Quesnel River system right up to the Fraser River is under a do not drink advisory. ****Note: boiling will not help****
- There have been no reports of injuries or people getting sick from drinking water. There have been no reports of property damage.
- The cost of the cleanup of the breach is the responsibility of Imperial Metals, and is not a cost borne by B.C. taxpayers.

Water Ban:

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.

Search-and-rescue volunteers continue going door to door to recommend evacuation from park sites and notify water users of the water ban. They are also supporting water delivery efforts.

Due to the influx of tourists in to the area over the long weekend, the numbers of people affected is unconfirmed but the CRD estimates it could range up to 300.

Regional infrastructure and waterways:

Waterways affected by this event include Quesnel Lake, Polley Lake, Hazeltine Creek and Cariboo Creek.

Additionally the Horsefly Likely Forest Service (Ditch Road) has been washed out at Hazeltine Creek and the Gavin Lake Forest Service Road was washed out closer to the dam breach area. The Likely Bridge is **not affected** at this time.

Previous site inspections:

Following reports of a previous breach at the mine, Ministry of Energy and Mines officials investigated an incident on May 24, 2014, and determined this was not a breach. It was a one-day period where the height of the effluent within tailings pond was above regulation.

To date, Imperial Metals has been compliant with respect to recent orders regarding dam safety inspections. The last inspection by government mining officials took place in September 2013.

Here is a list of recent advisories to Mount Polley from the Ministry of Environment, only one of which was related to height of the tailings pond. The Ministry of Environment is responsible to ensure no unauthorized effluent discharge from the tailings pond structure:

- 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.
- 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. This ~~perimeter pond overflowed~~, releasing approximately 150 cubic metres of effluent over 13 hours to ground.

Additional background:

Early in the morning of Aug. 4, the tailings pond dam at the Mount 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. Hazeltine Creek flows out of Polley Lake and the flow of contaminated water continued into Quesnel Lake.

The Mount Polley Mine is owned by Imperial Metals and is approximately 30 kilometres from the community of Likely.

The tailing pond at Mount Polley Mine is 4 kms by 4 kms. This is a large breach and extremely rare.

Officials with the Ministry of Energy and Mines do not recall anything of this magnitude in at least the last 40 years.

Media Contacts:

Jake Jacobs

Media Relations

Ministry of Energy and Mines and Responsible 250 305-8151

for Core Review

250 952-0628

Cariboo Regional District

Communications

250 305-8151

sburich@cariboord.ca

Connect with the Province of B.C. at: www.gov.bc.ca/connect

Weir, David J FLNR:EX

From: Penny Carpenter s.22
Sent: Thursday, August 7, 2014 9:50 PM
To: Weir, David J FLNR:EX
Cc: Dave Carpenter
Subject: RE: Lake level prediction modeling for Polley Lake

David Carpenter 250 790 2215 ex 2110

From: Weir, David J FLNR:EX [mailto:David.J.Weir@gov.bc.ca]
Sent: August-07-14 2:17 PM
To: XT:Carpenter, Penny FLNR:IN; Cameron, Valerie Z FLNR:EX
Cc: Morrison, Andrew JAG:EX; 'rbastien@cariboord.bc.ca'; Kelly, Robert J JAG:EX
Subject: Lake level prediction modeling for Polley Lake

My deliverable for today is to put together the Company representative with the person who would do the modeling exercise and then find a way for the result to be reported back to PREOC?

Penny could you provide the appropriate contact from the company?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Morrison, Andrew JAG:EX
Sent: Thursday, August 7, 2014 9:22 PM
To: Hamm, Mark FLNR:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: Re: Question: Daily weather forecasts for Polley Lake

Apologies for the late reply, I was the meetings in Likely. I will connect with Environment Canada first thing tomorrow and make sure they have access to the Mine Wx info mentioned on the call.

Spot forecasts may be very useful as the weather transitions, as mentioned by Doug Lundquist (EC) on today's call.

Andrew Morrison
Regional Manager
Emergency Management BC

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 07, 2014 03:42 PM Pacific Standard Time
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: Question: Daily weather forecasts for Polley Lake

If this is the case, please let me know - as the WMB forecaster has her hands full already.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 2:12 PM
To: Hamm, Mark FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: RE: Info: Daily weather forecasts for Polley Lake

My understanding from Andrew Morrison is that from now on Environment Canada (Dan Carlisle?) will be able to address all the PREOC weather needs so the Wildfire forecast shouldn't be needed anymore? Feel free to correct me if I'm wrong.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 6, 2014 12:08 PM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: Info: Daily weather forecasts for Polley Lake

Wildfire Management Branch's forecaster has the Mount Polley forecast in her workplan, and should have a forecast by around 14.00. There will be a 14.00 weather update today that you can call in to at 1-250-953-3192.

You can view the most recent daily (morning) weather briefing at this link.
<http://fwxwww1.hpr.for.gov.bc.ca/scripts/menu/BC/ShowPage.asp?page=wxbrief>

Dan, I believe you were looking for this info also.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Cameron, Valerie Z FLNR:EX
Sent: Wednesday, August 6, 2014 11:44 AM
To: Hamm, Mark FLNR:EX; Weir, David J FLNR:EX; Symonds, Brian FLNR:EX
Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX
Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Hi Mark,

That would be preferable to me passing on a second hand report. Please let us know if and when the WMB reports are produced. In the short term, I will continue to pass on whatever information I can.

Valerie

From: Hamm, Mark FLNR:EX

Sent: Wednesday, August 6, 2014 11:36 AM

To: Cameron, Valerie Z FLNR:EX; Weir, David J FLNR:EX; Symonds, Brian FLNR:EX

Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX

Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Valerie, just so you know, I'm looking into whether we can get a daily spot forecast for precipitation from WMB over the next week or so.

Mark

Mark Hamm, R.P.F.

Resource Manager

Cariboo Chilcotin District

(Williams Lake)

Ministry of Natural Resource Operations

tel 250-398-4399

mob 250-398-0817

fax 250-398-4790

<mailto:Mark.Hamm@gov.bc.ca>

From: Cameron, Valerie Z FLNR:EX

Sent: Wednesday, August 6, 2014 10:25 AM

To: Weir, David J FLNR:EX; Symonds, Brian FLNR:EX

Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Hamm, Mark FLNR:EX

Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Hi Dave,

I just got off the Fire Weather conference call, which is held at 10 a.m. each morning. They are predicting some thunderstorm activity in the vicinity and over the next few days. I will have to go back into the recorded session to get details about precipitation amounts and temperatures, but it won't be posted until a little later today. I'll pass on the information as I receive it.

Valerie

From: Weir, David J FLNR:EX

Sent: Wednesday, August 6, 2014 10:18 AM

To: Symonds, Brian FLNR:EX

Cc: Rothman, Stephen MEM:EX; Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Hamm, Mark FLNR:EX

Subject: RE: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Hi Brian, I am heading up right now to Mt Polley. I am taking a sat phone for Stephen who is the mines contact Sat number s.15 Can we provide Stephen with a daily detailed weather forecast through the river forecast center? I am thinking that if the forecast center does the daily and long term forecast then we can have the fire center provide thunderstorm warnings locally as they track lightning strikes?

On the road now.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Symonds, Brian FLNR:EX
Sent: Wednesday, August 6, 2014 9:59 AM
To: Ethier, Tom FLNR:EX
Cc: Cameron, Valerie Z FLNR:EX; Mason, Wenda FLNR:EX; Bekker, Pieter FLNR:EX; Weir, David J FLNR:EX
Subject: Map of Area Impacted by Mt. Polley Tailings Dam Failure

Please find attached rudimentary local area maps and a copy of the Declaration of State of Local Emergency for your information.

Brian Symonds
Director, Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 4:55 PM
To: Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX
Subject: FW: Water Quality Tables and Memo
Attachments: Results for Aug 4_2014 water samples w AL GLs.xlsx; Results for Aug 4_2014 water samples w DW GLs.xlsx; Memo - Quesnel Water Quality Aug 4_2014 - DW_AL.doc

This should have been released at 3 so I should be able to share with you now.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Vanderburgh, Ken FLNR:EX
Sent: Thursday, August 7, 2014 1:17 PM
To: Weir, David J FLNR:EX
Subject: FW: Water Quality Tables and Memo

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 7, 2014 1:12 PM
To: FLNR Cariboo RMT
Subject: FW: Water Quality Tables and Memo

Just fyi - confidential until 15.00.

All is well.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
mailto:Mark.Hamm@gov.bc.ca

From: Halls, Lori D ENV:EX
Sent: Thursday, August 7, 2014 1:01 PM

To: Hamm, Mark FLNR:EX
Subject: FW: Water Quality Tables and Memo

Mark

From: Matscha, Gabriele ENV:EX
Sent: Thursday, August 7, 2014 1:00 PM
To: Halls, Lori D ENV:EX
Subject: Water Quality Tables and Memo

Lori,

I created only one memo for both, drinking water and aquatic life but have two tables, one for each.

Do I need to divide the memo into two as well?

We have received two more E.coli data, which are slightly above the raw drinking water guideline. I explain in the memo though, that it is not likely due to the mine.

This is new information and changes my statement of yesterday slightly.

*Gabi Matscha, R.P. Bio
Impact Assessment Section Head – Mining
Ministry of Environment
Ph: (250) 371-6296
Cell: (250) 851-6692*

MoE Sampling Results Aug 04th, 2014, Quesnel Lake by site compared to Aquatic Life Guidelines

| Parameter | Units | Quesnel I@ North Shore East of Cedar Creek | Quesnel II, North Shore, West of 4 Cabins | Quesnel R @ Likely Townsite | BC Aquatic Life Guidelines | |
|---------------------------------------|-----------|--|---|-----------------------------|----------------------------|---------------|
| | | | | | Chemical | Acute |
| pH | pH units | 7.79 | 7.81 | 7.82 | | 6.5-9.0 |
| Conductivity | µS/cm | 94.5 | 94.8 | 95.3 | | |
| Turbidity | NTU | 0.18 | 0.18 | 0.19 | | Change of 5 |
| Total Suspended Solids | mg/L | <1.0 | <1.0 | <1.0 | Change of 5 | Change of 25 |
| Total Dissolved Solids | mg/L | | | | | |
| Hardness - Total | mg/L | 50.5 | 46.4 | 45.8 | | |
| Hardness - Dissolved | mg/L | 45.3 | 45.1 | 47 | | |
| Microbiology | | | | | | |
| E. coli | CFU/100mL | 1 | <1 | 1 | | |
| General Inorganics | | | | | | |
| Alkalinity Total (CaCO ₃) | mg/L | 44.1 | 43.5 | 43.8 | | |
| Anions | | | | | | |
| Fluoride - Dissolved | mg/L | | | | 1.54 | 990 |
| Chloride - Dissolved | mg/L | | | | 218 | |
| Sulfate | mg/L | | | | | |
| Nutrients | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | | | | | |
| Total Nitrogen | mg/L | | | | | |
| Total Organic Nitrogen | mg/L | | | | | |
| Ammonia Nitrogen | mg/L | | | | 1 | 2.5 |
| Nitrate + Nitrite | mg/L | | | | 1.02 | 7.82 |
| Nitrate Nitrogen | mg/L | | | | 5 | 32.8 |
| Nitrite Nitrogen | mg/L | | | | 0.02 | 0.06 |
| Total Phosphorus | mg/L | | | | | 0.003 - 0.013 |
| Total Metals | | | | | | |
| Aluminum | µg/L | 20.7 | 12.5 | 13.7 | | |
| Arsimony | µg/L | <0.5 | <0.5 | <0.5 | | 20 |
| Arsenic | µg/L | <0.1 | 0.11 | 0.14 | | 5 |
| Barium | µg/L | 5.5 | 5 | 5.5 | 1000 | 1000 |
| Beryllium | µg/L | <0.1 | <0.1 | <0.1 | 5.5 | |
| Bismuth | µg/L | <1.0 | <1.0 | <1.0 | | |
| Boron | µg/L | <50 | <50 | <50 | | 1500 |
| Cadmium | µg/L | <0.010 | <0.010 | <0.010 | | 0.002 |
| Calcium | mg/L | 15.9 | 15.6 | 15.4 | | |
| Chromium | µg/L | <1.0 | <1.0 | <1.0 | | 1 |
| Cobalt | µg/L | <0.5 | <0.5 | <0.5 | 4 | 110 |
| Copper | µg/L | <0.5 | 0.65 | 0.57 | 7 | 7 |
| Iron | µg/L | 24 | <10 | 16 | | 1000 |
| Lead | µg/L | <0.20 | <0.20 | <0.20 | 21 | 4 |
| Lithium | µg/L | N/A | <5.0 | <5.0 | 14 | 470 |
| Magnesium | mg/L | 2 | 1.81 | 1.78 | | |
| Manganese | µg/L | 1.1 | 7 | 1.2 | 800 | 1160 |
| Mercury | µg/L | N/A | <0.01 | <0.01 | 0.02 | 0.1 |
| Molybdenum | µg/L | <1.0 | <1.0 | <1.0 | 1000 | 2000 |
| Nickel | µg/L | <1.0 | <1.0 | <1.0 | | 25 |
| Phosphorus | µg/L | <10 | <10 | <10 | | |
| Potassium | mg/L | 0.509 | 0.518 | 0.469 | | 375 |
| Selenium | µg/L | 0.17 | 0.15 | 0.17 | 2 | |
| Silicon | µg/L | 1830 | 1660 | 1670 | | |
| Silver | µg/L | <0.02 | <0.02 | <0.02 | 0.05 | 0.1 |
| Sodium | mg/L | 0.905 | 0.877 | 0.847 | | |
| Strontium | µg/L | 116 | 108 | 113 | | |
| Sulfur | mg/L | <3.0 | <3.0 | <3.0 | | |
| Tellurium | µg/L | | | | | |
| Thallium | µg/L | <0.05 | <0.05 | <0.05 | | 0.3 |
| Tin | µg/L | <5.0 | <5.0 | <5.0 | | |
| Titanium | µg/L | <3.0 | <3.0 | <3.0 | | 2000 |
| Uranium | µg/L | 0.14 | 0.14 | 0.13 | | 300 |
| Vanadium | µg/L | <5.0 | <5.0 | <5.0 | | 6 |
| Zinc | µg/L | <5.0 | <5.0 | <5.0 | 0.013 | 0.71 |
| Zirconium | µg/L | <0.5 | N/A | N/A | | |
| Dissolved Metals | | | | | | |
| Aluminum | µg/L | 12.3 | 10 | 11.1 | 50 | 100 |
| Antimony | µg/L | <0.5 | <0.5 | <0.5 | | |
| Arsenic | µg/L | 0.11 | 0.11 | 0.13 | | |
| Barium | µg/L | 5 | 4.5 | 5.2 | | |
| Beryllium | µg/L | <0.1 | <0.1 | <0.1 | | |
| Bismuth | µg/L | <1.0 | <1.0 | <1.0 | | |
| Boron | µg/L | <50 | <50 | <50 | | |
| Cadmium | µg/L | <0.01 | <0.01 | <0.01 | | |
| Calcium | mg/L | 15.1 | 15.1 | 15.7 | | |
| Chromium | µg/L | <1.0 | <1.0 | <1.0 | | |
| Cobalt | µg/L | <0.5 | <0.5 | <0.5 | | |
| Copper | µg/L | 0.79 | 0.71 | 0.5 | | |
| Iron | µg/L | <5.0 | <5.0 | <5.0 | | 250 |
| Lead | µg/L | <0.2 | <0.2 | <0.2 | | |
| Lithium | µg/L | <5.0 | <5.0 | <5.0 | | |
| Magnesium | mg/L | 1.85 | 1.8 | 1.92 | | |
| Manganese | µg/L | <1.0 | <1.0 | <1.0 | | |
| Mercury | µg/L | N/A | <0.010 | <0.010 | | |
| Molybdenum | µg/L | <1.0 | <1.0 | <1.0 | | |
| Nickel | µg/L | <1.0 | <1.0 | <1.0 | | |
| Phosphorus | µg/L | <10 | <10 | <10 | | |
| Potassium | mg/L | 0.471 | 0.475 | 0.485 | | |
| Selenium | µg/L | 0.17 | 0.11 | 0.14 | | |
| Silicon | µg/L | 1530 | 1600 | 1670 | | |
| Silver | µg/L | <0.02 | <0.02 | <0.02 | | |
| Sodium | mg/L | 0.905 | 0.845 | 0.862 | | |
| Strontium | µg/L | 110 | 104 | 113 | | |
| Sulfur | mg/L | 3.8 | <3.0 | <3.0 | | |
| Tellurium | µg/L | <0.05 | <0.05 | <0.05 | | |
| Tin | µg/L | <5.0 | <5.0 | <5.0 | | |
| Titanium | µg/L | <3.0 | <3.0 | <3.0 | | |
| Uranium | µg/L | 0.12 | 0.12 | 0.13 | | |
| Vanadium | µg/L | <5.0 | <5.0 | <5.0 | | |
| Zinc | µg/L | <5.0 | <5.0 | <5.0 | | |
| Zirconium | µg/L | N/A | N/A | N/A | | |

MCE Sampling Results Aug 04th, 2014, Quesnel Lake by site compared to Drinking Water Guidelines

| Parameter | Units | Quesnel Lk North Shore East of Cedar Creek | Quesnel Lk, North Shore, West of 4 Cabins | Quesnel R @ Likely Townsite | Drinking Water Guidelines BC | Health Canada |
|---------------------------------------|-----------|--|---|-----------------------------|---------------------------------|---------------|
| pH | pH units | 7.79 | 7.81 | 7.82 | <8.5 | 6.5-8.5 |
| Conductivity | µS/cm | 94.5 | 94.8 | 95.3 | | |
| Turbidity | NTU | 0.18 | 0.18 | 0.19 | Change of 1 | |
| Total Suspended Solids | mg/L | <1.0 | <1.0 | <1.0 | | |
| Total Dissolved Solids | mg/L | | | | 500 | 500 |
| Hardness - Total | mg/L | 50.5 | 48.4 | 45.8 | | |
| Hardness - Dissolved | mg/L | 45.3 | 43.1 | 47 | | |
| Microbiology | | | | | | |
| E. coli | CFU/100mL | 1 | <1 | 1 | | |
| General Inorganics | | | | | | |
| Alkalinity Total (CaCO ₃) | mg/L | 44.1 | 43.5 | 43.8 | | |
| Anions | | | | | | |
| Bromide - Dissolved | mg/L | | | | | |
| Chloride - Dissolved | mg/L | | | | 250 | 250 |
| Sulphate | mg/L | | | | 500 | 500 |
| Nutrients | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | | | | | |
| Total Nitrogen | mg/L | | | | | |
| Total Organic Nitrogen | mg/L | | | | | |
| Ammonia Nitrogen | mg/L | | | | 10 | |
| Nitrate-Nitrite | mg/L | | | | 10 | 10 |
| Nitrate Nitrogen | mg/L | | | | 1 | 1 |
| Nitrite Nitrogen | mg/L | | | | 0.01 | |
| Total Phosphorus | mg/L | | | | | |
| Total Metals | | | | | | |
| Aluminum | µg/L | 20.7 | 12.3 | 13.7 | | 100 |
| Antimony | µg/L | <0.5 | <0.5 | <0.5 | 14 | 6 |
| Arsenic | µg/L | <0.1 | 0.11 | 0.14 | 23 | 10 |
| Barium | µg/L | 5.5 | 5 | 5.3 | | 1000 |
| Beryllium | µg/L | <0.1 | <0.1 | <0.1 | 4 | |
| Bismuth | µg/L | <1.0 | <1.0 | <1.0 | | |
| Boron | µg/L | <50 | <50 | <50 | 5000 | 5000 |
| Cadmium | µg/L | <0.010 | <0.010 | <0.010 | 5 | 5 |
| Calcium | mg/L | 16.9 | 15.6 | 15.4 | | |
| Chromium | µg/L | <1.0 | <1.0 | <1.0 | 50 | 50 |
| Cobalt | µg/L | <0.5 | <0.5 | <0.5 | | |
| Copper | µg/L | <0.5 | 0.85 | 0.57 | 900 | 1000 |
| Iron | µg/L | 24 | <10 | 16 | | 390 |
| Lead | µg/L | <0.20 | <0.20 | <0.20 | 56 | 10 |
| Lithium | µg/L | N/A | <5.0 | <5.0 | | |
| Magnesium | mg/L | 2 | 1.81 | 1.78 | | |
| Manganese | µg/L | 1.1 | 1 | 1.2 | | 50 |
| Mercury | µg/L | N/A | <0.01 | <0.01 | 1 | 1 |
| Molybdenum | µg/L | <1.0 | <1.0 | <1.0 | 750 | |
| Nickel | µg/L | <1.0 | <1.0 | <1.0 | | |
| Phosphorus | µg/L | <10 | <10 | <10 | | |
| Potassium | mg/L | 0.569 | 0.518 | 0.469 | | |
| Selenium | µg/L | 0.17 | 0.15 | 0.17 | 10 | 10 |
| Silicon | µg/L | 1850 | 1560 | 1670 | | |
| Silver | µg/L | <0.02 | <0.02 | <0.02 | | |
| Sodium | mg/L | 0.905 | 0.877 | 0.847 | | 200 |
| Strontium | µg/L | 119 | 108 | 113 | | |
| Sulfur | mg/L | <1.0 | <1.0 | <1.0 | | |
| Tellurium | µg/L | | | | | |
| Thallium | µg/L | <0.05 | <0.05 | <0.05 | 2 | |
| Tin | µg/L | <5.0 | <5.0 | <5.0 | | |
| Titanium | µg/L | <5.0 | <5.0 | <5.0 | | |
| Uranium | µg/L | 0.14 | 0.14 | 0.13 | | 20 |
| Vanadium | µg/L | <5.0 | <5.0 | <5.0 | | |
| Zinc | µg/L | <5.0 | <5.0 | <5.0 | 5000 | 5000 |
| Zirconium | µg/L | <0.5 | N/A | N/A | | |
| Dissolved Metals | | | | | | |
| Aluminum | µg/L | 12.3 | 10 | 11.1 | 200 | |
| Antimony | µg/L | <0.5 | <0.5 | <0.5 | | |
| Arsenic | µg/L | 0.11 | 0.11 | 0.13 | | |
| Barium | µg/L | 5 | 4.8 | 5.2 | | |
| Beryllium | µg/L | <0.1 | <0.1 | <0.1 | | |
| Bismuth | µg/L | <1.0 | <1.0 | <1.0 | | |
| Boron | µg/L | <50 | <50 | <50 | | |
| Cadmium | µg/L | <0.01 | <0.01 | <0.01 | | |
| Calcium | mg/L | 15.1 | 15.1 | 15.7 | | |
| Chromium | µg/L | <1.0 | <1.0 | <1.0 | | |
| Cobalt | µg/L | <0.5 | <0.5 | <0.5 | | |
| Copper | µg/L | 0.79 | 0.71 | 0.5 | | |
| Iron | µg/L | <5.0 | <5.0 | <5.0 | | |
| Lead | µg/L | <0.2 | <0.2 | <0.2 | | |
| Lithium | µg/L | <5.0 | <5.0 | <5.0 | | |
| Magnesium | mg/L | 1.85 | 1.8 | 1.92 | | |
| Manganese | µg/L | <1.0 | <1.0 | <1.0 | | |
| Mercury | µg/L | N/A | <0.010 | <0.010 | | |
| Molybdenum | µg/L | <1.0 | <1.0 | <1.0 | | |
| Nickel | µg/L | <1.0 | <1.0 | <1.0 | | |
| Phosphorus | µg/L | <10 | <10 | <10 | | |
| Potassium | mg/L | 0.471 | 0.475 | 0.485 | | |
| Selenium | µg/L | 0.17 | 0.13 | 0.14 | | |
| Silicon | µg/L | 1530 | 1600 | 1670 | | |
| Silver | µg/L | <0.02 | <0.02 | <0.02 | | |
| Sodium | mg/L | 0.803 | 0.845 | 0.862 | | |
| Strontium | µg/L | 110 | 104 | 113 | | |
| Sulfur | mg/L | 3.8 | <3.0 | <3.0 | | |
| Thallium | µg/L | <0.05 | <0.05 | <0.05 | | |
| Tin | µg/L | <5.0 | <5.0 | <5.0 | | |
| Titanium | µg/L | <5.0 | <5.0 | <5.0 | | |
| Uranium | µg/L | 0.12 | 0.12 | 0.13 | | |
| Vanadium | µg/L | <5.0 | <5.0 | <5.0 | | |
| Zinc | µg/L | <5.0 | <5.0 | <5.0 | | |
| Zirconium | µg/L | N/A | N/A | N/A | | |

Memorandum

Ministry of Environment
Environmental Protection
1259 Dalhousie Dr
Kamloops BC V2C 5Z5

Date: August 07, 2014

File:

**To: Jim Standen,
Assistant Deputy Minister
Environmental Protection Division**

Re: Quesnel Lake Water Quality of August 7, 2014

Ministry of Environment Staff collected water quality samples at several locations in Quesnel Lake on a daily basis since August 4, 2014, the day of the Mt. Polley Tailings Dam Breach to determine potential impacts on drinking water quality and aquatic life.

The Parameters analysed so far include pH, conductivity, turbidity, total suspended solids, total dissolved solids, Hardness, alkalinity, total and dissolved metals, and E.coli. While concentrations of most of these parameters could be influenced by the tailings discharge, E.coli bacteria are not a typical contaminant in tailings and results are thus likely not due to the tailings discharge.

Samples collected near the Town Site of Likely and on the North Shore of Quesnel Lake indicate that none of the analysed chemical and physical contaminant concentrations exceeded BC or Health Canada Drinking Water Guidelines. E.coli concentrations were below or just above the guideline at typical concentrations for lakes in BC and well below the disinfection and partial treatment guidelines. The detected value of 1 E.coli / 100mL is not likely a result of the tailings discharge.

Contaminant concentrations at the above sites were well below aquatic life guidelines at all sites. However, the concentrations for Cadmium and Zinc could not be compared to guidelines, since the lab analysis detection limit was higher than the guideline and the detection limit for Chromium was at the guideline.

Based on the above impact to aquatic life and fish is not expected.

Fish tissue samples have not yet been collected, however, tissue sampling is planned in the near future. Generally bio-accumulation of contaminants in fish muscle tissue occurs over a longer exposure time than a few days.

Gabriele Matscha, RPBio.,
Impact Assessment Section Head – Mining
Environmental Protection Division – Ministry of Environment

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 8:23 AM
To: Vanderburgh, Ken FLNR:EX
Subject: FW: FYI - Mt Polley web page

<http://www.env.gov.bc.ca/eemp/incidents/2014/mount-polley.htm>

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Symonds, Brian FLNR:EX
Sent: Friday, August 8, 2014 3:34 PM
To: Cameron, Valerie Z FLNR:EX; Mason, Wenda FLNR:EX; Weir, David J FLNR:EX
Subject: FW: FYI - Mt Polley web page

FYI.

Brian Symonds
Director, Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

From: Thomas, Vivian P GCPE:EX
Sent: Friday, August 8, 2014 3:30 PM
To: MacDougall, Gerry L FLNR:EX; Symonds, Brian FLNR:EX; Ethier, Tom FLNR:EX
Subject: FYI - Mt Polley web page

FYI, this web-page is being updated daily with all the latest test results and a daily "situation update"

<http://www.env.gov.bc.ca/eemp/incidents/2014/mount-polley.htm>

Vivian Thomas
Communications Director
Ministry of Forests, Lands and Natural Resource Operations
Tel: 250 356-2475 cell: 250 213-2972
Vivian.Thomas@gov.bc.ca

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Sunday, August 10, 2014 10:56 AM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: FYI: Spot forecast for Mount Polley 10th August

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: WXVanEaton s.22
Sent: Sunday, August 10, 2014 10:25 AM
To: RWCOCAR HPR P FLNR:EX; FCRCAR FCA P FLNR:EX; PLANS, CAR FLNR:EX; Hamm, Mark FLNR:EX
Subject: Spot forecast for Mount Polley

As requested.

Christina

--

Christina Van Eaton
Fire Weather Forecaster

s.22

(778) 475-2718



Mount Polley
Spot Fcst August...

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: August 10, 2014

Valid: 10:30 am

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 10, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 10 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

The upper ridge continues to build over the area today, bringing hot temperatures and downward-trending humidities. We see the return of the thermal trough however it should stay well to the east of the region, meaning a general easterly flow as it builds.

TODAY

Some lingering cloud in the morning then clearing. High near 27. Minimum rh near 29%. Winds briefly westerly 5 to 10 km/h this morning becoming easterly near 10 km/h in the afternoon with local gusts to 20 km/h.

TONIGHT

Clear. Low near 9. Maximum rh 85 to 90%. Winds becoming easterly near 10 km/h easing to calm toward morning.

TOMORROW

Sunny. High near 29. Minimum rh near 26%. Winds east to southeasterly 10 to 15 km/h with local afternoon gusts to 20 km/h.

OUTLOOK: Monday to Wednesday

Monday will continue the sunny, hot and dry trend which will linger into Tuesday as well. Late Tuesday we see an upper trough approach off the coast and try to push through the ridge. It's partially successful, and spins an upper low into Washington which lingers south of the border through Wednesday and Thursday, pushing some of its effects back up into the Fire Centre. Starting late Tuesday and into Wednesday we'll likely see some showers and thundershowers through the area, with showers and weaker potential for thundershowers on Thursday. Temperatures will stay very warm throughout all of this however as the ridge recovers and lingers over northern portions of the province.

SPOT FORECAST

Sunday August 10

| | | | | | | | | |
|-------|------|----|----|----|------|--------------|---------------|---|
| 13:00 | TEMP | 25 | RH | 32 | WIND | ENE 7 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 27 | RH | 29 | WIND | E 10g20 km/h | % CHANCE RAIN | 0 |

Guide template only, expand as required.

Page 1

DISCUSSION:

Confidence is good for today and tomorrow, temperatures should climb and humidities should fall. Toward the middle of the week models have been consistent with a change in the pattern, details like amounts of precipitation and lightning are still the big questions. Some smoke still lingers in the area, however good flow into the upper levels should mean that it will be mainly transported out of the region instead of lingering and building up.

Upper winds at Likely valid 1700h PDT:

2000m NW 10 km/h 3000m NW 25 km/h

Forecaster: Christina Van Eaton (778) 475-2718

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Saturday, August 9, 2014 11:40 AM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: FYI: Spot forecast for Mount Polley 9th August 2014
Attachments: Mount Polley Spot Fcst August 9, 2014.doc

-----Original Message-----

From: WXVanEaton [s.22](#)
Sent: Saturday, August 9, 2014 10:33 AM
To: FCRNW FNO P FLNR:EX; RWCONW FNO P FLNR:EX; Hamm, Mark FLNR:EX
Subject: Spot forecast for Mount Polley

As requested.

Christina

--
Christina Van Eaton
Fire Weather Forecaster
[s.22](#)

(778) 475-2718

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: August 9, 2014

Valid: 10:00 am

REQUEST *(Don't request preparation for early in the morning unless you need it then!)*

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 9, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% 10% or less Aspect | | Valley Orientation | |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 9 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

The upper ridge starts to build in today, bringing a return to hot and dry conditions over the next few days. Some cloud has spilled over the area today from a system in the Gulf of Alaska and will linger until tomorrow morning, when we should start to see a clearing trend. No showers or lightning is expected either today or tomorrow.

TODAY

A mix of sun and cloud. High near 23. Minimum rh near 32%. Winds south to southeast near 10 km/h becoming southwest 10 to 12 km/h this afternoon with local gusts to 20 km/h

TONIGHT

Variable cloudiness. Low near 7. Maximum rh 85 to 90%. Winds becoming north to northeasterly near 10 km/h easing to calm toward morning.

TOMORROW

A mix of sun and cloud in the morning then clearing. High near 26. Minimum rh near 30%. Winds northwest 10 to 12 km/h with local afternoon gusts to 20 km/h becoming more northeasterly late in the day.

OUTLOOK: Monday to Wednesday

The upper ridge holds to start the week then we see it displaced by an upper trough that pushes through the pattern. Originally forecast to go through on Tuesday, its arrival has now been pushed back to the overnight period into Wednesday. Hot, dry conditions are expected to continue to start the week then we should see some showers and the potential for lightning into Tuesday night and into Wednesday. Strong, gusty winds are also expected on Wednesday.

SPOT FORECAST

Saturday August 9

| | | | | | | | | |
|-------|------|----|----|----|------|---------------|---------------|---|
| 13:00 | TEMP | 20 | RH | 36 | WIND | SSW 7 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 22 | RH | 30 | WIND | SW 12g20 km/h | % CHANCE RAIN | 0 |

DISCUSSION:

Cloud cover today is a challenge as the area is right near the southern edge of the cloud going through northern BC, and we could potentially see more sun than cloud in the area, pushing the clearing trend to this afternoon as opposed to tomorrow morning. Variable cloud today could mean a more bumpy ride for temperatures climbing to the forecast daytime high as opposed to the normal, smooth upward trend over the course of the day. Temperatures locally could be slightly higher or lower than forecast dependent upon cloud cover, which means we may also see the same effects on the forecast minimum humidity. Mid-week bears watching as the guidance is flipping its solution a bit and now we see the Fire Centre catching the effects of the trough pushing through the ridge.

Upper winds at Likely valid 1700h PDT:

2000m SW 10 km/h 3000m SW 30 km/h

Forecaster: Christina Van Eaton (778) 475-2718

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Symonds, Brian FLNR:EX
Sent: Friday, August 8, 2014 3:34 PM
To: Cameron, Valerie Z FLNR:EX; Mason, Wenda FLNR:EX; Weir, David J FLNR:EX
Subject: FW: FYI - Mt Polley web page

FYI.

Brian Symonds
Director , Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

From: Thomas, Vivian P GCPE:EX
Sent: Friday, August 8, 2014 3:30 PM
To: MacDougall, Gerry L FLNR:EX; Symonds, Brian FLNR:EX; Ethier, Tom FLNR:EX
Subject: FYI - Mt Polley web page

FYI, this web-page is being updated daily with all the latest test results and a daily "situation update"

<http://www.env.gov.bc.ca/eemp/incidents/2014/mount-polley.htm>

Vivian Thomas
Communications Director
Ministry of Forests, Lands and Natural Resource Operations
Tel: 250 356-2475 cell: 250 213-2972
Vivian.Thomas@gov.bc.ca

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Friday, August 8, 2014 10:29 AM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: FYI: Spot forecast for Mount Polley 8th August 2014

Please let me know if and when this is no longer required.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations

tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: WXVanEaton s.22
Sent: Friday, August 8, 2014 10:07 AM
To: RWCOCAR HPR P FLNR:EX; FCRCAR FCA P FLNR:EX; PLANS, CAR FLNR:EX; Hamm, Mark FLNR:EX
Subject: Spot forecast for Mount Polley

Spot attached.

Christina

--
Christina Van Eaton
Fire Weather Forecaster
s.22
(778) 475-2718



Mount Polley
Spot Fcst August...

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: August 8, 2014

Valid: 10:00 am

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | | | | |
|--|-------------|--------------|-----------------------------|-----------------------------|----------------------|-------------------------------|
| Fire/Proj # | n/a | | Request by: Robert Bardossy | | Date: August 8, 2014 | |
| Location Name: | | Mount Polley | | | | |
| Representative Wx Stn | | | Likely, Gavin | | | |
| Coordinates: dd mm.mmm | | | 52 30.849, 121 37.066 | | | |
| Slope% | 10% or less | Aspect | | | Valley Orientation | |
| Elevation(s) for forecast | | 1040 metres | | Other? tailings pond breach | | |
| Date/Times Required (discuss additional needs with forecaster) | | | Date: Aug 8 | | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

An upper trough moves over the region bringing cloud and some showers to the area. There is the risk of an isolated thundershower this afternoon, however any activity may stay well to the east more near the boundary of the Fire Centre. For tomorrow we'll see some lingering cloud as an upper ridge starts to build over the area, with temperatures trending upward and some clearing toward the end of the day.

TODAY

Scattered morning showers tapering off to isolated in the afternoon. Risk of an isolated thundershower. Accumulations near 1mm. High near 18. Minimum rh near 38%. Winds northwesterly 8 to 10 km/h becoming northerly 10 to 12 km/h in the afternoon with local afternoon gusts 20 km/h.

TONIGHT

Variable cloudiness. Low near 10. Maximum rh 85 to 90%. Winds north to northeasterly near 10 km/h easing to calm toward morning.

TOMORROW

A mix of sun and cloud. Clearing later in the day. High near 23. Minimum rh near 30%. Winds southeast 10 to 12 km/h with local afternoon gusts to 20 km/h

OUTLOOK: Sunday to Tuesday

Sunday sees the upper ridge build in amplitude and hold returning sunshine with hot temperatures to the area, meaning a drying trend as well. There's the suggestion of a mini-breakdown on Tuesday as an upper trough moves in quickly off the Pacific and through the ridge over northern sections of the province. No showers or lightning are expected Sunday or Monday, with hints of something occurring seen on Tuesday associated with the upper trough moving through to the north.

SPOT FORECAST

Friday August 8

| | | | | | | | | |
|-------|------|----|----|----|------|----------------|---------------|----|
| 13:00 | TEMP | 16 | RH | 42 | WIND | NW 8 km/h | % CHANCE RAIN | 30 |
| 17:00 | TEMP | 18 | RH | 38 | WIND | NNW 10g20 km/h | % CHANCE RAIN | 60 |

DISCUSSION:

Daytime high temperatures and minimum humidities for today are very dependent on more cloud than sunshine this afternoon, and showers in the area. We could see slightly higher/lower than forecast values if the shower activity is very spotty or we catch some afternoon sunshine. For Tuesday, at the moment it looks like things may stay to the north of the Fire Centre for the upper trough going through, but the situation will bear watching as this is likely to change on a daily basis.

Upper winds at Likely valid 1700h PDT:

2000m NW 25 km/h 3000m NW 20 km/h

Forecaster: Christina Van Eaton (778) 475-2718

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Cameron, Valerie Z FLNR:EX
Sent: Monday, August 11, 2014 9:32 AM
To: Weir, David J FLNR:EX
Subject: RE: Water Quality Tables and Memo

Thanks Dave

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 9:31 AM
To: Weir, David J FLNR:EX; Symonds, Brian FLNR:EX; Cameron, Valerie Z FLNR:EX
Subject: RE: Water Quality Tables and Memo

Sorry, upon further review the treatment tank is not near the pond.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 8:59 AM
To: Symonds, Brian FLNR:EX; Cameron, Valerie Z FLNR:EX
Subject: RE: Water Quality Tables and Memo

You may have this information but as you do not have the files I will pass it on.

I don't know if you saw this but from the file it appears that there may have been some form of Sewage treatment tank near the failure site, the recovered water pipeline also crossed it. While I was up at the site Mohamed Sapur copied the MEM inspection report for September 13th 2013 at which time the tailings pond was inspected with no issues identified but "The stage 9 dam raise to elevation 970m was underway".

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Symonds, Brian FLNR:EX
Sent: Thursday, August 7, 2014 5:05 PM
To: Weir, David J FLNR:EX; Cameron, Valerie Z FLNR:EX
Subject: RE: Water Quality Tables and Memo

Thanks David. From my quick scan the results are encouraging.

Brian Symonds
Director , Water Stewardship
Tel: (250) 490-8255 Fax: (250) 490-2231

From: Weir, David J FLNR:EX
Sent: Thursday, August 7, 2014 4:55 PM
To: Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX
Subject: FW: Water Quality Tables and Memo

This should have been released at 3 so I should able to share with you now.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Vanderburgh, Ken FLNR:EX
Sent: Thursday, August 7, 2014 1:17 PM
To: Weir, David J FLNR:EX
Subject: FW: Water Quality Tables and Memo

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 7, 2014 1:12 PM
To: FLNR Cariboo RMT
Subject: FW: Water Quality Tables and Memo

Just fyi - confidential until 15.00.

All is well.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Halls, Lori D ENV:EX
Sent: Thursday, August 7, 2014 1:01 PM
To: Hamm, Mark FLNR:EX
Subject: FW: Water Quality Tables and Memo

Mark

From: Matscha, Gabriele ENV:EX
Sent: Thursday, August 7, 2014 1:00 PM
To: Halls, Lori D ENV:EX
Subject: Water Quality Tables and Memo

Lori,

I created only one memo for both, drinking water and aquatic life but have two tables, one for each.

Do I need to divide the memo into two as well?

We have received two more E.coli data, which are slightly above the raw drinking water guideline. I explain in the memo though, that it is not likely due to the mine.

This is new information and changes my statement of yesterday slightly.

Gabi Matscha, R.P. Bio
Impact Assessment Section Head – Mining
Ministry of Environment
Ph: (250) 371-6296
Cell: (250) 851-6692

Weir, David J FLNR:EX

From: Morrison, Andrew JAG:EX
Sent: Monday, August 11, 2014 1:32 PM
To: Weir, David J FLNR:EX
Cc: SG PEP NEA PREOC Director 1 SG:EX; SG PEP NEA PREOC Planning 1 SG:EX
Subject: Helicopter flight

Hi Dave

Per our conversation, please provide the following to the Helicopter Company – **s.17** . When you return, I will need to know which helicopter company and approximately how much flight time is involved.

It would be appreciated if you could take some photos of the current state of:

- Mouth of the creek
- A few of the current state of the creek
- The 'plug' and area where they are pumping
- The berm they are constructing within the tailing pond.

Thanks

Andrew Morrison

Regional Manager, Southwest Region



**Emergency
Management**

**14292 Green Timbers Way
Surrey, BC V3T 0J4
CANADA**

www.embc.gov.bc.ca

**Phone 604.586.4380
Fax 604.586.4334**

24 Hour Emergency Reporting 1.800.663.3456

Weir, David J FLNR:EX

From: MacDougall, Gerry L FLNR:EX
Sent: Monday, August 11, 2014 1:30 PM
To: Weir, David J FLNR:EX; Symonds, Brian FLNR:EX
Subject: FW: Mount Polley Tailing's Pond - before pictures.
Attachments: IMGP3957.JPG; IMGP3963.JPG

Hi Dave,
As mentioned.

g

From: MacDougall, Gerry L FLNR:EX
Sent: Thursday, August 7, 2014 7:18 AM
To: Hoffman, Al MEM:EX
Subject: FW: Mount Polley Tailing's Pond - before pictures.

Hi Al,
as per my note to Kevin E below, these may be of interest.

Gerry

From: MacDougall, Gerry L FLNR:EX
Sent: August-06-14 2:12 PM
To: Edquist, Kevin FLNR:EX
Subject: FW: Mount Polley Tailing's Pond - before pictures.

Hi Kevin,
These may be of interest.

Gerry MacDougall
Executive Assistant Krista Beadman 250-398-4327
Direct 250-398-4355
Regional Executive Director, Cariboo Region
Ministry of Forests, Lands and Natural Resource Operations

From: Stewart, Rodger W FLNR:EX
Sent: Wednesday, August 6, 2014 1:42 PM
To: MacDougall, Gerry L FLNR:EX
Subject: FW: Mount Polley Tailing's Pond - before pictures.

Taken by Omineca staff just happened to be in region in air.

Rodger Stewart
Director, Resource Management
Ministry of Forests, Lands and Natural Resource Operations
Cariboo Region
400 - 640 Borland Street
Williams Lake, BC
V2G 4T1
cell (250) 305 8536, desk (250) 398 4549
fax (250) 398 4214

From: Bilodeau, Normand G FLNR:EX
Sent: Wednesday, August 6, 2014 1:02 PM
To: Stewart, Rodger W FLNR:EX
Subject: FW: Mount Polley Tailing's Pond

FYI if you see any use

Norm Bilodeau, RPF
Director Resource Management
Omineca Region
Ministry of Forests Lands and Natural Resource Operations

Tel: (250) 565-6107

 <mailto:normand.bilodeau@gov.bc.ca>

“What great thing would you attempt if you knew you could not fail?” ~Robert H. Schuller

From: Reich, Richard W FLNR:EX
Sent: Wednesday, August 6, 2014 10:30 AM
To: Bilodeau, Normand G FLNR:EX
Cc: Carson, Shannon B FLNR:EX
Subject: Mount Polley Tailing's Pond

Norm,

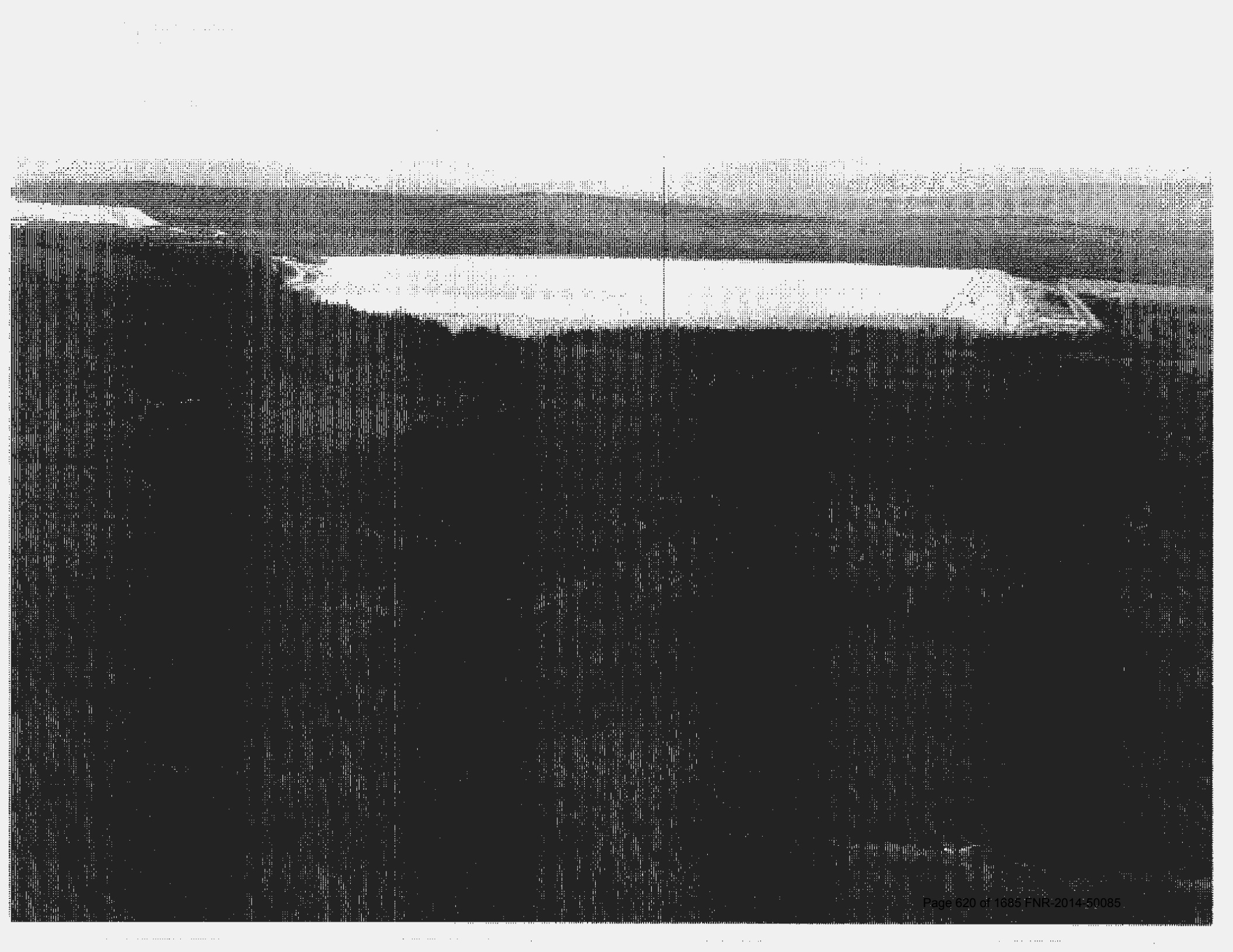
Happened past the MPTP on July 8th, 2014 doing root disease mapping with my counterpart in the Cariboo. Here's two photos of the tailings pond.... looking not unlike an infinity pool in retrospect.

Thought these may be of value in the follow up investigation. Let me know if you have any questions.

Regards,
Richard

Richard Reich, R.P.F., M.Sc.

Regional Forest Pathologist
Ministry of Forests, Lands and Natural Resource Operations
Omineca Region
1044 Fifth Avenue, 5th Floor,
Prince George BC V2L 5G4
Ph: (250) 565-6203 fax: (250) 565-6671





Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Monday, August 11, 2014 11:42 AM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: FYI: Spot forecast for Mount Polley

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: WXVanEaton s.22
Sent: Monday, August 11, 2014 10:14 AM
To: RWCOCAR HPR P FLNR:EX; FCRCAR FCA P FLNR:EX; PLANS, CAR FLNR:EX; Hamm, Mark FLNR:EX
Subject: Spot forecast for Mount Polley

As requested.

Christina

--
Christina Van Eaton
Fire Weather Forecaster
s.22
(778) 475-2718



Mount Polley
Spot Fcst August...

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Monday August 11, 2014

Valid: 10:15 am

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

The upper ridge holds over the area for today and tomorrow. We start to see the pattern changing late tomorrow as a deep upper trough approaches the coast attempting to push through the ridge, dropping a low down off the Washington/Oregon coast while the ridge rebounds over northwestern BC after the incursion. We'll flip from a west/southwesterly flow in the upper levels to a more south to easterly flow with the low approaching the coast, so we'll see some showers and the risk of a thundershower develop late in the day tomorrow. With the dry conditions and very little moisture around initially, there is a good chance we could see some dry lightning. The thermal trough is present for today but looks like it will stay tucked up against the Coast Mountains for the most part, while tomorrow sees it shift more to the interior however likely still stay just to the west of the region.

TODAY

Sunny. High near 29. Minimum rh near 26%. Winds easterly 5 to 10 km/h this morning becoming 10 to 15 km/h this afternoon with local gusts to 20 km/h.

TONIGHT

Clear. Low near 11. Maximum rh 85 to 90%. Winds easterly near 10 km/h easing to calm toward morning.

TOMORROW

Sunny with increasing afternoon cloud. Chance of an isolated shower and thundershower late afternoon. High near 30. Minimum rh near 29%. Winds north to northeasterly near 10 km/h with local afternoon gusts to 20 km/h. Local gusts to 50 km/h near thundershowers.

OUTLOOK: Wednesday to Friday

We see the ridge shift eastward while the upper low to the south pushes onshore into Oregon, leaving the region in a solid easterly flow at the top of a very broad upper trough, and giving the chance of isolated showers and a thundershower for Wednesday and Thursday to the area. By Friday the upper low approaches southeastern BC bringing more moisture with it, and we should start to see some more organized precipitation over the area along with the continued potential for some thundershowers.

SPOT FORECAST

Monday August 11

| | | | | | | | | |
|-------|------|----|----|----|------|--------------|---------------|---|
| 13:00 | TEMP | 27 | RH | 30 | WIND | E 9 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 29 | RH | 26 | WIND | E 14g20 km/h | % CHANCE RAIN | 0 |

DISCUSSION:

Confidence is good for today and tomorrow, for late in the day tomorrow any shower and thundershower activity could stay out of the region as activity over the Fire Centre is going to be mostly driven by the flow upslope onto the Coast Mountains far to the west. With the thermal trough moving more toward the interior of the province tomorrow we will see winds start to shift a bit over western areas of the Fire Centre, it should end up lying somewhere near the Fraser River so the region should stay in a generally easterly flow.

Upper winds at Likely valid 1700h PDT:

2000m ESE 20 km/h 3000m SE 25 km/h

Forecaster: Christina Van Eaton (778) 475-2718

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Morrison, Andrew JAG:EX
Sent: Monday, August 11, 2014 5:36 PM
To: Weir, David J FLNR:EX
Subject: Re: Emailing: Mt Polley August 11th 2014 039

Awesome thank you!

Andrew Morrison
Regional Manager
Emergency Management BC

----- Original Message -----

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 05:29 PM Pacific Standard Time
To: Morrison, Andrew JAG:EX
Subject: Emailing: Mt Polley August 11th 2014 039

Your message is ready to be sent with the following file or link attachments:

Mt Polley August 11th 2014 039

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 5:30 PM
To: Morrison, Andrew JAG:EX
Subject: Emailing: Mt Polley August 11th 2014 039
Attachments: Mt Polley August 11th 2014 039.jpg

Your message is ready to be sent with the following file or link attachments:

Mt Polley August 11th 2014 039

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.





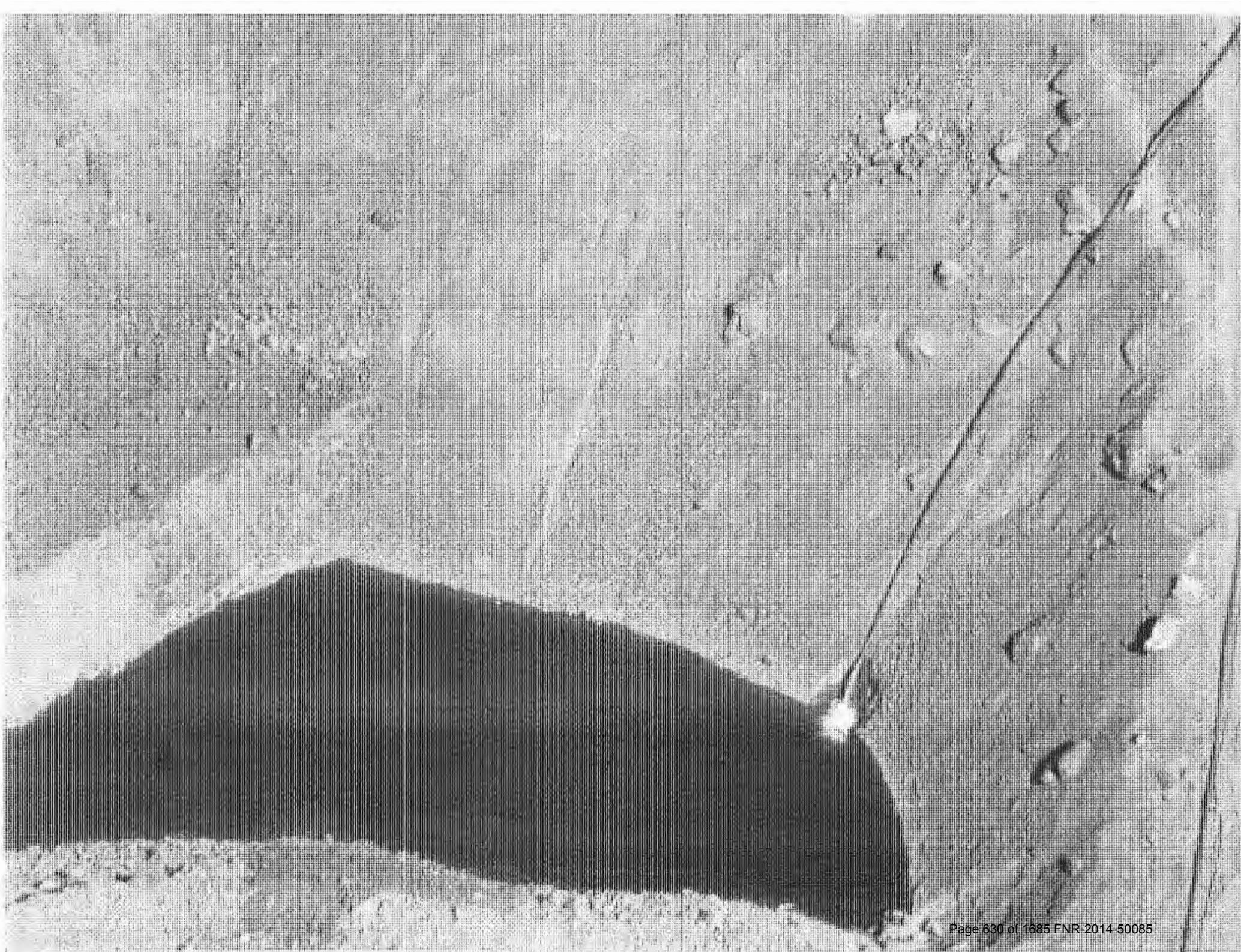
Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 5:29 PM
To: Morrison, Andrew JAG:EX
Subject: Emailing: Mt Polley August 11th 2014 038
Attachments: Mt Polley August 11th 2014 038.jpg

Your message is ready to be sent with the following file or link attachments:

Mt Polley August 11th 2014 038

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 5:29 PM
To: Morrison, Andrew JAG:EX
Subject: Emailing: Mt Polley August 11th 2014 035
Attachments: Mt Polley August 11th 2014 035.jpg

Your message is ready to be sent with the following file or link attachments:

Mt Polley August 11th 2014 035

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



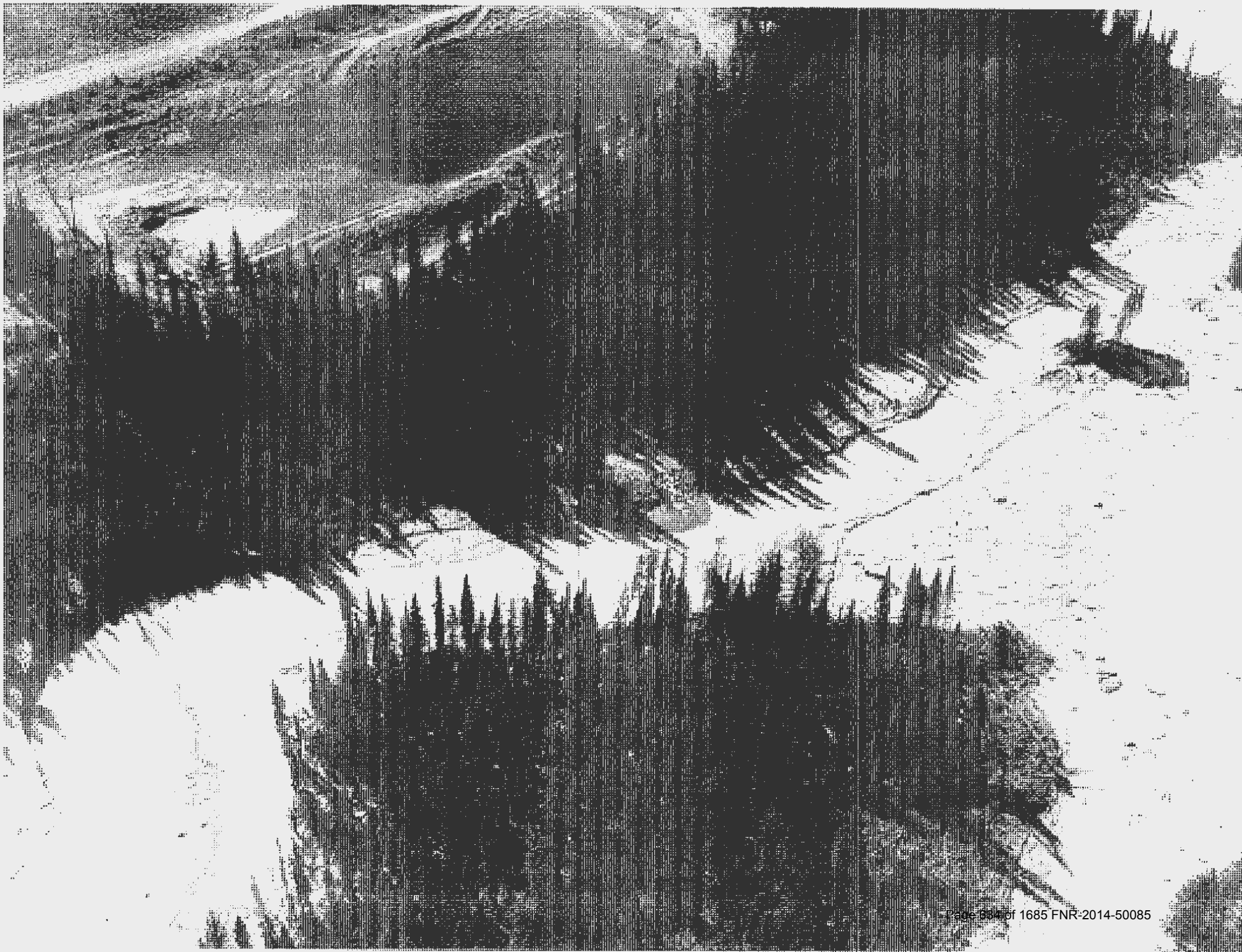
Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 5:28 PM
To: Morrison, Andrew JAG:EX
Subject: Emailing: Mt Polley August 11th 2014 030
Attachments: Mt Polley August 11th 2014 030.jpg

Your message is ready to be sent with the following file or link attachments:

Mt Polley August 11th 2014 030

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



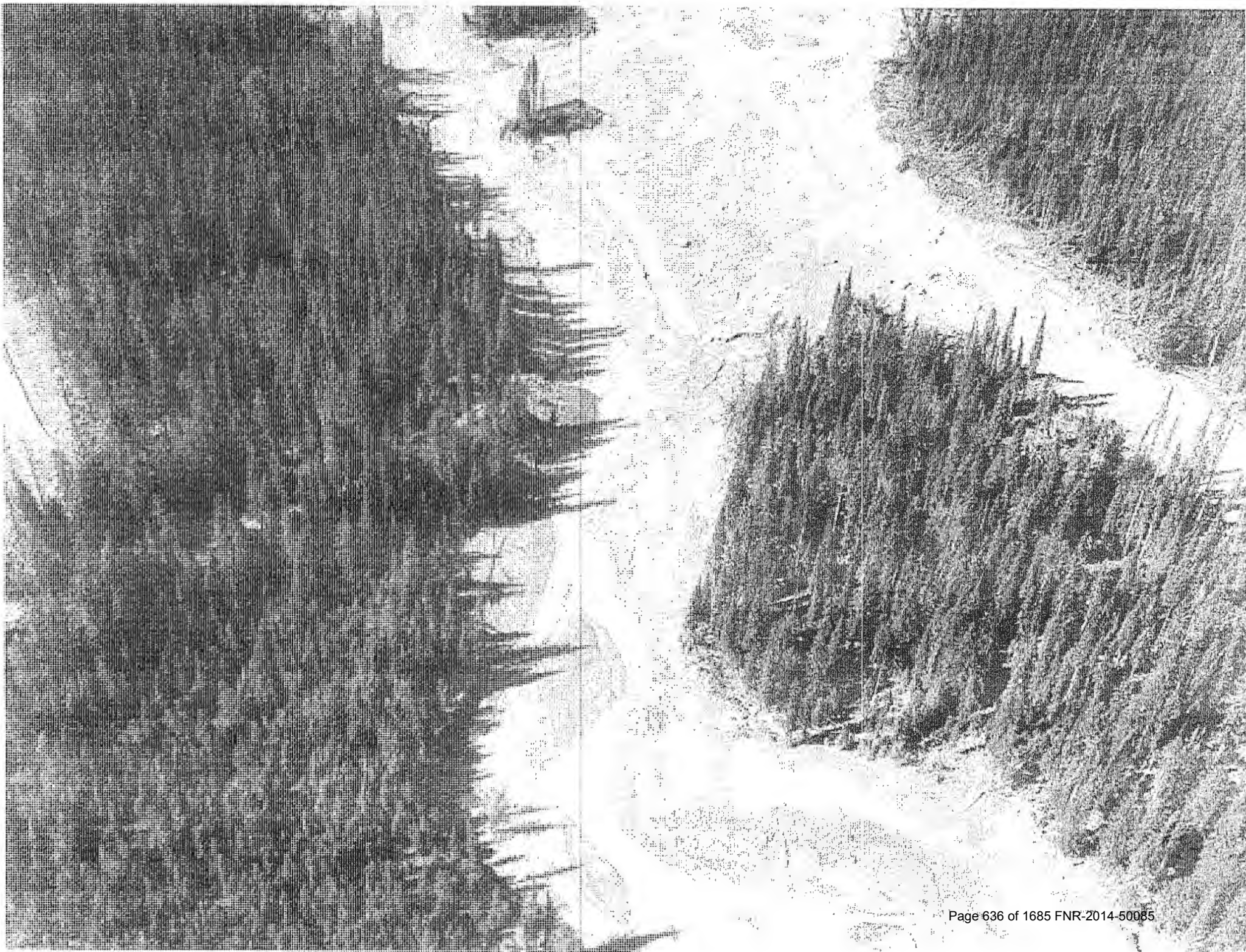
Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 5:28 PM
To: Morrison, Andrew JAG:EX
Subject: Emailing: Mt Polley August 11th 2014 029
Attachments: Mt Polley August 11th 2014 029.jpg

Your message is ready to be sent with the following file or link attachments:

Mt Polley August 11th 2014 029

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 5:27 PM
To: Morrison, Andrew JAG:EX
Subject: Emailing: Mt Polley August 11th 2014 033
Attachments: Mt Polley August 11th 2014 033.jpg

Your message is ready to be sent with the following file or link attachments:

Mt Polley August 11th 2014 033

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



Weir, David J FLNR:EX

From: Bellefontaine, Kim MEM:EX
Sent: Wednesday, August 13, 2014 9:00 AM
To: Weir, David J FLNR:EX
Subject: Out of Office: Meeting today

Thank you for your email. I am currently unable to respond to all emails and information requests as we are dealing with aspects of the Mount Polley tailings breach. I will get back to you as soon as possible.

If your inquiry is urgent, please contact Diane Howe at 250-952-0183 or Djane.Howe@gov.bc.ca.

Kim Bellefontaine M.Sc. P.Geo.
Manager Environmental Geoscience & Permitting
BC Ministry of Energy and Mines
Victoria, BC
(250) 952-0489

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Wednesday, August 13, 2014 9:00 AM
To: Vanderburgh, Ken FLNR:EX
Cc: Bellefontaine, Kim MEM:EX; McGuire, Jennifer ENV:EX; Stolar, Harold B FLNR:EX
Subject: Meeting today

I met with representatives of the Mt Polley Mine today at Harold's office. I briefed them on the conditions of the order for the removal of the debris from Quesnel Lake and discussed the order with respect to Polley lake. In addition I explained my expectations concerning the requirements for the renewal of the order which they stated they wish to have renewed on the expiry of August 22nd 2014.

The order requires professional oversight of the activities by suitably qualified professionals licenced in the province of British Columbia and in a manner suitable to impacted parties. I have inset the order below.

Hello, at this time it is our understanding that Stephen Rothman has the authority under the mines act to order the necessary measures to contain and remove the debris in Quesnel Lake and to authorize the management of the water level on Polley lake.

However: to remove any confusion and to address any shortcoming that might exist between the Mines Act, Water Act and the MOU that guides there coordination I order under Section 85 as follows;

Subject to the requirements of the Mines Act and MOU

http://www.env.gov.bc.ca/wsd/sla_mou/mempr_mou%202009.pdf and as it is in the public interest for the protection of safety and the integrity of Hazeltine Creek, Polley Lake, Quesnel Lake and the Quesnel River, recognizing the Mt Polley Mine's willingness to undergo the required work at their own cost and save the province harmless:

- 1) Under the direction of suitably qualified professionals licenced in the Province of BC the corporation is ordered to collect and remove such debris from Quesnel Lake, as a result of the Mt Polley tailings pond failure, as would threaten road infrastructure and stream channel stability. The manner and nature to be suitable to impacted parties Federal Agencies and the Province.
- 2) Under the direction of suitably qualified and experienced professionals licenced in the Province of BC; maintain the Lake level of Polley Lake in a manner that prevents further mass movement of material from Polley lake and Hazeltine Creek.
- 3) This order does not superseded any other legislation, agency, or government authority nor does it save them harmless.
- 4) This order is not intended to mitigate or limit the future punitive action of government with respect any non compliance by Mt Polley Mine.
- 5) This order is a temporary measure and is subject to cancelation or modification under the authority of the Water Act Mines Act or the MOU.
- 6) This order doe not authorize the entry onto private lands.

If necessary a more formal and document can be provided at a future date and in the absence of any direction to the contrary it should be considered to be expired as of August 22nd 2014 if not renewed. In addition to the general protection of public interest the specific purpose is to protect the bridge at Likely and to prevent secondary mass movements of material from the failure.

David Weir
Water Section Head,

Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Tuesday, August 12, 2014 10:30 AM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX
Subject: FYI: spot forecast for Mt Polley issued 10:15 Tuesday August 12, 2014

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: Robert Rowson [s.22](#)
Sent: Tuesday, August 12, 2014 10:21 AM
To: Hamm, Mark FLNR:EX; RWCOCAR_HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; EOCDirector@cariboord.bc.ca
Subject: spot forecast for Mt Polley issued 10:15 Tuesday August 12, 2014

Please call if you have any questions.

Robert

--
Robert Rowson
Weather Forecaster
Phone: 250 768 2602
Fax: 250 768 2602



Mount Polley
Spot Fest August...

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Tuesday August 12, 2014

Valid: 10:15 am

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

The upper ridge has moved to the east and now we are in a southerly flow aloft with patchy mid level moisture arriving from the south. Isolated thundershowers possible over peaks to the north and east late afternoon and through the early overnight hours. Somewhat less cloud Wednesday but still some very isolated convection to develop in the late afternoon.

TODAY

Mainly sunny with increasing clouds this afternoon. Isolated thundershowers in the area through the evening. No precipitation expected on the site. High near 31. Minimum rh near 23%. Winds E to NE 5 to 10 km/h this morning becoming 10 to 15 km/h this afternoon with brief gusts to 25 km/h. Gusts to 60 near convective cells.

TONIGHT

Variable cloud. Low near 14. Maximum rh 60%. Winds easing to NE 5 to 10 overnight and calm at times towards morning.

TOMORROW

Mix of sun and cloud. Isolated thundershowers in the area with no precipitation expected for the site. High near 30. Minimum rh near 30%. Winds E to NE 10 becoming SE 10 to 15 in the afternoon with brief gusts to 25. Gusts to 60 near convective cells.

OUTLOOK: Thursday to Saturday

The upper low moves into Washington and eventually weakens and drifts east into Alberta through the weekend. Thursday still expected to be a dry day with variable clouds and the thundershowers expected to remain away from the site. Friday the moisture thickens and brings a few showers and thundershowers to the area. Potential heavier showers in the area with 20+ mm. Temperatures dip into the upper 20s. Winds SE to 10 to 15 km/h with strong gusts in the showers. Lots of showers Friday night but tapering somewhat on Saturday but not ending. Once again potential for local downpours through this period with amounts in the 15 to 30 mm range but could be higher. Saturday temperatures into the low 20s with W to NW winds.

SPOT FORECAST

Tuesday August 12

| | | | | | | | | |
|-------|------|----|----|----|------|--------------|---------------|----|
| 13:00 | TEMP | 27 | RH | 30 | WIND | E 10 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 30 | RH | 25 | WIND | E 15G20 km/h | % CHANCE RAIN | 10 |

DISCUSSION:

Change is underway. Overall confidence in the deterioration of the pattern with minimal rain in the area through Thursday, but these types of convective outbreaks from the south are hard to pin down. The heavier rain from Friday looks good.

Upper winds at Likely valid 1700h PDT:

2000m NNE 10 km/h 3000m SE 20 km/h

Forecaster: Robert Rowson 250 768 2602 s.22

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: MacDougall, Gerry L FLNR:EX
Sent: Tuesday, August 12, 2014 9:21 AM
To: Vanderburgh, Ken FLNR:EX; Weir, David J FLNR:EX
Subject: FW: Mount Polley Mine Failure - GeoBC Image Acquisition

-----Original Message-----

From: MacDougall, Gerry L FLNR:EX
Sent: Wednesday, August 6, 2014 5:35 PM
To: Hlasny, Brad FLNR:EX; Mohrmann, Ralph JAG:EX
Cc: Edquist, Kevin FLNR:EX; Ethier, Tom FLNR:EX
Subject: Re: Mount Polley Mine Failure - GeoBC Image Acquisition

Hi Brad,
By way of this email I am sharing this with EMBC and the other ministries. Thank you,

Gerry

Sent from my iPhone

> On Aug 6, 2014, at 4:25 PM, "Hlasny, Brad FLNR:EX" <Brad.Hlasny@gov.bc.ca> wrote:
>
> Gerry
>
> An update and some information for those that need
> materials/mapping/orthos/etc I expect an update from the contractor in
> a bit as to what was captured (or not) Feel free to share and let me know if there are others that would require any
products from this sortie.
> Regards
> Brad
>
>
> From: Hlasny, Brad FLNR:EX
> Sent: Wednesday, August 6, 2014 4:16 PM
> Subject: Mount Polley Mine Failure - GeoBC Image Acquisition
> Importance: High
>
> Here is a quick update of what is being done and delivered.
>
> An update on the imagery acquisition/mapping.
> Attachment#1 – general mining area with debris areas identified
> Attachment#2 – word document with recent (pre-disaster) imagery
> available from our archive
>
>
> Basic Information
>

- > · GeoBC has a contractor in the area (PG) doing some flying for VRI work
- >
- > · We auctioned the plane to fly the Mount Polley Failure today August 6, 2014
- >
- > a. See attached area we had contractor concentrate on
- >
- > · GeoBC has no requirements/needs for this imagery but we felt this would be a smart thing to do for numerous reasons:
- >
- > a. Initial disaster response / reconnaissance
- >
- > b. Post-disaster mapping (if required)
- >
- > c. Post-disaster before & after analysis
- >
- > d. Potential legal reasons
- >
- > · Cost for the flying / imagery was borne by GeoBC (will have to find the money in an existing project or shared across projects)
- >
- > · Cost for any downstream additional products should be borne by other agencies with the need
- >
- > a. GeoBC can administer this contract work as our in-kind share
- >
- > Project Information
- >
- > · The plane was in area this afternoon – August 6, 2014
- >
- > · Conditions are not perfect (sunny with clouds in area)
- >
- > a. Right now around PG the wind has blown out the smoke and it is clear and sunny
- >
- > b. Plane can possible fly below clouds
- >
- > c. Imagery will be shadowed but with digitally imagery can see through shadows fairly well
- >
- > · Photo cost would be in the \$6500.00 - \$10,000.00 range
- >
- > · Turn around for photo would be a couple of days
- >
- > a. Need to know if required
- >
- > b. Would also need to know if orthoimagery would be required/useful for response
- >
- > · Mapping products would be dependent on what you would like for products
- >
- > a. Ortho imagery
- >
- > b. Mapping
- >
- > c. DEMs
- >

> Initial Deliverables

>

> · Digital photos may be able to be delivered by Friday August 8, 2014 – probably Monday August 11, 2014

>

> · Basic specifications for imagery

>

> a. Digital colour , multi-band

>

> b. 12 cm imagery

>

> i. which will support 15cm orthos.

>

> ii. This just works better with the flight planning.

>

> iii. 0.5 meter DEM is possible to derive from this flying

>

> c. The IMU positional accuracy will be sub-15cm.

>

>

>

>

>

> DownStream Deliverable

>

> · GeoBC did not plan to create/produce any downstream products

>

> · Can do this for other agencies if they desire it and have funding

>

> Cheers

> Brad

>

> -----

> -----

> -----

> Brad Hlasny, P.Eng., CLS | Manager, Base Mapping & Cadastre | GeoBC |

> Ministry of Forests, Lands and Natural Resource Operations

> Street/Courier: 3400 Davidson Ave., Victoria BC V8Z 3P8

> Mail: PO Box 9375 STN PROV GOVT, Victoria, BC Canada V8W 9M2

> Phone: (250) 952-6520 | Fax (250)952-4261 | Mobile (250) 812-4637 |

> Email: brad.hlasny@gov.bc.ca <<mailto:brad.hlasny@gov.bc.ca>> | WWW:

> <http://geobc.gov.bc.ca>

> -----

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> -----

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>

> <235970663-Hazeltine-Creek-Flood-map-August-4-2014_FlyingArea.pdf>

> <MountPolley-ExistngProvincialImagerySamples.pdf>

Weir, David J FLNR:EX

From: MacDougall, Gerry L FLNR:EX
Sent: Tuesday, August 12, 2014 9:21 AM
To: Vanderburgh, Ken FLNR:EX; Weir, David J FLNR:EX
Subject: FW: Mount Polley Mine Failure - GeoBC Image Acquisition

From: MacDougall, Gerry L FLNR:EX
Sent: Thursday, August 7, 2014 10:39 AM
To: Hupman, C Bruce MEM:EX
Subject: Fwd: Mount Polley Mine Failure - GeoBC Image Acquisition

Sent from my iPad

Begin forwarded message:

From: "Hlasny, Brad FLNR:EX" <Brad.Hlasny@gov.bc.ca>
Date: August 7, 2014 at 10:31:16 AM PDT
To: "MacDougall, Gerry L FLNR:EX" <Gerry.MacDougall@gov.bc.ca>, "Mohrmann, Ralph JAG:EX" <Ralph.Mohrmann@gov.bc.ca>
Cc: "Edquist, Kevin FLNR:EX" <Kevin.Edquist@gov.bc.ca>, "Ethier, Tom FLNR:EX" <Tom.Ethier@gov.bc.ca>
Subject: RE: Mount Polley Mine Failure - GeoBC Image Acquisition

All

An update for you and any others that you may want to share this with...

- area was flown yesterday (August 6, 2014)
- there was a bit of cloud shadow but no clouds in the imagery
- it is being processed today and we should have digital imagery available early next week (I can push them to get earlier)
- If orthos are produced (not part of our request to contractor) we should be able to eliminate a lot of the shadow just from the surrounding imagery

Regards
Brad

-----Original Message-----

From: MacDougall, Gerry L FLNR:EX
Sent: Wednesday, August 6, 2014 5:35 PM
To: Hlasny, Brad FLNR:EX; Mohrmann, Ralph JAG:EX
Cc: Edquist, Kevin FLNR:EX; Ethier, Tom FLNR:EX
Subject: Re: Mount Polley Mine Failure - GeoBC Image Acquisition

Hi Brad,

By way of this email I am sharing this with EMBC and the other ministries. Thank you,

Gerry

Sent from my iPhone

On Aug 6, 2014, at 4:25 PM, "Hlasny, Brad FLNR:EX" <Brad.Hlasny@gov.bc.ca> wrote:

Gerry

An update and some information for those that need materials/mapping/orthos/etc I expect an update from the contractor in a bit as to what was captured (or not) Feel free to share and let me know if there are others that would require any products from this sortie.

Regards

Brad

From: Hlasny, Brad FLNR:EX

Sent: Wednesday, August 6, 2014 4:16 PM

Subject: Mount Polley Mine Failure - GeoBC Image Acquisition

Importance: High

Here is a quick update of what is being done and delivered.

An update on the imagery acquisition/mapping.

Attachement#1 - general mining area with debris areas identified

Attachment#2 - word document with recent (pre-disaster) imagery available from our archive

Basic Information

- * GeoBC has a contractor in the area (PG) doing some flying for VRI work

- * We auctioned the plane to fly the Mount Polley Failure today August 6, 2014

- a. See attached area we had contractor concentrate on

* GeoBC has no requirements/needs for this imagery but we felt this would be a smart thing to do for numerous reasons:

- a. Initial disaster response / reconnaissance
- b. Post-disaster mapping (if required)
- c. Post-disaster before & after analysis
- d. Potential legal reasons

* Cost for the flying / imagery was borne by GeoBC (will have to find the money in an existing project or shared across projects)

* Cost for any downstream additional products should be borne by other agencies with the need

- a. GeoBC can administer this contract work as our in-kind share

Project Information

* The plane was in area this afternoon - August 6, 2014

* Conditions are not perfect (sunny with clouds in area)

- a. Right now around PG the wind has blown out the smoke and it is clear and sunny

- b. Plane can possibly fly below clouds

- c. Imagery will be shadowed but with digital imagery can see through shadows fairly well

* Photo cost would be in the \$6500.00 - \$10,000.00 range

* Turn around for photo would be a couple of days

- a. Need to know if required

b. Would also need to know if orthoimagery would be required/useful for response

* Mapping products would be dependent on what you would like for products

a. Ortho imagery

b. Mapping

c. DEMs

Initial Deliverables

* Digital photos may be able to be delivered by Friday August 8, 2014 - probably Monday August 11, 2014

* Basic specifications for imagery

a. Digital colour , multi-band

b. 12 cm imagery

i. which will support 15cm orthos.

ii. This just works better with the flight planning.

iii. 0.5 meter DEM is possible to derive from this flying

c. The IMU positional accuracy will be sub-15cm.

DownStream Deliverable

- * GeoBC did not plan to create/produce any downstream products
- * Can do this for other agencies if they desire it and have funding

Cheers

Brad

Brad Hlasny, P.Eng., CLS | Manager, Base Mapping & Cadastre | GeoBC |
Ministry of Forests, Lands and Natural Resource Operations
Street/Courier: 3400 Davidson Ave., Victoria BC V8Z 3P8
Mail: PO Box 9375 STN PROV GOVT, Victoria, BC Canada V8W 9M2
Phone: (250) 952-6520 | Fax (250)952-4261 | Mobile (250) 812-4637|
Email: brad.hlasny@gov.bc.ca<<mailto:brad.hlasny@gov.bc.ca>> | WWW:
<http://geobc.gov.bc.ca>

<235970663-Hazeltine-Creek-Flood-map-August-4-2014_FlyingArea.pdf>
<MountPolley-ExistngProvincialImagerySamples.pdf>

Weir, David J FLNR:EX

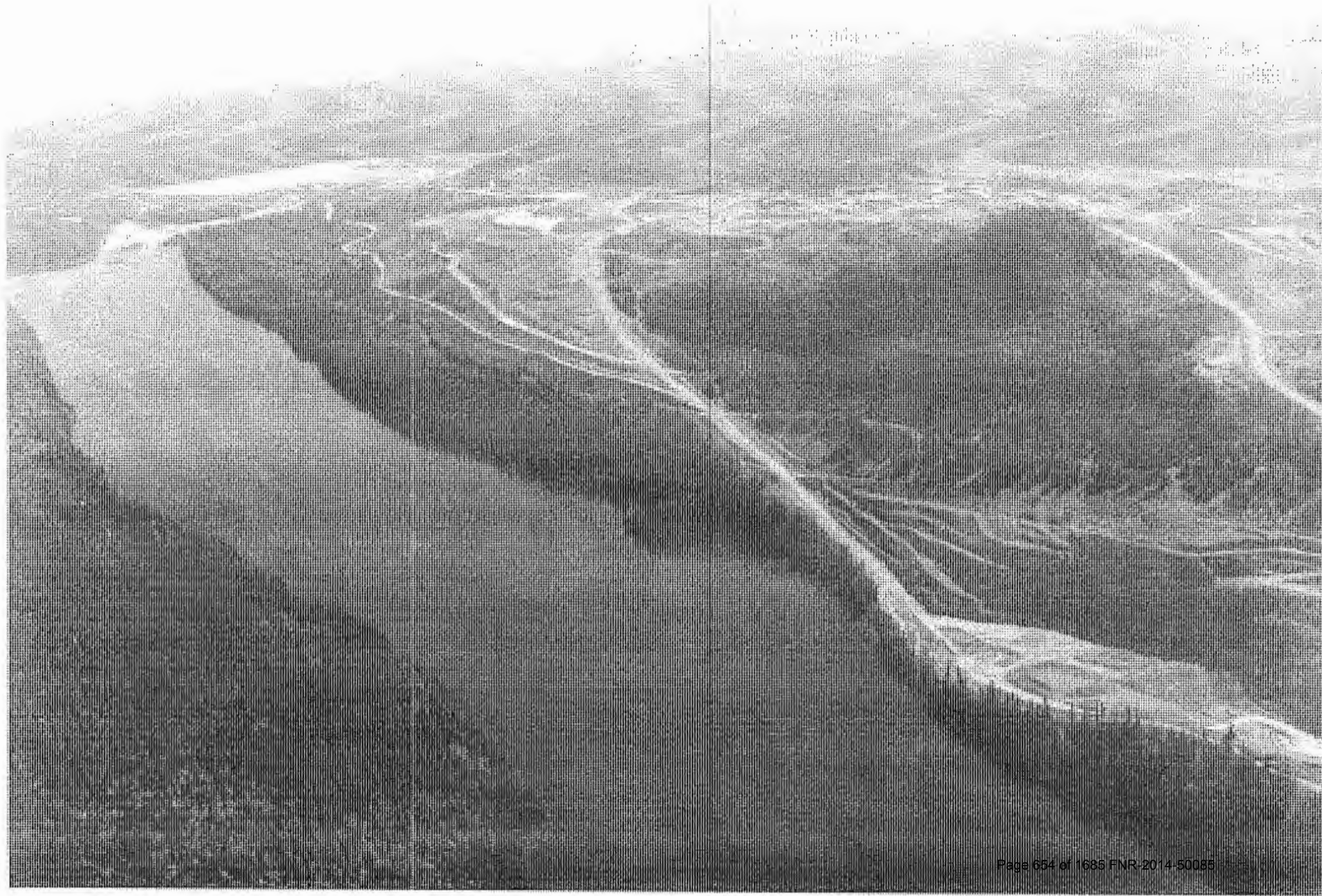
From: Weir, David J FLNR:EX
Sent: Monday, August 11, 2014 5:36 PM
To: Morrison, Andrew JAG:EX
Subject: Emailing: Mt Polley August 11th 2014 045
Attachments: Mt Polley August 11th 2014 045.jpg

Overview, I will try to bring all the pictures to you tomorrow. One pump is pumping into the pit at the north end of Polley lake and the three pumps are at the other end of the lake pumping water around the plug across the failure to going back into Hazeltine creek below were the settleing pond is. A significant flow is still coming out of the tailings pond and flowing as a slurrey down to the alluvial fan but the water clears up before getting past the first log boom.

Your message is ready to be sent with the following file or link attachments:

Mt Polley August 11th 2014 045

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 14, 2014 11:49 AM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: spot forecast for Mt Polley issued 11:30 Thursday August 14, 2014

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations

tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: Robert Rowson s.22
Sent: Thursday, August 14, 2014 11:29 AM
To: Hamm, Mark FLNR:EX; EOCDirector@cariboord.bc.ca; RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX
Subject: sport forecast for Mt Polley issued 11:30 Thursday August 14, 2014

--
Robert Rowson
Weather Forecaster
Phone: 250 768 2602
Fax: 250 768 2602



Mount Polley
Spot Fcst August...

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Thursday August 14, 2014

Valid: 11:30 am

REQUEST *(Don't request preparation for early in the morning unless you need it then!)*

| | | | |
|---|-----------------------|------------------------------------|--|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

An upper low drifting to north central Oregon continues to draw moist unstable air into southern BC. This to spread as patchy clouds and isolated showers or thundershowers to the region late this afternoon. Scattered thundershowers expected to be in the area through mid evening as clouds thicken. Then the clouds spread out to give a mainly cloudy night. Friday a similar pattern as a mix of sun and cloud gives way to isolated thundershowers in the region for the late afternoon and evening.

TODAY

Sunny with cloudy periods. High near 30. Winds SW to W 10 to 15 km/h with brief gusts to 25 this afternoon.

TONIGHT

Cloudy periods. Low near 14. Winds easing to E to NE 5 to 10 overnight and calm at times towards morning.

TOMORROW

Sunny with afternoon cloudy periods. Isolated showers or thundershowers to the east and north of the site in the late afternoon and evening. High near 30. Winds E to NE 10 becoming SE 10 to 15 midday and shifting to SW in the late afternoon.

OUTLOOK: Saturday to Monday

Friday night the low heads into southeastern BC as a weak cold front moves into northern BC. This holds clouds in the area and scattered showers to the east. Saturday the low moves to the east and the weak cold front crosses the region. This to produce scattered showers for the site with more frequent and heavier showers to the east. Highs near 23. Winds southwest 10 to 20 km/h. The air mass dries Saturday evening. Sunday a weak ridge of high pressure with mainly sunny skies. High temperatures in the mid to upper 20s. Winds southeast 10 to 15 km/h. Monday weak systems passing to the north provide variable clouds and some isolated light sprinkles possible. Highs near 25. Winds southwest 20 km/h.

Through the period rainfall amounts have varied in the models. I have tried to be cautious with my forecasts. The latest model runs once again are reducing the overall amounts which seems reasonable. Currently expect nothing today with 5 to 8 mm late evening to early overnight. Friday expect nothing until evening again, with showers in the area through the early overnight hours. This amount the hardest as likely 10 to 15 mm but potential in the system to be 20 to 30. The local nature of thunderstorms and the small watershed size creates

the uncertainty. A further 3 to 6 mm Saturday morning expected. The next sign of measurable rain Tuesday afternoon.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|----|------|---------------|---------------|---|
| 13:00 | TEMP | 27 | RH | 42 | WIND | SW 10-15 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 29 | RH | 40 | WIND | SW15G25 km/h | % CHANCE RAIN | 0 |

DISCUSSION:

Biggest issue is an intense thundershower in the watershed. The direction of the upper flow enhances the risk. The rainfall potential numbers have been mentioned.

Upper winds at Likely valid 1700h PDT:

2000m NW 15 km/h 3000m NE 20 km/h

Forecaster: Robert Rowson 250 768 2602 s.22

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 13, 2014 12:03 PM
To: Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: Spot forecast for Mt Polley issued late morning Wednesday August 13, 2014

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: Robert Rowson s.22
Sent: Wednesday, August 13, 2014 11:43 AM
To: Hamm, Mark FLNR:EX; EOCDirector@cariboord.bc.ca; RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Colwell, Rory FLNR:EX
Subject: Spot forecast for Mt Polley issued late morning Wednesday August 13, 2014

--
Robert Rowson
Weather Forecaster
Phone: 250 768 2602
Fax: 250 768 2602



Mount Polley
Spot Fcst August...

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Wednesday August 13, 2014

Valid: 11:45 am

REQUEST *(Don't request preparation for early in the morning unless you need it then!)*

| | | | |
|---|-----------------------|------------------------------------|--------------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

An upper low off the Oregon coast continues to spread patchy clouds to the area. Once again the threat of thundershowers in the region remains to the east and south of the site. A few clouds tonight with little change in the situation. Thursday as the low drifts inland the moisture bands remain mostly to the south with just a few cloudy periods. During the evening the low begins to drift north and this spreads thicker clouds to the area.

TODAY

Sunny with cloudy periods. High near 30. Winds SE to E 10 to 15 km/h with brief gusts to 25 this afternoon.

TONIGHT

Cloudy periods. Low near 14. Winds easing to E to NE 5 to 10 overnight and calm at times towards morning.

TOMORROW

Sunny with afternoon cloudy periods. Isolated showers or thundershowers to the east and north of the site in the late afternoon and evening. High near 30. Winds E to NE 10 becoming SE 10 to 15 midday and shifting to SW in the late afternoon.

OUTLOOK: Friday to Sunday

Friday the upper low drifts to central Washington and weakens. A Pacific cold front moves to the north coast supported by an upper trough. Scattered showers or thundershowers move to the south of the area early Friday morning and spread to the east of the area Friday afternoon. No rain for the Mt Polley watershed as yet. Temperatures lower to the mid 20s. Winds SW 20 km/h and gusty. Friday night the weakening Pacific cold front and trough pushes inland and combines with the remaining moisture in the region to develop scattered showers or thundershowers for the area early Saturday. Saturday as the whole mess shifts to the east the air mass dries from the west with lingering isolated showers by afternoon and some sunny periods. High temperatures fall to the low 20s with west to southwest winds 20 km/h and gusty. Sunday a weak ridge builds to the northwest ahead of the next Pacific wave driving to southeast Alaska. This brings a break to the unsettled weather with mainly sunny skies and temperatures rebounding to the mid 20s. Winds light southwest. Rainfall for the site expected to be 5 to 15 mm Saturday morning with one or two again in the early afternoon.

SPOT FORECAST

Tuesday August 12

| | | | | | | | | |
|-------|------|----|----|----|------|----------------|---------------|---|
| 13:00 | TEMP | 27 | RH | 40 | WIND | SE 10-15 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 29 | RH | 35 | WIND | ESE 15G25 km/h | % CHANCE RAIN | 0 |

DISCUSSION:

The higher potential rainfall talked about earlier seems to be diminishing in the latest model runs. Confidence in this is pretty good. The risk of brief heavier showers continues until Saturday afternoon with the convective nature of the air mass.

Upper winds at Likely valid 1700h PDT:

2000m S 10 km/h 3000m NE 20 km/h

Forecaster: Robert Rowson 250 768 2602 s.22

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 14, 2014 12:19 PM
To: Weir, David J FLNR:EX
Subject: FW: Mount Polley Mine - Instructions for Submitting Expenses, Timesheets and Overtime Forms
Attachments: Mount Polley Mine.docx
Importance: High

FYI

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Scott-Zowty, Barb CSNR:EX
Sent: Thursday, August 14, 2014 12:18 PM
To: Bings, Dan P ENV:EX; Green, Jack E ENV:EX; Keogh, Kym A ENV:EX; Swan, Chris L ENV:EX; Nowotny, Chris ENV:EX; Butler, Len ENV:EX; Ramsay, Mike K FLNR:EX; Williston, Lee X FLNR:EX; Bobrowski, Russell FLNR:EX; Fairburn, Rebecca A ENV:EX
Cc: Halfnights, Erin CSNR:EX; Beaman, Bonnie CSNR:EX; FLNR Cariboo RMT
Subject: FW: Mount Polley Mine - Instructions for Submitting Expenses, Timesheets and Overtime Forms
Importance: High

Please forward to any staff I may have missed.

If you have any questions, please let me know.

Thanks,
barb

Barb Scott-Zowty
Corporate Services Manager | Client Services Branch | Corporate Services for the Natural Resource Sector
ph: 250-398-4895 | cell: 250-398-0268 | fax: 250-398-4214
<https://www.nrs.gov.bc.ca/csnr/ministry>

Mount Polley Mine – August 2014

Financial Tracking


Project No's:

Environment: 2912922

FLNRO: 7191590

Energy and Mines: *Pam Smith will be communicating*

Expenditure Coding Guide - for program staff

| | |
|-------------------------------|---|
| iExpenses | Processed as usual, with coding the same except for the Project No. (see above – normally it is XX00000). Don't forget to check the coding for each iExpense as it doesn't usually revert back to your normal coding). |
| Invoices | Processed as usual but coding to include the Project No. |
| BMO | BMO is processed in the same manner but items that relate to the Mt. Polley incident will need to be coded to the Project No. and the forms forwarded to your Expense Authority for their approval. |
| Timesheets and Overtime forms | <p>Enter Overtime into TOL directly.</p> <p>If a manual Timesheet and/or Overtime Form is used, it should be completed and signed off by the Expense Authority and then submitted as an attachment through AskMyHR - Submit a Service Request at the following link: http://www2.gov.bc.ca/myhr/index.page?atwork=MYHR2012</p> <p>Payroll # is 1-877-277-0772. This is for recording overtime hours, assistance for Leave Approvers.</p> <p>Links to the Timesheet and Overtime forms: https://gwww.for.gov.bc.ca/ftp/hfm/gov_internal/%21publish/Sharepoint/CSNR%20Intranet/Payroll/Timesheet.pdf https://gwww.for.gov.bc.ca/ftp/hfm/gov_internal/%21publish/Sharepoint/CSNR%20Intranet/Payroll/Overtime.pdf</p> |
| Daily Costs Tracking | <p>Mount Polley Mine Daily Costs Tracking Summary should be completed once a month and sent to Linda Stephens to ensure all charges are accounted for and JV'd accordingly.</p> <div style="text-align: center;">  <p>Mount Polley Mine IMT YOUR NAME daily</p> </div> |

Expenditure Reporting and Recovery - CSNR

- Once Executive approves what will be recovered (i.e. base salaries, all ministries involved, etc), additional instructions will be sent out.
- Environment HQ CSU will coordinate the recovery back to the province.
Contacts: Shauna Weir - Thompson/Okanagan, Barb Scott-Zowty - Cariboo

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Friday, August 15, 2014 1:22 PM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: spot forecast for Mt Polley issued 11:30 Friday August 15, 2014

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations

tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: Robert Rowson [s.22](#)
Sent: Friday, August 15, 2014 11:27 AM
To: Hamm, Mark FLNR:EX; EOCDirector@cariboord.bc.ca; RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX
Subject: spot forecast for Mt Polley issued 11:30 Friday August 15, 2014

--

Robert Rowson
Weather Forecaster
Phone: 250 768 2602
Fax: 250 768 2602



Mount Polley
Spot Fcst August...

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Friday August 15, 2014

Valid: 11:30 am

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | |
|--|---|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres Other? tailings pond breach | | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

An upper low in north central Washington State continues a slow drift to the northeast into southern BC later today and into southern Alberta Saturday. Bands of moist unstable air moving across the area to bring variable clouds and isolated showers or thundershowers developing later this afternoon and persisting through the night. Saturday a weak Pacific cold front to push this moisture out of the area by midday but lingering clouds from the westerly flow aloft. Scattered light rain showers expected through midday. Temperatures continue to lower a few degrees each day.

TODAY

A few clouds this morning becoming cloudy with sunny periods. Isolated showers or thundershowers developing later this afternoon. High near 27. Winds S-SW 10 to 15 km/h. Gusts to 70 near thundershowers.

TONIGHT

Mainly cloudy. Isolated showers or thundershowers in the area overnight. Rainfall amounts likely near 5 mm. Low near 15. Winds SW-W 8 to 12 km/h overnight.

TOMORROW

Mainly cloudy becoming mainly sunny late afternoon. Scattered showers becoming isolated in the afternoon. Rainfall amounts likely 8 to 15 mm. High near 22. Winds W to NW 10 becoming SE 10 to 15 km/h.

OUTLOOK: Sunday to Tuesday

Sunday a ridge builds to the west as a Pacific frontal wave heads for the southwest Yukon. A mainly sunny day and highs in the upper 20s. Winds westerly 10 to 20 km/h. Sunday night the wave drives to the southern NWT with a strengthening westerly flow aloft bringing some clouds to the area lasting through the day. Some scattered showers late in the day with up to 10 mm overnight. Highs mid 20s. Winds southwest 10 km/h. Tuesday a west northwest flow of dry air gives mainly sunny skies. Highs mid 20s. Winds light southeast.

In the convective pattern rainfall amounts always hard. However as the upper winds shift to more westerly Saturday confidence increases.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|----|------|---------------|---------------|----|
| 13:00 | TEMP | 23 | RH | 58 | WIND | SW 10-12 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 29 | RH | 40 | WIND | SW15 km/h | % CHANCE RAIN | 20 |

DISCUSSION:

The upper flow supports little in the way of showers until later this evening. Remain conservative in my forecast amounts.

Upper winds at Likely valid 1700h PDT:

2000m SE 10 km/h 3000m SE 15 km/h

Forecaster: Robert Rowson 250 768 2602 s.22

PLEASE provide any onsite weather readings with locations to the forecaster!

Page 0666 to/à Page 0667

Withheld pursuant to/removed as

s.14

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 14, 2014 1:50 PM
To: 'Don Parsons'
Subject: RE: Important secondary debris flow potential as per David Weir
Attachments: RE: Mt Polley

I apologise that I did not use Imperial Metals Corporation but it was rushed. The order does not identify your right to appeal the order but given the nature of the order I assume you do not want to appeal it. It expires on the 22nd and I would hope to create a significantly more detailed document based upon what you are doing, what you plan to do, and who you have hired to perform the professional oversight. I am surprised you do not have a copy of the document as Penny confirmed receipt of it?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Don Parsons [mailto:dparsons@imperialmetals.com]
Sent: Thursday, August 14, 2014 1:26 PM
To: Weir, David J FLNR:EX
Subject: RE: Important secondary debris flow potential as per David Weir

David
Could you forward the same document to me please?
Thanks
Don



Don Parsons, Chief Operating Officer
dparsons@imperialmetals.com
604.488.2652 | mobile 778.836.2652

Imperial Metals Corporation
200-580 Hornby Street, Vancouver, BC V6C3B6
604.669.8959 | www.imperialmetals.com

From: Weir, David J FLNR:EX [mailto:David.J.Weir@gov.bc.ca]
Sent: Tuesday, August 05, 2014 4:02 PM
To: 'Dave Carpenter'; Rothman, Stephen MEM:EX
Cc: 'Art Frye'; XT:Carpenter, Penny FLNR:IN; 'Dale Reimer'; Don Parsons
Subject: RE: Important secondary debris flow potential as per David Weir

I have sent Penny a document to facilitate this.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Dave Carpenter [<mailto:dcarpenter@mountpolley.com>]
Sent: Tuesday, August 5, 2014 1:33 PM
To: Rothman, Stephen MEM:EX
Cc: Art Frye; Weir, David J FLNR:EX; XT:Carpenter, Penny FLNR:IN; Dale Reimer; donparsons@imperialmetals.com
Subject: FW: Important secondary debris flow potential as per David Weir

As per our discussion Stephen I am requesting approval to contain the woody debris flow from the Tailings breach at the mouth of Hazeltine creek on Quesnel Lake. I have contractors who will be in the lake this afternoon and using boom sticks they will collect up all the loose material they can and then anchor the containment boom across the mouth of the creek. This should mitigate some of the hazards of the logs floating towards Likely and also contain logs that currently are on the shore adjacent to and in front of the creek mouth. The concerns indicated by Mr. Weir in the previous e-mails I believe have been mitigated by the plan to syphon water from Polley Lake into the Wight pit. Thanks

David Carpenter
Assist Superintendent
Mine operations Department
Mount Polley mines
Work 250-790-2215 ext 2110
Home s.22 /Cell 250-267-4433
dcarpenter@mountpolley.com

From: Penny Carpenter s.22
Sent: Tuesday, August 05, 2014 11:58 AM
To: Dave Carpenter
Subject: Important secondary debris flow potential as per David Weir

David
This is the gentleman that I am dealing with in regards to the containment of the debris in the water. He can issue us a permit and is moving forward on that but the correct steps are to go through the Ministry of Mines whom may already have jurisdiction.
I need to find out if the Mines act has jurisdiction and if they can issue us a permit or order to deal with the consequences of the dam breach. The Ministry of Mines should issue all the requirements for clean up because they deal with failure of tailing pond.
I need to find out who is your contact person in the Ministry of Mines and if someone else from Mount Polley has requested this order for clean up through the Ministry of mines. I tried to contact Art but did not get a hold of him. I felt that I would wait to hear from you before I contact someone else.

There are main governments involved in a this incident and they all communicate under M.O.U letter of agreement. Ministry of Mines is the leading chair then there is Environmental Protection and Water Stewardship. David is in Water Stewardship

David Weir had a concern that he wants addressed today. It is the potential of a secondary debris flow stemming from the back up of Polley Lake. Can you fly this area and the lake and verify that there is not an area building up due to the blockage of the outlet for Polley and get back to me as soon as possible so that I can let David Weir know.

Thanks Penny

From: Weir, David J FLNR:EX [mailto:David.J.Weir@gov.bc.ca]

Sent: August-05-14 11:41 AM

To: XT:Carpenter, Penny FLNR:IN

Subject: Mt Polley

As per our discussion

David Weir

Water Section Head,

Ministry of Forest Lands and Natural Resource Operations

Williams Lake , BC

David.J.Weir@gov.bc.ca

(250) 398 4924

Cell 250 267-5925

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Tuesday, August 5, 2014 3:15 PM
To: XT:Carpenter, Penny FLNR:IN; Rothman, Stephen MEM:EX
Cc: Vanderburgh, Ken FLNR:EX; Stewart, Rodger W FLNR:EX
Subject: RE: Mt Polley

Hello, at this time it is our understanding that Stephen Rothman has the authority under the mines act to order the necessary measures to contain and remove the debris in Quesnel Lake and to authorize the management of the water level on Polley lake.

However: to remove any confusion and to address any shortcoming that might exist between the Mines Act, Water Act and the MOU that guides there coordination I order under Section 85 as follows;

Subject to the requirements of the Mines Act and MOU

http://www.env.gov.bc.ca/wsd/sla_mou/mempr_mou%202009.pdf and as it is in the public interest for the protection of safety and the integrity of Hazeltine Creek, Polley Lake, Quesnel Lake and the Quesnel River, recognizing the Mt Polley Mine's willingness to undergo the required work at their own cost and save the province harmless:

- 1) Under the direction of suitably qualified professionals licenced in the Province of BC the corporation is ordered to collect and remove such debris from Quesnel Lake, as a result of the Mt Polley tailings pond failure, as would threaten road infrastructure and stream channel stability. The manner and nature to be suitable to impacted parties Federal Agencies and the Province.
- 2) Under the direction of suitably qualified and experienced professionals licenced in the Province of BC; maintain the Lake level of Polley Lake in a manner that prevents further mass movement of material from Polley lake and Hazeltine Creek.
- 3) This order does not superseded any other legislation, agency, or government authority nor does it save them harmless.
- 4) This order is not intended to mitigate or limit the future punitive action of government with respect any non compliance by Mt Polley Mine.
- 5) This order is a temporary measure and is subject to cancelation or modification under the authority of the Water Act Mines Act or the MOU.
- 6) This order doe not authorize the entry onto private lands.

If necessary a more formal and document can be provided at a future date and in the absence of any direction to the contrary it should be considered to be expired as of August 22nd 2014 if not renewed. In addition to the general protection of public interest the specific purpose is to protect the bridge at Likely and to prevent secondary mass movements of material from the failure.

If there are any questions or you feel there is error please contact me. Keeping in mind the rushed nature of this document.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Penny Carpenter s.22
Sent: Tuesday, August 5, 2014 12:46 PM
To: Weir, David J FLNR:EX
Subject: RE: Mt Polley

Hi David

The Mines Gentleman Steve Rothman will be contacting you regarding the breach of the tailing pond. He will be able to fill you in and maybe it will help the work load so things are not getting duplicated.

Penny Carpenter

From: Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]
Sent: August-05-14 11:41 AM
To: XT:Carpenter, Penny FLNR:IN
Subject: Mt Polley

As per our discussion

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Williston, Lee X FLNR:EX
Sent: Monday, August 18, 2014 3:22 PM
To: Weir, David J FLNR:EX
Subject: Out of Office: Mt Polley Quesnel lake debris removal field trip

I am out of the office until Thursday August 21, 2014.

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 18, 2014 3:22 PM
To: XT:Carpenter, Penny FLNR:IN
Cc: Hoffos, Robin FLNR:EX; Williston, Lee X FLNR:EX
Subject: Mt Polley Quesnel lake debris removal field trip

We should be onsite to pick you and the RP Bio up at or around 1030am tomorrow. It would be good if we can talk to the Professional engineer doing the causeway design also. Please confirm this works for you?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Monday, August 18, 2014 1:16 PM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: Spot forecast for Mt Polley issued 12:30 Monday August 18, 2014
Attachments: Mount Polley Spot Fcst August 18, 2014.docx

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Rob Pigott [<mailto:envirobc@telus.net>]
Sent: Monday, August 18, 2014 12:32 PM
To: RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX;
EOCDirector@cariboord.bc.ca
Subject: Spot forecast for Mt Polley issued 12:30 Monday August 18, 2014

Rob Pigott
Enviro-BC Weather Services
1706 Capilano Ave.
Comox, BC
V9M 1B6
250-339-4424

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Monday August 18, 2014

Valid: 12:30 pm

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

An approaching cold front gives mainly cloudy skies today. Light sprinkles initially, a band of showers associated with the front arriving later this afternoon through the evening. There is a slight risk of a thunderstorm late this afternoon giving brief heavy showers. The showers become isolated by midnight after the passage of the front. The showers end overnight with partial clearing expected. Winds becoming gusty this afternoon and early evening with the approach and passage of the front. Possible higher winds near thundershowers. Winds taper to light after midnight. A weak upper trough gives variable cloudiness on Tuesday. Isolated afternoon showers giving light amounts. Winds fairly light with brief afternoon gusts.

TODAY

Mainly cloudy. Isolated light showers. A few showers beginning later this afternoon. High near 23. Winds southwest 10 km/h becoming southwest to west 15 to 20 km/h with gusts to 30 by late afternoon.

TONIGHT

Mainly cloudy with a few showers becoming isolated by midnight then ending overnight. Total rainfall amounts 5 to 10 mm. Low near 10. Winds abating to west 10 km/h by midnight then light and variable overnight.

TUESDAY

Variable cloud. Isolated afternoon showers. High near 18. Winds northwest 15 km/h. Local afternoon gusts to 25 km/h.

OUTLOOK: Wednesday to Friday

The trough persists Wednesday and Thursday. Convective cloud developing both days with isolated afternoon showers. Rain amounts should be fairly light. There is a risk of thundershowers both days giving locally heavier amounts. Temperatures remaining on the cool side with highs in the upper teens. Winds generally light in the morning with some afternoon gustiness. A drier northwest flow aloft brings more sun and less chance of showers on Friday. Temperatures should be a bit warmer. Long range shows an upper ridge building bringing sunny skies and warmer temperatures on the weekend.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|--|------|----------------|---------------|----|
| 13:00 | TEMP | 23 | RH | | WIND | SW 12 km/h | % CHANCE RAIN | 40 |
| 17:00 | TEMP | 19 | RH | | WIND | WSW 18G30 km/h | % CHANCE RAIN | 80 |

DISCUSSION:

There is a chance of local heavy downpours if any thundershowers develop in the area later this afternoon.

Upper winds at Likely valid 1700h PDT:

2000m SW 15 km/h 3000m W 35 km/h

Forecaster: Rob Pigott 250 339-4424 envirobc@telus.net

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Zacharias-Homer, Christa ENV:EX
Sent: Monday, August 18, 2014 12:49 PM
To: Weir, David J FLNR:EX
Subject: Out of Office: REVISED TIME: Mount Polley - MEM and MOE coordination call

s.22 I will not be checking my email.

Angie Poss has taken over for Mount Polley coordination. She can be reached at:

(250) 356-9833 – work
(250) 812-0114 – work cell

If this is an urgent matter, please contact 250-387-9990.

Thanks
Christa

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Sunday, August 17, 2014 11:06 AM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: spot forecast for Mt Polley issued morning Sunday August 17, 2014

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: Robert Rowson s.22
Sent: Sunday, August 17, 2014 10:44 AM
To: RWOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX; EOCDirector@cariboord.bc.ca
Cc: Rob Pigott
Subject: spot forecast for Mt Polley issued morning Sunday August 17, 2014

--
Robert Rowson
Weather Forecaster
Phone: 250 768 2602
Fax: 250 768 2602



Mount Polley
Spot Fcst August..

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Sunday August 17, 2014

Valid: 11:00 am

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

Extensive smoke aloft this morning trapping low level fog in the valleys. This to clear late morning to midday. A ridge building to the northwest to give a sunny day with the smoke expected to thin through the day. Tonight a weak Pacific cold front moves to the north of the region and spreads high cloudiness to the site overnight. Monday as the front sags slowly south clouds thicken with isolated showers developing in the afternoon. A few showers through the evening and end overnight.

TODAY

Sunny with a few afternoon clouds. Areas of morning fog dissipating by midday. High near 23. Winds SW 10 to 15 km/h.

TONIGHT

Clear. Increasing cloud late overnight. Low near 13. Winds light E-SE overnight.

MONDAY

Mainly cloudy. Isolated showers develop in the afternoon becoming a few showers in the evening. Rainfall amounts including overnight 8 to 12 mm. High near 23. Winds SE 10 to 15 km/h.

OUTLOOK: Tuesday to Thursday

Tuesday the air mass dries somewhat between systems. Cloudy with sunny periods becoming a mix of sun and cloud. Highs near 22. Winds light SW. Wednesday a trough arrives in the afternoon with increasing clouds and isolated showers. Thursday as a ridge builds to the west cloudy with sunny periods. Highs near 22. Winds easterly 10 km/h.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|--|------|--------------|---------------|---|
| 13:00 | TEMP | 20 | RH | | WIND | SW 10 km/h | % CHANCE RAIN | 0 |
| 17:00 | TEMP | 23 | RH | | WIND | SW10-15 km/h | % CHANCE RAIN | 0 |

DISCUSSION:

The track of the moisture beyond Monday has been pushed farther south than forecast last few days bringing a drier forecast. Will have to monitor this as could easily see more precipitation late Wednesday and Thursday.

Upper winds at Likely valid 1700h PDT:

2000m W 10 km/h 3000m W 15 km/h

Forecaster: Robert Rowson 250 768 2602 s.22

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Saturday, August 16, 2014 11:52 AM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stofar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: spot forecast for Mt Polley issued 11:30 am Saturday August 16, 2014

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

-----Original Message-----

From: Robert Rowson [s.22](#)
Sent: Saturday, August 16, 2014 11:30 AM
To: Hamm, Mark FLNR:EX; EOCDirector@cariboord.bc.ca; RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX
Subject: sport forecast for Mt Polley issued 11:30 am Saturday August 16, 2014

--
Robert Rowson
Weather Forecaster
Phone: 250 768 2602
Fax: 250 768 2602



Mount Polley
Spot Fcst August...

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Saturday August 16, 2014

Valid: 11:30 am

REQUEST *(Don't request preparation for early in the morning unless you need it then!)*

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

Moist unstable air continues in the area this morning with some scattered showers. As a weak upper trough to the west pushes through the air mass to dry somewhat with afternoon sunny periods. Very isolated thundershowers to develop late afternoon and early evening. A weak ridge building in this evening to bring clearing late evening. With the weak ridge to the northwest Sunday a mainly sunny day with warmer temperatures.

TODAY

Cloudy with afternoon sunny periods. Scattered showers ending shortly with isolated late afternoon and early evening thundershowers in the area. Rainfall of 2 to 3mm expected. High near 23. Winds SW 10 to 15 km/h. Gusts to 50 near thundershowers.

TONIGHT

A few clouds. Local fog patches overnight. Low near 13. Winds light E-NE overnight.

SUNDAY

Mainly sunny. Local morning fog patches. High near 27. Winds W to NW 10 to 15 km/h.

OUTLOOK: Monday to Wednesday

Sunday night a Pacific wave heads east across the northern BC border to northern Alberta. This flattens the ridge into southern BC and brings some patchy high clouds to the area overnight. Monday as a weak cold front sags to the north of the area and with a strengthening westerly flow aloft clouds spread across the region. Isolated showers develop in the late afternoon. Highs mid 20s. Winds W to SW 15 km/h and gusty. Monday night an upper trough pushes in from the west bringing showers to the area with 5 to 8mm expected. Tuesday as the upper trough swings through the air mass dries from the west. Sunny periods and scattered showers. A further 2 to 3 mm. Highs low 20s. Winds SE 10 to 15 km/h and gusty. Wednesday a broad weak upper trough with a mix of sun and cloud and isolated showers or thundershowers. No rainfall expected. Highs low 20s. Winds SE 10 to 15 km/h and gusty.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|--|------|----------------|---------------|----|
| 13:00 | TEMP | 19 | RH | | WIND | WSW 10-12 km/h | % CHANCE RAIN | 20 |
| 17:00 | TEMP | 23 | RH | | WIND | SW15 km/h | % CHANCE RAIN | 60 |

DISCUSSION:

Rainfall today to come from what is happening in next few hours and development of thundershowers later. Will have to watch for potentially higher amounts Monday evening.

Upper winds at Likely valid 1700h PDT:

2000m NW 20 km/h 3000m NW 25 km/h

Forecaster: Robert Rowson 250 768 2602 s 22

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Ewanyshyn, Ron JAG:EX
Sent: Monday, August 18, 2014 3:27 PM
To: McGuire, Jennifer ENV:EX; Metcalfe, Shelley ENV:EX; Bellefontaine, Kim MEM:EX; Demchuk, Tania MEM:EX; Weir, David J FLNR:EX; Patterson, Roberta FLNR:EX
Subject: FW: Polley Mine Forecast - August 18
Attachments: PowerPtPolleyMine.jpg

FYI

From: Kelly, Robert J JAG:EX
Sent: Monday, August 18, 2014 14:30 PM
To: Ewanyshyn, Ron JAG:EX; 'eocdirector@cariboord.ca'
Cc: SG PEP NEA PREOC Documentation Unit 1 SG:EX
Subject: FW: Polley Mine Forecast - August 18

Please distribute to your stakeholders

Robert (Bob) Kelly
Regional Manager

Emergency Management British Columbia
3235 Westwood Drive
Prince George BC CANADA V2N 1S4
www.pep.bc.ca

Ph 250.612-4172 Fax 250.612-4171
24 Hour Emergency Reporting 1.800.663.3456

From: Charbonneau, Alyssa [PYR] [<mailto:Alyssa.Charbonneau@ec.gc.ca>]
Sent: Monday, August 18, 2014 14:17 PM
To: Kelly, Robert J JAG:EX; Hirlehey, Wayne: PS
Cc: PYR C-desk; XT:Besson, Andre ENV:IN; XT:PSPCSUPERVISOR HLS:IN
Subject: Polley Mine Forecast - August 18

SPECIAL WEATHER FORECAST ISSUED BY ENVIRONMENT CANADA AT 2:30 PM PDT
MONDAY AUGUST 18, 2014.

SYNOPSIS

Day 1-3: A cold front crossing the Central Interior of BC today will result in a few showers this afternoon and tonight, with a risk of a thunderstorm early this evening. In the wake of the cold front, clearing conditions are expected through Tuesday and Wednesday.

Day 4-7: A generally unstable pattern will persist through the rest of the week, maintaining a mix of sun and cloud and a slight chance of showers Thursday and Friday. A ridge of high pressure will begin to rebuild over the weekend, with a return to sunny and dry conditions for Saturday and Sunday.

Type of Incident: Tailings Pond Breach

Forecast Period: One week

Forecast Area: Mount Polley Mine

For current observations and detailed forecast please open the attachment.

<<PowerPtPolleyMine.jpg>>

Gavin BC Forestry Station Observations (52°28'N 121°45'W, 1081m):

| Time | Temperature | Wind (km/h) |
|------|-------------|-------------|
| 11AM | 15 | NE 08 |
| 12PM | 17 | NE 07 |
| 1PM | 18 | SW 06 |

Forecast for Polley Mine & Vicinity:

| Time | Weather | Prob of Precip | Temp (C) | UV | Wind (km/h) | Precip (mm) |
|----------|---------------|---------------------|----------|----|-------------|-------------|
| Monday | | | | | | |
| 6PM | Cloudy | 80% w/ risk T-storm | 19 | 4 | NW 10 | <1mm |
| Midnight | Cloudy | 80% | 15 | - | NW 5 | 5-10 mm |
| Tuesday | | | | | | |
| 6AM | Cloudy | 0% | 12 | 2 | NW 10 | 0 |
| Noon | MT sun/cloud | 0% | 16 | 5 | NW 20 | 0 |
| 6PM | Mainly Sunny | 0% | 20 | 4 | NW 20 | 0 |
| Midnight | Partly cloudy | 0% | 17 | - | ML | 0 |

Weir, David J FLNR:EX

From: Jolley, William FLNR:EX
Sent: Tuesday, August 19, 2014 1:13 PM
To: Davidson, Glen W FLNR:EX; Mason, Wenda FLNR:EX; Morgan, Scott FLNR:EX; Miedreich, Monty FLNR:EX; O'Neill, Bruce FLNR:EX
Cc: Weir, David J FLNR:EX; Xia, Cenling FLNR:EX
Subject: CDA Media Release
Attachments: CDA_Mount_Polley_media_release[1].pdf

FYI CDA posted a media release on their web site last Wednesday.



CANADIAN DAM ASSOCIATION
ASSOCIATION CANADIENNE DES BARRAGES

Statement

Canadian Dam Association comments on the Mount Polley Mine Tailings Dam Break

(Toronto, Aug. 13, 2014) ^{Copyright}

Copyright

For more information, see our website at www.cda.ca or contact CDA Executive Director Don Butcher at executive.director@cda.ca or 416-255-7076.

Weir, David J FLNR:EX

From: Vanderburgh, Ken FLNR:EX
Sent: Tuesday, August 19, 2014 10:16 AM
To: Weir, David J FLNR:EX
Subject: Fw: Water Act order

Importance: High

David can you forward a copy of the Polley order to Jennifer Goad

From: Stolar, Harold B FLNR:EX
Sent: Tuesday, August 19, 2014 10:12 AM
To: Vanderburgh, Ken FLNR:EX
Subject: Water Act order

Hi Ken, I had a discussion with Jennifer Goad yesterday and she was wondering if she could get a copy of the Water Act order that David Weir issued to Mt Polley.

Thanks.

Inspiring Stewardship through Respectful Conversation

Harold B. Stolar
Resource Manager
Cariboo-Chilcotin District
250 398-4372
cell 250 305-9344

Weir, David J FLNR:EX

From: Penny Carpenter s.22
Sent: Monday, August 18, 2014 6:46 PM
To: Weir, David J FLNR:EX
Cc: Russell Gibson
Subject: RE: Mt Polley Quesnel lake debris removal field trip

David
Yes that will work for us .
Thanks
Penny

From: Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]
Sent: August-18-14 3:22 PM
To: XT:Carpenter, Penny FLNR:IN
Cc: Hoffos, Robin FLNR:EX; Williston, Lee X FLNR:EX
Subject: Mt Polley Quesnel lake debris removal field trip

We should be onsite to pick you and the RP Bio up at or around 1030am tomorrow. It would be good if we can talk to the Professional engineer doing the causeway design also. Please confirm this works for you?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Metcalfe, Shelley ENV:EX
Sent: Monday, August 18, 2014 6:45 PM
To: Hoffman, Al MEM:EX; Bellefontaine, Kim MEM:EX; Demchuk, Tania MEM:EX; Bunce, Hubert ENV:EX; Poss, Angie ENV:EX; Weir, David J FLNR:EX; Halls, Lori D ENV:EX
Cc: McGuire, Jennifer ENV:EX; Hill, Douglas J FLNR:EX; Ewanyshyn, Ron JAG:EX
Subject: Summary of MPMC commitments made today

Hi All,

As I mentioned this afternoon, MPMC committed to getting additional information to MOE when we met with them today. Give me a call if you need clarification or more detail.

- Conceptual mitigation/emergency works in Hazeltine Creek (once safe-access is possible) – Thursday Aug 21
- Work plans for the components in the Comprehensive EIA Plan and Action Plan (that was submitted Aug 15, 2014) – Friday Aug 22
- A critical path/schedule analysis – Mon/Tue Aug 25/26
- Updated water management plan – Friday Aug 22
- Status report on the safety analysis for the plug at Polley Lake – Friday Aug 22

Shelley Metcalfe

Section Head, Mining Authorizations

BC Ministry of Environment - Regional Operations Branch

200- 10470 152nd St., Surrey BC V3R 0Y3

p. 604-582-5332 | f. 604-930-7119 | e. shelley.metcalfe@gov.bc.ca

c. 604-817-9900

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Tuesday, August 19, 2014 2:55 PM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: Spot forecast for Mt Polley issued 12 noon Tuesday August 19, 2014
Attachments: Mount Polley Spot Fcst August 19, 2014.docx

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations

tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Rob Pigott [<mailto:envirobc@telus.net>]
Sent: Tuesday, August 19, 2014 11:56 AM
To: RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX;
EOCDirector@cariboord.bc.ca
Subject: Spot forecast for Mt Polley issued 12 noon Tuesday August 19, 2014

Rob Pigott
Enviro-BC Weather Services
1706 Capilano Ave.
Comox, BC
V9M 1B6
250-339-4424

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Tuesday August 19, 2014

Valid: 12:00 pm

REQUEST *(Don't request preparation for early in the morning unless you need it then!)*

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% 10% or less | Aspect | Valley Orientation | |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

A light northwest flow aloft will give a mix of sun and cloud today. The air mass is somewhat unstable so there is a slight chance of afternoon showers. The flow backs to a WNW flow on Wednesday. Expect early morning fog patches otherwise mainly sunny skies in the morning. Some afternoon cloudy periods are expected but staying dry. Winds light briefly moderate this afternoon with lighter speeds expected on Wednesday.

TODAY

A mix of sun and cloud. Slight chance of afternoon showers. High near 20. Winds becoming northwest 10 to 15 km/h with brief gusts to 25 km/h this afternoon.

TONIGHT

Evening cloudy periods becoming a few clouds overnight. Low near 7. Winds becoming light and variable overnight.

WEDNESDAY

Sunny with early morning fog patches. Afternoon cloudy periods. High near 21. Winds northwest to north 10 to 15 km/h.

OUTLOOK: Thursday to Saturday

An upper trough brings a mix of sun and cloud along with isolated showers on Thursday. There is slight risk of thundershowers. Mainly sunny skies on Friday as a drier northerly flow aloft develops. With an upper ridge to the west and a dry northwest flow aloft the sunny skies will continue on Saturday. Highs upper teens Thursday rising to the low 20's on Saturday.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|--|------|---------------|---------------|----|
| 13:00 | TEMP | 18 | RH | | WIND | WNW 10 km/h | % CHANCE RAIN | 20 |
| 17:00 | TEMP | 20 | RH | | WIND | NW 12G25 km/h | % CHANCE RAIN | 40 |

DISCUSSION:

No thundershowers expected for the next couple of days so rain amounts will be light if any. Increasing risk of a thundershower on Thursday but no heavy downpours are expected.

Upper winds at Likely valid 1700h PDT:

2000m W 15 km/h 3000m WNW 30 km/h

Forecaster: Rob Pigott 250 339-4424 envirobc@telus.net

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Stolar, Harold B FLNR:EX
Sent: Wednesday, August 20, 2014 11:02 AM
To: Weir, David J FLNR:EX
Subject: Water Act order

Could I have copy of your order to Mt Polley. Thanks

Inspiring Stewardship through Respectful Conversation

Harold B. Stolar
Resource Manager
Cariboo-Chilcotin District
250 398-4372
cell 250 305-9344

Weir, David J FLNR:EX

From: Adam Kantakis <Adam.Kantakis@williamslakeband.ca>
Sent: Wednesday, August 20, 2014 9:05 AM
To: Weir, David J FLNR:EX
Subject: RE: Mt Polley Cariboo Island debris clean up

Hey David,

Just a heads up, could you please give me more than a morning's notice for this type of work, it is just hard to organize staff on such short notice.

Thanks,

Adam Kantakis, B.A.

From: Weir, David J FLNR:EX [David.J.Weir@gov.bc.ca]
Sent: Wednesday, August 20, 2014 8:14 AM
To: XT:Carpenter, Penny FLNR:IN; 'baitken@dwbcconsulting.ca'; Adam Kantakis
Subject: Mt Polley Cariboo Island debris clean up

The Band would like to monitor the clean up when it is done on Cariboo Island as with the activity at the mouth of Hazeltine Creek. Please talk amongst yourselves and report back to me on what is agreed upon as soon as possible.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations Williams Lake , BC David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Goad, Jennifer FLNR:EX
Sent: Wednesday, August 20, 2014 8:14 AM
To: Weir, David J FLNR:EX
Subject: RE: Water Act order

Many thanks David for this document.

From: Weir, David J FLNR:EX
Sent: Tuesday, August 19, 2014 4:50 PM
To: Goad, Jennifer FLNR:EX
Cc: Vanderburgh, Ken FLNR:EX
Subject: FW: Water Act order
Importance: High

Please find the attached document as requested. I am currently nearing completion of the replacement of this order which I intend to have completed late Thursday. I apologize that this document was somewhat informal but time was of the essence.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Vanderburgh, Ken FLNR:EX
Sent: Tuesday, August 19, 2014 10:16 AM
To: Weir, David J FLNR:EX
Subject: Fw: Water Act order
Importance: High

David can you forward a copy of the Polley order to Jennifer Goad

From: Stolar, Harold B FLNR:EX
Sent: Tuesday, August 19, 2014 10:12 AM
To: Vanderburgh, Ken FLNR:EX
Subject: Water Act order

Hi Ken, I had a discussion with Jennifer Goad yesterday and she was wondering if she could get a copy of the Water Act order that David Weir issued to Mt Polley.

Thanks.

Inspiring Stewardship through Respectful Conversation

Harold B. Stolar
Resource Manager
Cariboo-Chilcotin District
250 398-4372
cell 250 305-9344

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Tuesday, August 19, 2014 4:50 PM
To: Goad, Jennifer FLNR:EX
Cc: Vanderburgh, Ken FLNR:EX
Subject: FW: Water Act order
Attachments: RE: Mt Polley

Importance: High

Please find the attached document as requested. I am currently nearing completion of the replacement of this order which I intend to have completed late Thursday. I apologize that this document was somewhat informal but time was of the essence.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Vanderburgh, Ken FLNR:EX
Sent: Tuesday, August 19, 2014 10:16 AM
To: Weir, David J FLNR:EX
Subject: Fw: Water Act order
Importance: High

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From: Stolar, Harold B FLNR:EX
Sent: Tuesday, August 19, 2014 10:12 AM
To: Vanderburgh, Ken FLNR:EX
Subject: Water Act order

Hi Ken, I had a discussion with Jennifer Goad yesterday and she was wondering if she could get a copy of the Water Act order that David Weir issued to Mt Polley.

Thanks.

Inspiring Stewardship through Respectful Conversation

Harold B. Stolar
Resource Manager
Cariboo-Chilcotin District
250 398-4372
cell 250 305-9344

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Tuesday, August 5, 2014 3:15 PM
To: XT:Carpenter, Penny FLNR:IN; Rothman, Stephen MEM:EX
Cc: Vanderburgh, Ken FLNR:EX; Stewart, Rodger W FLNR:EX
Subject: RE: Mt Polley

Hello, at this time it is our understanding that Stephen Rothman has the authority under the mines act to order the necessary measures to contain and remove the debris in Quesnel Lake and to authorize the management of the water level on Polley lake.

However: to remove any confusion and to address any shortcoming that might exist between the Mines Act, Water Act and the MOU that guides there coordination I order under Section 85 as follows;

Subject to the requirements of the Mines Act and MOU

http://iwww.env.gov.bc.ca/wsd/sla_mou/mempr_mou%202009.pdf and as it is in the public interest for the protection of safety and the integrity of Hazeltine Creek, Polley Lake, Quesnel Lake and the Quesnel River, recognizing the Mt Polley Mine's willingness to undergo the required work at their own cost and save the province harmless:

- 1) Under the direction of suitably qualified professionals licenced in the Province of BC the corporation is ordered to collect and remove such debris from Quesnel Lake, as a result of the Mt Polley tailings pond failure, as would threaten road infrastructure and stream channel stability. The manner and nature to be suitable to impacted parties Federal Agencies and the Province.
- 2) Under the direction of suitably qualified and experienced professionals licenced in the Province of BC; maintain the Lake level of Polley Lake in a manner that prevents further mass movement of material from Polley lake and Hazeltine Creek.
- 3) This order does not superseded any other legislation, agency, or government authority nor does it save them harmless.
- 4) This order is not intended to mitigate or limit the future punitive action of government with respect any non compliance by Mt Polley Mine.
- 5) This order is a temporary measure and is subject to cancelation or modification under the authority of the Water Act Mines Act or the MOU.
- 6) This order doe not authorize the entry onto private lands.

If necessary a more formal and document can be provided at a future date and in the absence of any direction to the contrary it should be considered to be expired as of August 22nd 2014 if not renewed. In addition to the general protection of public interest the specific purpose is to protect the bridge at Likely and to prevent secondary mass movements of material from the failure.

If there are any questions or you feel there is error please contact me. Keeping in mind the rushed nature of this document.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Penny Carpenter | s.22
Sent: Tuesday, August 5, 2014 12:46 PM
To: Weir, David J FLNR:EX
Subject: RE: Mt Polley

Hi David

The Mines Gentleman Steve Rothman will be contacting you regarding the breach of the tailing pond. He will be able to fill you in and maybe it will help the work load so things are not getting duplicated.

Penny Carpenter

From: Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]
Sent: August-05-14 11:41 AM
To: XT:Carpenter, Penny FLNR:IN
Subject: Mt Polley

As per our discussion

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Alexander, Debbie A JAG:EX
Sent: Tuesday, August 19, 2014 3:15 PM
Subject: EMBC August 19, 2014 NEA Situation Report

Please find attached the EMBC Northeast Region Situation Report for August 19, 2014.



Aug 19, 2014
Sitrep.pdf



Bayliff Road Alert
Rescind.pdf...

SITUATION REPORT

Northeast & Northwest Provincial Regional Emergency Operations Centre (NEA and NWE PREOCs) SITUATION REPORT August 19, 2014 Update #12

Event: Wildfire and Mt. Polley Dam Failure
Date/Time Issued: August 19, 2014 15:00
EMBC Task #: Wildfire Management 151505; Mount Polley 152048
Operational Period: 08:00 -17:00
NEA PREOC Level: 2
Overall Regional Situation: Wildfire stable; Mount Polley stable
The next Situation Report will be issued: August 20, 2014 15:00

** New information

1. KEY REGIONAL INFORMATION

NR

Mount Polley

** Imperial Metal Corp continues to build rock berm in front of breach, 32% complete. Satellite dike is 40% complete. 160 mm drop in Polley Lake levels since pumping began. Debris clean-up progressing well around town site, beaches and on lake. Water quality and sediment sampling analysis continues.

** Two MEM Health & Safety inspectors on site as continued presence. Five additional staff on site for orientation in preparation for the investigation.

2. WEATHER FORECAST – Environment Canada

Northwest

http://weather.gc.ca/city/pages/bc-43_metric_e.html

- ** Today: Mostly sunny with some afternoon cloud. Wind NW near 15 km/h in the afternoon and evening. Clearing overnight. High 18 to 21C. Low down to 1C.
- ** Wednesday: Mostly sunny becoming a mix of sun and cloud late in the day. Winds light with local NW gusts to 20 km/h in the afternoon. High 20 to 23C.

Northeast

http://weather.gc.ca/city/pages/bc-79_metric_e.html

- ** Today: Mainly cloudy. A few afternoon showers with some scattered thundershowers, particularly in the Peace and Fort Nelson regions. Winds westerly 20 km/h with a few gusts to 40 km/h this afternoon. High upper teens. Low 8 to 11C.
- ** Wednesday: Variable cloud overnight. Widely scattered showers. Winds westerly 15 to 20 km/h. High upper teens. Lows 8 to 11 C.

Likely

http://weather.gc.ca/city/pages/bc-64_metric_e.html

- ** Today: Mix of sun and cloud, chance of afternoon showers, winds becoming NW to 15km/hr. Highs 19 to 23 C. Cloudy periods and light winds overnight, Low 8C.
- ** Wednesday: Sunny with afternoon cloudy periods. Winds NW to NE 10 to 15 km/h. Highs 19 to 22C.

3. LOCAL AUTHORITIES, EOC LEVEL, STATUS

Cariboo Regional District EOC – Level 1

- Incident: Wildfires Task # 151596; Mount Polley Task # 152048
- Alerts: **1 (Kluskus First Nation)
- Orders: 1 (This is an order to restrict an area for Mount Polley incident)
- State of Local Emergency: ** 1 (Extended to Tuesday, August 26 2014 at 1300 hrs)
- West of Bull Canyon (C50145) Inc # 140272 (Previously Alexis Creek/Bayliff Rd)
- ** Cariboo Regional District rescinded the Evacuation Alert effective Monday, August 18 2014 at 1600 hrs, for Bayliff road, located in the Bull Canyon/ Alexis Creek area.
- Kluskus/Euchiniko (G40198) Inc # 140179
- Chelaslie (R20070) Inc # 140232

- Mt Polley
- Imperial Metal Corp:
- ** Imperial Metal Corp continues to build rock berm in front of breach, 32% complete. Satellite dike for tailings impoundment is 40% complete. Polley Lake is 923.173 m above sea level; dropped 160 mm since pumping began, currently 1.54 m above normal, plan to install 3 additional pumps (3 on each line for a total of 6 pumps). Debris clean up continues, building boom sticks to take to Hazeltine creek in preparation for hauling to West Fraser re-load. Polley lake plug may erode from underside seepage. Company will activate a monitoring program and safety program. Water quality sampling continues to be offered to residents: sampled eight intakes yesterday. Detailed sediment analysis results in impact zone are being reviewed. Sediment chemistry in Mitchell Bay and plume area are being sampled. Continue with routine lake samples: relatively stable at outlet end of lake by Quesnel River so will focus more sampling on plume area. Fish sampling will occur tomorrow with Soda Creek FN and second program will be located at Quesnel Lake.
- CRD:
- **SOLE still in place to maintain the area restriction for the mine site and surrounding area. EOC will be looking at demob later today.
- MEM:
- ** Two MEM Health & Safety inspectors on site as continued presence. Five additional staff on site for orientation in preparation for the investigation.

NR

Page 0706

Withheld pursuant to/removed as

NR

7. TRANSPORTATION IMPACTED

- Mode: Roads
- Owner:
- Details:
 - Mount Polley closure: Gavin Lake and Ditch Rd are closed (FSRs)

8. PUBLIC INFORMATION AND MEDIA ISSUES

- Emergency Info BC
Online Alerts & Bulletins: <http://www.emergencyinfobc.gov.bc.ca/>
Wildfires of Note: <http://bcwildfire.ca/hprscripts/wildfirenews/onefire.asp>
- Facebook Page
<https://www.facebook.com/BCForestFireInfo>
<https://www.facebook.com/CRDemergencyoperations>
- Twitter
[@EmergencyInfoBC](#) – Alerts only; Primary operational feed when PECC activated
[@EmergencyPrepBC](#) – Emergency preparedness information
[@BCGovFireInfo](#) – Updates, news and prevention tips from B.C.'s Wildfire Management Branch
 - #BCWildfire, # (Name of fire)
- Hashtags used to date for RDBN:
#ChinaNose, #BCwildfire, #HoustonBC, #Chelaslie

9. USEFUL LINKS

Fire Bans and Area Restrictions
<http://bcwildfire.ca/hprScripts/WildfireNews/Bans.asp>
 Smoke advisories:
<http://www.bcairquality.ca/>
 BC Parks news and updates:
<http://www.env.gov.bc.ca/bcparks/>
 MOE water sample results
<http://www.env.gov.bc.ca/eemp/incidents/2014/mount-polley.htm>

10. ** ATTACHMENTS

Bayliff Road Alert
Order Rescind.pdf

APPROVED BY:

Bob Kelly
PREOC Director

Primary PREOC Email: preoc5.ops1@gov.bc.ca
Primary PREOC Phone: 250-614-6322
Primary PREOC Fax: 250-612-4171

Note: This document may be distributed within your agency. Any distribution outside your agency requires prior approval from the NEA PREOC Director.

Kathleen Hebb

Planning Chief
Northeast Regional PREOC (PREOC 5)

Emergency Management British Columbia
3235 Westwood Drive
Prince George, B.C. V2N 1S4
www.pep.bc.ca
Ph 250.612-4153 Fax 250.612.4171
24 Hour Emergency Reporting 1.800.663.3456

SITUATION REPORT

Northeast & Northwest Provincial Regional Emergency Operations Centre (NEA and NWE PREOCs)

SITUATION REPORT August 19, 2014 Update #12

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Date/Time Issued: August 19, 2014 15:00

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Operational Period: 08:00 -17:00

NEA PREOC Level: 2

Overall Regional Situation: Wildfire stable; Mount Polley stable

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Mount Polley

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2. WEATHER FORECAST – Environment Canada

Northwest

http://weather.gc.ca/city/pages/bc-43_metric_e.html

- **** Today:** Mostly sunny with some afternoon cloud. Wind NW near 15 km/h in the afternoon and evening. Clearing overnight. High 18 to 21C. Low down to 1C.
- **** Wednesday:** Mostly sunny becoming a mix of sun and cloud late in the day. Winds light with local NW gusts to 20 km/h in the afternoon. High 20 to 23C.

Northeast

http://weather.gc.ca/city/pages/bc-79_metric_e.html

- **** Today:** Mainly cloudy. A few afternoon showers with some scattered thundershowers, particularly in the Peace and Fort Nelson regions. Winds westerly 20 km/h with a few gusts to 40 km/h this afternoon. High upper teens. Low 8 to 11C.
- **** Wednesday:** Variable cloud overnight. Widely scattered showers. Winds westerly 15 to 20 km/h. High upper teens. Lows 8 to 11 C.

Likely

http://weather.gc.ca/city/pages/bc-64_metric_e.html

- **** Today:** Mix of sun and cloud, chance of afternoon showers, winds becoming NW to 15km/hr. Highs 19 to 23 C. Cloudy periods and light winds overnight, Low 8C.
- **** Wednesday:** Sunny with afternoon cloudy periods. Winds NW to NE 10 to 15 km/h. Highs 19 to 22C.

3. LOCAL AUTHORITIES, EOC LEVEL, STATUS

Cariboo Regional District EOC – Level 1

- **Incident:** Wildfires Task # 151596; Mount Polley Task # 152048
- **Alerts:** ****1 (Kluskus First Nation)**
- **Orders:** 1 (This is an order to restrict an area for Mount Polley incident)
- **State of Local Emergency:** **** 1 (Extended to Tuesday, August 26 2014 at 1300 hrs)**
- West of Bull Canyon (C50145) Inc # 140272 (Previously Alexis Creek/Bayliff Rd)
- **** Cariboo Regional District rescinded the Evacuation Alert effective Monday, August 18 2014 at 1600 hrs, for Bayliff road, located in the Bull Canyon/ Alexis Creek area.**
- Kluskus/Euchiniko (G40198) Inc # 140179
- Chelaslie (R20070) Inc # 140232
- Mt Polley
- Imperial Metal Corp:
- **** Imperial Metal Corp continues to build rock berm in front of breach, 32% complete. Satellite dike for tailings impoundment is 40% complete. Polley Lake is 923.173 m above sea level; dropped 160 mm since pumping began, currently 1.54 m above normal, plan to install 3 additional pumps (3 on**

each line for a total of 6 pumps). Debris clean up continues, building boom sticks to take to Hazeltine creek in preparation for hauling to West Fraser re-load. Polley lake plug may erode from underside seepage. Company will activate a monitoring program and safety program. Water quality sampling continues to be offered to residents: sampled eight intakes yesterday. Detailed sediment analysis results in impact zone are being reviewed. Sediment chemistry in Mitchell Bay and plume area are being sampled. Continue with routine lake samples: relatively stable at outlet end of lake by Quesnel River so will focus more sampling on plume area. Fish sampling will occur tomorrow with Soda Creek FN and second program will be located at Quesnel Lake.

- CRD:
- **SOLE still in place to maintain the area restriction for the mine site and surrounding area. EOC will be looking at demob later today.
- MEM:
- ** Two MEM Health & Safety inspectors on site as continued presence. Five additional staff on site for orientation in preparation for the investigation.

NR

Page 0712

Withheld pursuant to/removed as

NR

7. TRANSPORTATION IMPACTED

- Mode: Roads
- Owner:
- Details:
 - Mount Polley closure: Gavin Lake and Ditch Rd are closed (FSRs)

8. PUBLIC INFORMATION AND MEDIA ISSUES

- Emergency Info BC
Online Alerts & Bulletins: <http://www.emergencyinfobc.gov.bc.ca/>
Wildfires of Note: <http://bcwildfire.ca/hprscripts/wildfirenews/onefire.asp>
- Facebook Page
<https://www.facebook.com/BCForestFireInfo>
<https://www.facebook.com/CRDemergencyoperations>
- Twitter
[@EmergencyInfoBC](#) – Alerts only; Primary operational feed when PECC activated
[@EmergencyPrepBC](#) – Emergency preparedness information
[@BCGovFireInfo](#) – Updates, news and prevention tips from B.C.'s Wildfire Management Branch
 - #BCWildfire, # (Name of fire)
- Hashtags used to date for RDBN:
#ChinaNose, #BCwildfire, #HoustonBC, #Chelaslie

9. USEFUL LINKS

Fire Bans and Area Restrictions
<http://bcwildfire.ca/hprScripts/WildfireNews/Bans.asp>
 Smoke advisories:
<http://www.bcairquality.ca/>

BC Parks news and updates:

<http://www.env.gov.bc.ca/bcparks/>

MOE water sample results

<http://www.env.gov.bc.ca/eemp/incidents/2014/mount-polley.htm>

10. **** ATTACHMENTS**



Bayliff Road Alert
Order Rescind.pdf

APPROVED BY:

Bob Kelly
PREOC Director

Primary PREOC Email: preoc5.ops1@gov.bc.ca

Primary PREOC Phone: 250-614-6322

Primary PREOC Fax: 250-612-4171

Note: This document may be distributed within your agency. Any distribution outside your agency requires prior approval from the NEA PREOC Director.

Page 0715

Withheld pursuant to/removed as

NR

Weir, David J FLNR:EX

From: Bellefontaine, Kim MEM:EX
Sent: Wednesday, August 20, 2014 3:10 PM
To: Weir, David J FLNR:EX
Subject: Out of Office: Polley Lake Works

Thank you for your email. I am currently unable to respond to all emails and information requests as we are dealing with aspects of the Mount Polley tailings breach. I will get back to you as soon as possible.

If your inquiry is urgent, please contact Diane Howe at 250-952-0183 or Diane.Howe@gov.bc.ca.

Kim Bellefontaine M.Sc. P.Geo.
Manager Environmental Geoscience & Permitting
BC Ministry of Energy and Mines
Victoria, BC
(250) 952-0489

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Wednesday, August 20, 2014 3:10 PM
To: Bellefontaine, Kim MEM:EX
Subject: FW: Polley Lake Works
Attachments: Letter to Dale Reimer Mine Manager Imperial Metals - Polley Lake August 8 2014.pdf; Notice of Work (Polley Lake) - Tailings Breach Remediation - 2014 08 06.pdf; Safe Work Procedure - Polley Lake Level Reduction.docx

Does this mean I can remove this activity from my order?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Don Parsons [<mailto:dparsons@imperialmetals.com>]
Sent: Wednesday, August 20, 2014 2:37 PM
To: Weir, David J FLNR:EX
Subject: Polley Lake Works

David
The works undertaken to mitigate the breach of tailings and debris plug located at Polley Lake continues under the Notice of Works from the Ministry of Energy and Mines. I enclose the Notice of Work correspondence for your files.
Regards
Don



Don Parsons, Chief Operating Officer
dparsons@imperialmetals.com
604.488.2652 | mobile 778.836.2652

Imperial Metals Corporation
200-580 Hornby Street, Vancouver, BC V6C3B6
604.669.8959 | www.imperialmetals.com

Weir, David J FLNR:EX

From: Don Parsons <dparsons@imperialmetals.com>
Sent: Wednesday, August 20, 2014 2:37 PM
To: Weir, David J FLNR:EX
Subject: Polley Lake Works
Attachments: Letter to Dale Reimer Mine Manager Imperial Metals - Polley Lake August 8 2014.pdf; Notice of Work (Polley Lake) - Tailings Breach Remediation - 2014 08 06.pdf; Safe Work Procedure - Polley Lake Level Reduction.docx

David

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Regards

Don



Don Parsons, Chief Operating Officer
dparsons@imperialmetals.com
604.488.2652 | mobile 778.836.2652

Imperial Metals Corporation
200-580 Hornby Street, Vancouver, BC V6C3B6
604.669.8959 | www.imperialmetals.com

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Wednesday, August 20, 2014 4:02 PM
To: McGuire, Jennifer ENV:EX
Cc: Metcalfe, Shelley ENV:EX
Subject: FW: Polley Lake Works
Attachments: Letter to Dale Reimer Mine Manager Imperial Metals - Polley Lake August 8 2014.pdf; Notice of Work (Polley Lake) - Tailings Breach Remediation - 2014 08 06.pdf; Safe Work Procedure - Polley Lake Level Reduction.docx

Please find the attached information?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Don Parsons [<mailto:dparsons@imperialmetals.com>]
Sent: Wednesday, August 20, 2014 2:37 PM
To: Weir, David J FLNR:EX
Subject: Polley Lake Works

David
The works undertaken to mitigate the breach of tailings and debris plug located at Polley Lake continues under the Notice of Works from the Ministry of Energy and Mines. I enclose the Notice of Work correspondence for your files.
Regards
Don



Don Parsons, Chief Operating Officer
dparsons@imperialmetals.com
604.488.2652 | mobile 778.836.2652

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604.669.8959 | www.imperialmetals.com



August 8, 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; bkvnoch@imperialmetals.com
afrye@mountpolley.com; rbrown@mountpolley.com; Steve.Rice@Amec.com;
ibruce@bgcengineering.com; DDufault@bgcengineering.ca; Imoger@mountpolley.com
jlove@imperialmetals.com; 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 Hoffin, 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. 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



**MOUNT POLLEY MINING
CORPORATION**
A DIVISION OF IMPERIAL METALS CORPORATION

August 7, 2014

Steve Rothman, P.Eng
Senior Inspector of Mines – Health and Safety
Ministry of Energy and Mines
441 Columbia Street
Kamloops, B.C.
V2C 2T3

Dear Mr. Rothman:

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

As requested by the Ministry of Energy and Mines (MEM) in an onsite meeting held with Mount Polley Mining Corporation (MPMC), AMEC and BGC Engineering (BGC) on August 6th, 2014 regarding the tailings storage facility (TSF) breach remediation planning, please find below an outline of the work planned by MPMC in reducing the artificially high level of water in Polley Lake caused by a plug of the main outlet by tailings debris.

This plan has been developed in coordination with AMEC and BGC. The work will consist of reducing the raised water level of Polley Lake back to original stable levels. The pumped water will be discharged back into Hazelton Creek downstream of the tailings material deposit at the outflow at the south of Polley Lake into Hazelton Creek. Pumping infrastructure will be installed at the terminus of Polley Lake Road and conveyed by pipeline to the discharge location. Please see Figure 1 below depicting the proposed area of construction.

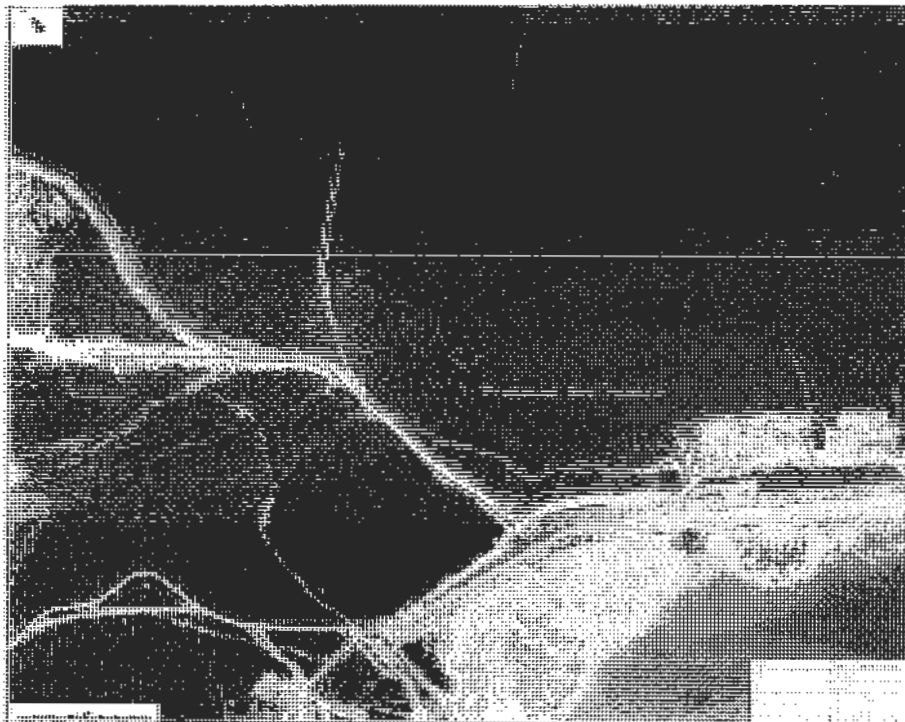


Figure 1 – Upstream View



**MOUNT POLLEY MINING
CORPORATION**
A DIVISION OF IMPERIAL METALS CORPORATION

Work is to commence immediately on this project, and updates will be provided to MEM as per regularly scheduled meetings.

Should you have any questions, please do not hesitate to contact me at (250) 790-2215 ext. 2600.

Sincerely,

Dale Reimer, Mine Manager
Mount Polley Mining Corporation
DReimer@MountPolley.com

Reviewed and Endorsed:

Iain Bruce, Chief Technical Officer
BGC

Steve Rice, Principal Engineer
AMEC

Cc. George Warnock, Heather Narynksi, Brian Kynoch, Art Frye, Luke Moger, Ryan Brown, Steve Rice,
Iain Bruce, Daryl Dufault

**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.

Weir, David J FLNR:EX

From: Bellefontaine, Kim MEM:EX
Sent: Thursday, August 21, 2014 7:33 AM
To: Weir, David J FLNR:EX
Subject: Re: Polley Lake Works

Missed this earlier email. I'll look through the attached and give you a call later this am.

Kim Bellefontaine, M.Sc., P.Geo.
Manager Environmental Geoscience and Permitting BC Ministry of Energy & Mines
250-952-0489
Kim.Bellefontaine@gov.bc.ca

> On Aug 20, 2014, at 3:10 PM, "Weir, David J FLNR:EX" <David.J.Weir@gov.bc.ca> wrote:

>

> Does this mean I can remove this activity from my order?

>

> David Weir

> Water Section Head,

> Ministry of Forest Lands and Natural Resource Operations Williams Lake

> , BC David.J.Weir@gov.bc.ca

> (250) 398 4924

> Cell 250 267-5925

>

> From: Don Parsons [<mailto:dparsons@imperialmetals.com>]

> Sent: Wednesday, August 20, 2014 2:37 PM

> To: Weir, David J FLNR:EX

> Subject: Polley Lake Works

>

> David

> The works undertaken to mitigate the breach of tailings and debris plug located at Polley Lake continues under the Notice of Works from the Ministry of Energy and Mines. I enclose the Notice of Work correspondence for your files.

> Regards

> Don

>

>

> [cid:image001.jpg@01CFBC84.1BCC42F0]

> Don Parsons, Chief Operating Officer

> dparsons@imperialmetals.com<<mailto:dparsons@imperialmetals.com>>

> 604.488.2652 | mobile 778.836.2652

>

> Imperial Metals Corporation

> 200-580 Hornby Street, Vancouver, BC V6C3B6

> 604.669.8959 | www.imperialmetals.com<<http://www.imperialmetals.com>>

>

>

> <image001.jpg>

> <Letter to Dale Reimer Mine Manager Imperial Metals - Polley Lake

> August 8 2014.pdf> <Notice of Work (Polley Lake) - Tailings Breach

> Remediation - 2014 08 06.pdf> <Safe Work Procedure - Polley Lake Level
> Reduction.docx>

Weir, David J FLNR:EX

From: Bellefontaine, Kim MEM:EX
Sent: Thursday, August 21, 2014 7:31 AM
To: Weir, David J FLNR:EX
Subject: Re: Polley Lake Works

Let me know if you wish to discuss further.

Kim Bellefontaine, M.Sc., P.Geo.
Manager Environmental Geoscience and Permitting
BC Ministry of Energy & Mines
250-952-0489
Kim.Bellefontaine@gov.bc.ca

On Aug 20, 2014, at 3:14 PM, "Weir, David J FLNR:EX" <David.J.Weir@gov.bc.ca> wrote:

Thank you Don. I am just trying to confirm with mines but I will probably not include the lake level in the order when it is done as it is now covered off in the NOW.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Don Parsons [<mailto:dparsons@imperialmetals.com>]
Sent: Wednesday, August 20, 2014 2:37 PM
To: Weir, David J FLNR:EX
Subject: Polley Lake Works

David
The works undertaken to mitigate the breach of tailings and debris plug located at Polley Lake continues under the Notice of Works from the Ministry of Energy and Mines. I enclose the Notice of Work correspondence for your files.
Regards
Don

<image001.jpg>

Don Parsons, Chief Operating Officer
dparsons@imperialmetals.com
604.488.2652 | mobile 778.836.2652

Imperial Metals Corporation
200-580 Hornby Street, Vancouver, BC V6C3B6
604.669.8959 | www.imperialmetals.com

Weir, David J FLNR:EX

From: Penny Carpenter [s.22](#)
Sent: Wednesday, August 20, 2014 8:12 PM
To: 'Adam Kantakis'; baitken@dwbconsulting.ca
Cc: Weir, David J FLNR:EX; dparsons@imperialmetals.com; 'Dale Reimer'
Subject: RE: Monitoring of shoreline cleanup

Hi Adam and Brian

Unfortunately this letter came a day late. I had a crew from the WLIB, cleaning up the beach at Cariboo Island. They piles all the debris by hand and have nearly finished the entire shoreline already.

I will cease all further activities on this Island until we communicate again. This crew will relocate to another area on the lake until further notice.

Please feel free to contact me with any questions you have.

Thanks Penny Carpenter

From: Adam Kantakis [<mailto:Adam.Kantakis@williamslakeband.ca>]
Sent: August-20-14 8:24 AM
To: [s.22](#) 'baitken@dwbconsulting.ca'
Subject: Monitoring of shoreline cleanup

Hello,

I have just re-checked the archaeological database, there are over 60 archaeological sites on the island, so it will absolutely need our monitoring as well.

Adam Kantakis, B.A.

Archaeology Coordinator

adam.kantakis@williamslakeband.ca

250-296-3507 ext 130

Fax: 250-296-4750

Cell: 250-617-8059

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 20, 2014 5:22 PM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014
Attachments: Mount Polley Spot Fcst August 20, 2014.docx

Apologies for the delay in forwarding!

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations

tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Rob Pigott [<mailto:envirobc@telus.net>]
Sent: Wednesday, August 20, 2014 10:47 AM
To: RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX; EOCDirector@cariboord.bc.ca
Subject: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Rob Pigott
Envira-BC Weather Services
1706 Capilano Ave.
Comox, BC
V9M 1B6
250-339-4424

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Wednesday August 20, 2014

Valid: 10:45 pm

REQUEST *(Don't request preparation for early in the morning unless you need it then!)*

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

A dry WNW flow aloft gives mainly sunny skies this morning. With daytime heating some afternoon cloudy periods are expected but staying dry. A trough of low pressure brings a mix of sun and cloud on Thursday. Isolated afternoon showers are expected and there is a risk of late day thundershowers. Slight chance of local heavy downpours. Winds will be fairly light both days. Some afternoon gustiness is possible near cells on Thursday.

TODAY

Sunny with afternoon cloudy periods. High near 23. Winds west to northwest 10 to 15 km/h with brief gusts to 25 km/h this afternoon.

TONIGHT

Cloudy periods. Low near 7. Winds becoming light and variable overnight.

THURSDAY

Becoming a mix of sun and cloud. Isolated afternoon showers. Risk of a late day thundershower. High near 22. Winds north to northeast 10 to 15 km/h. Possible gusty winds near cells.

OUTLOOK: Friday to Sunday

A northerly flow brings some afternoon cloud with a slight chance of showers on Friday. Sunny skies on Saturday with an upper ridge building over the area. A weak upper trough moving from the northwest brings scattered showers and possible gusty winds on Sunday. Highs in the low twenties through the period.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|--|------|----------------|---------------|----|
| 13:00 | TEMP | 18 | RH | | WIND | W10 km/h | % CHANCE RAIN | 10 |
| 17:00 | TEMP | 20 | RH | | WIND | WNW 12G25 km/h | % CHANCE RAIN | 20 |

DISCUSSION:

Best chance of thundershowers will risk of heavy downpours on Thursday then again on Sunday.

Upper winds at Likely valid 1700h PDT:

2000m W 10 km/h 3000m NE 12 km/h

Forecaster: Rob Pigott 250 339-4424 envirobc@telus.net

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Stolar, Harold B FLNR:EX
Sent: Thursday, August 21, 2014 11:04 AM
To: Weir, David J FLNR:EX
Subject: Re: SUP for Mt Polley

ok I will after the call, where is your desk?

Inspiring Stewardship through Respectful Conversation

Harold

On Aug 21, 2014, at 10:58 AM, "Weir, David J FLNR:EX" <David.J.Weir@gov.bc.ca> wrote:

It hasn't. There is a jurisdictional issue between Mines and EP come see me if you have questions.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Stolar, Harold B FLNR:EX
Sent: Thursday, August 21, 2014 10:55 AM
To: Weir, David J FLNR:EX
Subject: RE: SUP for Mt Polley

Have you heard if the mine lease has been expanded?

Inspiring Stewardship through Respectful Conversation

Harold

From: Weir, David J FLNR:EX
Sent: Thursday, August 21, 2014 10:47 AM
To: Stolar, Harold B FLNR:EX
Subject: RE: SUP for Mt Polley

I spoke to Gerry this morning if needed we will issue a PCL or cover under order but you will need to give licence to cut.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Stolar, Harold B FLNR:EX
Sent: Thursday, August 21, 2014 8:24 AM
To: Weir, David J FLNR:EX
Subject: SUP for Mt Polley

Got a call last night from Gerry MacD in reference to a call he got from acting deputy with the concern that we are upholding up an SUP required to increase pumping capacity out of Polley lake?

Any ideas?

Inspiring Stewardship through Respectful Conversation
Harold

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 21, 2014 10:56 AM
To: Stewart, Rodger W FLNR:EX
Cc: Prediger, Yvonne ENV:EX
Subject: RE: SAFETY NOTICE and REQUEST : Satelite phones

Rodger, I know that in at least one case we had signed out a Sat phone to Mines for the Mount Polley incident and it didn't stay signed out? I think the system goes blank after the proposed sign in date is passed so if it is not signed out you would have to check the sign out history to find it?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Stewart, Rodger W FLNR:EX
Sent: Thursday, August 21, 2014 9:18 AM
To: FLNR Cariboo WL All (including BCTS); FLNR Cariboo Resource Building All Staff
Subject: SAFETY NOTICE and REQUEST : Satelite phones

With increasing frequency we are finding that components of our satellite phone inventory, available through SOSS and maintained on the 4th floor, are missing. We frequently fielding complaints about phones that staff have signed out in SOSS and expect to use not not actually available, apparently being used by staff who have not exercised the common courtesy to sign out the equipment.

It is getting extremely frustrating that these satellite phones continue to go missing with no explanation, mysteriously appearing again after indeterminate time lines.

Please return the satellite phones and next time, sign them out. The safety of your colleagues may well depend on them having a satellite phone in hand one of these days.

Rodger Stewart
Director, Resource Management
Ministry of Forests, Lands and Natural Resource Operations
Cariboo Region
400 - 640 Borland Street
Williams Lake, BC
V2G 4T1
cell (250) 305 8536, desk (250) 398 4549
fax (250) 398 4214

Weir, David J FLNR:EX

From: MacDougall, Gerry L FLNR:EX
Sent: Thursday, August 21, 2014 9:42 AM
To: Stolar, Harold B FLNR:EX
Cc: Hamm, Mark FLNR:EX; Weir, David J FLNR:EX; Stewart, Rodger W FLNR:EX; Beadman, Krista FLNR:EX
Subject: RE: Phone call re: tree cutting

Hi Harold,

This is good, thanks guys.

Harold, Mark, please connect with David Weir, Section Head Water, for any topics concerning water including pumping, lake dewatering etc.

David has been working with Imperial on water orders to pump from Polley Lake and has legislation to enable access (supplementary to what the Forest Act provides for access to trees).

I've cc'd Rodger [s.22](#)

Thank you,

Gerry MacDougall

Executive Assistant Krista Beadman 250-398-4327

Direct 250-398-4355

Regional Executive Director, Cariboo Region

Ministry of Forests, Lands and Natural Resource Operations

From: Stolar, Harold B FLNR:EX
Sent: Thursday, August 21, 2014 8:25 AM
To: MacDougall, Gerry L FLNR:EX
Subject: Fwd: Phone call re: tree cutting

I wonder if this is what the deputy's concern centred around???

Inspiring Stewardship through Respectful Conversation

Harold

Begin forwarded message:

From: "Hamm, Mark FLNR:EX" <Mark.Hamm@gov.bc.ca>
Date: August 19, 2014 at 3:20:28 PM PDT
To: "Stolar, Harold B FLNR:EX" <Harold.Stolar@gov.bc.ca>
Subject: FW: Phone call re: tree cutting

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Rothman, Stephen MEM:EX
Sent: Tuesday, August 19, 2014 3:20 PM
To: Hamm, Mark FLNR:EX
Subject: Re: Phone call re: tree cutting

Thank you Mark
We are trying to improve the water drawdown of Polley Lake
Over 1500gpm will increase with second pipeline
Steve Rothman

Sent from my iPhone

On Aug 19, 2014, at 2:57 PM, "Hamm, Mark FLNR:EX" <Mark.Hamm@gov.bc.ca> wrote:

Steve, I got your phone message this morning, to the effect that you wanted to set up a second pipeline into Hazeltine Creek that might require removal of half a dozen trees. I've discussed it with Harold, the Acting District Manager, and he's fine with you doing that. Any documentation can be provided after the fact.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

Weir, David J FLNR:EX

From: Stolar, Harold B FLNR:EX
Sent: Thursday, August 21, 2014 8:24 AM
To: Weir, David J FLNR:EX
Subject: SUP for Mt Polley

Got a call last night from Gerry MacD in reference to a call he got from acting deputy with the concern that we are upholding up an SUP required to increase pumping capacity out of Polley lake?

Any ideas?

Inspiring Stewardship through Respectful Conversation
Harold

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 21, 2014 12:19 PM
To: 'Don Parsons'
Subject: FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014
Attachments: Mount Polley Spot Fcst August 20, 2014.docx

Hi Don, do you still want to receive these daily spot forecasts?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Cameron, Valerie Z FLNR:EX
Sent: Thursday, August 21, 2014 12:00 PM
To: Weir, David J FLNR:EX
Subject: FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Hi Dave,

I participated on the EMBC Mt Polley coordination call today and heard 2 things amongst others:

- Rowena said that the EOC has closed and they are at Level 1
- Michael Higgins advised Environment Canada that there was no need to provide spot forecasts over the weekend.

We have been received these WMB spot forecasts (attached) from Mark Hamm, which would appear to duplicate the Environment Canada forecasts. The WMB spot forecasts are pretty good, but in an earlier email Mark indicated that if they were not needed to let him know as the WMB forecasters are busy enough without having to do the spot forecast. I had responded to Mark that it would be Andrew Morrison's call on whether to continue with the WMB spot forecasts, but I note that with the EOC shut down that Andrew is probably not even at the EOC anymore. Furthermore, if there is no need for Environment Canada to produce spot forecasts over the weekend, would there still be a need for WMB to produce spot forecasts over the weekend? It would be unfortunate if WMB continued to devote resources to this function simply because no one thought to contact them to stop.

My question: are the WMB spot forecasts needed?

If not, I suggest that you contact Mark and advise him to ask WMB to cease the forecasts. Or if there is someone else you need to talk to about whether the forecasts should proceed?

Please feel free to contact me if you have any questions or require further information.

Valerie

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 20, 2014 5:22 PM

To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Apologies for the delay in forwarding!

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Rob Pigott [<mailto:envirobc@telus.net>]
Sent: Wednesday, August 20, 2014 10:47 AM
To: RWOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX;
EOCDirector@cariboord.bc.ca
Subject: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Rob Pigott
Enviro-BC Weather Services
1706 Capilano Ave.
Comox, BC
V9M 1B6
250-339-4424

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Wednesday August 20, 2014

Valid: 10:45 pm

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

A dry WNW flow aloft gives mainly sunny skies this morning. With daytime heating some afternoon cloudy periods are expected but staying dry. A trough of low pressure brings a mix of sun and cloud on Thursday. Isolated afternoon showers are expected and there is a risk of late day thundershowers. Slight chance of local heavy downpours. Winds will be fairly light both days. Some afternoon gustiness is possible near cells on Thursday.

TODAY

Sunny with afternoon cloudy periods. High near 23. Winds west to northwest 10 to 15 km/h with brief gusts to 25 km/h this afternoon.

TONIGHT

Cloudy periods. Low near 7. Winds becoming light and variable overnight.

THURSDAY

Becoming a mix of sun and cloud. Isolated afternoon showers. Risk of a late day thundershower. High near 22. Winds north to northeast 10 to 15 km/h. Possible gusty winds near cells.

OUTLOOK: Friday to Sunday

A northerly flow brings some afternoon cloud with a slight chance of showers on Friday. Sunny skies on Saturday with an upper ridge building over the area. A weak upper trough moving from the northwest brings scattered showers and possible gusty winds on Sunday. Highs in the low twenties through the period.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|--|------|----------------|---------------|----|
| 13:00 | TEMP | 18 | RH | | WIND | W10 km/h | % CHANCE RAIN | 10 |
| 17:00 | TEMP | 20 | RH | | WIND | WNW 12G25 km/h | % CHANCE RAIN | 20 |

DISCUSSION:

Best chance of thundershowers will risk of heavy downpours on Thursday then again on Sunday.

Upper winds at Likely valid 1700h PDT:

2000m W 10 km/h 3000m NE 12 km/h

Forecaster: Rob Pigott 250 339-4424 envirobc@telus.net

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Cameron, Valerie Z FLNR:EX
Sent: Thursday, August 21, 2014 12:00 PM
To: Weir, David J FLNR:EX
Subject: FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014
Attachments: Mount Polley Spot Fcst August 20, 2014.docx

Hi Dave,

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My question: are the WMB spot forecasts needed?

If not, I suggest that you contact Mark and advise him to ask WMB to cease the forecasts. Or if there is someone else you need to talk to about whether the forecasts should proceed?

Please feel free to contact me if you have any questions or require further information.

Valerie

From: Hamm, Mark FLNR:EX
Sent: Wednesday, August 20, 2014 5:22 PM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Apologies for the delay in forwarding!

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District

(Williams Lake)
Ministry of Natural Resource Operations

tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Rob Pigott [<mailto:envirobc@telus.net>]

Sent: Wednesday, August 20, 2014 10:47 AM

To: RWOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX;
EOCDirector@cariboord.bc.ca

Subject: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Rob Pigott
Enviro-BC Weather Services
1706 Capilano Ave.
Comox, BC
V9M 1B6
250-339-4424

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Wednesday August 20, 2014

Valid: 10:45 pm

REQUEST (Don't request preparation for early in the morning unless you need it then!)

| | | | |
|---|-----------------------|------------------------------------|--------------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

A dry WNW flow aloft gives mainly sunny skies this morning. With daytime heating some afternoon cloudy periods are expected but staying dry. A trough of low pressure brings a mix of sun and cloud on Thursday. Isolated afternoon showers are expected and there is a risk of late day thundershowers. Slight chance of local heavy downpours. Winds will be fairly light both days. Some afternoon gustiness is possible near cells on Thursday.

TODAY

Sunny with afternoon cloudy periods. High near 23. Winds west to northwest 10 to 15 km/h with brief gusts to 25 km/h this afternoon.

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Cloudy periods. Low near 7. Winds becoming light and variable overnight.

THURSDAY

Becoming a mix of sun and cloud. Isolated afternoon showers. Risk of a late day thundershower. High near 22. Winds north to northeast 10 to 15 km/h. Possible gusty winds near cells.

OUTLOOK: Friday to Sunday

A northerly flow brings some afternoon cloud with a slight chance of showers on Friday. Sunny skies on Saturday with an upper ridge building over the area. A weak upper trough moving from the northwest brings scattered showers and possible gusty winds on Sunday. Highs in the low twenties through the period.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|--|------|----------------|---------------|----|
| 13:00 | TEMP | 18 | RH | | WIND | W10 km/h | % CHANCE RAIN | 10 |
| 17:00 | TEMP | 20 | RH | | WIND | WNW 12G25 km/h | % CHANCE RAIN | 20 |

DISCUSSION:

Best chance of thundershowers will risk of heavy downpours on Thursday then again on Sunday.

Upper winds at Likely valid 1700h PDT:

2000m W 10 km/h 3000m NE 12 km/h

Forecaster: Rob Pigott 250 339-4424 envirobc@telus.net

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: SG PEP NEA PREOC Operations 1 SG:EX
Sent: Thursday, August 21, 2014 3:05 PM
Subject: Mt Polley Blockade at Likely Road Turn-off

Please be advised there is a confirmed blockade at Mt Polley. Apologies if you are receiving this information twice.

Background:

- Protestors have set up a camp and blockade at the Likely Road turn-off leading to Mt. Polley mine, and are stopping all traffic to/from the mine associated with the clean-up
- Individuals are not from the local area, and most are non-FNs
- Open source indicates the protestors are asserting Imperial Metals have used Mt Polley Lake as a tailings pond, are pumping tailings into Quesnel Lake, and are requesting additional blockade reinforcements

Sector Response:

- EMBC aware
- RCMP are aware
- MARR leading engagement with area FNs on Mt Polley clean-up

If you have any concerns please contact the PREOC at 250-614-6322.

Sandy Miller

**Operations Section Chief
Northeast Regional PREOC (PREOC 5)**

Emergency Management British Columbia

3235 Westwood Drive

Prince George, B.C. V2N 1S4

www.pep.bc.ca

Ph 250.612-4172 Fax 250.612.4171

24 Hour Emergency Reporting 1.800.663.3456

Weir, David J FLNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, August 21, 2014 3:04 PM
To: Beadman, Krista FLNR:EX
Cc: Hill, Douglas J FLNR:EX; Weir, David J FLNR:EX; Stewart, Rodger W FLNR:EX
Subject: RE: Mt Polley Live Meeting

Thanks very much...if i could do this from a boardroom which is set up for video conferencing – that would be great.

Doug and Dave Weir and any other FLNRO staffer who has contributed to the response. I'll try to line up a list over the weekend.

From: Beadman, Krista FLNR:EX
Sent: Thursday, August 21, 2014 2:46 PM
To: McGuire, Jennifer ENV:EX
Cc: Hill, Douglas J FLNR:EX; Weir, David J FLNR:EX
Subject: Mt Polley Live Meeting

Hi Jennifer

I have set up the live meeting for you next Wednesday, August 27.

Please let me know if there is anything you need for the meeting (office space, computer, web cam, etc) and I will make sure you have it.

Also, are you planning on having Doug Hill and David Weir join you? Or anyone else from FLNR? If so, I will make sure they are where they need to be.

Thanks Jennifer,

Krista

Krista Beadman
Regional Administrative Assistant
Cariboo Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-398-4327

Weir, David J FLNR:EX

From: SG PEP NEA PREOC Operations 1 SG:EX
Sent: Thursday, August 21, 2014 2:51 PM
Subject: Mt Polley Mine Coordination Call Monday 25 August 2014 1100 hrs (11:00am)

You are invited to attend the **Mt Polley 2014** Coordination Call:

Date: August 25, 2014
Time: 1100 hrs (11:00 am)
Via: Conference Call – **s.17**

Speakers List:

- 1) Weather Synopsis – Andre Besson, Environment Canada
- 2) Mt Polley Mine – Don Parsons
- 3) Cariboo Regional District – Rowena Bastien
- 4) Ministry of Environment
- 5) Ministry of Energy and Mines
- 6) Ministry of Health
- 7) Health Authorities:
 - a. Interior Health
 - b. Northern Health
- 8) Impacted First Nations
- 9) Other Local Authorities and First Nations
- 10) Other BC Ministries and Agencies
- 11) Other Interested Stakeholders
- 12) Federal Agencies and Departments
- 13) Provincial Duty Manager

Please note:

- A roll call of speakers will be conducted just prior to starting. Time does not permit to go through every call participant. If your agency is not on the agenda but has operational information to share, please advise the Operations Section Chief so that you can be added to the agenda.
- Co-locate with other members of your organization and call in from a phone you can mute while listening. Place call on mute to keep the line clear. Phone mute/un-mute is *6.
 - **If you must take another call – hang up and dial back in. Do not place the call on hold.**
- **These calls are for operational purposes only** – information gathered on the call is not meant for public information. If you wish you use information you have heard for a media release, you must clear it with the organization providing the information.
- **Do not provide the conference call information to others.** Any requests for access to the conference call can be made to **Operations Section Chief** at preoc5.ops1@gov.bc.ca.

- Keep discussions to the relevance of all participants, sideline discussions should be taken off line.
- State your name and agency / organization clearly when you provide updates or ask questions.
- Minutes or notes of this call will not be taken. Make note of information relevant to your organization.

Sandy Miller

**Operations Section Chief
Northeast Regional PREOC (PREOC 5)**

Emergency Management British Columbia

3235 Westwood Drive

Prince George, B.C. V2N 1S4

www.pep.bc.ca

Ph 250.612-4172 Fax 250.612.4171

24 Hour Emergency Reporting 1.800.663.3456

Weir, David J FLNR:EX

From: Beadman, Krista FLNR:EX
Sent: Thursday, August 21, 2014 2:46 PM
To: McGuire, Jennifer ENV:EX
Cc: Hill, Douglas J FLNR:EX; Weir, David J FLNR:EX
Subject: Mt Polley Live Meeting

Hi Jennifer

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Please let me know if there is anything you need for the meeting (office space, computer, web cam, etc) and I will make sure you have it.

Also, are you planning on having Doug Hill and David Weir join you? Or anyone else from FLNR? If so, I will make sure they are where they need to be.

Thanks Jennifer,
Krista

Krista Beadman
Regional Administrative Assistant
Cariboo Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-398-4327

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Thursday, August 21, 2014 1:26 PM
To: Hamm, Mark FLNR:EX
Subject: RE: Spot forecast for Mt Polley issued 10:30 Thursday August 21, 2014

I have a note in to the Mine to ask if this is still needed.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Hamm, Mark FLNR:EX
Sent: Thursday, August 21, 2014 1:18 PM
To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX
Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX
Subject: FYI: Spot forecast for Mt Polley issued 10:30 Thursday August 21, 2014

As per the discussion on the EMBC call this morning, please advise when this is no longer required.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
markhamm@gov.bc.ca

From: Rob Pigott [<mailto:envirobc@telus.net>]
Sent: Thursday, August 21, 2014 11:30 AM
To: RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX;
EOCDirector@cariboord.bc.ca
Subject: Spot forecast for Mt Polley issued 10:30 Thursday August 21, 2014

Rob Pigott
Enviro-BC Weather Services
1706 Capilano Ave.
Comox, BC
V9M 1B6
250-339-4424

BC Wildfire Management Branch Spot Forecast

This is not a substitute for direct discussions with the fire weather forecaster!

Date Issued: Thursday August 21, 2014

Valid: 11:30 pm

REQUEST *(Don't request preparation for early in the morning unless you need it then!)*

| | | | |
|--|-----------------------|-----------------------------|----------------------------------|
| Fire/Proj # | n/a | Request by: Robert Bardossy | Date: August 11, 2014 |
| Location Name: | Mount Polley | | |
| Representative Wx Stn | Likely, Gavin | | |
| Coordinates: dd mm.mmm | 52 30.849, 121 37.066 | | |
| Slope% | 10% or less | Aspect | Valley Orientation |
| Elevation(s) for forecast | 1040 metres | Other? tailings pond breach | |
| Date/Times Required (discuss additional needs with forecaster) | Date: Aug 11 | Select (PDT) | 1300 1700 2100 0100 0500 0900 |

SYNOPSIS

An upper trough brings a mix of sun and cloud today. Isolated showers are expected this afternoon and there is a risk of thundershowers. There is a chance that some of these cells may have strong winds and brief heavy downpours associated with them. Otherwise winds will be fairly light with some afternoon gustiness. A drier northerly flow aloft is expected tonight through Friday. Expect clearing skies tonight with a mix of sun and cloud on Friday. Winds on Friday will be fairly light in the morning with some afternoon gustiness likely.

TODAY

A mix of sun and cloud. Isolated showers developing. Risk of an afternoon thundershower. High near 22. Winds variable 5 to 10 km/h this morning becoming northwest to north 10 to 15 km/h with gusts to 25 km/h this afternoon. Stronger gusts possible near cells.

TONIGHT

Cloudy periods. Chance of early evening showers or thundershowers. Low near 5. Winds becoming variable 5 to 10 km/h overnight.

FRIDAY

Sunny with cloudy periods. High near 21. Winds northwest to north 10 to 15 km/h.

OUTLOOK: Saturday to Monday

Mainly sunny skies on Saturday as a strong upper ridge builds over the area. A weak trough passing to the east brings a chance of showers on Sunday. Back to mainly sunny skies on Monday as the ridge rebuilds over the area. Afternoon temperatures in the low to mid 20's. Winds generally light with brief afternoon gustiness.

SPOT FORECAST

Today

| | | | | | | | | |
|-------|------|----|----|--|------|----------------|---------------|----|
| 13:00 | TEMP | 20 | RH | | WIND | NW10 km/h | % CHANCE RAIN | 30 |
| 17:00 | TEMP | 22 | RH | | WIND | NNW 12G25 km/h | % CHANCE RAIN | 40 |

DISCUSSION:

Fairly good chance of at least some thundershowers in the area today. The trough of low pressure on Sunday is quite weak so the chance of rain is quite low.

Upper winds at Likely valid 1700h PDT:

2000m WNW 10 km/h 3000m VRB 5 km/h

Forecaster: Rob Pigott 250 339-4424 envirobc@telus.net

PLEASE provide any onsite weather readings with locations to the forecaster!

Weir, David J FLNR:EX

From: Penny Carpenter s.22
Sent: Friday, August 22, 2014 9:37 AM
To: dparsons@imperialmetals.com; 'Dale Reimer'; Russell Gibson; Weir, David J FLNR:EX; Stolar, Harold B FLNR:EX
Subject: FW: Emailing: Mount Polley Debris Clean Up in Quesnel Lake
Attachments: Mount Polley Debris Clean Up in Quesnel Lake.pdf

-----Original Message-----

From: Emily Cheung [mailto:echeung@dwbconsulting.ca]
Sent: August-22-14 7:56 AM
To: 'Don Parsons'
Cc: s.22 Brian Aitken; Josef Lerch
Subject: RE: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

Please find attached the revised report with the minor changes for clarification in the fabric and rock gradation.

Emily Cheung, MASc, PEng, FEC
Engineering Manage

DWB Consulting Services Ltd.
Office: (250) 562-5541 (ext 239)
Cell: (250) 961-5262
Fax: (250) 562-5561
echeung@dwbconsulting.ca
www.dwbconsulting.ca

All information and content in this email is private and confidential and intended for the recipient only.

-----Original Message-----

From: Mark Thompson
Sent: August-21-14 2:55 PM
To: 'Don Parsons'
Cc: s.22 Emily Cheung; Brian Aitken
Subject: RE: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

Dear Mr. Parsons,

A revised copy of the document is attached with the recommended changes including newly appended ARD test results.

Sincerely,

Mark Thompson, MSc, MEd, RPBio
Ecologist

DWB Consulting Services Ltd.
Office: (250) 562-5541 (ext 279)

Cell: (250) 961-9520
Fax: (250) 562-5561
mthompson@dwbconsulting.ca
www.dwbconsulting.ca

-----Original Message-----

From: Brian Aitken [<mailto:baitken@dwbconsulting.ca>]
Sent: Thursday, August 21, 2014 2:07 PM
To: Don Parsons
Cc: s.22 Emily Cheung; Mark Thompson
Subject: Re: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

We will revise and send out immediately. Penny we will leave it to you to submit to finro.

Brian

Sent from my iPhone

> On Aug 21, 2014, at 1:32 PM, "Don Parsons" <dparsons@imperialmetals.com>
wrote:

>

>

> Penny

> A good practical report. We should not have difficulty meeting the
recommendations. Change Russ Parsons to Russ Gibson. I will check with our
Enviro group for a standard spill plan. I will forward the ARD calcs soon.

> Thanks

> Don

>

> Don Parsons, Chief Operating Officer

> dparsons@imperialmetals.com

> 604.488.2652 | mobile 778.836.2652

>

> Imperial Metals Corporation

> 200-580 Hornby Street, Vancouver, BC V6C3B6

> 604.669.8959 | www.imperialmetals.com

>

>

>

> -----Original Message-----

> From: Brian Aitken [<mailto:baitken@dwbconsulting.ca>]

> Sent: Thursday, August 21, 2014 8:17 AM

> To: s.22 Don Parsons

> Cc: Emily Cheung

> Subject: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

>

> Report attached. Let me know if you require any changes.

>

>
> Brian Aitken, RPBio, PAg, CPESC
> Environmental Manager
>
> DWB Consulting Services Ltd.
> Office: (250) 562-5541
> Cell: (250) 961-0043
> Fax: (250) 562-5561
> baitken@dwbconsulting.ca
>
>
>



August 20, 2014

Ministry of Forests, Lands and Natural Resource Operations
Water Stewardship Cariboo Region
400-640 Borland Street
Williams Lake, BC, V2G 4T1

DWB File No 14274-219

Attention: David Weir, PAg – Water Section Head

RE: Mount Polley Tailings Pond Failure Debris Clean-Up in Quesnel Lake

The Mount Polley mine tailings pond failure occurred on August 4, 2014 when the tailings pond partially breached, releasing water and tailings slurry into downstream waters. The resulting debris torrent caused by the sudden release of water and sediment behind the dam carried felled trees, mud and debris scoured away the banks of Hazeltine Creek which flows out of Polley Lake and continued into the nearby Quesnel Lake. The debris torrent significantly eroded Hazeltine Creek and the associated riparian vegetation causing a large amount of sediment and woody debris to be deposited into Quesnel Lake.

DWB Consulting Services Ltd (DWB) was contacted on August 15th by Penny Carpenter (Eaglecrest) and Russel Gibson (Imperial Metals) and requested to attend the site at Quesnel Lake for a meeting and to provide professional recommendations concerning environmental and engineering aspects of the proposed woody debris clean-up operations. Brian Aitken, RPBio and Emily Cheung, PEng of DWB attended the site August 19th to meet with Imperial and Ministry of Forest, Lands and Natural Resource Operations (MFLNRO) staff to discuss the scope of the services required. MFLNRO staff in attendance included David Weir - Water Section Head, Robin Hoffos -Section Head Habitat Management and Lee Williston. The clean-up of the woody debris within the lake was already well underway with significant progress made in the clean-up effort prior to DWB's site meeting.

The reason why DWB was retained by Imperial Metals was to provide engineering and environmental expertise to the efforts in support of an extension to the Order originally granted to Imperial Metals by MFLNRO to clean up the woody debris in Quesnel Lake under emergency conditions. This original Order expires August 21st and must be extended to allow the clean-up works to continue.

The clean-up of the woody debris in Quesnel Lake is currently being undertaken by a host of local individuals/property owners, machine operators, forests licenses, first nations, consultants and contractors working under the direction of Penny Carpenter (Eaglecrest) and Russel Gibson (Imperial Metals). Clean up of Quesnel Lake to date consisted of: (1) booming the debris along the shoreline in heavy debris areas, (2) using boats to pick up and boom loose floating debris, (3) mapping the shoreline to determine extent and density of the rafted woody debris, (4) piling shoreline woody debris by hand and/or small machinery and (5) using a tug boat and boom sticks to transport some of the woody debris to the exiting



West Fraser log sort/load out (52° 29' 56" Lat and 121° 12' 4" Long) where it has been contained within log booms. Moving forward, DWB has been asked to provide the following scope of services:

- A. Environmental mitigation and monitoring for the debris containment and clean up along the shoreline by both hand/machines and the transport of this material to the West Fraser load out utilizing tugs via barge/boom,
- B. Engineering expertise to design and construct a suitable load out ramp at the West Fraser site that will allow wood debris to be removed from the boomed storage area at least until the end of October under the receding water levels in the lake. Once removed from the water, the woody debris will be sorted and stored upland for uses yet to be determined,
- C. Environmental mitigation and monitoring for the design/construction of the load out ramp described above and also the decommissioning of the ramp in 2015 when it is no longer required.

The following report provides the required engineering and environmental information in the order which it is presented above.

(A) Environmental mitigation and monitoring requirements for the debris clean up in Quesnel Lake

Clean up operations are well underway and it appears they have been completed in an environmentally sensitive manner thus far. During the inspection with MFLNRO on August 19th, very little floating debris was observed in the lake between the West Fraser load out and Hazeltine Creek that was not already contained within high density debris areas which were enclosed within booms. The largest floating accumulations are in Mitchel Bay and the bay at Hazeltine Creek which is a no work area due to safety constraints concerning the unstable tailings dam at Mount Polley upslope of this location. The majority of the remaining wood debris was rafted along the shoreline due to the receding water levels. A significant portion of this material has been piled along the shoreline via hand labour and small machines. To date, most of the affected shoreline (est 40-50km) has been assessed for debris accumulations and categorized as light, moderate or heavy based on the debris density. Also one load of debris enclosed within a large log boom has been transported to the West Fraser load out location and secured to the existing piles for eventual removal from the lake.

Moving forward, the following Best Management Practices (BMP's) and environmental mitigation will be incorporated into the woody debris clean up and transport to the load out:

- 1) It is recommended that the entire existing shoreline which was affected by debris accumulations be video recorded before and after the clean-up operations. This will not only provide evidence that the shoreline was adequately cleaned up, but will also provide proof in the spring that there was significant older natural woody debris which was present before the dam failure along the



shoreline. At this time the difference between wood that recently came down due to the failure and the older natural occurring wood is very evident.

- 2) All debris possible, both floating and rafted needs to be removed from Quesnel Lake by the end of October.
- 3) All debris accumulation areas along the foreshore which are flat enough to allow access by light tracked equipment via barge and have been mapped and categorized as heavy or medium will be re-visited to determine beach conditions. Any area of beach that is soft and will lead to significant rutting by machinery will be flagged as 'Machine Free Zones'. Any area of these beaches which provide enough ground support that significant rutting will not occur may be accessed by light tracked equipment and debris piled as close to the existing shoreline as possible to allow efficient collection of debris by a barge. Some beaches may not be suitable for tracked machinery at all and may require all hand labour. Only remove new debris from the recent event (ie do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat). Each beach should have at least one landing location flagged so that the barge knows where to off-load any equipment during drop off or pick up.
- 4) Any debris accumulation areas along the foreshore that have been mapped and categorized as light or that are too steep for machinery will be removed by hand (no equipment permitted on the beach). This debris will be removed from the foreshore and scattered above the high water mark (HWM) of the lake or picked directly from the water via barge. Any debris which is too large to move by hand will be bucked into manageable pieces before it is placed above the HWM. Only remove new debris from the recent event (ie do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat).
- 5) EXCEPTION TO POINTS 3 AND 4 FOR CARIBOO ISLAND. Those affected areas along Cariboo Island will all be hand labour only. No machinery permitted on foreshore. Due to archeological considerations, First Nation monitoring required for any works on the island and all woody debris will be removed even in light density areas as per methodology described in bullet 6, paragraph II.
- 6) Once material has been piled on the beach, it will be removed via barge and tug boat with an excavator (or in the case of Mitchell Bay may be partially accessed from the land with a dump truck). Where the beach has been determined to be stable, the barge will nose into the shore and ramp lowered to the foreshore. The excavator will disembark from the barge and load the debris onto the deck. The debris will be piled carefully onto the barge ensuring that all pieces are secured so that they do not fall off during transport. If the barge is full, the excavator may be left at the beach until the barge arrives back for final pick up. If this should occur, the excavator must be parked as far back from the water as possible, preferably in an area which does not drain directly back into the lake. All equipment in operation within the HWM of the lake will have fully stocked spill kits in them should a spill arise. Refer to spill plan in bullet 12. Once the beach has been fully cleared of debris, the excavator will prepare to leave the beach, ensuring that any



significant ruts or beach disturbances have been fully recontoured to natural grade before re-boarding the barge.

Where the beach has been determined to be too soft for machinery, the barge will nose into the shore and the ramp will be lowered to the foreshore. The excavator will be allowed to drive down and sit on the ramp, but will not leave the ramp (i.e., no tracks on beach). All material will be reached from the barge. Once all debris is removed or the barge is full, the excavator will move back up the ramp and leave with the barge.

- 7) Mitchell Bay has been identified by MFLNRO as an area of special concern due to the presence of shore spawning kokanee. Shore spawning kokanee are present in Quesnel Lake in critical convergence zones near the mouth of creeks and where upwelling or significant subsurface flows are present. They prefer gravel to moderate sized cobble bottom substrate which is present in Mitchell Bay. Hazeltine Creek area has also been identified as one of these shore spawning locations; however, due to the amount of sediments deposited at the mouth of this creek the habitat has been affected and is less of a concern at this time. MFLNRO has identified a critical spawning period for kokanee starting mid-September in this area. A detailed report by the Province of BC in 2003 entitled, 'Summary of Quesnel Lake Kokanee and Rainbow Trout Biology Stock Management Report No 17' identifies a later period for Quesnel Lake shore spawning kokanee between October and November. In any case, all boating/barging activities along the near shore area in Mitchell Bay need to be completed before this time period to ensure that spawning kokanee populations are not affected. This area should be the highest priority for removing the debris piles before any other area.
- 8) While barging woody debris down the lake, all debris will be secured so that it does not fall back into the water. The onboard excavator and tug will have spill kits in them as per bullet 12. It will be transported to the West Fraser load out and preferably off loaded directly onto the load out ramp when it arrives as described later in this document. If this is not possible, then the debris will be offloaded into a contained boom area secured to the existing dolphin piles for later removal. Care must be taken to avoid loss of small woody debris into the lake during this process.
- 9) All floating woody debris that is temporarily contained in booms will be barged down the lake in a large boom (ie rather than on a barge). Care must be taken in removing any floating debris that is embedded in the bottom substrate. If it can be removed easily without significant bottom disturbance and/or is a boat hazard it should be removed, otherwise leave the wood embedded and do not remove. Only remove new debris from the recent event (i.e., do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat). Once all the floating debris has been corralled, it will be pushed together and enclosed in a large towing boom which will be transported down the lake. It is important that no small woody debris escape during this transport and a follow up boat may be required to pick up straggler pieces that have broken off. Once the boom arrives at the West Fraser off load site, the boom will be secured to the existing dolphin piles for later removal.



- 10) The debris removal around the mouth of Hazeltine Creek will require extensive works; however no works can proceed until the safety concerns at the upslope tailings dam at Mount Polley are addressed. It is hoped that this area will be cleared for work by safety within the next month. If the area around the mouth of Hazeltine Creek cannot be accessed due to safety concerns prior to winter freeze up, it must be secured so that no wood can escape into the lake in the spring. It is fully expected that more woody debris will be deposited into Quesnel Lake from Hazeltine Creek during any flood or heavy rain events due to the instability of the scoured channel. Currently the entire mouth of Hazeltine Creek is contained with a log boom. It is recommended that a second log boom be constructed and left in place until at least next summer for added security during heavy rain events and spring runoff. **It has been requested that all works at the mouth of Hazeltine Creek have a first nation monitor present.**
- 11) Debris storage at the West Fraser load out will be contained fully within a secured boomed area and anchored to the existing dolphin piles until such time as it can be removed from the water. It is important to conduct a bottom survey before additional debris is stored at this location so that the pre-use condition is known. This area has been previously used for many years as a load out and so it is expected that there is woody accumulations already present to some degree. All small woody debris and any sunken debris as a result of the temporary storage at this location must be removed. Once all debris has been removed and the project complete, a comparison bottom survey must also be completed to provide evidence of this.
- 12) Throughout the debris collection, transport and removal process it is very important that all involved in the clean-up follow general spill prevention and response procedures should a spill be encountered. This is especially important around aquatic environments. All equipment must carry stocked spill kits and crews must be trained in their use and the reporting requirements. In addition, several large drum aquatic spill kits should be present in key locations (i.e., on the barge and at the load out at a minimum). If Imperial has a standard spill plan that can be used, then it should be adopted for this project, otherwise it is recommended that a detailed spill plan be prepared for the project.

(B) Engineering considerations for the design and construction of a load out ramp

Once the wood debris has been transported to the West Fraser load out site, it will be temporarily stored in booms secured to the existing dolphin piles. From this storage area it will be pushed to the shallow with a tug where it will be lifted out of the water by a button top log loader. The log loader will deck this material behind the machine where it will be grasped with a front end loader and transported to the upland sort area for sorting and storage until an appropriate use can be determined. As the lake bottom is very soft/shallow and receding at this location, a causeway ramp has been proposed to be constructed in order to be able to reach the wood without having to drive a machine into the water. The temporary ramp will be constructed of rock and will be designed to allow a minimum depth of water at the end during the lowest expected flow so that the wood can be floated to this location for removal.

**General Design**

Design considerations for the causeway ramp have been formulated from the site visit conducted August 19, 2014. No site survey information was available at the time of this report; however, due to the nature of the emergency conditions and the requirement to remove the debris as quickly as possible from the lake, the design has been formulated with the use of prescriptions (3 pages inclusive) that include photographs and diagrams outlining the location, size and specifications for the causeway ramp. A site inspection report is also included for reference. The intention of the ramp is to facilitate the removal of the logs and debris with the use of machinery out of the water. It is expected that the ramp will require 1.3m of height to remain out of the water during activities.

Currently the lake level is estimated to be at 1.0-1.3m below the high water mark and historically has an average yearly maximum daily fluctuation of 2.23m with a historical minimum fluctuation of 1.576m and historical maximum of 3.008m. Lake levels historically continue to fluctuate through August and September but the trend shows levels will continue to drop from August through until spring when levels are expected to rise again typically in April (Water Survey of Canada gauged water level station 08KH011 1956-2012). Due to the short term use and unknown water levels in the upcoming seasons, the ramp is not designed to meet a specific control lake level or return period elevation, but simply to provide clearance from lake elevations for the emergency works operations in the next weeks. Spring removal of logs and debris that may be required in 2015 may not be able to commence until lake levels reach below the constructed ramp surface. Lake depths from the present water level measured during the site visit past the toe of the ramp near the boom was 4m or 13ft. Although this was measured beyond the toe of the ramp, it may indicate that additional rock may be required to achieve operating levels if water surface elevations do not continue to drop.

The access causeway ramp design consists of a rock ramp from the existing load out to approximately 25m into Quesnel Lake. The ramp will be wide enough (12m) to accommodate an excavator and trucks for hauling rock in or debris out of the lake. The ramp is to extend from the existing load out access straight out into the lake. The ramp profile will be constructed from a rock base overlain with non-woven geotextile and capped with surfacing material that will seal preventing spills into the rock base below. Additional details are provided in the design specifications and depicted in the prescriptions attached.

Construction Procedure

The upslope existing load out access is to be stripped of organics and sufficient base material preferably shot rock, shall be placed to stabilize the access to the present lake water level. Rock thickness shall taper from a minimum 300mm to required thickness estimated at 1000mm at the toe of the ramp. If additional length is required or depths vary from the assumed depths, additional thickness of rock will be required as depths at this location were not confirmed. Once rock has been placed, a non-woven geotextile shall be overlaid on the rock and a cap of granular or shot rock material placed on top to provide a running surface and prevent any spills from entering into the lake from on top of the ramp.

A rock source has been located approximately 1 km from the load out site and samples have been sent to Imperial Metals laboratory to test for acid leaching potential. This rock has been deemed suitable due to its size and angularity but results from the tests were not available at the time of the report.

**Design Specifications**

Specifications for construction consist of the following:

| Material | Specification | Approx Quantity |
|--|--|-----------------|
| Riprap rock for ramp base material | Class 50 kg rock | 600 m3 |
| Maximum rock side slopes at toe | 1.5:1 (H:V) | - |
| Maximum rock side slopes along ramp | 2:1 (H:V) | - |
| Ramp footprint on lake | - | 380 m2 |
| Non Woven geotextile | Arntec 200 or approved equivalent | 360 m2 |
| Surfacing material or shot rock capping | 3" minus clean gravel or pit shot rock | 54 m3 |

Riprap rock shall be clean angular rock that is consistent with the following gradation requirements:

Class 50kg rock - Approx. Average dimension

85% of rock to have average dimension >155mm

50% of rock to have average dimension >330mm

15% of rock to have average dimension >475mm

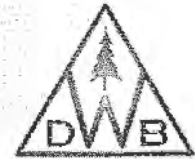
The rock must be well graded meaning that all dimensions must be represented in the material supplied. This will provide a more stable ramp consisting of smaller and larger rocks that will fit together.

The rock shall be laid on the lake bottom and not keyed in. Due to the nature of the short term usage of the ramp, the rock is expected to withstand normal wave action and not intended for permanent installation or protection. If unusual events are to occur within the period of time that the ramp is in place, repair work may be required.

All quantities provided are for works within the lake and have allowed for waste for supply quantities. These quantities are supplied for the purpose of procurement and are not an indication of maximum or required quantities. Final requirements will be determined by the design engineer or her representative on site. Any variations from the materials specified, must be approved by the design engineer. Material quantities for preparation of upland slope area have not been provided. Quantities are based on the area agreed upon during the site visit to a maximum of 25m extension into the lake; however, this may be altered at the discretion of the Imperial Metals representative. If further length of ramp is required to meet the required depth of 1.0m above the lake bottom, additional volume of these materials will be required.

Conformance

All materials shall meet or exceed the specifications as listed in the table. A site supervisor representative from DWB shall determine suitability of materials should there be any variations or substitutions. Documentation by the site supervisor will be provided to the design engineer along with a constructed volume survey for purpose of reporting. Tracking of volumes shall be completed including truck loads delivered for shot rock, capping material, and riprap rock delivered to site.

**Decommissioning Plan**

Upon determination through the agencies and Imperial Metals Corp., once the required debris removal operations are completed, the ramp shall be removed. The ramp is to be dismantled by removing the far toe of the ramp furthest in the lake first. If salvage of the rock is required, removal of the capping material should be completed first and then followed by the removal of the geotextile and finally the rock. All materials shall be removed, stored, stockpiled, or disposed of in accordance with Imperial Metals policy and the environmental requirements discussed in this report.

(C) Environmental considerations for the design, construction, operation and decommissioning of the load out ramp

The following environmental mitigation will be implemented during the engineered design, construction, operation and decommissioning of the load out.

Design Phase

During the design, the location was chosen at an historic existing load out location. The footprint of the new structure will be minimized, along with the rock volume so that it can be used until Oct-Nov, but will likely be partially submerged during spring conditions. This design limits the amount of rock required, but also will reduce the decommissioning at the end of its use. All rock used in the ramp construction planned for placement in or near the lake has been tested for ARD (test results appended). The design also incorporates larger rock on the bottom/base of the ramp separated with geofabric and smaller rock/fines on the running surface. The smaller material on the surface will act as a filter to soak any minor leaks or drips that may occur during operation, rather than using purely coarse material where spills would directly enter the lake if they should occur.

Construction Phase

Construction will proceed under appropriate weather conditions and will occur under a compressed timeline of 3-4 days. As machinery will be working around water, all equipment will be inspected for leaks/drips prior to be allowed to work on the project. For the construction phase of the project, an environmental monitor (EM) will be present to conduct these inspections and carry out the balance of the environmental duties described below. Firstly, a construction prework will be held by all parties involved with the construction at which time the EM will go over the conditions of the MFLNRO Order and the mitigation that has been proposed. Then before the ramp is constructed within the lake, a floating silt curtain will be installed around the ramp location. This will prevent any fines from negatively affecting local water quality. The EM will conduct turbidity monitoring inside and outside the floating silt curtain to record its effectiveness. In addition, the EM will conduct fish salvage as required during construction. There will be no stop nets, but the site will be enclosed by the floating silt curtain. An attempt will be made to set minnow traps each night in the isolated area. If fish are caught, they will be recorded and released outside of the enclosed area. The EM will be responsible for implementing/following the Spill Plan (refer to bullet 12) and reporting as required. *It should be noted that some heavy leachate was noted to the right of the proposed ramp which appeared to be draining from an adjacent wet draw seeping from an historic log sort area covered with bark. This was not a result of any activities associated with this*



project. Following construction, the EM will prepare a short post construction report with photo documentation of the measures implemented. A component of this report will be an asbuilt with estimated footprint and rock volumes used in construction.

Operation Phase

Once constructed, it is expected that the ramp will immediately be utilized to start removing debris from the water. As with construction, all equipment must be inspected for leaks/drips before being allowed to be used near the water and on the ramp. Should a spill occur, follow the Spill Plan (refer to bullet 12) and report as required. All employees working near the water need to be trained in spill response. An aquatic spill drum with floating spill boom must be present near the ramp location where it can be quickly deployed in the case of a spill. During woody debris removal with the button top, be careful not to lose small wood pieces into the lake. Should this occur, they will need to be collected and removed. All wood removed from the water will be transported and stored in the upland sort area where it will be sorted/graded for future yet to be determined use.

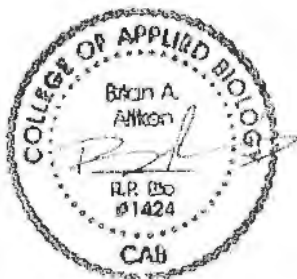
Decommissioning Phase

The ramp will be left in place until the summer of 2015. As previously described, it is expected that additional woody debris will be deposited from Hazeltine Creek into Quesnel Lake during the spring runoff in 2015. This woody debris will also need to be removed next year. Once Imperial is confident that all woody debris has been captured and removed, the load out will be fully decommissioned and returned to its predisturbance condition. This should coincide with low water levels in the lake and appropriate fisheries timing windows to minimize environmental impacts. As with the construction phase, an EM will be present and will aid in deploying the floating silt curtain during the rock removal. Turbidity monitoring will also be conducted. Once all the rock has been removed from the lake, a diversion ditch will be installed at the top of the grade to divert surface runoff from the freshly deactivated foreshore. Also, all exposed soils will be seeded. A final bottom survey will be conducted where the woody debris was stored to ensure that no additional wood has sunken. Once complete, an environmental close-out report will be completed, with photos and estimated total volume of wood removed.

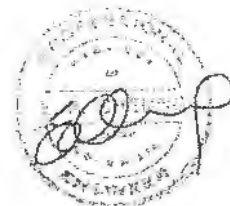


Should you have any questions regarding this report, please do not hesitate to contact either of the undersigned at your convenience.

Sincerely,



Brian Aitken, RPBio, PAg, CPESC
Corporate Environmental Manager



Aug 21/14

Emily Cheung, MASc, PEng, FEC
Corporate Engineering Manager

Cc Penny Carpenter (Eaglecrest), Russel Parsons (Imperial Metals), Robin Hoffos (MFLNRO)
and Lee Williston (MFLNRO)

Imperial Metals Corporation
Emergency Works Prescriptions

Priority: Immediate

Quesnel Lake, BC

Site: Quesnel Lake Load out
Preparation Prescription

Z Road

20-Aug-14

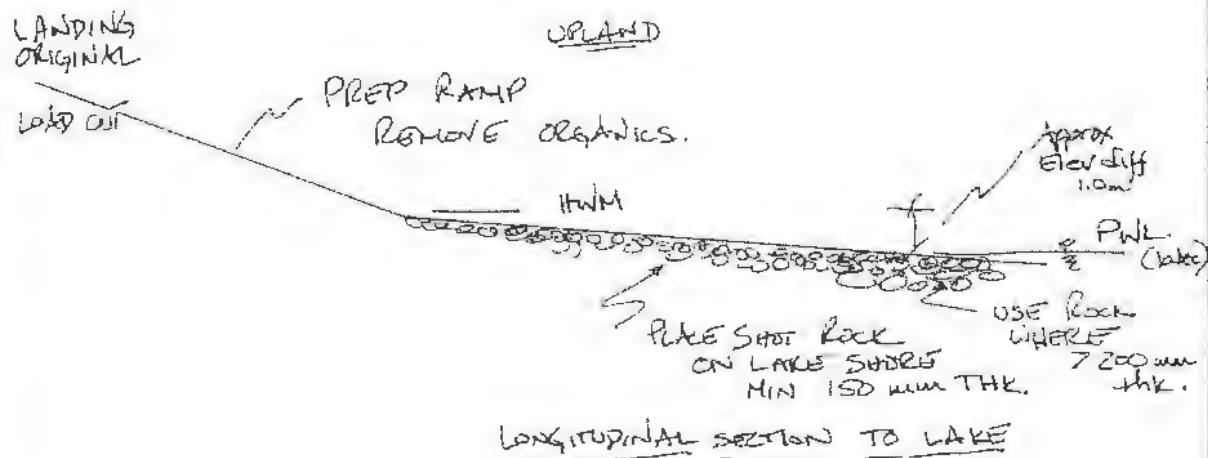


Works to be completed: Upland

Specifications:

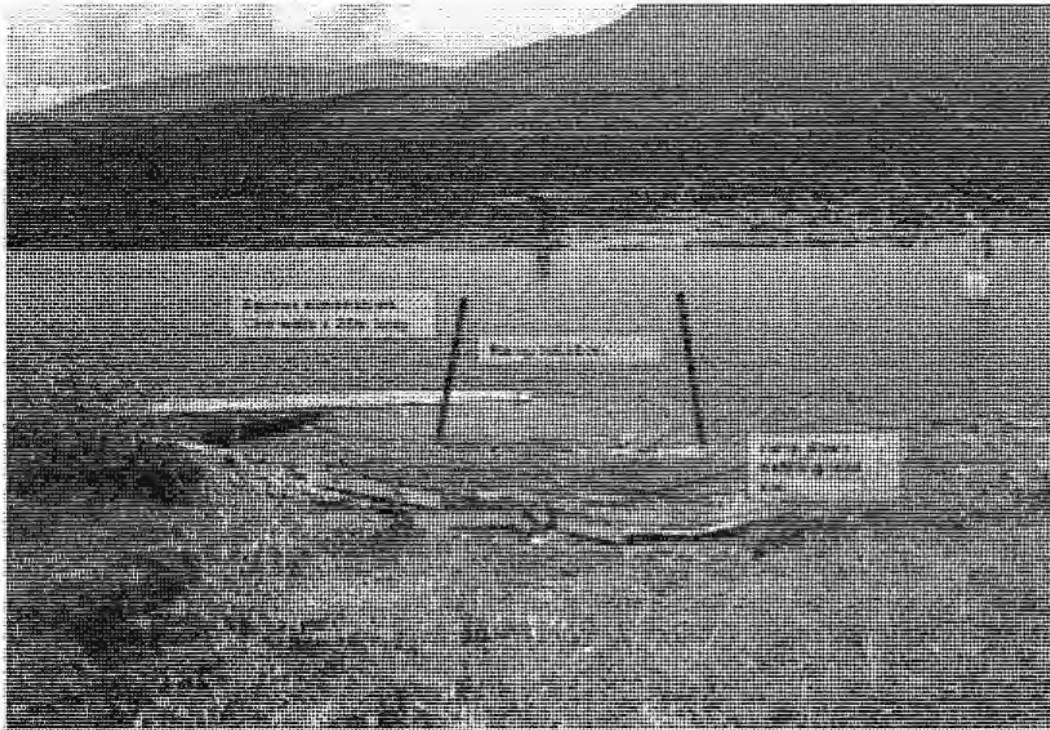
- 1 Prepare ramp down to lake level including stripping
- 2 Place shot rock to firm up foundation for access
- 3 Prepare site in accordance with environmental plan for isolation
- 4 Build up land ramp with shot rock and rock to the present water level
- 5 Use of riprap rock and shot rock required where thickness exceeds 200mm

- 1 Clean shot rock for foundation
- 2 Removed organics placed in an approved location
- 3 Minimum 150mm thick shot rock to provide stabilisation
- 4 Class 50kg riprap



Site: Quesnel Lake Load out Z Road
Construction within Lake Water Prescription

20-Aug-14



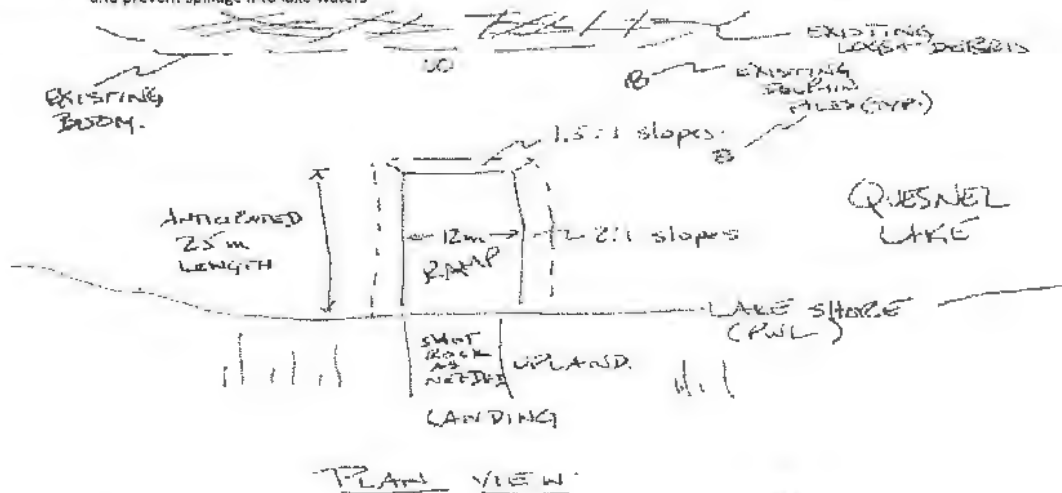
View to be completed

View to be completed

View to be completed

- 1 Rock to be placed from shore side and built up into the lake
- 2 Continue to place rock at minimum 300mm thickness at shoreline
- 3 Gradually build out rock to desired approximate 25m off shore
- 4 Side slopes to be constructed at 2:1 (H:V) outer toe 1.5:1
- 5 Place non-woven geotextile over rock layer
- 6 Cap ramp with clean gravel or shot rock to a minimum 150mm
- 7 Ensure ramp is tracked and packed sufficient to support truck loads and prevent spillage into lake waters

- 1 Clean shot rock for foundation
- 2 Expected max 1.3m deep at toe
- 3 Class 50kg approved riprap rock
- 4 Final ramp top width -12m
- 5 Larger rock on bottom of ramp
- 6 Armtex 200/Mirafi 160N/Geotex 601 or approved equivalent non woven geotextile





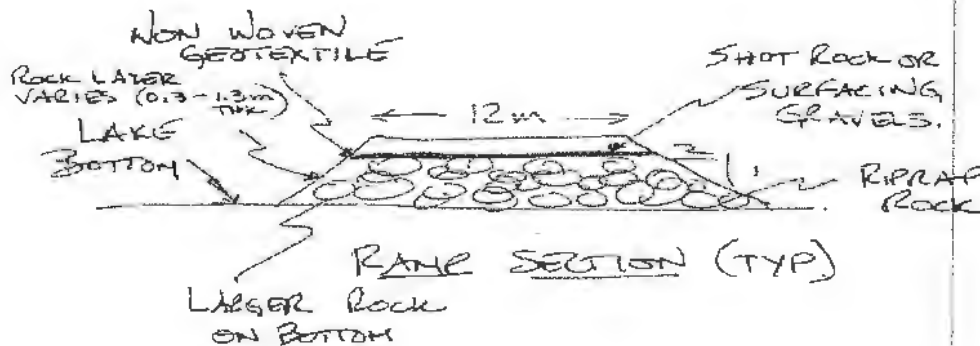
Acceptable well graded rock available at local quarry (pending testing).

Works to be completed:

- 1 Upland ramp access along load out access
- 2 Ramp in lake water from present water to approx. 25m
- 3 For detail section of ramp see sketch below
- 4 Side slopes to be constructed at 2:1 (H:V)
- 5 Provide smooth transition from upslope to in lake ramp construction
- 6 Smaller material must be sloped gradually to prevent erosion

Specifications:

- 1 Riprap rock Class 50kg
85% avg dimension > 155mm
50% avg dimension > 330mm
15% avg dimension > 475mm



SITE INSPECTION REPORT

DATE OF SITE VISIT: August 19, 2014

DATE OF REPORT: August 20, 2014

OWNER: Imperial Metals Corporation
CONTRACTOR: Eaglecrest
Project: Quesnel Lake Log Salvage

Purpose of Site Visit: Inspection of the log load out location and condition of log salvage operations for the design of the causeway ramp for load out of barged and towed log booms on Quesnel Lake as a result of material brought down Hazelton Creek to Quesnel Lake. Scope includes determining suitability of location for ramp including design for ramp. Photo 1 shows the proposed location and existing logs ready for load out.

Due to the nature of the works and requirements for quick removal of the material from the lake, emergency prescriptions including design requirements for the ramp are to be prepared for use in construction.

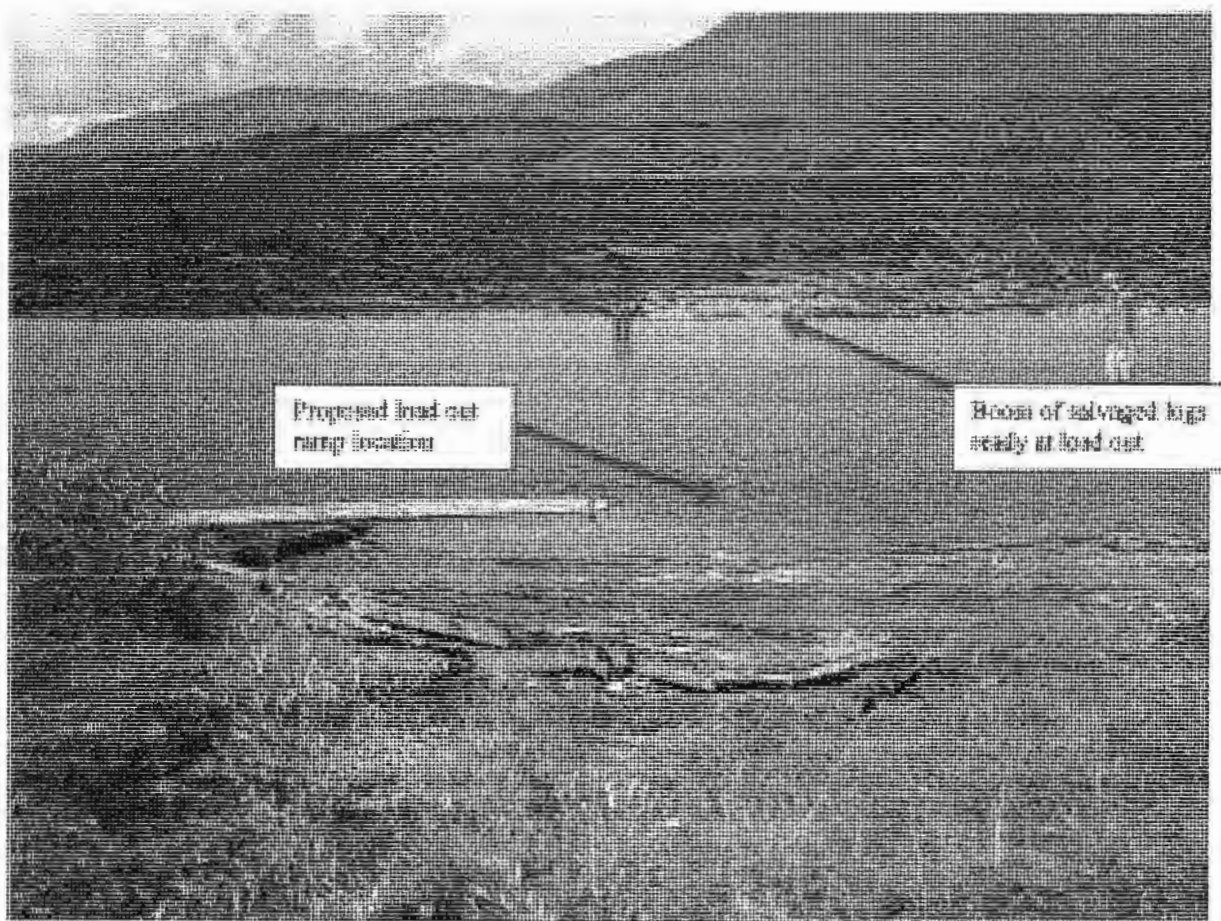


Photo 1: Existing boom of salvaged logs and proposed load out ramp location



Historical Information: Works are planned to begin with the ramp down to the high water mark and then to the present water levels for construction of the causeway ramp. The location was used previously as a log sort and load out and evidence of these operations are still clearly visible.



Photo 2: Load out up lake from present water level

Field Visit: The site visit was conducted to determine feasibility of a ramp into Quesnel Lake in order to remove the boomed logs and additional logs waiting to be towed/barged to the load out location. A boat tour was conducted down the lake along the shores to examine the logs and debris that has not been collected yet as well as the material already piled and the material boomed at the mouth of Hazeltine Creek.

Location of Works: Along Quesnel Lake, BC, with load out location at 52° 29' 56" Lat and 121° 12' 4". Hazeltine Creek is located west of the load out location approximately 20 km along Quesnel Lake. The ramp location from the current shoreline to the end of the ramp is estimated at 25m long by 12m wide for use by an excavator and trucks.

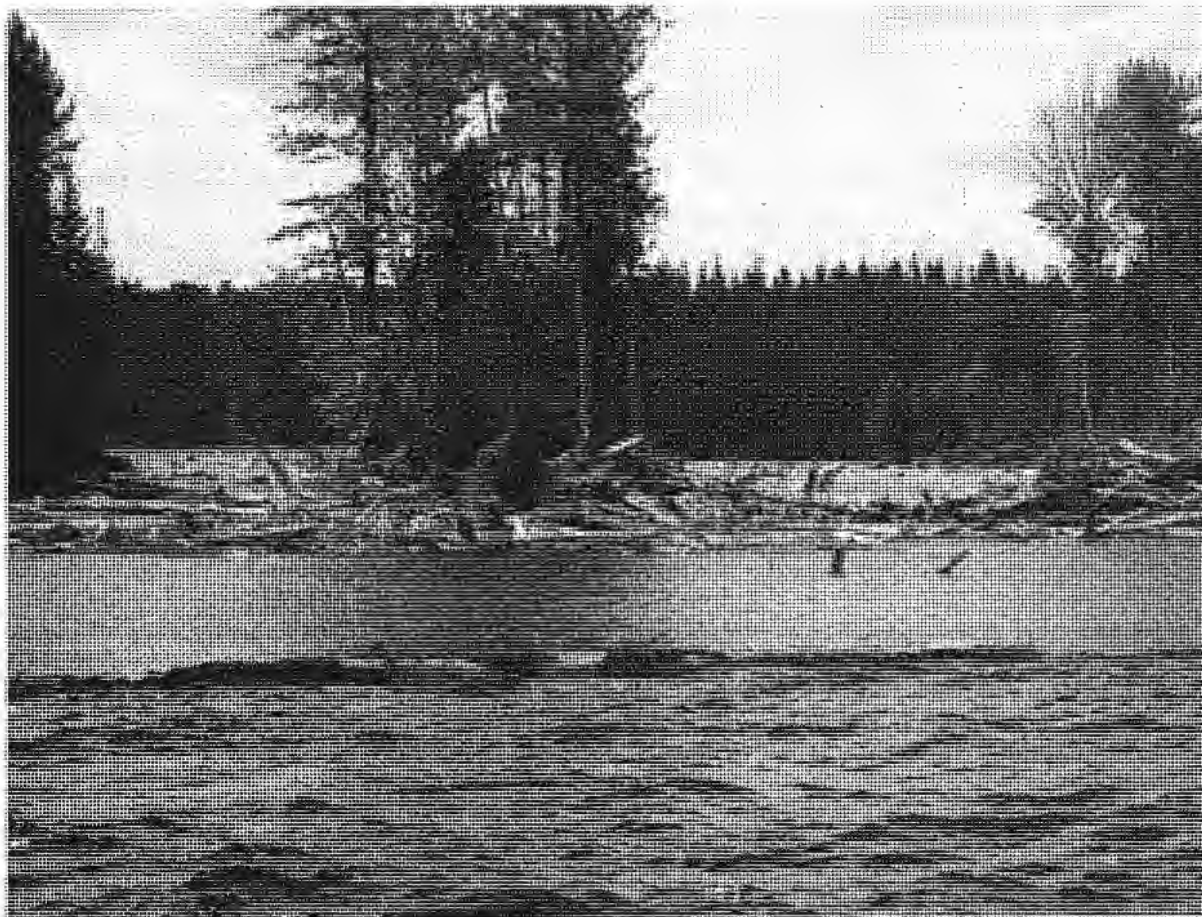


Photo 3: Mouth of Blackline Creek, with boom in foreground

Recommendations:

The following recommendations are steps in planning for the design of the ramp works.

1. Provide a report and prescriptions for emergency works.
2. Plans for immediate construction of ramp including environmental monitoring and supervision.
3. Complete hydrotechnical study of lake levels and effects on design.
4. Complete ramp works design based on site information collected.
5. Provide a design summary report for construction.
6. Complete a removal plan for short term installation of ramp.
7. Liason with agencies to achieve all permits and approvals required to complete works.
8. Construction and completion of works including supervision.

It is expected that the installation of the ramp will be completed within the next week and will remain in place until fall of 2015. This will allow for additional removal of material in the spring and summer of 2015 after freshet.

Emily Cheung, MASC, PEng, FEC
For
DWB Consulting Services Ltd.



Mount Polley Mines

ANALYSIS CERTIFICATE - MOUNT POLLEY

Job Number: 8000-AUG14

Reference:

Client: Geology

Received Date: 21 August 2014

Report Date: 21 August 2014

| SAMPLES | NP Ratio | NP | Carbon | AP | Sulfur |
|----------------|----------|--------|--------|-------|--------|
| | | | % | % | % |
| 1. MPMC 1A | 4.19 | 9.187 | 0.110 | 2.188 | 0.070 |
| 2. MPMC 2A | 3.28 | 13.334 | 0.160 | 4.062 | 0.130 |
| 3. MPMC 3A | 2.67 | 6.667 | 0.080 | 2.500 | 0.080 |
| 4. MPMC 4A | 4.80 | 7.500 | 0.080 | 1.562 | 0.050 |
| 5. MPMC 5A | 19.05 | 41.669 | 0.500 | 2.188 | 0.070 |
| 6. MPMC 6A | 11.00 | 27.502 | 0.330 | 2.500 | 0.080 |
| 7. Savannah Rd | 6.97 | 28.335 | 0.340 | 4.062 | 0.130 |

Bill Smith
Laboratory Manager

Weir, David J FLNR:EX

From: Prediger, Yvonne ENV:EX
Sent: Friday, August 22, 2014 12:38 PM
To: 'dparsons@imperialmetals.com'
Cc: Weir, David J FLNR:EX
Subject: File: 76930-40/Mt Polley
Attachments: Imperial Metals - Order.pdf

Mr. Don Parsons,

Attached will find documents regarding an Order issued under Section 88(1) of the *Water Act*.

There will not be a hard copy mailed out.

Regards,

Yvonne Prediger

Admin Support

Ministry of Environment

400-640 Borland Street

Williams Lake BC V2G 4T1

Phone: 250.398.4927 Fax: 250.398.4214



August 21, 2014

76930-40/Mt Polley

Imperial Metals Corporation
200-580 Hornby Street, Vancouver, BC V6C3B6
604.669.8959

Sent by E:mail only dparsons@imperialmetals.com

Dear Don Parsons:

Enclosed is an Order issued under Section 88(1) of the *Water Act*.

This order replaces and extends the time period needed for completion of ongoing work to meet the objectives identified in the August 5th 3:15 pm order. In addition it provides for additional clarification regarding works needed to achieve the intention of that order. Progress of the activities will be monitored and the order may be extended, modified or cancelled at any time based upon the monitoring results.

Suitably qualified professionals include but are not limited to Geoscientists, Engineers, Archeaologists, Agrologists and Biologists. Robin Hoffos and I met with your representatives on Quesnel Lake to review the ongoing containment and removal of debris on Quesnel Lake including the proposal to improve the ramp at the West Fraser Log dewatering site. The proposals as described were satisfactory under the supervision of the Professional Biologist who was identified as Brian Aitken RP Bio and Professional Engineer Emily Cheung. We have not received the requested information from them but time is of the essence. We have not received information concerning the Professional oversight of operations on Polley Lake. Please maintain a complete record of the activities relating to this order which are to be supplied to us upon request.

Specific issues identified under during the review included Kokanee Shore Spawning, Cariboo Island, embedded debris at the mouth of Hazeltine Creek, natural debris, the installation of a ramp to remove debris, and the placement of light debris above the high water mark. The Williams Lake Indian band has requested monitoring of the debris removal on Cariboo Island due the potential for the destruction or loss of artifacts exposed below and above the high water mark. A contact has been provided to your representatives for you to address this issue. Brian Aitken indicated the intention to collect video evidence for "before and after" work is completed and we wish to receive a copy of this information upon completion of the work.

.../2

Ministry of Forests, Lands
and Natural Resource
Operations

Resource Authorizations
Cariboo Region

Mailing Address:
400 - 640 Borland Street
Williams Lake BC V2G 4T1

Telephone: 250-398-4530
Facsimile: 250-398-4214
Web: www.env.gov.bc.ca

I remind you that embedded debris removal within Polley Lake, Hazeltine Creek and at the Mouth of Hazeltine Creek where it enters Quesnel Lake must be approved by the Environmental Protection Division of the Ministry of Environment prior to being completed.

This order is ancillary to the jurisdictions of the Ministry of Mines and Ministry of Environment and it is expected that overlap will occur between the instructions from these Ministries. Works are to be consistent with the instructions from these Ministries and Federal agencies. This order facilitates the activities that will be approved under the Land act and Forest Act.

An appeal to this order may be taken only as directed within Section 92 of the *Water Act*. An appeal shall not act as a stay of execution of the order.

This order does not preclude legal proceedings.

Yours truly,



David Weir
Assistant Regional Water Manager

DW/yp

cc: preoc5.ops1@gov.bc.ca , Jennifer.Mcguire@gov.bc.ca , Al.Hoffman@gov.bc.ca ,
Rodger.Stewart@gov.bc.ca , Robin.Hoffos@gov.bc.ca

Enclosure: August 5th Order and August 20th order.

ENGINEER'S ORDER

SECTION 88 OF THE *WATER ACT*

WHEREAS **Imperial Metals Corporation** are the registered owners of **Mount Polley Mine**, and

WHEREAS **Imperial Metals Corporation** you have, or permitted to have, allowed debris to block the outlet of Polley Lake, enter Hazeltine Creek and enter into Quesnel Lake, and

WHEREAS a person commits an offence under **Section 93(2) (p) and Section 94(1) (g)** of the *Water Act* who:

(p) fails to do an act or thing required to be done by the person under this Act or under an order of the comptroller, regional water manager, engineer or officer;

(g) places, maintains or makes use of an obstruction in the channel of a stream without authority, and

WHEREAS I, David Weir, Engineer under the *Water Act*, am empowered under **Section 88 (1) (j) and (l)** of the *Water Act* to:

(j) order the release of stored or impounded water that the engineer considers a danger to life and property;

(l) order a person to remove from a stream any substance or thing that the person has put or permitted to get into the stream;

I HEREBY ORDER Imperial Metals Corporation to:

1. Under the direction of suitably qualified professionals licenced in the Province of British Columbia: collect and remove such debris from Hazeltine Creek, Quesnel Lake and Polley Lake, as a result of the Mt Polley tailings pond failure; as would threaten public safety, road infrastructure and stream channel stability. Included in this order is approval for the installation and removal of a boat ramp at the West Fraser reload site as discussed during FLNRO joint inspection of August 19th 2014. The manner and nature of these activities is to be suitable to impacted parties, Federal Agencies and the Province.

2. Under the direction of suitably, qualified and experienced professionals, licenced in the Province of British Columbia: maintain the lake level of Polley Lake in a manner that prevents further mass movement of material from Polley Lake and Hazeltine Creek.

By the 31st day of October 2014.

Dated at Williams Lake, British Columbia, this 20th day of August 2014.



David Weir
Engineer under the *Water Act*

Attachments:

August 5th 3:15pm order that was sent via Penny Carpenter.

Hello, at this time it is our understanding that Stephen Rothman has the authority under the mines act to order the necessary measures to contain and remove the debris in Quesnel Lake and to authorize the management of the water level on Polley lake.

However: to remove any confusion and to address any shortcoming that might exist between the Mines Act, Water Act and the MOU that guides there coordination I order under Section 85 as follows;

Subject to the requirements of the Mines Act and MOU

http://www.env.gov.bc.ca/wsd/sla_mou/mempr_mou%202009.pdf and as it is in the public interest for the protection of safety and the integrity of Hazeltine Creek, Polley Lake, Quesnel Lake and the Quesnel River, recognizing the Mt Polley Mine's willingness to undergo the required work at their own cost and save the province harmless:

- 1) Under the direction of suitably qualified professionals licenced in the Province of BC the corporation is ordered to collect and remove such debris from Quesnel Lake, as a result of the Mt Polley tailings pond failure, as would threaten road infrastructure and stream channel stability. The manner and nature to be suitable to impacted parties Federal Agencies and the Province.
- 2) Under the direction of suitably qualified and experienced professionals licenced in the Province of BC; maintain the Lake level of Polley Lake in a manner that prevents further mass movement of material from Polley lake and Hazeltine Creek.
- 3) This order does not superseded any other legislation, agency, or government authority nor does it save them harmless.
- 4) This order is not intended to mitigate or limit the future punitive action of government with respect any non compliance by Mt Polley Mine.
- 5) This order is a temporary measure and is subject to cancelation or modification under the authority of the Water Act Mines Act or the MOU.
- 6) This order doe not authorize the entry onto private lands.

If necessary a more formal and document can be provided at a future date and in the absence of any direction to the contrary it should be considered to be expired as of August 22nd 2014 if not renewed. In addition to the general protection of public interest the specific purpose is to protect the bridge at Likely and to prevent secondary mass movements of material from the failure.

If there are any questions or you feel there is error please contact me. Keeping in mind the rushed nature of this document.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations

Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Penny Carpenter s.22
Sent: Tuesday, August 5, 2014 12:46 PM
To: Weir, David J FLNR:EX
Subject: RE: Mt Polley

Hi David

The Mines Gentleman Steve Rothman will be contacting you regarding the breach of the tailing pond. He will be able to fill you in and maybe it will help the work load so things are not getting duplicated.

Penny Carpenter

From: Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]
Sent: August-05-14 11:41 AM
To: XT:Carpenter, Penny FLNR:IN
Subject: Mt Polley

As per our discussion

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Saturday, August 23, 2014 8:13 AM
To: Patterson, Roberta FLNR:EX; Jensen, Fern FLNR:EX
Subject: FW: Access request to area around Polley Lake

I am not sure whos area this is but if you could pull the licences and see if they are actually impacted? If there is alternate access they will have to use that. At this time it is a safety issue.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations Williams Lake , BC David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

-----Original Message-----

From: Nicol, Jane FLNR:EX
Sent: Friday, August 22, 2014 1:42 PM
To: Weir, David J FLNR:EX
Cc: Stolar, Harold B FLNR:EX
Subject: FW: Access request to area around Polley Lake

Hi David

The below email string related to water licences and I am not familiar with the rights that come with a water licence. Can you help Harold out with his request?

Thanks

Jane

-----Original Message-----

From: Stolar, Harold B FLNR:EX
Sent: Friday, August 22, 2014 1:37 PM
To: Nicol, Jane FLNR:EX
Subject: FW: Access request to area around Polley Lake

Hi Jane, could you forward this on to appropriate staff to have a review of the file to see what right of access has been granted with the issuance of the two tenures below.

He is requesting a key to a Mt Polley gate which was authorized by this office to restrict access of using the FSR which leads to Polley lake. ^{s.22}

^{s.22}

It will be up to me whether I grant him a key or just access upon request by either our office or Mt Polley staff, however would like input by your staff.

Thanks

Inspiring Stewardship through Respectful Conversation Harold -----Original Message-----

From: Moe, James W FLNR:EX
Sent: Friday, August 22, 2014 1:17 PM
To: Stolar, Harold B FLNR:EX
Cc: Hamm, Mark FLNR:EX; Pedersen, Mike FLNR:EX
Subject: FW: Access request to area around Polley Lake

Harold

As discussed this am, providing these residents a key to a locked gate on The Horsefly-Likely FSR in the vicinity of Polley Lake turn-off will be a district manager decision.

~~~~~  
James Moe, RFT  
District Engineering Officer  
Ministry Natural Resources Operations  
Cariboo-Chilcotin Forest District  
Field Services, Engineering Section  
(250) 398-4782 phone  
(250) 398-4790 fax  
<mailto:james.moe@gov.bc.ca>

-----Original Message-----

From: **s.22**  
Sent: Friday, August 22, 2014 12:22 PM  
To: Moe, James W FLNR:EX  
Subject: Access to area around Polley Lake

Hi James,

Further to our conversation on the Ditch Road yesterday, next to the locked steel gates, we are forwarding the information about our two water licenses.

**s.22**

We have had free access to the area in which our creek rises and flows for the past 30+ years. In order to maintain the flow, we need to ensure natural debris is removed. Our past experience with your department has been excellent - we have been notified of any disturbance in our watershed caused by logging etc. and have also experienced complete co-operation from any company who was doing work in the area.

We hope to continue this excellent relationship and ask you to ensure that we are provided with a key to allow us entrance into the area to maintain our water supply as we have done in the past. Although we are deeply concerned with the Polley Mine's current situation, we do not feel that there is any need to infringe on our current efforts to protect and maintain our creek.

Please let us know via email when and where we can collect a key for the gate on the Ditch Road.

We look forward to hearing from you at your earliest convenience.

**s.22**

Sent from my iPad

**Weir, David J FLNR:EX**

---

**From:** Nicol, Jane FLNR:EX  
**Sent:** Friday, August 22, 2014 5:35 PM  
**To:** Seabourne, Sean FLNR:IN  
**Cc:** Weir, David J FLNR:EX; Pinette, Julie S FLNR:EX  
**Subject:** RE: Imperial Metals Cause Way Location  
**Attachments:** West Fraser aquatic lands lease letter.pdf

Hi Sean

Here's the letter. I won't mail the original. You can pick it up from Julie when you do the Modification Agreement next week.

Jane A. Nicol, R.P.F.

Crown Lands Section Head & A/CBC Manager  
Ministry of Forests, Lands and Natural Resource Operations  
(250) 398-4786  
[jane.nicol@gov.bc.ca](mailto:jane.nicol@gov.bc.ca)

---

**From:** [Sean.Seabourne@westfraser.com](mailto:Sean.Seabourne@westfraser.com) [<mailto:Sean.Seabourne@westfraser.com>]  
**Sent:** Friday, August 22, 2014 3:43 PM  
**To:** Nicol, Jane FLNR:EX  
**Subject:** Imperial Metals Cause Way Location

Jane,

Here is a copy of the Map for Lease No. 513362 showing the location of the causeway that Imperial Metals Corporation wants to build to remove the tailings pond breach material from Quesnel Lake.

*(See attached file: Imperial Metals Causeway Location Map.pdf)*

1 attachment

*(See attached file: Mount Polley Debris Clean Up in Quesnel Lake.pdf)*

Sean Seabourne RPF, EIT  
Roads Coordinator - Williams Lake  
West Fraser Mills Ltd.  
South Cariboo Division  
Office 250-392-1382  
Fax 250-398-6535

-----  
This e-mail message and any attachments are confidential. Any dissemination or use of this information by a person other than the intended recipient is unauthorized. If you are not the intended recipient, please notify me by return e-mail, do not open any attachment and delete this communication and any copy. Thank you



File: 5402012

August 22, 2013

Sean Seabourne, R.P.F, EIT, Roads Co-ordinator,  
West Fraser Mills Ltd.,  
P.O. box 4306,  
Williams Lake, British Columbia  
V2G 2V4

Dear Sean:

Not Withstanding clause 1.2 (c) of the Special Proviso Schedule of Lease 513362, Crown Lands file 5402014, this letter authorizes the construction of a load out ramp to aid in the removal of debris from Quesnel Lake, until a formal Modification Agreement can be prepared and signed.

Construction of the load out ramp is authorized in the location described on the attached map to the specifications prepared by a Professional Engineer.

Please contact Julie Pinette, 250-398-4722 by August 29, 2014 to make arrangements to prepare the Modification Agreement.

Yours truly,

Jane A. Nicol, R.P.F.,  
Crown Lands Section Head, Resource Authorizations

Enclosure: Location Map



Province of  
British Columbia

Ministry of  
Crown Lands

# Legal Description Schedule

LEASE No.

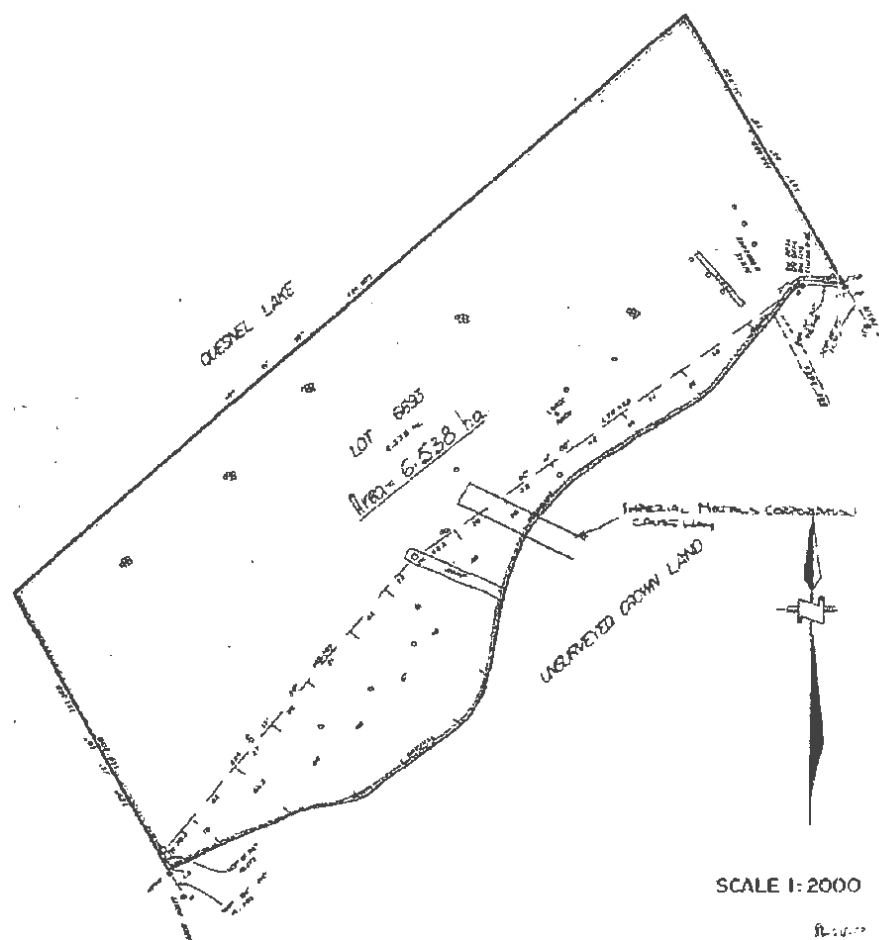
517362

FILE No. 5400314

## 1.1 Legal Description

District Lot 6893, Caribou District, shown outlined on sketch plan below.

LOP 12351 12347 12352



SCALE 1:2000

PL 12351  
12347  
12352

**Weir, David J FLNR:EX**

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**From:** Cameron, Valerie Z FLNR:EX  
**Sent:** Monday, August 25, 2014 8:56 AM  
**To:** Weir, David J FLNR:EX  
**Subject:** Out of Office: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

s.22 and will generally not be checking for emails. If this enquiry is urgent, please contact Brian Symonds, Director Water Stewardship at 250 490 8255. Thank you.



## **Weir, David J FLNR:EX**

---

**From:** Weir, David J FLNR:EX  
**Sent:** Monday, August 25, 2014 8:56 AM  
**To:** Hamm, Mark FLNR:EX; Cameron, Valerie Z FLNR:EX  
**Subject:** FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

We can discontinue the spot forecasts now.

David Weir  
Water Section Head,  
Ministry of Forest Lands and Natural Resource Operations  
Williams Lake, BC  
[David.J.Weir@gov.bc.ca](mailto:David.J.Weir@gov.bc.ca)  
(250) 398 4924  
Cell 250 267-5925

---

**From:** Don Parsons [<mailto:dparsons@imperialmetals.com>]  
**Sent:** Saturday, August 23, 2014 11:34 AM  
**To:** Weir, David J FLNR:EX  
**Subject:** RE: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

David  
Not required.  
Thanks  
Don



Don Parsons, Chief Operating Officer  
[dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)  
604.488.2652 | mobile 778.836.2652

**Imperial Metals Corporation**  
200-580 Hornby Street, Vancouver, BC V6C3B6  
604.669.8959 | [www.imperialmetals.com](http://www.imperialmetals.com)

---

**From:** Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]  
**Sent:** Thursday, August 21, 2014 12:19 PM  
**To:** Don Parsons  
**Subject:** FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Hi Don, do you still want to receive these daily spot forecasts?

David Weir  
Water Section Head,  
Ministry of Forest Lands and Natural Resource Operations  
Williams Lake, BC  
[David.J.Weir@gov.bc.ca](mailto:David.J.Weir@gov.bc.ca)

(250) 398 4924  
Cell 250 267-5925

**From:** Cameron, Valerie Z FLNR:EX  
**Sent:** Thursday, August 21, 2014 12:00 PM  
**To:** Weir, David J FLNR:EX  
**Subject:** FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Hi Dave,

I participated on the EMBC Mt Polley coordination call today and heard 2 things amongst others:

- Rowena said that the EOC has closed and they are at Level 1
- Michael Higgins advised Environment Canada that there was no need to provide spot forecasts over the weekend.

We have been received these WMB spot forecasts (attached) from Mark Hamm, which would appear to duplicate the Environment Canada forecasts. The WMB spot forecasts are pretty good, but in an earlier email Mark indicated that if they were not needed to let him know as the WMB forecasters are busy enough without having to do the spot forecast. I had responded to Mark that it would be Andrew Morrison's call on whether to continue with the WMB spot forecasts, but I note that with the EOC shut down that Andrew is probably not even at the EOC anymore. Furthermore, if there is no need for Environment Canada to produce spot forecasts over the weekend, would there still be a need for WMB to produce spot forecasts over the weekend? It would be unfortunate if WMB continued to devote resources to this function simply because no one thought to contact them to stop.

My question: are the WMB spot forecasts needed?

If not, I suggest that you contact Mark and advise him to ask WMB to cease the forecasts. Or if there is someone else you need to talk to about whether the forecasts should proceed?

Please feel free to contact me if you have any questions or require further information.

Valerie

**From:** Hamm, Mark FLNR:EX  
**Sent:** Wednesday, August 20, 2014 5:22 PM  
**To:** Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX  
**Cc:** Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX  
**Subject:** FYI: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Apologies for the delay in forwarding!

Mark

**Mark Hamm, R.P.F.**  
Resource Manager  
Cariboo Chilcotin District  
(Williams Lake)  
Ministry of Natural Resource Operations  
tel 250-398-4399

mob 250-398-0817  
fax 250-398-4790  
<mailto:Mark.Hamm@gov.bc.ca>

---

**From:** Rob Pigott [<mailto:envirobc@telus.net>]  
**Sent:** Wednesday, August 20, 2014 10:47 AM  
**To:** RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX;  
[EOCDirector@cariboord.bc.ca](mailto:EOCDirector@cariboord.bc.ca)  
**Subject:** Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Rob Pigott  
Enviro-BC Weather Services  
1706 Capilano Ave.  
Comox, BC  
V9M 1B6  
250-339-4424

**Weir, David J FLNR:EX**

---

**From:** Sean.Seabourne@westfraser.com  
**Sent:** Monday, August 25, 2014 8:51 AM  
**To:** Weir, David J FLNR:EX  
**Subject:** Water Act Order

David,

As discussed can you send West Fraser a copy of the order made under the Water Act.

Thanks,

Sean Seabourne RPF, EIT  
Roads Coordinator - Williams Lake  
West Fraser Mills Ltd.  
South Cariboo Division  
Office 250-392-1382  
Fax 250-398-6535

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This e-mail message and any attachments are confidential. Any dissemination or use of this information by a person other than the intended recipient is unauthorized. If you are not the intended recipient, please notify me by return e-mail, do not open any attachment and delete this communication and any copy. Thank you

## **Weir, David J FLNR:EX**

---

**From:** Don Parsons <dparsons@imperialmetals.com>  
**Sent:** Saturday, August 23, 2014 11:34 AM  
**To:** Weir, David J FLNR:EX  
**Subject:** RE: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

David  
Not required.  
Thanks  
Don



**Don Parsons**, Chief Operating Officer  
[dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)  
604.488.2652 | mobile 778.836.2652

**Imperial Metals Corporation**  
200-580 Hornby Street, Vancouver, BC V6C3B6  
604.669.8959 | [www.imperialmetals.com](http://www.imperialmetals.com)

---

**From:** Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]  
**Sent:** Thursday, August 21, 2014 12:19 PM  
**To:** Don Parsons  
**Subject:** FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Hi Don, do you still want to receive these daily spot forecasts?

David Weir  
Water Section Head,  
Ministry of Forest Lands and Natural Resource Operations  
Williams Lake, BC  
[David.J.Weir@gov.bc.ca](mailto:David.J.Weir@gov.bc.ca)  
(250) 398 4924  
Cell 250 267-5925

---

**From:** Cameron, Valerie Z FLNR:EX  
**Sent:** Thursday, August 21, 2014 12:00 PM  
**To:** Weir, David J FLNR:EX  
**Subject:** FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Hi Dave,

I participated on the EMBC Mt Polley coordination call today and heard 2 things amongst others:

- Rowena said that the EOC has closed and they are at Level 1
- Michael Higgins advised Environment Canada that there was no need to provide spot forecasts over the weekend.

We have been received these WMB spot forecasts (attached) from Mark Hamm, which would appear to duplicate the Environment Canada forecasts. The WMB spot forecasts are pretty good, but in an earlier email Mark indicated that if they were not needed to let him know as the WMB forecasters are busy enough without having to do the spot forecast. I had responded to Mark that it would be Andrew Morrison's call on whether to continue with the WMB spot forecasts, but I note that with the EOC shut down that Andrew is probably not even at the EOC anymore. Furthermore, if there is no need for Environment Canada to produce spot forecasts over the weekend, would there still be a need for WMB to produce spot forecasts over the weekend? It would be unfortunate if WMB continued to devote resources to this function simply because no one thought to contact them to stop.

My question: are the WMB spot forecasts needed?

If not, I suggest that you contact Mark and advise him to ask WMB to cease the forecasts. Or if there is someone else you need to talk to about whether the forecasts should proceed?

Please feel free to contact me if you have any questions or require further information.

Valerie

---

**From:** Hamm, Mark FLNR:EX  
**Sent:** Wednesday, August 20, 2014 5:22 PM  
**To:** Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX  
**Cc:** Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX  
**Subject:** FYI: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Apologies for the delay in forwarding!

Mark

**Mark Hamm, R.P.F.**  
Resource Manager  
Cariboo Chilcotin District  
(Williams Lake)  
Ministry of Natural Resource Operations  
tel 250-398-4399  
mob 250-398-0817  
fax 250-398-4790  
<mailto:Mark.Hamm@gov.bc.ca>

---

**From:** Rob Pigott [<mailto:envirobc@telus.net>]  
**Sent:** Wednesday, August 20, 2014 10:47 AM  
**To:** RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX;  
[EOCDirector@cariboord.bc.ca](mailto:EOCDirector@cariboord.bc.ca)  
**Subject:** Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Rob Pigott  
Enviro-BC Weather Services  
1706 Capilano Ave.  
Comox, BC



## **Weir, David J FLNR:EX**

---

**From:** McGuire, Jennifer ENV:EX  
**Sent:** Saturday, August 23, 2014 8:41 AM  
**To:** Weir, David J FLNR:EX; Bellefontaine, Kim MEM:EX  
**Cc:** Stewart, Rodger W FLNR:EX  
**Subject:** Re: Polley Lake Works

Thanks Dave.

Sent from my BlackBerry 10 smartphone on the TELUS network.

**From:** Weir, David J FLNR:EX  
**Sent:** Saturday, August 23, 2014 8:32 AM  
**To:** Bellefontaine, Kim MEM:EX; McGuire, Jennifer ENV:EX  
**Cc:** Stewart, Rodger W FLNR:EX  
**Subject:** RE: Polley Lake Works

In the end it was not clear that Mines could address this issue fully so I have included the lake level management in the order. The order is complementary to the now document and places the responsibility on the appropriate Professionals from the mine and recognises there requirement to work with Mines and EP.

David Weir  
Water Section Head,  
Ministry of Forest Lands and Natural Resource Operations  
Williams Lake, BC  
[David.J.Weir@gov.bc.ca](mailto:David.J.Weir@gov.bc.ca)  
(250) 398 4924  
Cell 250 267-5925

**From:** Bellefontaine, Kim MEM:EX  
**Sent:** Thursday, August 21, 2014 7:31 AM  
**To:** Weir, David J FLNR:EX  
**Subject:** Re: Polley Lake Works

Let me know if you wish to discuss further.

Kim Bellefontaine, M.Sc., P.Geo.  
Manager Environmental Geoscience and Permitting  
BC Ministry of Energy & Mines  
250-952-0489  
[Kim.Bellefontaine@gov.bc.ca](mailto:Kim.Bellefontaine@gov.bc.ca)

On Aug 20, 2014, at 3:14 PM, "Weir, David J FLNR:EX" <[David.J.Weir@gov.bc.ca](mailto:David.J.Weir@gov.bc.ca)> wrote:

Thank you Don. I am just trying to confirm with mines but I will probably not include the lake level in the order when it is done as it is now covered off in the NOW.

David Weir  
Water Section Head,  
Ministry of Forest Lands and Natural Resource Operations



Williams Lake , BC  
[David.J.Weir@gov.bc.ca](mailto:David.J.Weir@gov.bc.ca)  
(250) 398 4924  
Cell 250 267-5925

---

**From:** Don Parsons [<mailto:dparsons@imperialmetals.com>]  
**Sent:** Wednesday, August 20, 2014 2:37 PM  
**To:** Weir, David J FLNR:EX  
**Subject:** Polley Lake Works

David

The works undertaken to mitigate the breach of tailings and debris plug located at Polley Lake continues under the Notice of Works from the Ministry of Energy and Mines. I enclose the Notice of Work correspondence for your files.

Regards

Don

<image001.jpg>

**Don Parsons**, Chief Operating Officer  
[dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)  
604.488.2652 | mobile 778.836.2652

**Imperial Metals Corporation**  
200-580 Hornby Street, Vancouver, BC V6C3B6  
604.669.8959 | [www.imperialmetals.com](http://www.imperialmetals.com)

**Weir, David J FLNR:EX**

---

**From:** Nicol, Jane FLNR:EX  
**Sent:** Saturday, August 23, 2014 8:26 AM  
**To:** Weir, David J FLNR:EX  
**Subject:** Out of Office: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

I am out of the office until August 29, 2014. I will be monitoring my email.

## **Weir, David J FLNR:EX**

---

**From:** Weir, David J FLNR:EX  
**Sent:** Saturday, August 23, 2014 8:26 AM  
**To:** McGuire, Jennifer ENV:EX; Symonds, Brian FLNR:EX; Stewart, Rodger W FLNR:EX; Bellefontaine, Kim MEM:EX; Palesch, Dan TRAN:EX; 'rbastien@cariboord.bc.ca'  
**Cc:** Nicol, Jane FLNR:EX  
**Subject:** FW: Emailing: Mount Polley Debris Clean Up in Quesnel Lake  
**Attachments:** Mount Polley Debris Clean Up in Quesnel Lake.pdf

Please find the attached document which lays out how the debris management will proceed.

David Weir  
Water Section Head,  
Ministry of Forest Lands and Natural Resource Operations Williams Lake , BC [David.J.Weir@gov.bc.ca](mailto:David.J.Weir@gov.bc.ca)  
(250) 398 4924  
Cell 250 267-5925

-----Original Message-----

From: Penny Carpenter [s.22](#)  
Sent: Friday, August 22, 2014 9:37 AM  
To: [dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com); 'Dale Reimer'; Russell Gibson; Weir, David J FLNR:EX; Stolar, Harold B FLNR:EX  
Subject: FW: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

-----Original Message-----

From: Emily Cheung [<mailto:echeung@dwbconsulting.ca>]  
Sent: August-22-14 7:56 AM  
To: 'Don Parsons'  
Cc: [s.22](#) Brian Aitken; Josef Lerch  
Subject: RE: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

Please find attached the revised report with the minor changes for clarification in the fabric and rock gradation.

Emily Cheung, MASc, PEng, FEC  
Engineering Manage

DWB Consulting Services Ltd.  
Office: (250) 562-5541 (ext 239)  
Cell: (250) 961-5262  
Fax: (250) 562-5561  
[echeung@dwbconsulting.ca](mailto:echeung@dwbconsulting.ca)  
[www.dwbconsulting.ca](http://www.dwbconsulting.ca)

All information and content in this email is private and confidential and intended for the recipient only.

-----Original Message-----

From: Mark Thompson

Sent: August-21-14 2:55 PM

To: 'Don Parsons'

Cc: s.22 Emily Cheung; Brian Aitken

Subject: RE: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

Dear Mr. Parsons,

A revised copy of the document is attached with the recommended changes including newly appended ARD test results.

Sincerely,

Mark Thompson, MSc, MEd, RPBio  
Ecologist

DWB Consulting Services Ltd.  
Office: (250) 562-5541 (ext 279)  
Cell: (250) 961-9520  
Fax: (250) 562-5561  
[mthompson@dwbcconsulting.ca](mailto:mthompson@dwbcconsulting.ca)  
[www.dwbcconsulting.ca](http://www.dwbcconsulting.ca)

-----Original Message-----

From: Brian Aitken [<mailto:baitken@dwbcconsulting.ca>]

Sent: Thursday, August 21, 2014 2:07 PM

To: Don Parsons

Cc: s.22 Emily Cheung; Mark Thompson

Subject: Re: Emailing: Mount Polley Debris Clean Up in Quesnel Lake

We will revise and send out immediately. Penny we will leave it to you to submit to flnro.

Brian

Sent from my iPhone

> On Aug 21, 2014, at 1:32 PM, "Don Parsons" <[dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)>  
wrote:

>

>

> Penny

> A good practical report. We should not have difficulty meeting the  
recommendations. Change Russ Parsons to Russ Gibson. I will check with our  
Enviro group for a standard spill plan. I will forward the ARD calcs soon.

> Thanks

> Don

>

> Don Parsons, Chief Operating Officer

> [dparsons@imperialmetals.com](mailto:dparsons@imperialmetals.com)

> 604.488.2652 | mobile 778.836.2652

>  
> Imperial Metals Corporation  
> 200-580 Hornby Street, Vancouver, BC V6C3B6  
> 604.669.8959 | [www.imperialmetals.com](http://www.imperialmetals.com)  
>  
>  
>  
> -----Original Message-----  
> From: Brian Aitken [<mailto:baitken@dwbcconsulting.ca>]  
> Sent: Thursday, August 21, 2014 8:17 AM  
> To: s.22 Don Parsons  
> Cc: Emily Cheung  
> Subject: Emailing: Mount Polley Debris Clean Up in Quesnel Lake  
>  
> Report attached. Let me know if you require any changes.  
>  
>  
> Brian Aitken, RPBio, PAg, CPESC  
> Environmental Manager  
>  
> DWB Consulting Services Ltd.  
> Office: (250) 562-5541  
> Cell: (250) 961-0043  
> Fax: (250) 562-5561  
> [baitken@dwbcconsulting.ca](mailto:baitken@dwbcconsulting.ca)  
>  
>  
>



August 20, 2014

Ministry of Forests, Lands and Natural Resource Operations  
Water Stewardship Cariboo Region  
400-640 Borland Street  
Williams Lake, BC, V2G 4T1

*DWB File No 14274-219*

**Attention: David Weir, PAg – Water Section Head**

**RE: Mount Polley Tailings Pond Failure Debris Clean-Up in Quesnel Lake**

---

The Mount Polley mine tailings pond failure occurred on August 4, 2014 when the tailings pond partially breached, releasing water and tailings slurry into downstream waters. The resulting debris torrent caused by the sudden release of water and sediment behind the dam carried felled trees, mud and debris scoured away the banks of Hazeltine Creek which flows out of Polley Lake and continued into the nearby Quesnel Lake. The debris torrent significantly eroded Hazeltine Creek and the associated riparian vegetation causing a large amount of sediment and woody debris to be deposited into Quesnel Lake.

DWB Consulting Services Ltd (DWB) was contacted on August 15<sup>th</sup> by Penny Carpenter (Eaglecrest) and Russel Gibson (Imperial Metals) and requested to attend the site at Quesnel Lake for a meeting and to provide professional recommendations concerning environmental and engineering aspects of the proposed woody debris clean-up operations. Brian Aitken, RPBio and Emily Cheung, PEng of DWB attended the site August 19<sup>th</sup> to meet with Imperial and Ministry of Forest, Lands and Natural Resource Operations (MFLNRO) staff to discuss the scope of the services required. MFLNRO staff in attendance included David Weir - Water Section Head, Robin Hoffos -Section Head Habitat Management and Lee Williston. The clean-up of the woody debris within the lake was already well underway with significant progress made in the clean-up effort prior to DWB's site meeting.

The reason why DWB was retained by Imperial Metals was to provide engineering and environmental expertise to the efforts in support of an extension to the Order originally granted to Imperial Metals by MFLNRO to clean up the woody debris in Quesnel Lake under emergency conditions. This original Order expires August 21<sup>st</sup> and must be extended to allow the clean-up works to continue.

The clean-up of the woody debris in Quesnel Lake is currently being undertaken by a host of local individuals/property owners, machine operators, forests licenses, first nations, consultants and contractors working under the direction of Penny Carpenter (Eaglecrest) and Russel Gibson (Imperial Metals). Clean up of Quesnel Lake to date consisted of: (1) booming the debris along the shoreline in heavy debris areas, (2) using boats to pick up and boom loose floating debris, (3) mapping the shoreline to determine extent and density of the rafted woody debris, (4) piling shoreline woody debris by hand and/or small machinery and (5) using a tug boat and boom sticks to transport some of the woody debris to the exiting



West Fraser log sort/load out (52° 29' 56" Lat and 121° 12' 4" Long) where it has been contained within log booms. Moving forward, DWB has been asked to provide the following scope of services:

- A. Environmental mitigation and monitoring for the debris containment and clean up along the shoreline by both hand/machines and the transport of this material to the West Fraser load out utilizing tugs via barge/boom,
- B. Engineering expertise to design and construct a suitable load out ramp at the West Fraser site that will allow wood debris to be removed from the boomed storage area at least until the end of October under the receding water levels in the lake. Once removed from the water, the woody debris will be sorted and stored upland for uses yet to be determined,
- C. Environmental mitigation and monitoring for the design/construction of the load out ramp described above and also the decommissioning of the ramp in 2015 when it is no longer required.

The following report provides the required engineering and environmental information in the order which it is presented above.

**(A) Environmental mitigation and monitoring requirements for the debris clean up in Quesnel Lake**

Clean up operations are well underway and it appears they have been completed in an environmentally sensitive manner thus far. During the inspection with MFLNRO on August 19<sup>th</sup>, very little floating debris was observed in the lake between the West Fraser load out and Hazeltine Creek that was not already contained within high density debris areas which were enclosed within booms. The largest floating accumulations are in Mitchel Bay and the bay at Hazeltine Creek which is a no work area due to safety constraints concerning the unstable tailings dam at Mount Polley upslope of this location. The majority of the remaining wood debris was rafted along the shoreline due to the receding water levels. A significant portion of this material has been piled along the shoreline via hand labour and small machines. To date, most of the affected shoreline (est 40-50km) has been assessed for debris accumulations and categorized as light, moderate or heavy based on the debris density. Also one load of debris enclosed within a large log boom has been transported to the West Fraser load out location and secured to the existing piles for eventual removal from the lake.

Moving forward, the following Best Management Practices (BMP's) and environmental mitigation will be incorporated into the woody debris clean up and transport to the load out:

- 1) It is recommended that the entire existing shoreline which was affected by debris accumulations be video recorded before and after the clean-up operations. This will not only provide evidence that the shoreline was adequately cleaned up, but will also provide proof in the spring that there was significant older natural woody debris which was present before the dam failure along the



shoreline. At this time the difference between wood that recently came down due to the failure and the older natural occurring wood is very evident.

- 2) All debris possible, both floating and rafted needs to be removed from Quesnel Lake by the end of October.
- 3) All debris accumulation areas along the foreshore which are flat enough to allow access by light tracked equipment via barge and have been mapped and categorized as heavy or medium will be re-visited to determine beach conditions. Any area of beach that is soft and will lead to significant rutting by machinery will be flagged as 'Machine Free Zones'. Any area of these beaches which provide enough ground support that significant rutting will not occur may be accessed by light tracked equipment and debris piled as close to the existing shoreline as possible to allow efficient collection of debris by a barge. Some beaches may not be suitable for tracked machinery at all and may require all hand labour. Only remove new debris from the recent event (ie do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat). Each beach should have at least one landing location flagged so that the barge knows where to off-load any equipment during drop off or pick up.
- 4) Any debris accumulation areas along the foreshore that have been mapped and categorized as light or that are too steep for machinery will be removed by hand (no equipment permitted on the beach). This debris will be removed from the foreshore and scattered above the high water mark (HWM) of the lake or picked directly from the water via barge. Any debris which is too large to move by hand will be bucked into manageable pieces before it is placed above the HWM. Only remove new debris from the recent event (ie do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat).
- 5) EXCEPTION TO POINTS 3 AND 4 FOR CARIBOO ISLAND. Those affected areas along Cariboo Island will all be hand labour only. No machinery permitted on foreshore. Due to archeological considerations, First Nation monitoring required for any works on the island and all woody debris will be removed even in light density areas as per methodology described in bullet 6, paragraph II.
- 6) Once material has been piled on the beach, it will be removed via barge and tug boat with an excavator (or in the case of Mitchell Bay may be partially accessed from the land with a dump truck). Where the beach has been determined to be stable, the barge will nose into the shore and ramp lowered to the foreshore. The excavator will disembark from the barge and load the debris onto the deck. The debris will be piled carefully onto the barge ensuring that all pieces are secured so that they do not fall off during transport. If the barge is full, the excavator may be left at the beach until the barge arrives back for final pick up. If this should occur, the excavator must be parked as far back from the water as possible, preferably in an area which does not drain directly back into the lake. All equipment in operation within the HWM of the lake will have fully stocked spill kits in them should a spill arise. Refer to spill plan in bullet 12. Once the beach has been fully cleared of debris, the excavator will prepare to leave the beach, ensuring that any





significant ruts or beach disturbances have been fully recontoured to natural grade before re-boarding the barge.

Where the beach has been determined to be too soft for machinery, the barge will nose into the shore and the ramp will be lowered to the foreshore. The excavator will be allowed to drive down and sit on the ramp, but will not leave the ramp (i.e., no tracks on beach). All material will be reached from the barge. Once all debris is removed or the barge is full, the excavator will move back up the ramp and leave with the barge.

- 7) Mitchell Bay has been identified by MFLNRO as an area of special concern due to the presence of shore spawning kokanee. Shore spawning kokanee are present in Quesnel Lake in critical convergence zones near the mouth of creeks and where upwelling or significant subsurface flows are present. They prefer gravel to moderate sized cobble bottom substrate which is present in Mitchell Bay. Hazeltine Creek area has also been identified as one of these shore spawning locations; however, due to the amount of sediments deposited at the mouth of this creek the habitat has been affected and is less of a concern at this time. MFLNRO has identified a critical spawning period for kokanee starting mid-September in this area. A detailed report by the Province of BC in 2003 entitled, 'Summary of Quesnel Lake Kokanee and Rainbow Trout Biology Stock Management Report No 17' identifies a later period for Quesnel Lake shore spawning kokanee between October and November. In any case, all boating/barging activities along the near shore area in Mitchell Bay need to be completed before this time period to ensure that spawning kokanee populations are not affected. This area should be the highest priority for removing the debris piles before any other area.
- 8) While barging woody debris down the lake, all debris will be secured so that it does not fall back into the water. The onboard excavator and tug will have spill kits in them as per bullet 12. It will be transported to the West Fraser load out and preferably off loaded directly onto the load out ramp when it arrives as described later in this document. If this is not possible, then the debris will be offloaded into a contained boom area secured to the existing dolphin piles for later removal. Care must be taken to avoid loss of small woody debris into the lake during this process.
- 9) All floating woody debris that is temporarily contained in booms will be barged down the lake in a large boom (ie rather than on a barge). Care must be taken in removing any floating debris that is embedded in the bottom substrate. If it can be removed easily without significant bottom disturbance and/or is a boat hazard it should be removed, otherwise leave the wood embedded and do not remove. Only remove new debris from the recent event (i.e., do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat). Once all the floating debris has been corralled, it will be pushed together and enclosed in a large towing boom which will be transported down the lake. It is important that no small woody debris escape during this transport and a follow up boat may be required to pick up straggler pieces that have broken off. Once the boom arrives at the West Fraser off load site, the boom will be secured to the existing dolphin piles for later removal.



- 10) The debris removal around the mouth of Hazeltine Creek will require extensive works; however no works can proceed until the safety concerns at the upslope tailings dam at Mount Polley are addressed. It is hoped that this area will be cleared for work by safety within the next month. If the area around the mouth of Hazeltine Creek cannot be accessed due to safety concerns prior to winter freeze up, it must be secured so that no wood can escape into the lake in the spring. It is fully expected that more woody debris will be deposited into Quesnel Lake from Hazeltine Creek during any flood or heavy rain events due to the instability of the scoured channel. Currently the entire mouth of Hazeltine Creek is contained with a log boom. It is recommended that a second log boom be constructed and left in place until at least next summer for added security during heavy rain events and spring runoff. **It has been requested that all works at the mouth of Hazeltine Creek have a first nation monitor present.**
- 11) Debris storage at the West Fraser load out will be contained fully within a secured boomed area and anchored to the existing dolphin piles until such time as it can be removed from the water. It is important to conduct a bottom survey before additional debris is stored at this location so that the pre-use condition is known. This area has been previously used for many years as a load out and so it is expected that there is woody accumulations already present to some degree. All small woody debris and any sunken debris as a result of the temporary storage at this location must be removed. Once all debris has been removed and the project complete, a comparison bottom survey must also be completed to provide evidence of this.
- 12) Throughout the debris collection, transport and removal process it is very important that all involved in the clean-up follow general spill prevention and response procedures should a spill be encountered. This is especially important around aquatic environments. All equipment must carry stocked spill kits and crews must be trained in their use and the reporting requirements. In addition, several large drum aquatic spill kits should be present in key locations (i.e., on the barge and at the load out at a minimum). If Imperial has a standard spill plan that can be used, then it should be adopted for this project, otherwise it is recommended that a detailed spill plan be prepared for the project.

## **(B) Engineering considerations for the design and construction of a load out ramp**

Once the wood debris has been transported to the West Fraser load out site, it will be temporarily stored in booms secured to the existing dolphin piles. From this storage area it will be pushed to the shallow with a tug where it will be lifted out of the water by a button top log loader. The log loader will deck this material behind the machine where it will be grasped with a front end loader and transported to the upland sort area for sorting and storage until an appropriate use can be determined. As the lake bottom is very soft/shallow and receding at this location, a causeway ramp has been proposed to be constructed in order to be able to reach the wood without having to drive a machine into the water. The temporary ramp will be constructed of rock and will be designed to allow a minimum depth of water at the end during the lowest expected flow so that the wood can be floated to this location for removal.

**General Design**

Design considerations for the causeway ramp have been formulated from the site visit conducted August 19, 2014. No site survey information was available at the time of this report; however, due to the nature of the emergency conditions and the requirement to remove the debris as quickly as possible from the lake, the design has been formulated with the use of prescriptions (3 pages inclusive) that include photographs and diagrams outlining the location, size and specifications for the causeway ramp. A site inspection report is also included for reference. The intention of the ramp is to facilitate the removal of the logs and debris with the use of machinery out of the water. It is expected that the ramp will require 1.3m of height to remain out of the water during activities.

Currently the lake level is estimated to be at 1.0-1.3m below the high water mark and historically has an average yearly maximum daily fluctuation of 2.23m with a historical minimum fluctuation of 1.576m and historical maximum of 3.008m. Lake levels historically continue to fluctuate through August and September but the trend shows levels will continue to drop from August through until spring when levels are expected to rise again typically in April (Water Survey of Canada gauged water level station 08KH011 1956-2012). Due to the short term use and unknown water levels in the upcoming seasons, the ramp is not designed to meet a specific control lake level or return period elevation, but simply to provide clearance from lake elevations for the emergency works operations in the next weeks. Spring removal of logs and debris that may be required in 2015 may not be able to commence until lake levels reach below the constructed ramp surface. Lake depths from the present water level measured during the site visit past the toe of the ramp near the boom was 4m or 13ft. Although this was measured beyond the toe of the ramp, it may indicate that additional rock may be required to achieve operating levels if water surface elevations do not continue to drop.

The access causeway ramp design consists of a rock ramp from the existing load out to approximately 25m into Quesnel Lake. The ramp will be wide enough (12m) to accommodate an excavator and trucks for hauling rock in or debris out of the lake. The ramp is to extend from the existing load out access straight out into the lake. The ramp profile will be constructed from a rock base overlain with non-woven geotextile and capped with surfacing material that will seal preventing spills into the rock base below. Additional details are provided in the design specifications and depicted in the prescriptions attached.

**Construction Procedure**

The upslope existing load out access is to be stripped of organics and sufficient base material preferably shot rock, shall be placed to stabilize the access to the present lake water level. Rock thickness shall taper from a minimum 300mm to required thickness estimated at 1000mm at the toe of the ramp. If additional length is required or depths vary from the assumed depths, additional thickness of rock will be required as depths at this location were not confirmed. Once rock has been placed, a non-woven geotextile shall be overlaid on the rock and a cap of granular or shot rock material placed on top to provide a running surface and prevent any spills from entering into the lake from on top of the ramp.

A rock source has been located approximately 1 km from the load out site and samples have been sent to Imperial Metals laboratory to test for acid leaching potential. This rock has been deemed suitable due to its size and angularity but results from the tests were not available at the time of the report.

**Design Specifications**

Specifications for construction consist of the following:

| Material                                       | Specification                          | Approx. Quantity   |
|------------------------------------------------|----------------------------------------|--------------------|
| <b>Riprap rock for ramp base material</b>      | Class 50 kg rock                       | 600 m <sup>3</sup> |
| <b>Maximum rock side slopes at toe</b>         | 1.5:1 (H:V)                            | -                  |
| <b>Maximum rock side slopes along ramp</b>     | 2:1 (H:V)                              | -                  |
| <b>Ramp footprint on lake</b>                  | -                                      | 380 m <sup>2</sup> |
| <b>Non Woven geotextile</b>                    | Armtec 200 or approved equivalent      | 360 m <sup>2</sup> |
| <b>Surfacing material or shot rock capping</b> | 3" minus clean gravel or pit shot rock | 54 m <sup>3</sup>  |

Riprap rock shall be clean angular rock that is consistent with the following gradation requirements:

Class 50kg rock - Approx. Average dimension

85% of rock to have average dimension >155mm

50% of rock to have average dimension >330mm

15% of rock to have average dimension >475mm

The rock must be well graded meaning that all dimensions must be represented in the material supplied. This will provide a more stable ramp consisting of smaller and larger rocks that will fit together.

The rock shall be laid on the lake bottom and not keyed in. Due to the nature of the short term usage of the ramp, the rock is expected to withstand normal wave action and not intended for permanent installation or protection. If unusual events are to occur within the period of time that the ramp is in place, repair work may be required.

All quantities provided are for works within the lake and have allowed for waste for supply quantities. These quantities are supplied for the purpose of procurement and are not an indication of maximum or required quantities. Final requirements will be determined by the design engineer or her representative on site. Any variations from the materials specified, must be approved by the design engineer. Material quantities for preparation of upland slope area have not been provided. Quantities are based on the area agreed upon during the site visit to a maximum of 25m extension into the lake; however, this may be altered at the discretion of the Imperial Metals representative. If further length of ramp is required to meet the required depth of 1.0m above the lake bottom, additional volume of these materials will be required.

**Conformance**

All materials shall meet or exceed the specifications as listed in the table. A site supervisor representative from DWB shall determine suitability of materials should there be any variations or substitutions. Documentation by the site supervisor will be provided to the design engineer along with a constructed volume survey for purpose of reporting. Tracking of volumes shall be completed including truck loads delivered for shot rock, capping material, and riprap rock delivered to site.



**Decommissioning Plan**

Upon determination through the agencies and Imperial Metals Corp., once the required debris removal operations are completed, the ramp shall be removed. The ramp is to be dismantled by removing the far toe of the ramp furthest in the lake first. If salvage of the rock is required, removal of the capping material should be completed first and then followed by the removal of the geotextile and finally the rock. All materials shall be removed, stored, stockpiled, or disposed of in accordance with Imperial Metals policy and the environmental requirements discussed in this report.

**(C) Environmental considerations for the design, construction, operation and decommissioning of the load out ramp**

The following environmental mitigation will be implemented during the engineered design, construction, operation and decommissioning of the load out.

**Design Phase**

During the design, the location was chosen at an historic existing load out location. The footprint of the new structure will be minimized, along with the rock volume so that it can be used until Oct-Nov, but will likely be partially submerged during spring conditions. This design limits the amount of rock required, but also will reduce the decommissioning at the end of its use. All rock used in the ramp construction planned for placement in or near the lake has been tested for ARD (test results appended). The design also incorporates larger rock on the bottom/base of the ramp separated with geofabric and smaller rock/fines on the running surface. The smaller material on the surface will act as a filter to soak any minor leaks or drips that may occur during operation, rather than using purely coarse material where spills would directly enter the lake if they should occur.

**Construction Phase**

Construction will proceed under appropriate weather conditions and will occur under a compressed timeline of 3-4 days. As machinery will be working around water, all equipment will be inspected for leaks/drips prior to be allowed to work on the project. For the construction phase of the project, an environmental monitor (EM) will be present to conduct these inspections and carry out the balance of the environmental duties described below. Firstly, a construction prework will be held by all parties involved with the construction at which time the EM will go over the conditions of the MFLNRO Order and the mitigation that has been proposed. Then before the ramp is constructed within the lake, a floating silt curtain will be installed around the ramp location. This will prevent any fines from negatively affecting local water quality. The EM will conduct turbidity monitoring inside and outside the floating silt curtain to record its effectiveness. In addition, the EM will conduct fish salvage as required during construction. There will be no stop nets, but the site will be enclosed by the floating silt curtain. An attempt will be made to set minnow traps each night in the isolated area. If fish are caught, they will be recorded and released outside of the enclosed area. The EM will be responsible for implementing/following the Spill Plan (refer to bullet 12) and reporting as required. *It should be noted that some heavy leachate was noted to the right of the proposed ramp which appeared to be draining from an adjacent wet draw seeping from an historic log sort area covered with bark. This was not a result of any activities associated with this*



*project.* Following construction, the EM will prepare a short post construction report with photo documentation of the measures implemented. A component of this report will be an asbuilt with estimated footprint and rock volumes used in construction.

## **Operation Phase**

Once constructed, it is expected that the ramp will immediately be utilized to start removing debris from the water. As with construction, all equipment must be inspected for leaks/drips before being allowed to be used near the water and on the ramp. Should a spill occur, follow the Spill Plan (refer to bullet 12) and report as required. All employees working near the water need to be trained in spill response. An aquatic spill drum with floating spill boom must be present near the ramp location where it can be quickly deployed in the case of a spill. During woody debris removal with the button top, be careful not to lose small wood pieces into the lake. Should this occur, they will need to be collected and removed. All wood removed from the water will be transported and stored in the upland sort area where it will be sorted/graded for future yet to be determined use.

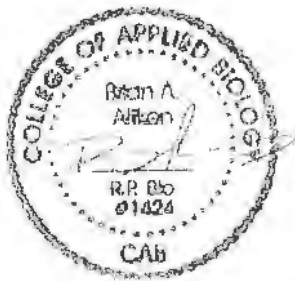
## **Decommissioning Phase**

The ramp will be left in place until the summer of 2015. As previously described, it is expected that additional woody debris will be deposited from Hazeltine Creek into Quesnel Lake during the spring runoff in 2015. This woody debris will also need to be removed next year. Once Imperial is confident that all woody debris has been captured and removed, the load out will be fully decommissioned and returned to its predisturbance condition. This should coincide with low water levels in the lake and appropriate fisheries timing windows to minimize environmental impacts. As with the construction phase, an EM will be present and will aid in deploying the floating silt curtain during the rock removal. Turbidity monitoring will also be conducted. Once all the rock has been removed from the lake, a diversion ditch will be installed at the top of the grade to divert surface runoff from the freshly deactivated foreshore. Also, all exposed soils will be seeded. A final bottom survey will be conducted where the woody debris was stored to ensure that no additional wood has sunken. Once complete, an environmental close-out report will be completed, with photos and estimated total volume of wood removed.

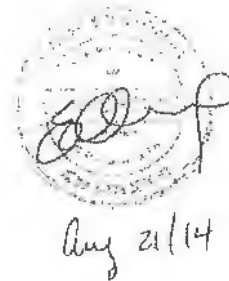


Should you have any questions regarding this report, please do not hesitate to contact either of the undersigned at your convenience.

Sincerely,



Brian Aitken, RPBio, PAg, CPESC  
Corporate Environmental Manager



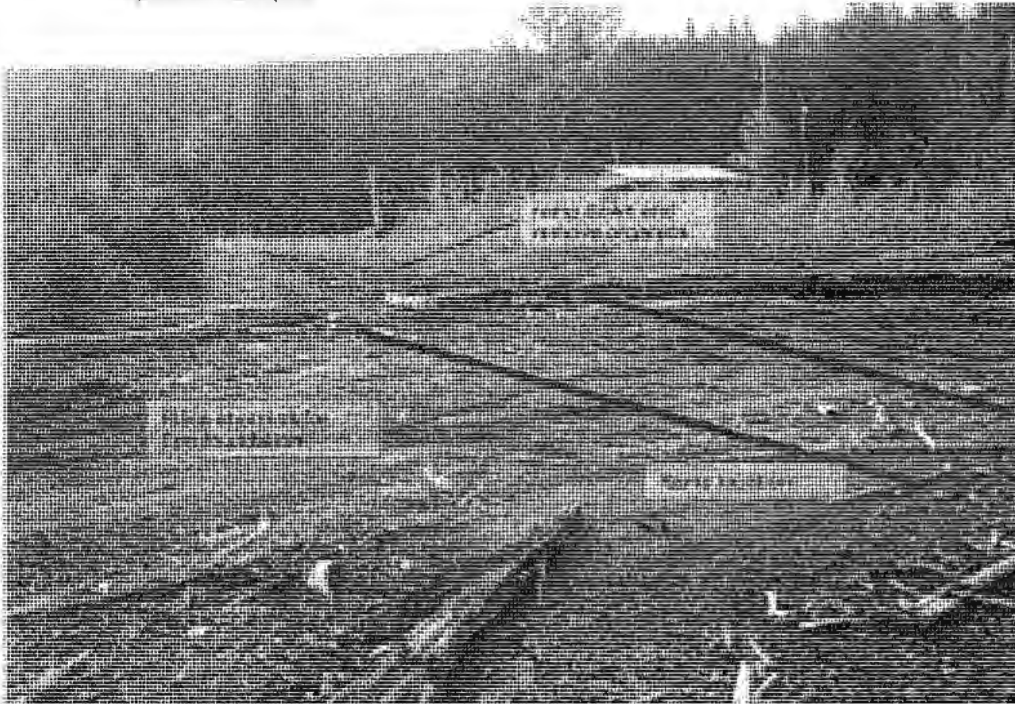
Emily Cheung, MASc, PEng, FEC  
Corporate Engineering Manager

Ce Penny Carpenter (Eaglecrest), Russel Parsons (Imperial Metals), Robin Hoffos (MFLNRO)  
and Lee Williston (MFLNRO)

Site : Quesnel Lake Load out  
Preparation Prescription

2 Road

20-Aug-14



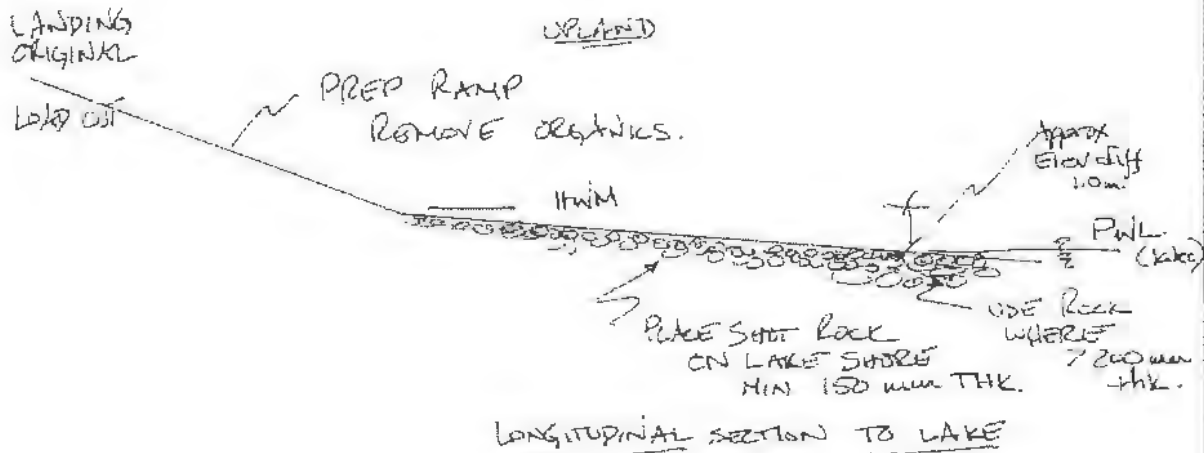
Works to be completed:

Upland

Specifications:

- 1 Prepare ramp down to lake level including stripping
- 2 Place shot rock to firm up foundation for access
- 3 Prepare site in accordance with environmental plan for isolation
- 4 Build up land ramp with shot rock and rock to the present water level
- 5 Use of riprap rock and shot rock required where thickness exceeds 200mm

- 1 Clean shot rock for foundation
- 2 Removed organics placed in an approved location
- 3 Minimum 150mm thick shot rock to provide stabilisation
- 4 Class 50kg riprap



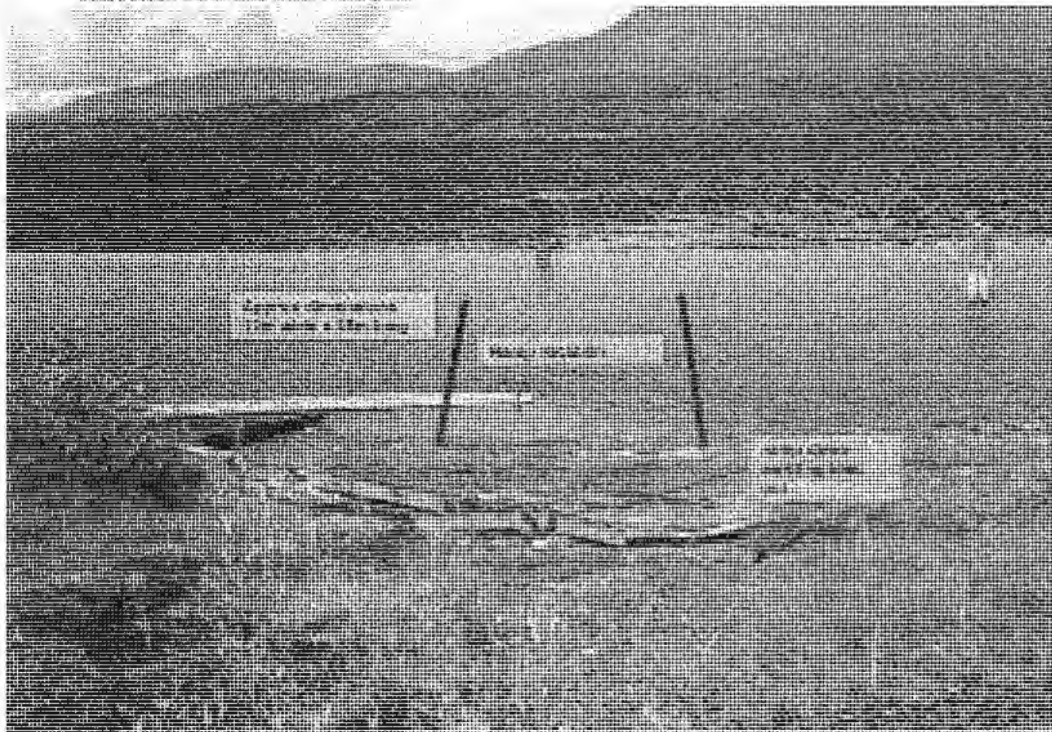


Site : Quesnel Lake Load out

2 Road

20-Aug-14

Copyright Clearance Center, Inc. Library Users: Please Register.



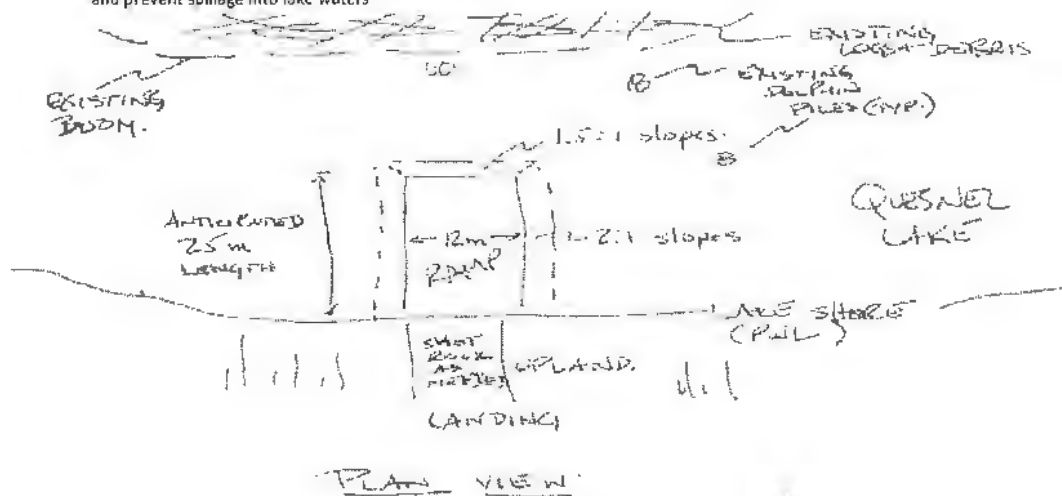
1. 本公司及子公司在报告期内不存在被控股股东、实际控制人及其关联方非经营性占用资金的情况。

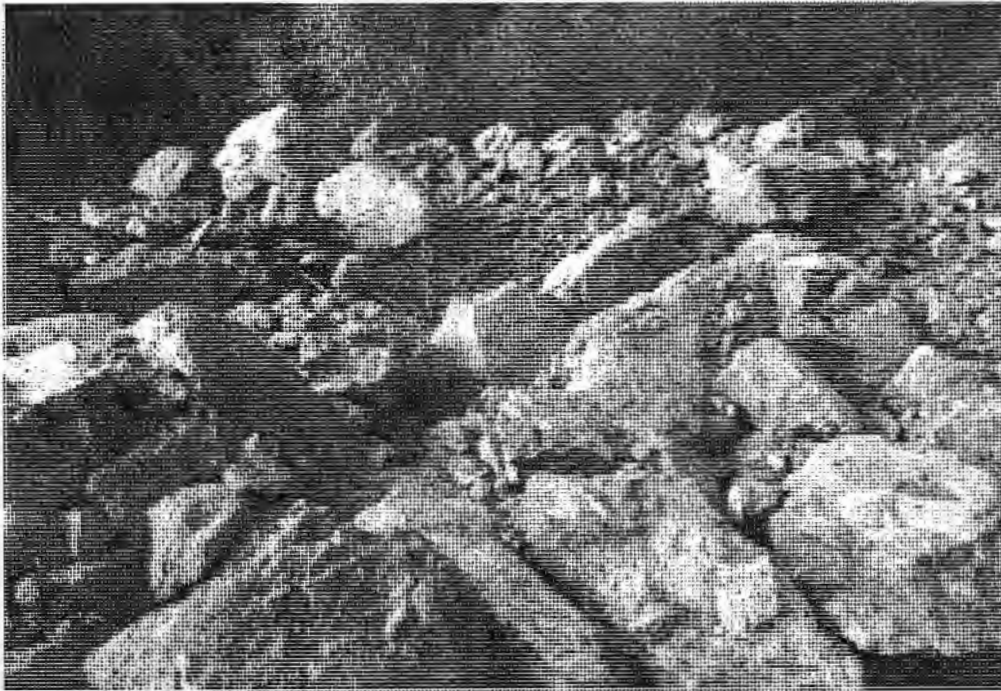
1. 本報社址：台北市中正區重慶南路一段126號11樓。電話：(02) 2386-1234。

姓名: \_\_\_\_\_ 学号: \_\_\_\_\_ 班级: \_\_\_\_\_  
 日期: \_\_\_\_\_

- 1 Rock to be placed from shore side and built up into the lake
- 2 Continue to place rock at minimum 300mm thickness at shoreline
- 3 Gradually build out rock to desired approximate 25m off shore
- 4 Side slopes to be constructed at 2:1 (H:V) outer toe 1.5:1
- 5 Place non-woven geotextile over rock layer
- 6 Cap ramp with clean gravel or shot rock to a minimum 150mm
- 7 Ensure ramp is tracked and packed sufficient to support truck loads and prevent spillage into lake waters

1. Clean shot rock for foundation
2. Expected max 1.3m deep at toe
3. Class 50kg approved riprap rock
4. Final ramp toe width = 12m
5. Larger rock on bottom of ramp
6. Arntec 200/Mirafi 160N/Geotex 601 or approved equivalent non woven geotextile





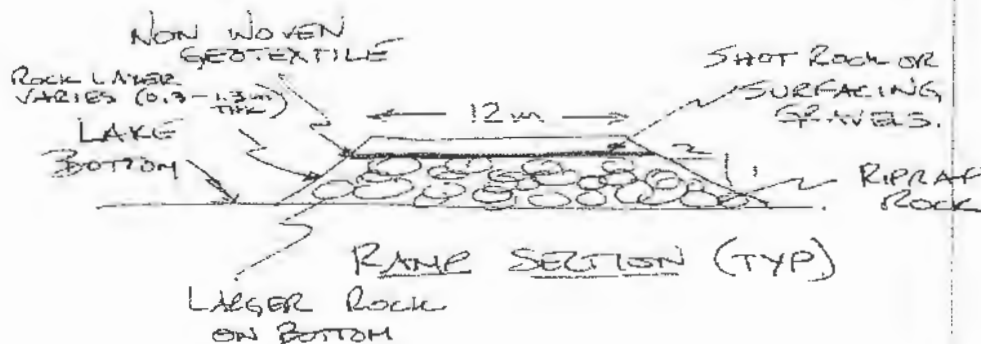
Acceptable well graded rock available at local quarry (pending testing).

Works to be completed:

- 1 Upland ramp access along load out access
- 2 Ramp in lake water from present water to approx. 25m
- 3 For detail section of ramp see sketch below
- 4 Side slopes to be constructed at 2:1 (H:V)
- 5 Provide smooth transition from upslope to in lake ramp construction
- 6 Smaller material must be sloped gradually to prevent erosion

Specifications:

- 1 Riprap rock Class 50#g  
85% avg dimension > 155mm  
50% avg dimension > 330mm  
15% avg dimension > 475mm





## SITE INSPECTION REPORT

DATE OF SITE VISIT: August 19, 2014

DATE OF REPORT: August 20, 2014

OWNER: Imperial Metals Corporation  
CONTRACTOR: Eaglecrest  
Project: Quesnel Lake Log Salvage

**Purpose of Site Visit:** Inspection of the log load out location and condition of log salvage operations for the design of the causeway ramp for load out of barged and towed log booms on Quesnel Lake as a result of material brought down Hazelton Creek to Quesnel Lake. Scope includes determining suitability of location for ramp including design for ramp. Photo 1 shows the proposed location and existing logs ready for load out.

Due to the nature of the works and requirements for quick removal of the material from the lake, emergency prescriptions including design requirements for the ramp are to be prepared for use in construction.

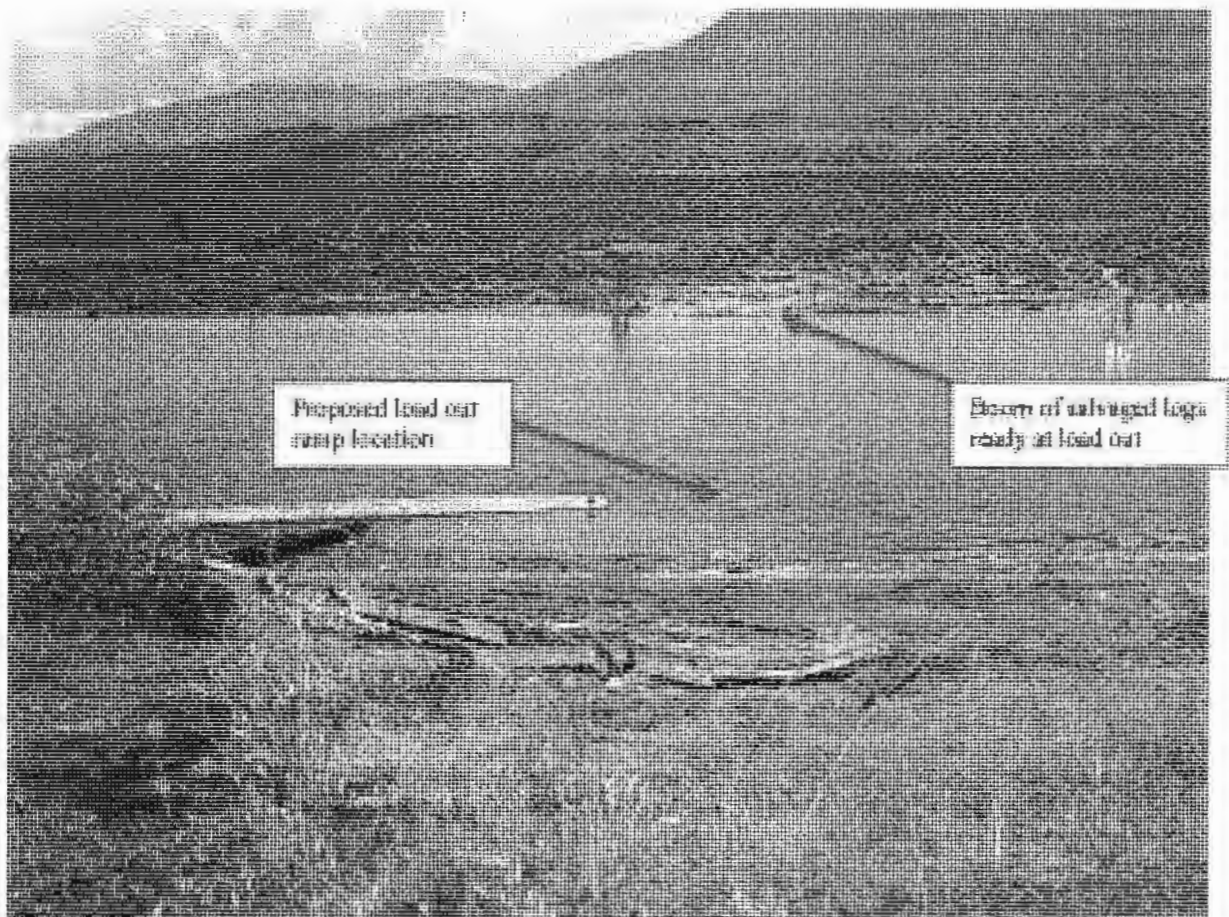


Photo 1: Existing boom of salvaged logs and proposed load out ramp location



**Historical Information:** Works are planned to begin with the ramp down to the high water mark and then to the present water levels for construction of the causeway ramp. The location was used previously as a log sort and load out and evidence of these operations are still clearly visible.



Photo 2: Load out up lake from present water level

**Field Visit:** The site visit was conducted to determine feasibility of a ramp into Quesnel Lake in order to remove the boomed logs and additional logs waiting to be towed/barged to the load out location. A boat tour was conducted down the lake along the shores to examine the logs and debris that has not been collected yet as well as the material already piled and the material boomed at the mouth of Hazeltine Creek.

**Location of Works:** Along Quesnel Lake, BC, with load out location at 52° 29' 56" Lat and 121° 12' 4". Hazeltine Creek is located west of the load out location approximately 20 km along Quesnel Lake. The ramp location from the current shoreline to the end of the ramp is estimated at 25m long by 12m wide for use by an excavator and trucks.



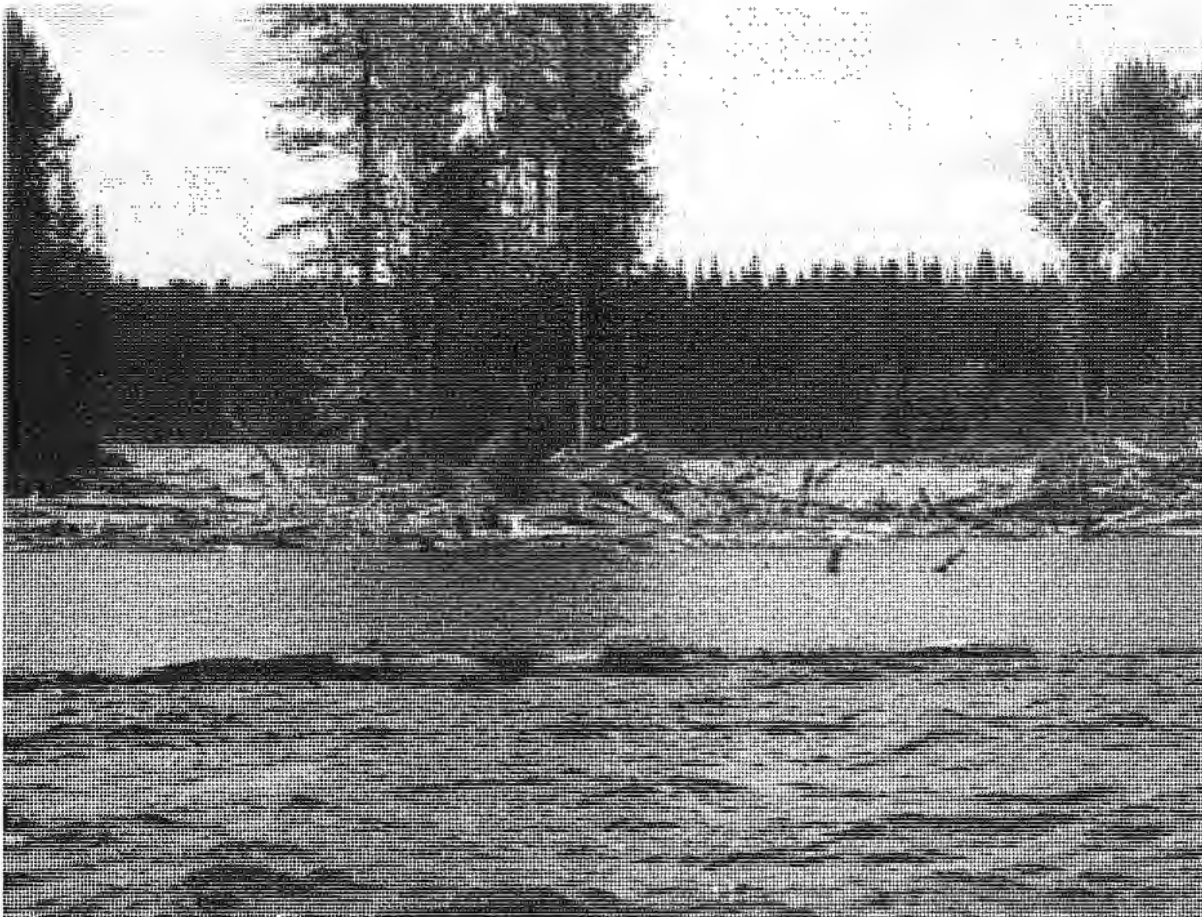


Photo 3: Mouth of Hazeltine Creek with boom at foreground

#### **Recommendations:**

The following recommendations are steps in planning for the design of the ramp works.

1. Provide a report and prescriptions for emergency works.
2. Plans for immediate construction of ramp including environmental monitoring and supervision.
3. Complete hydrotechnical study of lake levels and effects on design.
4. Complete ramp works design based on site information collected.
5. Provide a design summary report for construction.
6. Complete a removal plan for short term installation of ramp.
7. Liason with agencies to achieve all permits and approvals required to complete works.
8. Construction and completion of works including supervision.

It is expected that the installation of the ramp will be completed within the next week and will remain in place until fall of 2015. This will allow for additional removal of material in the spring and summer of 2015 after freshet.

Emily Cheung, MASC, PEng, FEC  
For  
DWB Consulting Services Ltd.



Mount Polley Mines

## ANALYSIS CERTIFICATE - MOUNT POLLEY

Job Number: 8000-AUG14

Reference:

Client: Geology

Received Date: 21 August 2014

Report Date: 21 August 2014

| SAMPLES        | NP Ratio | NP     | Carbon<br>% | AP<br>% | Sulfur<br>% |
|----------------|----------|--------|-------------|---------|-------------|
| 1. MPNC 1A     | 4.19     | 9.187  | 0.110       | 2.188   | 0.070       |
| 2. MPNC 2A     | 3.28     | 13.334 | 0.160       | 4.062   | 0.130       |
| 3. MPNC 3A     | 2.67     | 6.667  | 0.080       | 2.500   | 0.080       |
| 4. MPNC 4A     | 4.80     | 7.500  | 0.090       | 1.562   | 0.050       |
| 5. MPNC 5A     | 19.05    | 41.669 | 0.500       | 2.188   | 0.070       |
| 6. MPNC 6A     | 11.00    | 27.502 | 0.330       | 2.500   | 0.080       |
| 7. Gavln Lk Rd | 6.97     | 28.335 | 0.340       | 4.062   | 0.130       |

**Bill Smith**  
Laboratory Manager



## **Weir, David J FLNR:EX**

---

**From:** Weir, David J FLNR:EX  
**Sent:** Monday, August 25, 2014 9:12 AM  
**To:** Stolar, Harold B FLNR:EX  
**Cc:** Moe, James W FLNR:EX  
**Subject:** FW: Access request to area around Polley Lake

Their works are a long way up the lake and are not near the site. They must think it is safe to cross Hazeltine Creek? Is there alternate access to the other side of Ditch road?

David Weir  
Water Section Head,  
Ministry of Forest Lands and Natural Resource Operations Williams Lake , BC David.J.Weir@gov.bc.ca  
(250) 398 4924  
Cell 250 267-5925

-----Original Message-----

**From:** Jensen, Fern FLNR:EX  
**Sent:** Monday, August 25, 2014 9:02 AM  
**To:** Stolar, Harold B FLNR:EX  
**Cc:** Weir, David J FLNR:EX; Nicol, Jane FLNR:EX  
**Subject:** RE: Access request to area around Polley Lake

Hi Harold

From looking at the location of these water licences (according to the point of diversion), I do not think they will be impacted. If you would like I can show you on a map where the point of diversion, and headwaters<sup>s.22</sup> located for these two water licences.

Any questions please contact me.

Fern Jensen

-----Original Message-----

**From:** Weir, David J FLNR:EX  
**Sent:** Saturday, August 23, 2014 8:13 AM  
**To:** Patterson, Roberta FLNR:EX; Jensen, Fern FLNR:EX  
**Subject:** FW: Access request to area around Polley Lake

I am not sure whos area this is but if you could pull the licences and see if they are actually impacted? If there is alternate access they will have to use that. At this time it is a safety issue.

David Weir  
Water Section Head,  
Ministry of Forest Lands and Natural Resource Operations Williams Lake , BC David.J.Weir@gov.bc.ca  
(250) 398 4924  
Cell 250 267-5925



-----Original Message-----

From: Nicol, Jane FLNR:EX  
Sent: Friday, August 22, 2014 1:42 PM  
To: Weir, David J FLNR:EX  
Cc: Stolar, Harold B FLNR:EX  
Subject: FW: Access request to area around Polley Lake

Hi David

The below email string related to water licences and I am not familiar with the rights that come with a water licence. Can you help Harold out with his request?

Thanks

Jane

-----Original Message-----

From: Stolar, Harold B FLNR:EX  
Sent: Friday, August 22, 2014 1:37 PM  
To: Nicol, Jane FLNR:EX  
Subject: FW: Access request to area around Polley Lake

Hi Jane, could you forward this on to appropriate staff to have a review of the file to see what right of access has been granted with the issuance of the two tenures below.

He is requesting a key to a Mt Polley gate which was authorized by this office to restrict access of using the FSR which leads to Polley lake. s.22

s.22

It will be up to me whether I grant him a key or just access upon request by either our office or Mt Polley staff, however would like input by your staff.

Thanks

-----  
Inspiring Stewardship through Respectful Conversation Harold -----Original Message-----

From: Moe, James W FLNR:EX  
Sent: Friday, August 22, 2014 1:17 PM  
To: Stolar, Harold B FLNR:EX  
Cc: Hamm, Mark FLNR:EX; Pedersen, Mike FLNR:EX  
Subject: FW: Access request to area around Polley Lake

Harold

As discussed this am, providing these residents a key to a locked gate on The Horsefly-Likely FSR in the vicinity of Polley Lake turn-off will be a district manager decision.

~~~~~  
James Moe, RFT
District Engineering Officer
Ministry Natural Resources Operations

Cariboo-Chilcotin Forest District
Field Services, Engineering Section
(250) 398-4782 phone
(250) 398-4790 fax
mailto:james.moe@gov.bc.ca

-----Original Message-----

From: s.22
Sent: Friday, August 22, 2014 12:22 PM
To: Moe, James W FLNR:EX
Subject: Access to area around Polley Lake

Hi James,
Further to our conversation on the Ditch Road yesterday, next to the locked steel gates, we are forwarding the information about our two water licenses.

s.22

We have had free access to the area in which our creek rises and flows for the past 30+ years. In order to maintain the flow, we need to ensure natural debris is removed. Our past experience with your department has been excellent - we have been notified of any disturbance in our watershed caused by logging etc. and have also experienced complete co-operation from any company who was doing work in the area.

We hope to continue this excellent relationship and ask you to ensure that we are provided with a key to allow us entrance into the area to maintain our water supply as we have done in the past. Although we are deeply concerned with the Polley Mine's current situation, we do not feel that there is any need to infringe on our current efforts to protect and maintain our creek.

Please let us know via email when and where we can collect a key for the gate on the Ditch Road.
We look forward to hearing from you at your earliest convenience.

s.22

Sent from my iPad

Weir, David J FLNR:EX

From: Hamm, Mark FLNR:EX
Sent: Monday, August 25, 2014 9:05 AM
To: Weir, David J FLNR:EX; Cameron, Valerie Z FLNR:EX; McGuire, Jennifer ENV:EX
Subject: Heads up: Spot forecast for Mt Polley

Thanks, Dave.

Jennifer, unless you advise me differently I will let WMB know this afternoon that we no longer need the spot forecasts.

Mark

Mark Hamm, R.P.F.
Resource Manager
Cariboo Chilcotin District
(Williams Lake)
Ministry of Natural Resource Operations
tel 250-398-4399
mob 250-398-0817
fax 250-398-4790
<mailto:Mark.Hamm@gov.bc.ca>

From: Weir, David J FLNR:EX
Sent: Monday, August 25, 2014 8:56 AM
To: Hamm, Mark FLNR:EX; Cameron, Valerie Z FLNR:EX
Subject: FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

We can discontinue the spot forecasts now.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Don Parsons [<mailto:dparsons@imperialmetals.com>]
Sent: Saturday, August 23, 2014 11:34 AM
To: Weir, David J FLNR:EX
Subject: RE: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

David
Not required.
Thanks
Don



Don Parsons, Chief Operating Officer
dparsons@imperialmetals.com
604.488.2652 | mobile 778.836.2652

Imperial Metals Corporation
200-580 Hornby Street, Vancouver, BC V6C3B6
604.669.8959 | www.imperialmetals.com

From: Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]
Sent: Thursday, August 21, 2014 12:19 PM
To: Don Parsons
Subject: FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Hi Don, do you still want to receive these daily spot forecasts?

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Cameron, Valerie Z FLNR:EX
Sent: Thursday, August 21, 2014 12:00 PM
To: Weir, David J FLNR:EX
Subject: FW: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Hi Dave,

I participated on the EMBC Mt Polley coordination call today and heard 2 things amongst others:

- Rowena said that the EOC has closed and they are at Level 1
- Michael Higgins advised Environment Canada that there was no need to provide spot forecasts over the weekend.

We have been received these WMB spot forecasts (attached) from Mark Hamm, which would appear to duplicate the Environment Canada forecasts. The WMB spot forecasts are pretty good, but in an earlier email Mark indicated that if they were not needed to let him know as the WMB forecasters are busy enough without having to do the spot forecast. I had responded to Mark that it would be Andrew Morrison's call on whether to continue with the WMB spot forecasts, but I note that with the EOC shut down that Andrew is probably not even at the EOC anymore. Furthermore, if there is no need for Environment Canada to produce spot forecasts over the weekend, would there still be a need for WMB to produce spot forecasts over the weekend? It would be unfortunate if WMB continued to devote resources to this function simply because no one thought to contact them to stop.

My question: are the WMB spot forecasts needed?

If not, I suggest that you contact Mark and advise him to ask WMB to cease the forecasts. Or if there is someone else you need to talk to about whether the forecasts should proceed?

Please feel free to contact me if you have any questions or require further information.

Valerie

From: Hamm, Mark FLNR:EX

Sent: Wednesday, August 20, 2014 5:22 PM

To: Ewanyshyn, Ron JAG:EX; Weir, David J FLNR:EX; Rothman, Stephen MEM:EX; Morrison, Andrew JAG:EX

Cc: Vanderburgh, Ken FLNR:EX; Palesch, Dan TRAN:EX; Cameron, Valerie Z FLNR:EX; Symonds, Brian FLNR:EX; Stolar, Harold B FLNR:EX; McGuire, Jennifer ENV:EX; Sundher, Avtar S ENV:EX

Subject: FYI: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Apologies for the delay in forwarding!

Mark

Mark Hamm, R.P.F.

Resource Manager

Cariboo Chilcotin District

(Williams Lake)

Ministry of Natural Resource Operations

tel 250-398-4399

mob 250-398-0817

fax 250-398-4750

<mailto:Mark.Hamm@gov.bc.ca>

From: Rob Pigott [<mailto:envirobc@telus.net>]

Sent: Wednesday, August 20, 2014 10:47 AM

To: RWCOCAR HPR P FLNR:EX; PLANS, CAR FLNR:EX; FCRCAR FCA P FLNR:EX; Hamm, Mark FLNR:EX;

EOCDirector@cariboord.bc.ca

Subject: Spot forecast for Mt Polley issued 10:45 Wednesday August 20, 2014

Rob Pigott

Enviro-BC Weather Services

1706 Capilano Ave.

Comox, BC

V9M 1B6

250-339-4424

Weir, David J FLNR:EX

From: Weir, David J FLNR:EX
Sent: Monday, August 25, 2014 9:03 AM
To: Bellefontaine, Kim MEM:EX; Seabourne, Sean FLNR:IN
Subject: FW: File: 76930-40/Mt Polley
Attachments: Imperial Metals - Order.pdf; Mount Polley Debris Clean Up in Quesnel Lake.pdf

Please find the attached as requested. At the time of the order they had not submitted the Clean Up document.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations
Williams Lake, BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Prediger, Yvonne ENV:EX
Sent: Friday, August 22, 2014 12:38 PM
To: 'dparsons@imperialmetals.com'
Cc: Weir, David J FLNR:EX
Subject: File: 76930-40/Mt Polley

Mr. Don Parsons,

Attached will find documents regarding an Order issued under Section 88(1) of the *Water Act*.

There will not be a hard copy mailed out.

Regards,

Yvonne Prediger
Admin Support
Ministry of Environment
400-640 Borland Street
Williams Lake BC V2G 4Y1
Phone: 250.398.4927 Fax: 250.398.4214



August 21, 2014

76930-40/Mt Polley

Imperial Metals Corporation
200-580 Hornby Street, Vancouver, BC V6C3B6
604.669.8959

Sent by E:mail only dparsons@imperialmetals.com

Dear **Don Parsons**:

Enclosed is an Order issued under Section 88(1) of the *Water Act*.

This order replaces and extends the time period needed for completion of ongoing work to meet the objectives identified in the August 5th 3:15 pm order. In addition it provides for additional clarification regarding works needed to achieve the intention of that order. Progress of the activities will be monitored and the order may be extended, modified or cancelled at any time based upon the monitoring results.

Suitably qualified professionals include but are not limited to Geoscientists, Engineers, Archeaologists, Agrologists and Biologists. Robin Hoffos and I met with your representatives on Quesnel Lake to review the ongoing containment and removal of debris on Quesnel Lake including the proposal to improve the ramp at the West Fraser Log dewatering site. The proposals as described were satisfactory under the supervision of the Professional Biologist who was identified as Brian Aitken RP Bio and Professional Engineer Emily Cheung. We have not received the requested information from them but time is of the essence. We have not received information concerning the Professional oversight of operations on Polley Lake. Please maintain a complete record of the activities relating to this order which are to be supplied to us upon request.

Specific issues identified under during the review included Kakanee Shore Spawning, Cariboo Island, embedded debris at the mouth of Hazeltine Creek, natural debris, the installation of a ramp to remove debris, and the placement of light debris above the high water mark. The Williams Lake Indian band has requested monitoring of the debris removal on Cariboo Island due the potential for the destruction or loss of artifacts exposed below and above the high water mark. A contact has been provided to your representatives for you to address this issue. Brian Aitken indicated the intention to collect video evidence for "before and after" work is completed and we wish to receive a copy of this information upon completion of the work.

.../2

Ministry of Forests, Lands
and Natural Resource
Operations

Resource Authorizations
Cariboo Region

Mailing Address:
400 - 640 Borland Street
Williams Lake BC V2G 4T1

Telephone: 250-398-4530
Facsimile: 250-398-4214
Web: www.env.gov.bc.ca

I remind you that embedded debris removal within Polley Lake, Hazeltine Creek and at the Mouth of Hazeltine Creek where it enters Quesnel Lake must be approved by the Environmental Protection Division of the Ministry of Environment prior to being completed.

This order is ancillary to the jurisdictions of the Ministry of Mines and Ministry of Environment and it is expected that overlap will occur between the instructions from these Ministries. Works are to be consistent with the instructions from these Ministries and Federal agencies. This order facilitates the activities that will be approved under the Land act and Forest Act.

An appeal to this order may be taken only as directed within Section 92 of the *Water Act*. An appeal shall not act as a stay of execution of the order.

This order does not preclude legal proceedings.

Yours truly,



David Weir
Assistant Regional Water Manager

DW/yp

cc: preoc5.ops1@gov.bc.ca , Jennifer.Mcguire@gov.bc.ca , Al.Hoffman@gov.bc.ca ,
Rodger.Stewart@gov.bc.ca , Robin.Hoffos@gov.bc.ca

Enclosure: August 5th Order and August 20th order.

ENGINEER'S ORDER

SECTION 88 OF THE *WATER ACT*

WHEREAS **Imperial Metals Corporation** are the registered owners of **Mount Polley Mine**, and

WHEREAS **Imperial Metals Corporation** you have, or permitted to have, allowed debris to block the outlet of Polley Lake, enter Hazeltine Creek and enter into Quesnel Lake, and

WHEREAS a person commits an offence under **Section 93(2) (p) and Section 94(1) (g)** of the *Water Act* who:

(p) fails to do an act or thing required to be done by the person under this Act or under an order of the comptroller, regional water manager, engineer or officer;

(g) places, maintains or makes use of an obstruction in the channel of a stream without authority, and

WHEREAS I, David Weir, Engineer under the *Water Act*, am empowered under **Section 88 (1) (j) and (l)** of the *Water Act* to:

(j) order the release of stored or impounded water that the engineer considers a danger to life and property;

(l) order a person to remove from a stream any substance or thing that the person has put or permitted to get into the stream;

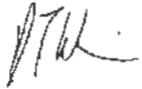
I HEREBY ORDER Imperial Metals Corporation to:

1. Under the direction of suitably qualified professionals licenced in the Province of British Columbia: collect and remove such debris from Hazeltine Creek, Quesnel Lake and Polley Lake, as a result of the Mt Polley tailings pond failure; as would threaten public safety, road infrastructure and stream channel stability. Included in this order is approval for the installation and removal of a boat ramp at the West Fraser reload site as discussed during FLNRO joint inspection of August 19th 2014. The manner and nature of these activities is to be suitable to impacted parties, Federal Agencies and the Province.

2. Under the direction of suitably, qualified and experienced professionals, licenced in the Province of British Columbia: maintain the lake level of Polley Lake in a manner that prevents further mass movement of material from Polley Lake and Hazeltine Creek.

By the 31st day of October 2014.

Dated at Williams Lake, British Columbia, this 20th day of August 2014.



David Weir
Engineer under the *Water Act*

Attachments:

August 5th 3:15pm order that was sent via Penny Carpenter.

Hello, at this time it is our understanding that Stephen Rothman has the authority under the mines act to order the necessary measures to contain and remove the debris in Quesnel Lake and to authorize the management of the water level on Polley lake.

However: to remove any confusion and to address any shortcoming that might exist between the Mines Act, Water Act and the MOU that guides there coordination I order under Section 85 as follows;

Subject to the requirements of the Mines Act and MOU

http://iwww.env.gov.bc.ca/wsd/sla_mou/mempr_mou%202009.pdf and as it is in the public interest for the protection of safety and the integrity of Hazeltine Creek, Polley Lake, Quesnel Lake and the Quesnel River, recognizing the Mt Polley Mine's willingness to undergo the required work at their own cost and save the province harmless:

- 1) Under the direction of suitably qualified professionals licenced in the Province of BC the corporation is ordered to collect and remove such debris from Quesnel Lake, as a result of the Mt Polley tailings pond failure, as would threaten road infrastructure and stream channel stability. The manner and nature to be suitable to impacted parties Federal Agencies and the Province.
- 2) Under the direction of suitably qualified and experienced professionals licenced in the Province of BC; maintain the Lake level of Polley Lake in a manner that prevents further mass movement of material from Polley lake and Hazeltine Creek.
- 3) This order does not superseded any other legislation, agency, or government authority nor does it save them harmless.
- 4) This order is not intended to mitigate or limit the future punitive action of government with respect any non compliance by Mt Polley Mine.
- 5) This order is a temporary measure and is subject to cancelation or modification under the authority of the Water Act Mines Act or the MOU.
- 6) This order doe not authorize the entry onto private lands.

If necessary a more formal and document can be provided at a future date and in the absence of any direction to the contrary it should be considered to be expired as of August 22nd 2014 if not renewed. In addition to the general protection of public interest the specific purpose is to protect the bridge at Likely and to prevent secondary mass movements of material from the failure.

If there are any questions or you feel there is error please contact me. Keeping in mind the rushed nature of this document.

David Weir
Water Section Head,
Ministry of Forest Lands and Natural Resource Operations

Williams Lake , BC
David.J.Weir@gov.bc.ca
(250) 398 4924
Cell 250 267-5925

From: Penny Carpenter s.22
Sent: Tuesday, August 5, 2014 12:46 PM
To: Weir, David J FLNR:EX
Subject: RE: Mt Polley

Hi David

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Penny Carpenter

From: Weir, David J FLNR:EX [<mailto:David.J.Weir@gov.bc.ca>]
Sent: August-05-14 11:41 AM
To: XT:Carpenter, Penny FLNR:IN
Subject: Mt Polley

As per our discussion

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Ministry of Forest Lands and Natural Resource Operations
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August 20, 2014

Ministry of Forests, Lands and Natural Resource Operations
Water Stewardship Cariboo Region
400-640 Borland Street
Williams Lake, BC, V2G 4T1

DWB File No 14274-219

Attention: David Weir, PAg – Water Section Head

RE: Mount Polley Tailings Pond Failure Debris Clean-Up in Quesnel Lake

The Mount Polley mine tailings pond failure occurred on August 4, 2014 when the tailings pond partially breached, releasing water and tailings slurry into downstream waters. The resulting debris torrent caused by the sudden release of water and sediment behind the dam carried felled trees, mud and debris scoured away the banks of Hazeltine Creek which flows out of Polley Lake and continued into the nearby Quesnel Lake. The debris torrent significantly eroded Hazeltine Creek and the associated riparian vegetation causing a large amount of sediment and woody debris to be deposited into Quesnel Lake.

DWB Consulting Services Ltd (DWB) was contacted on August 15th by Penny Carpenter (Eaglecrest) and Russel Gibson (Imperial Metals) and requested to attend the site at Quesnel Lake for a meeting and to provide professional recommendations concerning environmental and engineering aspects of the proposed woody debris clean-up operations. Brian Aitken, RPBio and Emily Cheung, PEng of DWB attended the site August 19th to meet with Imperial and Ministry of Forest, Lands and Natural Resource Operations (MFLNRO) staff to discuss the scope of the services required. MFLNRO staff in attendance included David Weir - Water Section Head, Robin Hoffos -Section Head Habitat Management and Lee Williston. The clean-up of the woody debris within the lake was already well underway with significant progress made in the clean-up effort prior to DWB's site meeting.

The reason why DWB was retained by Imperial Metals was to provide engineering and environmental expertise to the efforts in support of an extension to the Order originally granted to Imperial Metals by MFLNRO to clean up the woody debris in Quesnel Lake under emergency conditions. This original Order expires August 21st and must be extended to allow the clean-up works to continue.

The clean-up of the woody debris in Quesnel Lake is currently being undertaken by a host of local individuals/property owners, machine operators, forests licenses, first nations, consultants and contractors working under the direction of Penny Carpenter (Eaglecrest) and Russel Gibson (Imperial Metals). Clean up of Quesnel Lake to date consisted of: (1) booming the debris along the shoreline in heavy debris areas, (2) using boats to pick up and boom loose floating debris, (3) mapping the shoreline to determine extent and density of the rafted woody debris, (4) piling shoreline woody debris by hand and/or small machinery and (5) using a tug boat and boom sticks to transport some of the woody debris to the exiting



West Fraser log sort/load out (52° 29' 56" Lat and 121° 12' 4" Long) where it has been contained within log booms. Moving forward, DWB has been asked to provide the following scope of services:

- A. Environmental mitigation and monitoring for the debris containment and clean up along the shoreline by both hand/machines and the transport of this material to the West Fraser load out utilizing tugs via barge/boom,
- B. Engineering expertise to design and construct a suitable load out ramp at the West Fraser site that will allow wood debris to be removed from the boomed storage area at least until the end of October under the receding water levels in the lake. Once removed from the water, the woody debris will be sorted and stored upland for uses yet to be determined,
- C. Environmental mitigation and monitoring for the design/construction of the load out ramp described above and also the decommissioning of the ramp in 2015 when it is no longer required.

The following report provides the required engineering and environmental information in the order which it is presented above.

(A) Environmental mitigation and monitoring requirements for the debris clean up in Quesnel Lake

Clean up operations are well underway and it appears they have been completed in an environmentally sensitive manner thus far. During the inspection with MFLNRO on August 19th, very little floating debris was observed in the lake between the West Fraser load out and Hazeltine Creek that was not already contained within high density debris areas which were enclosed within booms. The largest floating accumulations are in Mitchell Bay and the bay at Hazeltine Creek which is a no work area due to safety constraints concerning the unstable tailings dam at Mount Polley upslope of this location. The majority of the remaining wood debris was rafted along the shoreline due to the receding water levels. A significant portion of this material has been piled along the shoreline via hand labour and small machines. To date, most of the affected shoreline (est 40-50km) has been assessed for debris accumulations and categorized as light, moderate or heavy based on the debris density. Also one load of debris enclosed within a large log boom has been transported to the West Fraser load out location and secured to the existing piles for eventual removal from the lake.

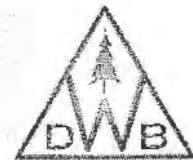
Moving forward, the following Best Management Practices (BMP's) and environmental mitigation will be incorporated into the woody debris clean up and transport to the load out:

- 1) It is recommended that the entire existing shoreline which was affected by debris accumulations be video recorded before and after the clean-up operations. This will not only provide evidence that the shoreline was adequately cleaned up, but will also provide proof in the spring that there was significant older natural woody debris which was present before the dam failure along the



shoreline. At this time the difference between wood that recently came down due to the failure and the older natural occurring wood is very evident.

- 2) All debris possible, both floating and rafted needs to be removed from Quesnel Lake by the end of October.
- 3) All debris accumulation areas along the foreshore which are flat enough to allow access by light tracked equipment via barge and have been mapped and categorized as heavy or medium will be re-visited to determine beach conditions. Any area of beach that is soft and will lead to significant rutting by machinery will be flagged as 'Machine Free Zones'. Any area of these beaches which provide enough ground support that significant rutting will not occur may be accessed by light tracked equipment and debris piled as close to the existing shoreline as possible to allow efficient collection of debris by a barge. Some beaches may not be suitable for tracked machinery at all and may require all hand labour. Only remove new debris from the recent event (ie do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat). Each beach should have at least one landing location flagged so that the barge knows where to off-load any equipment during drop off or pick up.
- 4) Any debris accumulation areas along the foreshore that have been mapped and categorized as light or that are too steep for machinery will be removed by hand (no equipment permitted on the beach). This debris will be removed from the foreshore and scattered above the high water mark (HWM) of the lake or picked directly from the water via barge. Any debris which is too large to move by hand will be bucked into manageable pieces before it is placed above the HWM. Only remove new debris from the recent event (ie do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat).
- 5) EXCEPTION TO POINTS 3 AND 4 FOR CARIBOO ISLAND. Those affected areas along Cariboo Island will all be hand labour only. No machinery permitted on foreshore. Due to archeological considerations, First Nation monitoring required for any works on the island and all woody debris will be removed even in light density areas as per methodology described in bullet 6, paragraph II.
- 6) Once material has been piled on the beach, it will be removed via barge and tug boat with an excavator (or in the case of Mitchell Bay may be partially accessed from the land with a dump truck). Where the beach has been determined to be stable, the barge will nose into the shore and ramp lowered to the foreshore. The excavator will disembark from the barge and load the debris onto the deck. The debris will be piled carefully onto the barge ensuring that all pieces are secured so that they do not fall off during transport. If the barge is full, the excavator may be left at the beach until the barge arrives back for final pick up. If this should occur, the excavator must be parked as far back from the water as possible, preferably in an area which does not drain directly back into the lake. All equipment in operation within the HWM of the lake will have fully stocked spill kits in them should a spill arise. Refer to spill plan in bullet 12. Once the beach has been fully cleared of debris, the excavator will prepare to leave the beach, ensuring that any



significant ruts or beach disturbances have been fully recontoured to natural grade before reboarding the barge.

Where the beach has been determined to be too soft for machinery, the barge will nose into the shore and the ramp will be lowered to the foreshore. The excavator will be allowed to drive down and sit on the ramp, but will not leave the ramp (i.e., no tracks on beach). All material will be reached from the barge. Once all debris is removed or the barge is full, the excavator will move back up the ramp and leave with the barge.

- 7) Mitchell Bay has been identified by MFLNRO as an area of special concern due to the presence of shore spawning kokanee. Shore spawning kokanee are present in Quesnel Lake in critical convergence zones near the mouth of creeks and where upwelling or significant subsurface flows are present. They prefer gravel to moderate sized cobble bottom substrate which is present in Mitchell Bay. Hazeltine Creek area has also been identified as one of these shore spawning locations; however, due to the amount of sediments deposited at the mouth of this creek the habitat has been affected and is less of a concern at this time. MFLNRO has identified a critical spawning period for kokanee starting mid-September in this area. A detailed report by the Province of BC in 2003 entitled, 'Summary of Quesnel Lake Kokanee and Rainbow Trout Biology Stock Management Report No 17' identifies a later period for Quesnel Lake shore spawning kokanee between October and November. In any case, all boating/barging activities along the near shore area in Mitchell Bay need to be completed before this time period to ensure that spawning kokanee populations are not affected. This area should be the highest priority for removing the debris piles before any other area.
- 8) While barging woody debris down the lake, all debris will be secured so that it does not fall back into the water. The onboard excavator and tug will have spill kits in them as per bullet 12. It will be transported to the West Fraser load out and preferably off loaded directly onto the load out ramp when it arrives as described later in this document. If this is not possible, then the debris will be offloaded into a contained boom area secured to the existing dolphin piles for later removal. Care must be taken to avoid loss of small woody debris into the lake during this process.
- 9) All floating woody debris that is temporarily contained in booms will be barged down the lake in a large boom (ie rather than on a barge). Care must be taken in removing any floating debris that is embedded in the bottom substrate. If it can be removed easily without significant bottom disturbance and/or is a boat hazard it should be removed, otherwise leave the wood embedded and do not remove. Only remove new debris from the recent event (i.e., do not remove older greyed woody debris that was clearly present before the dam failure which provides important aquatic habitat). Once all the floating debris has been corralled, it will be pushed together and enclosed in a large towing boom which will be transported down the lake. It is important that no small woody debris escape during this transport and a follow up boat may be required to pick up straggler pieces that have broken off. Once the boom arrives at the West Fraser off load site, the boom will be secured to the existing dolphin piles for later removal.



- 10) The debris removal around the mouth of Hazeltine Creek will require extensive works; however no works can proceed until the safety concerns at the upslope tailings dam at Mount Polley are addressed. It is hoped that this area will be cleared for work by safety within the next month. If the area around the mouth of Hazeltine Creek cannot be accessed due to safety concerns prior to winter freeze up, it must be secured so that no wood can escape into the lake in the spring. It is fully expected that more woody debris will be deposited into Quesnel Lake from Hazeltine Creek during any flood or heavy rain events due to the instability of the scoured channel. Currently the entire mouth of Hazeltine Creek is contained with a log boom. It is recommended that a second log boom be constructed and left in place until at least next summer for added security during heavy rain events and spring runoff. **It has been requested that all works at the mouth of Hazeltine Creek have a first nation monitor present.**
- 11) Debris storage at the West Fraser load out will be contained fully within a secured boomed area and anchored to the existing dolphin piles until such time as it can be removed from the water. It is important to conduct a bottom survey before additional debris is stored at this location so that the pre-use condition is known. This area has been previously used for many years as a load out and so it is expected that there is woody accumulations already present to some degree. All small woody debris and any sunken debris as a result of the temporary storage at this location must be removed. Once all debris has been removed and the project complete, a comparison bottom survey must also be completed to provide evidence of this.
- 12) Throughout the debris collection, transport and removal process it is very important that all involved in the clean-up follow general spill prevention and response procedures should a spill be encountered. This is especially important around aquatic environments. All equipment must carry stocked spill kits and crews must be trained in their use and the reporting requirements. In addition, several large drum aquatic spill kits should be present in key locations (i.e., on the barge and at the load out at a minimum). If Imperial has a standard spill plan that can be used, then it should be adopted for this project, otherwise it is recommended that a detailed spill plan be prepared for the project.

(B) Engineering considerations for the design and construction of a load out ramp

Once the wood debris has been transported to the West Fraser load out site, it will be temporarily stored in booms secured to the existing dolphin piles. From this storage area it will be pushed to the shallow with a tug where it will be lifted out of the water by a button top log loader. The log loader will deck this material behind the machine where it will be grasped with a front end loader and transported to the upland sort area for sorting and storage until an appropriate use can be determined. As the lake bottom is very soft/shallow and receding at this location, a causeway ramp has been proposed to be constructed in order to be able to reach the wood without having to drive a machine into the water. The temporary ramp will be constructed of rock and will be designed to allow a minimum depth of water at the end during the lowest expected flow so that the wood can be floated to this location for removal.

**General Design**

Design considerations for the causeway ramp have been formulated from the site visit conducted August 19, 2014. No site survey information was available at the time of this report; however, due to the nature of the emergency conditions and the requirement to remove the debris as quickly as possible from the lake, the design has been formulated with the use of prescriptions (3 pages inclusive) that include photographs and diagrams outlining the location, size and specifications for the causeway ramp. A site inspection report is also included for reference. The intention of the ramp is to facilitate the removal of the logs and debris with the use of machinery out of the water. It is expected that the ramp will require 1.3m of height to remain out of the water during activities.

Currently the lake level is estimated to be at 1.0-1.3m below the high water mark and historically has an average yearly maximum daily fluctuation of 2.23m with a historical minimum fluctuation of 1.576m and historical maximum of 3.008m. Lake levels historically continue to fluctuate through August and September but the trend shows levels will continue to drop from August through until spring when levels are expected to rise again typically in April (Water Survey of Canada gauged water level station 08KH011 1956-2012). Due to the short term use and unknown water levels in the upcoming seasons, the ramp is not designed to meet a specific control lake level or return period elevation, but simply to provide clearance from lake elevations for the emergency works operations in the next weeks. Spring removal of logs and debris that may be required in 2015 may not be able to commence until lake levels reach below the constructed ramp surface. Lake depths from the present water level measured during the site visit past the toe of the ramp near the boom was 4m or 13ft. Although this was measured beyond the toe of the ramp, it may indicate that additional rock may be required to achieve operating levels if water surface elevations do not continue to drop.

The access causeway ramp design consists of a rock ramp from the existing load out to approximately 25m into Quesnel Lake. The ramp will be wide enough (12m) to accommodate an excavator and trucks for hauling rock in or debris out of the lake. The ramp is to extend from the existing load out access straight out into the lake. The ramp profile will be constructed from a rock base overlain with non-woven geotextile and capped with surfacing material that will seal preventing spills into the rock base below. Additional details are provided in the design specifications and depicted in the prescriptions attached.

Construction Procedure

The upslope existing load out access is to be stripped of organics and sufficient base material preferably shot rock, shall be placed to stabilize the access to the present lake water level. Rock thickness shall taper from a minimum 300mm to required thickness estimated at 1000mm at the toe of the ramp. If additional length is required or depths vary from the assumed depths, additional thickness of rock will be required as depths at this location were not confirmed. Once rock has been placed, a non-woven geotextile shall be overlaid on the rock and a cap of granular or shot rock material placed on top to provide a running surface and prevent any spills from entering into the lake from on top of the ramp.

A rock source has been located approximately 1 km from the load out site and samples have been sent to Imperial Metals laboratory to test for acid leaching potential. This rock has been deemed suitable due to its size and angularity but results from the tests were not available at the time of the report.

**Design Specifications**

Specifications for construction consist of the following:

| Material | Specification | Approx. Quantity |
|--|--|--------------------|
| Riprap rock for ramp base material | Class 50 kg rock | 600 m ³ |
| Maximum rock side slopes at toe | 1.5:1 (H:V) | - |
| Maximum rock side slopes along ramp | 2:1 (H:V) | - |
| Ramp footprint on lake | - | 380 m ² |
| Non Woven geotextile | Armtec 200 or approved equivalent | 360 m ² |
| Surfacing material or shot rock capping | 3" minus clean gravel or pit shot rock | 54 m ³ |

Riprap rock shall be clean angular rock that is consistent with the following gradation requirements:

Class 50kg rock - Approx. Average dimension

85% of rock to have average dimension >155mm

50% of rock to have average dimension >330mm

15% of rock to have average dimension >475mm

The rock must be well graded meaning that all dimensions must be represented in the material supplied. This will provide a more stable ramp consisting of smaller and larger rocks that will fit together.

The rock shall be laid on the lake bottom and not keyed in. Due to the nature of the short term usage of the ramp, the rock is expected to withstand normal wave action and not intended for permanent installation or protection. If unusual events are to occur within the period of time that the ramp is in place, repair work may be required.

All quantities provided are for works within the lake and have allowed for waste for supply quantities. These quantities are supplied for the purpose of procurement and are not an indication of maximum or required quantities. Final requirements will be determined by the design engineer or her representative on site. Any variations from the materials specified, must be approved by the design engineer. Material quantities for preparation of upland slope area have not been provided. Quantities are based on the area agreed upon during the site visit to a maximum of 25m extension into the lake; however, this may be altered at the discretion of the Imperial Metals representative. If further length of ramp is required to meet the required depth of 1.0m above the lake bottom, additional volume of these materials will be required.

Conformance

All materials shall meet or exceed the specifications as listed in the table. A site supervisor representative from DWB shall determine suitability of materials should there be any variations or substitutions. Documentation by the site supervisor will be provided to the design engineer along with a constructed volume survey for purpose of reporting. Tracking of volumes shall be completed including truck loads delivered for shot rock, capping material, and riprap rock delivered to site.

**Decommissioning Plan**

Upon determination through the agencies and Imperial Metals Corp., once the required debris removal operations are completed, the ramp shall be removed. The ramp is to be dismantled by removing the far toe of the ramp furthest in the lake first. If salvage of the rock is required, removal of the capping material should be completed first and then followed by the removal of the geotextile and finally the rock. All materials shall be removed, stored, stockpiled, or disposed of in accordance with Imperial Metals policy and the environmental requirements discussed in this report.

(C) Environmental considerations for the design, construction, operation and decommissioning of the load out ramp

The following environmental mitigation will be implemented during the engineered design, construction, operation and decommissioning of the load out.

Design Phase

During the design, the location was chosen at an historic existing load out location. The footprint of the new structure will be minimized, along with the rock volume so that it can be used until Oct-Nov, but will likely be partially submerged during spring conditions. This design limits the amount of rock required, but also will reduce the decommissioning at the end of its use. All rock used in the ramp construction planned for placement in or near the lake has been tested for ARD (test results appended). The design also incorporates larger rock on the bottom/base of the ramp separated with geofabric and smaller rock/fines on the running surface. The smaller material on the surface will act as a filter to soak any minor leaks or drips that may occur during operation, rather than using purely coarse material where spills would directly enter the lake if they should occur.

Construction Phase

Construction will proceed under appropriate weather conditions and will occur under a compressed timeline of 3-4 days. As machinery will be working around water, all equipment will be inspected for leaks/drips prior to be allowed to work on the project. For the construction phase of the project, an environmental monitor (EM) will be present to conduct these inspections and carry out the balance of the environmental duties described below. Firstly, a construction prework will be held by all parties involved with the construction at which time the EM will go over the conditions of the MFLNRO Order and the mitigation that has been proposed. Then before the ramp is constructed within the lake, a floating silt curtain will be installed around the ramp location. This will prevent any fines from negatively affecting local water quality. The EM will conduct turbidity monitoring inside and outside the floating silt curtain to record its effectiveness. In addition, the EM will conduct fish salvage as required during construction. There will be no stop nets, but the site will be enclosed by the floating silt curtain. An attempt will be made to set minnow traps each night in the isolated area. If fish are caught, they will be recorded and released outside of the enclosed area. The EM will be responsible for implementing/following the Spill Plan (refer to bullet 12) and reporting as required. *It should be noted that some heavy leachate was noted to the right of the proposed ramp which appeared to be draining from an adjacent wet draw seeping from an historic log sort area covered with bark. This was not a result of any activities associated with this*



project. Following construction, the EM will prepare a short post construction report with photo documentation of the measures implemented. A component of this report will be an asbuilt with estimated footprint and rock volumes used in construction.

Operation Phase

Once constructed, it is expected that the ramp will immediately be utilized to start removing debris from the water. As with construction, all equipment must be inspected for leaks/drips before being allowed to be used near the water and on the ramp. Should a spill occur, follow the Spill Plan (refer to bullet 12) and report as required. All employees working near the water need to be trained in spill response. An aquatic spill drum with floating spill boom must be present near the ramp location where it can be quickly deployed in the case of a spill. During woody debris removal with the button top, be careful not to lose small wood pieces into the lake. Should this occur, they will need to be collected and removed. All wood removed from the water will be transported and stored in the upland sort area where it will be sorted/graded for future yet to be determined use.

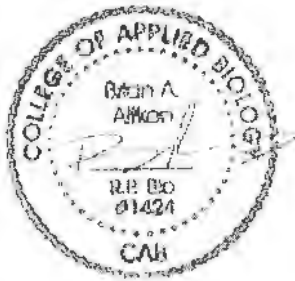
Decommissioning Phase

The ramp will be left in place until the summer of 2015. As previously described, it is expected that additional woody debris will be deposited from Hazeltine Creek into Quesnel Lake during the spring runoff in 2015. This woody debris will also need to be removed next year. Once Imperial is confident that all woody debris has been captured and removed, the load out will be fully decommissioned and returned to its predisturbance condition. This should coincide with low water levels in the lake and appropriate fisheries timing windows to minimize environmental impacts. As with the construction phase, an EM will be present and will aid in deploying the floating silt curtain during the rock removal. Turbidity monitoring will also be conducted. Once all the rock has been removed from the lake, a diversion ditch will be installed at the top of the grade to divert surface runoff from the freshly deactivated foreshore. Also, all exposed soils will be seeded. A final bottom survey will be conducted where the woody debris was stored to ensure that no additional wood has sunken. Once complete, an environmental close-out report will be completed, with photos and estimated total volume of wood removed.



Should you have any questions regarding this report, please do not hesitate to contact either of the undersigned at your convenience.

Sincerely,



Brian Aitken, RPBio, PAg, CPESC
Corporate Environmental Manager



Emily Cheung, MASc, PEng, FEC
Corporate Engineering Manager

Cc Penny Carpenter (Eaglecrest), Russel Parsons (Imperial Metals), Robin Hoffos (MFLNRO)
and Lee Williston (MFLNRO)

Imperial Metals Corporation
Emergency Works Prescriptions

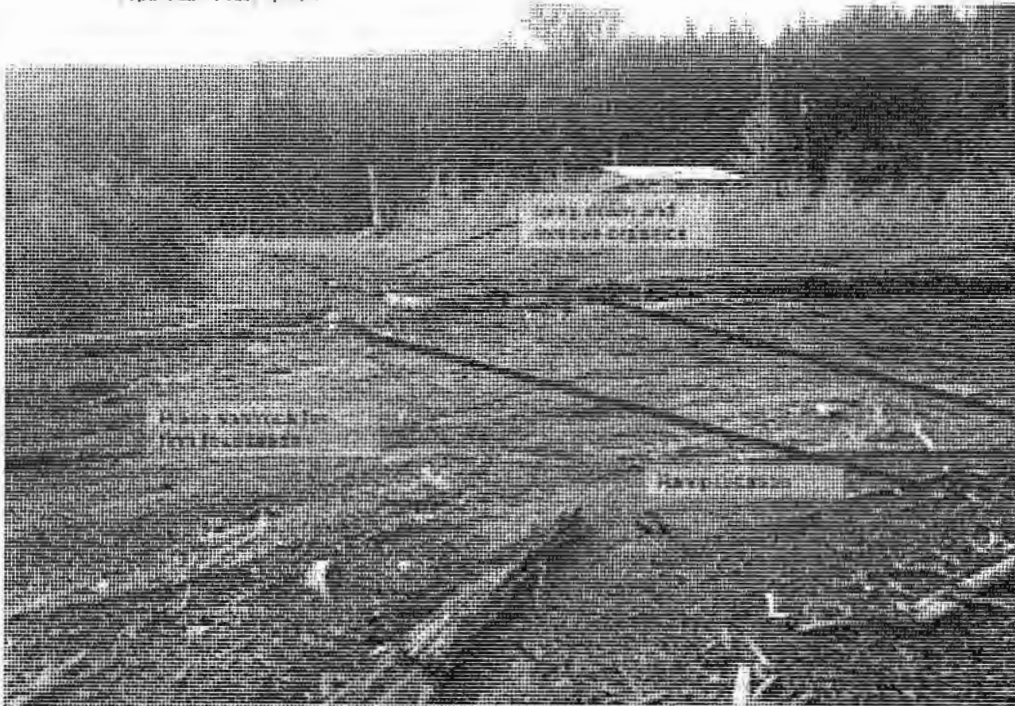
Quesnel Lake, BC

Priority: Immediate

Site: Quesnel Lake Load out
Preparation Prescription

Z Road

20-Aug-14



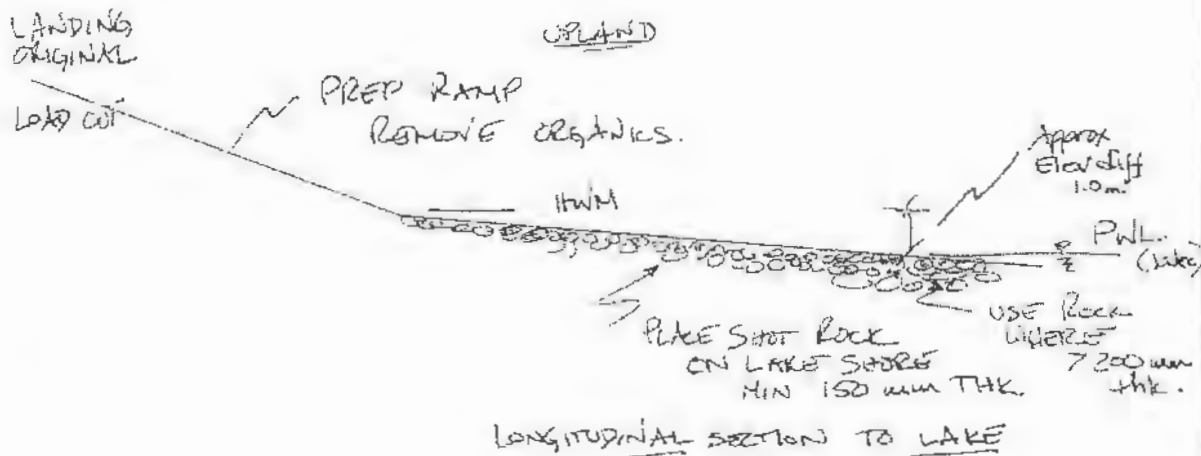
Works to be completed:

Upland

Specifications:

- 1 Prepare ramp down to lake level including stripping
- 2 Place shot rock to firm up foundation for access
- 3 Prepare site in accordance with environmental plan for isolation
- 4 Build up land ramp with shot rock and rock to the present water level
- 5 Use of riprap rock and shot rock required where thickness exceeds 200mm

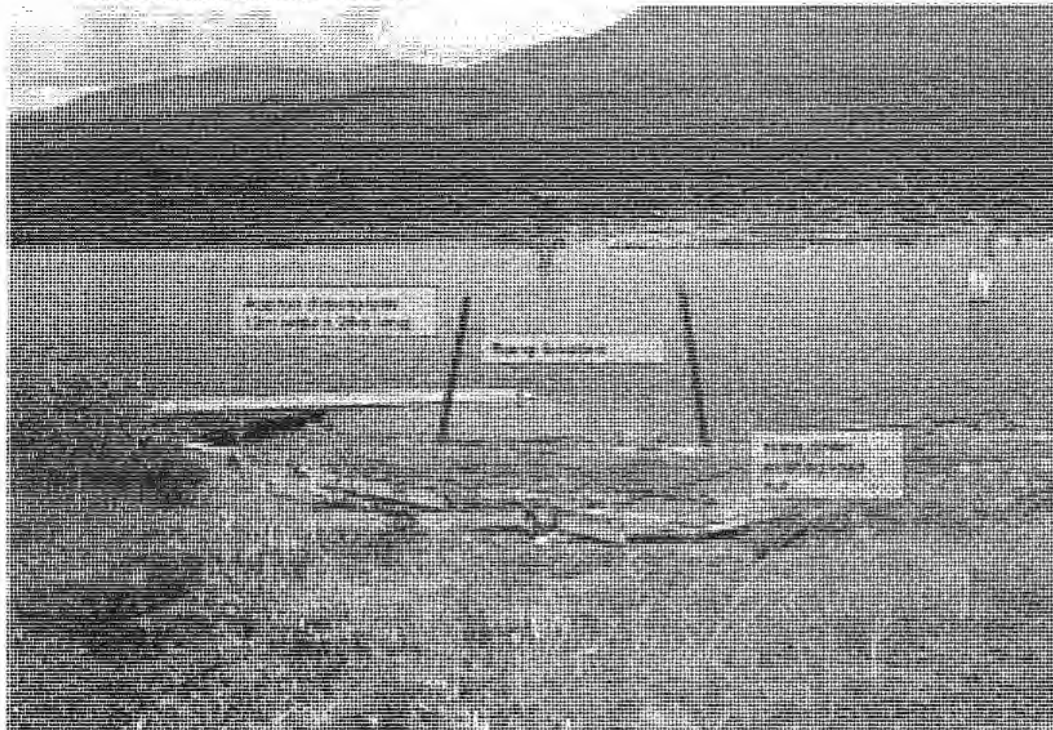
- 1 Clean shot rock for foundation
- 2 Removed organics placed in an approved location
- 3 Minimum 150mm thick shot rock to provide stabilisation
- 4 Class 50kg riprap



Site : Quesnel Lake Load out
Construction within Lake Water Prescription

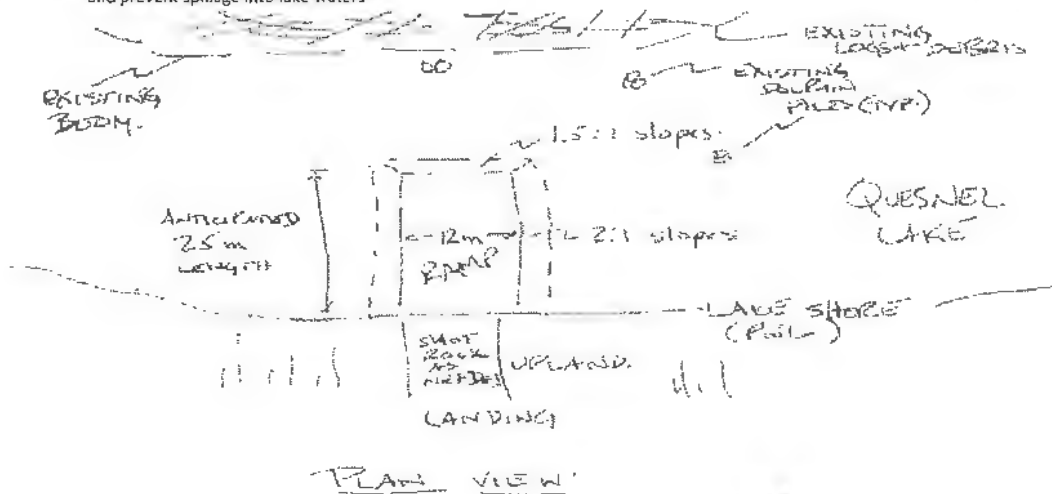
Z Road

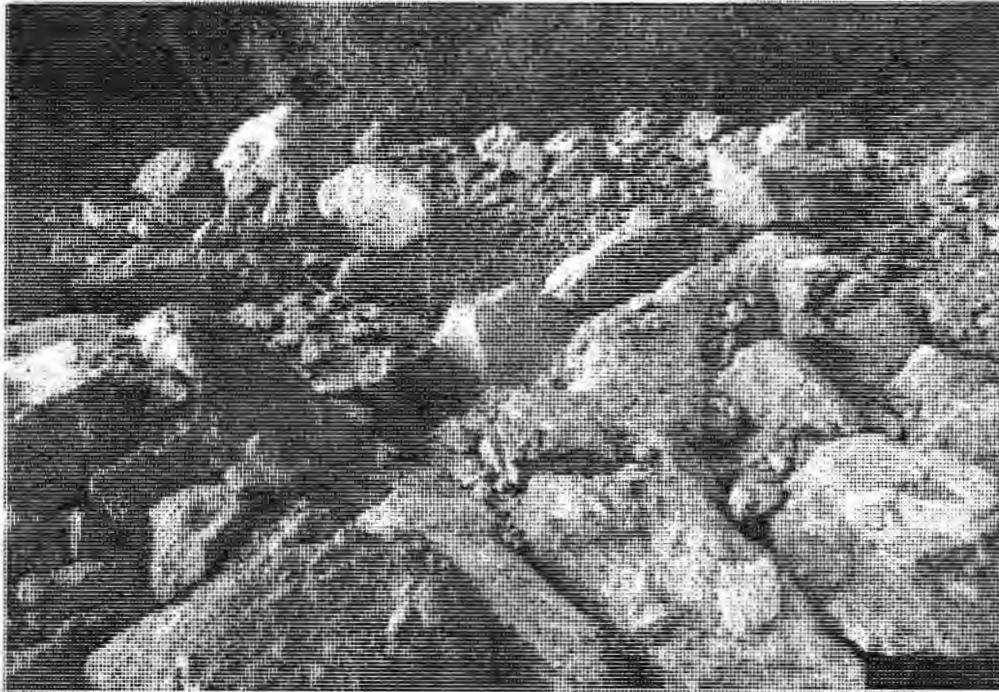
20-Aug-14



- 1 Rock to be placed from shore side and built up into the lake
- 2 Continue to place rock at minimum 300mm thickness at shoreline
- 3 Gradually build out rock to desired approximate 25m off shore
- 4 Side slopes to be constructed at 2:1 (H:V) outer toe 1.5:1
- 5 Place non-woven geotextile over rock layer
- 6 Cap ramp with clean gravel or shot rock to a minimum 150mm
- 7 Ensure ramp is tracked and packed sufficient to support truck loads and prevent spillage into lake waters

- 1 Clean shot rock for foundation
- 2 Expected max 1.3m deep at toe
- 3 Class 50kg approved riprap rock
- 4 Final ramp top width = 12m
- 5 Larger rock on bottom of ramp
- 6 Armtec 200/Mirafi 160N/Geotex 601 or approved equivalent non woven geotextile





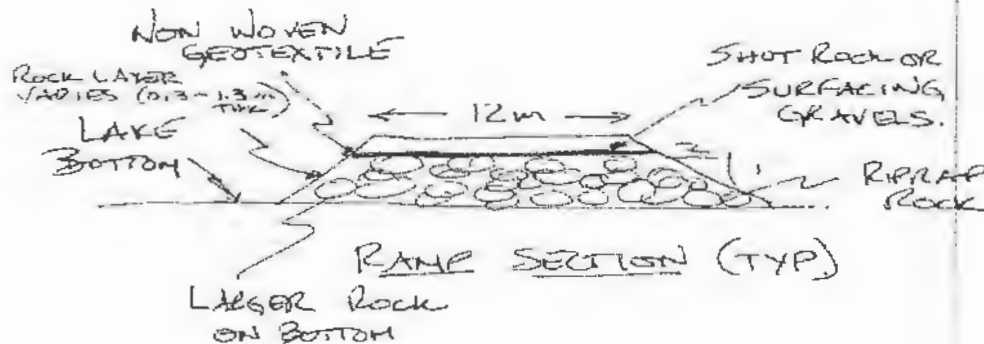
Acceptable well graded rock available at local quarry (pending testing).

Works to be completed:

- 1 Upland ramp access along load out access
- 2 Ramp in lake water from present water to approx. 25m
- 3 For detail section of ramp see sketch below
- 4 Side slopes to be constructed at 2:1 (H:V)
- 5 Provide smooth transition from upslope to in lake ramp construction
- 6 Smaller material must be sloped gradually to prevent erosion

Specifications:

- 1 Riprap rock Class 50kg
85% avg dimension > 155mm
50% avg dimension > 330mm
15% avg dimension > 475mm





SITE INSPECTION REPORT

DATE OF SITE VISIT: August 19, 2014

DATE OF REPORT: August 20, 2014

OWNER: Imperial Metals Corporation
CONTRACTOR: Eaglecrest
Project: Quesnel Lake Log Salvage

Purpose of Site Visit: Inspection of the log load out location and condition of log salvage operations for the design of the causeway ramp for load out of barged and towed log booms on Quesnel Lake as a result of material brought down Hazelton Creek to Quesnel Lake. Scope includes determining suitability of location for ramp including design for ramp. Photo 1 shows the proposed location and existing logs ready for load out.

Due to the nature of the works and requirements for quick removal of the material from the lake, emergency prescriptions including design requirements for the ramp are to be prepared for use in construction.

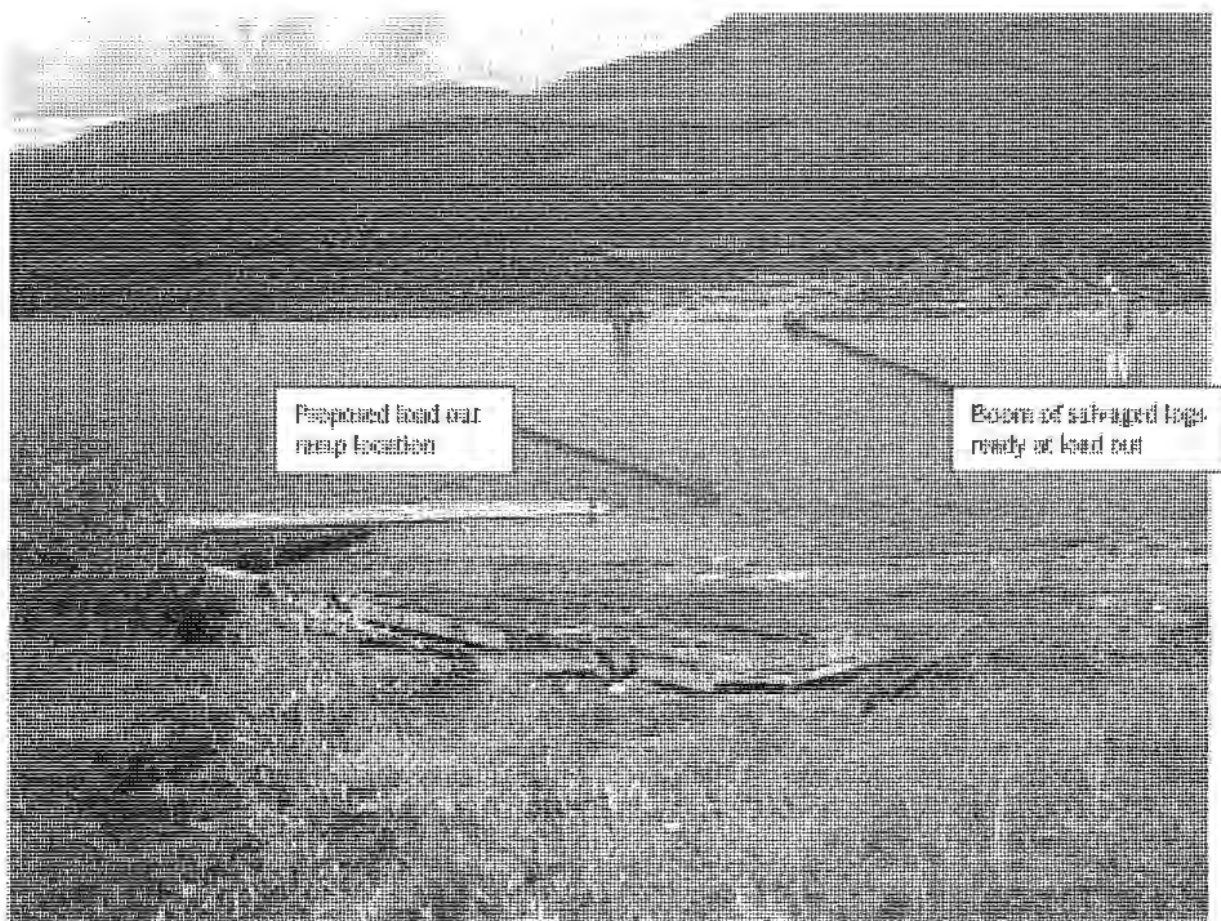


Photo 1: Existing boom of salvaged logs and proposed load out ramp location



Historical Information: Works are planned to begin with the ramp down to the high water mark and then to the present water levels for construction of the causeway ramp. The location was used previously as a log sort and load out and evidence of these operations are still clearly visible.



Photo 2: Load out up lake from present water level

Field Visit: The site visit was conducted to determine feasibility of a ramp into Quesnel Lake in order to remove the boomed logs and additional logs waiting to be towed/barged to the load out location. A boat tour was conducted down the lake along the shores to examine the logs and debris that has not been collected yet as well as the material already piled and the material boomed at the mouth of Hazeltine Creek.

Location of Works: Along Quesnel Lake, BC, with load out location at 52° 29' 56" Lat and 121° 12' 4". Hazeltine Creek is located west of the load out location approximately 20 km along Quesnel Lake. The ramp location from the current shoreline to the end of the ramp is estimated at 25m long by 12m wide for use by an excavator and trucks.

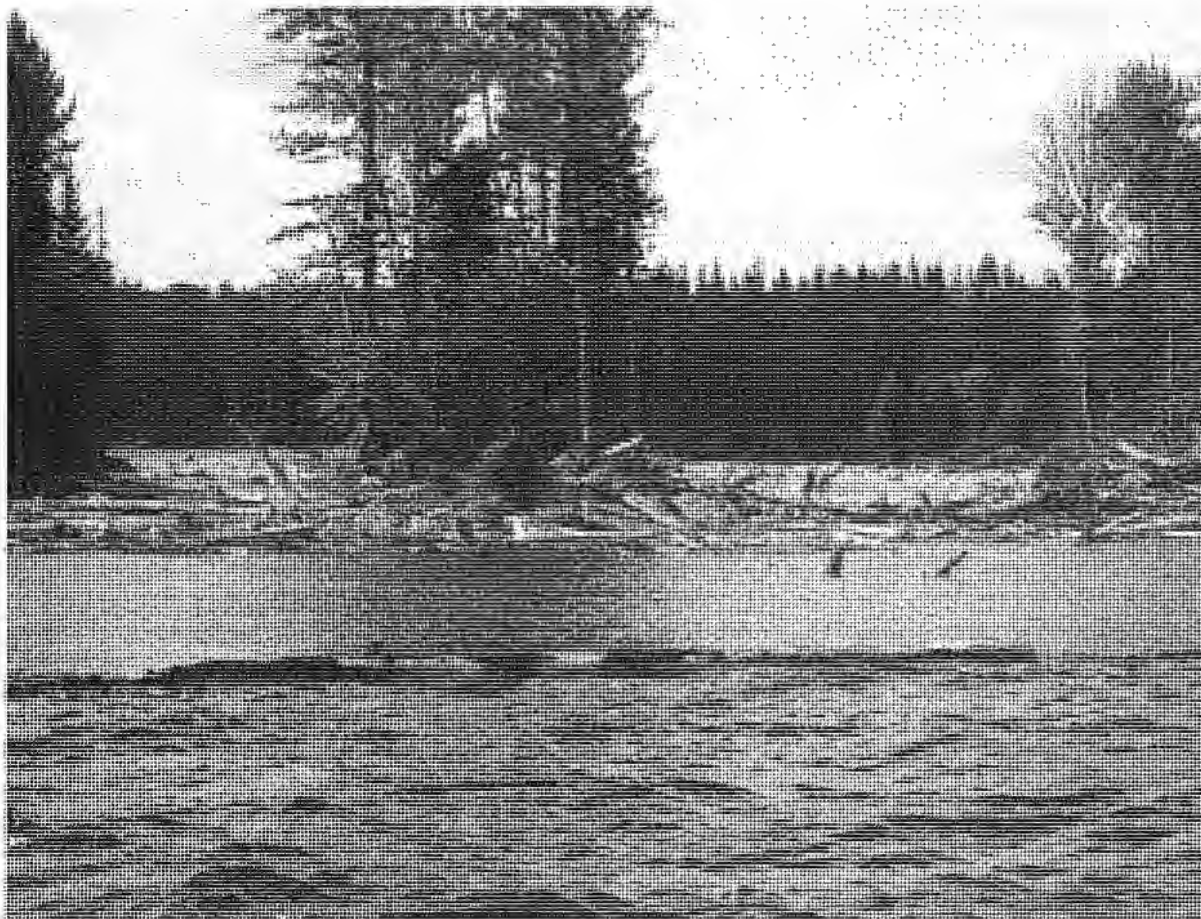


Photo 1: Mouth of Blazetown Creek with Beach at Eury Road

Recommendations:

The following recommendations are steps in planning for the design of the ramp works.

1. Provide a report and prescriptions for emergency works.
2. Plans for immediate construction of ramp including environmental monitoring and supervision.
3. Complete hydrotechnical study of lake levels and effects on design.
4. Complete ramp works design based on site information collected.
5. Provide a design summary report for construction.
6. Complete a removal plan for short term installation of ramp.
7. Liason with agencies to achieve all permits and approvals required to complete works.
8. Construction and completion of works including supervision.

It is expected that the installation of the ramp will be completed within the next week and will remain in place until fall of 2015. This will allow for additional removal of material in the spring and summer of 2015 after freshet.

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For
DWB Consulting Services Ltd.



Mount Polley Mines

ANALYSIS CERTIFICATE - MOUNT POLLEY

Job Number: 8000-AUG14

Reference:

Client: Geology

Received Date: 21 August 2014

Report Date: 21 August 2014

| SAMPLES | NP Ratio | NP | Carbon % | AP % | Sulfur % |
|----------------|----------|--------|----------|-------|----------|
| 1. MPMC 1A | 4.19 | 9.167 | 0.110 | 2.188 | 0.070 |
| 2. MPMC 2A | 3.28 | 13.334 | 0.160 | 4.062 | 0.130 |
| 3. MPMC 3A | 2.67 | 6.667 | 0.080 | 2.500 | 0.080 |
| 4. MPMC 4A | 4.80 | 7.500 | 0.090 | 1.562 | 0.050 |
| 5. MPMC 5A | 19.05 | 41.669 | 0.500 | 2.188 | 0.070 |
| 6. MPMC 6A | 11.00 | 27.502 | 0.330 | 2.500 | 0.080 |
| 7. Gavintuk Rd | 8.97 | 28.335 | 0.340 | 4.062 | 0.130 |

Bill Smith
Laboratory Manager

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Withheld pursuant to/removed as

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