From: Demchuk, Tania MEM:EX
To: Kuppers, Haley MEM:EX; Pocklington, Cheryl M MEM:EX
Subject: FW: Mt. Polley Mine Development Certificate.pdf
Date: Tuesday, February 17, 2015 4:35:49 PM
Attachments: Mt. Polley Mine Development Certificate.pdf
ATT00001.txt

Here is the Mine Development Certificate (precursor to EA Certificate).

There is one amendment to change the name in addition to the attached. It was issued in 1997 and does not contain other conditions.

Tania

Regards, Diane
Sent from my iPad

44500-45
Mt Polley

MINE DEVELOPMENT CERTIFICATE

IN THE MATTER OF
THE MINE DEVELOPMENT ASSESSMENT ACT ("the Act")
R.S.B.C. 1979, c. 258.5,

AND

IN THE MATTER OF AN APPLICATION BY
IMPERIAL METALS CORPORATION
FOR A MINE DEVELOPMENT CERTIFICATE
TO DEVELOP THE MOUNT POLLEY COPPER/GOLD PROJECT
IN THE CENTRAL REGION OF BRITISH COLUMBIA (the Development)

MINE DEVELOPMENT CERTIFICATE 92-13

WHEREAS, on July 31, 1990, Imperial Metals Corporation (hereinafter Imperial Metals) applied for an Approval-in-Principle in accordance with the procedure generally known as the Mine Development Review Process, by way of a Stage I Report (the Report) to develop an open pit copper/gold mine, located near Williams Lake, in Central British Columbia;

and

WHEREAS, the Minister of Energy, Mines and Petroleum Resources (the Minister), with the concurrence of the Minister of Environment, Lands and Parks, specify that previous submissions, including the Report, filed under the Mine Development Review Process, are acceptable as the Application, which is a reviewable mine development as defined in section 1 of the Act;

and

WHEREAS, the Development, inter alia, will consist of an open pit copper/gold mine, waste dumps, tailings storage, milling site, transmission line, water collection structures and access roads, and will exclude any other off-site infrastructure;

and

WHEREAS, the Minister with the concurrence of the Minister of Environment, Lands and Parks, has determined, based on a full technical review that the potential adverse environmental impacts that may be caused by the Development can be managed through existing legislation and programs;

and

WHEREAS, Imperial Metals has agreed with the substance of a report, conveyed by letter (1992-10-06) from N. Ringstad, Manager, Mine Development Assessment Process, outlining the reasons for the decisions relating to the issuance of a Mine Development Certificate, commitments, and permit, licence and approval information requirements;

and

WHEREAS, in the event of an extreme drought, or a water shortage during reservoir filling with respect to meeting downstream fish flow requirements, Imperial Metals has committed to either find an alternative source of water acceptable to the Province, or suspend or reduce production at the mine to maintain fish flows in Hazeltine Creek;

and

WHEREAS, Imperial Metals acknowledges that the Ministry of Environment, Lands and Parks will be proceeding with an application to Cabinet to have a water reserve under Section 44 of the *Water Act* placed on all unrecorded water in the Hazeltine Creek watershed, including Polley Lake and Bootjack Creek watersheds

NOW THEREFORE, the Minister, with the concurrence of the Minister of Environment, Lands and Parks, pursuant to section 3(1)(b) of the Act, hereby issues this Mine Development Certificate, subject to the following conditions:

A. CONDITIONS

1. Imperial Metals shall cause the Development to be designed, located, constructed and operated in accordance with the Application, (the Application is comprised of the contents of the 13 documents listed below), subject to:

a) this Mine Development Certificate; and

b) the proviso that the contents of later documents supersede the contents of earlier documents where, in the reasonable opinion of the Minister, there is a conflict between any two documents.

1.1 Letter from R. Pesalj (Project Manager) to N. Ringstad (Chair, Mine Development Steering Committee), 1990-01-05, outlining a strategy for the impoundment of Bootjack Lake, including preliminary downstream water and fisheries impact management proposals;

1.2 Letter from R. Pesalj to N. Ringstad, 1990-01-25, outlining a strategy for Polley Lake as a water supply alternative to Bootjack Lake;

1.3 Stage I Environmental and Socio-economic Impact Assessment Report, Volumes I and II (July 1990), Imperial Metals Corporation;

1.4 Stage I Environmental and Socio-economic Impact Assessment Report, Supplementary Submission (October 1990), Imperial Metals Corporation;

1.5 Stage I Environmental and Socio-economic Impact Assessment Report, Responses to Comments by Agencies (January 1991), Imperial Metals Corporation;

1.6 Letter and attachment from R. Pesalj to D.B. Letvak (Water Management Branch, Ministry of Environment), 1991-01-10, outlining the hydrological report from PWS Engineering;

1.7 Letter from R. Pesalj to N. Ringstad, 1991-02-19, outlining the cost comparison between Polley Lake and Quesnel Lake water supply alternatives;

1.8 Letter from R. Pesalj to D.B. Letvak, 1991-03-04, outlining Imperial Metals position on the average annual lake flow rates provided by PWS Engineering;

1.9 Letter from R. Pesalj to D.B. Letvak, 1991-04-02, detailing Imperial Metals proposal to conduct further hydrological monitoring program;

1.10 Letter from R. Pesalj to N. Ringstad, 1991-04-08, responding to final issues raised at February 14 and March 26,1991 meetings;

1.11 Letter and attachment from R. Pesalj to N. Ringstad, 1991-04-24, detailing the revised layout of the concentrate rail loading and storage facility and revised text of Section 8 in the Responses to Comments by the Agencies;

1.12 Mount Polley Project, An Evaluation of Runoff Estimates for the Mount Polley Project and Allocation of Fisheries and Mine Process Water Requirements (July 1991), Hallam Knight Piesold Ltd.;

1.13 Letter from Z. Nikic to N. Ringstad, 1992-04-16, outlining agreements reached at the April 10, 1992 meeting, in particular the company's commitment to an acceptable alternative source of water supply, or suspend production while the emergency lasts.

2. Imperial Metals shall, prior to any material alteration of the Development as described in the Application, obtain the written consent of the Minister and the Minister of Environment, Lands and Parks, and the Minister may determine what constitutes a material alteration.

3. The term of this Certificate, in accordance with the Application, shall be Fourteen (14) years from the commencement of mine production, and the rate of milling shall not substantially exceed 13 700 tonnes per day.

4. If Imperial Metals proposes to either lengthen the term of the Certificate or to increase the milling rate substantially above that specified in Section 3 above, Imperial Metals shall apply for an amendment to the Certificate pursuant to Section 2(1) of the *Mine Development Assessment Act.*

5. This Certificate is not a Waste Management Permit nor a Water License or Approval nor part thereof, nor does it limit the ability of the Director of Waste Management or the Regional Waste Manager, or the Comptroller of Water Rights or Regional Water Manager, Ministry of Environment, Lands and Parks to immediately enforce any requirements or exercise any discretion or authority under the *Waste Management Act* or *Water Act*, and Regulations, Permits, Approvals or Orders thereunder.

6. This Certificate is not a *Mines Act* Permit nor part thereof, nor does it limit the ability of the Chief Inspector, District Inspector, or an Inspector of the Ministry of Energy, Mines and Petroleum Resources to immediately enforce any requirements or exercise any discretion or authority under the *Mines Act*, its Code or Orders or Directions thereunder.

7. This Certificate is of no force and effect until the Common Seal of Imperial Metals is affixed hereto, and a copy of the same returned and signed by the Minister and the Minister of Environment, Lands and Parks.

8. Imperial Metals shall comply with all applicable orders, directions and conditions, and obtain and comply with all applicable tenures, licenses, regulations, approvals, standards and permits which may include or result from, but are not necessarily limited to, the following:

   8.1 Commercial Transport Act, R.S.B.C. 1979, c. 55, for licensing of commercial vehicles.

   8.2 Environment Management Act, R.S.B.C. 1979, c. 110.5, for an impact assessment and/or environmental protection order.

8.3 Fire Services Act, R.S.B.C. 1979, c. 133, for the storage, use and handling of flammable and combustible liquids.

8.4 Fisheries Act, R.S.B.C. 1979, c. 137, for a licence to collect fish samples.

8.5 Forest Act, R.S.B.C. 1979, c. 140, for a licence to cut and remove merchantable timber on Crown Land, and approval for access road development.

8.6 Gas Safety Act, R.S.B.C. 1979, c. 149, for installation or alteration of gas piping.

8.7 Health Act, R.S.B.C. 1979, c. 161, for sewage disposal permits, food premises permits and for the operation and abandonment of industrial camps.

8.8 Heritage Conservation Act, R.S.B.C. 1979, c. 165, to alter a provincial heritage or archaeological site.

8.9 Highway Act, R.S.B.C. 1979, c. 167, for joining industrial roads to public highways.

8.10 Land Act, R.S.B.C. 1979, c. 214, for disturbances or use of Crown land.

8.11 Mineral Tenure Act, R.S.B.C 1979, c. 263.3, for the acquisition of claims and leases.

8.12 Mines Act, R.S.B.C. 1979, c. 263.6, and the Health, Safety and Reclamation Code for a program for the protection and reclamation of the land and watercourses affected by a mine as well as mine plans, worker safety and mechanical and/or electrical requirements.

8.13 Mining Right of Way Act, R.S.B.C. 1979, c. 266.1, for provisions of rights of way or the use of existing roads.

8.14 Municipal Act, R.S.B.C. 1979, c. 290, for conformity to municipal and regional by-laws.

8.15 Pesticide Control Act, R.S.B.C. 1979, c. 322, for a permit to use pesticides.

8.16 Pipeline Act, R.S.B.C. 1979, c. 328, for approval of high pressure pipelines.

8.17 Power Engineers & Boiler & Pressure Vessel Safety Act, R.S.B.C. 1979, c.332.5, for approval of boilers, pressure vessels and refrigeration plants.

8.18 Railway Act, R.S.B.C. 1979, c. 354, for approval to cross railway lines.

8.19 Transport of Dangerous Goods Act, R.S.B.C. 1979, c. 408.7, for permits to handle or transport dangerous goods.

8.20 Utilities Commission Act, R.S.B.C. 1979, c. 421.5, for the operation of regulated projects.

8.21 Waste Management Act, R.S.B.C. 1979, c. 428.5, for emissions to the air, discharge of effluent, storage and handling of industrial waste and refuse.

8.22 Water Act, R.S.B.C. 1979, c. 429, for changes to watercourses, minesite drainage, dam construction and water use.

B. SUSPENSION AND CANCELLATION OF CERTIFICATE

1. The Minister may by notice served on Imperial Metals suspend this Certificate for any period or cancel this Certificate where Imperial Metals, in the reasonable opinion of the Minister:

1.1 Does not exercise any rights under this Certificate for a period of five years;

1.2 Fails to pay money owing to the Crown under or in connection with the Act;

1.3 Fails to comply with the Conditions in this Certificate;

1.4 Fails to comply with an order issued under the Act; or

1.5 Imperial Metals' agent made a material misstatement or misrepresentation in the Application or in the information, analyses or environmental protection plan required under the Act with respect to this Certificate.

2. Pursuant to the Act, where the Minister considers that the Development is not being constructed or operated in accordance with this Certificate, the Minister may order that construction and operation cease, until Imperial Metals complies with this Certificate.

3. Where Imperial Metals fails or refuses to comply with an order of the Minister, the Supreme Court of British Columbia may restrain Imperial Metals from disobeying the order.

Anne Edwards
Minister of Energy, Mines
and Petroleum Resources

John Cashore
Minister of Environment,
Lands and Parks

Dated this 6th day of October, 1992.

The aforementioned Conditions are agreed to by Imperial Metals this 6th day of October, 1992.

The Common Seal of Imperial Metals was hereunto affixed in the presence of:

Hugh C. Morris
Name of Imperial Metals Official
HUGH C. MORRIS

{SEAL}

CHAIRMAN & CHIEF EXECUTIVE OFFICER
Position

From: Bellefontaine, Kim MEM:EX
To: Hoffman, Al MEM:EX; Demchuk, Tania MEM:EX; Hynes, Michelle MEM:EX; Mount Polley Investigation MEM:EX
Subject: FW: Ferris report on the panel Report of Mount Polley Dam failure
Date: Tuesday, February 17, 2015 11:25:55 AM
Attachments: MOUNT POLLEY TAILINGS STORAGE FACILITY PERIMETER EMBANKMENT COLLAPSE.DOCX

Hi Al et al,

I am forwarding some review comments on the Mt. Polley Panel Report that I received from s.22 s.22 She wishes for the Chief Inspector and the Investigation Team to receive these. This offers some important public perspective on Mt. Polley panel findings.

As background s.22 s.22 s.22 mong them the ongoing risks of acid rock drainage at the site, effects of continued contaminant loadings to the environment, risks of dams built of acid generating waste rock, risks to environment and taxpayers from a failure of structures or water treatment, etc.

Kim

From s.22
Sent: Wednesday, February 11, 2015 10:01 AM
To: Bellefontaine, Kim MEM:EX; s.22 Flynn, Doug MEM:EX; Stewart, Craig J ENV:EX; s.22 normand.legare@ec.gc.ca; 'Bamford,Anne-Marie [PYR]'
Cc: ' s.22
Subject: s.22 eport on the panel Report of Mount Polley Dam failure

Hi, Kim. Thanks so much for your willingness and help to forward my written work. Please feel free to forward, with my gratitude.

I wrote on behalf of lands and people that have been excluded from any forum that would provide a place to speak out……and I am well aware of the additional government inquiries…plus the MPMC inquiry.

I do not know how helpful my words will be, since I had to respond to the Panel….not to assess all of the history at Mount Polley Mine. That said, "contributing factors" were listed…..and as I wrote, the panel chose to focus upon one, while at the same time, providing us all with windows relating to several others. The Panel was not directed to give "one answer", or maybe they were…I have read the terms of reference that simply relate to "cause"….but the political winds do blow.

In my opinion, the choice for the "one"/foundation lacustrine till failure, which is then expanded to "no regulatory review is necessary" all fits into too neat a package for my interests. When I write the second part of my report, I will address regulatory requirement versus BC policy….I am still thinking and reading.

Good to hear from you, we are being buried in snow up here, almost time to shovel out the window s.22 as phoned to say that as of last week, the snowpack is equal to 2006-07……

and we expect rain tomorrow. Best to you s.22

From: Bellefontaine, Kim MEM:EX [mailto:Kim.Bellefontaine@gov.bc.ca]
Sent: Tuesday, February 10, 2015 9:52 PM
To: s.22 Flynn, Doug MEM:EX; Stewart, Craig J ENV:EX; s.22 s.22 normand.legare@ec.gc.ca; 'Bamford,Anne-Marie [PYR]'
Cc: s.22
Subjec s.22 eport on the panel Report of Mount Polley Dam failure

Hi s.22

Thank you very much for sharing these comments. You have made some astute comments and observations.

The role of the Independent Panel was to identify route cause of the failure and not to fully evaluate contributing factors or to lay blame.

There are two other investigations that are occurring that you may not be of; one by the Conservation Office looking at aspects of compliance with respect to the Environmental Management Act and the Fisheries Act and associated permits, and one by the Chief Inspector of Mines looking at compliance aspects with respect to the Mines Act, Health Safety and Reclamation Code and the Mines Act permit. These investigations are ongoing and will be looking at contributing factors.

With your permission, I would like to forward your email to the Chief Inspector and to the Investigation Team. Alternatively, you can provide them directly to the Chief Inspector, Al Hoffman at Al.Hoffman@gov.bc.ca and to the Investigation Team at mtpolleyinvestigation@gov.bc.ca.

Given the ongoing investigation, I expect that it will not be possible to provide a detailed response to your comments, but I sincerely thank you for the effort and time you have taken to review the Panel Report. If you have additional comments on the recommendations, I would be happy to forward those as well.

Regards,
Kim

Kim Bellefontaine, M.Sc., P.Geo.
Manager Environmental Geoscience & Permitting
B.C. Ministry of Energy and Mines
P.O. Box 9320, Stn Prov Gov't, Victoria, BC, V8W 9N3
Courier: 6th Floor, 1810 Blanshard Street, Victoria, BC, V8T 4J1
Phone: (250) 952-0489 Fax: (250) 952-0481
E-mail: Kim.Bellefontaine@gov.bc.ca

From s.22
Sent: Sunday, February 8, 2015 2:37 PM
To: Bellefontaine, Kim MEM:EX; s.22 lynn, Doug MEM:EX; Stewart, Craig J ENV:EX; s.22 normand.legare@ec.gc.ca; 'Bamford,Anne-Marie [PYR]'
Cc:
Subject s.22 eport on the panel Report of Mount Polley Dam failure

I am using Kim's distribution list for my sending to all of you my Report and Assessment of the Mount Polley Panel findings, regarding the dam collapse. Kim, I would also ask of you, could you send me the procedure for sending to the Chief Inspector of Mines? Thanks, later s.22

MOUNT POLLEY TAILINGS STORAGE FACILITY PERIMETER EMBANKMENT COLLAPSE

RE: REPORT ON MOUNT POLLEY TAILINGS STORAGE FACILITY BREACH: January 30, 2015

Independent Expert Engineering Investigation and Review Panel

Assessment, Review and Evaluation by Glenda Ferris: February 2015

THE REPORT

I found the report to be well-written and at the same time quite obstructive. The words and language are easily accessible and the presentation allows all of us to read the obvious contradictory statements. In fact, the Panel Report reads like a Chinese puzzle box; it is filled with dead-ends, hidden levers, false leads and so many contradictory statements that a solution of this puzzle is daunting. There is also the obvious problem of professional engineers commenting upon public policy and regulatory systems. The Panel process and their thinking are transparent; their lines of enquiry are listed. Several aspects of compelling need are revealed:

- The Minister's requirement for a "simple" answer.
- The mining industry's necessity for self-regulation to continue.
- The general public's demand for an "answer"….with an understanding that when experts "answer", that is the end of inquiry.
- That the Panel was compelled, that Panel members had no alternative, except to provide an "answer"; they could have provided a listing of probable causes instead of "certainty".

As a mine-industry person commented to me, "Well, we all want to know what happened." I do not know that the Panel Report has comprehensively investigated evidence to support their opinion regarding "what happened". But the information within their Report reveals that the Panel has provided some examination of alternative failure possibilities.

While the Panel retained the ability to interview employees of Mount Polley Mining Corporation/MPMC, there is little to none of this information and testimony quoted or evident in the report.

Also missing as a complete record, but referred to within sections, is the compliance record of MPMC as regards their Permits. That is, the proofs of legal compliance with the conditions set out within MEM and MoE Permits.

The panel begins by describing their findings (regarding the Dam Design and lacustrine tills) as a possibility that should not be discounted but by the final conclusions, they present their findings as final "proof" with no room for consideration of other contributing factors, even though their own report continues, within brief sentences, to contradict that imperative-single-cause theory.

My interests relate to the incremental and collective failures:

- Failure of the Perimeter Embankment Dam due to Mount Polley Mining Corporation/MPMC willful disregard for Permit compliance, Best Practices of Design and Construction and operation of the facility, and, a complete lack of consideration for the hazards and risks resulting from their decisions.
- Failure of regulatory approach, at every stage of Mine Proposal (1994-95) to Mine Construction and Mine Operation, including episodes of major non-compliance, until the Perimeter Embankment dam collapse.
- Our collective failure to require more stringent regulatory requirements, adequate full-time staff at all levels of Ministry/s' and the failure to understand the capacity of Mine Development to destroy our lands, our watersheds and our public safety. As a society, we do not seem to consider the repeated "failures" of many mining operations and the loss of our lands to bad practices.

Page 11 of the Panel report, "Factors of Concern" is a very important page. We all should note that this list is not exhaustive but it is inclusive of probable causes and mechanisms of the dam collapse. However, it seems within an apparently fairly short period of time, all lines of intensive inquiry were dropped in favour of "ancient glacial lake" and lacustrine till…..that is, dam foundation failure due to glacial tills (clays) named "glaciolacustrine", a hard, compacted clay.

As an aside, the totally false statements, by Minister Bennett and others that since these till layers "could not be seen" there was no way that regulators could have prevented the dam collapse. This deception has since been revised to words…the foundations tills "were not understood". But the Report does state that "cause" was "hidden", since "no one could see" those compacted clays. A ridiculous assertion, since lab held samples of these clay layers since 1994 and earlier.

According to a Knight Piesold report dated March 14, 2005; "Design of the Tailings Storage Facility to Ultimate Elevation", 2.1.2 Foundation Conditions; "The foundation conditions at the Main Embankment consist of low permeability glacial till material (known inventory collected 1994-95) at surface underlain by fluvial and lacustrine silts up to 20m thick. The foundation conditions of the Perimeter Embankment (the dam that collapsed) consist of low permeability glacial till throughout that is generally in excess of 5m."

The conditions of foundation tills have been "known" for decades. That said, if the BC government and the Panel really believe that the only factor that caused dam collapse were those lacustrine foundation tills….those same tills exist under the entire TSF/Tailings Storage Facility at the Mount Polley Mine and its embankment dams. Rational thought would then require that this mine component/TSF be immediately and permanently de-commissioned. The embankments should be re-sloped, a Water Management Plan should be approved with Treatment Plant (and sludge disposal). This does not foreclose Mine operations; they simply need to build a water-recycle pond for their mill and to deposit mine waste into an empty open pit, already available at either Springer or Caribou pits.

If the Panel and BC government do not believe their own report, do not intend to reduce the foundation-tills-hazard described as a "loaded gun" by the Panel….then they will simply continue down

the status-quo path of re-construction of the impoundment dams and mine operations continuing at the site. While stating that we cannot, as a society, continue the status-quo; that is exactly what they are doing in relation to the Mount Polley mine site. We should all remember that there are still approximately 44million cubic meters to 54million cubic meters of saturated tailings within the Mount Polley impoundment, and now there is also this winter's substantial snowpack.

In Executive Summary; Conclusions: The generalized conclusion that "dam design" was the "dominant contribution to the failure" exemplifies the apparent inability of the Panel to state real world conditions. While then referencing the foundation till "un-drained failure", the statement is made that, "The construction of….a rock-fill zone…..at steep slope."……caused the dam collapse. Several times within the report this "steep slope" is mentioned as the cause of the Perimeter Embankment failure, and yet, neither the geotechnical inspections (please note that some reports are being withheld) nor the regulatory assessments which are available, noted that this slope should be either altered or buttressed. The implication is that the displacement mechanism was "weight" with resulting dam failure and collapse; the failure identified by the Panel at foundation level of lacustrine "un-drained" and compacted tills (clay layer).

The Panel also states that a "buttress" construction may also have prevented dam failure. Did MEM/Ministry of Mines staff at any time recommendation or ask the company "to consider", let alone "Order" that a buttress support be constructed at the Perimeter Embankment?

Page 11 states:

- "Details of filter and transition construction in as-built drawings indicated departure from intended design." *please note, at many sections within the report, disclosure remained that MPMC submitted Design, that was then approved by MEM, and then did not construct the approved design to any criteria or standard known, except the as-built drawings that the Panel members accessed to reveal this bad practice.
- "The (Perimeter Embankment) core had been over-topped in one location for a brief period in 2014 (in fact, May 24) resulting in softening and enhanced deformability."
- "Much of the as-placed filter material failed to meet applicable filter criteria and requirements for internal stability of its grading." ….and the downstream slope was really, really steep.

At any point in time, both the company and/or the regulatory agencies could have considered compliance to better standards. At every turn, the dam collapse became "inevitable" because of incremental decisions made over decades at Mount Polley Mine and through the ineffectual approach of non-regulation practices by the Ministry of Mines. While there is no coherent listing of assessment of MPMC management shortcomings, they are well documented within the Panel report.

If all of these Mount Polley Mine bad-practices (and there are many more) that have been documented by the Panel, and now distributed to the public, exist and have existed for years, then the Panel assertion that regulatory requirement could not have prevented the Perimeter Embankment collapses; as a "fact", it falls apart.

DAM DESIGN AND CONSTRUCTION

Almost throughout the entire Panel Report, they label the MPMC/Mount Polley Mining Corporation Tailings Storage Facility/TSF as "modified centreline construction" It is only on page 55 that we can read an accurate description of "upstream construction", as in: "Rather than adhering to a "centreline configuration, raise 2 utilized entirely upstream construction. The same conditions prevailed for the Perimeter Embankment…." Now, we must all remember that this past construction is now within the lower levels of the dam/s' interiors; a layer of non-performance and incompatible construction materials.

Not only were design standards not being met regarding as-built construction, but the design plans were being altered as the impoundment dams rose. For reference please note Will Koop's report "The Scene of the Crime" on behalf of the BC Tap Water Alliance; www.bctwa.org; December 1, 2014.

"Upstream" and even "modified Centreline" construction depend upon the vertical support of the tailings themselves…far cheaper than using quarry rock. That is why 10meter wide tailings beaches are required and those beach-areas are an absolute necessity for tailings consolidation (drying); that management aspect, even as a regulatory Permit compliance requirement was routinely violated. Surface water should never have been allowed to accumulate next to the dam upstream face. In addition, in the climate and weather pattern of the Mount Polley Dam region, in any case, the tailings may never have dried or consolidated due to precipitation, temperatures and winter conditions.

The 2005 Knight Piesold Report: Design; "Beached tailings, when left to drain and consolidate, form the competent foundation needed for the "modified Centreline" construction of embankments…."

And then, the Panel Report directly states, "The embankments do not rely on tailings mass for stability." This Panel assertion is refuted by the dam construction and design drawings presented throughout their own report….we can see the payers of tailings and filter-materials and the incline upstream of the dam itself. Why would Panel members make this statement? Are they merely recounting the construction of the foundation of the Embankment Dam complex? Or, are they misleading all of us?

Dam design modifications and as-built alterations (and additional drain systems) seem to have been a continuous feature of the operational approach at Mount Polley Mine.

Page 57: "….for Stage 3 design using only cyclone sand (see tailings) for the Perimeter Embankment….this was changed in April 2001…using rockfill sourced from a quarry."

The history of design and construction only confirms that dam stability was at risk for many years; that comprehensive inspections and legal requirements could have, at any moment in time, remediated flaws and/or altered the engineering approach to a more robust design.

Instead, page 55: "The intended Zone C (this area is Main Embankment) mine waste till was not added to the downstream slope and the berm along the toe was not constructed." *my emphasis. Now the

puzzle becomes, why does the Panel mention these issues at all? …except to reveal that MPMC did not complete dam construction to their own "approved" design standards? Please note that if a stabilizing berm (buttress) had been placed along the Perimeter Embankment dam, downstream face, the dam might not have collapsed, according to Panel findings.

Page 53: Mine Construction

- Alterations of dam design
- Narrow chimney drains
- Four relief wells
- Longitudinal drain
- Cyclone sand deposition abandoned
- Water directly in contact with the embankments

Page 64: Mine Management

- Buttress not constructed as designed
- Beach deposition and beach maintenance 10m not successful
- Water accumulation against embankments

Page 75: Mine Design

- Reduction of compacted core of dam width from 8meters to 5meters.
- Filter materials do not meet stability requirements.

I submit, these practices and non-compliances (and many others documented within the Panel Report) "set the stage for all that followed".....not a simple misunderstanding regarding the un-drained strength of lacustrine tills under the dams' foundations

I submit, the over-consolidated lacustrine till layer fractured, we can see the up-turned giant slabs, as a result of the dam collapsing due to bad construction practices, "upstream-incline dam instability" and internal erosion. The Panel has simply confused "cause" with "effect".

WATER

Page 72: "For years, dam raising had managed to stay one step ahead of the rising water. But on May 24, 2014, the water caught up."

On pages 9 & 10 of the Panel Report, a sequence of events is described in detail, some of the information obtained through testimony of workers, not submission by the company. In addition to a storm events on July 27, a series of events occurs on August 3rd. The seepage pond alarm system and pumps are triggered, sequentially, from 11pm, to 1am (pond rising sharply) to 1:15am when the power

goes out…and discovery of dam breach @ 2:05am. This is a water event….a failure of containment that is reporting to the Seepage Pond and representative of "internal erosion" and/or internal subsidence.

I have already reported upon the many aspects of Water Management and the implications of bad management practice upon dam stability. The water balance/mass balance issues at Mount Polley Mine had been an issue for years, especially since 2006. The company did nothing except to continue to raise the embankment dams. Recommendations were made for Discharge Permits (mine effluent discharge) from the impoundment, and these Permits were actually issued in 2014.

The government regulatory agency and the company knew, since 2006, that the water balance within the impoundment, even with increased Mill throughput, could not be discharged without Treatment. The MPMC did not want to build a Water Treatment Plant that would have enabled them to discharge up to 3million m3 annually, so they spent time "investigating" passive treatment systems, while the impoundment filled with water.

Page 87: "It is not clear to the Panel why it took so long to design and implement a water treatment strategy that would provide for a significant reduction in the amount of surplus water stored in the TSF." Not only were "beaches" not being maintained to consolidate tailings but the entire impoundment structure was being "raised" to accommodate the water, supernatant accumulations.

Page 61: There are "chronic problems with maintaining the tailings beach."

The dams at Mount Polley Mine were never designed nor constructed to hold water, page 87: "…the Mount Polley TSF embankments were not designed as water-retaining dam(s)…"

Where are the disconnect and dereliction of duty to social, economic and environmental safety? Why has there been no regulatory requirement imposed upon MPMC for safety? No regulatory use of "ACT" authority and power? No incentive for the MPMC-company to comply with any standard or criteria, or even to provide the capital funding for a water treatment plant?? This is an industrial and regulatory system's failure of incredible scope and scale….and these discredited regulatory approaches combined with industry bad practice will continue because the Panel asserts, Executive Summary iv: "The Panel found that the performance of the Regulator was as expected."

"Expected" by whom? The Panel members reveal deep ideological roots in their commentary. The Panel "answers" become a mechanism for avoiding questions, not communicating information. Engineers are not the group/sector from which we can expect solutions to public policy challenges.

As a society we entrust government as "caretakers" and legislated authorities and guardians of both civil laws and our collective public safety. Government has failed at every stage; now they must describe how improvement in regulatory process and outcomes will be framed. BC lands and watersheds are our collective interests; our interests are not valued by our own government.

Page 138: "By definition, no amount of inspection can discover a hidden flaw." And, "It is not unreasonable to ask whether MEM could have acted sooner and more aggressively in these matters or even intervened in the design process…" Well, that would not have made much of a difference, since

MPMC did not construct nor were they required by regulatory authority to construct the dam/s as-built to dam/s-design criteria.

REGULATORY OVERSIGHT

Page 112: Regulatory Oversight: “The MOU clearly places the responsibility for the engineering aspects of the Mount Polley tailings storage facility (TSF), seepage collection ponds and diversions on the shoulders of MEM, while the water quality (and discharges from the Mill to the impoundment) of any discharges is the responsibility of MoE. Two permits are in place for the TSF and associated facilities: Permit M-200 from MEM and Permit 11678 from MoE.”

Then how did all of the Panel Report-documented MPMC failings above happen? There has been a massive downsizing of professional engineers within government regulatory agencies. At the same time, the mining industry as a whole and mine companies in particular have also downsized staff. There is now an excessive dependence upon “professional consultants” by both government and industry. What has been the result? There is no institutional memory; no continuity; not even consist compliance to legal requirement.

How did even the hired help of Knight Piesold or AMEC approve as “safe” the embankment dams at Mount Polley Mine? Is the problem that hired professionals can only make “recommendations” that the company can then ignore? Maybe, but then we should have the safeguards of regulations and regulatory agencies to apply “legal remedy” when the company refuses to address issues that have been identified. The Panel answers that “Observational” approach may have some shortcomings. Well, regulatory agencies could see the water; geotechnical engineers could see the steep slope at the Perimeter Embankment; employees could see seepage-water flowing through the dam at various locations.

How can the Panel write, “The Panel found that inspections of the TSF would not have prevented failure and that regulatory staff are well qualified to perform their responsibilities.”???? The glaring inconsistency and contradictions within this quote represent ideology, not the practical application for the requirements of regulation. In absolute terms, conformity to the ideology of non-regulation is significant either from the Panel assertions or from government Ministers. This approach will simply entrench systems that are already failing to prevent disaster, but to also continue as policy without an opportunity for public examination or government reorganization.

The ideology represented is also about controlling the message; often within simple-minded talking points that are misleading.

What is the role of government?

- To stand in front of microphones and provide cover for industry?
- To leave regulations and law in place, never to be enforced or to be used for control?
- Who speaks for our land, our water, for us?

Minister Bennett stated, as quoted in the Vancouver Sun, “he said he was gald the report confirmed the breach could not have been prevented by government employees doing surface inspections.” This is the worst type of deception; MEM employees could not “see” the steep slope? MEM employees could not “see” the impoundment supernatant? NO, because the hidden, single cause was a layer of lacustrine till, invisible to all but anyone that could access a file, read a diagram or a geotechnical report.

The Minister’s approach of providing “answers” has become a mechanism for avoiding questions, for not communicating information.

And then, also quoted in the Vancouver Sun, Mary Pollack, Minister of Environment, said that the scale of the disaster was tremendous and the every effort was being made to clean up the mess. Note that this is not necessarily a deception, it is not clever enough; this statement is a complete fabrication, bamboozle, hornswoggle. MoE have cleaned up or required to be “cleaned up”……. nothing. *MoE “Order”-ing the MPMC to stop the Perimeter Embankment discharges AFTER the dam had failed was some of the most profoundly dishonest posturing I have ever witnessed….and I have seen a lot.

If there is never any social, financial or legal accountability for the destruction of places and of neighbors here in BC, the mining industry and mine companies have no incentive to build and operate mines that provide good outcomes.

How do we come to terms with our collective failures, if they are hidden and labeled as success? Success of regulatory practice falsely claimed in the face of this catastrophic failure. We have to identify systemic issues: lack of communication between ministries, new investigation techniques that will identify hazards and mine company’s bad practice. We have to do this now.

I do not understand why gems of real information continually surface within the Panel Report. Nor do I know why these instances of real knowledge and information clash so pervasively with many of the Panel’s social-policy statements.

That said, I will give them the last word, Page 137: “The Panel’s excavation of the failure surface showed that the crest (Perimeter Embankment Dam) dropped at least 3.3m, which allowed over flow (of supernatant) to begin and breaching (of the dam)to initiate. Had the water level been a metre lower and the tailings beach commensurately wider, this last link might have help until dawn the next morning allowing timely intervention and potentially turning a fatal condition into something survivable.”

I will deal with the Panel “recommendations” in another report.

Best to all s.22

From:	Demchuk, Tania MEM:EX
To:	Kuppers, Haley MEM:EX; Pocklington, Cheryl M MEM:EX
Cc:	Hemphill, Naomi MEM:EX; Parent, Matthew MEM:EX
Subject:	FW: Advisory letter from MOE - MPMC discharge of mine impacted water
Date:	Wednesday, February 18, 2015 3:29:07 PM
Attachments:	2015-02-14 Advisory Letter under Order 107461.pdf
Importance:	High

FYI (Al has receive this already)

From: King, Joanne ENV:EX
Sent: Wednesday, February 18, 2015 3:16 PM
To: 'dreimer@mountpolley.com'; s.22 'jbell@cariboord.bc.ca'; 'dparsons@imperialmetals.com'; Hoffman, Al MEM:EX; 'nrcoordinator@xatsull.com'; Demchuk, Tania MEM:EX; 'Robert.Birtles@interiorhealth.ca'; Dahl, RK ENV:EX; Metcalfe, Shelley ENV:EX; Bunce, Hubert ENV:EX
Subject: Advisory letter
Importance: High

February 18, 2015 File: 107461

REGISTERED MAIL

Copy sent by email

Mount Polley Mining Corporation
Suite 200
580 Hornby ST
Vancouver, BC V6C 3B6

Dear Mr. Dale Reimer:

Re: Non-compliance Advisory Letter, Order 107461

On Feb 13 and 14 2015, Mount Polley Mining Corporation (MPMC) reported that there were two independent discharges of mine affected materials into the Bootjack/Hazeltine Creek watershed. As a result of these events, MPMC advised that it is out of compliance with section 1 of Order 107461 under the *Environmental Management Act*, for having failed to abate the discharge of mine-affected materials to Hazeltine Creek.

It is understood that both of these events related to the failure of water control works to adequately retain flows resulting in the loss of mine affected materials to water channels that ultimately lead to Hazeltine Creek. As a result the mine is directed to inspect all mine affected water control works, i.e. diversion and retention berms, ditches, sumps, pumps and related appurtenances. The results of this inspection, along with a report on the adequacy and integrity of these works and any improvement works undertaken or planned to resolve any inadequacies determined is to be provided to the Director by February 25, 2015

It is understood that the discharges to the receiving environment were fully controlled by 1230 hrs Feb 13 and 1400 hrs Feb 14 respectively.

This Advisory is the first step of an escalating enforcement response to a violation of the *Environmental Management Act*. This Advisory, the alleged violations and the circumstances to which it refers will form part of the compliance history for Mount Polley Mining Corporation and its responsible officials and will be taken into account in the event of future non-compliance.If you have any questions with regard to this Advisory, please contact the undersigned at (250) 751-3254 or Shelley Metcalfe at (604) 582-5332.

Ministry of Environment Mining Operations Environmental Protection Division
Mailing Address: 2080 Labieux Rd Nanaimo BC V9T 6J9
Telephone: 250 751-3100 Facsimile: 250 751-3103 Website: www.gov.bc.ca/env

Yours truly,

Hubert Bunce
A/Director Mount Polley Operations
Environmental Protection

cc: Al Hoffman, Chief Inspector, Ministry of Energy and Mines
Tania Demchuck, Ministry of Energy and Mines
Rob Birtles, Interior Health Authority
Janis Bell, Chief Administrative Officer, Cariboo Regional District
Kelly Dahl, Detective Sergeant, Conservation Officer Service
Jacinda Mack, Northern Shushwap Tribal Council
Shelley Metcalfe, Ministry of Environment

HB/

From:	Demchuk, Tania MEM:EX
To:	joe@fraserriverkeeper.ca; nbowman@okanagan.bc.ca
Cc:	Kuppers, Haley MEM:EX
Subject:	Follow-up: copy of presenation from Feb. 11 community meeting
Date:	Wednesday, February 18, 2015 8:55:32 AM
Attachments:	Ministry of Energy and Mines_Community First Nations Meeting_20150211.pdf

Good Morning Joe and Norah,

It was lovely to meet you last week at the First Nations community meeting in Williams Lake. As requested, please find attached for your reference a copy of the Ministry of Energy and Mines PowerPoint presentation.

Regards,
Tania

Tania Demchuk, MSc, PGeo
Mount Polley Project Manager
Sr Environmental Geoscientist
Mines and Mineral Resources Division
Ministry of Energy and Mines
250-952-0417

From: Kuppers, Haley MEM:EX
Sent: Tuesday, February 10, 2015 9:28 PM
To: Celine Lee
Cc: Demchuk, Tania MEM:EX
Subject: New Version of Powerpoint, Ministry of Energy and Mines

Hello Celine,

We have made a minor adjustment to our powerpoint and request that the attached version be used for our presentation at tomorrow's Community First Nations Meeting. Sorry for the confusion or any inconvenience.

Thanks,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

BRITISH COLUMBIA | Ministry of Energy and Mines

Mount Polley Mine Tailings Dam Breach

Ministry of Energy and Mines Role and Response

Northern Secwepemc Community Meeting

Williams Lake BC
2015-02-11

BRITISH COLUMBIA | Ministry of Energy and Mines

Overview

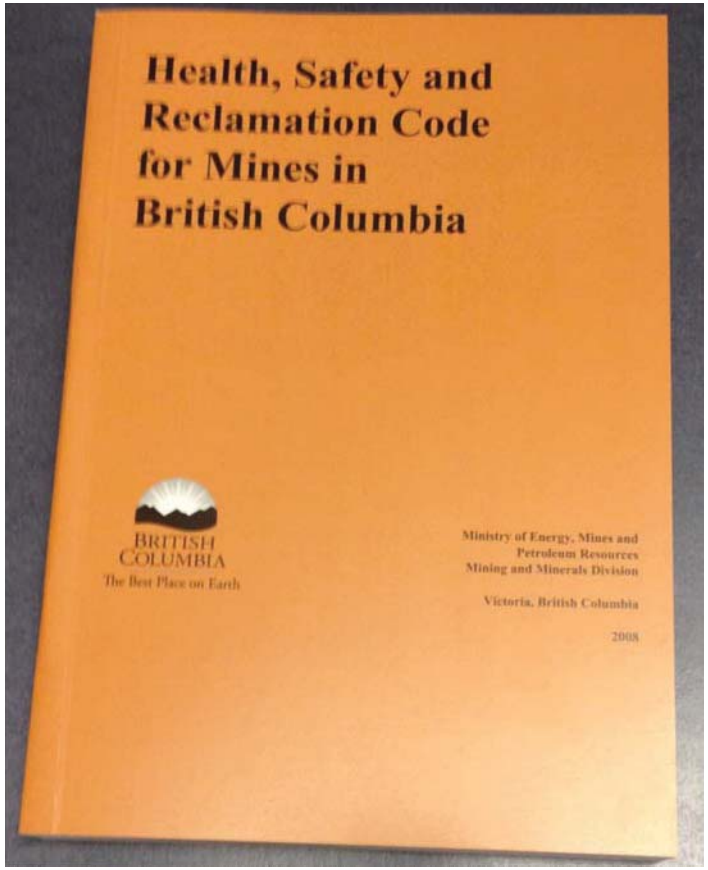
- MEM Mandate and Role
- Chief Inspector of Mines
- Dam breach response (initial and longer-term response)
- Regulatory Activities post-breach
  - What has MEM done since August 4, 2014
  - What happens next
- Chief Inspector's Investigation

Overview – MEM Mandate

- The Ministry of Energy and Mines is responsible for British Columbia's electricity, alternative energy, ***mining and mineral exploration sectors,*** which comprise public and private interests that explore for and develop electricity, clean or renewable energy (biomass, biogas, geothermal, hydro, solar, ocean, wind or any other alternative energy resource), coal, minerals, and renewable and low-carbon fuels.

Overview – Legislation

- There are a number of pieces of legislation that we are responsible for, including:
- The *Mines Act*
- The Health, Safety and Reclamation Code for Mines in BC (the Code).



Overview – Purpose of the Code

1. Protect employees and all other persons from undue risks to their health and safety arising out of or in connection with activities at mines.
2. Protect and reclaim land and watercourses affected by mining.
3. Ensure the risks and environmental liabilities are minimized.
4. Regulate mining and exploration activities in a way that supports extraction of mineral resources with a minimum environmental disturbance, taking into account sound engineering practice and prevailing economic conditions.

Chief Inspector of Mines

An independent statutory officer responsible for administering and enforcing the ***Mines Act, Regulation, Code and Permit***

- Investigate and identify whether there were any violations
- Make recommendations to government

- Directed an investigation be conducted of the Mount Polley Mine Tailings Storage Facility (TSF) as per Section 7 of the *Mines Act*

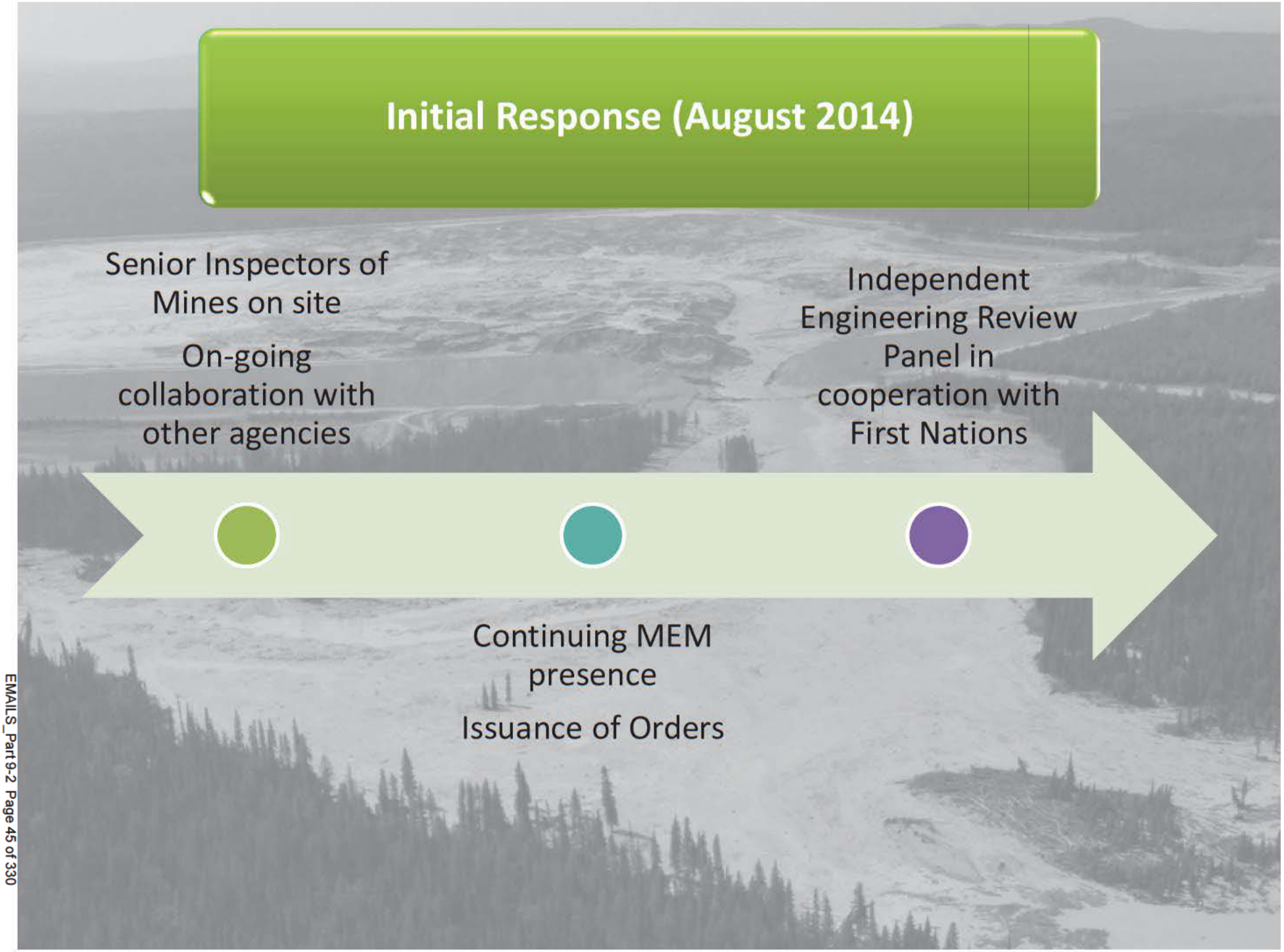
BRITISH COLUMBIA | Ministry of Energy and Mines

MEM Dam Breach Response

Initial Response (August 2014)

Emergency Works (August to November 2014)

Permitting / Long Term Planning (November to ongoing)


Initial Response (August 2014)
Senior Inspectors of Mines on site
On-going collaboration with other agencies
Independent Engineering Review Panel in cooperation with First Nations
Continuing MEM presence
Issuance of Orders

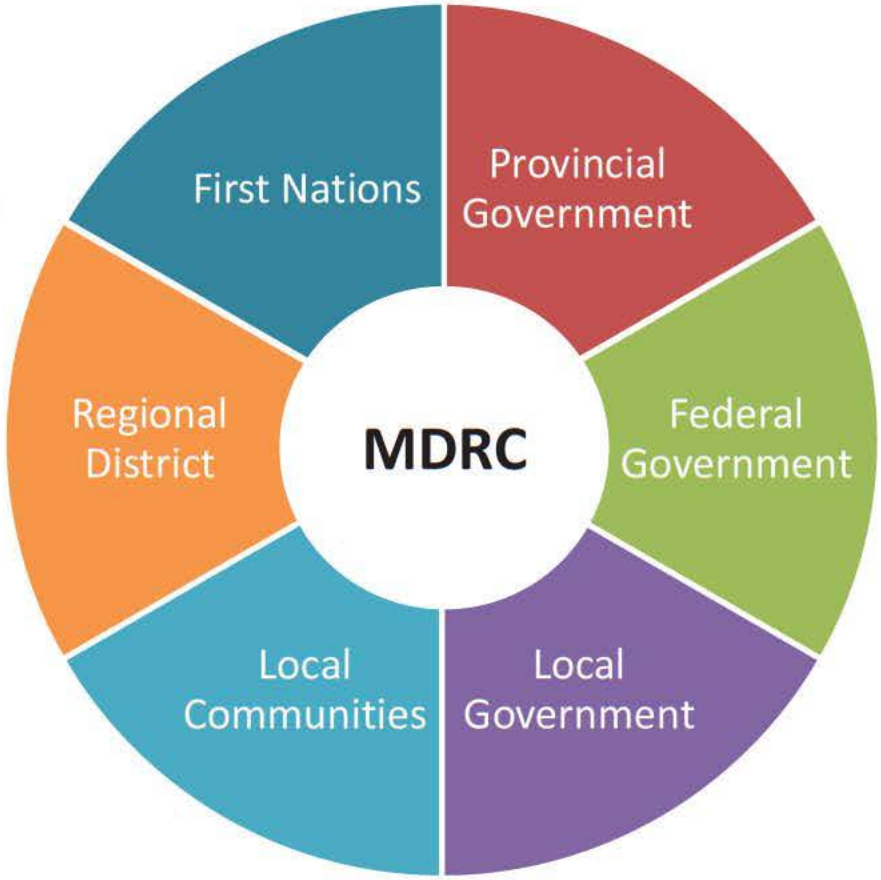
Emergency Works (August to November 2014)

- Water management
- Polley Lake Pumping
- Temporary upstream dyke
- Safe work procedures

Permitting / Long Term Planning (November to ongoing)

- Longer-term mine site management and *Mines Act* permit amendments for activity on the mines site

- Cariboo Mine Development Review Committee (MDRC)

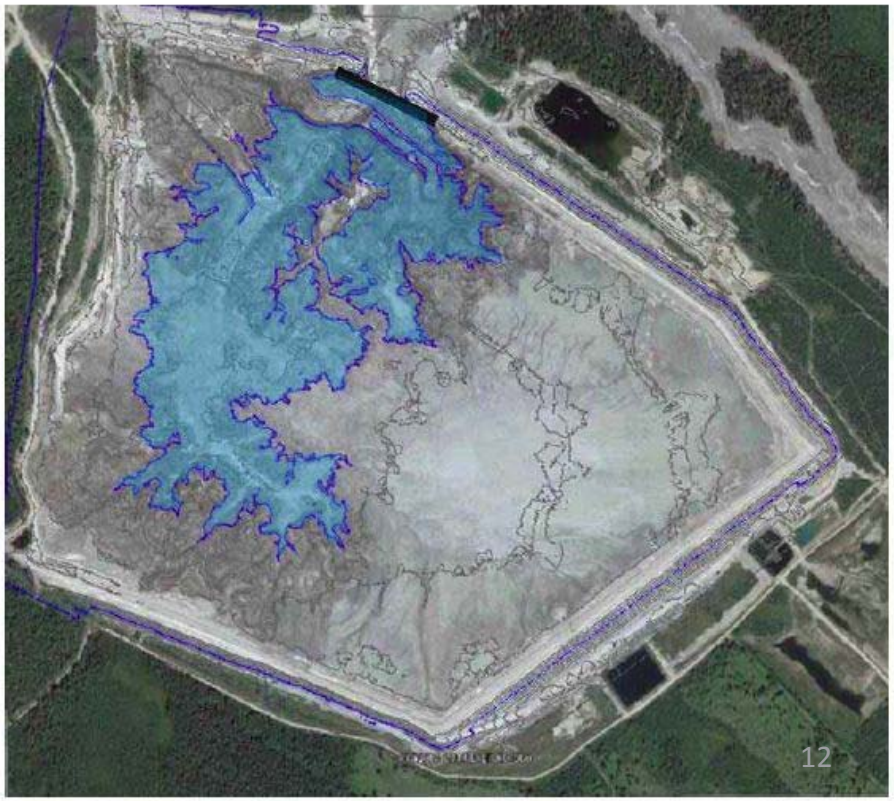


BRITISH COLUMBIA | Ministry of Energy and Mines

MEM Permitting Activities

- Approval of Breach Repair for Freshet 2015
  - Issued December 17, 2014 following thorough technical review by government and First Nations technical advisors
  - Permit Conditions require additional planning and follow-up actions
- Application for Restricted Restart of Operations
  - Submitted to First Nations and government
  - More information has been requested

Freshet Pond Configuration



Expert Panel Response

- All operating mines with TSF dams:
  - Chief Inspector follow-up letter
  - Establish Independent Tailing Dam Review Boards
- The Minister will initiate a code review to determine how to best implement the panel's remaining recommendations, including the adoption of best available practices and technologies

Path Forward

- Collaborate with other agencies and First Nations to share information
- Continue MDRC meetings for ongoing information sharing and review of permit applications
- Maintain presence at mine to ensure protection of worker and public health and safety
- Code review to address implementation of Recommendations from Expert Panel Report

Chief Inspector's Investigation

Mount Polley Mine Breach Terms of Reference

- Goals of the Investigation
  - Establish the root cause(s) of the event, and any contributory causes
  - Reduce the risk that such an event could occur in the Province in the future
  - Improve the safety of the mining industry in the Province

BRITISH COLUMBIA | Ministry of Energy and Mines

Chief Inspector's Investigation

Chief Inspector's Investigation

- Conducted over 100 interviews with employees, contractors, professionals, consultants and continuing
- Hiring of Klohn Crippen Berger coordinating geotechnical-forensic investigation fact based data report
- Chief Inspector's Investigation Report
- Continual site assessment on Code compliance

Chief Inspector's Investigation

- On-going:
  - Future Interviews, document collection and review
  - Examination of the Panel data, findings and recommendations
  - Continued communication and collaboration with Public, First Nations, employees
  - FOI and disclosure of information
  - Legal issues

Summary

- Execute the mandate and direction of the Chief Inspector of Mines
- Responsibility to collect, collate and disclose the information we learn
- Stimulate change where appropriate
- Standardize and elevate the expectations of safe sustainable mining practice BC
- Enforce the Act, Regulations, Code and permits related to Mining in BC

Key Contacts

- Haley Kuppers – Primary Investigator; Provincial Health and Safety Specialist
  Haley.Kuppers@gov.bc.ca
- Tania Demchuk – Project Manager; Senior Environmental Geoscientist
  Tania.Demchuk@gov.bc.ca
- Joe Nicholson – Health and Safety Inspector of Mines
- Rick Adams – Mine Development Review Committee Chair
- Statements can be submitted to:
  MtPolleyInvestigation@gov.bc.ca

Way Forward

- Chief Inspector of Mines Orders:
  - Dam Safety Inspections and third-party reviews of TSFs at other permitted mines in BC have not identified any immediate safety concerns
  - Reports are available online and government is investing in improved information systems so that this information can routinely be made public
  - Follow-up work includes:
    - Review and follow-up of identified additional work
    - Foundation materials, site investigation, design consideration

Ministry of Environment

Inspection Record

Environmental Protection Division

EP System: AMS	Inspection Status: *FINAL*
System Number: 11678	**Inspection No:** *17766*
EP System Status: *Active*	Inspection Date: 2014-07-10
Region: Cariboo	Office: Williams Lake
Trigger: Planned	**Incidents of Non-Compliance Observed:** Yes
Non-Compliance Decision Matrix Level: Level 1	Non-Compliance Decision Matrix Category: Category A
Inspector Name(s): Jack Green	Risk Ranking: 1 to 2 = Medium
Audit:	Total Non-Compliance(s): *2*

Regulated Party:
Mount Polley Mining Corporation 2

Regulated Party Contact(s):
Colleen Hughes

Mailing Address:
PO Box 12
Likely, BC
V0L 1N0

Phone No: (250)790-2215	Fax No:

Contact Email: chughes@mountpolley.com

Location Description or Site Address:
Mount Polley is an open pit copper/gold mine located near Likely BC.

Latitude: 52.54547 N	Longitude: 121.63433 W

Receiving Environment(s): Surfacewater

Summary

MONITORING AND REPORTING REQUIREMENTS	
Inspection Period: **From:** 2014-05-24 **To:** 2014-07-10	
Requirement Source:	
Activity: Office Review	Waste Type: Effluent

Inspection Summary:

Loss of operating condition freeboard at tailings storage facility due to "extended weather event". As of 24 May 2014 freeboard was at 0.6m.

Measures taken by permittee include diversion of all water collection systems from TSF, pumping of water from TSF to Cariboo Pit and targeted raising of till core at lower elevations of embankment. The permittee has also been working with the design engineer (AMEC) to identify the most critical areas of low freeboard elevation for core construction.

Increased freeboard monitoring and weekly reporting frequency were undertaken as required.

Response:
Advisory

Compliance Summary	In	Out	N/A	N/D
Discharge	0	1	0	0
Reporting	0	1	0	0

Inspection Details

Requirement Type: Reporting

Requirement Description:

2.1 Maintenance of Works and Emergency Procedures

The permittee must inspect the pollution control works regularly and maintain them in good working order. In the event of an emergency or condition beyond the control of the permittee which prevents continuing operation of the approved method of pollution control or which impairs the operation of approved works, the permittee must notify Environmental Protection:

a) By telephone if the condition occurs between the hours of 08:00 and 16:30, Monday to Friday on normal working days; and
b) By facsimile transmission if the condition occurs at any other time.

All such reports must be received within 24 hours of detection of occurrence.

In addition, emergencies involving spills to the environment (as defined in the Spill Reporting Regulation) must be reported immediately to the Provincial Emergency Program.

Details/Findings:

Notification of loss of operating condition freeboard at tailings storage facility was not received until 15:25 on Monday 26 May 2014. It has been reported that loss of freeboard was first noticed on Saturday 24 May 2014.

Compliance: Out

Requirement Type: Discharge

Requirement Description:

2.4.4 The tailings impoundment must provide 1.0 metre of freeboard plus storage for the Probable Maximum Precipitation (PMP), and all other effluent storage ponds, seepage ponds, and surface run-off ponds must provide at least 0.5 metre of freeboard, up to a 1 in 200 year 24 hour storm event. If at anytime freeboard in the tailings impoundment is reduced to less than 1.0 metres plus the PMP, or less than 0.5 metres in any other pond, the permittee must notify Environmental Protection following preocedures in Section 2.1 of this permit. After initially reporting such an occurrence, the permittee must report the freeboard weekly until such time as the required freeboard is re-established. Freeboard is defined as the difference in elevation between the contained liquid level and the top of the berm structure at its lowest point. The lowest point does not include a spillway where a discharge is authorized or where the supernatant over flows to a downstream collection pond that is part of the authorized works.

Details/Findings:

Freeboard was reduced to 0.6m on 24 May 2014. 1.0m freeboard was re-established week commencing 30 June 2014. The permittee provided weekly reports until the freeboard was re-established, as required. Confirmation that 1.3 metre of standard operating freeboard had been achieved was received on 10 July 2014.

Compliance: Out

ACTIONS REQUIRED BY REGULATED PARTY and/or ADDITIONAL COMMENTS:

With respect to exercising your due diligence, please provide any information of site improvements instigated as a result of this incident.

INSPECTION CONDUCTED BY:

Signature	*Date Signed*
Jack Green	2014-07-14

ENCLOSURE(S) TO REGULATED PARTY & DESCRIPTION:

CVIS Archives

REGULATORY CONSIDERATIONS:

Ministry of Environment	Cariboo Region Environmental Protection Division	Mailing Address: 400-640 Borland St Williams Lake, BC V2G 4T1	Phone: (250) 398-4530 Fax: (250) 398-4214 Website: http://www.gov.bc.ca/env

From: Metcalfe, Megan MEM:EX
To: Kuppers, Haley MEM:EX; Demchuk, Tania MEM:EX
Subject: FW: CLIFF 88750 DM Signature - Mt. Polley
Date: Thursday, March 12, 2015 1:21:57 PM
Attachments: 861986.pdf

Hello,

Could one of you two draft a response for DM signature? Incoming attached.

Please advise.

Megan Metcalfe
Program Assistant | Mines and Mineral Resources Division | Ministry of Energy and Mines

---

From: Metcalfe, Megan MEM:EX
Sent: Thursday, March 12, 2015 9:39 AM
To: Howe, Diane J MEM:EX
Subject: RE: CLIFF 88750 DM Signature - Mt. Polley

Let me check with them and I will follow up.

From: Howe, Diane J MEM:EX
Sent: Thursday, March 12, 2015 9:37 AM
To: Metcalfe, Megan MEM:EX
Subject: Re: CLIFF 88750 DM Signature - Mt. Polley

Im wondering Megan if Haley or Tanya deal with this one?

Regards, Diane

On Mar 12, 2015, at 08:08, Metcalfe, Megan MEM:EX <Megan.Metcalfe@gov.bc.ca> wrote:

> Hi Diane,
>
> s.22 ut do you think I can have this draft for Monday morning?
>
> Let me know.
> Thanks,
>
> Megan Metcalfe
> Program Assistant | Mines and Mineral Resources Division | Ministry of Energy and Mines
>
> ---
>
> **From:** Brody, Margo X MEM:EX
> **Sent:** Tuesday, March 10, 2015 2:24 PM
> **To:** Metcalfe, Megan MEM:EX

Cc: Howe, Diane J MEM:EX; Hoffman, Al MEM:EX
Subject: FW: CLIFF 88750 DM Signature

Please respond to Megan with the draft, thank you.

Margo Brody
Branch Coordinator
Health, Safety and Permitting
Mines and Mineral Resources Division
Ministry of Energy and Mines
250 952 0793

From: Metcalfe, Megan MEM:EX
Sent: Wednesday, February 25, 2015 3:31 PM
To: Brody, Margo X MEM:EX
Subject: CLIFF 88750 DM Signature

Hi Margo,

CLIFF 88750 email for DM Signature regarding the Mount Polley Investigation, and preservation of records obtained through the investigation.

Due: March 11, 2015.

Thanks,
Megan Metcalfe
Program Assistant | Mines and Mineral Resources Division | Ministry of Energy and Mines

<861986.pdf>

FAX COVER SHEET

TO	
COMPANY	
FAX NUMBER	12509520269
FROM	Eric Wredenhagen
DATE	2015-02-11 00:52:32 GMT
RE	Letter to Dave Nikolejsin, Deputy Minister

COVER MESSAGE

Please find attached letter dated February 9, 2015, sent to Mr. Nikolejsin on behalf of APEGBC.

Yours truly,

Eric Wredenhagen
Barrister & Solicitor
604.428.1189 (office)
604.677.6122 (fax)
778.320.1361 (cell)
Eric@Wredenhagen.ca <Eric@wredenhagen.ca>

ERIC WREDENHAGEN
Barrister & Solicitor
| 801 – 1935 Haro Street | Vancouver, BC | V6G 1H8 | phone: (604) 428-1189 | cell: (778) 320-1361
| fax: (604) 677-6122 | E-mail: eric@wredenhagen.ca |

February 9, 2015

VIA FAX: (250) 952-0269

Mr. Dave Nikolejsin
Deputy Minister
Ministry of Energy and Mines
PO Box 9319, Stn Prov Gov't
Victoria, BC V8W 9N3

Dear Mr. Nikolejsin:

Re: Mount Polley Tailings Storage Facility Breach

I have been retained by the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) to assist with APEGBC's ongoing review and monitoring of the Mount Polley matter.

On October 31, 2014, APEGBC sent a letter to Deborah Lovett, Q.C., asking that the independent expert engineering investigation and review panel (the "Independent Panel") "preserve all evidence and information gathered in the course of its investigation – whether or not such information is included in its final report" which might indicate, *inter alia*, a breach of professional standards or a contravention of the *Engineers and Geoscientists Act* (the "Preservation Letter") by one or more members of APEGBC. A copy of the Preservation Letter, signed by Efrem Swartz (APEGBC's Director of Legislation, Ethics and Compliance) is attached for your reference.

Ms. Lovett responded to Mr. Swartz's letter of October 31, 2014 by an e-mail in which she advised that the Independent Panel had reviewed the letter and "does not anticipate any difficulty meeting APEG's preservation request."

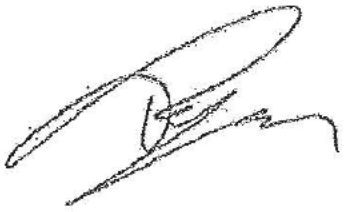
However, having completed its task and having now delivered its Report, the Independent Panel is effectively dissolved, and is presumably therefore no longer in a position to ensure that the request in the Preservation Letter is met. Ms. Lovett has advised that further communication regarding these documents – and in particular, a request by APEGBC under the *Freedom of Information and Protection of Privacy Act*, should APEGBC decide to make such a request – should be addressed to you.

Can you please review the attached Preservation Letter and confirm that the Ministry of Energy and Mines will continue to preserve any and all "documents, physical objects and electronically stored information gathered by the Independent Panel (including any investigators, consultants or third parties acting on its behalf)"?

If the Ministry is unable to comply with this request made in the attached Preservation Letter, or takes the position that it is not obligated to do so, please advise at your earliest possible convenience. Likewise, if the Ministry *will* continue to preserve all documents, records, objects and electronic data that were before the Independent Panel, your confirmation in that regard would be appreciated.

Thank you for your consideration. I look forward to hearing from you in response to this letter. If you have any questions or concerns, or require clarification of any point, please do not hesitate to contact me.

Yours truly,



Eric Wredenhagen, LL.B.
Barrister & Solicitor
Encls.

Professional Engineers and Geoscientists of BC

200 - 4010 Regent Street, Burnaby, BC V5C 6N2
T. 604-430-8035 | F. 604-430-8085 | T. 888-430-8035
www.apeg.bc.ca

Building progress through innovation every day.

October 31, 2014

Deborah K. Lovett, Q.C.
Lovett Westmacott
Cathedral Hill Chambers
300 - 848 Courtney St.
Victoria, BC V8W 1C4

Dear Ms. Lovett:

I am writing to you on behalf of the Association of Professional Engineers of British Columbia ("APEGBC"). This letter is sent to you in your capacity as independent legal counsel to the independent expert engineering investigation and review panel (the "Independent Panel") created by the Minister of Energy and Mines pursuant to the *Mount Polley Investigation and Inquiry Regulation*.

The Independent Panel's terms of reference currently require it to submit its final report to the Minister, as well as to the Williams Lake Indian Band and to the Soda Creek Indian Band, by January 31, 2015. You have advised that the Independent Panel will not be providing any information to APEGBC while its investigation is ongoing.

As you know, APEGBC has an obligation under the *Engineers and Geoscientists Act* (the "Act") to regulate the professions of professional engineering and professional geoscience in the public interest. The purpose of this letter, therefore, is to request that the Independent Panel preserve all evidence and information gathered in the course of its investigation – whether or not such information is included in its final report – which might indicate that a particular engineer(s) and/or geoscientist(s) has or may have contravened the *Engineers and Geoscientists Act* or bylaws made under that Act, or has or may have demonstrated incompetence, negligence or unprofessional conduct. This preservation request extends to all documents, physical objects and electronically stored information gathered by the Independent Panel (including any investigators, consultants or third parties acting on its behalf).

Please advise if you anticipate any difficulty in complying with this request. For clarity, it is understood and acknowledged that compliance by the Independent Panel with this preservation request does not prejudice any position it might take in response to a subsequent request by APEGBC under the *Freedom of Information and Protection of Privacy Act*. Likewise, APEGBC expressly preserves all of its rights, present and future, to seek access to the Independent Panel's information and records as outlined above.

Yours truly,

Efrem Swartz

Efrem Swartz, LLB
Director, Legislation, Ethics and Compliance
Direct: 604.412.4852
Email: eswartz@apeg.bc.ca

From: Kuppers, Haley MEM:EX
To: Demchuk, Tania MEM:EX
Cc: Pocklington, Cheryl M MEM:EX
Subject: Re: CLIFF 88750 DM Signature - Mt. Polley
Date: Thursday, March 12, 2015 2:46:59 PM

Hi Tania,

Thanks I think it is probably best answered by the two of you. What I recall: I know Al already responded to APEGBC, but i cannot recall specifics and whether there were any details regarding the Mount Polley Investigation and preservation of records obtained through the investigation. You could check with Cheryl and the database for any communication records with APEGBC.

Main points (roughly) that come to mind: that our investigation is ongoing and all the evidence and facts remain the property of the chief inspector and are being obtained under the authority of the chief inspector. We acknowledge that a large number of documents have been posted online after the release of the expert panel's report. It is our intention to release our findings and corresponding facts and evidence along with the report which is in the interest of public transparency however consideration will be taken to protect the integrity of ongoing investigations prior to the release of this information.

Let me know if you want to discuss, I'm sure you and Michelle can answer appropriately.

Cheryl: please create task for Tania on this.

Thanks,
Haley

Sent from my iPhone

On Mar 12, 2015, at 2:39 PM, "Demchuk, Tania MEM:EX" <Tania.Demchuk@gov.bc.ca> wrote:

> Hi Haley,
> I will follow-up on this with Michelle, unless you have any direct knowledge about the preservation of the Panel's files. If you do, please let me know.
>
> Thanks,
> Tania
>
> ---
>
> **From:** Metcalfe, Megan MEM:EX
> **Sent:** Thursday, March 12, 2015 1:22 PM
> **To:** Kuppers, Haley MEM:EX; Demchuk, Tania MEM:EX
> **Subject:** FW: CLIFF 88750 DM Signature - Mt. Polley
>
> Hello,

Could one of you two draft a response for DM signature? Incoming attached.

Please advise.

Megan Metcalfe
Program Assistant | Mines and Mineral Resources Division | Ministry of Energy and Mines

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From: Metcalfe, Megan MEM:EX
Sent: Thursday, March 12, 2015 9:39 AM
To: Howe, Diane J MEM:EX
Subject: RE: CLIFF 88750 DM Signature - Mt. Polley

Let me check with them and I will follow up.

From: Howe, Diane J MEM:EX
Sent: Thursday, March 12, 2015 9:37 AM
To: Metcalfe, Megan MEM:EX
Subject: Re: CLIFF 88750 DM Signature - Mt. Polley

Im wondering Megan if Haley or Tanya deal with this one?

Regards, Diane

On Mar 12, 2015, at 08:08, Metcalfe, Megan MEM:EX <Megan.Metcalfe@gov.bc.ca> wrote:

> Hi Diane,
>
> s.22 but do you think I can have this draft for Monday morning?
>
> Let me know.
> Thanks,
>
> Megan Metcalfe
> Program Assistant | Mines and Mineral Resources Division | Ministry of Energy and Mines
>
> ---
>
> **From:** Brody, Margo X MEM:EX
> **Sent:** Tuesday, March 10, 2015 2:24 PM
> **To:** Metcalfe, Megan MEM:EX
> **Cc:** Howe, Diane J MEM:EX; Hoffman, Al MEM:EX
> **Subject:** FW: CLIFF 88750 DM Signature
>
> Please respond to Megan with the draft, thank you.
>
> *Margo Brody*

Branch Coordinator
Health, Safety and Permitting
Mines and Mineral Resources Division
Ministry of Energy and Mines
250 952 0793

From: Metcalfe, Megan MEM:EX
Sent: Wednesday, February 25, 2015 3:31 PM
To: Brody, Margo X MEM:EX
Subject: CLIFF 88750 DM Signature

Hi Margo,

CLIFF 88750 email for DM Signature regarding the Mount Polley Investigation, and preservation of records obtained through the investigation.

Due: March 11, 2015.

Thanks,
Megan Metcalfe
Program Assistant | Mines and Mineral Resources Division | Ministry of Energy and Mines

<861986.pdf>

From: Demchuk, Tania MEM:EX
To: Kuppers, Haley MEM:EX
Subject: FW: Mount Polley - Permit Compliance
Date: Monday, March 16, 2015 12:54:57 PM
Attachments: 141229 Mount Polley Permit Compliance Summary cc edits 18Feb2015.xlsx

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Haley,
As discussed, here is the latest permit compliance tracking table with entries from Michael Cullen and Chris Carr.
I will follow-up with Jennifer regarding having our sections completed by end of March. I suspect that will not be reasonable for her given all of the other project deadlines that she is currently balancing.
Tania

From: Chris Carr s.22
Sent: Wednesday, February 18, 2015 3:45 PM
To: Demchuk, Tania MEM:EX
Cc: Warnock, George MEM:EX; Narynski, Heather M MEM:EX
Subject: RE: Mount Polley - Permit Compliance

Hi Tania,

I have updated the compliance table as best I can based on information in the geotechnical GRIT list and my old GEMS tracking table.

Chris.

From: Demchuk, Tania MEM:EX [mailto:Tania.Demchuk@gov.bc.ca]
Sent: February-03-15 5:35 PM
To: Chris Carr s.22)
Cc: Warnock, George MEM:EX
Subject: FW: Mount Polley - Permit Compliance

Hi Chris,

MEM is conducting a full permit compliance assessment for the entire Mount Polley permit. As per the correspondence below, are you able to assist in reviewing geotechnical conditions for surface areas of the mine to assess compliance? Michael Cullen has started the process, but focussed on the underground components. Jennifer McConnachie and I will be assessing the ML/ARD, Water and Reclamation components of the conditions.

We are trying to keep this moving forward as it is a product that the investigation team is interested in. I am not sure of your other work load at the moment, although I know we are requesting your attendance at numerous meetings… Once you've had a chance to look at the file, could you let me know when you might be able to get something back to us? The overall goal is mid-month for completion.

Thank-you!

Tania

From: Michael Cullen s.22
Sent: Sunday, February 1, 2015 7:52 PM
To: Demchuk, Tania MEM:EX
Cc: McConnachie, Jennifer MEM:EX; Warnock, George MEM:EX
Subject: RE: Mount Polley - Permit Compliance

Hello Tania, Jennifer and George

Please see attached which represents my best effort to complete table. Couple of things to note:

- It became obvious that I am not reviewing all the applicable permit conditions during my site inspections. The Permit Summary table will go a long ways to making this possible. The level of review expected will need to be discussed as I can see the inspections taking a lot longer if we will need to be covering all permit and prior inspection conditions.
- Permit Conditions often include clauses like "detailed investigations or designs required prior to construction" It appears that these requirements may sometimes be forgotten by the mine or the information is not received by MEM and is not followed up on (I did some back checking in GRIT which appears to confirm this in several instances).
- Keeping track and even knowing about Permit Conditions becomes increasingly more difficult with the number of persons involved in reviewing documents and preparing permit conditions. A system needs to be in place to ensure that the geotechnical inspectors are kept up to date with what is being submitted/reviewed/permitted.

Thanks for putting tables together Jennifer

_____
Michael Cullen PhD, PEng.
Michael Cullen Geotechnical Ltd
Office: 250 339 2633
Mobile: 250 703 6775

From: Demchuk, Tania MEM:EX [mailto:Tania.Demchuk@gov.bc.ca]
Sent: Wednesday, January 21, 2015 1:21 PM
To s.22
Cc: McConnachie, Jennifer MEM:EX
Subject: FW: Mount Polley - Permit Compliance

Hi Michael,

I'm just following up on some previous correspondence between Jen, George and yourself regarding a review of permit compliance for Mount Polley (something that we will be working our way through for all sites).

In the attached email is an updated compliance table from Jen that includes all the permit conditions. I'm wondering if you would be able to start working your way through the geotechnical conditions from most recent back to 2010 first and then back to 2004. I think given his past and ongoing history with the file it will also make sense for Chris Carr to be involved in the review, but as George suggests below it makes sense for you to start and then pass it off to Chris.

Ideally, we would have a good start on this by February 10th. In addition to being helpful for the ongoing investigation we would like to use this information to assist with review and potential permitting decisions related to a restart application. Are you able to get a start on this in the next couple of weeks? Do you need any further direction?

Please let us know if you have any questions.

Thank-you!
Tania

Tania Demchuk, MSc, PGeo
Mount Polley Project Manager
Sr Environmental Geoscientist
Mines and Mineral Resources Division
Ministry of Energy and Mines
250-952-0417

From: Warnock, George MEM:EX
Sent: Monday, January 19, 2015 3:38 PM
To: Demchuk, Tania MEM:EX
Cc: McConnachie, Jennifer MEM:EX
Subject: RE: Mount Polley - Permit Compliance

Hi Tania,

If you are willing to follow-up with Michael and Chris I will take you up on that offer. I am OK with either/both working on this. Probably makes sense for Michael to take the first crack at it and then pass it on to Chris. I have attached correspondence that I had with Michael.

Thanks very much,

George

From: Demchuk, Tania MEM:EX
Sent: Monday, January 19, 2015 3:25 PM
To: Warnock, George MEM:EX
Cc: McConnachie, Jennifer MEM:EX

Subject: RE: Mount Polley - Permit Compliance

Hi George,

Just following up on this compliance monitoring spreadsheet that Jen has compiled. Do you know if Michael Cullen has started his review with respect to permit conditions? I am also wondering if we need to involve Chris Carr with this task given his previous and ongoing involvement with the site. This was originally a task associated with the investigation but in speaking with Jen and Kim, I think it has also become a critical component of our regulatory review of the restart application. I will be commencing a review as well, starting at present and working backwards.

I'm happy to follow-up with Michael (and Chris) if you like.

Thanks
Tania

From: McConnachie, Jennifer MEM:EX
Sent: Monday, December 29, 2014 3:37 PM
To: Warnock, George MEM:EX; Michael Cullen s.22
Cc: Demchuk, Tania MEM:EX; Howe, Diane J MEM:EX
Subject: RE: Mount Polley - Permit Compliance

Hi All,

Please see the attached, new and improved, Mount Polley compliance tracking spreadsheet. I am currently saving these types of spreadsheets here:

G:\Mines Operations\Victoria\RECLAMATION\0F - PERMITS\Compliance Tracking

Please let me know if you have any further input wrt format. As well, for those who do not have access to our network, it may be best for me to continue to amend the master spreadsheet, so please send back to me with your additions once you have filled it in.

Thanks and Happy New Year!
Cheers,
Jen

Jennifer McConnachie, MSc, PAg
Senior Reclamation Inspector
B.C. Ministry of Energy and Mines - Mines and Mineral Resources Division
Suite 350 – 1011 4th Ave, Prince George B.C., V2L 3H9
Phone: (250) 565-6177 Cell: (250) 640-0717
E-mail: Jennifer.McConnachie@gov.bc.ca

From: Warnock, George MEM:EX
Sent: Wednesday, December 10, 2014 11:26 AM

To: Michael Culle s.22
Cc: McConnachie, Jennifer MEM:EX; Kuppers, Haley MEM:EX
Subject: Mount Polley - Permit Compliance

Hi Michael,

I just spoke with Jen McConnachie. She is working on updating the permit compliance table (to include full conditions), but has been waylaid by more pressing work. She has indicated that she will be able to get to that soon. By cc to this email I will ask Jen to forward it directly to you when it is ready. I know that you have dealt with many of these issues within your inspection report, but please fill out the table as well once you have it.

Thanks,

George

From: Warnock, George MEM:EX
Sent: Monday, December 8, 2014 4:46 PM
To: Warnock, George EMNG:EX (George.Warnock@gov.bc.ca)
Subject: FW: Mount Polley Geotechnical Inspection Report

Note to File – request Permit Compliance Table from Michael Cullen once updated by Jen M.

From: Warnock, George MEM:EX
Sent: Friday, December 5, 2014 3:44 PM
To: Kuppers, Haley MEM:EX; Pocklington, Cheryl M MEM:EX; Nakatsuka, Caroline M MEM:EX
Subject: FW: Mount Polley Geotechnical Inspection Report

FYI…

From: Michael Cullen s.22
Sent: Friday, December 5, 2014 3:37 PM
To: 'Dale Reimer'
Cc: Hoffman, Al MEM:EX; Howe, Diane J MEM:EX; Rothman, Stephen MEM:EX; Cox, John MEM:EX; Narynski, Heather M MEM:EX; Warnock, George MEM:EX
Subject: Mount Polley Geotechnical Inspection Report

Dear Dale

A copy of the inspection report from my recent site review is attached. Under Section 15 (6) of the Mines Act, a written response is required from the Mine Manager within 15 days of the receipt of this Inspection Report. Please address response to myself with copies to Steve Rothman, John Cox, George Warnock, and Heather Narynski. In addition, Section 30 (1) of the Mines Act requires this Inspection Report to be posted in a conspicuous location at the mine site for 30 days.

Regards
On behalf of Ministry Energy and Mines

_____
Michael Cullen PhD, PEng.
Michael Cullen Geotechnical Ltd
Office: 250 339 2633
Mobile: 250 703 6775

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Decembe 17, 2014	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Decembe 17, 2014	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Decembe 17, 2014	Gene al	L m tat ons of App oval	A.3.(a)	This permit does not allow for restart of mill operations.						
Decembe 17, 2014	Gene al	L m tat ons of App oval	A.3.(b)	This permit amendment applies to the construction and operation of the Tailings Storage Facility (TSF) embankment repair for management of the 2015 Freshet, and the construction of the Perimeter Embankment Rockfill Buttress.						
Decembe 17, 2014	Gene al	L m tat ons of App oval	A.3 (c)	Operation of the TSF for water management is restricted to one year from the date of permitting, which is the design life of the embankment repair structure. A permit amendment is required prior to the 2016 Freshet to address requirements for longer term use.	yea					
Decembe 17, 2014	Gene al	Pe m t	A.4.	This permit is not transferrable or assignable.						
Decembe 17, 2014	Gene al	Independent Eng nee ng Rev ew Panel	A.5.(a)	An independent engineering review panel (IERP) shall be established by the Permittee to provide expert technical guidance related to all aspects of the design construction operation and closure planning for the TSF						
Decembe 17, 2014	Gene al	Independent Eng nee ng Rev ew Panel	A.5.(b)	The IERP shall be comprised of at least three (3) qualified experts, acceptable to the Chief Inspector, and shall meet at least annually. The minimum objectives of the IERP are to confirm that the design and operation of the TSF is consistent with industry standards of best practice, to identify areas where risk reduction measures may be required and to provide advice that may add value to the safe operation, closure and long term maintenance of the tailings facility.						
Decembe 17, 2014	Gene al	Independent Eng nee ng Rev ew Panel	A.5 (c)	A report prepared by the IERP shall be submitted to the Chief Inspector within one (1) month of completion of the review meeting.	W th n 1 month of ev ew meet ng					
Decembe 17, 2014	Gene al	Independent Eng nee ng Rev ew Panel	A.5.(d)	The first meeting of the IERP shall involve a technical review of the design of the 2015 Freshet Embankment and associated upgrades to the TSF. This meeting shall be held prior to March 15, 2015.	Ma ch 15, 2015					
Decembe 17, 2014	Gene al	Sha ng of Repo ts	A.6.	Unless otherwise requested, the Permittee shall provide the Williams Lake Indian Band, Xat sull First Nation, Cariboo Regional District, and the Community of Likely with all reports and plans that are required to be submitted to the Chief Inspector under this Permit.						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(a)	The Permittee shall ensure employees are not exposed to unacceptable levels of respirable-sized dust or silica in the crusher building.						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(b)	The Permittee shall ensure that workers entering or working in the crusher building are provided with appropriate respiratory protection, and have been instructed in its use and maintenance, the reasons for it and equipment limitations.						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(c)	The Permittee shall ensure that every employee required to wear respiratory protection is fit tested by a certified fit tester. Records of fit testing shall be maintained on site and available for review by an inspector on request						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	The Permittee shall submit a written plan for addressing deficiencies in the crusher ventilation system to the Chief Inspector within 60 days of receipt of this permit amendment The plan shall include the following	W th n 60 days of ece pt f th s pe m t					
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o an assessment of the capacity of the current ventilation system for appropriately controlling workplace contaminants and/or a design plan for a suitable ventilation system to be implemented in the crusher. The assessment and design shall be prepared and signed by a Certified Industrial Hygienist or Professional Engineer with experience in ventilation system design.						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o a plan and schedule for implementation of required modifications or upgrades						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o a maintenance plan for the ventilation system						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o a monitoring and reporting plan for worker exposures to occupational health hazards such as particulate matter and silica prepared by a Certified Industrial Hygienist or Registered Occupational Hygienist						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o a summary of estimated costs associated with completion of the work						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(a)	The final designs of the TSF Breach Repair for 2015 Freshet and Perimeter Embankment Rockfill Buttress shall meet the criteria specified in the Canadian Dam Association (CDA) Guidelines for a dam classified as Significant failure consequence.						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(b)	The final design of the TSF Breach Repair for 2015 Freshet shall ensure available storage capacity of the calculated 1 in 200 year freshet (rain, snowmelt and surplus mine contact water) with a minimum 1 m freeboard and end-of-construction stability factor of safety of 1.5.						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(c)	The final design of the Perimeter Embankment Rockfill Buttress shall ensure an end-of-construction stability factor of safety of 1.5.						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	Confirmation or modifications to the designs shall be based on an ongoing evaluation of available geotechnical data including the results of field and laboratory testing being completed as part of the dam breach forensic investigation and additional drilling to be completed along the toe of the perimeter embankment. Updates to this design information shall be submitted as follows						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	o By December 19, 2014 a memorandum including updated stability analyses and embankment dam design based on undrained shear strength and effective shear strength parameters for the foundation soils, including results of sensitivity analyses for the peak and residual strength of the glaciolacustrine unit. Shear strength parameters shall be selected based on one standard deviation below the mean values of the data set. The memorandum shall include an assessment of pore pressure increase during construction loading and an associated monitoring procedure	Decembe 19, 2014	yes		CC	18-Dec-14	Golder report Ref. 1413803-027-R-Rev0-2500.
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	o By February 28, 2015 a memo addressing the Expert Review Panel findings, expected to be released at the end of January, with respect to requirements to update the TSF Breach Repair design.	eb ua y 28, 2014					

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	o An update to the design of the TSF Breach Repair based on additional information in the final report of the Expert Review Panel by March 31, 2015.	Ma ch 31, 2015					
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	o An update to the design of the Perimeter Embankment Rockfill Buttress based on results of additional site investigation by April 30, 2015.	Ap l 30, 2015					
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	The Permittee shall submit an Adaptive Management Plan, to be prepared by the Engineer of Record on behalf of the Permittee, to the Chief Inspector by January 31, 2015. At a minimum this plan shall include the following	anua y 31, 2015	yes	completed	CC	30-Jan-15	Golder memorandum.
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o identification of risks related to construction and operation of the TSF Breach Repair and Perimeter Embankment Buttress;						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o identification of design considerations taken to address the risks;						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o identification of contingencies options and mitigation measures that are practicable to implement to address the risks;						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o identification of actions to be taken if the required 1 m freeboard cannot be maintained;						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o definition of thresholds, triggers and recommended dates for implementation of each contingency or mitigation measure.						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1 (f)	The designs shall follow an adaptive management plan that considers all geotechnical data as it becomes available and details the action that will be taken to ensure that the TSF Breach Repair and Perimeter Embankment Buttress are constructed to meet the required minimum factor of safety.						
Decembe 17, 2014	Geotechn cal	Const uct on	C.2.(a)	The Permittee shall ensure that full-time engineering supervision is maintained by the Engineer of Record during construction.						
Decembe 17, 2014	Geotechn cal	Const uct on	C.2.(b)	The Permittee shall submit a copy of the construction specifications and QA/QC to the Chief Inspector prior to initial embankment construction.	o to n t al mbankment onst uct on	yes	completed	CC	19-Dec-14	General Technical Specifications prepared by Golder.
Decembe 17, 2014	Geotechn cal	Const uct on	C.2.(c)	The Cutter Soil Mixing (CSM) cut-off wall shall extend at least 1 m into undisturbed, competent till foundation.						
Decembe 17, 2014	Geotechn cal	Const uct on	C.2.(d)	A detailed contingency plan shall be prepared and included as part of the adaptive management plan required by condition C.1.(f) in the event that construction of the CSM cut-off wall is delayed beyond April 1, 2015.	Ap l 1, 2015	yes	completed	CC	30-Jan-15	Included in adaptive management plan.
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(a)	The Permittee shall ensure that the TSF, including the TSF Breach Repair, is operated and monitored in accordance with the Operation, Maintenance and Surveillance (OMS) manual.						
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(b)	The OMS manual for the TSF shall be updated and submitted to the Chief Inspector at least 30 days prior to commissioning of the TSF Breach Repair.	0 days p o to omm ss on ng					
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(c)	The TSF Breach Repair shall be operated with a minimum freeboard of 1 m.						
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(d)	An Emergency Preparedness and Response Plan (EPRP), incorporating the results of a dam breach analysis and inundation study, shall be prepared and submitted to the Chief Inspector prior to completion of TSF Breach Repair construction.	o to complet on of onst uct on					
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(e)	The findings of the dam breach analysis and inundation study shall be used to re-assess the consequence classification of the TSF. This shall be provided to the Chief Inspector as part of the information required by permit condition A.3.(c).						
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(f)	Seepage collected from the seepage collection pond at the toe of the 2015 Freshet Embankment shall be pumped back to the TSF or otherwise contained to the mine site.						
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(g)	No unauthorized discharge of water from the TSF shall occur.						
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(h)	The EPRP shall be tested consistent with the *Canadian Dam Association Canadian Dam Safety Guidelines 2007 (revised 2013)* . Testing shall be completed by June 30, 2015.	une 30, 2015					
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(a)	A water level system shall be maintained to monitor water level/freeboard within the TSF.						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	A Mine Site Water Monitoring Program specific to water balance monitoring requirements shall be submitted to the Chief Inspector as a component of the Mine Site Water Management Plan required in condition D.2.(a) by January 30, 2015. This program shall be prepared with input from the Engineer of Record, and shall include the following components	anua y 30, 2015					
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o snowcourses at different elevations across the property,						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o water level monitoring within the TSF,						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o water level monitoring in collection ponds associated with the TSF,						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o water level monitoring of the Springer pit,						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o measurement of mine water flows into and out of the TSF, and						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o clear linkage to the Adaptive Management Plan and associated contingencies required by condition C.1.(e).						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(c)	Instrumentation, consisting of vibrating wire piezometers, slope inclinometers, shape acceleration array and survey monuments shall be installed in the embankment dam to monitor piezometric levels, foundation movement, and dam fill settlement. Location of instrumentation, instrument reading frequency, trigger levels and actions for various levels of response shall be included in the OMS manual. Records of monitoring shall be kept up to date at the mine and made be available to inspectors upon request.						
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(a)	The Permittee shall submit bi-weekly construction progress reports to the Chief Inspector, and Senior Health and Safety Inspector. These reports shall include a summary of construction progress, a schedule update, challenges, and implementation of any contingency measures.						

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Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(b)	By April 1, 2015, the Permittee shall submit a letter from the Engineer of Record stating that the TSF Breach Repair has been constructed in accordance with the design	Ap l 1, 2015					
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(c)	The Permittee shall submit an as-built report and construction drawings to the Chief Inspector within three (3) months of completion of construction.	W th n 3 months of omplet on of onst uct on					
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(d)	An annual dam safety inspection shall be completed by a qualified professional geotechnical engineer and a copy of the inspection report shall be submitted to the Chief Inspector within three (3) months of the inspection. The annual dam inspection report shall be prepared in accordance with the Ministry of Energy and Mines *Guidelines for Annual Dam Safety Inspection Reports.*	W th n 3 months of nnual dam safety nspect on					
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(e)	The Permittee shall take immediate steps to carry out remedial action recommended in the annual dam safety inspection report. Any recommendations with respect to health and safety or geotechnical stability are to be followed unless a suitable alternative course of action is approved in writing by the professional undertaking the review, or by a third party Professional Engineer. A report detailing how and when each of the recommendations for remedial action will addressed shall be provided to the Chief Inspector with the annual dam safety inspection and the permittee shall provide written notice to the Chief Inspector when each remedial action has been completed.						
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(f)	A summary of the EPRP test required under condition C.3.(h), including any gaps identified and lessons learned from the test shall be submitted to the Chief Inspector within one month of completion of the testing.	W th n 1 month of omplet on of EPRP est ng					
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(g)	A dam safety review (DSR) shall be completed in accordance with the *Canadian Dam Association Canadian Dam Safety Guidelines 2007 (revised 2013)* and *APEGBC Professional Practice Guidelines for Legislated Dam Safety Reviews in BC.* The next DSR shall be completed by December 2016.	Decembe of 2016					
Decembe 17, 2014	Geotechn cal	Reclamat on and Closu e of the TSF	C.6.(a)	The Permittee shall submit an updated plan for reclamation and closure of the TSF prior to September 30, 2015, or in support of any application for restart of operations involving the TSF. This shall include a conceptual spillway design and associated cost estimates	eptembe 30, 2015					
Decembe 17, 2014	Geotechn cal	Reclamat on and Closu e of the TSF	C.6.(b)	The Permittee shall submit a detailed design for reclamation and closure of the TSF, and the closure spillway, at least six (6) months prior to final closure.	months p o to f nal losu e					
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1.(a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure protection of environmental quality.						
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1 (a)( )	No changes shall be made to the criteria for ML/ARD definition, waste handling procedures, mitigation strategies, or materials monitoring program without the approval of the Chief Inspector.						
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1.(a)( )	No changes may be made to the sampling and analytical parameters outlined in the ML/ARD Material Monitoring, Characterization and Management Program, dated February 2005 and the Mount Polley ABA Sampling Procedure, revision date March 4 2013 without the written permission of the Chief Inspector.						
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1.(b)	Only non-Potentially Acid Rock Drainage Generating (non-PAG) materials shall be used for construction of the Embankment Repair and Perimeter Buttress.						
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D 1.(c)( )	Geochemical characterization and monitoring of materials used for construction of the TSF Breach Repair and the Perimeter Embankment Buttress shall be in accordance with the approved ML/ARD monitoring program.						
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1.(c)( )	Weekly field grab samples of all materials used in construction of the TSF Breach Repair and Perimeter Embankment Buttress shall be analyzed to confirm that only non-PAG materials are being used.	Weekly					
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(a)	The Permittee shall provide an updated Water Management Plan for the mine site, including a review of the design and operation of the ditch, pipe and pumping system and its ongoing maintenance requirements to ensure that there is sufficient capacity in the water management system to convey designed peak flows to specified locations without overflow or unauthorized discharge to the receiving environment. This plan shall be submitted in writing to the Chief Inspector by January 30, 2015.	anua y 30, 2015					
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(b)	The Permittee shall provide a site-wide Water Management Contingency Plan that identifies areas of risk to water management capacity and associated management options that will be available to the site. This plan shall include identification of action thresholds, trigger dates, associated contingency options, and relative priority of each contingency that is identified. This plan shall be submitted in writing to the Chief Inspector by February 13, 2015.	eb ua y 13, 2015					
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2 (c)	The plans required to be submitted in D.2.(a) and D.2.(b) may be combined and submitted as one report.						
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(d)	The plans required to be submitted in D.2.(a) and D.2.(b) shall be promptly updated to reflect any significant changes to the site or its conditions and resubmitted to the Chief Inspector.						
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(e)	An updated hydrogeological assessment of the Springer Pit shall be completed to assess connectivity of water contained in the Springer Pit to local groundwater. This work shall be completed by a registered professional with experience in completing such assessments The assessment shall be submitted by February 28 2015	eb ua y 28, 2015					
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(f)	The Permittee shall provide an updated long-term Water Management Plan that addresses site-wide water management and water treatment requirements. This plan shall be provided by September 30, 2015 or in support of any application for restart of operations.	eptembe 30, 2015					
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	On or before September 30 2015, and every five (5) years thereafter, the Permittee shall submit an updated site-wide Reclamation and Closure Plan, providing	eptembe 30, 2015, ve y 5 yea s					
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• the current status of the mine plan and reclamation obligations,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• a compilation and interpretation of all monitoring including ML/ARD prediction, water quality and quantity,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• closure and maintenance activities,						

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Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• any changes to the reclamation program that affect long-term mitigation,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• reclamation research program,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• contingency plans,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• schedule for completion of reclamation works, and						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• a breakdown of outstanding liabilities and associated costs.						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	In the event that the mine does not restart operations, or as directed by the Chief Inspector, the Permittee shall submit a site-wide Closure Plan describing	f m ne does not esta t, as d ected by Ch ef nspecto					
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• closure objectives and criteria for each mine component,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• provide the current status of the mine plan and reclamation obligations,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• a compilation and interpretation of all monitoring including ML/ARD prediction, water quality and quantity,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• closure and maintenance activities,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• any changes to the reclamation program that affect long-term mitigation,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• reclamation research and monitoring program,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• contingency plans,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• schedule for completion of reclamation works, and						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• a breakdown of outstanding liabilities and associated costs.						
Novembe 27, 2014	Lette		1	Authorization of excavation of breach slopes to design slope of 3 1 on the northwest side of the breach and 2.5 1 on the southeast side of the breach.						
Novembe 27, 2014	Lette		2	An updated Safe Work Plan setting out the required training and break schedule for the spotter is required prior to the commencement of this work.	o to commencement f th s wo k	yes	completed	CC	05-Nov-14	Prepared by MPMC. Does not include required training and break schedule.
Novembe 27, 2014	Lette		3	All geotechnical work shall be carried out under the supervision of a qualified engineer registered in BC.						
Novembe 27, 2014	Lette		4	A copy of the original signed and sealed construction drawings shall be submitted as part of the permit amendment application package for the breach repair.						
Novembe 27, 2014	Lette		5	Filter blanket construction and upstream fill placement work is not authorized to commence at this time.						
une 24, 2014	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
une 24, 2014	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
une 24, 2014	Gene al	Pe m t App oval	A.3.	This permit approves phase one of the research project, using only non-potentially acid rock drainage generating (non-PAG) waste rock and non-PAG tailings, to a maximum total volume of 125,000 m^3 of waste rock.						
une 24, 2014	Geotechn cal	Des gn	B.1.(a)	Detailed design for the facility shall be prepared by a Qualified Professional Engineer and submitted to the Chief Inspector prior to commencing construction. Detailed designs shall include a revised stability assessment that considers final design dimensions for the facility berm if different than those used in the conceptual design.	o to const uct on	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Const uct on	B.2.(a)	The facility shall be designed, constructed, and operated as a major impoundment, pursuant to Section 10 of the Code.		NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Const uct on	B.2.(b)	The facility shall be constructed in accordance with the design and construction specifications as outlined in the application and approved by the Engineer of Record. The Engineer of Record shall review the final construction drawings and specifications to verify that recommendations are properly incorporated as per design. Any changes to the proposed method of development shall be provided to the Chief Inspector for review and approval prior to implementation.		NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Const uct on	B.2.(c)	The Permittee shall ensure the facility is constructed under the supervision of a Qualified Professional Engineer.		NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Ope at on	B.3.(a)	Prior to the operation of the facility, an Operation, Maintenance and Surveillance (OMS) manual and an Emergency Preparedness and Response Plan (EPRP) shall be submitted to the Chief Inspector. These documents shall be kept current and updated over time as procedures are modified.	o to ope at on of the ac l ty	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold

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une 24, 2014	Geotechn cal	Ope at on	B.3.(b)	Equipment and personnel shall be restricted from entering an area within 25 degrees of the crest of the dump face. A catch berm with a minimum height of at least 2m high shall be established at each working elevation on this line. This berm shall provide protection from rock roll-outs and serve as an exclusion barrier restricting access to areas closer to the toe of the dump. A safe work procedure shall be prepared to ensure the safety of workers who are working in the co-disposal area. The plan shall be filed with the Chief Inspector prior to commencement of work	o to commencement f wo k	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Mon to ng	B.4.(a)	All waste materials entering the facility shall meet the specifications identified by the Engineer of Record in the stability analyses and design of the facility. Appropriate monitoring, surveillance and testing shall be carried out during the co-disposal trial to confirm that in situ material properties and hydrology conditions are consistent with those used in the stability analysis and design. Results shall be provided to any Mines Inspector upon request.		NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Mon to ng	B.4.(b)	Quality Assurance/Quality Control (QA/QC) shall be documented in the Annual Dam Safety Inspection Report submitted to the Chief Inspector. This shall include items such as material mixing specifications, materials testing, instrumentation, inspection logs, sample test results, and the QAQC procedures used.	Annual Dam Safety nspect on Repo t Ma ch 31)	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Repo t ng	B.5.(a)	A summary of construction activities, including as-built drawings, shall be included in the Annual Dam Safety Inspection Report for work conducted in the previous year. The report shall be submitted to the Regional Mines Inspector and the Chief Inspector by March 31 of the year following the inspection. Reports shall be sealed by a Qualified Professional Engineer and shall include a statement indicating that the facility was constructed in "general conformance with the design and specifications." A complete set of as-built drawings shall be kept at the mine site at all times and be provided to any Mines Inspector upon request.	Annual Dam Safety nspect on Repo t Ma ch 31)	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(a)	Only non-PAG materials shall be used for this research project, including materials used for construction of the containment berm.						
une 24, 2014	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(b)	The Permittee shall follow the waste rock and tailings sampling program as set out in the application. The Permittee shall inform the Chief Inspector of any proposed changes to monitoring frequency or analytical parameters prior to implementing.	o to mplement ng					
une 24, 2014	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(c)	Samples collected as per C.1(b) shall be submitted for acid base accounting analyses performed on site using total carbon and sulfur assays obtained using a LECO furnace and elemental composition by ICP methods following strong acid digestion.						
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(a)	Prior to commencement of the research project, the Permittee shall complete a comprehensive survey of seeps from the Southeast Rock Dump. The results of this survey shall be used to inform ongoing monitoring during and following the research project.	o to commencement f the esea ch p o ect					
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(b)	Mixing will only occur on days when daily inspections of dump seeps can be performed. Daily seep inspections will be performed during week days from the start of tailings mixing through to a period not shorter than two weeks after mixing has concluded, regardless of whether mixing is occurring on a specific day. Daily seep inspections will include field measurements of conductivity, pH and temperature.	Da ly					
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(c)	Seep water quality samples shall be collected and analysed for total and dissolved metals, major cations, pH, sulphate, acidity and alkalinity on a monthly basis when field measurements show changes in trends for conductivity and pH.	When f eld measu ements nd cate end changes					
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(d)	The Permittee shall establish a water quality monitoring location before discharge to the Long Ditch, the location of which shall be informed by the seep survey conducted in C.2(a). Samples shall be collected weekly at this location to monitor the quality of water that may be influenced by the research project during a period from the commencement of the trial through to a period not shorter than two weeks after mixing has concluded. After this time, the sample location will become a quarterly water quality sample location. The samples shall be analyzed for total and dissolved metals, major cations, pH, sulphate, acidity and alkalinity using detection limits sufficient to compare to provincial water quality guidelines.	o to d scha ge to the ong D tch					
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(e)	In the event that monitoring indicates tailings migration outside of the deposition area, the Permittee shall immediately stop tailings deposition in the research area and notify the Chief Inspector and Ministry of Environment. The notification shall include a description of measures taken to remediate, monitor and prevent future tailings containment issues should the trial be continued.	f mon to ng nd cates a l ngs m g at on					
une 24, 2014	P otect on of Land and Wate Cou ses	Repo t ng	C.3.(a)	Within six months of completion of phase one of the research project, the Permittee shall provide a report to the Chief Inspector presenting waste rock, tailings and all water quality monitoring results, general findings and recommendations related to ongoing monitoring and proposed future research.	W th n 6 months of hase 1 complet on					
a ch 27, 2014	Gene al	T ansfe Of Pe m t	A.1.	This Permit is not transferable or assignable.						
a ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Twenty Seven Million Eight Hundred Thousand dollars ($27,800,000.00) bringing the total security for this permit to Thirty Eight Million Three Hundred and Fifty Thousand and Eleven dollars ($38,350,011.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$10,550,011.00	alance as of Ma ch 27, 013					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$2,800,000.00	Ap l 1, 2014					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$1,200,000.00	uly 31, 2014					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$4,500,000.00	Ma ch 1, 2015					

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Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$6,000,000.00	Ma ch 1, 2016					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$5,500,000.00	Ma ch 1, 2017					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$4,000,000.00	Ma ch 1, 2018					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$3,800,000.00	Ma ch 1, 2023					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(b)	Over the life of the mine the security will be adjusted to cover all the costs associated with carrying out all the conditions of this permit. Upon application by the Permittee, the amount of security in condition 6(a) may be reduced if initial mining or development work will create less disturbance and liability, or to reflect reduced liability due to reclamation work completed.						
Ma ch 17, 2014	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Ma ch 17, 2014	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(a)( )	Excavation of the pit slopes shall follow the recommended designs provided in the Cariboo Pit Slope Design report subject to an annual review by a registered Professional Engineer with experience in the design of pit slopes		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (a)( )	Any changes to pit slope designs that result in steeper slopes, higher benches, or deeper pits than those presented in the design report shall be submitted to the Ministry for approval	o to m ne plan hange	Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(b)( )	The minimum final width of pit slope catchment berms, after break-back, shall be 8 m as required by the Health, Safety and Reclamation Code.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (b)( )	Controlled blasting (pre-shearing, trim, or buffer) shall be implemented to minimize damage to the crest and bench face of all final pit walls and all interim pit walls employing double benching, or that will be left in place for more than 12 months.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B 1.(b)( )	Surface drainage shall be diverted away from the pit slopes in accordance with good engineering practice.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(c)( )	Pit walls shall be carefully scaled during pit development to remove loose rock and limit rock fall.	Du ng p t development	Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (c)( )	If access cannot be gained to clean a catchment berm and a danger exists to a person or persons working below, a safe work procedure shall be developed.	f catchment be ms annot be ccessed/cleaned	No	ongoing	MC	04-Dec-14	Catch Benches are filling. Mine is to submit safe work procedure prior to recommencing mining
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(c)( )	A rockfall catch bench and berm shall be maintained in the Springer pit to provide rockfall protection caused by cast-over from the Phase 4 pushback. The structure shall be designed by a by a registered Professional Engineer with experience in rock fall assessment.		Yes	ongoing	MC	04-Dec-14	Needs to be reconfimred once mining recommences in Springer Pit
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(d)( )	A visual inspection and instrumentation monitoring program shall be established to detect early evidence of any potentially dangerous pit wall instability.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (d)( )	Slope movement shall be monitored using the methods and frequency as recommended in the design report. A suitable alternative monitoring method may be utilized with the approval of a qualified professional engineer.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B 1.(d)( )	Pit slope monitoring procedures including movement threshold levels and response criteria shall be forwarded to the Ministry.		uncertain	ongoing	MC	04-Dec-14	It is understood that the 2014 annual slope stability review was completed by Golder Associates but has not yet been received by MEM
Ma ch 17, 2014	Geotechn cal	Open P t	B 1.(d)( )	The structural geology shall be mapped and evaluated during pit development to assess impacts on pit slope stability, and to verify assumptions used in the design.	Du ng p t development	Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B 1.(d)(v)	Ground water pressures shall be monitored and evaluated during pit development to assess impacts on pit slope stability, and to verify assumptions used in the design	Du ng p t development	Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(e)( )	The results and recommendations of the pit slope performance evaluation and monitoring shall be summarized in an annual report submitted to the Chief Inspector by March 31 of the following year. Recommendations in the report relating to health & safety or geotechnical stability shall be implemented unless a suitable alternative course of action is approved in writing by the professional undertaking the review, or by a third party Professional Engineer.	Ma ch 31st	uncertain	ongoing	MC	04-Dec-14	It is understood that the 2014 annual slope stability review was completed by Golder Associates but has not yet been received by MEM
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (e)( )	A report shall be submitted to the Regional Inspector of Mines in the event of a single bench failure resulting in a dangerous occurrence (as defined by the Code) and in the event of a multi-bench failure, regardless of consequence.	ngle bench fa lu e esult ng n a DO	Yes	ongoing	MC	04-Dec-14	
ugust 9, 2013	Gene al	Compl ance w th M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
ugust 9, 2013	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 9, 2013	Geotechn cal	Gene al	1.(a)	The stage 9 dam raise to elevation 970.0 m is approved and the Permittee shall ensure construction is carried out in accordance with the design and specifications provided by the design consultant.		Yes	Ongoing	MC	13-Sep-13	
ugust 9, 2013	Geotechn cal	Gene al	1.(b)	An as-built report with drawings shall be submitted to the Chief Inspector within 6 months of dam construction. The as-built report shall be sealed by a professional engineer and shall include a statement indicating that the facility was constructed in "general conformance with the design". A complete set of as-built drawings shall be kept at the mine site at all times and be provided to any Mines Inspector upon request	W th n 6 months of dam onst uct on					

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
uly 25, 2013	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
uly 25, 2013	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
uly 25, 2013	Geotechn cal	West PAG Stockp le	B.1.(a)( )	The design of the West PAG Stockpile to a maximum elevation of 1150m is approved. Suitable stability assessments shall be conducted by a qualified geotechnical engineer and submitted to the Chief Inspector prior to expansion to the 1200m elevation.	o to expans on to the 200 m elevat on	Uncertain	Ongoing	MC	13-Sep-13	To be determined once mining recommences
uly 25, 2013	Geotechn cal	West PAG Stockp le	B.1 (a)( )	The waste rock dump shall be constructed in accordance with the design and construction specifications provided by the design consultant, including (but not limited to) dump advance rates.		Uncertain	Ongoing	MC	04-Dec-14	I have not reviewed the plans for the WRD
uly 25, 2013	Geotechn cal	West PAG Stockp le	B 1.(a)( )	The Northwest ditch is to be extended to the north and east prior to dump expansion in the affected area.	o to dump expans on	Uncertain	Ongoing	MC	04-Dec-14	I have not reviewed the plans for the WRD or Annual Report
uly 25, 2013	Geotechn cal	West PAG Stockp le	B 1.(a)(v)	Topsoil and organics shall be stripped from the foundation of the waste rock dump and stockpiled for future reclamation purposes.		Yes	Ongoing	MC	13-Sep-13	
uly 25, 2013	Geotechn cal	West PAG Stockp le	B.1.(b)	Updated Dump Monitoring Procedures shall be prepared prior to dump development. Updated procedures are to include threshold limits for instrumentation and tracking of advance rates in critical areas. The updated procedure shall be maintained on-site and must be made available to any Mines Inspector upon request.	o to dump evelopment	Uncertain	Ongoing	MC	04-Dec-14	Needs to be assessed However I suspect that updated procedures do not exist
uly 25, 2013	Geotechn cal	H gh G ade O e Stockp le	B.2.(a)( )	The design of the High Grade Ore Stockpile to a maximum elevation of 1110 m is approved.						
uly 25, 2013	Geotechn cal	H gh G ade O e Stockp le	B.2 (a)( )	Topsoil and organics shall be stripped from the hillside on which the stockpile will rest and shall be stockpiled for future reclamation purposes.		Uncertain		MC		Never inspected by me
uly 25, 2013	Geotechn cal	H gh G ade O e Stockp le	B.2.(b)	The Permittee shall submit a geotechnical assessment report, completed by a qualified geotechnical engineer, to the Chief Inspector for review at least 30 days prior to the start of construction. Any recommendations relating to Health & Safety or geotechnical stability must be completed.	At least 30 days p o to onst uct on	Uncertain		MC		Not reviewed by me
uly 25, 2013	Geotechn cal	South Haul Road	B.3.(a)( )	The design of the South Road to the TSF is approved. Construction and monitoring of the road must be completed in accordance with the design consultant s recommendations.		Uncertain		MC		Not reviewed by me
uly 25, 2013	Geotechn cal	South Haul Road	B.3 (a)( )	Topsoil and organics shall be stripped from the footprint of the South Road and stockpiled in an suitable location available for future reclamation purposes.		Uncertain		MC		Not reviewed by me
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(a)( )	The Permittee shall keep an up to date inventory of the amounts of material placed in each waste rock storage area and the TSF; sampling and available geological information; and, ML/ARD characterization data.	Wh le m n ng s occu ng n a zone of PAG mate als					
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1 (a)( )	When mining is occurring in a zone of PAG materials, weekly sampling of active waste rock dump areas shall be completed to assess segregation quality control. Results of this sampling shall be discussed in the Annual Report for M-200.	Ma ch 31st					
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(b)( )	All materials used for construction shall be non-PAG and of low risk for neutral metal leaching.						
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(b)( )	Representative sampling of construction materials shall be completed to ensure source materials are non-PAG and of low metal concentration. Results shall be included in annual reporting requirements for M-200.	Ma ch 31st					
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(c)( )	Prior to expansion of the PAG stockpile beyond the existing permitted capacity of 12 million tonnes, a predicted seepage water quality assessment shall be completed and submitted to the Chief Inspector of Mines. This assessment shall ensure that the stockpile pad and water management systems designs for the expanded stockpile are adequate to ensure protection of the environment. If the assessment predicts poor water quality or seepage, mitigation measures shall be included with the report.	o to expand ng the AG Stockp le (> 12 Mtonnes)					
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1 (c)( )	Following assessment and implementation of necessary mitigation measures, the temporary PAG stockpile has a permitted capacity of 62 million tonnes of PAG waste rock.	ollow ng C.1.(c)( ) ssessment					
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(c)( )	All PAG waste rock contained in this stockpile shall be backhauled to the Springer Pit for permanent subaqueous storage by the end of 2027, as per the schedule outlined in the excel sheet "Polley PAG Mining Schedule", undated, submitted by email on March 21, 2013.	o to end of 2027					
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(d)	The maximum capacity of the high grade ore stockpile is 3 million tonnes.						
uly 25, 2013	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.2.(a)	Sampling of seepages from the waste rock dumps, high grade ore stockpiles, and temporary PAG stockpile shall be completed twice per year. Sampling locations shall be identified on a map included as part of the Annual Report for M-200, on March 31st o each year.	w ce a yea					
uly 25, 2013	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.2.(b)	When constructed, the second seepage collection sump at the toe of the PAG stockpile shall be sampled on a monthly basis and results shall be included in the Annual Report.	Ma ch 31st					
uly 25, 2013	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.2.(c)	An on-site water quality monitoring program, outlining the locations and frequencies of water quality samples shall be submitted with the next Reclamation and Closure Plan or the next application for permit amendment, whichever is submitted first. This program shall include a monthly monitoring program for key seepage, ditch and sump locations.						
uly 25, 2013	P otect on of Land and Wate Cou ses	Wate Qual ty Model ng	C 3.	A site-wide water quality predictive model completed by a professional with experience in predictive water quality modeling, and based on an up to date mine and waste management plan, shall be submitted to the Chief Inspector by March 31, 2014, or included with the next application for permit amendment, whichever is first. The site-wide model shall consider mine infrastructure, waste rock dumps, stockpiles, TSF and water management for key time steps in the life of the mine.	Ma ch 31, 2014 o next e m t amendment ppl cat on					
uly 25, 2013	P otect on of Land and Wate Cou ses	S te W de M t gat on Plan	C 4.	By March 31, 2015, the Permittee shall develop a comprehensive site wide assessment of mitigation required to protect the environmental quality of land and watercourses during operations and long term closure. The report shall identify a schedule for implementation and any future information required to refine mitigation plans.	Ma ch 31, 2015					

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uly 25, 2013	P otect on of Land and Wate Cou ses	Repo t ng	C.5.(a)	Sampling results from all monitoring locations on the mine site that indicate changing trends in water quality shall be included and discussed in the Annual Report.	Ma ch 31st					
uly 25, 2013	P otect on of Land and Wate Cou ses	Repo t ng	C.5.(b)	Beginning in 2014, the Annual Report shall include a site map with labels to identify key mine infrastructure such as pits, rock dumps and stockpiles. All water quality monitoring locations shall be identified, including both permitted and non-permitted sampling locations.	eg nn ng Ma ch 31, 014					
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(a)	Sediment control and water management structures shall be installed prior to soil disturbance and construction activities which have the potential to result in sediment mobilization and release.	o to so l d stu bance					
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(b)	The Permittee shall implement appropriate erosion and sediment control, monitoring and maintenance practices where required site-wide as per the *"Surface Erosion and Sediment Control Plan"*.						
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(c)	Erosion protection and sediment control structures shall be designed and implemented to appropriately address site-specific erosion potential, modeled flood return, and routing consequence (i.e., closed or open circuit). The Permittee shall routinely monitor and inspect all structures.	out nely					
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(d)	The Permittee shall implement the activities detailed in *"Environmental Management Plan for the Installation of a Culvert in Bootjack Creek"* .						
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(e)	Road maintenance practices shall pro-actively address run-off control to maintain continuity of constructed sediment control and water management structures.						
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C.7.(a)	A Soil Management Plan shall be developed and submitted to the Chief Inspector by March 31, 2014 with the Annual Reclamation Report. The plan shall include	Ma ch 31, 2014					
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C.7.(a)( )	an inventory of all reclamation materials stockpiled on site, including locations and volumes,						
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C.7 (a)( )	an assessment of variability and suitability of reclamation materials based on a representative soil quality sampling program,						
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C 7.(a)( )	a conceptual plan for allocation of reclamation materials, including prescribed site-specific replacement depths, and						
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C.7.(a)(v)	a plan designed to appropriately address soil quality deficiencies by application of organic or inorganic amendments						
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(b)	Topsoil, subsoil, and non-merchantable coarse woody debris shall be salvaged and stockpiled for future reclamation and revegetation activities.						
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(c)	Soil suitable for use in reclamation that is recoverable shall not be used as fill.						
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(d)	Stockpiles shall be appropriately protected from erosion and degradation of soil quality, and shall be clearly marked to ensure that they are protected during construction and operations activities.						
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(e)	A suitably qualified professional shall be on site to ensure that all suitable materials for reclamation are salvaged, and properly handled and stored, to the maximum extent possible.						
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(f)	An update of soil management and handling activities, including an inventory of materials salvaged, stockpile locations, and erosion and sediment control measures, shall be incorporated in the Annual Reclamation Report and Soil Management Plan.	Ma ch 31st					
uly 25, 2013	Reclamat on and Closu e P og am	Waste Rock Dumps	D.1.	Base pads from temporary waste rock and ore stockpiles shall be cleaned of all PAG prior to placement of growth medium and revegetation. Iterative monitoring programs designed to ensure all remaining material to be reclaimed is non-PAG shall be developed and submitted to the Chief Inspector 60 days prior to the commencement of material rehandling.	0 days p o to ommencement of tockp le ehandl ng					
uly 25, 2013	Reclamat on and Closu e P og am	G owth Med um	D.2.(a)	On all lands to be revegetated, the growth medium shall satisfy land use capability and water quality objectives.						
uly 25, 2013	Reclamat on and Closu e P og am	G owth Med um	D.2.(b)	Soil replacement depths shall be determined based on salvage volumes of suitable soil, landform design and erosion control, characteristics of ground to be covered, and revegetation species requirements. Soil replacement depths shall be monitored, and the results presented in the Annual Reclamation Report, to ensure that the minimum depths proposed in the Soil Management Plan have been achieved.	Ma ch 31st					
uly 25, 2013	Reclamat on and Closu e P og am	G owth Med um	D.2 (c)	Surface preparation shall occur to a degree that appropriately ameliorates the severity of compaction prior to, and after, placement of growth medium, and addressed end land use and capability objectives.						
uly 25, 2013	Reclamat on and Closu e P og am	E os on Cont ol	D.3.(a)	The Permittee shall implement progressive reclamation where possible to control erosion around all areas of the mine.						
uly 25, 2013	Reclamat on and Closu e P og am	E os on Cont ol	D.3.(b)	Erosion control shall be achieved through landform configuration, development of maintenance-free vegetation covers, and self-sustaining drainage control features and watercourses.						
uly 25, 2013	Reclamat on and Closu e P og am	E os on Cont ol	D.3 (c)	All roads not being retained for the designated end land use shall be fully re-configured to conform to adjacent landscape unless long-term stability requirements dictate otherwise.						
uly 25, 2013	Reclamat on and Closu e P og am	Revegetat on	D.4.(a)	The Permittee shall limit disturbance to vegetation to those areas in the permit amendment application.						
uly 25, 2013	Reclamat on and Closu e P og am	Revegetat on	D.4.(b)	The Permittee shall manage and control invasive species that establish on the site and shall take reasonable efforts to ensure that invasive species do not move from the site to adjacent areas.						
uly 25, 2013	Reclamat on and Closu e P og am	Revegetat on	D.4 (c)	The Permittee shall ensure that all seed mixes are certified as weed-free.						
uly 25, 2013	Reclamat on and Closu e P og am	Revegetat on	D.4.(d)	Revegetation species shall be selected based on the principles of ecological succession and traditional use and cultural significance, including all reasonable efforts to use only native species unless short-lived agronomic species are required to temporarily control erosion or prevent ingress of invasive species.						

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uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on and Closu e Plan	D.5.	An updated Reclamation and Closure Plan shall be submitted to the Chief Inspector by October 31, 2013.	Octobe 31, 2013					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Thirty One Million Three Hundred Thousand dollars ($31,300,000.00) bringing the total security for this permit to Thirty Eight Million Three Hundred and Fifty Thousand and Eleven dollars ($38,350,011.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$7,050,011.00	alance as of July 25, 013					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$3,500,000.00	eptembe 30, 2013					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$4,000,000.00	Ma ch 1, 2014					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$4,500,000.00	Ma ch 1, 2015					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$6,000,000.00	Ma ch 1, 2016					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$5,500,000.00	Ma ch 1, 2017					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$4,000,000.00	Ma ch 1, 2018					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$3,800,000.00	Ma ch 1, 2023					
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(b)	Over the life of the mine the security will be adjusted to cover all the costs associated with carrying out all the conditions of this permit. Upon application by the Permittee, the amount of security in condition 6(a) may be reduced if initial mining or development work will create less disturbance and liability, or to reflect reduced liability due to reclamation work completed.						
Ap l 22, 2013	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Ap l 22, 2013	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Ap l 22, 2013	P otect on of Land and Wate Cou ses	Metal Leach and Ac d Rock D a nage Cha acte zat on and Mon to ng	B 1.	Concurrent with milling operations, the Permittee shall characterize and monitor the ML/ ARD potential of the Dome Mountain tailings.	oncu ent w th M ll ng Ope at ons					
			B.1.(a)	A monthly record must be kept of the approximate mass of tailings and their general location in the impoundment.						
Ap l 22, 2013	P otect on of Land and Wate Cou ses	Mate als Cha acte zat on	B.1.(b)	Composite samples shall be collected monthly. ABA analysis shall be carried out on the + and - 200 mesh fractions.						
Ap l 22, 2013	P otect on of Land and Wate Cou ses	Mate als Cha acte zat on	B.1.(c)	ABA and elemental analysis are required on every sample						
Ap l 22, 2013	P otect on of Land and Wate Cou ses	Mate als Management	B.1.(d)	Cycloning is not permitted with Dome Mountain tailings.						
Ma ch 25, 2013	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
a ch 25, 2013	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the regional Inspector of Mines (Mines Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		Yes	ongoing	MC	04-Dec-14	
a ch 25, 2013	Health and Safety	Eme gency Response Plan	B.1.(a)	The Permittee shall implement their Emergency Response Plan (ERP) dated August 1, 2012 and their Mount Polley Underground Procedures submitted as part of this application to the Chief Inspector August 2012. The ERP and Procedures shall be kept up to date and be made available at the mine site at all times.		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Health and Safety	Eme gency Response Plan	B.1.(b)	The Permittee shall ensure that mine site employees and contractors are knowledgeable and accountable for fulfilling the actions of the ERP		No	ongoing	MC	04-Dec-14	Mine Employees were not knowledgeable of ERP. Confirm when mining recommences
a ch 25, 2013	Unde g ound M ne Plan		C.1.(a)	This permit constitutes written acceptance of the conceptual design of proposed underground development.						
a ch 25, 2013	Unde g ound M ne Plan		C.1.(b)	Effective ground support shall be installed and maintained in accordance with the application and shall only be varied in	W th n 30 days of the ece pt of pe m t	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)	The Permittee shall maintain at all times mine plans drawings specifications and written descriptions of		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)( )	the geometry of existing and proposed excavations;		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)( )	the geology of the mine;		Yes	ongoing	MC	04-Dec-14	

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Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)( )	the rock mass characteristics that are representative of the ore and host rock, and identification of the most common joint sets and faults;		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)(v)	the hydrological features that may affect the working of the mine;		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)(v)	descriptions of previous occurrences of ground instability and recommendations from investigation reports.		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)(v)	copies of ground control QC/QA testing results.		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(d)	The mine design shall be continually updated to reflect the actual rock mass and geological structures encountered in the workings. All mine design information must be in a form acceptable to the Chief Inspector and made available to any Inspector of Mines upon request.		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.2.(a)	The underground workings shall be inspected by a qualified geotechnical engineer to confirm that ground control is adequate. Inspections are to occur as needed, but no less than once per year. Copies of the inspection reports are to be maintained on-site and must be provided to any Mines Inspector upon request	No less than once pe ea	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.2.(b)	The pit wall above the portal shall be scaled as needed to reduce the risk posed by rockfall to mine personnel.	As needed	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.2.(c)	If high groundwater pressure or persistent seepage is encountered, a hydrogeologist shall be retained to assess the water regime.	f h gh g oundwate o e s stent seepage s ncounte ed	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.3	Prior to the commencing of mining, the Permittee shall provide a plan to the Senior Health and Safety Inspector that addresses the stability/safety issues of using a cement backfill. The plan shall include a QC/QA program that includes testing procedures to ensure that the backfill support is effectively mixed installed and secure	o to commenc ng of m n ng	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Fifty Thousand dollars ($50,000.00) bringing the total security for this permit to Seven Million and Fifty Thousand dollars ($7,050,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(a)	$7,000,000.00	alance as of Ma ch 013					
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(a)	$50,000.00	W th n 30 days of the ece pt of pe m t					
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(b)	The Permittee shall conform to all Ministry of Environment approval, license and permit conditions, including the **Environmental Management Act,** Contaminated Sites and Special Waste regulations. The Permittee shall conform to all forest tenure requirements of the Ministry of Forests, Lands and Natural Resource Operations. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(c)	Over the life of the mine, the security will be adjusted to cover all the costs associated with carrying out the conditions of this permit. Upon application by the Permittee, the amount of security may be reduced if initial mining or development work will create less disturbance and liability.						
Octobe 15, 2012	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Octobe 15, 2012	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Octobe 15, 2012	Geotechn cal	Gene al	B.1.(a)	The stage 8A dam raise to elevation 965 m shall be constructed in accordance with the design and specifications provided by the design consultant.		Yes	Completed	HN	26-Apr-13	
une 29, 2012	Gene al	Compl ance w th M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.		Yes	Completed	MC	24-Sep-12	
une 29, 2012	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		Yes	Completed	MC	24-Sep-12	
une 29, 2012	Geotechn cal	Gene al	1.(a)	The stage 8 dam raise to elevation 963.5 m shall be constructed in accordance with the design and specifications provided by the design consultant		Yes	Completed	MC	24-Sep-12	
une 29, 2012	Geotechn cal	Gene al	1.(b)	The Operation, Maintenance and Surveillance manual shall be updated in 2012 as recommended in the 2011 As-Built report.	n 2012	Yes	Completed	MC	13-Sep-13	
une 29, 2012	Geotechn cal	Gene al	1.(c)	A comprehensive review and update of the site water balance shall be completed and referenced in the 2012 Construction As-Built and Annual Review, which is to be submitted to the Chief Inspector no later than March 31, 2013.	Ma ch 31, 2013	Uncertain		MC		Not reviewed by me
une 29, 2012	Geotechn cal	Gene al	1.(d)	Toe drain flows shall be measured and recorded per requirements described in the OMS Manual. This information shall be referenced in the 2012 Annual Report.	Ma ch 31, 2013	Uncertain		MC		Not reviewed by me
ugust 15, 2011	Gene al	Compl ance w th the M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.		NA	Ongoing	MC	04-Dec-14	No mining in Boundary Pit to date. C2 Zone is being incorporated into Caribou Pit and appropriate design report completed

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
August 15, 2011	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the regional Inspector of Mines (Mines Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector		NA	Ongoing	MC	04-Dec-14	No mining in Boundary Pit to date. C2 Zone is being incorporated into Caribou Pit and appropriate design report completed
August 15, 2011	Gene al	M ne al Tenu es	A.3.	Development, including surface disturbance and works, encompassing approximately 921.34 ha held by Mount Polley Mining Corporation (Figure 1) is authorized under the M-200 permit.						
August 15, 2011	Gene al	F st Nat ons	A.4.	The Permittee shall notify the First Nations of the availability of all material reports relevant to the M-200 permit, including annual monitoring reports and material changes to the approved Reclamation Plan. The Permittee shall, submit to the First Nations copies of these reports, unless otherwise directed by the First Nations.						
August 15, 2011	Gene al	T ad t onal Use Assessment	A.5.	Within one year of issuance of this permit amendment, the Permittee shall have completed a Traditional Use Overview Study over the Mount Polley permit area. This study shall be designed and implemented in consultation with the Williams Lake Indian Band and Xats ull First Nation. A copy of the assessment shall be provided to the Chief Inspector and to the Williams Lake Indian Band and Xats ull First Nation.	W th n 1 yea of pe m t ssuance					
August 15, 2011	Geotechn cal	C2 and Bounda y Zone P ts	B.1.(a)	The Permittee shall submit to the Chief Inspector the pit slope design report for the C2 Pit and Boundary Zone Pit for review prior to pit development.	o to p t development	NA	Ongoing	MC	04-Dec-14	No mining in Boundary Pit to date. C2 Zone is being incorporated into Caribou Pit and appropriate design report completed
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2.(a)	The design for the Southeast Rock Disposal site is approved.						
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2.(b)( )	The Permittee shall ensure the foundation preparation is completed in accordance with the design requirements.		Uncertain		MC		Not reviewed by me
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2.(b)( )	The Permittee shall ensure areas of fine-grained soft sediments located on the south side of the dump be removed or pre-loaded with 15 m high lifts prior to construction	o to const uct on	Yes	Completed	MC	13-Sep-13	
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B 2.(b)( )	The Permittee shall ensure mine access roads, haul roads or buildings not be constructed at the toe of the dump within the area of potential dump failure runout or boulder rollout without prior approval of a variance from the Chief Inspector.	o to const uct on	Yes	Completed	MC	13-Sep-13	
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B 2.(b)(v)	The dump shall be resloped to 2 1 at closure.		NA				Dump is still active
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2.(c)( )	The Permittee shall monitor the waste dump slopes in accordance with the Standard Waste Dump Operating procedures. A copy of the procedures shall be forwarded to the Chief Inspector prior to dump construction.	o to dump onst uct on	Superseded	Completed	MC	13-Sep-13	There is a requirement for updated procedures in July 25, 2013 Permit Amendment
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2 (c)( )	The Permittee shall install wireline extensometers in areas where excessive cracking near the dump crest is observed during dump construction. Dumping shall be suspended if the movement rate exceeds 600 mm/day.		Yes	Completed	MC	13-Sep-13	Wireline monitoring instrumentation reported to be on hand at site
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(a)	The Permittee shall modified the design to avoid construction on the steep terrain (15 to 20°+) located along the west side of the proposed dump. The limit for the dump toe is shown on Figure 5 of the Technical Memorandum issued by Golder Associated, dated May 12, 2011.		Uncertain		MC		Not reviewed by me
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(b)( )	The Permittee shall ensure the foundation preparation is completed in accordance with the design requirements.		Yes	Completed	MC	13-Sep-13	
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(b)( )	Dump construction over areas of soft soils located in the north part of the dump shall be controlled by advancing the crest along the full width of the dump platform to reduce the development of excess pore water pressure in the foundation soil.		Uncertain		MC		Not reviewed by me
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B 3.(b)( )	The Permittee shall ensure mine access roads, haul roads or buildings not be constructed at the toe of the dump within the area of potential dump failure runout or boulder rollout without prior approval of a variance from the Chief Inspector.	o to const uct on	Yes	Ongoing	MC	04-Dec-14	
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(c)( )	The Permittee shall monitor the waste dump slopes in accordance with the Standard Waste Dump Operating procedures. A copy of the procedures shall be forwarded to the Chief Inspector prior to dump construction.	o to dump onst uct on					
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(c)( )	The Permittee shall install wireline extensometers in areas where excessive cracking near the dump crest is observed during dump construction. Dumping shall be suspended if the movement rate exceeds 600 mm/day.		Yes	Ongoing	MC	04-Dec-14	
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(a)	The design raise to 960.5 m elevation is approved.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(b)( )	The embankment dam shall be constructed in accordance with the design prepared by the design consultant.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(b)( )	Potentially acid generating rock shall not be used in dam construction.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B 4.(b)( )	Cobbles and boulders larger than 100 mm diameter shall be selectively removed from the till during construction of the central core zone						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B 4.(b)(v)	The design consultant shall provide supervision during construction to ensure that the construction specifications are followed.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(c)( )	The Operation, Maintenance and Surveillance (OMS) manual shall be updated as necessary to include revised monitoring criteria, including piezometer and slope inclinometer thresholds		Superseded		MC		
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(c)( )	A minimum water level freeboard of 1.30 m shall be maintained at all times.		Superseded		MC		
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(d)( )	The tailings facility and embankment dam shall be monitored in accordance with the updated OMS manual.		superseded		MC		
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(d)( )	Damaged or inoperative geotechnical instrumentation including piezometers and slope inclinometers shall be repaired or replaced to ensure ongoing performance monitoring.		Uncertain		MC	24-Sep-12	Mine reported that damaged instrumentation was to be replaced. Not followed up by me
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(e)( )	An as-built report shall be submitted within 6 months of dam construction.	W th n 6 months of dam onst uct on	yes	completed	CC	30-Mar-12	GRIT 4759
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4 (e)( )	An annual dam safety inspection report shall be submitted to the Chief Inspector.	Annually	Yes	completed	MC	30-Mar-12	GRIT 4759
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure long-term protection of environmental quality.						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1 (a)( )	All plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage shall be prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* .						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(b)( )	The modified ABA sampling guidelines are approved. The Permittee may implement the change from analyzing composite samples to analyzing single samples.						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(b)( )	The Permittee shall continue to refine predictive testwork to remove uncertainly around the geochemical performance of materials under field conditions and use this information to update effluent quality predictions.						

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August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(c)	Waste rock with a NPR (NPR = NP_{TIC}/AP) less than 2.0 is considered potentially acid generating (PAG).						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(d)( )	Approved permanent disposal locations for PAG waste rock are below the flooded elevation in the Caribou, Wight and Southeast Zone pits.						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(d)( )	Seepage from the temporary west PAG stockpile shall be monitored for the on-set of acidic weathering. The monitoring program shall be capable of detecting the onset of significant metal leaching and provide early warning about the onset of ARD. If an early onset of metal leaching or ARD is detected, , the Permittee shall moved to the waste rock to an approved disposal location for PAG rock.						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C 1.(d)( )	Materials with potential for ARD shall not be used for construction.						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(e)	The Permittee shall maintain a current inventory of the deposition locations of waste materials placed in the Caribou pit, Wight pit, Southeast zone pit, Southeast waste rock dump and temporary west PAG stockpile. Required information shall include type of material, from which pit and where within that pit the material is from, tonnes of material deposited, deposition period, location within the dump and relevant geological and ML/ARD characterization data						
August 15, 2011	P otect on of Land and Wate Cou ses	Collect on D tches	C 2.	The Permittee shall conduct and maintain a record of routine monitoring of the North and South drainage ditches to ensure that seepage is adequately managed to prevent contaminant loadings to the receiving environment.						
August 15, 2011	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.3.(a)	The Permittee shall continue monitor and track any changes to drainage chemistry from individual disturbed areas to include the new mine components temporary west PAG stockpile, waste rock used to buttress the Wight pit high wall and the Southeast waste rock dump. The program shall be capable of detecting significant metal leaching and provide early warning about the onset of ARD or an increase in contaminant loading. Triggers for implementing any mitigation works shall be provided in the MLARD Material Monitoring Characterization and Management Program.						
August 15, 2011	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.3.(b)	Seepage from each mine component shall be sampled and analyzed monthly.	Monthly					
August 15, 2011	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.3.(c)	Results of monitoring shall be incorporated into Annual Reclamation report.	Ma ch 31st					
August 15, 2011	P otect on of Land and Wate Cou ses	West Haul Road Const uct on	C 4.	The Permittee shall ensure the 200 m. buffer established under the CCLUP for Bootjack Lake and the Old Growth Management Areas are maintained during the reconstruction of the West Haul Road.	Du ng econst uct on of he West Haul Road					
August 15, 2011	Reclamat on P og am	Reclamat on and Closu e Plan	D.1.	The Permittee shall submit an updated Reclamation and Closure Plan by October 31, 2012, which describes closure objectives and criteria for each mine component and, providing the current status of the mine plan and reclamation objectives, a compilation and interpretation of all monitoring data including ML/ARD prediction and water quality; closure and maintenance activities; any changes to the reclamation program that affects long-term mitigation; contingency plans; schedule for completion of reclamation works; and, a breakdown of outstanding liabilities and associated costs. The plan shall include a monitoring and mitigation program for elevated metals and acid rock drainage.	Octobe 31, 2012					
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Three Million, Nine Hundred and Five Thousand dollars ($3,905,000.00) bringing the total security for this permit to Seven Million dollars ($7,000,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	$3,095,000.00	alance as of August 10, 011					
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	$1,301,667.00	W th n 30 days of ece pt f pe m t amendment					
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	$1,301,667.00	Ma ch 31, 2012					
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	$1,301,667.00	Decembe 31, 2012					
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(b)	Included in the security, and subject to separate legal agreements, Mount Polley Mining Corporation. has granted to the Province of British Columbia Asset Security, in the case of equipment, to the extent of One Million Three Hundred and Seventy Thousand Five Hundred and Sixty Six dollars and sixty eight cents ($1,370,566.68).						
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2 (c)	The Permittee shall provide an updated market value appraisal on the subject equipment assets to be undertaken by a qualified appraiser by December 31, 2011.	Decembe 31, 2011					
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(d)	The Permittee shall conform to all Ministry of Environment approval, license and permit conditions, including the **Environmental Management Act,** Contaminated Sites and Special Waste regulations. The Permittee shall conform to all forest tenure requirements of the Ministry of Forests, Lands and Natural Resource Operations. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(e)	Over the life of the mine, the security will be adjusted to cover all the costs associated with carrying out the conditions of this permit. Upon application by the Permittee, the amount of security may be reduced if initial mining or development work will create less disturbance and liability.						
uly 8, 2009	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate		Uncertain		MC		Pond Zone Pit was either not mined or is now called by different name
uly 8, 2009	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the regional Inspector of Mines (Mines Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		Uncertain		MC		Pond Zone Pit was either not mined or is now called by different name
uly 8, 2009	Geotechn cal	No th East Waste Rock Dump	1.(a)( )	The conceptual modification to the construction of the North East Waste Rock dump is approved. The Permittee shall submit a final design including a plan and sections of the North East Waste Rock dump to the Mines Inspector and the Geotechnical Inspector of Mines for approval prior to dump construction.	o to dump onst uct on	Uncertain		MC		Northeast Waste Rock Dump was either not built or is now called by different name

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uly 8, 2009	Geotechn cal	No th East Waste Rock Dump	1.(a)( )	The Permittee shall submit an updated waste dump operating manual to the Mines Inspector and the Geotechnical Inspector of Mines for approval prior to dump construction	o to dump onst uct on	Superseded		MC		There is a requirement for updated procedures in July 25, 2013 Permit Amendment
uly 8, 2009	Geotechn cal	Pond Zone P t	2.(a)	Pit wall and bench configurations are approved. The Permittee shall follow the design provided by the design consultant. All work shall be supervised by a qualified geotechnical engineer. The design may be modified based on pit mapping, stability performance and a review by a qualified geotechnical engineer		Uncertain		MC		Pond Zone Pit was either not mined or is now called by different name
uly 8, 2009	Geotechn cal	Pond Zone P t	2.(b)	The Permittee shall develop a pit slope stability monitoring program that includes regular visual inspection of the pit walls and bench crests. Potentially unstable pit walls shall be monitored with suitable instrumentation and movement criteria developed to warn of impending failure.		Uncertain		MC		Pond Zone Pit was either not mined or is now called by different name
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure long-term protection of environmental quality.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)( )	All plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage shall be prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia*						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (b)( )	The Pond Zone Waste Rock Management Plan, dated June 2009 is approved.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	The Permittee shall continue to implement their program of research and monitoring to address where there is significant uncertainty regarding the future geochemical performance of waste rock, high walls and tailings material.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	The Permittee shall continue to refine predictive testwork to remove uncertainly around the geochemical performance of materials under field conditions and use this information to update effluent quality predictions.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Volcanic rock material, as defined in the application, with an NPR less than <2.0 are considered potentially acid generating (PAG).						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Monzonite rock material, as defined in the application, with total S greater than >0.3% are considered potentially acid generating (PAG)						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (d)( )	Approved disposal locations for PAG waste rock are in the flooded Caribou Pit, and the flooded Wight Pit below the final flood elevation estimated for closure.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(d)( )	Materials with the potential for ARD shall not be used for construction.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(e)	The Permittee shall keep a current inventory of all waste materials from the Pond Zone pit placed in the North East waste rock dump and Caribou Pit/Wight Pit. The required information shall include type of material, where in the pit the material is from, tonnes of material deposited, deposition period, location within dump and relevant geological and ML/ARD characterization data.						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Eighty Two Thousand dollars ($82,000.00) bringing the total security for this permit to Three Million, and Ninety Five Thousand dollars ($3,095,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$3,013,000.00	alance as of June 1, 009					
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$82,000.00	W th n 30 days of the ece pt of th s pe m t					
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(b)	Included in the security, and subject to separate legal agreements, Mount Polley Holding Company Ltd. has granted to the Province of British Columbia Asset Security, in the case of equipment, to the extent of One Million Three Hundred and Seventy Thousand Five Hundred and Sixty Six dollars and sixty eight cents ($1 370 566 68)						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(c)	When required by the Chief Inspector, the Permittee shall provide an updated market value appraisal on the subject equipment assets to be undertaken by a qualified appraiser.						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(d)	The Permittee shall conform to all Ministry of Environment approval, license and permit conditions, including the **Environmental Management Act,** Contaminated Sites and Special Waste regulations, as well as the **Wildlife Act** and **Land Act**. Should the Permittee not conform to these conditions then all or part of the security may be used to fulfill these requirements.						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(e)	The Permittee shall conform to all forest tenure requirements of the Ministry of Forests and Range. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(f)	Over the life of the mine, the security will be adjusted to cover all the costs associated with carrying out the conditions of this permit. Upon application by the Permittee, the amount of security may be reduced if initial mining or development work will create less disturbance and liability.						
Ma ch 6, 2008	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Ma ch 6, 2008	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines (district Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Ma ch 6, 2008	Gene al	Roads	3	This permit approves the transfer of roads to include all rights, maintenance and reclamation obligations as previously dictated under Ministry of Forests and Range, Road Permit #1350 to Permit M-200. Specific sections of roads are listed as Sections 387,388,514,515,516,557,558,559,560,560B, 561,562,563,564, 565, 567 and 589.						

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eb ua y 19, 2008	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
eb ua y 19, 2008	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
eb ua y 19, 2008	Geotechn cal	Gene al	1.(a)	The stage 6 dam raise to elevation 958 m and downstream buttress shall be constructed in accordance with the design and specifications provided by the design consultant.		yes	completed	CC	10-Jul-09	Report on Stage 6A construction prepared by Knight Piesold GRIT 4530
eb ua y 19, 2008	Geotechn cal	Gene al	1.(b)	The Operation, Maintenance and Surveillance manual shall be updated as necessary to include revised monitoring criteria, including piezometer and slope inclinometer thresholds.		Superseded				
Decembe 5, 2007	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Decembe 5, 2007	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines (district Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Decembe 5, 2007	Health and Safety	Safe Wo k P ocedu e	1	A safe work procedure and monitoring program shall be submitted to the district Inspector of Mines, Health and Safety for review before work commences	efo e wo k commences	uncertain			28-Mar-08	Report on East Wall of Wight Pit by Golder. GRIT 4394
Decembe 5, 2007	Geotechn cal	W ght P t Wa l Stab l zat on	1.(a)	Pit stabilization of the east wall is approved subject to the recommendations of the design consultant. Work shall be supervised by a qualified geotechnical engineer. The design may be modified based on pit mapping, stability performance and a review by a qualified geotechnical engineer.						
Decembe 5, 2007	Geotechn cal	W ght P t Wa l Stab l zat on	1.(b)	The Permittee shall submit a final report to the Chief Inspector for the pit wall stabilization.						
Decembe 5, 2007	Geotechn cal	Waste Rock Dump	2.(a)	Test pits shall be excavated within the proposed waste dump foundation area prior to dump construction to confirm foundation assumptions.	o to dump onst uct on					
Decembe 5, 2007	Geotechn cal	Waste Rock Dump	2.(b)	Weak organic soils shall be removed from the dump footprint.						
Decembe 5, 2007	Geotechn cal	Waste Rock Dump	2.(c)	The Permittee shall submit a final report to the Chief Inspector for the dump construction.						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)	The Permittee shall sample all excavated pit wall material using the protocol set out in the approved ML/ARD Material Monitoring Characterization and Management Program for Mount Polley Mine (dated February 2005).						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)	Material found to be PAG shall be deposited underwater within the Cariboo Pit.						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	Collect on D tches	2	The Permittee shall install a system of drainage diversion and collection ditches to minimize contaminant loadings to the receiving environment.						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	3.(a)	The Permittee shall salvage and retain all suitable topsoil and overburden materials on site for use in final reclamation.						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	3.(b)	Woody debris, including stumps, roots, limbs and rotting logs, that is generated during clearing and grubbing of the dump area, shall be stockpiled in suitable locations for subsequent use in the reclamation program to enhance nutrient cycling unless it can be applied directly to a reclamation area						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(a)	The Permittee shall cause to be deposited with the Minister of Finance by December 31, 2007, additional security in the amount of Two Hundred Thousand ($200,000.00) bringing the total security for this permit to Three Million Thirteen Thousand dollars ($3,013,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector.	Decembe 31, 2007					
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(b)	Subject to separate legal agreements, Mount Polley Mining Corporation has granted to the Province of British Columbia Asset Security, in the case of equipment, to the extent of One Million Three Hundred and Seventy Thousand Five Hundred and Sixty-six dollars and sixty eight cents ($1,370,566.68).						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(c)	The Permittee shall provide by March 31, 2008, an updated market value appraisal on the subject equipment assets, to be undertaken by a qualified appraiser.	Ma ch 31, 2008					
ecembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(d)	The Permittee shall conform to all Ministry of Environment and Ministry of Agriculture and Lands approval, license, and permit conditions, including the *Environmental Management Act*, Contaminated Sites and Special Waste regulations, as well as requirements under the *Wildlife Act*. Should the Permittee not conform to these conditions then all or part of the security may be used to fulfill these requirements.						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(e)	The Permittee shall conform to all *Land Act* tenure (permit, licence of occupation, statutory right of way or lease) or *Water Act* licence terms and conditions. Should the Permittee not perform any of the required obligations under any *Land Act* tenure or *Water Act* licence, then all or part of the security may be used to cover any costs or expenses incurred by the Province of British Columbia to perform any of these obligations or otherwise satisfy any outstanding obligation under any such tenure or licence.						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(f)	The Permittee shall conform to all forest tenure requirements of the Ministry of Forests and Range. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(g)	The amount of security will be adjusted for inflation where required. The first adjustment will be made the year following placement of the total security in 1(a) above, but only when the cumulative inflation from January 1, 2008 exceeds 10% based on each of the previous year's annual increase in the British Columbia Consumer Price Index (B.C. CPI).						
ecembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty		This condition supersedes previous Reclamation Security conditions.						

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Ma ch 29, 2007	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
Ma ch 29, 2007	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Ma ch 29, 2007	Geotechn cal	Const uct on	1.(a)	The dump shall be constructed to a maximum elevation of 1066 m in accordance with the design prepared by Golder Associates.						
Ma ch 29, 2007	Geotechn cal	Const uct on	1.(b)	Weak organic soils shall be removed from the dump footprint as directed by the design consultant.						
Ma ch 29, 2007	Geotechn cal	Const uct on	1.(c)	A berm or ditch shall be constructed between the toe of the dump and the haul road below to provide rock roll-out protection.						
Ma ch 29, 2007	Geotechn cal	Ope at on	2.(a)	Dump construction and monitoring shall be carried out in accordance with the dump operating procedures developed for the existing Northeast Rock Dump. The procedures shall be up-dated as necessary to include the dump stability and performance monitoring recommendations provided by the design consultant.						
Ma ch 29, 2007	Geotechn cal	Ope at on	2.(b)	Controlled access below the dump is required in accordance with the variance issued for the Northeast Rock Dump.						
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	Collect on D tches	1	The Permittee shall install a system of drainage diversion and collection ditches to minimize contaminant loadings from the Northeast Zone dump extension, area of disturbance.						
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	2.(a)	The Permittee shall salvage and retain all suitable topsoil and overburden materials on site for use in final reclamation.						
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	2.(b)	Woody debris including stumps, roots, limbs and rotting logs that is generated during clearing and grubbing of the northeast zone dump extension area, shall be stockpiled in suitable locations for subsequent use in the reclamation program to enhance nutrient cycling unless it can be applied directly to a reclamation area						
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	Waste Dumps	3	Waste dumps shall be recontoured to 2H 1V slopes as specified in the application, so that final reclamation is consistent with the end land use.						
Ma ch 29, 2007	Reclamat on P og am	Reclamat on Secu ty	1	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Three Hundred and Eighty-three Thousand, Sixty-six dollars and Sixty-eight cents ($383,066.68) bringing the total security for this permit to Two Million Nine Hundred and Eighty-eight Thousand dollars ($2,988,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the security in accordance with the following installment schedule						
Ma ch 29, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$2,604,933.32	alance as of Ma ch 29, 007					
Ma ch 29, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$33,066.68	Ap l 30, 2007					
Ma ch 29, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$25,000.00	Monthly f om May 30, 007 to June 30, 2008					
Ma ch 29, 2007	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
Ma ch 29, 2007	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Ma ch 29, 2007	Wo k System	App oval of Leach Pad and Coppe Recove y Fac l ty	1	Design, construction and operation of the leach pad and copper recovery facility is approved.						
Ma ch 29, 2007	Geotechn cal	Leach Pad L ne	1.(a)	The Permittee shall construct the leach pad in accordance with the design by Knight Piéshold dated October 30, 2006.						
Ma ch 29, 2007	Geotechn cal	Leach Pad L ne	1.(b)	The Permittee shall hydraulically test the leach pad liner system for leaks prior to operating.	o to ope at ng the each test pad					
Ma ch 29, 2007	Geotechn cal	Leach Pad L ne	1.(c)	The Permittee shall monitor the drainage system, pump back system and, if applicable, the pipeline to the mill. The monitoring procedure shall be prepared and submitted to the Chief Inspector prior to operating the leach test pad.	o to ope at ng the each test pad	yes	completed	CC	01-Jun-07	GRIT4323/4325
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	Env onmental Mon to ng and Su ve llance	1	The Permittee shall summarize all monitoring data and submit results in the Annual Reclamation Report submitted March 31st of each year.	Ma ch 31st					
Ma ch 29, 2007	Reclamat on P og am	Heap Leach Ope at ons and Closu e	1.(a)	All heap leach operations and closure conditions shall be completed to the satisfaction of the Chief Inspector and Ministry of Environment Regional Manager.						
a ch 29, 2007	Reclamat on P og am	Heap Leach Ope at ons and Closu e	1.(b)	All PAG material from the spent heap leach test must be permanently disposed of in the flooded locations of the Cariboo pit unless otherwise processed within the mill.						
August 31, 2007	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
August 31, 2007	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
ugust 31, 2007	Geotechn cal	Const uct on	1	The Permittee shall ensure weak organic soils be removed from the dump footprint as directed by the design consultant						
August 31, 2007	Geotechn cal	Ope at on	2	The Permittee shall ensure the Polley Lake Road be closed during construction of the Boundary Road when potential rock rollout from new road construction presents a hazard to the Polley Lake Road users						

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August 31, 2007	Geotechn cal	Mon to ng	3	The Permittee shall develop a program to monitor excessive crest settlement or toe displacement during road construction.						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)	The Permittee shall sample all road fill material using the protocol set out in the approved ML/ARD Material Monitoring Characterization and Management Program for Mount Polley Mine (dated February 2005).						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)	Road fill material are defined as having the potential to be ARD generating (PAG) if they have a paste pH <6 or NP/AP <2, where AP is calculated using total S and NP is determined by carbonate analyses.						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)	Material found to be PAG shall be deposited underwater within the Cariboo Pit.						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(d)	Materials with a paste pH <6 or NP/AP <2 shall not be used for construction purposes.						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(e)	No changes shall be made to the criteria for PAG definition waste handling procedures, mitigation strategies or materials monitoring program without the prior approval of the Chief Inspector.						
August 31, 2007	P otect on of Land and Wate Cou ses	Collect on D tches	2	The Permittee shall install a system of drainage diversion and collection ditches to minimize contaminant loadings from the Boundary Road area of disturbance.						
August 31, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	3.(a)	The Permittee shall salvage and retain all suitable topsoil and overburden materials on site for use in final reclamation.						
August 31, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	3.(b)	Woody debris including stumps, roots, limbs and rotting logs that is generated during clearing and grubbing of the northeast zone dump extension area, shall be stockpiled in suitable locations for subsequent use in the reclamation program to enhance nutrient cycling unless it can be applied directly to a reclamation area.						
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Two Thousand dollars ($2,000.00) bringing the total security for this permit to Three Million dollars ($3,000,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the security in accordance with the following installment schedule						
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$2,713,000.00	alance as of June 29, 007					
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$50,000.00	August 30, 2007					
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$25,000.00	eptembe 30, 2007					
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$25,000.00	Octobe 31, 2007					
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$187,000.00	Decembe 31, 2007					
August 2, 2006	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
August 2, 2006	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 2, 2006	Health and Safety	Mon to ng	1	Conditions 1, 2 and 3 of permit M-200 amended November 1, 2004 are hereby deleted						
August 2, 2006	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
August 2, 2006	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 2, 2006	Geotechn cal	Gene al	1	The Permittee shall obtain the necessary permits and licences for water discharge and water diversion from the Ministry of Environment						
August 2, 2006	Geotechn cal	Const uct on	2.(a)	Construction of the Stage 5 dam raise to elevation 951 m shall be in accordance with design and construction specifications provided by the design consultant.						
August 2, 2006	Geotechn cal	Const uct on	2.(b)	Foundation drains, toe drains and associated water collection and recycle systems shall be extended or installed as specified by the design consultant.						
August 2, 2006	Geotechn cal	Ope at on	3.(a)	The tailings storage facility shall be operated in accordance with the Operation, Maintenance and Surveillance (OMS) manual.		yes	completed	CC	28-Aug-06	GRIT 4190
August 2, 2006	Geotechn cal	Ope at on	3.(b)	The tailings pond shall be operated with a minimum freeboard of 1.39 m.						
August 2, 2006	Geotechn cal	Mon to ng	4.(a)	The inclinometers installed through the lacustrine unit downstream of the Main Embankment shall be monitored to determine possible deflection with respect to the baseline survey using a standard inclinometer probe.		yes	ongoing	CC		
August 2, 2006	Geotechn cal	Mon to ng	4.(b)	Monitoring of piezometers, slope inclinometers and survey monuments shall be carried out in accordance with the OMS manual or as specified by the design consultant.						
August 2, 2006	Geotechn cal	Mon to ng	4.(c)	Any damage to piezometer cables from construction activities shall be repaired or replaced in a prompt fashion to allow ongoing assessment of piezometric levels as specified by the design consultant.						
August 2, 2006	Geotechn cal	Repo t ng	5.(a)	An as-built report shall be submitted within six months of completion of Stage 5 construction		yes	completed	CC	27-Mar-08	Report by Knight Piesold GRIT 4399
August 2, 2006	Geotechn cal	Repo t ng	5.(b)	An annual dam safety inspection report shall be prepared and to be submitted by July 31 2007	uly 31, 2007					

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
August 2, 2006	Geotechn cal	Repo t ng	5.(c)	A formal dam safety review shall be completed in 2006 and at an interval of 7 years based on the high consequence classification.	006, and eve y 7 yea s	yes	completed	CC	01-Dec-06	Report by AMEC, GRIT 4243
Novembe 24, 2005	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
Novembe 24, 2005	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Novembe 24, 2005	Geotechn cal	East Waste Rock Dump	1.(a)( )	The Permittee shall submit a final design including a plan and sections of the East Waste Rock dump to the district Inspector of Mines and Geotechnical Inspector of mines for approval prior to dump construction.	o to dump onst uct on	uncertain	completed	CC	21-Dec-06	Report by MPMC, GRIT 4245
Novembe 24, 2005	Geotechn cal	East Waste Rock Dump	1.(a)( )	The Permittee shall submit an updated waste dump operating manual to the district Inspector of Mines and Geotechnical Inspector of mines for approval prior to dump construction.	o to dump onst uct on					
Novembe 24, 2005	Geotechn cal	Southeast Zone P t	2.(a)	Pit wall and bench configurations shall follow the initial design provided by the design consultant. The design shall be updated, at least an annual basis, based on pit mapping and a pit wall stability performance conducted by a qualified geotechnical engineer.						
Novembe 24, 2005	Geotechn cal	Southeast Zone P t	2.(b)	The Permittee shall develop a pit slope stability monitoring program for the Southeast Zone pit that includes regular visual inspection of the pit walls and bench crests. Potentially unstable pit walls shall be monitored with suitable instrumentation and movement criteria developed to warn of impending failure. A copy of the pit slope monitoring manual shall be submitted to the Chief Inspector within 6 months of the start of mining the Southeast zone pit.	W th n 6 months of the ta t of m n ng the outheast Zone p t					
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure long-term protection of environmental quality.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)( )	All plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage shall be prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* .						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (b)( )	MLARD Material Monitoring Characterization and Management Program for the Mt Polley Mine, submitted February 2005, are approved.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	The Permittee shall continue to implement their program of research and monitoring to address where there is significant uncertainty regarding the future geochemical performance of waster rock, high walls and tailings material.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	The Permittee shall continue to refine predictive testwork to remove uncertainly around the geochemical performance of materials under field conditions and use this information to update effluent quality predictions.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Materials with an NPR less than 2.0 are considered potentially acid generating (PAG).						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Materials that contain or have the ability to produce soluble contaminates in high enough concentrations to exceed provincial guidelines for aquatic life, are considered to have a potential for metal leaching (ML).						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (d)( )	The only approved disposal location for PAG waste rock is in the flooded Caribou Pit, below the final flood elevation estimated for closure.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(d)( )	Materials with the potential for ARD shall not be used for construction.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(e)	The Permittee shall keep a current inventory of all waste materials from the Southeast zone pit placed in the East waste rock dump and Caribou Pit. The required information shall include type of material, where in the pit the material is from, tonnes of material deposited, deposition period, location within dump and relevant geological and ML/ARD characterization data.						
Novembe 24, 2005	Reclamat on P og am	Reclamat on Secu ty	1.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Six Hundred Thousand dollars ($600,000.00) bringing the total security for this permit to Two Million, Eight Hundred and Five Thousand dollars ($2,805,000.00). The Permittee shall deposit the additional security in accordance with the following installment schedule						
Novembe 24, 2005	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$2,205,000.00	alance as of Novembe 4, 2005					
ovembe 24, 2005	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$25,000.00	Monthly f om Novembe 0, 2005 to Octobe 31, 007					
Novembe 24, 2005	Reclamat on P og am	Reclamat on Secu ty	1.(b)	In the event that the mine ceases production operations, the full outstanding amount of the security must be provided within 30 days	W th n 30 days of ceased pe at ons					
August 2, 2005	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
August 2, 2005	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 2, 2005	Geotechn cal	Const uct on	1	Construction of the road shall not commence until an adequate toe-buttress below the East RDS, currently under construction, has been completed.	o to oad onst uct on					
August 2, 2005	Geotechn cal	Ope at on	2.(a)	No dumping will be allowed on the East RDS when the haul road is in use.						
August 2, 2005	Geotechn cal	Ope at on	2.(b)	A procedure shall be developed to ensure the dump is closed during haulage operations.						

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August 2, 2005	Geotechn cal	Mon to ng	3	Monitoring procedures will be in place on the East RDS to make sure that no movement is taking place before and during haulage operations						
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Six Hundred and Seventy Thousand dollars ($670,000.00) bringing the total security for this permit to Two Million Seven Hundred and Seventy Thousand dollars ($2,770,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the security in accordance with the following installment schedule						
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	$2,100,000.00	alance as of Novembe 4, 2005					
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	$80,000.00	0 days afte pe m t ssuance					
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	$295,000.00	Octobe 30, 2005					
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	$295,000.00	Octobe 30, 2006					
May 25, 2005	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
May 25, 2005	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector						
May 25, 2005	Geotechn cal	Gene al	1	The Permittee shall obtain the necessary permits and licences for water discharge and water diversion from the Ministry of Water, Land and Air Protection and Land and Water British Columbia Inc.						
May 25, 2005	Geotechn cal	Const uct on	2.(a)	Construction of the Stage 4 dam raise to elevation 948 m shall be in accordance with design and construction specifications provided by the design consultant.						
May 25, 2005	Geotechn cal	Const uct on	2.(b)	Foundation drains, toe drains and associated water collection and recycle systems shall be extended or installed as specified by the design consultant.						
May 25, 2005	Geotechn cal	Ope at on	3.(a)	The tailings storage facility shall be operated in accordance with the Operation, Maintenance and Surveillance (OMS) manual.		yes	completed	CC	31-Mar-06	GRIT 4138
May 25, 2005	Geotechn cal	Ope at on	3.(b)	The tailings pond shall be operated with a minimum freeboard of 1.39 m.						
May 25, 2005	Geotechn cal	Mon to ng	4.(a)	Three additional slope inclinometers shall be installed at the Main Embankment.		yes	completed	CC		
May 25, 2005	Geotechn cal	Mon to ng	4.(b)	Monitoring of piezometers, slope inclinometers and survey monuments shall be carried out in accordance with the OMS manual or as specified by the design consultant.						
May 25, 2005	Geotechn cal	Repo t ng	5.(a)	An as-built report shall be submitted within six months of completion of Stage 4 construction.	W th n 6 months of omplet on of Stage 4 onst uct on	yes	completed	CC	13-Mar-07	Report by Knight Piesold, GRIT 4301
May 25, 2005	Geotechn cal	Repo t ng	5.(b)	An annual dam safety inspection report shall be prepared and to be submitted by July 31, 2006.	uly 31, 2006	yes	completed	CC	03-May-06	Report by Knight Piesold, GRIT 4146
May 25, 2005	Geotechn cal	Repo t ng	5.(c)	A formal dam safety review shall be completed in 2006 and at an interval of 7 years based on the high consequence classification.	006, and eve y 7 yea s	yes	completed	CC	01-Dec-06	Report by AMEC, GRIT 4243
Novembe 1, 2004	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Novembe 1, 2004	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Novembe 1, 2004	Gene al	Closu e Management Manual	3	Six months prior to final closure, the Permittee shall submit a Closure Management Manual which describes and documents key aspects of the operational surveillance and monitoring requirements used to track important changes that could affect long-term mitigation performance, monitoring and maintenance requirements. This document shall be a living document with updates submitted to this Ministry whenever significant changes occur	Months p o to f nal losu e					
Novembe 1, 2004	Health and Safety	Blast ng Mon to ng	1.(a)	The Permittee shall monitor for ground vibration and overpressure at a point half way between the mine and the nearest residence. Results shall be submitted monthly to the district Inspector of Mines for review.	Monthly					
Novembe 1, 2004	Health and Safety	Blast ng Mon to ng	1.(b)	At least six hours prior to a blast, the Permittee shall notify the private residences that are within two kilometers of the blast site.	At least 6 hou s p o to blast					
Novembe 1, 2004	Health and Safety	Dust Mon to ng	2	The Permittee shall monitor for dust (PM^{10}) at a point half way between the mine and the nearest residence. Results shall be submitted monthly to the district Inspector of Mines for review.	Monthly					
Novembe 1, 2004	Health and Safety	No se Mon to ng	3	The Permittee shall monitor for noise at a point half way between the mine and the nearest residence. Results shall be submitted monthly to the district Inspector of Mines for review.	Monthly					
Novembe 1, 2004	Geotechn cal	Const uct on and Ope at on of No theast Zone Waste Dump	1.(a)( )	Test pits shall be excavated within the proposed waste dump foundation area prior to dump construction to confirm assumptions used in the design.	o to dump onst uct on	yes	completed	CC	08-Feb-06	Report by Golder, GRIT 4125. Waste dump assessment report by Golder dated October 28, 2005, GRIT 4126
Novembe 1, 2004	Geotechn cal	Const uct on and Ope at on of No theast Zone Waste Dump	1.(a)( )	Waste dump construction shall be undertaken in accordance with the design provided by the design consultant with an overall slope of 2 1						
Novembe 1, 2004	Geotechn cal	Const uct on and Ope at on of No theast Zone Waste Dump	1.(a)( )	Fine-grained weathered rock spoil and overburden soil shall be assigned to the west half of the dumping platforms.						
Novembe 1, 2004	Geotechn cal	Const uct on and Ope at on of No theast Zone Waste Dump	1.(b)	Dump slope stability monitoring shall be undertaken with a program developed for routine visual inspection. Wireline extensometers shall be installed if cracks behind the dump crest develop and crack displacement exceeds 10 cm.						
ovembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2 (a)( )	Pit wall and bench configurations shall follow the initial design provided by the design consultant. The design may be modified based on pit mapping, stability performance and a review by a qualified geotechnical engineer.						

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Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2.(a)( )	A design report shall be submitted for approval prior to excavation of the thick soil overburden deposits located in the southeast quadrant.	o to excavat on of the h ck so l ove bu den epos ts located n the outheast quad ant					
Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2.(a)( )	Final pit walls shall be developed using controlled blasting methods.						
Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2.(a)(v)	Horizontal drain holes shall be installed during mining to control groundwater flow and improve pit wall stability. Spacing and depth of the drain holes have been provided by the design consultant.	Du ng m n ng					
Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2.(b)	The Permittee shall develop a pit slope stability monitoring program that includes regular visual inspection of the pit walls and bench crests and survey monitoring of prisms in the southeast quadrant. Potentially unstable pit walls shall be monitored with suitable instrumentation and movement criteria developed to warn of impending failure. A copy of the pit slope monitoring manual shall be submitted to the Chief Inspector within 6 months of the start of mining.	W th n 6 months of the ta t of m n ng					
Novembe 1, 2004	Geotechn cal	Hyd ogeolog cal Cond t ons	3.(a)	Prior to mining, the Permittee shall install four to six dewatering wells through the overburden soil between the east pit crest and Polley Lake. An as-built report of the well installations and the water discharge system shall be submitted to the Chief Inspector.	o to m n ng					
Novembe 1, 2004	Geotechn cal	Hyd ogeolog cal Cond t ons	3.(b)	The Permittee shall install a system of groundwater monitoring wells/piezometers between the east pit crest and Polley Lake to monitor the effectiveness of the pumping wells. A contingency plan shall be developed to ensure both sufficient drawdown of the groundwater level as well as stability of the east pit wall.						
Novembe 1, 2004	Geotechn cal	Sp nge P t	4	The Permittee shall, prior to mining the Springer Pit, submit final mine design plans to the Chief Inspector for approval.	o to m n ng the p nge P t					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Repo t ng	1.(a)	By March 31st of each year, an Annual Reclamation Report shall be submitted in a form containing the information required by the Chief Inspector. The annual Reclamation Report shall document the current status of the work system and reclamation obligations, outstanding liability and associated costs, and all monitoring including water quality, and ongoing maintenance activities.	Ma ch 31st					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Repo t ng	1.(b)	An updated Closure Plan shall be submitted by **March 31, 2009** providing the current status of the work system and reclamation obligations, a compilation of all monitoring including ML/ARD prediction, water quality, closure and maintenance activities, any changes to the reclamation program that affect long-term mitigation, contingency plans, schedule for completion of reclamation works, and a breakdown of outstanding liabilities and associated costs.	Ma ch 31, 2009					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure long-term protection of environmental quality.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)( )	All plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage shall be prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* .						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (b)( )	Materials with an NPR less than 2.0 are considered potentially acid generating (PAG).						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	Materials that contain or have the ability to produce soluble contaminates in high enough concentrations to exceed provincial guidelines for aquatic life, are considered to have a potential for metal leaching (ML).						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	The only approved disposal location for PAG waste rock is in the flooded Caribou Pit, below the final flood elevation estimated for closure.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Materials with the potential for ARD shall not be used for construction.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(d)	The Permittee shall keep a current inventory of waste materials placed in each waste dump. The required information shall include type of material, location in pit where material is from, tonnes of material deposited, deposition period, location within dump and relevant geological and ML/ARD characterization data						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	ML/ARD Mate al Cha acte zat on and Management Plan	3	The Permittee shall submit to the Chief Inspector by **December 31, 2004,** a Material Characterization and Management Plan to be used site wide to guide in the characterization and placement of materials with ML/ARD potential at the Mount Polley Mine. This plan shall include a geochemical and mineralogical description of all waste materials, their capacity to produce ARD and/or metal leaching, estimated volumes, their final deposition location and how segregation during mining will be managed. The plan shall also include specific details of the sampling program including frequency, sample methodology, when sample was taken, types of analyses conducted, lab methodologies, QA/QC procedures and data management.	Decembe 31, 2004					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	D a nage Mon to ng	4	Pursuant to the Ministry of Water, Lands and Air Protection Permit PE11678, the Permittee shall continue to monitor and track changes to drainage chemistry from disturbed areas and waste materials through a surface water, seepage and groundwater monitoring program. The program shall be capable of detecting significant metal leaching and provide early warning about the onset of ARD or an increase in contaminant loading. A summary of results shall be provided in the annual reclamation report.	Ma ch 31st					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	D a nage Management and Collect on	5.(a)	The Permittee shall maintain a system of drainage diversion and collection ditches to minimize contaminant loadings for areas of disturbance or waste disposal.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	D a nage Management and Collect on	5.(b)	In the event that the mine site drainage is not of acceptable discharge quality, the Permittee shall collect and treat, or otherwise mitigate drainage for as long as is necessary.	f not of acceptable scha ge qual ty					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	M t gat on/Cont ngency Plans	6	Pursuant to section 5(b) above, the Permittee must develop mitigation plans demonstrating how contaminant loadings will be reduced and receiving environment reclamation objectives will be achieved. Where there is significant uncertainty or environmental risk, contingency plans with trigger mechanisms and resources required to implement them are required. Mitigation and contingency plans shall be described in the updated Closure Plan due **March 31, 2009**.	Ma ch 31, 2009					
ovembe 1, 2004	P otect on of Land and Wate Cou ses	Resea ch	7	The Permittee shall continue to conduct research in order to better address the uncertainty of metal leaching/ARD future performance and to predict the results of prolonged aerial weathering of the PAG and non-PAG waste types. Specific research programs shall be described in the ML/ARD Characterization and Management Plan.	Decembe 31, 2004					

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Novembe 1, 2004	P otect on of Land and Wate Cou ses	Mon to ng fo Ove p essu e n Polley Lake	8.(a)	The Permittee shall develop a monitoring plan to monitor for overpressure in Polley Lake as a result of blasting. This plan shall be sent to the regional habitat biologist, Department of Fisheries and Oceans, Williams Lake, for approval, with a copy sent to the district Inspector of Mines						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Mon to ng fo Ove p essu e n Polley Lake	8.(b)	Should exceedances in overpressure be recorded, as deemed by the regional habitat biologist, the Permittee shall adjust their blasting program as required to reduce negative effects on fish.	f ove p essu e xceedances a e dent f ed by the eg onal ab tat b olog st					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	(a) The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Seven Hundred and Ninety Thousand dollars ($790,000.00). The Permittee shall deposit the additional security in accordance with the following installment schedule						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$100,000.00	W th n 30 days afte e m t ssuance					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$100,000.00	ta t of onst uct on/g ubb ng					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$295,000.00	Octobe 30, 2005					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$295,000.00	Octobe 30, 2006					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(b)	Subject to separate legal agreements, Mount Polley Holding Company Ltd. has granted to the Province of British Columbia Asset Security, in the case of equipment, to the extent of One Million Three Hundred and Seventy Thousand Five Hundred and Sixty Six dollars and sixty eight cents ($1,370,566.68).						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(c)	The Permittee also has posted security in the amount of Five Hundred and Twenty-nine Thousand Four Hundred and Thirty-three dollars and thirty-two cents ($529 433 32) which is held under a safekeeping agreement	alance to date 529,433.32 n SKA					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(d)	When the security has been posted according to the schedule in 1(a) above, a total security of Two Million Six Hundred and Ninety Thousand dollars ($2,690,000.00) shall be maintained by the Permittee.	otal of $2,690,000.00 fte Octobe 30, 2006 epos t					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(e)	When required by the Chief Inspector, the Permittee shall provide an updated market value appraisal on the subject equipment assets to be undertaken by a qualified appraiser.						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(f)	The Permittee shall conform to all Ministry of Water, Land and Air Protection and Land and Water British Columbia Inc. approval, license and permit conditions, including the **Environmental Management Act,** Contaminated Sites and Special Waste regulations, as well as the **Wildlife Act** and **Land Act**. Should the Permittee not conform to these conditions then all or part of the security may be used to fulfill these requirements.						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(g)	The Permittee shall conform to all forest tenure requirements of the Ministry of Forests. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(h)	The amount of security will be adjusted for inflation where required. The first adjustment will be made the year following placement of the total security in 1(a) above, but only when the cumulative inflation from January 1, 2007 exceeds 10% based on each of the previous year's annual increase in the British Columbia Consumer Price Index (B.C. CPI).						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.( )	Over the life of the mine, the security will be adjusted to cover all the costs associated with carrying out the conditions of this permit. Upon application by the Permittee, the amount of security may be reduced if initial mining or development work will create less disturbance and liability						
eb ua y 16, 2004	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
eb ua y 16, 2004	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1	Concurrent with milling operations, the Permittee shall characterize and monitor the ML/ ARD potential of the International Wayside tailings						
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(a)	A monthly record must be kept of the approximate mass of tailings and their general location in the impoundment.	Monthly					
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(b)	Composite samples shall be collected monthly. Analysis shall be carried out on the + and - 200 mesh fractions.	Monthly					
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(c)	ABA and elemental analysis are required on every sample. ABA analyses shall include paste pH, Total-S, Sulphate-S, Sobek NP, and Total-C. Elemental analyses shall include measurements of all major cations (Al, Ca, Fe, K, Mg, Na) and trace elements (As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, P, Pb, Sb, Se, Zn)						
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(d)	Metal solubility (shake flask tests) shall be conducted bi-monthly on representative samples of tailings produced. Analyses shall include pH and all major and trace elements listed in (c) above.	-monthly					
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(e)	Mineralogical tests (XRD-SEM) shall be conducted bi-monthly on representative samples of tailings produced to determine the proportion and type of sulphide minerals present, and to identify neutralizing minerals including the distribution and type of carbonate minerals present.	-monthly					
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(f)	Cycloning is not permitted with International Wayside tailings.						
May 30, 2001	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						

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May 30, 2001	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
May 30, 2001	Geotechn cal	As-Bu lt Repo t	1	The Permittee shall submit an as-built report for Stage 3 construction to the Geotechnical Section and District Inspector by December 31, 2001	Decembe 31, 2001	yes	completed	CC	19-Oct-01	Report on Stage 3 Construction by Knight Piesold. GRIT 3531.
May 30, 2001	Geotechn cal	Mon to ng	2.(a)	Visual and instrumentation monitoring and reporting in accordance with the schedule provided by Knight Piesold Ltd.						
May 30, 2001	Geotechn cal	Mon to ng	2.(b)	Two slope inclinometers shall be installed in the downstream slope of the main tailings embankment as shown on Drawing 11162 13-250 Rev. 2.						
May 30, 2001	Metal Leach ng and Ac d Rock D a nage	Geochem cal Cha acte zat on of Zone C	1	The June 13, 2000 permit conditions for Geochemical Characterization of the Zone C Construction Rockfill for the Tailings Impoundment apply.						
August 2, 2000	P eamble			This amendment is a continuation of the approval given June 13, 2000 to construct a Tailings Storage Facility and approves the use of sand fill for downstream shell construction. It also supersedes the Metal Leaching and Acid Rock Drainage Conditions outlined in the July 11, 1997 permit amendment.						
August 2, 2000	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code, and the owner, agent or manager (herein called the Permittee), shall obey all orders issued by the Chief Inspector or his delegate.						
August 2, 2000	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the District Inspector in writing of any intention to depart from the permit conditions, the plan of the work system, or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(a)	Significant ML/ARD impacts shall be prevented through a program of material characterization, mitigation and water management which						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(a)	prevents significant impacts to downstream terrestrial and aquatic resources,						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(a)	prevents significant post-mining on-site impacts to biota, and						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(a)	minimizes any reduction in the post-mining productive capability of the site.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(b)	The ML/ARD program shall						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(b)	predict the ML/ARD potential of all excavated materials and exposed surfaces and, if necessary, include mitigation, maintenance, and monitoring strategies, and						
August 2, 2000	Metal Leac ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(b)	reduce uncertainty to a level at which potential risks, liabilities, and post-mining alienation of resources can be identified and effective material characterization, excavation, waste handling and disposal, mitigation, monitoring, maintenance and contingency						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(c)	Mitigation plans must meet environmental and reclamation objectives for the site and be compatible with the mine plan and site conditions.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(d)	Waste disposal and storage facilities shall be constructed in a manner that ensures long-term physical containment and stability pf the wastes, and permits contaminated drainage collection.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	2	Unless otherwise approved, all test work including sampling, analyses and monitoring procedures for metal leaching and ARD characterization shall meet the requirements of the *ARD Guidelines for Minesites in British Columbia* and *Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* .						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(a)	Concurrent with mine operations and development, the Permittee shall characterize the metal leaching and ARD potential of all excavated, exposed, newly created or disturbed materials. The characterization shall be sufficient to guide material management and confirm pre-mining predictions of material composition						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	The program shall include the characterization of the following components						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	overburden						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	waste rock						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	tailings, including cyclone sand used in the tailings embankments						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	mine walls						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	rock fill used in the tailings embankments						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	The Permittee shall sub-divide each component into significant geologically and/or geochemically different sub-units. Representative composite samples from each sub-unit shall be collected and analyzed.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(a)	Sample type and location, geological descriptions, corresponding tonnage of material, and resulting waste/exposure type and disposal location shall be reported for all samples. The geological description shall include rock type, sulphide types and estimated quantities, carbonate and gangue mineralogy, alteration, significant structural features, texture, and any other diagnostic features significant to metal leaching and ARD. Tonnage disposed and geological information shall be linked to the analytical results to show the materials that the results are purported to represent.						

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August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	The Permittee shall provide by October 31, 2000, and in the Annual Reclamation Report, an updated geological description of each of the pits and resulting wastes, including	Octobe 31, 2000, Ma ch 1st					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	the location and mass of each rock unit						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	mass, dimensions, location, mode of genesis, lithology, bulk and vein mineralogy, sulphide mineralization, alteration features, alteration mineral assemblages, degree of oxidation, colour, results of the hydrochloric acid fizz test, grain size, particle size, structure, fracturing and strength and relative abundance of oxidized/suerpgene mineralization for each material, and the methods used to determine the above						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	map showing the location of the pyrite halo						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	the methods used to locate the pyrite halo in the field and ensure permit requirements for mining in its vicinity are carried out						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(a)	Unless otherwise specified, ABA analyses shall include surface rinse pH (unconsolidated samples), paste pH (consolidated samples), total sulphur, sulphate sulphur, sulphide sulphur, bulk neutralizing potential (NP) and carbonate carbon content. Calculated data shall include acid potential (AP), carbonate-NP and NPR.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(b)	Elemental analysis shall include the measurement of all major cations (Al, Ca, Fe, K, Mg, Na) and trace elements (As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, P, Pb, Sb, Se, Zn). Analysis is also required for non-sulphide Cu. Most elements can be measured using ICP procedures after a strong acid digestion. Separate analysis may be required for Se.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Metal solubility analyses on oxidized materials shall follow the general procedure						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Use 250 grams of sample for the shake flask test.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Use distilled water to make a solid to water ratio of 1 3.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Shake flask for 24 hours. Allow to settle for 3 hours.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Collect and analyze supernatant. Analyses should include pH and all major and trace elements.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(d)	Mineralogical analyses shall be conducted to determine the mineralogy and proportion of different potential sources of elevated contaminant leaching, and the identity of neutralizing minerals. The required analytical procedures will depend on the information required. At present the requirements are to identify the Cu species, the source of soluble Na and K, and the proportion of carbonate occurring as non-neutralizing Fe and Mn carbonates.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(e)	Internal duplicate quality assurance/quality control (QA/QC) shall be conducted on every fifth sample analyzed. External duplicate quality assurance/quality control (QA/QC) analysis shall be conducted on every fifth sample analyzed.	ve y 5th sample					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(a)	The Permittee shall initiate a long-term drainage monitoring program to						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(a)	determine quality of drainage in the tailings impoundment, and that originating from the Main and Perimeter embankments, waste dumps, low grade ore stockpile and the open pit and						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(a)	the effectiveness of the operational drainage collection and post-mining drainage discharge systems.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(b)	Seepage from each mine component shall be sampled and analyzed monthly.	Monthly					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(c)	Groundwater monitoring wells shall be installed down gradient of major mine components, and ditches and embankments built to contain contaminated drainage. Sampling and analysis shall be conducted three times per annum.	t mes pe yea					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(d)	Water quality analyses shall include						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(d)	Analysis of dissolved major anions (nitrate and sulphate) and cations (Al, Ca, Fe, K, Mg, Na) and trace elements (As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, P, Pb, Sb, Se, Zn) conducted on filtered and acidified sample,						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(d)	pH and alkalinity, all conducted on filtered and acidified sample.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(d)	Filtering to be conducted using 45 µm filter. Acidification to be conducted using nitric acid as per the requirements in the Waste Management Permit PE 11678.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(e)	Internal duplicate quality assurance/quality control (QA/QC) shall be conducted on every fifth sample analyzed. External duplicate quality assurance/quality control (QA/QC) analysis shall be conducted on every fifth sample analyzed.	ve y 5th sample					
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	7.(a)	The Permittee must report the results of the geological characterization, the material characterization testwork and drainage monitoring for the previous year in the Annual Reclamation Report.	Ma ch 31st					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	7.(b)	Material characterization data analysis shall include the number of samples, annual range, 5th and 95th percentile and median values in each year of monitoring for each rock or waste type for each of the measured parameters. At a minimum, descriptive statistics shall be provided for the material characterization conducted on the overburden, low grade ore, cycloned tailings sand and the cycloning overflow, + and - 200 mesh fractions of the tailings for the period when cycloning does not occur, individual pit blasthole data for each pit and the fine fractions of waste rock from each pit. the interpretation of results shall include notice of where elements exceed crustal averages.						

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August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	7.(c)	Water quality monitoring data analysis shall include the number of samples, annual range, 5th and 95th percentile and median values in each year of monitoring for each of the measured parameters at each monitoring location. The interpretation of results shall include notice of where drainage exceeds provincial water quality guidelines for aquatic life						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	7.(d)	Immediate notification of the District Inspector is required in the event potentially ARD generating (PAG) materials are encountered or upset conditions in materials handling, waste containment, water management or predicted water quality.	mmed ately					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	8.(a)	Materials with a NPR of greater than or equal to 2 1 are considered non-ARD generating (NPAG). At present the only material identified that may not meet or exceed an NPR of 2 1 is bedrock in the pyrite halo north of the presently proposed limit of the Bell Pit.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	8.(b)	Excavated materials that contain or have the ability to produce soluble contaminants in high enough concentrations for their leachate to exceed provincial guidelines for aquatic life are considered to have a potential for significant leaching (SL). All tailings, waste rock, low-grade ore and mine walls at the site are considered SL based on measured Cu solubility.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	9	The Permittee shall develop a low intensity characterization program (e.g., one sample every 100m x 100m) for topsoil materials, which are removed in the vicinity of the minesite or are proposed for use as topsoil on the reclaimed landscape. The Permittee shall submit to the District Inspector as outline of the program by October 31, 2000. The objective of the program will be to establish the baseline conditions (capability for contaminant release and uptake by vegetation) and avoid the placement of material with high available Cu within the rooting zone. The primary concern is with overburden directly overlying potentially mineralized bedrock. Analyses shall be conducted on the <2 mm particle size fraction.	Octobe 31, 2000					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	10.(a)	Records must be kept of the approximate mass of each of the different rock types encountered within each blast, regardless of whether or not the blast is sampled, in order to calculate total annual amounts of each rock type excavated.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	10.(b)	Sampling and analysis of the pre-blast material is presently not required.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(a)	The objectives of post-blast geochemical analysis are to determine the elemental and ABA composition of the fines and to verify predictions of the potential for ARD and significant contaminant leaching.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(b)	For the *waste rock* , a minimum of two samples per month shall be collected from monzonite, diorite, and/or breccia and one sample every two months from the fault gouge material. If one or more of the rock types is not being mined that month, an additional sample shall be collected from one of the rock types that is.	Monthly					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(c)	For the *low-grade ore* , a minimum of one sample shall be collected for every 150,000 tonnes.	ve y 150,000 tonnes					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(d)	Sampling and analysis of post-blast *millable ore* is presently not required.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(e)	Sampling shall be conducted on the post-blast material, prior to its removal to the dump.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(f)	Sampling shall occur when half the blast material has been excavated.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(g)	The sample shall consist of a composite of at least five sub-samples collected from across the entire excavation face. The location of the face at the time of sampling and the rock type sampled must be recorded.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(h)	Samples shall consist of < 10 cm material.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.( )	Each sample shall be sieved into the following size fractions and and weighed > 19 mm, 11 mm-19 mm, 2 mm-11 mm and < 2 mm.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(j)	Analyses shall be conducted on the < 2 mm particle size fraction for every sample and > 2 mm fraction for every second sample of that rock type.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(k)	ABA and elemental analysis are required on every sample. Metal solubility analysis shall be conducted quarterly, and mineralogical analysis shall be carried out semi-annually on representative samples of each rock type.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(l)	The proportion of each sample occurring in the different size fractions shall be reported along with the geological information and analytical results in the Annual Reclamation Report.	Ma ch 31st					
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(a)	The objectives of pre-blast geochemical characterization of the bedrock excavated from the Bell Pit are to determine the potential for ARD and significant contaminant leaching and ensure that potentially problematic materials are identified and disposed in an acceptable manner. The District Inspector shall be notified when the pit expands to *within ten metres of the predicted boundary of the pyrite halo* .						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(b)	Records must be kept of the approximate mass of each of the different rock types encountered within each blast, regardless of whether or not the blast is sampled, in order to calculate total annual amounts of each rock type excavated.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(c)	Samples shall be collected from drill cuttings, with a sample collected from every sixth blast hole.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(d)	*More than ten metres from predicted boundary of the pyrite halo* , geochemical characterization is to be conducted on a composite sample created by combining all individual blast hole samples from each blast.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(e)	*Within ten metres from predicted boundary of the pyrite halo* , geochemical characterization is to be conducted on a individual blasthole samples.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(f)	Geochemical characterization shall consist of ABA and elemental analysis. Analysis shall be conducted on the whole sample. No separation of different particle sizes is required.						

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August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(g)	No material within 10 metres of the pyrite halo may be blasted until either it is confirmed to NPAG or a PAG disposal plan is submitted to, and subsequently approved by, the Reclamation Inspector.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	13.(a)	The objectives of post-blast geochemical characterization for waste rock and low-grade ore excavated from the Bell Pit are to determine the elemental and ABA composition of the fines and to verify predictions of the potential for ARD and significant contaminant leaching.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	13.(b)	The sampling and analysis procedures shall be the same as those for post-blast waste rock and low-grade ore in the Cariboo Pit.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	13.(c)	Sampling and analysis of post-blast millable ore is presently not required.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(a)	The objectives of the geochemical characterization of the tailings are to determine the elemental and ABA composition and to verify predictions of the potential for ARD and significant contaminant leaching.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(b)	A record must be kept of the approximate mass of each of the different rock types in the ore each month. A separate record must be kept for periods when cycloning is or is not occurring.	Monthly					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(c)	Samples shall be collected monthly.	Monthly					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(d)	For the period when cycloning *does not* occur, the monthly sample shall be a composite of daily samples. Analysis shall be carried out on the + and - 200 mesh fractions.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(e)	For the period when cycloning *does* occur, the monthly analysis shall be a conducted on representative samples of the cycloned sand and the overflow slimes fraction of the tailings.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(f)	ABA and elemental analysis are required on every sample. Metal solubility analysis shall be conducted quarterly and mineralogical analysis shall be carried out semi-annually on representative samples of each of the types of tailings produced.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15	The objectives of pre-blast geochemical characterization of the rock fill are to determine the potential for ARD and significant contaminant leaching and ensure that potentially problematic materials are not used for construction and properly disposed.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(b)	Samples shall be collected from drill cutting, with a minimum sample frequency of no less than one sample for every 50,000 tonnes of material.	ve y 50,000 tonnes					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(c)	Analysis shall be conducted on the whole sample. No separation of different particle sizes is required.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(d)	ABA and copper analysis are required on every sample.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(e)	ABA test work shall include an initial Leco Carbon and Sulphur analysis to confirm NPR characteristics of the material. If the NPR is less than 2.0, then a full ABA analysis (total sulphur, sulphate and sulphide sulphur, pH, carbonate carbon and NP), shall be conducted						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(f)	An aqua regia extract/AA or equivalent assay shall be conducted to determine the total copper content. Analysis is also required for non-sulphide Cu.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(g)	The occurrence of material with an NPR < 2 or Cu concentrations > 180 ppm shall be reported to the District Inspector.	mmed ately					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(a)	The objectives of post-blast geochemical analysis to determine the elemental and ABA composition of the fines and to verify predictions made on pre-blast drill cuttings of the potential for ARD and significant contaminant leaching.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(b)	Sampling shall be conducted on the material after it has been placed on the embankment. The sample shall consist of at least five sub-samples collected from across the present area of deposition, at a frequency of no less than one sample every 200,000 tonnes of material. The sampling location and rock type sampled must be recorded.	ve y 200,000 tonnes					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(c)	The subsequent sampling and analytical procedures shall be the same as those for post-blast waste rock and low-grade ore in the Cariboo Pit.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	Additional work is required to better define future drainage chemistry and loadings from each of the site components and to determine drainage discharge and water management requirements post-mining for the site as a whole. To address this issue, by October 31, 2000 the Permittee must submit an outline showing how they intend to verify and/or better define the predicted	Octobe 31, 2000					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	drainage chemistry, contaminant concentrations and rates of discharge from each of the present site components,						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	site water management,						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	the location, manner and any constraints on discharge, and						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	the resulting liability, and monitoring and maintenance requirements.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	The outline shall include the timing of the proposed work.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	2.(a)	The Permittee must maintain an effective drainage collection system around the waste stockpile and disturbed mineralized areas. The system shall contain the surface and near-surface seepage from mineralized rock and permit monitoring of the resulting water quality.						

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	2.(b)	In the event that significant ML/ARD occurs, or effluent streams are identified which carry unacceptably high contaminant levels, all contaminated drainage shall be collected and treated or otherwise managed to a level that assures long-term protection of environmental quality	f not of acceptable scha ge qual ty					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	3	The post-mining area containing mineralized material, such as overburden, in the rooting zone shall not exceed that which existed prior to mining unless the Permittee can demonstrate no significant ecological impacts and achievement of the reclamation objectives for the productivity/capability of on-site terrestrial and aquatic resources.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	4	Dumping is permitted in the East Dump.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	5	Dumping is permitted on the perimeter of the East Dump.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	6.(a)	The Permittee shall ensure that isolated pockets of PAG materials (< 1,000 tonnes) are intimately blended with non-PAG materials within the waste dumps to ensure net neutralizing drainage and low dissolved contaminant concentrations. The blending ratio of the intimately blended material shall be a minimum of 20-parts benign NPAG material to every 1-part PAG material.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	6.(b)	Prior to excavation of larger pockets of PAG waste (> 1,000 tonnes), the Permittee must receive confirmation that the PAG disposal plan is acceptable to the Chief Inspector.	o to excavat on of AG pockets > 1,000 onnes					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	7.(a)	Cycloning is not permitted with PAG ore. The minimum allowable NPR for ore, which is cycloned and for the resulting cycloned sand which is used for construction on the downstream side of the Perimeter Dam is an NPR of 2 1.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	7.(b)	Deposition of cycloned tailings sand created from NPAG ore is permitted on the upstream and downstream faces of the Perimeter Embankment and the upstream side of the Main Embankment, subject to the previous condition and the maintenance of a till core in the embankments. Results of the above and the additional work required to better define future drainage chemistry and loadings from each of the site components, and to determine drainage discharge and water management requirements post-mining for the site as a whole, will be used to determine the acceptability of cyclone sand use on the downstream side of the Main Embankment.	ub ect to 7 (a) and ma ntenance of the t ll o e					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	8	The minimum allowable NPR for tailings placed on the final exposed tailings beach upstream of the till core is embankments at the end of mining is an NPR of 2 1.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	9.(a)	Quarried rock fill with an NPR > 2 1 and total Cu concentration < 180 ppm is considered to be not potentially ARD or a potential source of significant contaminant leaching and may be used for downstream dam and dike construction.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	9.(b)	Quarried rock fill with an NPR < 2 1 is considered potentially acid generating (PAG) and shall not to be used for construction purposes. If the pre-excavation testing indicates significant quantities of the quarried rock is PAG, this material shall not be quarried and other sources of rock fill will need to be located. In the event PAG rock is quarried, it shall be subaqueously deposited into the flooded portion of the tailings impoundment.						
une 13, 2000	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
une 13, 2000	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the District Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
une 13, 2000	Geotechn cal	As-Bu lt Repo t	1	The Permittee shall submit an as-built report to the Geotechnical Section and District Inspector for review by March 31, 2001.	Ma ch 31, 2001					
une 13, 2000	Geotechn cal	Ope at ons Manual	2	The Permittee shall submit an operations manual to the Geotechnical Section and District Inspector for review by July 31, 2000.	uly 31, 2000	yes	completed		17-Aug-00	Draft OMS for Stage 3 by Knight Piesold. GRIT 3456.
une 13, 2000	Geotechn cal	Sand F l	3	The permit does not approve the use of sand fill for downstream shell construction.						

From:	Hoffman, Al MEM:EX
To:	Pocklington, Cheryl M MEM:EX; Kuppers, Haley MEM:EX
Subject:	Fwd: Supplement to MPMC January 15, 2015 Root Cause Report
Date:	Monday, March 23, 2015 6:03:42 PM
Attachments:	image001.jpg ATT00001.htm March 23 2015 Letter to Chief Inspector Hoffman.pdf ATT00002.htm

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We need to discuss

Sent from my iPhone

Begin forwarded message:

> **From:** "Sophie Hsia" <SHsia@imperialmetals.com>
> **To:** "Hoffman, Al MEM:EX" <Al.Hoffman@gov.bc.ca>
> **Cc:** "Dale Reimer" <dreimer@mountpolley.com>
> **Subject: Supplement to MPMC January 15, 2015 Root Cause Report**
>
> Dear Mr. Hoffman,
> Attached please find our written response to your February 5, 2015 letter. Our privileged and confidential expert report, the latter of which is only being provided to you because you have compelled its production, and having put you on notice of its privileged and confidential nature, we provide it on condition that it be disseminated no further.
> Due to their large size, the appendices (A through D) referred to in our attached letter are being provided via FTP folder.
> Our privileged and confidential expert report (the “Golder Report”) is also provided via FTP folder. Please note that the Golder Report is only being provided to you because you have compelled its production, and having put you on notice of its privileged and confidential nature, we provide it on condition that it be disseminated no further.
> In order to access the appendices and the Golder Report, please follow the instructions below and copy and paste the file folders over to your system.
> It would be appreciated if you could confirm in writing successful download of all FTP folders and their contents.
> The folder will remain active until end of day Friday, March 27, 2015 after which the folder will be disabled and contents deleted.
> FTP Folder Access Instructions
> 1- In Windows Explorer (not Internet Explorer), type or copy and paste the following path into the “Address” field: s.15
> 2- The FTP Login window will be displayed. Please enter:
> - User name: s.15
> - Password : s.15 irst letter in uppercase and subsequent letters in lowercase).
> (For security reasons, please do not check "Save password").
> Regards,
> (on behalf of Dale Reimer)

[01_Imperial_corporate_RGB]
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Mount Polley Mining Corporation
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Box 12 • Likely, BC V0L 1N0 • T 250.790.2215 • F 250.790.2613

March 23, 2015

VIA EMAIL: Al.Hoffman@gov.bc.ca

Ministry of Energy and Mines
PO Box 9320
Stn Prov Govt
Victoria, BC V8W 9N3

Attention: Mr. Al Hoffman, Chief Inspector of Mines

Dear Mr. Hoffman,

Re: August 4, 2014 Dam Failure at Mount Polley Mine – Supplement to January 15, 2015 Investigation Report ("Supplement")

I write in response to your letter of February 5, 2015, which among other things, requests a supplementary report and supporting documentation that shows Mount Polley Mining Corporation ("MPMC") has fully investigated any causes that contributed to the failure of the tailings storage facility ("TSF") beyond the failure of the design to take into account the undrained shear strength of the glaciolacustrine soil layer ("GLU") in the foundation of the TSF.

Specifically, you have asked for a supplemental report setting out any evidence we have gathered to eliminate any other contributing causes such as:

a. Compliance with the construction design by both MPMC and our construction contractors;
b. oversight of the dam construction through QA/AC methodology and reporting processes and feedback;
c. the management of the mine water balance and supernatant freeboard and the effect this may have had on the consequence of the event;
d. the MPMC emergency response plan document and the response of MPMC to the accident; and
e. any other factors or processes that may have contributed to the TSF failure.

In your letter you state that my report of January 15, 2015 falls short of the comprehensive investigation that would be expected in relation to a major incident such as a TSF failure.

Before responding to these suggested possible contributing causes individually, we would like to make one general point.

We have dedicated very substantial resources to assisting in and co-operating with the various investigations that have and continue to investigate the cause of the TSF failure. In addition we have dedicated very substantial further resources in conducting our own comprehensive investigation. This has included retaining Golder & Associates to undertake a root cause analysis, the results of which we reported to you in my letter of January 15.

Our comprehensive investigation determined that there was one mechanism of failure of the TSF and one only. This was the sudden failure of a GLU layer below the perimeter dam when the undrained shear strength of that material was exceeded. (We note that this is also the mechanism of failure subsequently identified by the Independent Engineering Panel). There was no other mechanism of failure.

As explained in our report, the potential failure of the GLU layer was not identified prior to the failure because the undrained shear strength was not determined and used in the design of the TSF by the engineers and the mistake was not subsequently identified by the engineer of record ("EOR") or any other engineer who reviewed the design. The factor of safety ("FOS") calculated by the engineers and reported to MPMC at all times exceeded what was required. There was thus a fundamental design flaw in the TSF.

As explained at some length in my report, the TSF was constructed in accordance with the design, and thus incorporated this design flaw. But for that design flaw, the TSF would not have failed. It would have exceeded the required FOS as reported by the engineers.

The consequence of this, as explained in my report, is that there was only one cause of the TSF failure, which was the design flaw which failed to take into account the undrained shear strength of the GLU which in turn resulted in the overstressing of the GLU and its consequent failure. Had this design flaw not existed, the failure would not have occurred. With this design flaw, failure was inevitable at some point.

With the greatest of respect, it is our view that your letter, and its criticism of my report as having failed to adequately consider other causes, fails to take this analysis into account.

Nevertheless, and although we do not think that there were other factors or processes that contributed to the root cause of the TSF's failure, we have commented upon the potential causes that you have set out in accordance with your direction.

You also directed me to provide you with a copy of any supporting investigation reports conducted by third party agencies. Enclosed is a report (the "Golder Report") prepared by Golder Associates, who were retained to provide their opinions in regards to the root cause of the dam's failure, in circumstances which make the report subject to legal privilege.

As noted, the Golder Report is privileged and confidential. It is only being provided to you because you have compelled its production, and having put you on notice of its privileged and confidential nature, we provide it on condition that it be disseminated no further.

Below, I respond to the five topics identified in your February 5, 2015 letter.

a. Compliance with Construction Design

As stated on page 3 of my report, the TSF was constructed in stages in accordance with the design and the recommendations of the EOR. At pages 3 and 4, there is a discussion of the information that supports this conclusion. What follows supplements that information and evidence and provides some documentary support.

Documentary evidence that MPMC and its construction contractors were compliant with dam construction design is set out in the dam's yearly as-built, annual reviews and 2006 Dam Safety Review report (the "Reports"). The Ministry of Energy and Mines ("MEM") was provided copies of the Reports as required under the *Mines Act*, and again as requested by MEM after the TSF failure. Copies of the Reports are also provided as Appendix A to this Supplement. Please also see Appendix B to the Supplement for a table extracting the applicable portions of the Reports which speak to construction design compliance.

b. Oversight of Dam Construction

Again, information in regards to this was provided in my January 15, 2015 report at page 4. What follows supplements that information.

As noted, the TSF was designed by third party engineers. Construction activities were performed by contractors. As is described above, MPMC was compliant with the construction design. MPMC's role in dam construction involved, *inter alia*, the following processes, to ensure that the TSF design requirements were carried out to the satisfaction of the TSF design engineers, which they were:

- Monitor and maintain a photographic record of ongoing construction activities
- Review borrow pit material to verify consistency
- Delineate survey zones
- Survey construction areas
- Perform compaction testing of materials
- Perform laboratory testing (moisture/grain size distribution/proctor) of materials
- Construction reports (daily/weekly/monthly/annual)
- Instrumentation readings (drains/piezometers/inclinometers)

Below (for reference) is a table from a Construction Monitoring Manual for material-specific QA/QC:

Material Type	On-Site Testing	Off-Site Testing	Sample Collection Schedule
Zone S Till Core	Source Classification: Visual inspection of borrow material. In-Place Testing: Visual inspection of zone dimension, and material. ND Density Testing (D6938-10) MDI Density Testing (D680-05) Moisture Content (D4318-10)	Source Classification and In-Place Testing : Proctor (D698-07 / D4718-07) Atterberg (D421-07 / D4318-10) Hydrometer Gradation (D421-07 and D422-07) Sieve Gradation (D6913-09)	Source Classification : One (1) per biweekly per source or One (1) per 10,000 m^3 per source In-Place Testing: One (1) per offset biweekly per source or one (1) per 6,500 linear meters per source Moisture Content: One (1) per 1000 linear meters per lift per day
Zone F Filter	During Production/Transportation: Wash Sieve Gradation (C117-04 and C136-06) During Placement: Visual inspection of material size, compaction, preparation, and zone dimension. Wash Sieve Gradation (C117-04 and C136-06)	During Production/Transportation: Wash Sieve Gradation (C117-04 and C136-06) In-Place Testing: Wash Sieve Gradation (C117-04 and C136-06)	During Production/Transportation: One (1) per 5,000 m^3 per stockpile A duplicate sample for off-site testing one (1) per stockpile In-Place Testing: One (1) per placement event or one (1) per 2,500 linear meters A duplicate sample for off-site testing one (1) per 4,500 linear meters
Zone T Transition	In-Place Testing: Wash Sieve Gradation (C117-04 and C136-06) Confirmation of waste rock inertness, as required. Visual inspection of material size, compaction, preparation, and zone dimension.	In-Place Testing: Wash Sieve Gradation (C117-04 and C136-06)	In-Place Testing: One (1) per 5,000 m^3 material placed. A duplicate sample for off-site testing one (1) per 10,000 m^3
Zone C Rockfill	Confirmation of waste rock inertness, as required. Visual in-place inspection of material size, preparation, and placement.	Not Applicable	Not Applicable

MEM was provided with copies of the Construction Monitoring Manuals for each of stage of the dam's raises, as required under the *Mines Act*, and again as requested by MEM after the TSF failure. Copies of each of these reports are provided in Appendix C.

Further details of MPMC's TSF construction QA/QC are also provided in the Reports, which are referenced above and provided with this Supplement as Appendix A. Please see Appendix B to the Supplement for a table extracting the applicable portions of the Reports which speak to oversight of the dam construction through employed QA/QC methodology and reporting processes and feedback.

MPMC's involvement with the dam construction did not contribute to the failure of the TSF.

c. Management of Mine Water Balance and Supernatant Freeboard

MPMC's effluent discharge permit (PE-11678) was first issued in 1997. During the EA process, the water balance supplied showed the site would quickly have surplus water if water from the pits and surface water from the mine site were directed to the tailings pond, and assumed "When surface water is greater than can be diverted to the tailings area, it will be discharged via sediment ponds from the site". Within two years, MPMC notified the Ministry of Environment ("MOE") that freeboard had already reached 1.86m. On February 7, 2002, MPMC was granted an amendment of PE-11678 to allow discharge to the Cariboo Pit, but not off the site.

In its water balance update of March 14, 2005, MPMC's EOR, Knight Piesold Ltd. ("KPL"), noted that the mine site was moving from a deficit to a surplus situation and recommended that MPMC find a way to discharge mine water. Thus, in September 2006, MPMC began work on a permit amendment to PE-11678 to allow discharge of its surplus water to Hazeltine Creek. The permit amendment was not granted until November 7, 2012.

The 2012 permit amendment allowed MPMC to discharge a maximum of 1.4 million cubic metres of water per year to Hazeltine Creek and only between April and October. Due to water quality constraints on allowable discharge volumes and the restrictive period during which discharge was permitted, MPMC was generally unable to discharge more than about 10% of the amended maximum allowable discharge. Thus, as MEM is aware, in mid-2013, MPMC began work on another strategy to address its water surplus issue (treatment of water and discharge to Polley Lake) and also committed to developing a long-term strategy for mine closure.

In October 2013, less than a year after the 2012 permit amendment, MPMC again initiated the permit amendment process to treat water and discharge to Polley Lake (as a short-term solution to deal with the surplus issue). First Nations consultation on this amendment was completed by March 7, 2014. The final application was received by the MOE on July 9, 2014 and the required reports were submitted two days later. MPMC had ordered the equipment required to treat the water, prior to receipt of a permit, so that discharge of surplus water could be expedited.

The TSF dams have never overtopped. On May 24, 2014, in the midst of the last permit amendment process, the TSF's freeboard was exceeded. This incident was reported to MEM and MOE staff. MEM staff investigated and determined that the elevation of the water in the TSF was above regulation, but that this was not a breach. MEM issued an Advisory for exceedance of the height of effluent within the TSF. The MEM advisory states that "Mine records show that the operation was carrying out visual dam inspections and measuring freeboard at an acceptable frequency, including daily following the May 24, 2014 incident". The MEM Advisory is attached here for your reference. Normal Operating Level freeboard (1.3m) at the TSF was re-established on July 4th, 2014.

On August 3, 2014, the day before the breach, freeboard was 2.3m.

Management of the TSF water balance and the water level in the dam did not cause the failure of the dam. Specifically, the TSF did not fail because of overtopping but by reason of the exceeding of the undrained shear strength of the GLU, as described above, and in my report of January 15, 2015.

I note that the Panel Report comes to the same conclusion in its analysis of the mechanism of the failure.

Although the water balance and level did not cause the TSF failure, it would have affected the amount of tailings released with the breach. Since this is not part of an investigation into the cause of the failure of the TSF, we have not commissioned an investigation into that aspect of the matter.

Please see Appendix B to this Supplement for a table extracting the applicable portions of the Reports which speak to management of the mine water balance and supernatant freeboard.

d. MPMC's Emergency Response Plan and its Response to the Breach

As set out in our January 15, 2015 letter, the failure of the TSF occurred around 1:10 am on August 4, 2014. The geotechnical instrumentation and inspections did not provide any warning of an impending failure. Due to the sensitivity of the GLU, once it was overstressed, no remedial actions could have been taken by MPMC to stop the failure.

The Independent Panel's Report also concludes that the failure of the dam was rapid and without precursors such that neither inspections nor instrumentation could have provided any warning or opportunity to prevent the breach.

Accordingly, MPMC's response plan and response could not have prevented the breach of the TSF and was not a contributing cause of the breach.

Nonetheless, and in accordance with your direction, the following is a description of the response of MPMC's staff to the breach:

1. Primary focus for the senior on site staff was the safety of personnel. The Pit Supervisor's immediate response was to secure the scene of the breach and to account for all personnel. At the time of the breach there was only one employee working in the area of the tailings breach. This employee was working on a sand cell near four corner. The supervisor ordered this employee to immediately evacuate the TSF and report to a safe location. From there, barricades and guards were put in place to ensure no unauthorized access to the breach location. At this time the supervisor was sure that all personnel from the mine were accounted for and that no mine rescue, first aid or other mine emergency response personnel were required.

2. The second action taken by the pit supervisor was to initiate call outs for senior management. As per Mount Polley Emergency Response procedures, the senior on site supervisor is to notify the Senior On-Call management representative of any significant occurrences at the mine. The pit supervisor had access to the weekend on call memo for August 1 to 4 and made attempts to contact the individual named. The site supervisor then continued to call other management representatives using the company phone list.

3. Under the direction of the Mine Operations Manager, the senior site supervisor then began to make contact with outside agencies. The first call made was to the Emergency Management BC contact line to report the event. The second call made at this time was to the Ministry of Energy and Mines, Regional Health and Safety Inspector.

4. Once on-site security was confirmed focus was changed to supporting outside agencies with offsite incident management, including deactivation of forest service roads and clearing of local recreation sites.

5. Emergency response work continued with the support of the MEM, MOE, the RCMP, Cariboo Regional District Emergency Operations Centre, and the Ministry of Forest, Lands and Natural Resources.

Since the TSF breach, MPMC has reviewed its Mine Emergency Response Plan (the "MERP"). A list of areas for improvement to the MERP was identified and MPMC, with guidance from MEM, has updated the MERP. A copy of the original MERP is attached as Appendix D to this Supplement. The updated MERP is available upon request.

MPMC has established a MERP Coordinator and a MERP Planning Committee, which will review the MERP annually and submit a list of recommended updates to the MERP Coordinator.

e. Any Other Contributory Factors or Processes

The Golder Report and the Panel Report conclude that the TSF failure resulted from a flaw in its design. The Independent Panel has noted that the 1.3H:1.0V slope was a "trigger" for the failure. We agree that the slope would have affected the timing of the failure, but as the Independent Panel found, even at a slope of 2.0H:1.0V, the dam was "doomed to fail" because the undrained shear strength of the GLU would have been exceeded. The 1.3H:1.0V slope at the time of failure had been designed by the EOR and their calculations showed that it exceeded the required factor of safety in the vicinity of the failure in the Perimeter embankment.

The design that included the 1.3H:1.0V slope had also been reviewed by MEM staff who had authorized MPMC to proceed with the construction of that slope.

The Golder Report rules out all other potential causes for the failure of a dam such as this.

Conclusion

As found by the Panel Report and the Golder Report, the dam failed because its design was flawed. Our investigation has reached the same conclusion, and has confirmed that there were no other factors or processes which contributed to the dam's failure.

MPMC had no knowledge of the dam's design error until it conducted its investigation into the dam breach. MPMC understood that the TSF was being designed, constructed and operated in conformance with the Health, Safety and Reclamation Code for Mines in British Columbia, its permits and accepted engineering practices. MPMC relied on engineers well-versed in the design, construction and operation of dams and was assured at all times that the TSF embankments were within the required factors of safety.

We hope that this provides the information directed in your letter of February 5, 2015.

Sincerely,

MOUNT POLLEY MINING CORPORATION

Dale Reimer
Mine Manager

From: Kuppers, Haley MEM:EX
To: "McLeod, Harvey"
Cc: Warnock, George MEM:EX; Pocklington, Cheryl M MEM:EX
Subject: FW: ER3 Reports - Stages 1 through 10
Date: Thursday, March 26, 2015 2:10:00 PM
Attachments: T0198_20150326_stage 1_er3.pdf
T0198_20150326_stage 2_er3.pdf
T0198_20150326_stage 3_er3.pdf
T0198_20150326_stage 4_er3.pdf
T0198_20150326_stage 5_er3.pdf
T0198_20150326_stage 6_er3.pdf
T0198_20150326_stage 7_er3.pdf
T0198_20150326_stage 8_er3.pdf
T0198_20150326_stage 9_er3.pdf
T0198_20150326_stage 10_er3.pdf

Hello Gentlemen,

As an example of what can be reported on from the ER3 database. Please see attached reports for Stages 1 to 10. We can do this type of report for any combination of themes (enterprises), in a few weeks the dataset should be complete, however until then please recognize that these reports are not comprehensive in that we are still adding enterprises to documents.

We understand KCB is moving forward with their own analysis and process, if there is any way this information or other information can be of use to you please let us know. We can also discuss further during Monday update call. For example, if necessary this database summary could be used to audit and cross check information relevant to each stage of the TSF design/construction, please review if necessary during your on-going report writing.

Thanks,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Parent, Matthew MEM:EX
Sent: Thursday, March 26, 2015 12:02 PM
To: Keith R. Elwood
Cc: Hemphill, Naomi MEM:EX; Kuppers, Haley MEM:EX; Hoffman, Al MEM:EX; Pocklington, Cheryl M MEM:EX
Subject: RE: ER3 Reports - Stages 1 through 10

Hi Keith,

Apologies for the delay on the reports, but we were able to complete them this morning. Please see attached for ER3 Reports for Stages 1 through 10. Please recognize that these documents are not comprehensive in that we are still adding enterprises to documents.

Moving forward we will attempt to continuously update reports for you weekly (most likely Mondays). We are still reviewing the most efficient way to provide you updates and will keep you updated on that process.

If you have any questions, please do not hesitate to ask us.

Kind regards,
Matthew

From: Pocklington, Cheryl M MEM:EX
Sent: Wednesday, March 25, 2015 11:07 AM
To: Keith R. Elwood
Cc: Hemphill, Naomi MEM:EX; Parent, Matthew MEM:EX; Kuppers, Haley MEM:EX; Hoffman, Al MEM:EX
Subject: update re database reporting for final report

Keith, Good news! Looks like we will have our first report to you by the end of today, if not sooner.

AL, HALEY: please advise as to how you would like to see/receive these database reports summarizing the evidence we have – I could copy you every time we send an update to Keith, or perhaps only on Mondays. We can chat about it too before you decide. NOTE: the more complete reports ready a few weeks from now will likely be of more interest to you.

For all database reporting for you, we can name them by ie "<list of Enterprise Names, alphabetically> REPORT"
This will help us in defining what it is you need, and what it is we need to give you.

Today there will be 10 reports for each stage; each named by stage: STAGE 1 REPORT, STAGE 2 REPORT etc. These reports by STAGE will include all docs + their respective identified investigative themes + associated STAGE.

To date, this will include ALL MP files plus perhaps some additional (not much yet) and their analysis as per KCB plus select analysis from WARNOCK, KILOH, ELWOOD, POCKLINGTON.

Note: there will be additional files that exist that are not connected with a 'stage' as that information was not available in the report to make the connection with. So as you review this STAGE report, start thinking about what other REPORT theme summaries we can create and feed to you to help comprehensively focus down on the content we have.

Also for each report we give you, we should give you an update every week or two as new content and will try and maintain a schedule for this BUT also feel free to ask for an update anytime! You

can ask any one of us for an update. The report will come as searchable pdf. We will to discuss if any of these reports will form any appendices for the final report. Please advise as we go and we can ear mark.

Cheryl

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STAGE 2

Doc ID	0412
Title	MP10032
Author	KNIGHT PIESOLD
Document Date	2014/08/30
Task List	168, 174
Themes	CONSTRUCTION - TSF, DESIGN, STAGE 2

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine Tailings Storage Facility Report on 1999 Construction (Ref. No. 11162/13-5)

SUMMARY: 1999 as-built

(CASEY): see detailed notes

(SEIDALINOVA): Stage 2 construction report: drawings, geological investigation; construction quality assurance control test summary sheets (Zone S, CS and F) and gradation plots; design modifications, photos.

(MCLEOD): Blank.

Doc ID	0414
Title	MP10033
Author	KNIGHT PIESOLD
Document Date	2014/10/16
Task List	168, 174
Themes	CRITICAL THINKING, DESIGN, STAGE 2

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine, Report on 1999 Annual Inspection (Ref. No. 11162/13-9).

SUMMARY: 1999 DSI

(CASEY):
- Inspection carried out by EIT
- TSF at 936.5 m at time of inspection
- ME drain flow not monitored due to high water level in the SCP
- Design freeboard maintained
- No major iusues noted

(SEIDALINOVA):
Stage 2C Instrumentation, drawings, photos, summary of drain flow data, drain piezometers monitoring data, photos. The main embankment outlet drains continued to seep slightly. Recommendation to remove saturated loose material on downstream slopes prior to the next phase of construction.

(MCLEOD): Blank.

STAGE 2

Doc ID	0437
Title	MP00163
Author	HEADLEY, GEORGE
Document Date	1998/06/24
Task List	173
Themes	DAM SAFETY OBSERVATIONS, QUESTIONABLE MATERIALS, STAGE 2

AUTHOR: HEADLEY, George, MEM

TITLE: Report of Geotechnical Inspector - June 4, 1998

SUMMARY: TSF geotech inpsection after 2A construction

(CASEY): Minor cracking noted along ME, 100 m long x 5 m wide, due to tailings consolidation settlement

(SEIDALINOVA): Minor tension cracking was observed over a 100 m long by 5 m wide segment along the upstream crest side. Settlement of fine tailings between spigotting locations caused the cracking. KP stated that there would be no effect on core stability or permeability performance

(MCLEOD): Blank.

REPORT EXCERPT:
Report Date: June 4, 1998
Inspection date: June 11, 1998
Author: G Headley
This inspection confirmed as built conditions of Stage 2A 1998 construction. The dam crest, upstream face, downstream face and toe, foundation drain sump, seepage collection pond, perimeter embankment and a foundation relief well installation were inspected. The construction standard was high with good attention to detail and housekeeping. Minor tension cracking was observed over a 100m long by 5m wide segment along the upstream crest side. Settlement of fine tailings between spigotting locations caused the cracking. Knight and Piesold stated that there would be no effect on core stability or permeability performance. Logs and woody debris shall be excluded from beach area within the footprint of the dam.
* * *

Doc ID	0474
Title	MP00101
Author	MPMC
Document Date	1998/03/27
Task List	173
Themes	DAM ELEVATION, STAGE 2

AUTHOR: MPMC, PARSONS, Don

TITLE: Construction Approval Request for Tailings Dam Works

DESCRIPTION: Letter of application for approval of Stage 2 dam raise.

SUMMARY: Application to MEM to construct the TSF to 940 m (Stage 2a, 2b, 2c)

(CASEY): Blank.

(SEIDALINOVA): Nothing useful

(MCLEOD): Blank.

STAGE 2

Doc ID	0478
Title	MP00105
Author	MPMC
Document Date	1998/09/25
Task List	173
Themes	DAM ELEVATION, STAGE 2

AUTHOR: MPMC LENEVE, ERIC

TITLE: Mount Polley Stage 2B TSF 936-937 Elevation Embankment Raise Construction

DESCRIPTION: Company request for permission for Stage 2B dam raise.

SUMMARY: Letter informing ministry on proposed interim raise.

(CASEY): MPMC proposes to build a 1 m cap (936 - 937) instead of full riase from 936 m to 939 m due to concerns over winter weather.

(SEIDALINOVA): Reduced copies of drawings with permit to start stage 2.

(MCLEOD): Blank.

Doc ID	0572
Title	MP00008
Author	KNIGHT PIESOLD
Document Date	1997/12/02
Task List	174
Themes	CONSTRUCTION - TSF, DESIGN, INSTRUMENTATION, STAGE 1, STAGE 2, WATER BALANCE

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, Report on ON-going Construction Requirements (Ref. No. 10162/9-3).

DESCRIPTION: Contains design summary, stability analyses and on-going construction requirements.

SUMMARY: Brief overview of Stage 1A/1B construction and some updates to design basis. Outlines the Stage 2 construction compaign.

(CASEY): Blank.

(SEIDALINOVA): Stage 2. Mentioned about placement of type 1 geotextile filter fabric on the tailings beach at the main embankment, placement of the coarse bearing layer on the geotextile filter fabric during Stage 2A (p. 52). Design basis and operating criteria; monthly water balance and precipitation conditions; results of stability analyses; grain size distributions; drawings; instrumentation; selected papers that were used during the design.

(MCLEOD): McE - M6.5, pg=0.13g; CDA consequences "LOW" and Closure "HIGH"; GL/GF thickens towards the west; Flood design: 24 hr PMP + 1 m. Proposed crest elev. 965 m. Seepage flux estimates; Modified centerline incorrectly compared to centerline; upstream drainage system installed. Pipes through dam in dense foundation till; piezometers in fill showed pore pressure response; foundation response 2 to 3 m; 98% SPD: filter zone 2" minus -< 10% fines; emphasizes benefit ? of modified centerline.

STAGE 2

Doc ID	0574
Title	MP00011
Author	KNIGHT PIESOLD
Document Date	1998/06/26
Task List	174
Themes	DAM SAFETY OBSERVATIONS, INSTRUMENTATION, MAIN EMBANKMENT, STAGE 2

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, 1998 Annual Inspection Report

DESCRIPTION: 1998 annual inspection by KP.

SUMMARY: Site inspection carried out at the end of Stage 2A raise (El. 936m.)

(CASEY):
- Lack of breach development at the ME resulted in deposition of woody debris on the u/s face of the dam. Excess pore pressures developing in ME foundation near right abutment - pressure relief trenches and wells installed
-Fill VWPs in the ME responding to fill placement
- They note that the dense till fill will be dialative in shear-triaxial tests on compacted till suggests otherwise
- Stability analyses indicated FoS > 1.3 for operations case.
- Water balance being managed by Mt Polley staff.

(SEIDALINOVA): Observations made at the TSF: "small (less that 50mm wide) tension cracks had developed in isolated areas along the upstream portion of the Main Emb., Especially from Ch. 22+20 to Ch. 22+70. There was no appreciable vertical displacement across the cracks. The cracks were likely caused by differential settlement of finer tailings deposited between spigots. The crocks are of little significance to the design and performance of the embankment and have been infilled with fine grained material to prevent water from infiltrating the embankment fill; a significant amount of wood debris accumulated along the face of the Main Emb. This debris will be covered by tailings after deposition from the embankment recommences and could decompose over time, causing differential settlement and cracking in fill materials placed above the tailings." (p.13) "Artesian pore pressures near the right abutment of the main embankment from glaciofluvial/glaciolacustrine sediments have been identified. (p.17) The foundation pp increased by up to 4 m in some piezometers (Plane C) at the right abutment of the Main Emb. The pp probably increasing due to seepage caused by the accreting tailings ponds." Summary of piezometric readings; comparison of pre-construction to current pore pressures (1998 June 16); drawings; photos.

(MCLEOD): Updated design of TSF.

STAGE 2

Doc ID	0575
Title	MP00012
Author	KNIGHT PIESOLD
Document Date	1999/06/16
Task List	174
Themes	GLU GLACIOLACUSTRINE CLAYS, INSTRUMENTATION, QUESTIONABLE MATERIALS, STAGE 2

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, Report on 1998 Construction and Annual Inspection (Ref. No. 11162/10-1)

DESCRIPTION: 1998 construction and annual inspection by KP

SUMMARY:
- Report on 1998 construction and the 1998 annual inspection
- 1998 construction included Stage 2a and 2b raises. Total raise 934m to 937m.
- Raise as originally planned to 938 m was not required. 2C raise to 940 m

(CASEY): - See detailed review comments.

(SEIDALINOVA): Stage 2A/2B construction. Laboratory tests: moisture content, particle size distribution, specific gravity, atteberg limits, field density, triaxial compression (zone S). Minor amount of wood debris along the face of the Main Embankment where the tailings pond is in contact with the embankment. The Main emb. outlet drains continued to seep. Flows were about 1 l/min in OD-1 and about 0.5 l/min in OD-2 and OD-3. Artesian pressures were were developed at the top of the glaciolacustrine/glaciofluvial material (p. 36) (Appendix G2). The settlement (movement in the verticle direction) ranges from 0 (TH 54) to -0.174 mm (TH50). (p.41) (Table 3.7). The main emb. outlet drains continue to seep slightly and should be monitored regularly. Springs at the existing basin liner need to be sealed off or connected to the upstream toe drains planned for future construction program (p.60). TSF 1998 piezometer installation, monitoring data, summary of found. drain flows., records of displacement, density and compaction historgrams, drawings. Summary of basin liner insvestigation 1998, 1999 (GLU, w.c., gsd). CU TX test results for R/ZS-12 (remoulded samples), photos.

(MCLEOD) Zone B till upstream and downstream of core. Tailings density 1.35 t/m3.

STAGE 2

Doc ID	0576
Title	MP00013
Author	KNIGHT PIESOLD
Document Date	1999/06/16
Task List	174
Themes	CRITICAL THINKING, DESIGN, INSTRUMENTATION, SAND CELLS, STAGE 2

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, Evaluation of Cycloned Tailings for Embankment Construction (Ref. No. 11162/11-1).

DESCRIPTION: Application for cyclone sand.

SUMMARY: Prelim evaluation of the use of cycloned sand to construct TSF embankments

(CASEY):
- Trial carried out at PE suggests appropriate underflow sand can be produced.
- Preferred option chosen by KP were upstream and downstream cyc sand zones with a till core between
- Outlines the requirement for Stage 2C upstream cyc sand berm.

(SEIDALINOVA): Stage 2C. Results from survey monument data indicate that horizontal movements were along the axis of the embankment and that these displacements ranged from 3 to 33 mm. Vertical displacements reached a maximum value of 25 mm (p.43, Table 4.2) Discuss advantages of using cycloned sands for in construction of tailings embankments (preffered option - uses cycloned sand zones both upstream and downstream of an embankment core zone). Summary of gradations, settlements, permeability, evaluation of underflow split using particle size analyses, embankment crest survey monuments - record of displacewments, psd of feed, overflow and underflow samples, drawings, instrumentation, lab results (permeability, consolidation, triaxial shear on cyclone sand), photos.

(MCLEOD): Design report for going to a cyclone sand dam; Went to centerline construction. Carried out cyclone trials. L24.

Doc ID	0613
Title	MP00078
Author	KNIGHT PIESOLD
Document Date	1998/12/11
Task List	174
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 2

AUTHOR: Knight Piesold

TITLE: Weekly construction Monitoring Reports from January 7, 1998 to December 7, 1998.

DESCRIPTION: Weekly construction monitoring reports January 7, 1998 to December 7, 1998

SUMMARY: Weekly construction reports with QA/QC testing data.

(CASEY): Not reviewed in detail

(SEIDALINOVA): Detailed instrumentation, grain size curves, construction report. Stage 2B.

(MCLEOD): Blank

STAGE 2

Doc ID	0614
Title	MP00079
Author	KNIGHT PIESOLD
Document Date	2000/03/08
Task List	174
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 2

AUTHOR: Knight Piesold

TITLE: Weekly construction Monitoring Reports from August 16, 1999 to March 6, 2000

DESCRIPTION: Weekly construction monitoring reports August 16, 1999 to March 6, 2000

SUMMARY: Weekly construction reports with QA/QC testing data.

(CASEY): Not reviewed in detail

(SEIDALINOVA): Stage 2C. Construction progress report, detailed instrumentation, drawings, concrete test report.

(MCLEOD): Blank.

Doc ID	0626
Title	MP00152
Author	KNIGHT PIESOLD
Document Date	1998/06/03
Task List	174
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 2

AUTHOR: Knight Piesold

TITLE: Annual TP Report 1998

DESCRIPTION: Excerpt from annual TP Report 1998.

SUMMARY: 2 page excerpt from Stage 2A as-built report.

(CASEY): Blank.

(SEIDALINOVA): comments about piezometer readings during fill placement during Stage 2A. Embankment fill piezometers responded quickly to the placement of fill materials. The high pore pressures were slowly dissipating, showing the low permeability in the fill materials. Brief comments about drain flows, survey monuments, inclinometers.

(MCLEOD): Blank.

Doc ID	0662
Title	MP00114
Author	MPMC
Document Date	1999/12/22
Task List	173
Themes	CONSTRUCTION - TSF, STAGE 2

AUTHOR: MPMC (PARSONS, Don).

TITLE: Mt. Polley Tailings Storage Faciliyt - Interim Approval to Construction Stage 2C to Elev. 941 m .

SUMMARY: letter from MPMC requesting interim approval to raise TSF to 941 m, 1 m above permitted crest El. of 940 m

(CASEY): Blank

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

STAGE 2

STAGE 4

Doc ID	0465
Title	MP00030
Author	MPMC
Document Date	2006/08/28
Task List	173
Themes	OMS, STAGE 4, STAGE 5

AUTHOR: MPMC

TITLE: Mount Polley Mining Corporation Mount Polley Mine Tailings Storage Facility, Operation, Maintenance and Surveillance Manual

SUMMARY:
- OMS manual prepared by MPMC

(CASEY):
- Point presentation by KP in Manual shows that Zone C can be placed temporarily for the Stage 5 raise at angle of repose.

(SEIDALINOVA): Blank.

(MCLEOD): Prepared by MPMC. Emergency procedures if freeboard < 1.39 m Trigger levels for piezometers and inclinometers. Stage 4 Sand Cell Construction

Doc ID	0511
Title	MP00180
Author	FISCH, TIM
Document Date	2008/07/08
Task List	173
Themes	CONSTRUCTION - TSF, STAGE 4, STAGE 6

AUTHOR: FISCH, Tim

TITLE: Your review of the 2007 Annual Inspection by KP - Response

DESCRIPTION: Response to MEM review of 2007 Annual Dam Safety Inspection

SUMMARY: MPMC response to above report.

(CASEY): Action plan was executed to deal with tailings line rupture. KP letter attached outlining instrumentation installation requirements during Stage 6 construction.

(SEIDALINOVA): KP says that 22 foundation piezometers at the Main Embankment were damaged during the Stage 4 construction program. Only 9 piezometers were functioning at that time. Artesian conditions were present in three of the nine foundation piezometers installed under the Main Embankment. No unexpected pore pressure increases observed. Planning to install additional piezometers in the tailings mass, fill materials, foundation and drain materials during the St 6 construction program

(MCLEOD): Blank.

STAGE 4

Doc ID	0584
Title	MP00026
Author	KNIGHT PIESOLD
Document Date	2005/05/14
Task List	174
Themes	BUTTRESS, CRITICAL THINKING, DAM ELEVATION, DESIGN, STAGE 4

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine, Design of the Tailings Storage Facility to Ultimate Elevation (Ref. No. VA101-001-08-1)

DESCRIPTION: Application Design Stage 4; raising the dam to cres El. 965 m.

SUMMARY: Design of TSF to ultimate eleation of 965 m

(CASEY):
- See detailed review comments

(SEIDALINOVA): Blank

(MCLEOD): Design for 84 Mt @ 1.36 t/m3; Up to El. 965 m; Modified upstream method; Buttress for main dam required at closure. Dam Classification Significant (based on $1M).

Doc ID	0586
Title	MP00031
Author	KNIGHT PIESOLD
Document Date	2015/02/17
Task List	174
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 4

AUTHOR: Knight Piesold

TITLE: Mount Polley mining corporation Mount Polley Mine Tailings Storage Facility, Report on Stage 4 Construction (Ref. No. VA101-1/10-1).

DESCRIPTION: Report on Stage 4 dam raising construction report including borehole logs for installed inclonometers.

SUMMARY:
- Stage 4 as-built report

(CASEY):
- See detailed review comments

(SEIDALINOVA): Blank.

(MCLEOD): Blank.

STAGE 4

Doc ID	0611
Title	MP00076
Author	KNIGHT PIESOLD
Document Date	2006/05/03
Task List	174
Themes	INSTRUMENTATION, MINING OPERATIONS - GENERAL , STAGE 4

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation, Mount Polley Mine, Tailings Storage Facility Report on 2005 Annual Inspection (Ref. No. VA101-01/11-1).

DESCRIPTION: 2005 annual dam safety inspection.

SUMMARY: Blank.

(CASEY): See detailed notes

(SEIDALINOVA): No readings from piezometers from Sep 22, 2005 to Apr 30, 2006 (damaged cable). No geotechnical issues outstanding, Stage 4. Detailed drawings, airphotos, photos, instrumentation. Dam safety guideline.

(MCLEOD): Blank.

STAGE 5

Doc ID	0418
Title	MP00029
Author	ROSE, NICK
Document Date	2007/07/31
Task List	173
Themes	CONSTRUCTION - TSF, DAM ELEVATION, INSTRUMENTATION, OMS, STAGE 5

AUTHOR: ROSE, Nick

TITLE: Ministry of Energy, Mines and Petroleum Resources, Mt. Polley Mine, N. Rose Geotechnical Inspection of Open Pit, Waste Dumps and tailings Dams, Field Notes and Photos

SUMMARY:
- Inspection report by Nick Rose of Piteau (contracted to MEM)

(CASEY):
- Notes that inclinometer probe not being used to monitor SI's below the ME

(SEIDALINOVA): Blank

(MCLEOD): Blank.

REPORT EXCERPT:
7/31/2007
Geotechnical Inspection #14355
Nich Rose, P. Eng.
Inspector of Mines, Geotechnical
An inspection of the tailings storage facility (TSF) was carried out in the company of Ron Martel and Bruce Milligan. A meeting to summarize the results of the inspection was held on the afternoon of July 31 (Tim Fisch, Art Frye, Dayle Rusk, Ron Martel and Bruce Milligan in attendance).
Tailings Storage Facility
Construction of the Stage 5 dam raise was in progress on the Perimeter and South embankments. The pond elevation was at 947.09m on July 28, 2007. On the Main Embankment, dam construction had reached the 950m elevation. No geotechnical concerns were identified with respect to the TSF.
Monitoring of piezometers, slope inclinometers and survey monuments shall be carried out in accordance with the OMS manual or as specified by the design consultant.

Response from Mount Polley Mining Corporation
Re: Geotechnical Inspection, 7/31/2007
From Tim Fisch, General Manager
Monitoring is being carried out in accordance with the OMS manual.
* * *

STAGE 5

Doc ID	0448
Title	MP00177
Author	ROSE, NICK
Document Date	2007/09/13
Task List	173
Themes	STAGE 5

AUTHOR: ROSE, Nick

TITLE: Mine Inspection Tuesday, July 31, 2007
Property: Mount Polley Mine.

SUMMARY: Geotech inspection report during Stage 5 raise.

(CASEY): No concerns.

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

Doc ID	0465
Title	MP00030
Author	MPMC
Document Date	2006/08/28
Task List	173
Themes	OMS, STAGE 4, STAGE 5

AUTHOR: MPMC

TITLE: Mount Polley Mining Corporation Mount Polley Mine Tailings Storage Facility, Operation, Maintenance and Surveillance Manual

SUMMARY:
- OMS manual prepared by MPMC

(CASEY):
- Point presentation by KP in Manual shows that Zone C can be placed temporarily for the Stage 5 raise at angle of repose.

(SEIDALINOVA): Blank.

(MCLEOD): Prepared by MPMC. Emergency procedures if freeboard < 1.39 m Trigger levels for piezometers and inclinometers. Stage 4 Sand Cell Construction

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STAGE 5

Doc ID	0503
Title	MP00146
Author	ROSE, NICK
Document Date	2006/06/26
Task List	173
Themes	INSTRUMENTATION, PERMIT CONDITION, STAGE 5

AUTHOR: ROSE, Nick

TITLE: Mt. Polley Permit Conditions for TSF Stage 5 Construction (draft attached)

DESCRIPTION: Government review notes and draft permit conditions for Stage 5 design of TSF

SUMMARY: Comments on KP permit amendment application for Stage 5

(CASEY):
- Noted that no VWP data was collected Sep 22, 2005 to April, 2006 due to malfunctioning readout box and destruction of VWP cables
- Noted that inclos were being read using poor buy probe, not a real inclo probe

(SEIDALINOVA): Nothing Useful

(MCLEOD): Blank.

Doc ID	0504
Title	MP00147
Author	CARR, CHRIS
Document Date	2006/07/26
Task List	173
Themes	PERMIT CONDITION, STAGE 5

AUTHOR: CARR, Chris

TITLE: Mount Polley permit amendment - Tailings Storage Facility (draft attached)

DESCRIPTION: Draft permit conditions for mines act permit preparation for stage 5

SUMMARY: Passing on Stage 5 permit conditions internally

(CASEY): Blank.

(SEIDALINOVA): Nothing useful

(MCLEOD): Blank.

STAGE 5

Doc ID	0585
Title	MP00027
Author	KNIGHT PIESOLD
Document Date	2006/06/12
Task List	174
Themes	DAM ELEVATION, DESIGN, STAGE 5

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine, Stage 5 Design of the Tailings Storage Facility (Ref. No. VA101-01/12-1).

DESCRIPTION: Application design Stage 5.

SUMMARY:
- Detailed design documents to permit raise from 948 m to 951 m (Stage 5 construction)

(CASEY):
- See detailed review comments

(SEIDALINOVA): Blank.

(MCLEOD): Blank.

Doc ID	0588
Title	MP00033
Author	KNIGHT PIESOLD
Document Date	2008/05/27
Task List	174
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 5

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine Tailings Storage Facility, Report on Stage 5 Construction (Ref. No. VA101-1/14-1).

DESCRIPTION: Report on Stage 5 Construction.

SUMMARY:
- Stage 5 as-built report

(CASEY): See detailed review comments

(SEIDALINOVA): Blank.

(MCLEOD): 63 operating piezometers; Zone U is random fill and sand cells; Zone F 2% to 10% fines; 25% tests on coarse side - described due to sampling in pit not the dam; Foundation piez. Up to 3 m artesian pressure; steel pipe used in Perimeter core crossing drain; Construction near north end of Perimeter Dam; upstream toe drain at elev. 946.3 (DWG 225); placement of Zone C in 3 m lift (photo 50).

STAGE 5

Doc ID	0612
Title	MP00077
Author	KNIGHT PIESOLD
Document Date	2007/12/19
Task List	174
Themes	DESIGN, INSTRUMENTATION, MINING OPERATIONS - GENERAL , STAGE 5, WATER BALANCE

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation, Mount Polley Mine, tailings Storage Facility Report on 2007 Annual Inspection (Ref. No. VA101-01/11-1)

DESCRIPTION: 2007 annual dam safety inspection.

SUMMARY: Blank.

(CASEY): See detailed notes

(SEIDALINOVA): Knight Piesold recommended to MPMC to increase frequency of measurements for embankment instrumentation system, develop a plan to enable the minimum target beach width. Requirement to reinstate minimum beach requirements along a section of the main embankment (increased flows in the main embankment upstream toe drain). Drawings, instrumentation, photos, Stage 5).

(MCLEOD): Blank.

STAGE 6

Doc ID	0415
Title	MP10034
Author	KNIGHT PIESOLD
Document Date	2014/12/18
Task List	168, 174
Themes	DESIGN, INSTRUMENTATION, STAGE 6

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining corporation Mount Polley Mine, Tailings Storage facility report on 2009 Annual Inspection.

SUMMARY: 2009 DSI

(CASEY): See detailed notes

(SEIDALINOVA): Stage 6A. Drawings, maximum artesian head values for embankment foundation piezometers, foundation drain flows, upstream toe drain flows, instrumentation, photographs. "inclinometer SI01-02 showed slight deviations at an approximate depth of 10 m below ground in the lacustrine silts. This is being closely monitored by MPMS who have increased the monitoring frequency of the inclinometers to weekly. MPMS has also expanded the buttress at the Main Embankment as a result of the measured displacements in SI01-01" (p.17).

(MCLEOD): Blank.

Doc ID	0508
Title	MP00151
Author	CARR, CHRIS
Document Date	2008/01/08
Task List	173
Themes	DAM ELEVATION, DESIGN, GLU GLACIOLACUSTRINE CLAYS, INSTRUMENTATION, STAGE 6

AUTHOR: CARR, Chris

TITLE: Mount Polley TSF Stage 6 Permit

DESCRIPTION: Email with draft geotechnical permit conditions for Stage 6 design amendment

SUMMARY: MEM suggesting that the Stage 6 raise permit be issued

(CASEY):
- See Ainur's comments
- MEM states that KP's responses to the posed questions were adequate.
- Were the direct shear testing results provided to MEM?

(SEIDALINOVA): Request by Geotechnical Mines Inspector to provide the following information: cross-sections showing stablity analyses for dam raise to elevation 958; slope inclinometer depth vs. cumulative displacement plots showing cumulative displacement from date of installation; results of direct shear testing on lacustrine soils, if these tests have been completed.

(MCLEOD):

STAGE 6

Doc ID	0511
Title	MP00180
Author	FISCH, TIM
Document Date	2008/07/08
Task List	173
Themes	CONSTRUCTION - TSF, STAGE 4, STAGE 6

AUTHOR: FISCH, Tim

TITLE: Your review of the 2007 Annual Inspection by KP - Response

DESCRIPTION: Response to MEM review of 2007 Annual Dam Safety Inspection

SUMMARY: MPMC response to above report.

(CASEY): Action plan was executed to deal with tailings line rupture. KP letter attached outlining instrumentation installation requirements during Stage 6 construction.

(SEIDALINOVA): KP says that 22 foundation piezometers at the Main Embankment were damaged during the Stage 4 construction program. Only 9 piezometers were functioning at that time. Artesian conditions were present in three of the nine foundation piezometers installed under the Main Embankment. No unexpected pore pressure increases observed. Planning to install additional piezometers in the tailings mass, fill materials, foundation and drain materials during the St 6 construction program

(MCLEOD): Blank.

Doc ID	0535
Title	MP00207
Author	MPMC
Document Date	2010/03/30
Task List	173
Themes	OMS, STAGE 6

AUTHOR: MPMC

TITLE: Mount Polley Mine Tailings Storage Facility Operation, Maintenance and Surveillance Manual.

DESCRIPTION: 2010 OMS Manual

SUMMARY: OMS prepared by MPMC.

(CASEY): Blank.

(SEIDALINOVA): Figures: TSF Bathymetric Survey, groundwater monitoring well locations, inspection log, instrumentation data sheet, as-built drawings Stage 6, selected photos.

(MCLEOD): Blank.

STAGE 6

Doc ID	0543
Title	MP00222
Author	CARR, CHRIS
Document Date	2007/12/10
Task List	173
Themes	DAM ELEVATION, INSTRUMENTATION, SLOPE, STAGE 6

AUTHOR: CARR, Chris

TITLE: Mount Polley TSF Stage 6 Permit

DESCRIPTION: Request for cross sections of stability analyses for dam raise to 958 m, slope inclinometer data and results of shear testing on lacustrine soils.

SUMMARY: Blank.

(CASEY): See AS comments.

(SEIDALINOVA): Request to provide the following information: cross-sections showing stability analyses for dam raise to elevation 958 m; slope inclinometer depth vs cumulative displacement plots showing cumulative displacement from data of installation; results of direct shear testing on lacustrine soils, if these test have been completed.

(MCLEOD): Blank.

Doc ID	0546
Title	MP00226
Author	MARTEL, RON
Document Date	2007/07/04
Task List	173
Themes	DAM ELEVATION, DESIGN, STAGE 6

AUTHOR: MARTEL, Ron

TITLE: Stage 6 Design Report for the Tailings Storage Facility - Mount Polley Mine

DESCRIPTION: Cover letter of application for Stage 6 dam raise.

SUMMARY: Covering letter for Stage 6 design report submission

(SEIDALINOVA): Nothing useful.

Doc ID	0558
Title	MP00241
Author	CARR, CHRIS
Document Date	2008/04/22
Task List	173
Themes	CRITICAL THINKING, QUESTIONABLE MATERIALS, STAGE 6

AUTHOR: CARR, Chris

TITLE: Tailings Storage Facility, 2007 Annual Inspection

DESCRIPTION: Ministry review of 2007 Annual inspection by Knight Piesold.

SUMMARY: Same as MP00179.

(CASEY): Blank.

(SEIDALINOVA): Comment about tailings pipeline rupture and release of tailings that occurred on Oct 23, 2007. Request to confirm that the condition of the tailings pipeline has been checked and tests completed to ensure that the pipeline meets operating requirements. Note about installing additional piezometers during Stage 6 to replace damaged or destroyed instrumentation on the dam embankments.

(MCLEOD): Blank.

STAGE 6

Doc ID	0587
Title	MP00032
Author	KNIGHT PIESOLD
Document Date	2007/06/18
Task List	174
Themes	DAM ELEVATION, DESIGN, FACTOR OF SAFETY, INSTRUMENTATION, SLOPE, STAGE 6

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining corporation Mount Polley Mine Tailings Storage Facility, Stage 6 Design of the Tailings Storage Facility.

DESCRIPTION: Application design for Stage 6; design to crest El. 958m and responses to the AMEC (2006) dam safety review (DSR).

SUMMARY:
- Stage 6 design documents

(CASEY):
- See detailed review comments

(SEIDALINOVA): Blank.

(MCLEOD): Indicated mine plans revised up to 100 Mt, and TSF to 970 m; trigger level for piezometers on Main Dam if FoS reduces to 1.1; MDE 0.096g Has a berm, and 1.3:1 slope on Main Embankment section, Perimeter Embankment at 2H:1V

Doc ID	0589
Title	MP00034
Author	KNIGHT PIESOLD
Document Date	2009/07/10
Task List	174
Themes	BUTTRESS, CONSTRUCTION - TSF, CRITICAL THINKING, GLU GLACIOLACUSTRINE CLAYS, INSTRUMENTATION, STAGE 6

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine Tailings Storage facility, Report on Stage 6A Construction (Ref. No. VA101-1/23-1).

DESCRIPTION: Report on Stage 6A construction.

SUMMARY:
- Stage 6A as-built report

(CASEY):
- See detailed review comments

(SEIDALINOVA): Blank.

(MCLEOD): SI101-02 in main embankment showed movement at 10 m in GL (2 mm) - placed buttress. Drilling program in May 2008 - 11 holes; GL at west end of pit variable thickness and depth; Till SPT 40-60; Piezometer D2-PE-02 in foundation till indicated some pore pressure response due to fill placement ("ru=0.2); Zone C lifts kept to < 2 m (Photo 22); Zone F placed on slope (fine) and Zone T (coarse); Zone F 3% to 12% fines - few tests out of spec;

STAGE 6

Doc ID	0591
Title	MP00036
Author	KNIGHT PIESOLD
Document Date	2011/01/25
Task List	174
Themes	BUTTRESS, CONSTRUCTION - TSF, STAGE 6

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine Tailings Storage Facility, Report on Stage 6B Construction (Ref. No. VA101-).

DESCRIPTION: Report on Stage 6B construction.

SUMMARY:
- Stage 6B as built report

(CASEY):
- See detailed review comments

(SEIDALINOVA): Blank.

(MCLEOD): Zone C on Main Dam at 1.4:1 with buttress; Zone F < 10% fines and 10% out of spec on coarse size; artesian up to 2.7 m; Recommend stability analysis of Main Dam be carried out for future raises.

Doc ID	0627
Title	MP00153
Author	BROUWER, KEN
Document Date	2011/02/10
Task List	174
Themes	ACCOUNTABILITY, CRITICAL THINKING, STAGE 6

AUTHOR: BROUWER, Ken

TITLE: Mount Polley Tailings Storage Facility Engineer of Record.

DESCRIPTION: Notification by KP of handover of Engineer of Record. KP engineer of record up to and including completion of Stage 6B.

SUMMARY: KP formally states that they will no longer by EoR for the TSF

(CASEY): Blank.

(SEIDALINOVA): Knight Piesold states that they are no longer responsible for any aspects of the on-going operations, or any modifications to the facilities that are undertaken from 10-Feb-2011. KP mentioned that tailings impoundment are getting large and it is extremely important that they are monitored, constructed and operated properly to prevent problems in the future.

(MCLEOD): Blank.

STAGE 6

Doc ID	0629
Title	MP00225
Author	KNIGHT PIESOLD
Document Date	2007/12/19
Task List	174
Themes	DESIGN, FACTOR OF SAFETY, GLU GLACIOLACUSTRINE CLAYS, INSTRUMENTATION, STAGE 6

AUTHOR: Knight Piesold

TITLE: Mount Polley Stage 6 TSF design.

DESCRIPTION: Response to MEM request for additional information and analysis to support stage 6 dam raise.

SUMMARY: KP response to questions posed by MEM about the Stage 6 design

(CASEY): GLU strength: two brass tube samples collected in test pit downstream of ME adjacent to ME SCP at 2.5 to 3.0 m depth, Direct shear at 400, 800, 1600 kPa ,avg. peak friction angle of 23 degrees, avg. angle at 20% strain was 22 degrees
- Friction angle of 24 degrees was used in the stability model based on the Stark and Eid relationship
- Senstivity analysis showed that with phi=21 degrees FoS = 1.35; FoS = 1.1 with phi=15 degress
- Additional analysis carried out with undrained strength ratios of 0.25 to 0.3 in GLU, FoS = 1.1 with Su/sigma = 0.25

(SEIDALINOVA): Comment from the Ministry of Mines: "that AMEC has interpreted Table 6-2 from Dam Safety Guidelines somewhat differently thanI have seen in the past. This table recommends a minimum factor of safety of 1.3 at the end of construction and "before reservoir filling" and a factor of safety of 1.5 at the "normal reservoir level." AMEC has interpreted the construction period as the entire pre-closure period, and this is open to debate."

(MCLEOD): Laboratory strength testing of the GLU at the Main Dam gave friction angles of 21 to 25 degrees. Factor of safety of Main Embankment with 21 degrees is 1.35. Dam would be stable down to a friction angle of 15 degrees.

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Investigative Theme Documents

STAGE 8

Doc ID	0441
Title	MP00169
Author	CULLEN, MICHAEL
Document Date	2012/10/03
Task List	173
Themes	STAGE 8

AUTHOR: CULLEN, Michael, MEM

TITLE: Report of Geotechnical Inspector Date of Inspection - September 24, 2012

SUMMARY: External review commissioned by MEM, report on findings, Stage 8 raise underway.

(CASEY): No concerns.

(SEIDALINOVA): General observations and comments about C2, Boundary zone pits and TSF. Phoots. Stage 8.

(MCLEOD): Blank.

Doc ID	0542
Title	MP00221
Author	WARNOCK, GEORGE
Document Date	2012/06/27
Task List	173
Themes	DESIGN, FACTOR OF SAFETY, STAGE 8

AUTHOR: WARNOCK, George

TITLE: Mount Polley Mine - 2012 Tailings Construction

DESCRIPTION: MEM review of Stage 8 and draft permit conditions.

SUMMARY: MEM initial internal comments on Stage 8 design

(CASEY): Calculated FoS are acceptable. D/s slope of 2H:1V is the design. Essentially happy with the content of the design.

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

Doc ID	0544
Title	MP00223
Author	WARNOCK, GEORGE
Document Date	2007/12/10
Task List	173
Themes	CONSTRUCTION - TSF, CRITICAL THINKING, PERMIT CONDITION, STAGE 8

AUTHOR: CARR, Chris & WARNOCK, George

TITLE: Mount Polley Mine - 2012 Tailings Construction [Additional Raise]

DESCRIPTION: MEM review of Stage 8A and draft permit conditions.

SUMMARY: Internal email from MEM. G.Warnock having reviewed the revised Stage 8 crest elevation design report. MEM review of Stage 8A and draft permit conditions.

(CASEY): George seens no geotechnical concerns with the increased raise - mentions that knowledgeable Todd Martin has reviewed. Does mention that the FOS would not have been achieved for subsequent raises if the modified centerline raises had continued.

STAGE 8

Doc ID	0545	AUTHOR: WARNOCK, George
Title	MP00224	TITLE: Mount Polley Mine - 2012 Tailings Construction [Additional Raise]
Author	WARNOCK, GEORGE	DESCRIPTION: MEM discussions with compnay re Stage 8A dam raise
Document Date	2012/09/19	SUMMARY: Blank
Task List	173	(CASEY): Blank
Themes	ACCOUNTABILITY, CONSTRUCTION - TSF, CRITICAL THINKING, DAM ELEVATION, STAGE 8	(SEIDALINOVA): Comment from the Ministry of Mines: "that AMEC has interpreted Table 6-2 from Dam Safety Guidelines somewhat differently than I have seen in the past. This table recommends a minimum factor of safety of 1.3 at the end of construction and "before reservoir filling" and a factor of safety of 1.5 at the "normal reservoir level." AMEC has interpreted the construction period as the entire pre-closure period, and this is open to debate."
		(MCLEOD): Blank.

Doc ID	0642	AUTHOR: AMEC
Title	MP00040	TITLE: Mount Polley Mines, Tailing Storage Facility Stage 8, 2012 Construction Monitoring Manual
Author	AMEC	SUMMARY: Stage 8 design report including stability analysis and roles and responsibilities
Document Date	2012/03/30	(CASEY): See detailed review comments.
Task List	173	(SEIDALINOVA): Blank.
Themes	CONSTRUCTION - TSF, STAGE 8	(MCLEOD): Prepare abutments to El. 970 m (ultimate dam). MPMC assumed responsibility for all day to day work on the dam, having hired engineers and inspectors; Luke Moger designated as "oversee the overall construction monitoring" Organization Chart Figure 2.1; AMEC to be involved enough to be comfortable with "sign off" for annual inspection reports and as-built stages.{NOTE: AMEC DID NOT INCORPORATE DRILL HOLE NEAR 4+400 INTO THEIR DESIGN AND STABILITY CONSIDERATION}

STAGE 8

Doc ID	0672
Title	MP00217
Author	AMEC
Document Date	2013/03/27
Task List	173
Themes	DESIGN, STAGE 8

AUTHOR:AMEC

TITLE: Mount Polley Mine Tailings Storage Facility Stage 8/8A 2012 As-Built Report

SUMMARY: 2012 As-Built

(CASEY): See detailed comments.

(SEIDALINOVA): The design of the Stage 8 raise has not changed from the previously approved and constructed Stage 7 raise. The design of The Stage 8A raise included the modification from the modified (upstream) centerline design to a centerline design above El. 963.5m (drawings 2012AB.02-2012AB.06). In late 2012, reading from inclinometer located downstream of the Perimeter embankment (SI11-04) showed compression failure deformation consistent with settlement at depths from ground surface to 15 m below ground surface. Drawings, photos, summary of lab results.

(MCLEOD): Blank.

STAGE 9

Doc ID	0393
Title	MP10036
Author	AMEC
Document Date	2013/06/13
Task List	168
Themes	CONSTRUCTION - TSF, STAGE 9

AUTHOR: Laura WIEBE FIDEL, AMEC to Luke MOGER, MPMC

TITLE:
Mount Polley Tailings Storage Facility, Stage 9 2013 Construction Monitoring Manual Clarification (Zone S Compaction Specifications)

SUMMARY:
Letter reiterating the compaction requirements in Zone S

(CASEY): Blank

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

Doc ID	0403
Title	MP10015
Author	AMEC
Document Date	2014/08/20
Task List	168
Themes	DESIGN, INSTRUMENTATION, SLOPE, STAGE 9

AUTHOR: AMEC

TITLE: Provided by Mt. Polley post breach.

SUMMARY: IFC drawings to 970 m.

(CASEY): 1.3H:1V slopes specified for raise.

(SEIDALINOVA): Stage 9 drawings.

(MCLEOD): Blank.

Doc ID	0404
Title	MP10016
Author	MPMC
Document Date	2014/08/20
Task List	168
Themes	ACCOUNTABILITY, OVERSIGHT OPERATIONAL, STAGE 9

AUTHOR: MPMC

TITLE: Stage 9 AMEC Site Visits

SUMMARY: Log of AMEC site visits

(CASEY): Short, regular visits by PM and support engineer. No visits by EoR? Except Laura in 2013 for 2 days.

(SEIDALINOVA): Nothing Useful

(MCLEOD): Blank.

STAGE 9

Doc ID	0451
Title	MP00182
Author	CULLEN, MICHAEL
Document Date	2013/09/13
Task List	173
Themes	DAM SAFETY OBSERVATIONS, OMS, STAGE 9

AUTHOR: CULLEN, Michael Energy, Mines & Natural Gas

TITLE: Date of Inspection - September 13, 2013

SUMMARY: Geotech inspection report during Stage 9 raise.

(CASEY): No concerns at TSF.

(SEIDALINOVA): An inspection around the dams revealed no indicators of instability and no significant seepage on the face or toe of the dams. Stage 9. Some photos of the tension crack and slump on south west crest of Wight Pit.

(MCLEOD): Blank.

Doc ID	0512
Title	MP00183
Author	MOGER, LUKE
Document Date	2014/09/14
Task List	173
Themes	CONSTRUCTION - TSF, STAGE 9

AUTHOR: MOGER, Luke, MPMC

TITLE: Mount Polley Mine Tailings Storage Facility Stage 9 2013 As-Built and Annual Review Report

DESCRIPTION: Notification of sending Stage 9 Asbuilt and 2013 Annual Dam Safety Inspection via hightail.com

SUMMARY: MPMC provides MEM with 2013 as-built report.

(CASEY): Blank.

(SEIDALINOVA): Nothing useful

(MCLEOD): Blank.

Doc ID	0513
Title	MP00184
Author	NARYNSKI, HEATHER
Document Date	2014/03/31
Task List	173
Themes	STAGE 9

AUTHOR: NARYNSKI, Heather, MEM

TITLE: Mount Polley Mine Tailings Storage Facility Stage 9 2013 As-Built and Annual Review Report

DESCRIPTION: Acknowledge receipt of Stage 9 Asbuilt and 2013 Annual Dam Safety Inspection and request to address any recommendation made by consultants

SUMMARY: MEM confirming receipt of 2013 as-built report.

(CASEY): Blank.

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

STAGE 9

Doc ID	0515	AUTHOR: MOGER, Luke from MPMC
Title	MP00185	TITLE: 2013 Construction Monitoring Manual and 2012 As-Built and 2012 Annual Review
Author	MPMC	DESCRIPTION: Email chain between government and company regarding 2013 Construction Monitoring Manual (ie. Application for Stage 9 construction) and response to request for 2012 As-Built and 2012 annual Dam Safety Inspection.
Document Date	2013/04/23	SUMMARY: MPMC providing MEM with 2013 Construction Monitoring Manual.
Task List	173	(CASEY): MPMC confirms that Laura Wiebe (AMEC) will retain EoR responsibility sine they are providing QA/QC support. MPMC will be developing a better program for toe drian monitoring.
Themes	ACCOUNTABILITY, CONSTRUCTION - TSF, DESIGN, STAGE 9	(SEIDALINOVA): A comment about about toe drain monitoring in response to a recommendation from the 2013 Annueal Review. The work had commenced on a new sampling design structure. (probably nothing useful).
		(MCLEOD): Blank.

Doc ID	0519	AUTHOR: NARYNSKI, Heather
Title	MP00186	TITLE M-200 Amendment Approving Tailings Storage facility Stage 9 Construction May 2013_draft.
Author	NARYNSKI, HEATHER	DESCRIPTION: Draft permit conditions for Stage 9 dam construction
Document Date	2013/07/30	SUMMARY: MEM internal correspondence regarding Stage 9 construction permit amendment.
Task List	173	(CASEY): Blank.
Themes	ACCOUNTABILITY, CONSTRUCTION - TSF, DESIGN, STAGE 9	(SEIDALINOVA): Comment about dam configuration change including a "toe berm" as well as shift to "center-line" construction. Additional permit condition for an as-built report.
		(MCLEOD): Blank.

STAGE 9

Doc ID	0520
Title	MP00187
Author	MPMC
Document Date	2013/07/31
Task List	173
Themes	CRITICAL THINKING, DAM ELEVATION, DAM SAFETY OBSERVATIONS, FACTOR OF SAFETY, OMS, STAGE 9, WATER BALANCE

AUTHOR: MOGER, Luke at MPMC

TITLE: Mount Polley - Stage 9 Dam Raise Application

DESCRIPTION: Email chain between government re receipt of 2013 OMS Manual and comments on stability analysis for main embankment. Government requests commitment from Mount Polley to move forward increasing factors of safety for the main embankment.

SUMMARY: MEM comments on Stage 9 design package

(CASEY): MEM notes that FoS of 1.3 still being used for the dam design despite previous conversations with MPMC about moving to FoS 1.5 criteria. MEM would l ke MPMC to commit to the 1.5 criteria. MPMC responded by saying that a change in design criteria was being discussed for the next raise

(SEIDALINOVA): Quote: " The Stability analyses indicate that the FOS for the "Main Embankment" only marginally achieves the short term CDA design criteria of 1.3. This FOS includes modifications incorporating a centerline design above El. 963.5m and the construction of a waste rock toe buttress to El. 925.0m. Previous correspondence from MEM has highlighted the difference in interpretation of the CDA Guidelines. MEM required a commitment from MP that they are moving toward increasing these FOS for the main embankment as part of subsequent dam raises in an effort to move toward achieving a long term FOS equal to 1.5."

(MCLEOD): Blank.

Doc ID	0521
Title	MP00193
Author	CULLEN, MICHAEL
Document Date	2014/06/03
Task List	173
Themes	ACCOUNTABILITY, DAM ELEVATION, STAGE 9, WATER BALANCE

AUTHOR: CULLEN, Michael from Energy, Mines and Natural Gas

TITLE: Advice of Geotechnical Incident Form

DESCRIPTION: May 27 2014 TSF freeboard incident and follow up.

SUMMARY: Internal correspondence in MEM about "overtopping" event.

(CASEY): Notes that AMEC will be EoR until Stage 9 raise is complete and then BGC will take over under Todd Martin. States that AMEC is "sitting on the fence" with respect to cause/respons bility.

(SEIDALINOVA): Mention about the plan to complete work to the 970 m el under the supervision of AMEC. The work was approved under the Phase 9 amendment last year, but was halted in the fall due to inclement weather. Plan to apply for a permit amendment to allow for construction to the 972.5 m el - the work will be supervised by BGC. BGC will be undertaking design for raises to the 982 m, and later to the ultimate el (991-100 m).

(MCLEOD): Blank.

STAGE 9

Doc ID	0556	AUTHOR: MOGER, Luke
Title	MP00239	TITLE: Mount Polley Mine Tailings Storage facility Stage 9 2013 As-Built and Annual Review Report.
Author	MOGER, LUKE	DESCRIPTION: Email notification of submission on Stage 9 As-Built and annual Dam Safety Inspection.
Document Date	2014/04/01	SUMMARY: Nothing useful.
Task List	173	(CASEY): Blank.
Themes	DAM SAFETY OBSERVATIONS, STAGE 9	(SEIDALINOVA): Blank.
		(MCLEOD): Blank.

Doc ID	0557	AUTHOR: NARYNSKI, Heather
Title	MP00240	TITLE: Mount Polley Mine Tailings Facility Stage 92013 As-Built and Annual Review Report
Author	NARYNSKI, HEATHER	DESCRIPTION: Acknowledge download of 2013 TSF As-Built and Annual Review Report.
Document Date	2014/03/31	SUMMARY: MPMC confirming Stage 9 2013 as-built has been sent to MEM in hard copy.
Task List	173	(CASEY): Blank.
Themes	STAGE 9	(SEIDALINOVA): Nothing useful.
		(MCLEOD): Blank.

Doc ID	0646	AUTHOR: AMEC
Title	MP00044	TITLE: Mount Polley Mine Tailings Storage Facility Stage 9, 2013 As-Built and Annual Review Report.
Author	AMEC	SUMMARY: 2013 as-built report.
Document Date	2013/03/12	(CASEY): See detailed review comments.
Task List	173	(SEIDALINOVA): Lab data extracted; instrumentation; construction photos; drawings.
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 9	(MCLEOD): Blank.

STAGE 9

Doc ID	0647
Title	MP00045
Author	AMEC
Document Date	2013/04/11
Task List	173
Themes	CONSTRUCTION - TSF, DESIGN, STAGE 9

AUTHOR: AMEC

TITLE: Mount Polley Mine Tailings Storage Facility Stage 9, 2013 Construction Monitoring Manual.

SUMMARY: Stage 9 detailed design documents.

(CASEY): See detailed review comments.

(SEIDALINOVA): Summary of construction activities; technical specifications for teh construction of the TSf embankment; requirements for instrumentation, monitoring, sampling, testing and reporting, instrumentation. TSF Stage 9 (970 m) expansion stability analyses. Good set of drawings for stage 9 tailings embankment.

(MCLEOD): Blank.

STAGE 10

Doc ID	0536
Title	MP00209
Author	MOGER, LUKE
Document Date	2014/07/28
Task List	173
Themes	DAM ELEVATION, DESIGN, STAGE 10

AUTHOR: MOGER, Luke

TITLE: Tailings Storage Facility - Stage 10 (2014 Construction).

DESCRIPTION: Request for permission to increase elevation to 972.5 m during Stage 10. (Nothing interesting).

SUMMARY: Submission of the Stage 10 design report to MEM. Transmittal letter for submission of Stage 10 dam design to Ministry of Energy and Mines

(CASEY): Blank.

(SEIDALINOVA): Request for permission to increase elevation to 972.5m during Stage 10 (Nothing interesting).

(MCLEOD): Blank.

Doc ID	0668
Title	MP00208
Author	BGC
Document Date	2014/07/25
Task List	173
Themes	DESIGN, GLU GLACIOLACUSTRINE CLAYS, INSTRUMENTATION, STAGE 10

AUTHOR: BGC

TITLE: Mount Polley Mine Tailings Storage Facility Stage 10 Raise Design Report

SUMMARY: Stage 10 design report

(CASEY): See detailed note.

(SEIDALINOVA): Table 5-1 two inclinometers in the deepest section of the Main Embankment indicate significant movement to date occurred in SI01-02 at Sta 1+930 m, where cumulative shear strain of about 0.7% was monitored for a 3 m depth interval within the glaciolacustrine unit. The other inclinometer indicated a zone of discrete shear (SI06-03) located about 105 m to the northwest of SI06-01. The rcorded shear strain was about 0.8 % cumulative shear strain. Peak shear strength was used as the basis for stability analyses (p. 42). Quote: " no higher end (eg triaxial) testing was contemplated. DSS testing of glaciolacustrine samples may be undertaken if samples that are predominantly clay retrieved". Recommend to compensate the lower ratio of the Zone S till core width to the hydraulic head by the following actions: establishing and maintaing wide above-water beaches; design of the downstream shell to provide sufficient lateral restraint (76). Detailed drawings Stage 10.

(MCLEOD): Blank.

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Investigative Theme Documents

STAGE 7

Doc ID	0464
Title	MP00052
Author	MPMC
Document Date	
Task List	173
Themes	PERMIT CONDITION, STAGE 7

AUTHOR: MPMC

TITLE: Permit Conditions Response, Mount Polley Mine

DESCRIPTION: Company responses to review comments by Diane Howe and Chris Carr of Nov 1, 2010 Application "Mine Permit Amendment Application". This review included Stage 7 dam construction. Includes 2010 Water Balance Update response. Received January 25, 2011.

SUMMARY:

(KCB)
Responses to questions regarding the mine Permit Amendment applicaiton for MPM. (nothing useful).

(HM)

precipitation 755 mm, evaporation same;

Doc ID	0592
Title	MP00037
Author	KNIGHT PIESOLD
Document Date	2011/01/25
Task List	174
Themes	BUTTRESS, CRITICAL THINKING, DAM SAFETY OBSERVATIONS, INSTRUMENTATION, STAGE 7, WATER BALANCE

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine Tailings Storage Facility, Report on 2010 Annual Inspection (Ref. No. VA101-1/24/1).

DESCRIPTION: 2010 Annual inspection by KP.

SUMMARY:
- 2010 Annual Inspection Report

(CASEY):
- See detailed review comments

(SEIDALINOVA): Blank.

(MCLEOD): Traverse tension crack noted on Perimeter Dam - noted that stability for Stage 7 shuld be checked. Noted that instrumentation replacement has not been carried out (40% lost); suggest an inundation study as referenced in CDA; Recommended that buttress be constructed prior to Stage 6b and this was not done. Recommended Main Dam buttress and stability be assessed for Stage 7 design. MPMC should develop a plan for getting a minimum um 20 m beach; 56 operating piezometers; S 01-02 4 mm movement; recommended updating water balance model for Stage 7. Next DSR recommended for 2016, or during detailed closure design.

STAGE 7

Doc ID	0641
Title	MP00039
Author	AMEC
Document Date	2011/04/20
Task List	
Themes	CONSTRUCTION - TSF, DESIGN, STAGE 7

AUTHOR: AMEC

TITLE: Mount Polley Mines, Tailing Storage Facility Stage 7, 2011 Construction Monitoring Manual.

SUMMARY: Stage 7 design report including stability analysis and roles and responsibilities.

(CASEY): See detailed review comments.

(SEIDALINOVA): Blank.

(MCLEOD): Luke Moger "Project Manager" overseeing Inspectors, AMEC and Survey; Defines responsibilities and requirements for construction monitoring and QA/QC. Zone C < 2 m lifts; Zone U: sand cell or rockfill; Appendix A on Stability Analysis: references CDA for FoS = 1.3 for construction; used KP parameters with "minor" modifications; "rockfill high UC & well graded angular with moderate compaction"; GL 33 degrees and 24 degrees residual; no ru; More comprehensive assessment to be done after 2011 drilling and instrumentation program. GL shown on stability analysis of Perimeter Dam as being near surface (not shown on any other drawings or figures)

STAGE 3

Doc ID	0444
Title	MP00172
Author	CARR, CHRIS
Document Date	2005/02/17
Task List	173
Themes	CONSTRUCTION - TSF, QUESTIONABLE MATERIALS, STAGE 3, WATER BALANCE

AUTHOR: CARR, Chris, MEM

TITLE: Mine Inspection February 3, 2005 Property: Mount Polley Mine

SUMMARY: Geotech inspection report. 3C raise in progress.

(CASEY): Noted segregation in Zone C. noted that the 2003 DSI is overdue.

(SEIDALINOVA): Nothing Useful

(MCLEOD): Blank.

REPORT EXCERPT:
* * *
2/3/2005
Chris Carr, P. Eng. (Author)
Manager, Geotechnical Engineering
A meeting to review the mine plane, schedule for tailings stroage facility development and tailings dam performance was followed by an inspection of the tailings storage facility in the company of Ron Martel (MPMC), Ken Brouwer (Knight Piesold) and John Errington (MEM). A brief tour of the Wight Pit area and existing Bell Pit was undertaken in the company of Dave Pow (MPMC consultant) and John Errington.

General
The official mine start up date is March 2, 2005.

Tailings Storage Facility
Construction of the permitted dam raise to elevation 945 m (Stage 3c) was in progress at the time of the inspection. The next dam raise to elevation 948 m is scheduled to start May 1, 2005 following submission of the design and permit approval. The tailings facility embankment dams are planned to be constructed to the final crest elevation of 965 m by the year 2012.
At the time of the inspection Zone C shell material was being placed. Due to the method of construction, segregation of the rock fill was noted with many large boulders rolling to the base of the slope. Better control is required to ensure the placement of a homogenous well-graded dam shell that comprises material within the gradation specified. It is understood that construction of the downstream shell of the tailings dam with waste rock from Wight Pit is being considered. Details shall be submitted to the Ministry for review and permitting.
There is currently no discharge to the environment from the tailings impoundment. Projected water balance indicates there will be a surplus water volume and a discharge permit will be required from the Ministry of Water, land and Air Protection. Plans for discharge from the TSF shall be submitted to MEM for review.
The annual Dam Safety Inspection report for 2003 was due November 30, 2004 and has not yet been received. The last Dam Safety Review was carried out in 1999 and is required every 7 years for a high consequence dam based on Canadian Dam Association guidelines. The next DSR is therefore due to be carried out in 2006. Changes to seismic standards in the national Building Code are expected to be issued soon. It will therefore be necessary to check the tailings dam design (for mine operating period) to confirm

STAGE 3

adequate seismic stability under the revised standard.
Reclamation of the final downstream dam slope with a soil cover is required. Rather than spreading the cover after completion of the dam embankment to final height it has been suggested that it may be more efficient to place and spread the soil as each lift of the downstream shell is placed, which would allow for progressive reclamation.
* * *

Doc ID 0446
Title MP00174
Author ROSE, NICK
Document Date 2005/10/25
Task List 173
Themes CONSTRUCTION - TSF, DAM ELEVATION, DESIGN, SAND CELLS, STAGE 3

AUTHOR, ROSE, Nick

TITLE: Mine Inspection October 13, 2005
Property: Mount Polley Mine

SUMMARY: Geotech inspection report.

(CASEY): Noted poor beach development around the SW side of the impoundment.

(SEIDALINOVA): Comment about not following recommended design by Golder Associates (Oct 19, 2004 report) during Northeast Zone Waste Dumps and Haulage Road construction. An overburden soil stockpile showed signs of instability on the northern portion of the Northeast Zone Dump. Material from the stockpile have slumped down-slope of the TSF Haulage Road.

(MCLEOD): Blank.

REPORT EXCERPT:
* * *
10/13/2005 (Inspection Date)
Geotechnical Inspection #12476
Inspector of Mines, Geotechnial

An inspection of the tailings storage facility (TSF) was carried out in the company of Ron Martel. A meeting to summarize the results of the inspection was held on the afternoon of October 13 (Terry Isaacs, Jeff Hammerlind and Dayle Rusk in attendance).
The stage 3c dam raise is understood to have been adjusted by the design consultant to incorporate an overall raise of 1.5m to the 944m elevation in 2005, instead of the previously planned 2.5m raise to the 945m elevation. This adjustment was made to reflect the changes in mill start-up date and has been stated by the design consultant that the reduced height will not impact storm water storage and freeboard requirements.
Construction of the till core (Zone S) was completed between approximately the 946 and 947m elevations, slightly short of the permitted elevation of 948m. It is understood that material specifications and compaction testing results for the 2005 construction season were within design specifications.
The TSF pond level was at the 942.4m elevation at the time of the inspection. The beach on the southwest side of the impoundment was noticeably narrow or submerged. It is understood that a tailings deposition plan is being developed to discharge tailings from the perimeter, Main and south Embankments to help develop beaches and manage the location of the pond in accordance with recommendations from the design consultant.
* * *

STAGE 3

Doc ID	0481
Title	MP00118
Author	MPMC
Document Date	2000/05/25
Task List	173
Themes	DAM ELEVATION, STAGE 3

AUTHOR: PARSONS, Don from MPMC

TITLE: Mt. Polley tailings Storage Facility Application to Construct to Elevation 944 Metres Amendment to Permit M-200.

DESCRIPTION: Application letter to increase dam to elevation 944 meters.

SUMMARY: Request for approval from the Mines Branch to construct the Stage 3 embankment to a crest elevation of 944m.

(CASEY): ME to be raised "downstream", PE mod CL with cyclone sand, SE out of compacted till

(SEIDALINOVA): Request for approval from the Mines Branch to construct the Stage 3 embankment to a crest elevation of 944m

(MCLEOD): Blank.

Doc ID	0482
Title	MP00120
Author	HEADLEY, GEORGE
Document Date	2000/06/22
Task List	173
Themes	DESIGN, STAGE 3

AUTHOR: HEADLEY, George

TITLE: Mount Polley Stage 3 Dam Design review

DESCRIPTION: MEM final review comments on Stage 3 dam design.

SUMMARY: Letter confirming MEM has read the Stage 3 design reports and application to amend permit to construct to 944 m

(CASEY): Blank.

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

STAGE 3

Doc ID	0484
Title	MP00122
Author	MPMC
Document Date	2001/04/01
Task List	173
Themes	DAM ELEVATION, SAND CELLS, STAGE 3

AUTHOR: PARSONS, Don from MPMC

TITLE: Mt. Polley Tailings Storage Facility - Application to Construct to Elevation 945 Metres - Amendment to Permit M-200

DESCRIPTION: Application letter to increase dam to elevation 945 meters.

SUMMARY: MPMC requesting permit revision to allow construction of Stage 3 to 945 m instead of 944 m. Includes drawings

(CASEY): All embankments to be constructed with rockfill in the downstream shell. Cycloned sand concept was scrapped

(SEIDALINOVA): Blank.

(MCLEOD): Blank.

Doc ID	0489
Title	MP00127
Author	MPMC
Document Date	2001/10/25
Task List	173
Themes	CONSTRUCTION - TSF, STAGE 3

AUTHOR: PARSONS, Don from MPMC

TITLE: Mount Polley Mine Tailings Storage Facility, Report on Stage 3 Construction Permit M-200.

DESCRIPTION: Company letter with site status with respect to stage 3 dam construction.

SUMMARY: MPMC submitting the as-built report on Stage 3 construction to the Ministry.

(CASEY): Tailings deposition ended Oct 15, 2001. Pond pumped to Cariboo Pit

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

Doc ID	0562
Title	MP00022
Author	KNIGHT PIESOLD
Document Date	2001/09/12
Task List	174
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 3

AUTHOR: Knight Piesold

TITLE: Final Progrss report, No. 1 to 19, 2000 and 2001

DESCRIPTION: Construction monitoring reports September 1, 2000 to September 12, 2001.

SUMMARY: Weekly reports for Stage 3 construction including QA/QC data.

(CASEY): Blank

(SEIDALINOVA): Final reports and testing summaries.

(MCLEOD): Field reports and testing summaries.

STAGE 3

Doc ID	0577
Title	MP00014
Author	KNIGHT PIESOLD
Document Date	1999/12/13
Task List	174
Themes	CONSTRUCTION - TSF, DESIGN, SAND CELLS, STAGE 3

AUTHOR: Knight Piesold.

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, report on cycloned sand construction of stage 3 and on going stages of the tailings storage facility (ref. No. 11162/12-2) Volume I of II.

DESCRIPTION: Application for cyclone sand.

SUMMARY:
- Follow up to MP00013 after completion of cyc sand trial berms upstream of the ME and PE, and d/s of the PE.
- Includes proposed Stage 3 design drawings incorporating cyc sand.

(CASEY):
- Not very relevant since these designs were not adopted

(SEIDALINOVA): Effective strength parameteres for the embankment fill and foundation materials used for stability analyses were obtained from consolidated - undrained triaxial test from 1995 geotechnical investigations and reported the (Knight Piesold Ref. No. 1623/1). Results of SHAKE analyses are discussed. Descripton of cycloned sand trial program. Summary of soils laboratory test work (moisture content, max dry density, gradation, permeability, consolidation, shear stregth. Stage 3, Stage 4-7 drawings. Upstream trial berm: photos, underflow gradations, overflow gradations.

(MCLEOD): Blank.

Doc ID	0578
Title	MP00015
Author	KNIGHT PIESOLD
Document Date	1999/12/13
Task List	174
Themes	CONSTRUCTION - TSF, DESIGN, SAND CELLS, STAGE 3

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, Report on Cycloned Sand Construction of Stage 3 and On-going stages of the Tailings Storage Facility (Ref. No. 11162/12-2) Volume II of II.

DESCRIPTION: Application for cyclone sand.

SUMMARY: Photos from the cyc sand trials, instrumentation data, COT data

(CASEY): Blank.

(SEIDALINOVA): Downstream trial berm: photos; pore pressure and outlet drain flow monitoring; phase I test trenches; laboratory data (triaxial compression, consolidated drained, remolded silty sand, consolidation test, permeability test, proctor test report, cpt data (upstream and downstream trial berm).

(MCLEOD): Blank.

STAGE 3

Doc ID	0582
Title	MP00021
Author	KNIGHT PIESOLD
Document Date	2000/05/11
Task List	174
Themes	CONSTRUCTION - TSF, FACTOR OF SAFETY, SAND CELLS, STAGE 3

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine tailings Storage Facility, Addendum to Report on Cycloned Sand Construction of Stage 3 and on-Going stage of the tailings Storage Facility (ref. No. 11162/13-4).

DESCRIPTION: Application for cyclone sand.

SUMMARY:
- Documentation of revisions to the stage 3 embankment design utilizing cyclone sand
- Response to C.O. Brawner comments on the proposed Stage 3 design

(CASEY):
- Discussion on FoS liquefaction using CPT results below the ME from 1996. Seismic response analysis was carried out indicating no risk of liquefaction under design loading.

(SEIDALINOVA): Stage 3 construction. Response to Febr. 16 letter from the Ministry. Quote: "The zone B specifications require that Zone be must be compacted to at least 92 percent of the Standard Proctor max dry density, compared to 95 percent for Zone S.....For practical purposes, Zone S and Zone B are typically placed as one lift, 300 mm thick after compaction and each zone receives the same compactive effort and achieves similar densities. therefore, when evaluating the core zone thickness, the Zone S and B materials can be considered to be identical." Mention about cycloned sand having high silt content and as a result lower permeability. (p.18) Response to other MEM comments (p27). Modifications including incorporation of more mechanically placed cycloned sand in the Main and Perimeter Emb, with less reliance of hydraulically placed cycloned sand for embankment construction are discussed. Drawings. Letters from the Ministry.

(MCLEOD): Response to review comments by Brawner regarding suitability of cyclone sand (high fines content -20% to 33%).

STAGE 3

Doc ID	0593
Title	MP00038
Author	KNIGHT PIESOLD
Document Date	2005/09/23
Task List	174
Themes	CONSTRUCTION - TSF, QUESTIONABLE MATERIALS, STAGE 3

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Mine Tailings Storage Facillity, Report on Stage 3C Construction (Ref. No. VA101-1/5-2).

DESCRIPTION: Report on Stage 3C construction.

SUMMARY:
- Stage 3C as-built report

(CASEY):
- See detailed review comments

(SEIDALINOVA): Blank.

(MCLEOD): Suggest that Zone F out of spec on coarse due to dry sieves versus wet sieve; < 10% fines.

Doc ID	0608
Title	MP00072
Author	KNIGHT PIESOLD
Document Date	2001/10/19
Task List	174
Themes	CONSTRUCTION - TSF, STAGE 3

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation, Mount Polley Mine, Report on Stage 3 Construction (Ref. No. 1162/14-3).

DESCRIPTION: Report on Stage 3 Construction.

SUMMARY: Blank,

(CASEY): See detailed notes.

(SEIDALINOVA): Detailed drawings, instrumentation, photos, design modifications.

(MCLEOD): Blank.

STAGE 3

Doc ID	0609
Title	MP00073
Author	KNIGHT PIESOLD
Document Date	2003/04/30
Task List	174
Themes	MINING OPERATIONS - GENERAL , STAGE 3

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation, Mount Polley Mine, Tailings Storage Facility Report on 2002 Annual Inspection (Ref. No. VA101-00001/3-1).

DESCRIPTION: 2002 annual dam safety inspection

SUMMARY: Blank.

(CASEY): See detailed notes

(SEIDALINOVA): Detailed drawings, additional instrumentation, airphotos. Stage 3, rev. 4, 5.

(MCLEOD): Blank.

Doc ID	0610
Title	MP00074
Author	KNIGHT PIESOLD
Document Date	2005/02/08
Task List	174
Themes	MINING OPERATIONS - GENERAL , STAGE 3

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation, Mount Polley Mine, Tailings Storage Facility Report on 2004 Annual Inspection (Ref. No. VA101-00001/7-1).

DESCRIPTION: 2004 annual dam safety inspection.

SUMMARY: Blank.

(CASEY): See detailed notes

(SEIDALINOVA): Drawings, instrumentation, photos, airphotos. Stage 3. Annual inspection. Good condition.

(MCLEOD): Blank.

STAGE 3

Doc ID	0615
Title	MP00080
Author	KNIGHT PIESOLD
Document Date	2000/08/17
Task List	174
Themes	OMS, STAGE 3

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation, Mount Polley Mine, Tailings Storage Facility, Operation, Maintenance and Surveillance Manual for Stage 3 (El. 944) Embankment (Ref. No. 1162/13-3).

DESCRIPTION: Stage 3 OMS manual.

SUMMARY: OMS Manual. This document is draft and appears to have been superseded by another OMS manual on October 26, 2000. The updated document is what was reviewed by KCB. It wsa included in the KP report submission

(CASEY): Basically updated from the first OMS to include procedures for placing cycloned sand in the embankments.

(SEIDALINOVA): Stage 3. Embankment. Second updated version with revised procedures that incorporates procedures for changes in operating conditions and the incorporation of cyclone tailings underflow as embankment construction materials for the main and perimeter embankments. Drawings, depth-capacity and filling schedule, checklists and procedures, construction requirements.

(MCLEOD): Blank.

Doc ID	0623
Title	MP00116
Author	KNIGHT PIESOLD
Document Date	2000/02/13
Task List	174
Themes	SAND CELLS, STAGE 3

AUTHOR: Knight Piesold

TITLE: Meeting Minutes - January 26 Meeting

DESCRIPTION: Meeting minutes regarding Stage 3 Cyclone Sand Construction.

SUMMARY: Meeting minutes from review of the Stage 3 cycloned sand design

(CASEY): Blank.

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

STAGE 3

Doc ID	0624
Title	MP00119
Author	KNIGHT PIESOLD
Document Date	2000/06/02
Task List	174
Themes	STAGE 3

AUTHOR: Knight Piesold

TITLE: Mount Polley Stage 3 TSF

DESCRIPTION: Company submission of information on core zone thickness and QA/QC for Zone F and T placement for Stage 3 of TSF.

SUMMARY: KP response to questions by G.Headley on the core thickness and QA/QC during Zone F/T placement

(CASEY): Blank.

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

Doc ID	0637
Title	MP00022
Author	KNIGHT PIESOLD
Document Date	2001/09/12
Task List	173
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 3

AUTHOR: Knight Piesold

TITLE: Final Progress Report, No. 1 to 19, 2000 and 2001.

SUMMARY: Weekly reports for Stage 3 construction including QA/QC data.

(CASEY): Blank.

(SEIDALINOVA): Stage 3 Construction monitoring reports. Instrumentation. Grain-size distributions.

(MCLEOD): Field reports and testing summaries.

Doc ID	0664
Title	MP00117
Author	BRAWNER, CHUCK
Document Date	2000/02/16
Task List	173
Themes	CONSTRUCTION - TSF, CRITICAL THINKING, SAND CELLS, STAGE 3

AUTHOR: BRAWNER, Chuck

TITLE: Mt. Polley Mining Corp Tailings Storage facility Cyclone Sand Review.

SUMMARY: Letter from Chuck Brawner to ministry after review of the KP cycloned sand design. list of recommendations.

(CASEY): Blank.

(SEIDALINOVA): Brawner Engineering Ltd. Revision of TSF cyclone sand construction of Stage 3 the report by Knight Piesold Ltd.

(MCLEOD): Blank.

STAGE 1

Doc ID	0428
Title	MP00069
Author	HEADLEY, GEORGE
Document Date	1996/07/30/
Task List	173
Themes	DAM ELEVATION, STAGE 1

AUTHOR: HEADLEY, George MEM

TITLE: Mt. Polle Tailings Dam

SUMMARY: Letter from MEM to MPMC regarding the permit to construct the Stage1b starter dam to 934 m

(CASEY): See Ainur's comments. MEM requires that an external reviewer be contracted by MPMC. Fred Matich eventually chosen for this.

(SEIDALINOVA): Comment about complex internal drainage pipe system, recommendation to review all aspects of the dam site conditions. Request to retain a qualified tailings dam expert, independent of the current consultant to review the foundation conditions for the dam site, etc.

(MCLEOD): Blank.

Doc ID	0452
Title	MP00084
Author	IMPERIAL METALS CORPORATION
Document Date	1996/09/05/
Task List	173
Themes	CONSTRUCTION - TSF, INSTRUMENTATION, STAGE 1

AUTHOR: Imperial Metals Corporation

TITLE: Mt. Polley Tailings Embankment - Amendment to Systems Work Application

SUMMARY: Stage 1 detailed construction dawings

(CASEY):
- Min. Stage 1a crest elevation of 927.0 m (to be constructed in 1996) to allow storage of 1997 freshet to 924.0 m
- Revised compaction specifications (Zone S now 98% Std Proc instead of 95% Mod.; Zone B 98% Std. Proc instead of 90% Mod.)
- Inclusion of vertical drainage blanket (chimney drain) in ME Stage Ib dam. No change for PE.
- Revised piezometer locations to monitor performance of filter blanket

(SEIDALINOVA): Stage 1b. Drawings. Notes about construction of the longitudinal drain in the the compacted Zone B fill and backfilling with filter sand; placement of the sand along the length of the filter zone and compaction.

(MCLEOD): Blank

STAGE 1

Doc ID	0536
Title	MP00209
Author	MOGER, LUKE
Document Date	2014/07/28/
Task List	173
Themes	DAM ELEVATION, DESIGN, STAGE 10

AUTHOR: MOGER, Luke

TITLE: Tailings Storage Facility - Stage 10 (2014 Construction).

DESCRIPTION: Request for permission to increase elevation to 972.5 m during Stage 10. (Nothing interesting).

SUMMARY: Submission of the Stage 10 design report to MEM. Transmittal letter for submission of Stage 10 dam design to Ministry of Energy and Mines

(CASEY): Blank.

(SEIDALINOVA): Request for permission to increase elevation to 972.5m during Stage 10 (Nothing interesting).

(MCLEOD): Blank.

Doc ID	0566
Title	MP00001
Author	KNIGHT PIESOLD
Document Date	1995/05/25/
Task List	174
Themes	DAM ELEVATION, DESIGN, FACTOR OF SAFETY, GLU GLACIOLACUSTRINE CLAYS, INSTRUMENTATION, STAGE 1, WATER BALANCE

AUTHOR: Knight Piesold.

TITLE: Imperial Metals Corp. Mt. Polley Project Tailings Storage Facility Design Report (Ref. No. 1625/1) Volume 1.

DESCRIPTION: Original TSF design documents.

SUMMARY: Blank.

(CASEY): Blank.

(SEIDALINOVA): Site selection criteria; identification of construction material; and general design features. Design drawings: plan, construction, instrumentation; 2 tables with summary test results, stability analyses.

(MCLEOD): precip. 810 mm; evap. 423 mm; 70 Mt @ 1.28 t/m3; SG=2.78; Dam Classification - LOW; 24 hr PMP - 203 mm; 10 day PMP 406mm, vol = 1.36 Mm3 --Design Criteria states 24 hr PMP, but freeboard implies 7 day PMP; design to el. 960m; glaciolacustrine and glaciofluvials; 95% Modified Protor; toe drain @u/s face of Stage 1b crest; {transverse drain along axis of Main Dam; u/s blanket drain for Ic and II expansion; toe drains @ Main and perimeter - perforated along full length of dams with solid pipes leading to sumps; extend drainage systems} modified centerline and settlement calcs; foS 1.3 for operations FoS 1.1 for residual; residual tailings 10kPa; ru=0.14; seepage flows total 2L/s;

STAGE 1

Doc ID	0571
Title	MP00007
Author	KNIGHT PIESOLD
Document Date	1997/06/03/
Task List	174
Themes	CONSTRUCTION - TSF, STAGE 1

AUTHOR: Knight Piesold

TITLE: Mount Polley Construction Drawings, various revisions

DESCRIPTION: TSF construction drawings May 30 1997.

SUMMARY: Issued for Tender Drawings - Stage 1

(CASEY): Blank.

(SEIDALINOVA): Construction drawings; geological investigations.

(MCLEOD) Good set of drawings.

Doc ID	0572
Title	MP00008
Author	KNIGHT PIESOLD
Document Date	1997/12/02/
Task List	174
Themes	CONSTRUCTION - TSF, DESIGN, INSTRUMENTATION, STAGE 1, STAGE 2, WATER BALANCE

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, Report on ON-going Construction Requirements (Ref. No. 10162/9-3).

DESCRIPTION: Contains design summary, stability analyses and on-going construction requirements.

SUMMARY: Brief overview of Stage 1A/1B construction and some updates to design basis. Outlines the Stage 2 construction compaign.

(CASEY): Blank.

(SEIDALINOVA): Stage 2. Mentioned about placement of type 1 geotextile filter fabric on the tailings beach at the main embankment, placement of the coarse bearing layer on the geotextile filter fabric during Stage 2A (p. 52). Design basis and operating criteria; monthly water balance and precipitation conditions; results of stability analyses; grain size distributions; drawings; instrumentation; selected papers that were used during the design.

(MCLEOD): McE - M6.5, pg=0.13g; CDA consequences "LOW" and Closure "HIGH"; GL/GF thickens towards the west; Flood design: 24 hr PMP + 1 m. Proposed crest elev. 965 m. Seepage flux estimates; Modified centerline incorrectly compared to centerline; upstream drainage system installed. Pipes through dam in dense foundation till; piezometers in fill showed pore pressure response; foundation response 2 to 3 m; 98% SPD: filter zone 2" minus -< 10% fines; emphasizes benefit ? of modified centerline.

STAGE 1

Doc ID	0573
Title	MP00009
Author	KNIGHT PIESOLD
Document Date	1997/11/24/
Task List	174
Themes	DAM ELEVATION, OMS, STAGE 1

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, Operation, Maintenance and surveillance manual for stage 1B embankment (el. 934

DESCRIPTION: OMS for stage 1b

SUMMARY: OMS Manual

(CASEY): Blank.

(SEIDALINOVA): Stage 1b embankment (el. 934m). As-built drawings; summary of vibrating wire piezometers and trigger levels.

(MCLEOD) "Dam-Coordinator" (mill sup't)--"Dam operator" (Mill shifter); deposition sequence using multiple spigots to form a segregated beach; ultimate dam height 53m; 4.4 km long;

Doc ID	0579
Title	MP00016
Author	KNIGHT PIESOLD
Document Date	1997/03/11/
Task List	174
Themes	OMS, STAGE 1

AUTHOR: Knight Piesold

TITLE: Mount Polley mining corporation Mount Polley project tailings storage facility, operation, maintenance and surveillance manual for stage 1A embankment (El. 927m) (Ref. No. 1627/1).

DESCRIPTION: OMS for Stage 1A

SUMMARY: OMS Manual

(CASEY): Blank.

(SEIDALINOVA): Drawings from July 15,1996; June 2, 1995 (probably repeated from earlier reports, probably nothing useful).

(MCLEOD): Blank.

STAGE 1

Doc ID	0580
Title	MP00019
Author	KNIGHT PIESOLD
Document Date	1997/08/14/
Task List	174
Themes	CONSTRUCTION - TSF, STAGE 1

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Mount Polley Project Tailings Storage Facility, Report on Stage 1A/1B Construction (Ref. No. 10162/7-5).

DESCRIPTION: Report on Stage 1A/1B construction

SUMMARY:
- As-built report for Stage 1a/1b construction

(CASEY): See JC review comments

(SEIDALINOVA): "the tailings pipeline system had flatter slope on the 30 inch HDPE pipe which exits from the T2 Dropbox, detected on the as-built drawings. Also, the pressure testing of the pipeline was not completed as per the technical specifications. Based on experience from Stabe 1a/1b construction, a detailed investigation and laboratory testing program should be completed on potential borrow materials prior to Stage II construction. Close attention should be paid to the moisture content of the soil, which may be too wet to use as fill for the top one to two metres." Summary of field air entry permeameter results, piezometer data, flow data, gradation limits, moisture content histograms, drawings, control test-summary sheet, instrumentation.

(MCLEOD): Blank.

STAGE 1

Doc ID	0581
Title	MP00020
Author	KNIGHT PIESOLD
Document Date	1997/06/03/
Task List	174
Themes	CRITICAL THINKING, DAM SAFETY OBSERVATIONS, QUESTIONABLE MATERIALS, STAGE 1

AUTHOR: Knight Piesold

TITLE: Mount Polley Mining Corporation Pount Polley Project Tailings Storage Facility and Ancillary Features May 1, 1997 Site Inspection (Ref. no. 1627/4)

DESCRIPTION: 1997 Site Inspection by KP.

SUMMARY:
- Summary of May 1, 1997 site visit observations made by Ken Embree.
- Some good site photos.

(CASEY): - Very soft material downstream of the PE, especially in the disturbed area around the SCP. Needs to be removed before Stage II construction - Stripping waste adjacent to PE btw 42+5- and 43+00 needs to be moved.

(SEIDALINOVA): "extensive erosion where runoff has entered the north side of the MESCP. This should be repaired by placing more fill (crushed rock is acceptable) in the eroded area. Suitable storm runoff control measures (a runoff channel) should be incorporated to minimize the possibility of future erosion." (p.7) Photo 25-"there is a damp spot on the downstream face of the embankment fill at the location of the seepage recycle pipes (Ch. 19+25). It appears to be related to the presence of wet "unsuitable material piled against the downstream toe of the embankment. the damp material has small surficial slumps and is also cracking. This dampness and cracking is evident at many places on the downstream face. the pile of wet "unsuitable" fill included snow and ice from clearing of the Stage 1a El. 920 Zone B crest. The result is that the overbuilt area is unstable, with loose fill and cracking evident. Moisture is being absorbed by drier fill above the unsuitable" fill piles, resulting in more slumping and cracking." (p.8) "Small spring coming out of the red glacial till/bedrock contact downstream of the embankment at the right abutment".

(MCLEOD): Blank.

Doc ID	0603
Title	MP00062
Author	BROUWER, KEN
Document Date	1996/04/04/
Task List	174
Themes	DESIGN, STAGE 1

AUTHOR: BROUWER, Ken

TITLE: Mt. Polley Tailings Impoundment 1996 Construction.

DESCRIPTION: Detailed design drawings of TSF

SUMMARY: Copy of detailed design drawings for Stage 1 construction.

(CASEY): Drawings are cut-off in the pdf. Not useful

(SEIDALINOVA): Detailed design drawings for the project (1996).

(MCLEOD): Air photos

STAGE 1

Doc ID	0605	AUTHOR: BROUWER, Ken
Title	MP00064	TITLE: Mt. Polley Project - Tailings Storage Facility
Author	BROUWER, KEN	DESCRIPTION: Detailed design drawings.
Document Date	1996/06/14/	SUMMARY: Copy of detailed design drawings for Stage 1 construction
Task List	174	(CASEY): -Mill throughout increased from 13,425 tpd to 17,800 tpd -Total storage capacity increased from 68.6 Mt to 82.3 Mt - Stage 1b crest elevation increased from 931 m to 934 m - Ultimate embankment height increase from 960 m to 965 m - Makeup storage water volume increase from 2Mm3 to 2.5 Mm3 - Added a 4th instrumentation plane in PE (Plane D) (VWPs in drain/filter and fill; not foundation) - Revised Material Type B gradation spec (Sherard referenced) - Toe drain construction defered to Stage II, toe drain coneyance pipes to still be installed in Stage Ib
Themes	DAM ELEVATION, DESIGN, INSTRUMENTATION, STAGE 1, WATER BALANCE	(SEIDALINOVA): Revised construction drawings.
		(MCLEOD): Blank.

Doc ID	0617	AUTHOR: Knight Piesold
Title	MP00085	TITLE: Tailings storage facility weekly progress Report No. 9, Sept 5 to 11, 196.
Author	KNIGHT PIESOLD	DESCRIPTION: Construction progress reports September 1996.
Document Date	1996/09/14/	SUMMARY: Weekly summary report with QA/QC data.
Task List	174	(CASEY): Blank.
Themes	MINING OPERATIONS - GENERAL , STAGE 1	(SEIDALINOVA): Test summary and gradation curves of filter sand, structural fill, glacial till, zone S, lower basin liner and drain gravel in main embankment. Stage 1B.
		(MCLEOD): Blank.

STAGE 1

Doc ID	0620
Title	MP00095
Author	BROUWER, KEN
Document Date	1997/03/12/
Task List	174
Themes	OMS, STAGE 1

AUTHOR: BROUWER, Ken

TITLE: Mt. Polley Project - Operation, Maintenance and Surveillance Manual for Stage 1a, E. 927 m.

DESCRIPTION: Cover letter submitting OMS Manual for Stage 1a.

SUMMARY: Covering letter for the Stage 1a OMS Manual. Only related to storing water, not tailings. OMS Manual not included.

(CASEY): Blank.

(SEIDALINOVA): Nothing useful.

(MCLEOD): Blank.

Doc ID	0668
Title	MP00208
Author	BGC
Document Date	2014/07/25/
Task List	173
Themes	DESIGN, GLU GLACIOLACUSTRINE CLAYS, INSTRUMENTATION, STAGE 10

AUTHOR: BGC

TITLE: Mount Polley Mine Tailings Storage Facility Stage 10 Raise Design Report

SUMMARY: Stage 10 design report

(CASEY): See detailed note.

(SEIDALINOVA): Table 5-1 two inclinometers in the deepest section of the Main Embankment indicate significant movement to date occurred in SI01-02 at Sta 1+930 m, where cumulative shear strain of about 0.7% was monitored for a 3 m depth interval within the glaciolacustrine unit. The other inclinometer indicated a zone of discrete shear (SI06-03) located about 105 m to the northwest of SI06-01. The rcorded shear strain was about 0.8 % cumulative shear strain. Peak shear strength was used as the basis for stability analyses (p. 42). Quote: " no higher end (eg triaxial) testing was contemplated. DSS testing of glaciolacustrine samples may be undertaken if samples that are predominantly clay retrieved". Recommend to compensate the lower ratio of the Zone S till core width to the hydraulic head by the following actions: establishing and maintaing wide above-water beaches; design of the downstream shell to provide sufficient lateral restraint (76). Detailed drawings Stage 10.

(MCLEOD): Blank.

From: Kuppers, Haley MEM:EX
To: Narynski, Heather M MEM:EX
Cc: Pocklington, Cheryl M MEM:EX; Hoffman, Al MEM:EX; Warnock, George MEM:EX
Subject: Task for CI Mount Polley Investigation
Date: Thursday, March 26, 2015 11:56:00 AM

Hello Heather,

As discussed today, the investigation team would appreciate your help in contributing to the CI Investigation into Mount Polley TSF breach. Your task (T0182) is:

- Goal is to have short excerpt to form part of the CI report. Please reference all of the files that you use (we will link these in the database to the theme "Potential "dam breach" event" (aka May Overtopping), this was the term the expert panel used, their brief description of this event is on pg. 86).
- Please summarize the situation of the May overtopping at Mount Polley (including chronology), and actions taken by MEM, AMEC, MPMC (this has already mostly been summarized in the MP files, documents, correspondence). In addition, an account of our involvement, what the ministry knew, when they knew, what we did. If possible, provide recommendations on what should be done, reasonable expectation, or interpretation of what is required as per HSRC (ex. investigation into dangerous occurrence, geotech incident form).
- Please discuss with George and Harvey's needs so that we can achieve the required outcome, the above are a few criteria, however the event was your experience, and we believe you would be best to provide a summary from MEM perspective.

Please let me know if you have any questions, or need any support. We discussed a deadline of around April 20th, however we understand your schedule is very busy.

All the best in your move!

Thanks very much,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Kuppers, Haley MEM:EX
To: Pocklington, Cheryl M MEM:EX; Hemphill, Naomi MEM:EX
Cc: Warnock, George MEM:EX
Subject: FW: Tania Demchuk"s Notes - June 2, 2014 meeting with MPMC and BGC (Todd Martin)
Date: Thursday, March 26, 2015 12:23:00 PM
Attachments: T Demchuk June 2, 2014 Notes.pdf

Hi Cheryl,

Please add to dataset if not already, and link to “Permitting”, “Water Management”, “Oversight”.

Thanks,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Warnock, George MEM:EX
Sent: Thursday, March 26, 2015 11:23 AM
To: Narynski, Heather M MEM:EX
Cc: Kuppers, Haley MEM:EX
Subject: Tania Demchuk's Notes - June 2, 2014 meeting with MPMC and BGC (Todd Martin)

Hi Heather – see Tania’s notes from the June 2, 2014 meeting attached (as discussed).

George

June 21st

Mount Polley – meeting prep:

→ permit conditions for w.t pilots
  → results must be used to inform full application

→ re: Stockpile PAG ⇒ condition of July 25, 2013 ⇒ assessment of seepage water quality before bigger than 12 Mt
  → w/ mitigations if necessary

→ update on permitting timelines
→ reminder of requirements for water treatment plant application
  → needs to have electrical + mechanical reviews
  → some Se treatment plants have H_2S issue.

June 2/14

Mount Polley meeting

Diane, Jen, George, Shelley M, [redacted], Kym K, Brian H, Tania Lutke, Art, Ted (BGC), Colleen, Daryl Dufault (BGC) (Pierre Stecko - minnow) — water treatment. — end of meeting for TSR questions.

agenda

- operations overview & site conditions
- Site Water management
- TSF design
- Permitting
- wrap-up.

Overview — summary of history.

- currently in Springer + Caribou
- 415 employees, 365/yr
- 100,000 tpd mining, 22000 tpd
- Cu, Ag, Au, magnetite - JV w/ Craigmont.

- Springer + Caribou - surface
- UG Wight Pit - higher grade
- 2 active dumps SERDS + PAG stockpile
- extension to 2025 (current life of mine is to 2016 - permitted)

Site Conditions

- constrained by Bootjack + Polley lake to W + E., TSF to S.
- to 2025 expand SERDs + PAG dump + new tailings haul road
- waste rock also into TSF construction.
- space limited, water management is key*.

June 2/14

Site Water Management:

- in surplus conditions
  - → stored in TSF + Caribou pit
    - ↳ no cannot use Caribou b/c mining.
  - → think TSF is up to 9 M m^3.

Ditch efficiency? - good
  - ✱ not quantified at all.

- 2 more phases in Springer, going back into Caribou ~~seen~~ seen + starting push back in Springer for phase 4.

- Started discharge to Hazeltine Crk in Apr.
  - ↳ max out @ 70,000 m^3 Jun - Oct. (based on discharge criteria)
  - main constraints → volume avail of toe drain
    - → flow vol. in Hazeltine Creek (max dis. is 35% of flow (W7 is monitoring point in Hazeltine).
    - → max permitted = 1.4 M m^3.

~~- long~~

- Management Strategy:
  - Surplus on site — TSF; Caribou Pit,
  - annual vol. = 1.5 M m^3.
  - → West ditch adding water + helping manage.
  - → want to return water to local watershed.
  - → goal to get to neutral water condition

✱ Big constraint on discharge is quantity of dam-filtered water produced. (170,000 m^3).

Short term → reduce existing surplus. ⇒ 3-5 yrs.
  - ✱ Geotech issues.
  - continue w/ long term discharge planning

Discharge design

- to ~~Davis~~ Potley Lake
- Quality = BC guidelines w/ lower N+P.
- 95% mixing at 100m from discharge
- 12 months/yr.
- total annual 3 M m^3.
  * Start 2014.

- need effluent mixing study
  - draft TAR (Minnow)
  - diffuser design (KP)

→ Treatment facility at Tin borrow pit beside Hazeltine discharge then pipe system to Potley Lake

→ Pilot treatment RO ⇒ 3 wks.

→ RFP for treatment ⇒ Newalta for R/O w/ Sept startup.
↳ Joint application w/ MEM/MoE.

(*) Modelling update → Submitted? → see annual report!

TSF Discussion (BGC)

- Engineer of Record → moving to BGC - Todd Martin. (2014)
- Amec completing construction to 970 m. then over to BGC.

- TSF Status
  - 2010 ⇒ extensive beaches. (original design intent).
  - present → more water / smaller beaches along main embankment
    → note don't see big change in d/s peizometer w/ these higher pond level.
  - ~~Wastewater~~
  - Long term target is get back to larger beaches.
    ↳ smaller pond + water balance issue. (min. pond size for reclaim)
  - conceptual closure - minimum pond + reclaim beaches.

June 9/11

3 Stages of Permitting for TSF.
- 1st → 2.5 m beyond current.
  *GW - would like to see moving toward higher FoS.
  ↳ TM moving to 1.5.
  ⊛ need clear rationale for residual FoS of 1.1.

Phase 1 ⇒ July 2014 - to 972.5m (may be revisted).
2 ⇒ Jan 2015 - interim (Oct 2019) ele. 982m.
3 ⇒ TBD. - for Life of Mine (2017/2018 - isw)

- have assumed full W.T. discharge @ 3 Mm^3/yr by July 2015.
- W.T. and ↓ pond size critical component of design considerations
  ↳ water management.
- maintain centerline construction, may need mid-elevation buttressing(?).
★ - relocation of d/s infrastructure - seepage ponds, biosolids stockpiles, ABR, etc.
- dam break analysis. (based on estimate of 2025 dam).
  ↳ GW would be prudent.
- seismic stability - deformation analyses.

* May encounter RAG tails near end of mine life in WX.

Permitting Update

1. Water Discharge Permit - need permit in Sept. (application in June).
   - update to discharge to Hazeltine
     ↳ Se in Sediment + other sources.

2. TSF update - late June/early July for 972.5m.
   - 5 yr plan

3. M-200 plan update → July/Early Aug.
- updated pit design
- updated dump designs
- updated RCP.

TD follow-up → review water quality modelling update in annual report
* edits to permit conditions from Katie re comingling monitoring.

TSF update
→ all waters being blocked to TSF (to Caribou pit)
- Static levels in TSF. ; building freeboard back.
- increased construction
- June is update to be submitted.
- no erosion on dls space.
- free board - 0.6m @ corner 2 (50m) - till this morning
- 0.9 on South embankment
- 0.7-0.9 main embankment.
- Corner 5 to perimeter pipe @ 1.6

GW - Pumps in area?
↳ using existing reclaim line and beefing up booster stn on reclaim line.
↳ reclaim system has capacity.

GW * get the pipe on hard.
- deisel pump to tie in.
* Get the contingency planning done now.

Pierre S re: TAR.
- Treatment = RIO ; trials look good.
- Concern ⇒ Polley Lake eutrophied over time, need lower objectives for Nitrate + P. ; performance objective of 1/10th of guide for Nitrate
- Newalta will do design/build/operate

June 2/14

Newalta - based in Calgary
- experience w/ tailings dewatering in oil sands

- Chemically looks ok.
- goal to ensure discharge at limits to ensure geomorphic process maintain
- discharge - mixing study => diffuser + mixing model
- temperatures - ~95% dilution @ 100m.
  - 2m depth, ave heating in process
    - to avoid concern w/ temp diff.
- water quality in Polley Lake good except Nitrates
- decrease in Phosphorous → 15%
  - will limit impacts from increased Nitrate
- other concern is re: ice formation => will need signage
- water is w/in a degree of Lake temp @ 2m depth.
- slightly buoyant plume but mixes quickly.
- $0.21 m^3/s$. = $0.095 m^3/s$ on ave thru yr.
- on annual average discharge basis the Mine has decreased historic flow
  - expect some benefit w/ adding this water back in.
- installing meter in Lake 100 m from diffuser location.

- Boron, Pb, Ni, Nitrate slight increases.
- One set of tox tests assoc. for treatment plant effluent.
- osmotic stress issues?

From:	Kuppers, Haley MEM:EX
To:	Hemphill, Naomi MEM:EX; Pocklington, Cheryl M MEM:EX
Cc:	Hoffman, Al MEM:EX
Subject:	FW: Mount Polley - Supplemental Information Request from January 21, 2015 Meeting between MEM & KP
Date:	Monday, March 30, 2015 2:35:00 PM

Please add to dataset if necessary. Harvey is conducting analysis.

Thanks,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Gregory Smyth [mailto:gsmyth@knightpiesold.com]
Sent: Friday, March 27, 2015 6:36 PM
To: Kuppers, Haley MEM:EX; Harvey McLeod (KCB)
Cc: Warnock, George MEM:EX; Ken Brouwer; Alexis McPherson; Les Galbraith
Subject: Mount Polley - Supplemental Information Request from January 21, 2015 Meeting between MEM & KP

Hi Haley/Harvey

We have compiled a document that addresses questions about communications between KP and IMC/MPMC, as well as other items that were discussed at our meeting with you on January 21, 2015. There is a cover letter (VA15-02287), and two attachments with the relevant information:

- Memo VA15-02362 – Mount Polley Tailings Storage Facility – Stage 6B As-Built Geometry (***9 pages total***)
- Memo VA15-02285 – Mount Polley Tailings Storage Facility Breach – MEM Request for Additional Information (***1164 pages total***)

The document can be downloaded from the following FTP site (Password: ***Polley***):

- Link s.15

If you have any troubles accessing the document, please let me know. We are available to address any questions that you may have after you have had a chance to review the information.

Kind Regards

Greg Smyth, B.Sc.
Project Manager | Associate
Knight Piésold Ltd.

Suite 1400 - 750 West Pender

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web: http://www.knightpiesold.com

From: Sophie Hsia
To: Hoffman, Al MEM:EX
Cc: Reimer, Dale Mount Polley; Pocklington, Cheryl M MEM:EX; Kuppers, Haley MEM:EX; Brody, Margo X MEM:EX
Subject: RE: April 9 2015 letter to Ms. Hsai
Date: Friday, April 10, 2015 10:18:40 AM
Attachments: image001.jpg

Dear Mr. Hoffman,

Thank you for your letter sent April 9, 2015.

The basis for the assertion of privilege is set out in our letter of March 23, 2015; the Golder Report is the subject of both solicitor client and litigation privilege. We do not agree that privilege has been waived.

We may waive privilege over the Golder Report in the near future. If and when that decision is made, I will communicate it to you.

Regards,

01_Imperial_corporate_RGB

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From: Brody, Margo X MEM:EX [mailto:Margo.Brody@gov.bc.ca]
Sent: Thursday, April 09, 2015 12:34 PM

To: Sophie Hsia
Cc: Hoffman, Al MEM:EX; Reimer, Dale Mount Polley; Pocklington, Cheryl M MEM:EX; Kuppers, Haley MEM:EX
Subject: FW: April 9 2015 letter to Ms. Hsai

Dear Ms. HSai:

In the PDF attachment is a copy of a letter signed by the Chief Inspector regarding a response to your email of March 23, 2015.
The original signed paper copy will be in tomorrow's mail to you, registered mail.
Please let me know if you are unable to open the attachment.
Thank you.

Margo Brody
Branch Coordinator
Health, Safety and Permitting
Mines and Mineral Resources Division
Ministry of Energy and Mines
250 952 0793

Subject: April 9 2015 letter to Ms. Hsai

From:	Demchuk, Tania MEM:EX
To:	Kuppers, Haley MEM:EX; Pocklington, Cheryl M MEM:EX
Cc:	Hemphill, Naomi MEM:EX
Subject:	Copy of 141229 Mount Polley Permit Compliance Summary TD edits 15Apr2015 jm.xlsx
Date:	Thursday, April 16, 2015 9:43:43 AM
Attachments:	Copy of 141229 Mount Polley Permit Compliance Summary TD edits 15Apr2015 jm.xlsx

Haley and Cheryl,

Please find attached an updated version of the compliance tracking spreadsheet previously updated by Michael Cullen and Chris Carr.

As discussed with Haley, Jennifer McConnachie and I have taken a quick review and gone back to 2009. If further review is needed for permits issued prior to 2009 please advise.

Tania

Tania Demchuk, MSc, PGeo
Mount Polley Project Manager
Sr Environmental Geoscientist
Mines and Mineral Resources Division
Ministry of Energy and Mines
250-952-0417

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Decembe 17, 2014	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Decembe 17, 2014	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Decembe 17, 2014	Gene al	L m tat ons of App oval	A.3.(a)	This permit does not allow for restart of mill operations.		yes	ongoing	TED	15-Apr-15	
Decembe 17, 2014	Gene al	L m tat ons of App oval	A.3.(b)	This permit amendment applies to the construction and operation of the Tailings Storage Facility (TSF) embankment repair for management of the 2015 Freshet, and the construction of the Perimeter Embankment Rockfill Buttress.						
Decembe 17, 2014	Gene al	L m tat ons of App oval	A.3 (c)	Operation of the TSF for water management is restricted to one year from the date of permitting, which is the design life of the embankment repair structure. A permit amendment is required prior to the 2016 Freshet to address requirements for longer term use.	yea					
Decembe 17, 2014	Gene al	Pe m t	A.4.	This permit is not transferrable or assignable.						
Decembe 17, 2014	Gene al	Independent Eng nee ng Rev ew Panel	A.5.(a)	An independent engineering review panel (IERP) shall be established by the Permittee to provide expert technical guidance related to all aspects of the design construction operation and closure planning for the TSF		yes	ongoing	TED	15-Apr-15	
Decembe 17, 2014	Gene al	Independent Eng nee ng Rev ew Panel	A.5.(b)	The IERP shall be comprised of at least three (3) qualified experts, acceptable to the Chief Inspector, and shall meet at least annually. The minimum objectives of the IERP are to confirm that the design and operation of the TSF is consistent with industry standards of best practice, to identify areas where risk reduction measures may be required and to provide advice that may add value to the safe operation, closure and long term maintenance of the tailings facility.		yes	ongoing	TED	19-Jan-15	
Decembe 17, 2014	Gene al	Independent Eng nee ng Rev ew Panel	A.5 (c)	A report prepared by the IERP shall be submitted to the Chief Inspector within one (1) month of completion of the review meeting.	W th n 1 month of ev ew meet ng	yes	ongoing	TED	15-Apr-15	
Decembe 17, 2014	Gene al	Independent Eng nee ng Rev ew Panel	A.5.(d)	The first meeting of the IERP shall involve a technical review of the design of the 2015 Freshet Embankment and associated upgrades to the TSF. This meeting shall be held prior to March 15, 2015.	Ma ch 15, 2015	yes	completed	TED	15-Apr-15	
Decembe 17, 2014	Gene al	Sha ng of Repo ts	A.6.	Unless otherwise requested, the Permittee shall provide the Williams Lake Indian Band, Xat sull First Nation, Cariboo Regional District, and the Community of Likely with all reports and plans that are required to be submitted to the Chief Inspector under this Permit.	ngo ng	yes	ongoing	TED	15-Apr-15	
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(a)	The Permittee shall ensure employees are not exposed to unacceptable levels of respirable-sized dust or silica in the crusher building.						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(b)	The Permittee shall ensure that workers entering or working in the crusher building are provided with appropriate respiratory protection, and have been instructed in its use and maintenance, the reasons for it and equipment limitations.						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(c)	The Permittee shall ensure that every employee required to wear respiratory protection is fit tested by a certified fit tester. Records of fit testing shall be maintained on site and available for review by an inspector on request						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	The Permittee shall submit a written plan for addressing deficiencies in the crusher ventilation system to the Chief Inspector within 60 days of receipt of this permit amendment The plan shall include the following	W th n 60 days of ece pt f th s pe m t					
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o an assessment of the capacity of the current ventilation system for appropriately controlling workplace contaminants and/or a design plan for a suitable ventilation system to be implemented in the crusher. The assessment and design shall be prepared and signed by a Certified Industrial Hygienist or Professional Engineer with experience in ventilation system design.						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o a plan and schedule for implementation of required modifications or upgrades						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o a maintenance plan for the ventilation system						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o a monitoring and reporting plan for worker exposures to occupational health hazards such as particulate matter and silica prepared by a Certified Industrial Hygienist or Registered Occupational Hygienist						
Decembe 17, 2014	Health and Safety	C ushe Vent lat on	B.1.(d)	o a summary of estimated costs associated with completion of the work						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(a)	The final designs of the TSF Breach Repair for 2015 Freshet and Perimeter Embankment Rockfill Buttress shall meet the criteria specified in the Canadian Dam Association (CDA) Guidelines for a dam classified as Significant failure consequence.						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(b)	The final design of the TSF Breach Repair for 2015 Freshet shall ensure available storage capacity of the calculated 1 in 200 year freshet (rain, snowmelt and surplus mine contact water) with a minimum 1 m freeboard and end-of-construction stability factor of safety of 1.5.						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(c)	The final design of the Perimeter Embankment Rockfill Buttress shall ensure an end-of-construction stability factor of safety of 1.5.						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	Confirmation or modifications to the designs shall be based on an ongoing evaluation of available geotechnical data including the results of field and laboratory testing being completed as part of the dam breach forensic investigation and additional drilling to be completed along the toe of the perimeter embankment. Updates to this design information shall be submitted as follows						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	o By December 19, 2014 a memorandum including updated stability analyses and embankment dam design based on undrained shear strength and effective shear strength parameters for the foundation soils, including results of sensitivity analyses for the peak and residual strength of the glaciolacustrine unit. Shear strength parameters shall be selected based on one standard deviation below the mean values of the data set. The memorandum shall include an assessment of pore pressure increase during construction loading and an associated monitoring procedure	Decembe 19, 2014	yes		CC	18-Dec-14	Golder report Ref. 1413803-027-R-Rev0-2500.
ecembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	o By February 28, 2015 a memo addressing the Expert Review Panel findings, expected to be released at the end of January, with respect to requirements to update the TSF Breach Repair design.	eb ua y 28, 2014					

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	o An update to the design of the TSF Breach Repair based on additional information in the final report of the Expert Review Panel by March 31, 2015.	Ma ch 31, 2015			TED		extension granted because construction not completed by due date.
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(d)	o An update to the design of the Perimeter Embankment Rockfill Buttress based on results of additional site investigation by April 30, 2015.	Ap l 30, 2015					
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	The Permittee shall submit an Adaptive Management Plan, to be prepared by the Engineer of Record on behalf of the Permittee, to the Chief Inspector by January 31, 2015. At a minimum this plan shall include the following	anua y 31, 2015	yes	completed	CC	30-Jan-15	Golder memorandum.
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o identification of risks related to construction and operation of the TSF Breach Repair and Perimeter Embankment Buttress;						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o identification of design considerations taken to address the risks;						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o identification of contingencies options and mitigation measures that are practicable to implement to address the risks;						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o identification of actions to be taken if the required 1 m freeboard cannot be maintained;						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1.(e)	o definition of thresholds, triggers and recommended dates for implementation of each contingency or mitigation measure.						
Decembe 17, 2014	Geotechn cal	Des gns fo TSF B each Repa and Pe mete Embankment Rockf ll Butt ess	C.1 (f)	The designs shall follow an adaptive management plan that considers all geotechnical data as it becomes available and details the action that will be taken to ensure that the TSF Breach Repair and Perimeter Embankment Buttress are constructed to meet the required minimum factor of safety.						
Decembe 17, 2014	Geotechn cal	Const uct on	C.2.(a)	The Permittee shall ensure that full-time engineering supervision is maintained by the Engineer of Record during construction.						
Decembe 17, 2014	Geotechn cal	Const uct on	C.2.(b)	The Permittee shall submit a copy of the construction specifications and QA/QC to the Chief Inspector prior to initial embankment construction.	o to n t al mbankment onst uct on	yes	completed	CC	19-Dec-14	General Technical Specifications prepared by Golder.
Decembe 17, 2014	Geotechn cal	Const uct on	C.2.(c)	The Cutter Soil Mixing (CSM) cut-off wall shall extend at least 1 m into undisturbed, competent till foundation.						
Decembe 17, 2014	Geotechn cal	Const uct on	C.2.(d)	A detailed contingency plan shall be prepared and included as part of the adaptive management plan required by condition C.1.(f) in the event that construction of the CSM cut-off wall is delayed beyond April 1, 2015.	Ap l 1, 2015	yes	completed	CC	30-Jan-15	Included in adaptive management plan.
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(a)	The Permittee shall ensure that the TSF, including the TSF Breach Repair, is operated and monitored in accordance with the Operation, Maintenance and Surveillance (OMS) manual.						
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(b)	The OMS manual for the TSF shall be updated and submitted to the Chief Inspector at least 30 days prior to commissioning of the TSF Breach Repair.	0 days p o to omm ss on ng	?		TED	27-Mar-15	draft received on March 27, 2015, reviewed and comments back to MPI
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(c)	The TSF Breach Repair shall be operated with a minimum freeboard of 1 m.						
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(d)	An Emergency Preparedness and Response Plan (EPRP), incorporating the results of a dam breach analysis and inundation study, shall be prepared and submitted to the Chief Inspector prior to completion of TSF Breach Repair construction.	o to complet on of onst uct on					
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(e)	The findings of the dam breach analysis and inundation study shall be used to re-assess the consequence classification of the TSF. This shall be provided to the Chief Inspector as part of the information required by permit condition A.3.(c).						
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(f)	Seepage collected from the seepage collection pond at the toe of the 2015 Freshet Embankment shall be pumped back to the TSF or otherwise contained to the mine site.	ngo ng	yes	ongoing	TED	15-Apr-15	
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(g)	No unauthorized discharge of water from the TSF shall occur.		yes	ongoing	TED	15-Apr-15	
Decembe 17, 2014	Geotechn cal	Ope at on	C.3.(h)	The EPRP shall be tested consistent with the *Canadian Dam Association Canadian Dam Safety Guidelines 2007 (revised 2013)* . Testing shall be completed by June 30, 2015.	une 30, 2015					
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(a)	A water level system shall be maintained to monitor water level/freeboard within the TSF.						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	A Mine Site Water Monitoring Program specific to water balance monitoring requirements shall be submitted to the Chief Inspector as a component of the Mine Site Water Management Plan required in condition D.2.(a) by January 30, 2015. This program shall be prepared with input from the Engineer of Record, and shall include the following components	anua y 30, 2015	yes	ongoing	TED	15-Apr-15	
ecembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o snowcourses at different elevations across the property,						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o water level monitoring within the TSF,						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o water level monitoring in collection ponds associated with the TSF,						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o water level monitoring of the Springer pit,						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o measurement of mine water flows into and out of the TSF, and						
Decembe 17, 2014	Geotechn cal	Mon to ng	C.4.(b)	o clear linkage to the Adaptive Management Plan and associated contingencies required by condition C.1.(e).						
ecembe 17, 2014	Geotechn cal	Mon to ng	C.4.(c)	Instrumentation, consisting of vibrating wire piezometers, slope inclinometers, shape acceleration array and survey monuments shall be installed in the embankment dam to monitor piezometric levels, foundation movement, and dam fill settlement. Location of instrumentation, instrument reading frequency, trigger levels and actions for various levels of response shall be included in the OMS manual. Records of monitoring shall be kept up to date at the mine and made be available to inspectors upon request.						
ecembe 17, 2014	Geotechn cal	Repo t ng	C.5.(a)	The Permittee shall submit bi-weekly construction progress reports to the Chief Inspector, and Senior Health and Safety Inspector. These reports shall include a summary of construction progress, a schedule update, challenges, and implementation of any contingency measures.	ngo ng	yes	ongoing	TED	15-Apr-15	

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Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(b)	By April 1, 2015, the Permittee shall submit a letter from the Engineer of Record stating that the TSF Breach Repair has been constructed in accordance with the design	Ap l 1, 2015					construction is not yet completed. An interim letter was received in follo
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(c)	The Permittee shall submit an as-built report and construction drawings to the Chief Inspector within three (3) months of completion of construction.	W th n 3 months of omplet on of onst uct on					
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(d)	An annual dam safety inspection shall be completed by a qualified professional geotechnical engineer and a copy of the inspection report shall be submitted to the Chief Inspector within three (3) months of the inspection. The annual dam inspection report shall be prepared in accordance with the Ministry of Energy and Mines *Guidelines for Annual Dam Safety Inspection Reports.*	W th n 3 months of nnual dam safety nspect on					
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(e)	The Permittee shall take immediate steps to carry out remedial action recommended in the annual dam safety inspection report. Any recommendations with respect to health and safety or geotechnical stability are to be followed unless a suitable alternative course of action is approved in writing by the professional undertaking the review, or by a third party Professional Engineer. A report detailing how and when each of the recommendations for remedial action will addressed shall be provided to the Chief Inspector with the annual dam safety inspection and the permittee shall provide written notice to the Chief Inspector when each remedial action has been completed.						
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(f)	A summary of the EPRP test required under condition C.3.(h), including any gaps identified and lessons learned from the test shall be submitted to the Chief Inspector within one month of completion of the testing.	W th n 1 month of omplet on of EPRP est ng					
Decembe 17, 2014	Geotechn cal	Repo t ng	C.5.(g)	A dam safety review (DSR) shall be completed in accordance with the *Canadian Dam Association Canadian Dam Safety Guidelines 2007 (revised 2013)* and *APEGBC Professional Practice Guidelines for Legislated Dam Safety Reviews in BC.* The next DSR shall be completed by December 2016.	Decembe of 2016					
Decembe 17, 2014	Geotechn cal	Reclamat on and Closu e of the TSF	C.6.(a)	The Permittee shall submit an updated plan for reclamation and closure of the TSF prior to September 30, 2015, or in support of any application for restart of operations involving the TSF. This shall include a conceptual spillway design and associated cost estimates	eptembe 30, 2015					
Decembe 17, 2014	Geotechn cal	Reclamat on and Closu e of the TSF	C.6.(b)	The Permittee shall submit a detailed design for reclamation and closure of the TSF, and the closure spillway, at least six (6) months prior to final closure.	months p o to f nal losu e					
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1.(a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure protection of environmental quality.	ngo ng	uncertain	ongoing	TED	15-Apr-15	
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1 (a)( )	No changes shall be made to the criteria for ML/ARD definition, waste handling procedures, mitigation strategies, or materials monitoring program without the approval of the Chief Inspector.	ngo ng	yes	ongoing	TED	15-Apr-15	
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1.(a)( )	No changes may be made to the sampling and analytical parameters outlined in the ML/ARD Material Monitoring, Characterization and Management Program, dated February 2005 and the Mount Polley ABA Sampling Procedure, revision date March 4 2013 without the written permission of the Chief Inspector.	ngo ng	yes	ongoing	TED	15-Apr-15	
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1.(b)	Only non-Potentially Acid Rock Drainage Generating (non-PAG) materials shall be used for construction of the Embankment Repair and Perimeter Buttress.	ngo ng	uncertain	ongoing	TED	15-Apr-15	updated testing results are ongoing and have not been submitted to or
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D 1.(c)( )	Geochemical characterization and monitoring of materials used for construction of the TSF Breach Repair and the Perimeter Embankment Buttress shall be in accordance with the approved ML/ARD monitoring program.		uncertain				
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.1.(c)( )	Weekly field grab samples of all materials used in construction of the TSF Breach Repair and Perimeter Embankment Buttress shall be analyzed to confirm that only non-PAG materials are being used.	Weekly	uncertain				
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(a)	The Permittee shall provide an updated Water Management Plan for the mine site, including a review of the design and operation of the ditch, pipe and pumping system and its ongoing maintenance requirements to ensure that there is sufficient capacity in the water management system to convey designed peak flows to specified locations without overflow or unauthorized discharge to the receiving environment. This plan shall be submitted in writing to the Chief Inspector by January 30, 2015.	anua y 30, 2015	yes	completed	TED	15-Apr-15	
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(b)	The Permittee shall provide a site-wide Water Management Contingency Plan that identifies areas of risk to water management capacity and associated management options that will be available to the site. This plan shall include identification of action thresholds, trigger dates, associated contingency options, and relative priority of each contingency that is identified. This plan shall be submitted in writing to the Chief Inspector by February 13, 2015.	eb ua y 13, 2015	yes	completed	TED	15-Apr-15	
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2 (c)	The plans required to be submitted in D.2.(a) and D.2.(b) may be combined and submitted as one report.		yes	completed	TED	15-Apr-15	
ecembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(d)	The plans required to be submitted in D.2.(a) and D.2.(b) shall be promptly updated to reflect any significant changes to the site or its conditions and resubmitted to the Chief Inspector.		uncertain	ongoing			
ecembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(e)	An updated hydrogeological assessment of the Springer Pit shall be completed to assess connectivity of water contained in the Springer Pit to local groundwater. This work shall be completed by a registered professional with experience in completing such assessments The assessment shall be submitted by February 28 2015	eb ua y 28, 2015	yes	completed	TED	15-Apr-15	
Decembe 17, 2014	P otect on of Land and Wate cou ses	Metal Leach ng and Ac d Rock D a nage	D.2.(f)	The Permittee shall provide an updated long-term Water Management Plan that addresses site-wide water management and water treatment requirements. This plan shall be provided by September 30, 2015 or in support of any application for restart of operations.	eptembe 30, 2015					
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	On or before September 30 2015, and every five (5) years thereafter, the Permittee shall submit an updated site-wide Reclamation and Closure Plan, providing	eptembe 30, 2015, ve y 5 yea s					
ecembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• the current status of the mine plan and reclamation obligations,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• a compilation and interpretation of all monitoring including ML/ARD prediction, water quality and quantity,						
ecembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• closure and maintenance activities,						

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Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• any changes to the reclamation program that affect long-term mitigation,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• reclamation research program,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• contingency plans,						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• schedule for completion of reclamation works, and						
Decembe 17, 2014	Reclamat on and Closu e P og am	F ve Yea M ne Plan and Reclamat on Plan	E.1.	• a breakdown of outstanding liabilities and associated costs.						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	In the event that the mine does not restart operations, or as directed by the Chief Inspector, the Permittee shall submit a site-wide Closure Plan describing	f m ne does not esta t, as d ected by Ch ef nspecto					
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• closure objectives and criteria for each mine component,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• provide the current status of the mine plan and reclamation obligations,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• a compilation and interpretation of all monitoring including ML/ARD prediction, water quality and quantity,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• closure and maintenance activities,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• any changes to the reclamation program that affect long-term mitigation,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• reclamation research and monitoring program,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• contingency plans,						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• schedule for completion of reclamation works, and						
Decembe 17, 2014	Reclamat on and Closu e P og am	Closu e Plan o Tempo a y Closu e Plan	E.2.	• a breakdown of outstanding liabilities and associated costs.						
Novembe 27, 2014	Lette		1	Authorization of excavation of breach slopes to design slope of 3 1 on the northwest side of the breach and 2.5 1 on the southeast side of the breach.						
Novembe 27, 2014	Lette		2	An updated Safe Work Plan setting out the required training and break schedule for the spotter is required prior to the commencement of this work.	o to commencement f th s wo k	yes	completed	CC	05-Nov-14	Prepared by MPMC. Does not include required training and break schedule.
Novembe 27, 2014	Lette		3	All geotechnical work shall be carried out under the supervision of a qualified engineer registered in BC.		yes		TED	15-Apr-15	all correspondence with mine since this amendment indicates Golder is
Novembe 27, 2014	Lette		4	A copy of the original signed and sealed construction drawings shall be submitted as part of the permit amendment application package for the breach repair.						
Novembe 27, 2014	Lette		5	Filter blanket construction and upstream fill placement work is not authorized to commence at this time.						
une 24, 2014	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
une 24, 2014	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
une 24, 2014	Gene al	Pe m t App oval	A.3.	This permit approves phase one of the research project, using only non-potentially acid rock drainage generating (non-PAG) waste rock and non-PAG tailings, to a maximum total volume of 125,000 m^3 of waste rock.						
une 24, 2014	Geotechn cal	Des gn	B.1.(a)	Detailed design for the facility shall be prepared by a Qualified Professional Engineer and submitted to the Chief Inspector prior to commencing construction. Detailed designs shall include a revised stability assessment that considers final design dimensions for the facility berm if different than those used in the conceptual design.	o to const uct on	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Const uct on	B.2.(a)	The facility shall be designed, constructed, and operated as a major impoundment, pursuant to Section 10 of the Code.		NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Const uct on	B.2.(b)	The facility shall be constructed in accordance with the design and construction specifications as outlined in the application and approved by the Engineer of Record. The Engineer of Record shall review the final construction drawings and specifications to verify that recommendations are properly incorporated as per design. Any changes to the proposed method of development shall be provided to the Chief Inspector for review and approval prior to implementation.		NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Const uct on	B.2.(c)	The Permittee shall ensure the facility is constructed under the supervision of a Qualified Professional Engineer.		NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Ope at on	B.3.(a)	Prior to the operation of the facility, an Operation, Maintenance and Surveillance (OMS) manual and an Emergency Preparedness and Response Plan (EPRP) shall be submitted to the Chief Inspector. These documents shall be kept current and updated over time as procedures are modified.	o to ope at on of the ac l ty	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold

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une 24, 2014	Geotechn cal	Ope at on	B.3.(b)	Equipment and personnel shall be restricted from entering an area within 25 degrees of the crest of the dump face. A catch berm with a minimum height of at least 2m high shall be established at each working elevation on this line. This berm shall provide protection from rock roll-outs and serve as an exclusion barrier restricting access to areas closer to the toe of the dump. A safe work procedure shall be prepared to ensure the safety of workers who are working in the co-disposal area. The plan shall be filed with the Chief Inspector prior to commencement of work	o to commencement f wo k	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Mon to ng	B.4.(a)	All waste materials entering the facility shall meet the specifications identified by the Engineer of Record in the stability analyses and design of the facility. Appropriate monitoring, surveillance and testing shall be carried out during the co-disposal trial to confirm that in situ material properties and hydrology conditions are consistent with those used in the stability analysis and design. Results shall be provided to any Mines Inspector upon request.		NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Mon to ng	B.4.(b)	Quality Assurance/Quality Control (QA/QC) shall be documented in the Annual Dam Safety Inspection Report submitted to the Chief Inspector. This shall include items such as material mixing specifications, materials testing, instrumentation, inspection logs, sample test results, and the QAQC procedures used.	Annual Dam Safety nspect on Repo t Ma ch 31)	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	Geotechn cal	Repo t ng	B.5.(a)	A summary of construction activities, including as-built drawings, shall be included in the Annual Dam Safety Inspection Report for work conducted in the previous year. The report shall be submitted to the Regional Mines Inspector and the Chief Inspector by March 31 of the year following the inspection. Reports shall be sealed by a Qualified Professional Engineer and shall include a statement indicating that the facility was constructed in "general conformance with the design and specifications." A complete set of as-built drawings shall be kept at the mine site at all times and be provided to any Mines Inspector upon request.	Annual Dam Safety nspect on Repo t Ma ch 31)	NA	ongoing	MC	04-Dec-14	Waste Rock and Tailings co-mingling project is on hold
une 24, 2014	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(a)	Only non-PAG materials shall be used for this research project, including materials used for construction of the containment berm.						
une 24, 2014	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(b)	The Permittee shall follow the waste rock and tailings sampling program as set out in the application. The Permittee shall inform the Chief Inspector of any proposed changes to monitoring frequency or analytical parameters prior to implementing.	o to mplement ng			TED		This pilot project has not yet been implemented.
une 24, 2014	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(c)	Samples collected as per C.1(b) shall be submitted for acid base accounting analyses performed on site using total carbon and sulfur assays obtained using a LECO furnace and elemental composition by ICP methods following strong acid digestion.				TED		This pilot project has not yet been implemented.
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(a)	Prior to commencement of the research project, the Permittee shall complete a comprehensive survey of seeps from the Southeast Rock Dump. The results of this survey shall be used to inform ongoing monitoring during and following the research project.	o to commencement f the esea ch p o ect			TED		This pilot project has not yet been implemented.
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(b)	Mixing will only occur on days when daily inspections of dump seeps can be performed. Daily seep inspections will be performed during week days from the start of tailings mixing through to a period not shorter than two weeks after mixing has concluded, regardless of whether mixing is occurring on a specific day. Daily seep inspections will include field measurements of conductivity, pH and temperature.	Da ly			TED		This pilot project has not yet been implemented.
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(c)	Seep water quality samples shall be collected and analysed for total and dissolved metals, major cations, pH, sulphate, acidity and alkalinity on a monthly basis when field measurements show changes in trends for conductivity and pH.	When f eld measu ements nd cate end changes			TED		This pilot project has not yet been implemented.
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(d)	The Permittee shall establish a water quality monitoring location before discharge to the Long Ditch, the location of which shall be informed by the seep survey conducted in C.2(a). Samples shall be collected weekly at this location to monitor the quality of water that may be influenced by the research project during a period from the commencement of the trial through to a period not shorter than two weeks after mixing has concluded. After this time, the sample location will become a quarterly water quality sample location. The samples shall be analyzed for total and dissolved metals, major cations, pH, sulphate, acidity and alkalinity using detection limits sufficient to compare to provincial water quality guidelines.	o to d scha ge to the ong D tch			TED		This pilot project has not yet been implemented.
une 24, 2014	P otect on of Land and Wate Cou ses	Wate Qual ty and Quant ty Mon to ng	C.2.(e)	In the event that monitoring indicates tailings migration outside of the deposition area, the Permittee shall immediately stop tailings deposition in the research area and notify the Chief Inspector and Ministry of Environment. The notification shall include a description of measures taken to remediate, monitor and prevent future tailings containment issues should the trial be continued.	f mon to ng nd cates a l ngs m g at on			TED		This pilot project has not yet been implemented.
une 24, 2014	P otect on of Land and Wate Cou ses	Repo t ng	C.3.(a)	Within six months of completion of phase one of the research project, the Permittee shall provide a report to the Chief Inspector presenting waste rock, tailings and all water quality monitoring results, general findings and recommendations related to ongoing monitoring and proposed future research.	W th n 6 months of hase 1 complet on			TED		This pilot project has not yet been implemented.
Ma ch 27, 2014	Gene al	T ansfe Of Pe m t	A.1.	This Permit is not transferable or assignable.						
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Twenty Seven Million Eight Hundred Thousand dollars ($27,800,000.00) bringing the total security for this permit to Thirty Eight Million Three Hundred and Fifty Thousand and Eleven dollars ($38,350,011.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$10,550,011.00	alance as of Ma ch 27, 013	yes	completed	TED	09-Mar-15	
a ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$2,800,000.00	Ap l 1, 2014	yes	completed	TED	09-Mar-15	
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$1,200,000.00	uly 31, 2014	yes	completed	TED	09-Mar-15	
a ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$4,500,000.00	Ma ch 1, 2015	yes	completed	TED	09-Mar-15	one week extension to this payment requested and granted

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Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$6,000,000.00	Ma ch 1, 2016					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$5,500,000.00	Ma ch 1, 2017					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$4,000,000.00	Ma ch 1, 2018					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(a)	$3,800,000.00	Ma ch 1, 2023					
Ma ch 27, 2014	Reclamat on and Closu e P og am	Reclamat on Secu ty	B.1.(b)	Over the life of the mine the security will be adjusted to cover all the costs associated with carrying out all the conditions of this permit. Upon application by the Permittee, the amount of security in condition 6(a) may be reduced if initial mining or development work will create less disturbance and liability, or to reflect reduced liability due to reclamation work completed.						
Ma ch 17, 2014	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Ma ch 17, 2014	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(a)( )	Excavation of the pit slopes shall follow the recommended designs provided in the Cariboo Pit Slope Design report subject to an annual review by a registered Professional Engineer with experience in the design of pit slopes		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (a)( )	Any changes to pit slope designs that result in steeper slopes, higher benches, or deeper pits than those presented in the design report shall be submitted to the Ministry for approval	o to m ne plan hange	Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(b)( )	The minimum final width of pit slope catchment berms, after break-back, shall be 8 m as required by the Health, Safety and Reclamation Code.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (b)( )	Controlled blasting (pre-shearing, trim, or buffer) shall be implemented to minimize damage to the crest and bench face of all final pit walls and all interim pit walls employing double benching, or that will be left in place for more than 12 months.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B 1.(b)( )	Surface drainage shall be diverted away from the pit slopes in accordance with good engineering practice.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(c)( )	Pit walls shall be carefully scaled during pit development to remove loose rock and limit rock fall.	Du ng p t development	Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (c)( )	If access cannot be gained to clean a catchment berm and a danger exists to a person or persons working below, a safe work procedure shall be developed.	f catchment be ms annot be ccessed/cleaned	No	ongoing	MC	04-Dec-14	Catch Benches are filling. Mine is to submit safe work procedure prior to recommencing mining
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(c)( )	A rockfall catch bench and berm shall be maintained in the Springer pit to provide rockfall protection caused by cast-over from the Phase 4 pushback. The structure shall be designed by a by a registered Professional Engineer with experience in rock fall assessment.		Yes	ongoing	MC	04-Dec-14	Needs to be reconfimred once mining recommences in Springer Pit
Ma ch 17, 2014	Geotechn cal	Open P t	B.1.(d)( )	A visual inspection and instrumentation monitoring program shall be established to detect early evidence of any potentially dangerous pit wall instability.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B.1 (d)( )	Slope movement shall be monitored using the methods and frequency as recommended in the design report. A suitable alternative monitoring method may be utilized with the approval of a qualified professional engineer.		Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B 1.(d)( )	Pit slope monitoring procedures including movement threshold levels and response criteria shall be forwarded to the Ministry.		uncertain	ongoing	MC	04-Dec-14	It is understood that the 2014 annual slope stability review was completed by Golder Associates but has not yet been received by MEM
Ma ch 17, 2014	Geotechn cal	Open P t	B 1.(d)( )	The structural geology shall be mapped and evaluated during pit development to assess impacts on pit slope stability, and to verify assumptions used in the design.	Du ng p t development	Yes	ongoing	MC	04-Dec-14	
Ma ch 17, 2014	Geotechn cal	Open P t	B 1.(d)(v)	Ground water pressures shall be monitored and evaluated during pit development to assess impacts on pit slope stability, and to verify assumptions used in the design	Du ng p t development	Yes	ongoing	MC	04-Dec-14	
a ch 17, 2014	Geotechn cal	Open P t	B.1.(e)( )	The results and recommendations of the pit slope performance evaluation and monitoring shall be summarized in an annual report submitted to the Chief Inspector by March 31 of the following year. Recommendations in the report relating to health & safety or geotechnical stability shall be implemented unless a suitable alternative course of action is approved in writing by the professional undertaking the review, or by a third party Professional Engineer.	Ma ch 31st	uncertain	ongoing	MC	04-Dec-14	It is understood that the 2014 annual slope stability review was completed by Golder Associates but has not yet been received by MEM
a ch 17, 2014	Geotechn cal	Open P t	B.1 (e)( )	A report shall be submitted to the Regional Inspector of Mines in the event of a single bench failure resulting in a dangerous occurrence (as defined by the Code) and in the event of a multi-bench failure, regardless of consequence.	ngle bench fa lu e esult ng n a DO	Yes	ongoing	MC	04-Dec-14	
August 9, 2013	Gene al	Compl ance w th M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
August 9, 2013	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 9, 2013	Geotechn cal	Gene al	1.(a)	The stage 9 dam raise to elevation 970.0 m is approved and the Permittee shall ensure construction is carried out in accordance with the design and specifications provided by the design consultant.		Yes	Ongoing	MC	13-Sep-13	
August 9, 2013	Geotechn cal	Gene al	1.(b)	An as-built report with drawings shall be submitted to the Chief Inspector within 6 months of dam construction. The as-built report shall be sealed by a professional engineer and shall include a statement indicating that the facility was constructed in "general conformance with the design". A complete set of as-built drawings shall be kept at the mine site at all times and be provided to any Mines Inspector upon request	W th n 6 months of dam onst uct on					

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uly 25, 2013	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
uly 25, 2013	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
uly 25, 2013	Geotechn cal	West PAG Stockp le	B.1.(a)( )	The design of the West PAG Stockpile to a maximum elevation of 1150m is approved. Suitable stability assessments shall be conducted by a qualified geotechnical engineer and submitted to the Chief Inspector prior to expansion to the 1200m elevation.	o to expans on to the 200 m elevat on	Uncertain	Ongoing	MC	13-Sep-13	To be determined once mining recommences
uly 25, 2013	Geotechn cal	West PAG Stockp le	B.1 (a)( )	The waste rock dump shall be constructed in accordance with the design and construction specifications provided by the design consultant, including (but not limited to) dump advance rates.		Uncertain	Ongoing	MC	04-Dec-14	I have not reviewed the plans for the WRD
uly 25, 2013	Geotechn cal	West PAG Stockp le	B 1.(a)( )	The Northwest ditch is to be extended to the north and east prior to dump expansion in the affected area.	o to dump expans on	Uncertain	Ongoing	MC	04-Dec-14	I have not reviewed the plans for the WRD or Annual Report
uly 25, 2013	Geotechn cal	West PAG Stockp le	B 1.(a)(v)	Topsoil and organics shall be stripped from the foundation of the waste rock dump and stockpiled for future reclamation purposes.		Yes	Ongoing	MC	13-Sep-13	
uly 25, 2013	Geotechn cal	West PAG Stockp le	B.1.(b)	Updated Dump Monitoring Procedures shall be prepared prior to dump development. Updated procedures are to include threshold limits for instrumentation and tracking of advance rates in critical areas. The updated procedure shall be maintained on-site and must be made available to any Mines Inspector upon request.	o to dump evelopment	Uncertain	Ongoing	MC	04-Dec-14	Needs to be assessed However I suspect that updated procedures do not exist
uly 25, 2013	Geotechn cal	H gh G ade O e Stockp le	B.2.(a)( )	The design of the High Grade Ore Stockpile to a maximum elevation of 1110 m is approved.						under review - TED
uly 25, 2013	Geotechn cal	H gh G ade O e Stockp le	B.2 (a)( )	Topsoil and organics shall be stripped from the hillside on which the stockpile will rest and shall be stockpiled for future reclamation purposes.		yes	completed	TED	15-Apr-15	as reported in the 2014 ARR - not confirmed by inspection
uly 25, 2013	Geotechn cal	H gh G ade O e Stockp le	B.2.(b)	The Permittee shall submit a geotechnical assessment report, completed by a qualified geotechnical engineer, to the Chief Inspector for review at least 30 days prior to the start of construction. Any recommendations relating to Health & Safety or geotechnical stability must be completed.	At least 30 days p o to onst uct on	Uncertain		MC		Not reviewed by me
uly 25, 2013	Geotechn cal	South Haul Road	B.3.(a)( )	The design of the South Road to the TSF is approved. Construction and monitoring of the road must be completed in accordance with the design consultant s recommendations.		Uncertain		MC		Not reviewed by me
uly 25, 2013	Geotechn cal	South Haul Road	B.3 (a)( )	Topsoil and organics shall be stripped from the footprint of the South Road and stockpiled in an suitable location available for future reclamation purposes.		Uncertain		MC		Not reviewed by me
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(a)( )	The Permittee shall keep an up to date inventory of the amounts of material placed in each waste rock storage area and the TSF; sampling and available geological information; and, ML/ARD characterization data.	Wh le m n ng s occu ng n a zone of PAG mate als	yes	ongoing	TED	15-Apr-15	review of 2015 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1 (a)( )	When mining is occurring in a zone of PAG materials, weekly sampling of active waste rock dump areas shall be completed to assess segregation quality control. Results of this sampling shall be discussed in the Annual Report for M-200.	Ma ch 31st	yes	completed	TED	15-Apr-15	review of 2015 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(b)( )	All materials used for construction shall be non-PAG and of low risk for neutral metal leaching.		yes	ongoing	TED	15-Apr-15	review of 2015 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(b)( )	Representative sampling of construction materials shall be completed to ensure source materials are non-PAG and of low metal concentration. Results shall be included in annual reporting requirements for M-200.	Ma ch 31st	yes	ongoing	TED	15-Apr-15	review of 2015 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(c)( )	Prior to expansion of the PAG stockpile beyond the existing permitted capacity of 12 million tonnes, a predicted seepage water quality assessment shall be completed and submitted to the Chief Inspector of Mines. This assessment shall ensure that the stockpile pad and water management systems designs for the expanded stockpile are adequate to ensure protection of the environment. If the assessment predicts poor water quality or seepage, mitigation measures shall be included with the report.	o to expand ng the AG Stockp le (> 12 Mtonnes)	no	not completed	TED	15-Apr-15	this work is under way now as part of water discharge planning. Golder Associates and SRK are developing a water quality model and source terms inputs.
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1 (c)( )	Following assessment and implementation of necessary mitigation measures, the temporary PAG stockpile has a permitted capacity of 62 million tonnes of PAG waste rock.	ollow ng C.1.(c)( ) ssessment	uncertain	not completed	TED	15-Apr-15	the current stockpile is less than 62 million tonnes (~16 million tonnes)
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(c)( )	All PAG waste rock contained in this stockpile shall be backhauled to the Springer Pit for permanent subaqueous storage by the end of 2027, as per the schedule outlined in the excel sheet "Polley PAG Mining Schedule", undated, submitted by email on March 21, 2013.	o to end of 2027					
uly 25, 2013	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	C.1.(d)	The maximum capacity of the high grade ore stockpile is 3 million tonnes.		yes	ongoing	TED	15-Apr-15	based on numbers reported in 2014 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.2.(a)	Sampling of seepages from the waste rock dumps, high grade ore stockpiles, and temporary PAG stockpile shall be completed twice per year. Sampling locations shall be identified on a map included as part of the Annual Report for M-200, on March 31st o each year.	w ce a yea	yes	ongoing	TED	15-Apr-15	review of 2015 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.2.(b)	When constructed, the second seepage collection sump at the toe of the PAG stockpile shall be sampled on a monthly basis and results shall be included in the Annual Report.	Ma ch 31st	yes	ongoing	TED	15-Apr-15	review of 2015 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.2.(c)	An on-site water quality monitoring program, outlining the locations and frequencies of water quality samples shall be submitted with the next Reclamation and Closure Plan or the next application for permit amendment, whichever is submitted first. This program shall include a monthly monitoring program for key seepage, ditch and sump locations.		yes	ongoing	TED	15-Apr-15	update to this plan has been requested as part of the application currently undergoing review.
uly 25, 2013	P otect on of Land and Wate Cou ses	Wate Qual ty Model ng	C 3.	A site-wide water quality predictive model completed by a professional with experience in predictive water quality modeling, and based on an up to date mine and waste management plan, shall be submitted to the Chief Inspector by March 31, 2014, or included with the next application for permit amendment, whichever is first. The site-wide model shall consider mine infrastructure, waste rock dumps, stockpiles, TSF and water management for key time steps in the life of the mine.	Ma ch 31, 2014 o next e m t amendment ppl cat on	no	not completed	TED	15-Apr-15	this work is under way now as part of water discharge planning. Golder Associates and SRK are developing a water quality model and source terms inputs.
uly 25, 2013	P otect on of Land and Wate Cou ses	S te W de M t gat on Plan	C 4.	By March 31, 2015, the Permittee shall develop a comprehensive site wide assessment of mitigation required to protect the environmental quality of land and watercourses during operations and long term closure. The report shall identify a schedule for implementation and any future information required to refine mitigation plans.	Ma ch 31, 2015	no	not completed	TED	15-Apr-15	this discussion is not part of ongoing work related to water quality modelling and development of the water discharge applications

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uly 25, 2013	P otect on of Land and Wate Cou ses	Repo t ng	C.5.(a)	Sampling results from all monitoring locations on the mine site that indicate changing trends in water quality shall be included and discussed in the Annual Report.	Ma ch 31st	yes	ongoing	TED	15-Apr-15	review of 2015 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Repo t ng	C.5.(b)	Beginning in 2014, the Annual Report shall include a site map with labels to identify key mine infrastructure such as pits, rock dumps and stockpiles. All water quality monitoring locations shall be identified, including both permitted and non-permitted sampling locations.	eg nn ng Ma ch 31, 014	yes	ongoing	TED	15-Apr-15	review of 2015 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(a)	Sediment control and water management structures shall be installed prior to soil disturbance and construction activities which have the potential to result in sediment mobilization and release.	o to so l d stu bance	uncertain	ongoing	JMC	15-Apr-15	This needs to be assessed during a site inspection. No description of relevant activities could be located in the 2013 ARR.
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(b)	The Permittee shall implement appropriate erosion and sediment control, monitoring and maintenance practices where required site-wide as per the *"Surface Erosion and Sediment Control Plan"*.		uncertain	ongoing	JMC	15-Apr-15	This needs to be assessed during a site inspection. No description of relevant activities could be located in the 2013 ARR. Some description of ESC activities was found in the 2014 ARR, however, the focus was on seed mix application for erosion control, with nothing on effectiveness monitoring.
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(c)	Erosion protection and sediment control structures shall be designed and implemented to appropriately address site-specific erosion potential, modeled flood return, and routing consequence (i.e., closed or open circuit). The Permittee shall routinely monitor and inspect all structures.	out nely	uncertain	ongoing	JMC	15-Apr-15	This needs to be assessed during a site inspection. No description of relevant activities could be located in the 2013 ARR.
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(d)	The Permittee shall implement the activities detailed in *"Environmental Management Plan for the Installation of a Culvert in Bootjack Creek"*.		uncertain	ongoing	JMC	15-Apr-15	This needs to be assessed during a site inspection. No description of relevant activities could be located in the 2013 ARR.
uly 25, 2013	P otect on of Land and Wate Cou ses	Sed ment and E os on Cont ol	C.6.(e)	Road maintenance practices shall pro-actively address run-off control to maintain continuity of constructed sediment control and water management structures.		uncertain	ongoing	JMC	15-Apr-15	This needs to be assessed during a site inspection. No description of relevant activities could be located in the 2013 ARR.
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C.7.(a)	A Soil Management Plan shall be developed and submitted to the Chief Inspector by March 31, 2014 with the Annual Reclamation Report. The plan shall include	Ma ch 31, 2014	yes	completed	TED	15-Apr-15	included in 2013 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C.7.(a)( )	an inventory of all reclamation materials stockpiled on site, including locations and volumes,		yes	completed	JMC	15-Apr-15	included in 2013 ARR
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C.7 (a)( )	an assessment of variability and suitability of reclamation materials based on a representative soil quality sampling program		yes	completed	JMC	15-Apr-15	Appendix P of the 2013 ARR indicates that a sampling program was conducted in September 2013 and results are included in Appendix B. All new soil salvaged will be sampled accordingly and a site-wide sampling program will be implemented every 5 years.
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C 7.(a)( )	a conceptual plan for allocation of reclamation materials, including prescribed site-specific replacement depths, and		uncertain	not completed	JMC	15-Apr-15	The 2013 ARR indicates that the conceptual plan for soil allocation is included in Table 10.3, however it is not. This needs follow up.
uly 25, 2013	P otect on of Land and Wate Cou ses	So l Salvage and Sto age	C 7.(a)(v)	a plan designed to appropriately address soil quality deficiencies by application of organic or inorganic amendments.		yes	completed	JMC	15-Apr-15	A sampling program was conducted and analysis included fertility/nutrient information toward identifying appropriate prescriptions.
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(b)	Topsoil, subsoil, and non-merchantable coarse woody debris shall be salvaged and stockpiled for future reclamation and revegetation activities.		yes	ongoing	JMC	15-Apr-15	The ARRs include salvage information for all reclamation materials and salvage practices are being fine-tuned.
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(c)	Soil suitable for use in reclamation that is recoverable shall not be used as fill.		uncertain	ongoing	JMC	15-Apr-15	This needs to be assessed during a site inspection, however, the necessary protocols are in place to ensure compliance.
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(d)	Stockpiles shall be appropriately protected from erosion and degradation of soil quality, and shall be clearly marked to ensure that they are protected during construction and operations activities.		uncertain	ongoing	JMC	15-Apr-15	Seeding was planned in 2013, but was postponed to 2014. It is not clear if stockpiles are marked. An inspection is required to assess.
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(e)	A suitably qualified professional shall be on site to ensure that all suitable materials for reclamation are salvaged, and properly handled and stored, to the maximum extent possible.		yes	ongoing	JMC	15-Apr-15	To date, environment department staff have at least one appropriately qualified person.
uly 25, 2013	Reclamat on and Closu e	So l Salvage and Sto age	C.7.(f)	An update of soil management and handling activities, including an inventory of materials salvaged, stockpile locations, and erosion and sediment control measures, shall be incorporated in the Annual Reclamation Report and Soil Management Plan.	Ma ch 31st	yes	ongoing	JMC	15-Apr-15	To date, both the 2013 and 2014 ARRs provided updates of these activities, including soil salvage summaries.
uly 25, 2013	Reclamat on and Closu e P og am	Waste Rock Dumps	D.1.	Base pads from temporary waste rock and ore stockpiles shall be cleaned of all PAG prior to placement of growth medium and revegetation. Iterative monitoring programs designed to ensure all remaining material to be reclaimed is non-PAG shall be developed and submitted to the Chief Inspector 60 days prior to the commencement of material rehandling.	0 days p o to ommencement of tockp le ehandl ng					future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	G owth Med um	D.2.(a)	On all lands to be revegetated, the growth medium shall satisfy land use capability and water quality objectives.						future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	G owth Med um	D.2.(b)	Soil replacement depths shall be determined based on salvage volumes of suitable soil, landform design and erosion control, characteristics of ground to be covered, and revegetation species requirements. Soil replacement depths shall be monitored, and the results presented in the Annual Reclamation Report, to ensure that the minimum depths proposed in the Soil Management Plan have been achieved.	Ma ch 31st					future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	G owth Med um	D.2 (c)	Surface preparation shall occur to a degree that appropriately ameliorates the severity of compaction prior to, and after, placement of growth medium, and addressed end land use and capability objectives.						future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	E os on Cont ol	D.3.(a)	The Permittee shall implement progressive reclamation where possible to control erosion around all areas of the mine.		yes	ongoing	JMC	15-Apr-15	Editorial information in the 2013 and 2014 ARRs indicate that progressive reclamation activities are occurring toward controlling erosion on-site. A site inspection is required to confirm.
uly 25, 2013	Reclamat on and Closu e P og am	E os on Cont ol	D.3.(b)	Erosion control shall be achieved through landform configuration, development of maintenance-free vegetation covers, and self-sustaining drainage control features and watercourses.						future compliance check required

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uly 25, 2013	Reclamat on and Closu e P og am	E os on Cont ol	D.3 (c)	All roads not being retained for the designated end land use shall be fully re-configured to conform to adjacent landscape unless long-term stability requirements dictate otherwise.						future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	Revegetat on	D.4.(a)	The Permittee shall limit disturbance to vegetation to those areas in the permit amendment application.						future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	Revegetat on	D.4.(b)	The Permittee shall manage and control invasive species that establish on the site and shall take reasonable efforts to ensure that invasive species do not move from the site to adjacent areas.		yes	ongoing	JMC	15-Apr-15	The 2014 ARR indicates that an RFQ was put out to third party specialists in 2014, but the assessment did not occur due to redistribution of resources on site after the TSF breach.
uly 25, 2013	Reclamat on and Closu e P og am	Revegetat on	D.4 (c)	The Permittee shall ensure that all seed mixes are certified as weed-free.		yes	ongoing	JMC	15-Apr-15	The 2014 ARR indicates that seed mixes are selected on the basis of certification.
uly 25, 2013	Reclamat on and Closu e P og am	Revegetat on	D.4.(d)	Revegetation species shall be selected based on the principles of ecological succession and traditional use and cultural significance, including all reasonable efforts to use only native species unless short-lived agronomic species are required to temporarily control erosion or prevent ingress of invasive species.		yes	ongoing	JMC	15-Apr-15	Based on descriptions in the 2014 ARR, this condition is being met. However a site inspection is needed to confirm.
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on and Closu e Plan	D.5.	An updated Reclamation and Closure Plan shall be submitted to the Chief Inspector by October 31, 2013.	Octobe 31, 2013	superceded				extension requested for submission of an updated plan.
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Thirty One Million Three Hundred Thousand dollars ($31,300,000.00) bringing the total security for this permit to Thirty Eight Million Three Hundred and Fifty Thousand and Eleven dollars ($38,350,011.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule		yes	completed	TED	15-Apr-15	
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$7,050,011.00	alance as of July 25, 013	yes	completed	TED	15-Apr-15	
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$3,500,000.00	eptembe 30, 2013	yes	Completed	TED	15-Apr-15	
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$4,000,000.00	Ma ch 1, 2014	superceded		TED	15-Apr-15	
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$4,500,000.00	Ma ch 1, 2015	yes	Completed	TED	15-Apr-15	
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$6,000,000.00	Ma ch 1, 2016					future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$5,500,000.00	Ma ch 1, 2017					future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$4,000,000.00	Ma ch 1, 2018					future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(a)	$3,800,000.00	Ma ch 1, 2023					future compliance check required
uly 25, 2013	Reclamat on and Closu e P og am	Reclamat on Secu ty	D.6.(b)	Over the life of the mine the security will be adjusted to cover all the costs associated with carrying out all the conditions of this permit. Upon application by the Permittee, the amount of security in condition 6(a) may be reduced if initial mining or development work will create less disturbance and liability, or to reflect reduced liability due to reclamation work completed.						
Ap l 22, 2013	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
Ap l 22, 2013	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
p l 22, 2013	P otect on of Land and Wate Cou ses	Metal Leach and Ac d Rock D a nage Cha acte zat on and Mon to ng	B 1.	Concurrent with milling operations, the Permittee shall characterize and monitor the ML/ ARD potential of the Dome Mountain tailings.	oncu ent w th M ll ng Ope at ons					this material was not processed here.
			B.1.(a)	A monthly record must be kept of the approximate mass of tailings and their general location in the impoundment.						
Ap l 22, 2013	P otect on of Land and Wate Cou ses	Mate als Cha acte zat on	B.1.(b)	Composite samples shall be collected monthly. ABA analysis shall be carried out on the + and - 200 mesh fractions.						
Ap l 22, 2013	P otect on of Land and Wate Cou ses	Mate als Cha acte zat on	B.1.(c)	ABA and elemental analysis are required on every sample						
Ap l 22, 2013	P otect on of Land and Wate Cou ses	Mate als Management	B.1.(d)	Cycloning is not permitted with Dome Mountain tailings.						
Ma ch 25, 2013	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Ma ch 25, 2013	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the regional Inspector of Mines (Mines Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		Yes	ongoing	MC	04-Dec-14	

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Ma ch 25, 2013	Health and Safety	Eme gency Response Plan	B.1.(a)	The Permittee shall implement their Emergency Response Plan (ERP) dated August 1, 2012 and their Mount Polley Underground Procedures submitted as part of this application to the Chief Inspector August 2012. The ERP and Procedures shall be kept up to date and be made available at the mine site at all times		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Health and Safety	Eme gency Response Plan	B.1.(b)	The Permittee shall ensure that mine site employees and contractors are knowledgeable and accountable for fulfilling the actions of the ERP		No	ongoing	MC	04-Dec-14	Mine Employees were not knowledgeable of ERP. Confirm when mining recommences
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(a)	This permit constitutes written acceptance of the conceptual design of proposed underground development.						
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(b)	Effective ground support shall be installed and maintained in accordance with the application, and shall only be varied in	W th n 30 days of the ece pt of pe m t	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)	The Permittee shall maintain at all times, mine plans, drawings, specifications and written descriptions of		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)( )	the geometry of existing and proposed excavations;		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1 (c)( )	the geology of the mine;		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)( )	the rock mass characteristics that are representative of the ore and host rock, and identification of the most common joint sets and faults;		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)(v)	the hydrological features that may affect the working of the mine;		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)(v)	descriptions of previous occurrences of ground instability and recommendations from investigation reports.		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(c)(v)	copies of ground control QC/QA testing results.		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.1.(d)	The mine design shall be continually updated to reflect the actual rock mass and geological structures encountered in the workings. All mine design information must be in a form acceptable to the Chief Inspector and made available to any Inspector of Mines upon request.		Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.2.(a)	The underground workings shall be inspected by a qualified geotechnical engineer to confirm that ground control is adequate. Inspections are to occur as needed, but no less than once per year. Copies of the inspection reports are to be maintained on-site and must be provided to any Mines Inspector upon request.	No less than once pe ea	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.2.(b)	The pit wall above the portal shall be scaled as needed to reduce the risk posed by rockfall to mine personnel.	As needed	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.2.(c)	If high groundwater pressure or persistent seepage is encountered, a hydrogeologist shall be retained to assess the water regime.	f h gh g oundwate o e s stent seepage s ncounte ed	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Unde g ound M ne Plan		C.3	Prior to the commencing of mining, the Permittee shall provide a plan to the Senior Health and Safety Inspector that addresses the stability/safety issues of using a cement backfill. The plan shall include a QC/QA program that includes testing procedures to ensure that the backfill support is effectively mixed, installed and secure.	o to commenc ng of m n ng	Yes	ongoing	MC	04-Dec-14	
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Fifty Thousand dollars ($50,000.00) bringing the total security for this permit to Seven Million and Fifty Thousand dollars ($7,050,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(a)	$7,000,000.00	alance as of Ma ch 013	yes	completed	TED	15-Apr-15	
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(a)	$50,000.00	W th n 30 days of the ece pt of pe m t	yes	completed	TED	15-Apr-15	
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(b)	The Permittee shall conform to all Ministry of Environment approval, license and permit conditions, including the **Environmental Management Act,** Contaminated Sites and Special Waste regulations. The Permittee shall conform to all forest tenure requirements of the Ministry of Forests, Lands and Natural Resource Operations. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						
Ma ch 25, 2013	Reclamat on P og am	Reclamat on Secu ty	C.1.(c)	Over the life of the mine, the security will be adjusted to cover all the costs associated with carrying out the conditions of this permit. Upon application by the Permittee, the amount of security may be reduced if initial mining or development work will create less disturbance and liability.						
Octobe 15, 2012	Gene al	Compl ance w th M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
Octobe 15, 2012	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
ctobe 15, 2012	Geotechn cal	Gene al	B.1.(a)	The stage 8A dam raise to elevation 965 m shall be constructed in accordance with the design and specifications provided by the design consultant		Yes	Completed	HN	26-Apr-13	
une 29, 2012	Gene al	Compl ance w th M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.		Yes	Completed	MC	24-Sep-12	
une 29, 2012	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		Yes	Completed	MC	24-Sep-12	

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une 29, 2012	Geotechn cal	Gene al	1.(a)	The stage 8 dam raise to elevation 963.5 m shall be constructed in accordance with the design and specifications provided by the design consultant		Yes	Completed	MC	24-Sep-12	
une 29, 2012	Geotechn cal	Gene al	1.(b)	The Operation, Maintenance and Surveillance manual shall be updated in 2012 as recommended in the 2011 As-Built report.	n 2012	Yes	Completed	MC	13-Sep-13	
une 29, 2012	Geotechn cal	Gene al	1.(c)	A comprehensive review and update of the site water balance shall be completed and referenced in the 2012 Construction As-Built and Annual Review, which is to be submitted to the Chief Inspector no later than March 31, 2013.	Ma ch 31, 2013	Uncertain		MC		Not reviewed by me
une 29, 2012	Geotechn cal	Gene al	1.(d)	Toe drain flows shall be measured and recorded per requirements described in the OMS Manual. This information shall be referenced in the 2012 Annual Report.	Ma ch 31, 2013	Uncertain		MC		Not reviewed by me
August 15, 2011	Gene al	Compl ance w th the M nes Act and Code	A.1.	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.		NA	Ongoing	MC	04-Dec-14	No mining in Boundary Pit to date. C2 Zone is being incorporated into Caribou Pit and appropriate design report completed
August 15, 2011	Gene al	Depa tu e f om App oval	A.2.	The Permittee shall notify the Chief Inspector and the regional Inspector of Mines (Mines Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		NA	Ongoing	MC	04-Dec-14	No mining in Boundary Pit to date. C2 Zone is being incorporated into Caribou Pit and appropriate design report completed
August 15, 2011	Gene al	M ne al Tenu es	A.3.	Development, including surface disturbance and works, encompassing approximately 921.34 ha held by Mount Polley Mining Corporation (Figure 1) is authorized under the M-200 permit.						
August 15, 2011	Gene al	F st Nat ons	A.4.	The Permittee shall notify the First Nations of the availability of all material reports relevant to the M-200 permit, including annual monitoring reports and material changes to the approved Reclamation Plan. The Permittee shall, submit to the First Nations copies of these reports unless otherwise directed by the First Nations	ngo ng	yes	ongoing	TED	15-Apr-15	based on ongoing discussions with MPMC, this has been confirmed.
August 15, 2011	Gene al	T ad t onal Use Assessment	A.5.	Within one year of issuance of this permit amendment, the Permittee shall have completed a Traditional Use Overview Study over the Mount Polley permit area. This study shall be designed and implemented in consultation with the Williams Lake Indian Band and Xats ull First Nation. A copy of the assessment shall be provided to the Chief Inspector and to the Williams Lake Indian Band and Xats ull First Nation.	W th n 1 yea of pe m t ssuance	yes	completed	TED	15-Apr-15	completed November 2012 and saved on MEM G Drive M-200 reports
August 15, 2011	Geotechn cal	C2 and Bounda y Zone P ts	B.1.(a)	The Permittee shall submit to the Chief Inspector the pit slope design report for the C2 Pit and Boundary Zone Pit for review prior to pit development.	o to p t development	NA	Ongoing	MC	04-Dec-14	No mining in Boundary Pit to date. C2 Zone is being incorporated into Caribou Pit and appropriate design report completed
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2.(a)	The design for the Southeast Rock Disposal site is approved.						
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2.(b)( )	The Permittee shall ensure the foundation preparation is completed in accordance with the design requirements.		Uncertain		MC		Not reviewed by me
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2.(b)( )	The Permittee shall ensure areas of fine-grained soft sediments located on the south side of the dump be removed or pre-loaded with 15 m high lifts prior to construction.	o to const uct on	Yes	Completed	MC	13-Sep-13	
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B 2.(b)( )	The Permittee shall ensure mine access roads, haul roads or buildings not be constructed at the toe of the dump within the area of potential dump failure runout or boulder rollout without prior approval of a variance from the Chief Inspector.	o to const uct on	Yes	Completed	MC	13-Sep-13	
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B 2.(b)(v)	The dump shall be resloped to 2 1 at closure.		NA				Dump is still active
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2.(c)( )	The Permittee shall monitor the waste dump slopes in accordance with the Standard Waste Dump Operating procedures. A copy of the procedures shall be forwarded to the Chief Inspector prior to dump construction	o to dump onst uct on	Superseded	Completed	MC	13-Sep-13	There is a requirement for updated procedures in July 25, 2013 Permit Amendment
August 15, 2011	Geotechn cal	Southeast Rock D sposal S te (SERDS)	B.2 (c)( )	The Permittee shall install wireline extensometers in areas where excessive cracking near the dump crest is observed during dump construction. Dumping shall be suspended if the movement rate exceeds 600 mm/day.		Yes	Completed	MC	13-Sep-13	Wireline monitoring instrumentation reported to be on hand at site
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(a)	The Permittee shall modified the design to avoid construction on the steep terrain (15 to 20°+) located along the west side of the proposed dump. The limit for the dump toe is shown on Figure 5 of the Technical Memorandum issued by Golder Associated, dated May 12, 2011.		Uncertain		MC		Not reviewed by me
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(b)( )	The Permittee shall ensure the foundation preparation is completed in accordance with the design requirements.		Yes	Completed	MC	13-Sep-13	
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(b)( )	Dump construction over areas of soft soils located in the north part of the dump shall be controlled by advancing the crest along the full width of the dump platform to reduce the development of excess pore water pressure in the foundation soil.		Uncertain		MC		Not reviewed by me
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B 3.(b)( )	The Permittee shall ensure mine access roads, haul roads or buildings not be constructed at the toe of the dump within the area of potential dump failure runout or boulder rollout without prior approval of a variance from the Chief Inspector	o to const uct on	Yes	Ongoing	MC	04-Dec-14	
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(c)( )	The Permittee shall monitor the waste dump slopes in accordance with the Standard Waste Dump Operating procedures. A copy of the procedures shall be forwarded to the Chief Inspector prior to dump construction.	o to dump onst uct on					
August 15, 2011	Geotechn cal	Tempo a y PAG Waste Rock Dump	B.3.(c)( )	The Permittee shall install wireline extensometers in areas where excessive cracking near the dump crest is observed during dump construction. Dumping shall be suspended if the movement rate exceeds 600 mm/day.		Yes	Ongoing	MC	04-Dec-14	
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(a)	The design raise to 960.5 m elevation is approved.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(b)( )	The embankment dam shall be constructed in accordance with the design prepared by the design consultant.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(b)( )	Potentially acid generating rock shall not be used in dam construction.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B 4.(b)( )	Cobbles and boulders larger than 100 mm diameter shall be selectively removed from the till during construction of the central core zone.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B 4.(b)(v)	The design consultant shall provide supervision during construction to ensure that the construction specifications are followed.						
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(c)( )	The Operation, Maintenance and Surveillance (OMS) manual shall be updated as necessary to include revised monitoring criteria, including piezometer and slope inclinometer thresholds.		Superseded		MC		
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(c)( )	A minimum water level freeboard of 1 30 m shall be maintained at all times		Superseded		MC		
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(d)( )	The tailings facility and embankment dam shall be monitored in accordance with the updated OMS manual		superseded		MC		
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(d)( )	Damaged or inoperative geotechnical instrumentation including piezometers and slope inclinometers shall be repaired or replaced to ensure ongoing performance monitoring		Uncertain		MC	24-Sep-12	Mine reported that damaged instrumentation was to be replaced. Not followed up by me
August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4.(e)( )	An as-built report shall be submitted within 6 months of dam construction.	W th n 6 months of dam onst uct on	yes	completed	CC	30-Mar-12	GRIT 4759

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August 15, 2011	Geotechn cal	Ta l ngs Sto age Fac l ty	B.4 (e)( )	An annual dam safety inspection report shall be submitted to the Chief Inspector	Annually	Yes	completed	MC	30-Mar-12	GRIT 4759
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure long-term protection of environmental quality.						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1 (a)( )	All plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage shall be prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* .						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(b)( )	The modified ABA sampling guidelines are approved. The Permittee may implement the change from analyzing composite samples to analyzing single samples.						
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(b)( )	The Permittee shall continue to refine predictive testwork to remove uncertainly around the geochemical performance of materials under field conditions and use this information to update effluent quality predictions.		uncertain		TED		water quality predictions have not been made for this site and are being completed now.
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(c)	Waste rock with a NPR (NPR = NP_{ISC}/AP) less than 2.0 is considered potentially acid generating (PAG).		yes	ongoing	TED	15-Apr-15	ARR review
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(d)( )	Approved permanent disposal locations for PAG waste rock are below the flooded elevation in the Caribou, Wight and Southeast Zone pits.		yes	ongoing	TED	15-Apr-15	ARR review
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(d)( )	Seepage from the temporary west PAG stockpile shall be monitored for the on-set of acidic weathering. The monitoring program shall be capable of detecting the onset of significant metal leaching and provide early warning about the onset of ARD. If an early onset of metal leaching or ARD is detected, , the Permittee shall moved to the waste rock to an approved disposal location for PAG rock.		yes	ongoing	TED	15-Apr-15	ARR review
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(d)( )	Materials with potential for ARD shall not be used for construction.		yes	ongoing	TED	15-Apr-15	ARR review
August 15, 2011	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	C.1.(e)	The Permittee shall maintain a current inventory of the deposition locations of waste materials placed in the Caribou pit, Wight pit, Southeast zone pit, Southeast waste rock dump and temporary west PAG stockpile. Required information shall include type of material, from which pit and where within that pit the material is from, tonnes of material deposited, deposition period, location within the dump and relevant geological and ML/ARD characterization data		yes	ongoing	TED	15-Apr-15	ARR review
August 15, 2011	P otect on of Land and Wate Cou ses	Collect on D tches	C 2.	The Permittee shall conduct and maintain a record of routine monitoring of the North and South drainage ditches to ensure that seepage is adequately managed to prevent contaminant loadings to the receiving environment.		yes	ongoing	TED	15-Apr-15	ARR review
August 15, 2011	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.3.(a)	The Permittee shall continue monitor and track any changes to drainage chemistry from individual disturbed areas to include the new mine components temporary west PAG stockpile, waste rock used to buttress the Wight pit high wall and the Southeast waste rock dump. The program shall be capable of detecting significant metal leaching and provide early warning about the onset of ARD or an increase in contaminant loading. Triggers for implementing any mitigation works shall be provided in the MLARD Material Monitoring Characterization and Management Program.		uncertain	ongoing	TED	15-Apr-15	unsure that triggers have been defined for implementation of mitigation works.
August 15, 2011	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.3.(b)	Seepage from each mine component shall be sampled and analyzed monthly.	Monthly	yes	ongoing	TED	15-Apr-15	ARR review
August 15, 2011	P otect on of Land and Wate Cou ses	Wate Qual ty Mon to ng	C.3.(c)	Results of monitoring shall be incorporated into Annual Reclamation report.	Ma ch 31st	yes	ongoing	TED	15-Apr-15	ARR review
August 15, 2011	P otect on of Land and Wate Cou ses	West Haul Road Const uct on	C 4.	The Permittee shall ensure the 200 m. buffer established under the CCLUP for Bootjack Lake and the Old Growth Management Areas are maintained during the reconstruction of the West Haul Road.	Du ng econst uct on of he West Haul Road					
August 15, 2011	Reclamat on P og am	Reclamat on and Closu e Plan	D.1.	The Permittee shall submit an updated Reclamation and Closure Plan by October 31, 2012, which describes closure objectives and criteria for each mine component and, providing the current status of the mine plan and reclamation objectives, a compilation and interpretation of all monitoring data including ML/ARD prediction and water quality; closure and maintenance activities; any changes to the reclamation program that affects long-term mitigation; contingency plans; schedule for completion of reclamation works; and, a breakdown of outstanding liabilities and associated costs. The plan shall include a monitoring and mitigation program for elevated metals and acid rock drainage.	Octobe 31, 2012	superceded				
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Three Million, Nine Hundred and Five Thousand dollars ($3,905,000.00) bringing the total security for this permit to Seven Million dollars ($7,000,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	$3,095,000.00	alance as of August 10, 011	yes	completed	TED	15-Apr-15	
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	$1,301,667.00	W th n 30 days of ece pt f pe m t amendment	yes	completed	TED	15-Apr-15	
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	$1,301,667.00	Ma ch 31, 2012	yes	completed	TED	15-Apr-15	
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(a)	$1,301,667.00	Decembe 31, 2012	yes	completed	TED	15-Apr-15	
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(b)	Included in the security, and subject to separate legal agreements, Mount Polley Mining Corporation. has granted to the Province of British Columbia Asset Security, in the case of equipment, to the extent of One Million Three Hundred and Seventy Thousand Five Hundred and Sixty Six dollars and sixty eight cents ($1,370,566.68).						
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2 (c)	The Permittee shall provide an updated market value appraisal on the subject equipment assets to be undertaken by a qualified appraiser by December 31, 2011.	Decembe 31, 2011					
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(d)	The Permittee shall conform to all Ministry of Environment approval, license and permit conditions, including the **Environmental Management Act,** Contaminated Sites and Special Waste regulations. The Permittee shall conform to all forest tenure requirements of the Ministry of Forests, Lands and Natural Resource Operations. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
August 15, 2011	Reclamat on P og am	Reclamat on Secu ty	D.2.(e)	Over the life of the mine, the security will be adjusted to cover all the costs associated with carrying out the conditions of this permit. Upon application by the Permittee, the amount of security may be reduced if initial mining or development work will create less disturbance and liability						
uly 8, 2009	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.		Uncertain		MC		Pond Zone Pit was either not mined or is now called by different name
uly 8, 2009	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the regional Inspector of Mines (Mines Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.		Uncertain		MC		Pond Zone Pit was either not mined or is now called by different name
uly 8, 2009	Geotechn cal	No th East Waste Rock Dump	1.(a)( )	The conceptual modification to the construction of the North East Waste Rock dump is approved. The Permittee shall submit a final design including a plan and sections of the North East Waste Rock dump to the Mines Inspector and the Geotechnical Inspector of Mines for approval prior to dump construction.	o to dump onst uct on	Uncertain		MC		Northeast Waste Rock Dump was either not built or is now called by different name
uly 8, 2009	Geotechn cal	No th East Waste Rock Dump	1.(a)( )	The Permittee shall submit an updated waste dump operating manual to the Mines Inspector and the Geotechnical Inspector of Mines for approval prior to dump construction.	o to dump onst uct on	Superseded		MC		There is a requirement for updated procedures in July 25, 2013 Permit Amendment
uly 8, 2009	Geotechn cal	Pond Zone P t	2.(a)	Pit wall and bench configurations are approved. The Permittee shall follow the design provided by the design consultant. All work shall be supervised by a qualified geotechnical engineer. The design may be modified based on pit mapping, stability performance and a review by a qualified geotechnical engineer.		Uncertain		MC		Pond Zone Pit was either not mined or is now called by different name
uly 8, 2009	Geotechn cal	Pond Zone P t	2.(b)	The Permittee shall develop a pit slope stability monitoring program that includes regular visual inspection of the pit walls and bench crests. Potentially unstable pit walls shall be monitored with suitable instrumentation and movement criteria developed to warn of impending failure		Uncertain		MC		Pond Zone Pit was either not mined or is now called by different name
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure long-term protection of environmental quality.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)( )	All plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage shall be prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* .						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (b)( )	The Pond Zone Waste Rock Management Plan, dated June 2009 is approved.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	The Permittee shall continue to implement their program of research and monitoring to address where there is significant uncertainty regarding the future geochemical performance of waste rock, high walls and tailings material.						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	The Permittee shall continue to refine predictive testwork to remove uncertainly around the geochemical performance of materials under field conditions and use this information to update effluent quality predictions.		uncertain		TED		water quality predictions have not been made for this site and are being completed now.
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Volcanic rock material, as defined in the application, with an NPR less than <2.0 are considered potentially acid generating (PAG).						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Monzonite rock material, as defined in the application, with total S greater than >0.3% are considered potentially acid generating (PAG)						
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (d)( )	Approved disposal locations for PAG waste rock are in the flooded Caribou Pit, and the flooded Wight Pit below the final flood elevation estimated for closure.		superceded	ongoing	TED	15-Apr-15	
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(d)( )	Materials with the potential for ARD shall not be used for construction.		yes	ongoing	TED	15-Apr-15	
uly 8, 2009	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(e)	The Permittee shall keep a current inventory of all waste materials from the Pond Zone pit placed in the North East waste rock dump and Caribou Pit/Wight Pit. The required information shall include type of material, where in the pit the material is from, tonnes of material deposited, deposition period, location within dump and relevant geological and ML/ARD characterization data.		yes	completed	TED	15-Apr-15	2010 ARR
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Eighty Two Thousand dollars ($82,000.00) bringing the total security for this permit to Three Million, and Ninety Five Thousand dollars ($3,095,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the additional security in accordance with the following installment schedule						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$3,013,000.00	alance as of June 1, 009			TED		the security is up to date for this site. I did not go back and cehck on tim
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$82,000.00	W th n 30 days of the ece pt of th s pe rm t			TED		the security is up to date for this site. I did not go back and cehck on tim
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(b)	Included in the security, and subject to separate legal agreements, Mount Polley Holding Company Ltd. has granted to the Province of British Columbia Asset Security, in the case of equipment, to the extent of One Million Three Hundred and Seventy Thousand Five Hundred and Sixty Six dollars and sixty eight cents ($1,370,566.68).						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(c)	When required by the Chief Inspector, the Permittee shall provide an updated market value appraisal on the subject equipment assets to be undertaken by a qualified appraiser.						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(d)	The Permittee shall conform to all Ministry of Environment approval, license and permit conditions, including the **Environmental Management Act,** Contaminated Sites and Special Waste regulations, as well as the **Wildlife Act** and **Land Act**. Should the Permittee not conform to these conditions then all or part of the security may be used to fulfill these requirements.						
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(e)	The Permittee shall conform to all forest tenure requirements of the Ministry of Forests and Range. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
uly 8, 2009	Reclamat on P og am	Reclamat on Secu ty	1.(f)	Over the life of the mine, the security will be adjusted to cover all the costs associated with carrying out the conditions of this permit. Upon application by the Permittee, the amount of security may be reduced if initial mining or development work will create less disturbance and liability						
Ma ch 6, 2008	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Ma ch 6, 2008	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines (district Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Ma ch 6, 2008	Gene al	Roads	3	This permit approves the transfer of roads to include all rights, maintenance and reclamation obligations as previously dictated under Ministry of Forests and Range, Road Permit #1350 to Permit M-200. Specific sections of roads are listed as Sections 387,388,514,515,516,557,558,559,560,560B, 561,562,563,564, 565, 567 and 589.						
eb ua y 19, 2008	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
eb ua y 19, 2008	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector						
eb ua y 19, 2008	Geotechn cal	Gene al	1.(a)	The stage 6 dam raise to elevation 958 m and downstream buttress shall be constructed in accordance with the design and specifications provided by the design consultant.		yes	completed	CC	10-Jul-09	Report on Stage 6A construction prepared by Knight Piesold GRIT 4530
eb ua y 19, 2008	Geotechn cal	Gene al	1.(b)	The Operation, Maintenance and Surveillance manual shall be updated as necessary to include revised monitoring criteria, including piezometer and slope inclinometer thresholds.		Superseded				
Decembe 5, 2007	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Decembe 5, 2007	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines (district Inspector) in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Decembe 5, 2007	Health and Safety	Safe Wo k P ocedu e	1	A safe work procedure and monitoring program shall be submitted to the district Inspector of Mines, Health and Safety for review before work commences	efo e wo k commences	uncertain			28-Mar-08	Report on East Wall of Wight Pit by Golder. GRIT 4394
Decembe 5, 2007	Geotechn cal	W ght P t Wa l Stab l zat on	1.(a)	Pit stabilization of the east wall is approved subject to the recommendations of the design consultant. Work shall be supervised by a qualified geotechnical engineer. The design may be modified based on pit mapping, stability performance and a review by a qualified geotechnical engineer						
Decembe 5, 2007	Geotechn cal	W ght P t Wa l Stab l zat on	1.(b)	The Permittee shall submit a final report to the Chief Inspector for the pit wall stabilization						
Decembe 5, 2007	Geotechn cal	Waste Rock Dump	2.(a)	Test pits shall be excavated within the proposed waste dump foundation area prior to dump construction to confirm foundation assumptions.	o to dump onst uct on					
Decembe 5, 2007	Geotechn cal	Waste Rock Dump	2.(b)	Weak organic soils shall be removed from the dump footprint.						
Decembe 5, 2007	Geotechn cal	Waste Rock Dump	2.(c)	The Permittee shall submit a final report to the Chief Inspector for the dump construction.						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)	The Permittee shall sample all excavated pit wall material using the protocol set out in the approved ML/ARD Material Monitoring Characterization and Management Program for Mount Polley Mine (dated February 2005).						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)	Material found to be PAG shall be deposited underwater within the Cariboo Pit.						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	Collect on D tches	2	The Permittee shall install a system of drainage diversion and collection ditches to minimize contaminant loadings to the receiving environment.						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	3.(a)	The Permittee shall salvage and retain all suitable topsoil and overburden materials on site for use in final reclamation.						
Decembe 5, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	3.(b)	Woody debris, including stumps, roots, limbs and rotting logs, that is generated during clearing and grubbing of the dump area, shall be stockpiled in suitable locations for subsequent use in the reclamation program to enhance nutrient cycling unless it can be applied directly to a reclamation area.						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(a)	The Permittee shall cause to be deposited with the Minister of Finance by December 31, 2007, additional security in the amount of Two Hundred Thousand ($200,000.00) bringing the total security for this permit to Three Million Thirteen Thousand dollars ($3,013,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector	Decembe 31, 2007					
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(b)	Subject to separate legal agreements, Mount Polley Mining Corporation has granted to the Province of British Columbia Asset Security, in the case of equipment, to the extent of One Million Three Hundred and Seventy Thousand Five Hundred and Sixty-six dollars and sixty eight cents ($1,370,566.68).						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(c)	The Permittee shall provide by March 31, 2008, an updated market value appraisal on the subject equipment assets, to be undertaken by a qualified appraiser.	Ma ch 31, 2008					

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(d)	The Permittee shall conform to all Ministry of Environment and Ministry of Agriculture and Lands approval, license, and permit conditions, including the *Environmental Management Act*, Contaminated Sites and Special Waste regulations, as well as requirements under the *Wildlife Act*. Should the Permittee not conform to these conditions then all or part of the security may be used to fulfill these requirements						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(e)	The Permittee shall conform to all *Land Act* tenure (permit, licence of occupation, statutory right of way or lease) or *Water Act* licence terms and conditions. Should the Permittee not perform any of the required obligations under any *Land Act* tenure or *Water Act* licence, then all or part of the security may be used to cover any costs or expenses incurred by the Province of British Columbia to perform any of these obligations or otherwise satisfy any outstanding obligation under any such tenure or licence.						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(f)	The Permittee shall conform to all forest tenure requirements of the Ministry of Forests and Range. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty	1.(g)	The amount of security will be adjusted for inflation where required. The first adjustment will be made the year following placement of the total security in 1(a) above, but only when the cumulative inflation from January 1, 2008 exceeds 10% based on each of the previous year's annual increase in the British Columbia Consumer Price Index (B.C. CPI).						
Decembe 5, 2007	Reclamat on P og am	Reclamat on Secu ty		This condition supersedes previous Reclamation Security conditions.						
Ma ch 29, 2007	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
Ma ch 29, 2007	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Ma ch 29, 2007	Geotechn cal	Const uct on	1.(a)	The dump shall be constructed to a maximum elevation of 1066 m in accordance with the design prepared by Golder Associates.						
Ma ch 29, 2007	Geotechn cal	Const uct on	1.(b)	Weak organic soils shall be removed from the dump footprint as directed by the design consultant.						
Ma ch 29, 2007	Geotechn cal	Const uct on	1.(c)	A berm or ditch shall be constructed between the toe of the dump and the haul road below to provide rock roll-out protection.						
Ma ch 29, 2007	Geotechn cal	Ope at on	2.(a)	Dump construction and monitoring shall be carried out in accordance with the dump operating procedures developed for the existing Northeast Rock Dump. The procedures shall be up-dated as necessary to include the dump stability and performance monitoring recommendations provided by the design consultant.						
Ma ch 29, 2007	Geotechn cal	Ope at on	2.(b)	Controlled access below the dump is required in accordance with the variance issued for the Northeast Rock Dump						
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	Collect on D tches	1	The Permittee shall install a system of drainage diversion and collection ditches to minimize contaminant loadings from the Northeast Zone dump extension, area of disturbance.						
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	2.(a)	The Permittee shall salvage and retain all suitable topsoil and overburden materials on site for use in final reclamation.						
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	2.(b)	Woody debris including stumps, roots, limbs and rotting logs that is generated during clearing and grubbing of the northeast zone dump extension area, shall be stockpiled in suitable locations for subsequent use in the reclamation program to enhance nutrient cycling unless it can be applied directly to a reclamation area.						
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	Waste Dumps	3	Waste dumps shall be recontoured to 2H 1V slopes as specified in the application, so that final reclamation is consistent with the end land use.						
Ma ch 29, 2007	Reclamat on P og am	Reclamat on Secu ty	1	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Three Hundred and Eighty-three Thousand, Sixty-six dollars and Sixty-eight cents ($383,066.68) bringing the total security for this permit to Two Million Nine Hundred and Eighty-eight Thousand dollars ($2,988,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the security in accordance with the following installment schedule						
a ch 29, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$2,604,933.32	alance as of Ma ch 29, 007					
Ma ch 29, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$33,066.68	Ap l 30, 2007					
Ma ch 29, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$25,000.00	Monthly f om May 30, 007 to June 30, 2008					
Ma ch 29, 2007	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
a ch 29, 2007	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Ma ch 29, 2007	Wo k System	App oval of Leach Pad and Coppe Recove y Fac l ty	1	Design, construction and operation of the leach pad and copper recovery facility is approved.						
Ma ch 29, 2007	Geotechn cal	Leach Pad L ne	1.(a)	The Permittee shall construct the leach pad in accordance with the design by Knight Piéshold dated October 30, 2006.						
a ch 29, 2007	Geotechn cal	Leach Pad L ne	1.(b)	The Permittee shall hydraulically test the leach pad liner system for leaks prior to operating.	o to ope at ng the each test pad					

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Ma ch 29, 2007	Geotechn cal	Leach Pad L ne	1.(c)	The Permittee shall monitor the drainage system, pump back system and, if applicable, the pipeline to the mill. The monitoring procedure shall be prepared and submitted to the Chief Inspector prior to operating the leach test pad	o to ope at ng the each test pad	yes	completed	CC	01-Jun-07	GRIT4323/4325
Ma ch 29, 2007	P otect on of Land and Wate Cou ses	Env onmental Mon to ng and Su ve llance	1	The Permittee shall summarize all monitoring data and submit results in the Annual Reclamation Report submitted March 31st of each year.	Ma ch 31st					
Ma ch 29, 2007	Reclamat on P og am	Heap Leach Ope at ons and Closu e	1.(a)	All heap leach operations and closure conditions shall be completed to the satisfaction of the Chief Inspector and Ministry of Environment Regional Manager.						
Ma ch 29, 2007	Reclamat on P og am	Heap Leach Ope at ons and Closu e	1.(b)	All PAG material from the spent heap leach test must be permanently disposed of in the flooded locations of the Cariboo pit unless otherwise processed within the mill.						
August 31, 2007	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
August 31, 2007	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 31, 2007	Geotechn cal	Const uct on	1	The Permittee shall ensure weak organic soils be removed from the dump footprint as directed by the design consultant.						
August 31, 2007	Geotechn cal	Ope at on	2	The Permittee shall ensure the Polley Lake Road be closed during construction of the Boundary Road when potential rock rollout from new road construction presents a hazard to the Polley Lake Road users.						
August 31, 2007	Geotechn cal	Mon to ng	3	The Permittee shall develop a program to monitor excessive crest settlement or toe displacement during road construction.						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)	The Permittee shall sample all road fill material using the protocol set out in the approved ML/ARD Material Monitoring Characterization and Management Program for Mount Polley Mine (dated February 2005).						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)	Road fill material are defined as having the potential to be ARD generating (PAG) if they have a paste pH <6 or NP/AP <2, where AP is calculated using total S and NP is determined by carbonate analyses.						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)	Material found to be PAG shall be deposited underwater within the Cariboo Pit.						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(d)	Materials with a paste pH <6 or NP/AP <2 shall not be used for construction purposes.						
August 31, 2007	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(e)	No changes shall be made to the criteria for PAG definition waste handling procedures, mitigation strategies or materials monitoring program without the prior approval of the Chief Inspector.						
August 31, 2007	P otect on of Land and Wate Cou ses	Collect on D tches	2	The Permittee shall install a system of drainage diversion and collection ditches to minimize contaminant loadings from the Boundary Road area of disturbance.						
August 31, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	3.(a)	The Permittee shall salvage and retain all suitable topsoil and overburden materials on site for use in final reclamation.						
August 31, 2007	P otect on of Land and Wate Cou ses	So l Salvag ng	3.(b)	Woody debris including stumps, roots, limbs and rotting logs that is generated during clearing and grubbing of the northeast zone dump extension area, shall be stockpiled in suitable locations for subsequent use in the reclamation program to enhance nutrient cycling unless it can be applied directly to a reclamation area.						
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Two Thousand dollars ($2,000.00) bringing the total security for this permit to Three Million dollars ($3,000,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the security in accordance with the following installment schedule						
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$2,713,000.00	alance as of June 29, 007					
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$50,000.00	August 30, 2007					
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$25,000.00	eptembe 30, 2007					
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$25,000.00	Octobe 31, 2007					
August 31, 2007	Reclamat on P og am	Reclamat on Secu ty	1	$187,000.00	Decembe 31, 2007					
August 2, 2006	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
August 2, 2006	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 2, 2006	Health and Safety	Mon to ng	1	Conditions 1 2 and 3 of permit M-200 amended November 1 2004 are hereby deleted						
August 2, 2006	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
August 2, 2006	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector						
August 2, 2006	Geotechn cal	Gene al	1	The Permittee shall obtain the necessary permits and licences for water discharge and water diversion from the Ministry of Environment.						
August 2, 2006	Geotechn cal	Const uct on	2.(a)	Construction of the Stage 5 dam raise to elevation 951 m shall be in accordance with design and construction specifications provided by the design consultant.						
August 2, 2006	Geotechn cal	Const uct on	2.(b)	Foundation drains, toe drains and associated water collection and recycle systems shall be extended or installed as specified by the design consultant.						
August 2, 2006	Geotechn cal	Ope at on	3.(a)	The tailings storage facility shall be operated in accordance with the Operation, Maintenance and Surveillance (OMS) manual.		yes	completed	CC	28-Aug-06	GRIT 4190
August 2, 2006	Geotechn cal	Ope at on	3.(b)	The tailings pond shall be operated with a minimum freeboard of 1.39 m.						
August 2, 2006	Geotechn cal	Mon to ng	4.(a)	The inclinometers installed through the lacustrine unit downstream of the Main Embankment shall be monitored to determine possible deflection with respect to the baseline survey using a standard inclinometer probe.		yes	ongoing	CC		
August 2, 2006	Geotechn cal	Mon to ng	4.(b)	Monitoring of piezometers, slope inclinometers and survey monuments shall be carried out in accordance with the OMS manual or as specified by the design consultant.						
August 2, 2006	Geotechn cal	Mon to ng	4.(c)	Any damage to piezometer cables from construction activities shall be repaired or replaced in a prompt fashion to allow ongoing assessment of piezometric levels as specified by the design consultant						
August 2, 2006	Geotechn cal	Repo t ng	5.(a)	An as-built report shall be submitted within six months of completion of Stage 5 construction		yes	completed	CC	27-Mar-08	Report by Knight Piesold GRIT 4399
August 2, 2006	Geotechn cal	Repo t ng	5.(b)	An annual dam safety inspection report shall be prepared and to be submitted by July 31 2007	uly 31, 2007					
August 2, 2006	Geotechn cal	Repo t ng	5.(c)	A formal dam safety review shall be completed in 2006 and at an interval of 7 years based on the high consequence classification.	006, and eve y 7 yea s	yes	completed	CC	01-Dec-06	Report by AMEC, GRIT 4243
Novembe 24, 2005	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Novembe 24, 2005	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
Novembe 24, 2005	Geotechn cal	East Waste Rock Dump	1.(a)( )	The Permittee shall submit a final design including a plan and sections of the East Waste Rock dump to the district Inspector of Mines and Geotechnical Inspector of mines for approval prior to dump construction.	o to dump onst uct on	uncertain	completed	CC	21-Dec-06	Report by MPMC, GRIT 4245
Novembe 24, 2005	Geotechn cal	East Waste Rock Dump	1.(a)( )	The Permittee shall submit an updated waste dump operating manual to the district Inspector of Mines and Geotechnical Inspector of mines for approval prior to dump construction.	o to dump onst uct on					
Novembe 24, 2005	Geotechn cal	Southeast Zone P t	2.(a)	Pit wall and bench configurations shall follow the initial design provided by the design consultant. The design shall be updated, at least an annual basis, based on pit mapping and a pit wall stability performance conducted by a qualified geotechnical engineer.						
Novembe 24, 2005	Geotechn cal	Southeast Zone P t	2.(b)	The Permittee shall develop a pit slope stability monitoring program for the Southeast Zone pit that includes regular visual inspection of the pit walls and bench crests. Potentially unstable pit walls shall be monitored with suitable instrumentation and movement criteria developed to warn of impending failure. A copy of the pit slope monitoring manual shall be submitted to the Chief Inspector within 6 months of the start of mining the Southeast zone pit.	W th n 6 months of the ta t of m n ng the outheast Zone p t					
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure long-term protection of environmental quality.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)( )	All plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage shall be prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* .						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (b)( )	MLARD Material Monitoring Characterization and Management Program for the Mt Polley Mine, submitted February 2005, are approved.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	The Permittee shall continue to implement their program of research and monitoring to address where there is significant uncertainty regarding the future geochemical performance of waster rock, high walls and tailings material.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	The Permittee shall continue to refine predictive testwork to remove uncertainly around the geochemical performance of materials under field conditions and use this information to update effluent quality predictions.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Materials with an NPR less than 2.0 are considered potentially acid generating (PAG).						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Materials that contain or have the ability to produce soluble contaminates in high enough concentrations to exceed provincial guidelines for aquatic life, are considered to have a potential for metal leaching (ML).						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (d)( )	The only approved disposal location for PAG waste rock is in the flooded Caribou Pit, below the final flood elevation estimated for closure.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(d)( )	Materials with the potential for ARD shall not be used for construction.						
Novembe 24, 2005	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(e)	The Permittee shall keep a current inventory of all waste materials from the Southeast zone pit placed in the East waste rock dump and Caribou Pit. The required information shall include type of material, where in the pit the material is from, tonnes of material deposited, deposition period, location within dump and relevant geological and ML/ARD characterization data.						

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Novembe 24, 2005	Reclamat on P og am	Reclamat on Secu ty	1.(a)	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Six Hundred Thousand dollars ($600,000.00) bringing the total security for this permit to Two Million, Eight Hundred and Five Thousand dollars ($2,805,000.00). The Permittee shall deposit the additional security in accordance with the following installment schedule						
Novembe 24, 2005	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$2,205,000.00	alance as of Novembe 4, 2005					
Novembe 24, 2005	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$25,000.00	Monthly f om Novembe 0, 2005 to Octobe 31, 007					
Novembe 24, 2005	Reclamat on P og am	Reclamat on Secu ty	1.(b)	In the event that the mine ceases production operations, the full outstanding amount of the security must be provided within 30 days.	W th n 30 days of ceased pe at ons					
August 2, 2005	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the *Mines Act* and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
August 2, 2005	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 2, 2005	Geotechn cal	Const uct on	1	Construction of the road shall not commence until an adequate toe-buttress below the East RDS, currently under construction, has been completed.	o to oad onst uct on					
August 2, 2005	Geotechn cal	Ope at on	2.(a)	No dumping will be allowed on the East RDS when the haul road is in use.						
August 2, 2005	Geotechn cal	Ope at on	2.(b)	A procedure shall be developed to ensure the dump is closed during haulage operations.						
August 2, 2005	Geotechn cal	Mon to ng	3	Monitoring procedures will be in place on the East RDS to make sure that no movement is taking place before and during haulage operations.						
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Six Hundred and Seventy Thousand dollars ($670,000.00) bringing the total security for this permit to Two Million Seven Hundred and Seventy Thousand dollars ($2,770,000.00). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector. The Permittee shall deposit the security in accordance with the following installment schedule						
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	$2,100,000.00	alance as of Novembe 4 2005					
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	$80,000.00	0 days afte pe m t ssuance					
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	$295,000.00	Octobe 30, 2005					
August 2, 2005	Reclamat on P og am	Reclamat on Secu ty	1	$295,000.00	Octobe 30, 2006					
May 25, 2005	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
May 25, 2005	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
May 25, 2005	Geotechn cal	Gene al	1	The Permittee shall obtain the necessary permits and licences for water discharge and water diversion from the Ministry of Water, Land and Air Protection and Land and Water British Columbia Inc						
May 25, 2005	Geotechn cal	Const uct on	2.(a)	Construction of the Stage 4 dam raise to elevation 948 m shall be in accordance with design and construction specifications provided by the design consultant						
May 25, 2005	Geotechn cal	Const uct on	2.(b)	Foundation drains, toe drains and associated water collection and recycle systems shall be extended or installed as specified by the design consultant						
ay 25, 2005	Geotechn cal	Ope at on	3.(a)	The tailings storage facility shall be operated in accordance with the Operation, Maintenance and Surveillance (OMS) manual.		yes	completed	CC	31-Mar-06	GRIT 4138
May 25, 2005	Geotechn cal	Ope at on	3.(b)	The tailings pond shall be operated with a minimum freeboard of 1.39 m.						
ay 25, 2005	Geotechn cal	Mon to ng	4.(a)	Three additional slope inclinometers shall be installed at the Main Embankment.		yes	completed	CC		
ay 25, 2005	Geotechn cal	Mon to ng	4.(b)	Monitoring of piezometers, slope inclinometers and survey monuments shall be carried out in accordance with the OMS manual or as specified by the design consultant.						
May 25, 2005	Geotechn cal	Repo t ng	5.(a)	An as-built report shall be submitted within six months of completion of Stage 4 construction.	W th n 6 months of omplet on of Stage 4 onst uct on	yes	completed	CC	13-Mar-07	Report by Knight Piesold, GRIT 4301
May 25, 2005	Geotechn cal	Repo t ng	5.(b)	An annual dam safety inspection report shall be prepared and to be submitted by July 31 2006	uly 31, 2006	yes	completed	CC	03-May-06	Report by Knight Piesold, GRIT 4146
ay 25, 2005	Geotechn cal	Repo t ng	5.(c)	A formal dam safety review shall be completed in 2006 and at an interval of 7 years based on the high consequence classification.	006, and eve y 7 yea s	yes	completed	CC	01-Dec-06	Report by AMEC, GRIT 4243
Novembe 1, 2004	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
Novembe 1, 2004	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the district Inspector of Mines in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Novembe 1, 2004	Gene al	Closu e Management Manual	3	Six months prior to final closure, the Permittee shall submit a Closure Management Manual which describes and documents key aspects of the operational surveillance and monitoring requirements used to track important changes that could affect long-term mitigation performance, monitoring and maintenance requirements. This document shall be a living document with updates submitted to this Ministry whenever significant changes occur	Months p o to f nal losu e					
Novembe 1, 2004	Health and Safety	Blast ng Mon to ng	1.(a)	The Permittee shall monitor for ground vibration and overpressure at a point half way between the mine and the nearest residence. Results shall be submitted monthly to the district Inspector of Mines for review.	Monthly					
Novembe 1, 2004	Health and Safety	Blast ng Mon to ng	1.(b)	At least six hours prior to a blast, the Permittee shall notify the private residences that are within two kilometers of the blast site.	At least 6 hou s p o to blast					
Novembe 1, 2004	Health and Safety	Dust Mon to ng	2	The Permittee shall monitor for dust (PM^{10}) at a point half way between the mine and the nearest residence. Results shall be submitted monthly to the district Inspector of Mines for review.	Monthly					
Novembe 1, 2004	Health and Safety	No se Mon to ng	3	The Permittee shall monitor for noise at a point half way between the mine and the nearest residence. Results shall be submitted monthly to the district Inspector of Mines for review.	Monthly					
Novembe 1, 2004	Geotechn cal	Const uct on and Ope at on of No theast Zone Waste Dump	1.(a)( )	Test pits shall be excavated within the proposed waste dump foundation area prior to dump construction to confirm assumptions used in the design.	o to dump onst uct on	yes	completed	CC	08-Feb-06	Report by Golder, GRIT 4125. Waste dump assessment report by Golder dated October 28, 2005, GRIT 4126
Novembe 1, 2004	Geotechn cal	Const uct on and Ope at on of No theast Zone Waste Dump	1.(a)( )	Waste dump construction shall be undertaken in accordance with the design provided by the design consultant with an overall slope of 2 1						
Novembe 1, 2004	Geotechn cal	Const uct on and Ope at on of No theast Zone Waste Dump	1.(a)( )	Fine-grained weathered rock spoil and overburden soil shall be assigned to the west half of the dumping platforms.						
Novembe 1, 2004	Geotechn cal	Const uct on and Ope at on of No theast Zone Waste Dump	1.(b)	Dump slope stability monitoring shall be undertaken with a program developed for routine visual inspection. Wireline extensometers shall be installed if cracks behind the dump crest develop and crack displacement exceeds 10 cm						
Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2 (a)( )	Pit wall and bench configurations shall follow the initial design provided by the design consultant. The design may be modified based on pit mapping, stability performance and a review by a qualified geotechnical engineer.						
Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2.(a)( )	A design report shall be submitted for approval prior to excavation of the thick soil overburden deposits located in the southeast quadrant.	o to excavat on of the h ck so l ove bu den epos ts located n the outheast quad ant					
Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2.(a)( )	Final pit walls shall be developed using controlled blasting methods.						
Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2.(a)(v)	Horizontal drain holes shall be installed during mining to control groundwater flow and improve pit wall stability. Spacing and depth of the drain holes have been provided by the design consultant	Du ng m n ng					
Novembe 1, 2004	Geotechn cal	P t Slope Stab l ty	2.(b)	The Permittee shall develop a pit slope stability monitoring program that includes regular visual inspection of the pit walls and bench crests and survey monitoring of prisms in the southeast quadrant. Potentially unstable pit walls shall be monitored with suitable instrumentation and movement criteria developed to warn of impending failure. A copy of the pit slope monitoring manual shall be submitted to the Chief Inspector within 6 months of the start of mining.	W th n 6 months of the ta t of m n ng					
Novembe 1, 2004	Geotechn cal	Hyd ogeolog cal Cond t ons	3.(a)	Prior to mining, the Permittee shall install four to six dewatering wells through the overburden soil between the east pit crest and Polley Lake. An as-built report of the well installations and the water discharge system shall be submitted to the Chief Inspector.	o to m n ng					
Novembe 1, 2004	Geotechn cal	Hyd ogeolog cal Cond t ons	3.(b)	The Permittee shall install a system of groundwater monitoring wells/piezometers between the east pit crest and Polley Lake to monitor the effectiveness of the pumping wells. A contingency plan shall be developed to ensure both sufficient drawdown of the groundwater level as well as stability of the east pit wall.						
Novembe 1, 2004	Geotechn cal	Sp nge P t	4	The Permittee shall, prior to mining the Springer Pit, submit final mine design plans to the Chief Inspector for approval.	o to m n ng the p nge P t					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Repo t ng	1.(a)	By March 31st of each year, an Annual Reclamation Report shall be submitted in a form containing the information required by the Chief Inspector. The annual Reclamation Report shall document the current status of the work system and reclamation obligations, outstanding liability and associated costs, and all monitoring including water quality, and ongoing maintenance activities.	Ma ch 31st					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Repo t ng	1.(b)	An updated Closure Plan shall be submitted by **March 31, 2009** providing the current status of the work system and reclamation obligations, a compilation of all monitoring including ML/ARD prediction, water quality, closure and maintenance activities, any changes to the reclamation program that affect long-term mitigation, contingency plans, schedule for completion of reclamation works, and a breakdown of outstanding liabilities and associated costs.	Ma ch 31, 2009					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (a)( )	All materials with the potential to generate ML/ARD shall be placed in a manner that minimizes the production and release of metals and contaminants to levels that assure long-term protection of environmental quality.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(a)( )	All plans for the prediction, and if necessary, the prevention, mitigation and management of metal leaching and acid rock drainage shall be prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia*						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1 (b)( )	Materials with an NPR less than 2.0 are considered potentially acid generating (PAG).						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(b)( )	Materials that contain or have the ability to produce soluble contaminates in high enough concentrations to exceed provincial guidelines for aquatic life, are considered to have a potential for metal leaching (ML).						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	The only approved disposal location for PAG waste rock is in the flooded Caribou Pit, below the final flood elevation estimated for closure.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(c)( )	Materials with the potential for ARD shall not be used for construction.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage	1.(d)	The Permittee shall keep a current inventory of waste materials placed in each waste dump. The required information shall include type of material, location in pit where material is from, tonnes of material deposited, deposition period, location within dump and relevant geological and ML/ARD characterization data.						

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
Novembe 1, 2004	P otect on of Land and Wate Cou ses	ML/ARD Mate al Cha acte zat on and Management Plan	3	The Permittee shall submit to the Chief Inspector by **December 31, 2004,** a Material Characterization and Management Plan to be used site wide to guide in the characterization and placement of materials with ML/ARD potential at the Mount Polley Mine. This plan shall include a geochemical and mineralogical description of all waste materials, their capacity to produce ARD and/or metal leaching, estimated volumes, their final deposition location and how segregation during mining will be managed. The plan shall also include specific details of the sampling program including frequency, sample methodology, when sample was taken, types of analyses conducted, lab methodologies, QA/QC procedures and data management.	Decembe 31, 2004					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	D a nage Mon to ng	4	Pursuant to the Ministry of Water, Lands and Air Protection Permit PE11678, the Permittee shall continue to monitor and track changes to drainage chemistry from disturbed areas and waste materials through a surface water, seepage and groundwater monitoring program. The program shall be capable of detecting significant metal leaching and provide early warning about the onset of ARD or an increase in contaminant loading. A summary of results shall be provided in the annual reclamation report.	Ma ch 31st					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	D a nage Management and Collect on	5.(a)	The Permittee shall maintain a system of drainage diversion and collection ditches to minimize contaminant loadings for areas of disturbance or waste disposal.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	D a nage Management and Collect on	5.(b)	In the event that the mine site drainage is not of acceptable discharge quality, the Permittee shall collect and treat, or otherwise mitigate drainage for as long as is necessary.	f not of acceptable scha ge qual ty					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	M t gat on/Cont ngency Plans	6	Pursuant to section 5(b) above, the Permittee must develop mitigation plans demonstrating how contaminant loadings will be reduced and receiving environment reclamation objectives will be achieved. Where there is significant uncertainty or environmental risk, contingency plans with trigger mechanisms and resources required to implement them are required. Mitigation and contingency plans shall be described in the updated Closure Plan due **March 31, 2009**.	Ma ch 31, 2009					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Resea ch	7	The Permittee shall continue to conduct research in order to better address the uncertainty of metal leaching/ARD future performance and to predict the results of prolonged aerial weathering of the PAG and non-PAG waste types. Specific research programs shall be described in the ML/ARD Characterization and Management Plan	Decembe 31, 2004					
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Mon to ng fo Ove p essu e n Polley Lake	8.(a)	The Permittee shall develop a monitoring plan to monitor for overpressure in Polley Lake as a result of blasting. This plan shall be sent to the regional habitat biologist, Department of Fisheries and Oceans, Williams Lake, for approval, with a copy sent to the district Inspector of Mines.						
Novembe 1, 2004	P otect on of Land and Wate Cou ses	Mon to ng fo Ove p essu e n Polley Lake	8.(b)	Should exceedances in overpressure be recorded, as deemed by the regional habitat biologist, the Permittee shall adjust their blasting program as required to reduce negative effects on fish.	f ove p essu e xceedances a e dent f ed by the eg onal ab tat b olog st					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	(a) The Permittee shall cause to be deposited with the Minister of Finance additional security in the amount of Seven Hundred and Ninety Thousand dollars ($790,000.00). The Permittee shall deposit the additional security in accordance with the following installment schedule						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$100,000.00	W th n 30 days afte e m t ssuance					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$100,000.00	ta t of onst uct on/g ubb ng					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$295,000.00	Octobe 30, 2005					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(a)	$295,000.00	Octobe 30, 2006					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(b)	Subject to separate legal agreements, Mount Polley Holding Company Ltd. has granted to the Province of British Columbia Asset Security, in the case of equipment, to the extent of One Million Three Hundred and Seventy Thousand Five Hundred and Sixty Six dollars and sixty eight cents ($1 370 566 68)						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(c)	The Permittee also has posted security in the amount of Five Hundred and Twenty-nine Thousand Four Hundred and Thirty-three dollars and thirty-two cents ($529,433.32), which is held under a safekeeping agreement.	alance to date 529,433.32 n SKA					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(d)	When the security has been posted according to the schedule in 1(a) above, a total security of Two Million Six Hundred and Ninety Thousand dollars ($2,690,000.00) shall be maintained by the Permittee.	otal of $2,690,000.00 fte Octobe 30, 2006 epos t					
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(e)	When required by the Chief Inspector, the Permittee shall provide an updated market value appraisal on the subject equipment assets to be undertaken by a qualified appraiser.						
ovembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(f)	The Permittee shall conform to all Ministry of Water, Land and Air Protection and Land and Water British Columbia Inc. approval, license and permit conditions, including the **Environmental Management Act,** Contaminated Sites and Special Waste regulations, as well as the **Wildlife Act** and **Land Act**. Should the Permittee not conform to these conditions then all or part of the security may be used to fulfill these requirements.						
ovembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(g)	The Permittee shall conform to all forest tenure requirements of the Ministry of Forests. Should the Permittee not conform to these requirements then all or part of the security may be used to cover the costs of these requirements.						
Novembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.(h)	The amount of security will be adjusted for inflation where required. The first adjustment will be made the year following placement of the total security in 1(a) above, but only when the cumulative inflation from January 1, 2007 exceeds 10% based on each of the previous year's annual increase in the British Columbia Consumer Price Index (B.C. CPI).						
ovembe 1, 2004	Reclamat on P og am	Reclamat on Secu ty	1.( )	Over the life of the mine, the security will be adjusted to cover all the costs associated with carrying out the conditions of this permit. Upon application by the Permittee, the amount of security may be reduced if initial mining or development work will create less disturbance and liability.						
eb ua y 16, 2004	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						

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eb ua y 16, 2004	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1	Concurrent with milling operations, the Permittee shall characterize and monitor the ML/ ARD potential of the International Wayside tailings						
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(a)	A monthly record must be kept of the approximate mass of tailings and their general location in the impoundment.	Monthly					
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(b)	Composite samples shall be collected monthly. Analysis shall be carried out on the + and - 200 mesh fractions.	Monthly					
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(c)	ABA and elemental analysis are required on every sample. ABA analyses shall include paste pH, Total-S, Sulphate-S, Sobek NP, and Total-C. Elemental analyses shall include measurements of all major cations (Al, Ca, Fe, K, Mg, Na) and trace elements (As, Ba Cd Co Cr Cu Mn Mo Ni P Pb Sb Se Zn)						
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(d)	Metal solubility (shake flask tests) shall be conducted bi-monthly on representative samples of tailings produced. Analyses shall include pH and all major and trace elements listed in (c) above.	-monthly					
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(e)	Mineralogical tests (XRD-SEM) shall be conducted bi-monthly on representative samples of tailings produced to determine the proportion and type of sulphide minerals present, and to identify neutralizing minerals including the distribution and type of carbonate minerals present.	-monthly					
eb ua y 16, 2004	P otect on of Land and Wate Cou ses	Metal Leach ng and Ac d Rock D a nage Cha acte zat on and Mon to ng	1.(f)	Cycloning is not permitted with International Wayside tailings.						
May 30, 2001	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Health, Safety and Reclamation Code for Mines in British Columbia (Code) and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
May 30, 2001	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
May 30, 2001	Geotechn cal	As-Bu lt Repo t	1	The Permittee shall submit an as-built report for Stage 3 construction to the Geotechnical Section and District Inspector by December 31 2001	Decembe 31, 2001	yes	completed	CC	19-Oct-01	Report on Stage 3 Construction by Knight Piesold. GRIT 3531.
May 30, 2001	Geotechn cal	Mon to ng	2.(a)	Visual and instrumentation monitoring and reporting in accordance with the schedule provided by Knight Piesold Ltd						
May 30, 2001	Geotechn cal	Mon to ng	2.(b)	Two slope inclinometers shall be installed in the downstream slope of the main tailings embankment as shown on Drawing 11162 13-250 Rev 2						
May 30, 2001	Metal Leach ng and Ac d Rock D a nage	Geochem cal Cha acte zat on of Zone C	1	The June 13, 2000 permit conditions for Geochemical Characterization of the Zone C Construction Rockfill for the Tailings Impoundment apply.						
August 2, 2000	P eamble			This amendment is a continuation of the approval given June 13, 2000 to construct a Tailings Storage Facility and approves the use of sand fill for downstream shell construction. It also supersedes the Metal Leaching and Acid Rock Drainage Conditions outlined in the July 11, 1997 permit amendment.						
August 2, 2000	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code, and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate						
August 2, 2000	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the District Inspector in writing of any intention to depart from the permit conditions, the plan of the work system, or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(a)	Significant ML/ARD impacts shall be prevented through a program of material characterization, mitigation and water management which						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(a)	prevents significant impacts to downstream terrestrial and aquatic resources,						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(a)	prevents significant post-mining on-site impacts to biota, and						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(a)	minimizes any reduction in the post-mining productive capability of the site.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(b)	The ML/ARD program shall						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(b)	predict the ML/ARD potential of all excavated materials and exposed surfaces and, if necessary, include mitigation, maintenance, and monitoring strategies, and						
August 2, 2000	Metal Leac ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(b)	reduce uncertainty to a level at which potential risks, liabilities, and post-mining alienation of resources can be identified and effective material characterization, excavation, waste handling and disposal, mitigation, monitoring, maintenance and contingency						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(c)	Mitigation plans must meet environmental and reclamation objectives for the site and be compatible with the mine plan and site conditions.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	1.(d)	Waste disposal and storage facilities shall be constructed in a manner that ensures long-term physical containment and stability pf the wastes, and permits contaminated drainage collection.						

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August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	2	Unless otherwise approved, all test work including sampling, analyses and monitoring procedures for metal leaching and ARD characterization shall meet the requirements of the *ARD Guidelines for Minesites in British Columbia* and *Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* .						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(a)	Concurrent with mine operations and development, the Permittee shall characterize the metal leaching and ARD potential of all excavated, exposed, newly created or disturbed materials. The characterization shall be sufficient to guide material management and confirm pre-mining predictions of material composition.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	The program shall include the characterization of the following components						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	overburden						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	waste rock						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	tailings, including cyclone sand used in the tailings embankments						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	mine walls						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	rock fill used in the tailings embankments						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	3.(b)	The Permittee shall sub-divide each component into significant geologically and/or geochemically different sub-units. Representative composite samples from each sub-unit shall be collected and analyzed.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(a)	Sample type and location, geological descriptions, corresponding tonnage of material, and resulting waste/exposure type and disposal location shall be reported for all samples. The geological description shall include rock type, sulphide types and estimated quantities, carbonate and gangue mineralogy, alteration, significant structural features, texture, and any other diagnostic features significant to metal leaching and ARD. Tonnage disposed and geological information shall be linked to the analytical results to show the materials that the results are purported to represent.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	The Permittee shall provide by October 31, 2000, and in the Annual Reclamation Report, an updated geological description of each of the pits and resulting wastes, including	Octobe 31, 2000, Ma ch 1st					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	the location and mass of each rock unit						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	mass, dimensions, location, mode of genesis, lithology, bulk and vein mineralogy, sulphide mineralization, alteration features, alteration mineral assemblages, degree of oxidation, colour, results of the hydrochloric acid fizz test, grain size, particle size, structure, fracturing and strength and relative abundance of oxidized/suerpgene mineralization for each material, and the methods used to determine the above						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	map showing the location of the pyrite halo						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	4.(b)	the methods used to locate the pyrite halo in the field and ensure permit requirements for mining in its vicinity are carried out						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(a)	Unless otherwise specified, ABA analyses shall include surface rinse pH (unconsolidated samples), paste pH (consolidated samples), total sulphur, sulphate sulphur, sulphide sulphur, bulk neutralizing potential (NP) and carbonate carbon content. Calculated data shall include acid potential (AP), carbonate-NP and NPR.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(b)	Elemental analysis shall include the measurement of all major cations (Al, Ca, Fe, K, Mg, Na) and trace elements (As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, P, Pb, Sb, Se, Zn). Analysis is also required for non-sulphide Cu. Most elements can be measured using ICP procedures after a strong acid digestion. Separate analysis may be required for Se.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Metal solubility analyses on oxidized materials shall follow the general procedure						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Use 250 grams of sample for the shake flask test.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Use distilled water to make a solid to water ratio of 1 3.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Shake flask for 24 hours. Allow to settle for 3 hours.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(c)	Collect and analyze supernatant. Analyses should include pH and all major and trace elements.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(d)	Mineralogical analyses shall be conducted to determine the mineralogy and proportion of different potential sources of elevated contaminant leaching, and the identity of neutralizing minerals. The required analytical procedures will depend on the information required. At present the requirements are to identify the Cu species, the source of soluble Na and K, and the proportion of carbonate occurring as non-neutralizing Fe and Mn carbonates.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	5.(e)	Internal duplicate quality assurance/quality control (QA/QC) shall be conducted on every fifth sample analyzed. External duplicate quality assurance/quality control (QA/QC) analysis shall be conducted on every fifth sample analyzed.	ve y 5th sample					
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(a)	The Permittee shall initiate a long-term drainage monitoring program to						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(a)	determine quality of drainage in the tailings impoundment, and that originating from the Main and Perimeter embankments, waste dumps, low grade ore stockpile and the open pit and						

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August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(a)	the effectiveness of the operational drainage collection and post-mining drainage discharge systems.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(b)	Seepage from each mine component shall be sampled and analyzed monthly.	Monthly					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(c)	Groundwater monitoring wells shall be installed down gradient of major mine components, and ditches and embankments built to contain contaminated drainage. Sampling and analysis shall be conducted three times per annum.	t mes pe yea					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(d)	Water quality analyses shall include						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(d)	Analysis of dissolved major anions (nitrate and sulphate) and cations (Al, Ca, Fe, K, Mg, Na) and trace elements (As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, P, Pb, Sb, Se, Zn) conducted on filtered and acidified sample,						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(d)	pH and alkalinity, all conducted on filtered and acidified sample.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(d)	Filtering to be conducted using 45 µm filter. Acidification to be conducted using nitric acid as per the requirements in the Waste Management Permit PE 11678.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	6.(e)	Internal duplicate quality assurance/quality control (QA/QC) shall be conducted on every fifth sample analyzed. External duplicate quality assurance/quality control (QA/QC) analysis shall be conducted on every fifth sample analyzed.	ve y 5th sample					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	7.(a)	The Permittee must report the results of the geological characterization, the material characterization testwork and drainage monitoring for the previous year in the Annual Reclamation Report.	Ma ch 31st					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	7.(b)	Material characterization data analysis shall include the number of samples, annual range, 5th and 95th percentile and median values in each year of monitoring for each rock or waste type for each of the measured parameters. At a minimum, descriptive statistics shall be provided for the material characterization conducted on the overburden, low grade ore, cycloned tailings sand and the cycloning overflow, + and - 200 mesh fractions of the tailings for the period when cycloning does not occur, individual pit blasthole data for each pit and the fine fractions of waste rock from each pit. the interpretation of results shall include notice of where elements exceed crustal averages.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	7.(c)	Water quality monitoring data analysis shall include the number of samples, annual range, 5th and 95th percentile and median values in each year of monitoring for each of the measured parameters at each monitoring location. The interpretation of results shall include notice of where drainage exceeds provincial water quality guidelines for aquatic life.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	7.(d)	Immediate notification of the District Inspector is required in the event potentially ARD generating (PAG) materials are encountered or upset conditions in materials handling, waste containment, water management or predicted water quality.	mmed ately					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	8.(a)	Materials with a NPR of greater than or equal to 2 1 are considered non-ARD generating (NPAG). At present the only material identified that may not meet or exceed an NPR of 2 1 is bedrock in the pyrite halo north of the presently proposed limit of the Bell Pit.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	8.(b)	Excavated materials that contain or have the ability to produce soluble contaminants in high enough concentrations for their leachate to exceed provincial guidelines for aquatic life are considered to have a potential for significant leaching (SL). All tailings, waste rock, low-grade ore and mine walls at the site are considered SL based on measured Cu solubility.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	9	The Permittee shall develop a low intensity characterization program (e.g., one sample every 100m x 100m) for topsoil materials, which are removed in the vicinity of the minesite or are proposed for use as topsoil on the reclaimed landscape. The Permittee shall submit to the District Inspector as outline of the program by October 31, 2000. The objective of the program will be to establish the baseline conditions (capability for contaminant release and uptake by vegetation) and avoid the placement of material with high available Cu within the rooting zone. The primary concern is with overburden directly overlying potentially mineralized bedrock. Analyses shall be conducted on the <2 mm particle size fraction.	Octobe 31, 2000					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	10.(a)	Records must be kept of the approximate mass of each of the different rock types encountered within each blast, regardless of whether or not the blast is sampled, in order to calculate total annual amounts of each rock type excavated.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	10.(b)	Sampling and analysis of the pre-blast material is presently not required.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(a)	The objectives of post-blast geochemical analysis are to determine the elemental and ABA composition of the fines and to verify predictions of the potential for ARD and significant contaminant leaching.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(b)	For the *waste rock* , a minimum of two samples per month shall be collected from monzonite, diorite, and/or breccia and one sample every two months from the fault gouge material. If one or more of the rock types is not being mined that month, an additional sample shall be collected from one of the rock types that is	Monthly					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(c)	For the *low-grade ore* , a minimum of one sample shall be collected for every 150,000 tonnes.	ve y 150,000 tonnes					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(d)	Sampling and analysis of post-blast *millable ore* is presently not required.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(e)	Sampling shall be conducted on the post-blast material, prior to its removal to the dump.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(f)	Sampling shall occur when half the blast material has been excavated.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(g)	The sample shall consist of a composite of at least five sub-samples collected from across the entire excavation face. The location of the face at the time of sampling and the rock type sampled must be recorded.						

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August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(h)	Samples shall consist of < 10 cm material.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.( )	Each sample shall be sieved into the following size fractions and and weighed > 19 mm, 11 mm-19 mm, 2 mm-11 mm and < 2 mm.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(j)	Analyses shall be conducted on the < 2 mm particle size fraction for every sample and > 2 mm fraction for every second sample of that rock type.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(k)	ABA and elemental analysis are required on every sample. Metal solubility analysis shall be conducted quarterly, and mineralogical analysis shall be carried out semi-annually on representative samples of each rock type.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	11.(l)	The proportion of each sample occurring in the different size fractions shall be reported along with the geological information and analytical results in the Annual Reclamation Report.	Ma ch 31st					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(a)	The objectives of pre-blast geochemical characterization of the bedrock excavated from the Bell Pit are to determine the potential for ARD and significant contaminant leaching and ensure that potentially problematic materials are identified and disposed in an acceptable manner. The District Inspector shall be notified when the pit expands to *within ten metres of the predicted boundary of the pyrite halo* .						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(b)	Records must be kept of the approximate mass of each of the different rock types encountered within each blast, regardless of whether or not the blast is sampled, in order to calculate total annual amounts of each rock type excavated.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(c)	Samples shall be collected from drill cuttings, with a sample collected from every sixth blast hole.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(d)	*More than ten metres from predicted boundary of the pyrite halo* , geochemical characterization is to be conducted on a composite sample created by combining all individual blast hole samples from each blast.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(e)	*Within ten metres from predicted boundary of the pyrite halo* , geochemical characterization is to be conducted on a individual blasthole samples.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(f)	Geochemical characterization shall consist of ABA and elemental analysis. Analysis shall be conducted on the whole sample. No separation of different particle sizes is required.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	12.(g)	No material within 10 metres of the pyrite halo may be blasted until either it is confirmed to NPAG or a PAG disposal plan is submitted to, and subsequently approved by, the Reclamation Inspector.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	13.(a)	The objectives of post-blast geochemical characterization for waste rock and low-grade ore excavated from the Bell Pit are to determine the elemental and ABA composition of the fines and to verify predictions of the potential for ARD and significant contaminant leaching.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	13.(b)	The sampling and analysis procedures shall be the same as those for post-blast waste rock and low-grade ore in the Cariboo Pit.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	13.(c)	Sampling and analysis of post-blast millable ore is presently not required.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(a)	The objectives of the geochemical characterization of the tailings are to determine the elemental and ABA composition and to verify predictions of the potential for ARD and significant contaminant leaching.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(b)	A record must be kept of the approximate mass of each of the different rock types in the ore each month. A separate record must be kept for periods when cycloning is or is not occurring.	Monthly					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(c)	Samples shall be collected monthly.	Monthly					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(d)	For the period when cycloning *does not* occur, the monthly sample shall be a composite of daily samples. Analysis shall be carried out on the + and - 200 mesh fractions.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(e)	For the period when cycloning *does* occur, the monthly analysis shall be a conducted on representative samples of the cycloned sand and the overflow slimes fraction of the tailings.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	14.(f)	ABA and elemental analysis are required on every sample. Metal solubility analysis shall be conducted quarterly and mineralogical analysis shall be carried out semi-annually on representative samples of each of the types of tailings produced.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15	The objectives of pre-blast geochemical characterization of the rock fill are to determine the potential for ARD and significant contaminant leaching and ensure that potentially problematic materials are not used for construction and properly disposed.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(b)	Samples shall be collected from drill cutting, with a minimum sample frequency of no less than one sample for every 50,000 tonnes of material.	ve y 50,000 tonnes					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(c)	Analysis shall be conducted on the whole sample. No separation of different particle sizes is required.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(d)	ABA and copper analysis are required on every sample.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(e)	ABA test work shall include an initial Leco Carbon and Sulphur analysis to confirm NPR characteristics of the material. If the NPR is less than 2.0, then a full ABA analysis (total sulphur, sulphate and sulphide sulphur, pH, carbonate carbon and NP), shall be conducted						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(f)	An aqua regia extract/AA or equivalent assay shall be conducted to determine the total copper content. Analysis is also required for non-sulphide Cu.						
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(g)	The occurrence of material with an NPR < 2 or Cu concentrations > 180 ppm shall be reported to the District Inspector.	mmed ately					

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(a)	The objectives of post-blast geochemical analysis to determine the elemental and ABA composition of the fines and to verify predictions made on pre-blast drill cuttings of the potential for ARD and significant contaminant leaching.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(b)	Sampling shall be conducted on the material after it has been placed on the embankment. The sample shall consist of at least five sub-samples collected from across the present area of deposition, at a frequency of no less than one sample every 200,000 tonnes of material. The sampling location and rock type sampled must be recorded.	ve y 200,000 tonnes					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Gene al Requ ements, Mate al Cha acte zat on and D a nage Mon to ng	15.(c)	The subsequent sampling and analytical procedures shall be the same as those for post-blast waste rock and low-grade ore in the Cariboo Pit.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	Additional work is required to better define future drainage chemistry and loadings from each of the site components and to determine drainage discharge and water management requirements post-mining for the site as a whole. To address this issue, by October 31, 2000 the Permittee must submit an outline showing how they intend to verify and/or better define the predicted	Octobe 31, 2000					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	drainage chemistry, contaminant concentrations and rates of discharge from each of the present site components,						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	site water management,						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	the location, manner and any constraints on discharge, and						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	the resulting liability, and monitoring and maintenance requirements.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	1	The outline shall include the timing of the proposed work.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	2.(a)	The Permittee must maintain an effective drainage collection system around the waste stockpile and disturbed mineralized areas. The system shall contain the surface and near-surface seepage from mineralized rock and permit monitoring of the resulting water quality.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	2.(b)	In the event that significant ML/ARD occurs, or effluent streams are identified which carry unacceptably high contaminant levels, all contaminated drainage shall be collected and treated or otherwise managed to a level that assures long-term protection of environmental quality.	f not of acceptable scha ge qual ty					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	3	The post-mining area containing mineralized material, such as overburden, in the rooting zone shall not exceed that which existed prior to mining unless the Permittee can demonstrate no significant ecological impacts and achievement of the reclamation objectives for the productivity/capability of on-site terrestrial and aquatic resources.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	4	Dumping is permitted in the East Dump.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	5	Dumping is permitted on the perimeter of the East Dump.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	6.(a)	The Permittee shall ensure that isolated pockets of PAG materials (< 1,000 tonnes) are intimately blended with non-PAG materials within the waste dumps to ensure net neutralizing drainage and low dissolved contaminant concentrations. The blending ratio of the intimately blended material shall be a minimum of 20-parts benign NPAG material to every 1-part PAG material.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	6.(b)	Prior to excavation of larger pockets of PAG waste (> 1,000 tonnes), the Permittee must receive confirmation that the PAG disposal plan is acceptable to the Chief Inspector.	o to excavat on of AG pockets > 1,000 onnes					
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	7.(a)	Cycloning is not permitted with PAG ore. The minimum allowable NPR for ore, which is cycloned and for the resulting cycloned sand which is used for construction on the downstream side of the Perimeter Dam is an NPR of 2 1.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	7.(b)	Deposition of cycloned tailings sand created from NPAG ore is permitted on the upstream and downstream faces of the Perimeter Embankment and the upstream side of the Main Embankment, subject to the previous condition and the maintenance of a till core in the embankments. Results of the above and the additional work required to better define future drainage chemistry and loadings from each of the site components, and to determine drainage discharge and water management requirements post-mining for the site as a whole, will be used to determine the acceptability of cyclone sand use on the downstream side of the Main Embankment.	ub ect to 7 (a) and ma ntenance of the t ll o e					
ugust 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	8	The minimum allowable NPR for tailings placed on the final exposed tailings beach upstream of the till core is embankments at the end of mining is an NPR of 2 1.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	9.(a)	Quarried rock fill with an NPR > 2 1 and total Cu concentration < 180 ppm is considered to be not potentially ARD or a potential source of significant contaminant leaching and may be used for downstream dam and dike construction.						
August 2, 2000	Metal Leach ng and Ac d Rock D a nage	Mate als Handl ng and M t gat on	9.(b)	Quarried rock fill with an NPR < 2 1 is considered potentially acid generating (PAG) and shall not to be used for construction purposes. If the pre-excavation testing indicates significant quantities of the quarried rock is PAG, this material shall not be quarried and other sources of rock fill will need to be located. In the event PAG rock is quarried, it shall be subaqueously deposited into the flooded portion of the tailings impoundment.						
une 13, 2000	Gene al	Compl ance w th the M nes Act and Code	1	All work shall be in compliance with all sections and parts of the **Mines Act** and Code and the owner, agent or manager (herein called the Permittee) shall obey all orders issued by the Chief Inspector or his delegate.						
une 13, 2000	Gene al	Depa tu e f om App oval	2	The Permittee shall notify the Chief Inspector and the District Inspector in writing of any intention to depart from either the plan of the work system or the program for the protection and reclamation of the surface of the land and watercourses to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.						
une 13, 2000	Geotechn cal	As-Bu lt Repo t	1	The Permittee shall submit an as-built report to the Geotechnical Section and District Inspector for review by March 31, 2001.	Ma ch 31, 2001					

Permit/ Permit Amendment Date	Permit Section	Condition Type	Condition Number	Permit Condition	Due Date	Compliance (yes, no, uncertain, superceded)	Status (completed, not completed, ongoing)	Compliance Checked by (Inspector Initials)	Date of Compliance Check	Comments (include any ongoing compliance checks in this column)
une 13, 2000	Geotechn cal	Ope at ons Manual	2	The Permittee shall submit an operations manual to the Geotechnical Section and District Inspector for review by July 31, 2000.	uly 31, 2000	yes	completed		17-Aug-00	Draft OMS for Stage 3 by Knight Piesold. GRIT 3456.
une 13, 2000	Geotechn cal	Sand F I	3	The permit does not approve the use of sand fill for downstream shell construction						

From:	Narynski, Heather M MEM:EX
To:	Kuppers, Haley MEM:EX; Pocklington, Cheryl M MEM:EX
Subject:	Summary of May 24th freeboard Incident - CONFIDENTIAL email attached
Date:	Thursday, April 30, 2015 2:07:26 PM
Attachments:	Advice of Geotechnical Incident - Mount Polley - 2014 05 27.pdf FW Tailings Dam.msg May 24th Freeboard Incident - Summary for Investigation Team.docx

Haley, Cheryl,

I have attached my summary of the May 24th freeboard incident at Mount Polley, as requested. Please let me know if you have any questions and modify as you see fit to work with the format of the investigation report.

The summary is fairly lengthy and depending on the nature of the investigation report, you may want to include the timeline as an appendix (and refer to it in the text summary)?

I have also attached the "Advice of Geotechnical Incident" form that was submitted by MPMC. This form does not seem to have been included in the MP database that we created for the Panel (only the email which references this attachment has an MP#). I think you might have previously received this form and created a file number for it? If so, please add this reference in my summary (where my comment indicates this). If not, this document should be added to the dataset.

I have also attached the email thread from the informant that provides the original notification for this incident. I don't think this email thread was ever tagged with an MP#? I had George send this to me before he left. It is critical that this informant is kept CONFIDENTIAL and that the informant's email and name is not made public or known to the company. I will refer to the investigation team on how this should be handled in the dataset and summary of the incident I provided. As far as I know, we have successfully managed to keep this person protected to date.

I have not followed up with MPMC (Luke Moger) regarding the "dangerous occurrence" status and whether MPMC investigated this incident as such. I did recently confirm with S. Rothman that he did not pursue follow-up with MPMC. There seems to be a disconnect internally to who typically follows up on dangerous occurrences – something that should be sorted out internally. I am now questioning our previous discussion and whether it is worth pursuing requesting a dangerous occurrence investigation from MPMC based on:

- The time that has passed
- The risk that this could compromise the investigation by opening up dialogue between myself and MPMC

Your thoughts?

Heather

Heather Narynski, P.Eng
A/ Manager, Geotechnical Engineering
Ministry of Energy and Mines
Office/Cell: 250-893-3396

Ministry of Energy, Mines and Natural Gas

ADVICE OF GEOTECHNICAL INCIDENT

PART A: To be completed by mine management to document geotechnical incidents.

APPLICABILITY OF THIS FORM

This form applies to any geotechnical incident classified as a dangerous occurrence or to any geotechnical incident that requires changes to an existing standard operating procedure or the creation of a site-specific safe work plan. In addition, any multi-bench pit slope failure, spoil failure resulting in full loss of the crest berm, or dam embankment instability (regardless of size) is to be documented on this form. This form is not intended for single bench failures fully captured by catchment berms or for "sliver" failures on spoils not resulting in a dangerous occurrence.

GENERAL INFORMATION

Name of Mine: MOUNT POLLEY — Permit Number: M200

Mining Company: MOUNT POLLEY MINING CORP. — Location: LIKELY, BC.

Manager: DALE REMER — Appropriate Contact: — SAME —

Phone: (250) 790-2215 ext 2600 — Phone: — SAME —

Part of Mine Involved/Affected: MOUNT POLLEY TAILINGS STORAGE FACILITY

Date of Event: SATURDAY — Probable Time: _____

Summary of Incident: LOSS OF OPERATING CONDITION FREE BOARD AT TAILINGS STORAGE FACILITY.

Type of slope: ❑ Pit Wall ❑ Waste Rock Spoil ☒ Dam Embankment ❑ U/G Rockfall ❑ Other

DETAILS OF EVENT

Potential triggers (weather, mining activity, etc.): EXTENDED WEATHER EVENT

Volume or Mass Involved / Type of Material: N/A / WATER

Description of Incident (include likely failure mechanism, run-out distance, slope height, and pre/post failure slope angle):
LOSS OF DESIGN OPERATING FREEBOARD ALLOWANCE AT TAILINGS STORAGE FACILITY

Damage or Consequences: IMPLEMENTATION OF WATER MANAGEMENT PLANS

Immediate (Short-term) Actions Taken by Mine: IMMEDIATE TARGETED RAISE (LOW ELEVATIONS) OF TILL CORE & DIVERSION OF TSF INFLOW WATER.

ADVICE OF GEOTECHNICAL INCIDENT OR UNUSUAL OCCURRENCE

PART B: To be completed by mine management to document follow-up actions.

Date / Time of Incident (if Part B not submitted at same time as Part A): /

Follow-up actions by in-house geotechnical personnel: IDENTIFICATION OF MOST CRITICAL AREAS OF LOW FREEBOARD ELEVATION FOR CORE CONSTRUCTION

Has this incident been discussed with / reviewed by a geotechnical consultant? YES (AMEC DESIGN ENGINEER)

Follow-up actions recommended by geotechnical consultant (if applicable): ZONE 5 (TILL) CORE CONSTRUCTION & DIVERSION OF WATER COLLECTION IN TSF.

Any required changes to standard operating procedures? YES, AS PER OMS (I.E. INCREASED MONITORING)

Any site-specific safe work plan(s) required? NO.

Report from mine (including plans and section) or other attachments?

1.) N/A

2.)

3.)

Items to be forwarded at a future date / expected date of submission?

1.) DETAILED EVENT TIMELINE / MAY 30, 2014

2.) DESIGN ENGINEER LETTER REGARDING EVENT / MAY 30, 2014

3.) JOINT MPMC / DESIGN ENGINEER PLAN AND TIMELINE / JUNE 6, 2014

Additional Comments:

Mt. Polley May 24th Freeboard Incident

The following is a summary of the May 24, 2014 freeboard incident that occurred at the Mt. Polley TSF based on MEM's understanding of the event and correspondence records.

Timeline of event

Date / Time	Action
May 26th/ 4:34pm	Informant notifies MEM in confidence by email of an overtopping event at the Mt. Polley TSF: "The tailings dam at Mount Polley has breached on Saturday at "3" corner and is flowing over the top of the till"
May 27th/6:35 am	S. Rothman notifies G. Warnock by email of a potential overtopping
May 27th/9:08am	G. Warnock requests by email for H. Narynski to follow-up with S.Rothman regarding the notification
May 27th/9:16am	H. Narynski responds by email to G. Warnock confirming her commitment to contact S.Rothman by phone as it is known he is currently in the field. H. Narynski indicates that she will involve M. Cullen as he is expected to be in the office that day and is the inspector scheduled to carry out the next site inspection at Mount Polley.
May 27th	H. Narynski contacts S. Rothman by phone. S.Rothman does not have any additional information beyond that received in the original email from the informant. H. Narynski requests for S.Rothman to fly over Mount Polley that day to observe the TSF and take pictures (this helicopter flight was previously scheduled for reconnaissance of another mine site under shutdown orders in the vicinity).
May 27th	H. Narynski makes a multitude of calls to the mine site and to various cell phones in attempts to reach D. Reimer (Mine Manager), A. Frye (Operations Manager) and L. Moger (Project Engineer). It takes in the order of 1-2 hours to reach MPMC staff. D. Reimer is the first MPMC staff member reached by cell. He is not at the site and cannot provide details of the incident. He refers H. Narynski to L. Moger. L. Moger responds to messages previously left by H. Narynski. H. Narynski arranges a teleconference meeting with MPMC staff at 2pm to discuss.
May 27th/2pm	Teleconference meeting occurs between H. Narynski, M. Cullen, L. Moger and additional MPMC staff (MPMC attendees not documented)
May 27th/4:59pm	Email sent from H. Narynski to G. Warnock documenting MEM's understanding of the event and the details of the discussion between MPMC and MEM at the 2pm meeting. [MP00188]. MEM's understanding of the incident based on this meeting is summarized in the associated report text.
May 27th / 5:01pm	Email sent from H. Narynski to L. Moger requesting and "Advice of Geotechnical Incident" form to be submitted to MEM outlining the details of the event and MPMC's follow-up. H. Narynski also requests that MEM be notified should site conditions change. It is stated that MEM considers this event to be a "dangerous occurrence" as per Section 1.7.3 (2) of the Code.[MP00189]
May 28th/5:07pm	Email from L. Moger to H. Narynski [MP00190] with the attached "Advice

Comment [HMN1]: The first 4 items in this table do not have an MP reference number and are covered under one email thread. I have attached the email chain for your consideration in inclusion in the dataset and to provide an associated reference for this email thread. I do not know how you want to handle this email. It is critical that this informants name is kept CONFIDENTIAL and that the informant email and name is not made public or known to the company. I will refer to the investigation team on how this should be handled in the dataset and summary of the incident.

	of Geotechnical Incident" form completed [MP#?]. The form provides a description of the event as "loss of design operating freeboard allowance at tailings storage facility" with immediate short-term action taken by the mine as "immediate targeted raise (low elevations) of the till core & diversion of TSF inflow water". L. Moger's email states "we are still gathering all of the information for a detailed event timeline, and will submit this in combination with a report from our design engineer, who has been on site since Sunday".
May 29th/8:26pm	Email from L. Moger to a number of MEM and ENV staff with attached presentation on the TSF prepared by Bruce Geotechnical Consultants (BGC) for discussion on Monday, June 2, 2014 meeting. This meeting was previously scheduled (prior to the May freeboard incident) to discuss the upcoming Stage 10 dam raise application.[MP00191]
June 2nd/ 8:34am	Email from D. Ostritchenko (AMEC) to H. Narynski with AMEC's attached report of the events that occurred after the incident. [MP00192]
June 6th/ 12:42pm	Email from L. Moger to H. Narynski [MP00194] with attached "MPMC & Design Engineer Plan and Timeline" titled "Advice of Geotechnical Incident Form Follow-up (Design Plan)" [MP00195]. This report indicates that the water has been routed to the Cariboo Pit, the TSF pond elevations have seen no increases over the last seven days, minimum freeboard is 0.6m for a length of 1,225m along the Main embankment (El. 967.0m) and 0.9m (El. 967.3m) for the remainder of the embankment (~3,300m). Additional information regarding construction activities are provided in the report.
June 6th/ 4:54pm	Response email from G. Warnock (on behalf of H. Narynski) to L. Moger indicating "the actions taken to date and the plan moving forward seem appropriate. Continued updates would be appreciated until the normal operating freeboard is re-established".
June 13th / 11:41am	Email from L. Moger to H. Narynski with attachment "Advice of Geotechnical Incident Form Follow-up (Design Plan) – Update #1" [MP00196]. Update #1 indicates that the TSF pond elevation remains at El. 966.4m, minimum freeboard is 0.9m for a length of 925 m along the Main embankment and 1,150m along the South Embankment, minimum freeboard for the remainder of the Main Embankment and for the Perimeter embankment (~2,200 m) is 1.2 m (El. 967.6m).
June 18th / 8:25am	Response email from H. Narynski to L. Moger acknowledging receipt of Update #1 and MPMC's commitment to continued updates. [MP00197]
June 20th / 2:32pm	Email from L. Moger to H. Narynski [MP00199] with "Advice of Geotechnical Incident Form Follow-up (Design Plan) – Update #2" [MP00198]. Update #2 indicates that the TSF pond elevation remains at El. 966.4, minimum freeboard is 0.9 m for a length of 400m along the Main embankment and 1,150m along the South Embankment, minimum freeboard for the remainder of the Main embankment (~825m) and for the Perimeter embankment (~2,200m) is 1.2m (El. 967.6m).
June 20th / 4:38pm	Response from M. Cullen (on behalf of H. Narynski) to L. Moger recognizing receipt of Update #2 and advising of upcoming site inspection.[MP00199]
June 27th / 11:04am	Email from L. Moger to H. Narynski with "Advice of Geotechnical Incident

Comment [HMN2]: Does the investigation team have a document reference for the actual "advice of geotechnical incident" form? If not, I have attached the form for inclusion in the database. Please update this section with appropriate reference number.

	Form Follow-up (Design Plan) – Update #3" [MP00200]. Update #3 indicates that the TSF pond elevation remains at 966.4m, minimum freeboard is 0.9m for a length of 1,150 m along the South embankment, minimum freeboard for (~200m) of the Perimeter embankment is 1.2 m (El. 967.6m), the rest of the dam (~3,200m) is minimum 1.5m (El. 967.9m)
June 27th / 11:05am	Response email from G. Warnock to L. Moger recognizing receipt of Update #3. [MP00201]
July 4th / 9:13am	Email from L. Moger to H. Narynski with attachment "Advice of Geotechnical Incident Form Follow-up (Design Plan) – Update #4" [MP00203]. Email indicates that minimum freeboard of 1m has been established, and weekly reporting to MEM is planned to cease, and that prior to water being re-introduced to the TSF, the 1.3 m standard operating freeboard will be established and a freeboard management plan will be discussed with AMEC and forwarded to MEM.
July 4th / 1:20pm	Response from H. Narynski to L. Moger acknowledging the final update on the May 24th geotechnical incident, and requesting MPMC to forward AMEC's freeboard management plan to MEM when complete. [MP00203]
July 10th / 1:46pm	Email from L. Moger to H. Narynski providing confirmation that 1.3 m standard operating freeboard at the TSF has been re-established, and that MPMC will be providing a freeboard management strategy update early next week. [MP00203]
July 18th / 2:57pm	Email from L. Moger to H. Narynski [MP00205] with attached water management plan for the TSF endorsed by AMEC [MP00204]. The water management plan indicates that construction to increase the level of freeboard going forward to a minimum of 1.5m for the entire TSF may result in the existing freeboard dropping below the normal operating level of 1.3m in advance of construction areas. This is proposed to be for a period of less than 2 weeks with freeboard not dropping below 1.1m. The email itself indicates the plan has been discussed with G. Warnock and that he has suggested that the plan is acceptable as the proposed condition (1.1m) is still above the MEM indicator levels (of 1m). MPMC commits to communicating with MEM when the temporary normal operating level of 1.1m is revoked by AMEC and they revert to the 1.3m level.
July 18th / 4:10pm	Response from H. Narynski to L. Moger that H. Narynski concurs with G. Warnock response and that document will be added to records when back in the office the following week. [MP00205]

In summary, MEM's understanding of the incident based on the May 27th teleconference with MPMC, and as documented in the May 27th email from H. Narynski to G. Warnock is as follows:

- The event occurred on Saturday, May 24th as a result of a large rainfall event (approximately 24 mm in 24 hours)
- The water level rose to within 0.7 m freeboard (possibly less freeboard)
- L. Moger indicated that MPMC did not believe the dam overtopped, and would be checking data records (he was away from site when the event occurred)

- MPMC confirmed that no additional water was being directed to the TSF and instead being sent to the mill. MPMC also indicated the option to redirect water to one of the pits, if needed.
- MPMC confirmed no snow remains in the catchment area for additional water
- MPMC indicated that standing water was observed at the toe of the downstream dam, but not able to test to see whether it is from the TSF as the water is now gone. No sediment was observed within this seepage.
- MPMC confirmed that water levels are being monitored daily (and MEM recommended to monitor more frequently as required)
- MEM recommended that all staff are familiarized with emergency response procedures should there be more issues arising with the dam
- MPMC confirmed they are currently raising the dam core at approximately 5 spots including corner "3". MPMC confirmed that all dam raises are within permitted elevation (El. 970m)
- MPMC confirmed that last year's dam raise was constructed as per the design and incorporated the stabilization berm (as-built report was submitted to MEM)
- MPMC confirmed AMEC is currently present on site and are evaluating the situation and any resulting design implications
- MEM requested MPMC follow-up with an "Advice of Geotechnical Incident" form which outlines the details of the event and MPMC's response, and in future to provide MEM with a call regarding similar incidents as this would be considered a "dangerous occurrence"
- MEM/MPMC discussed the previously scheduled meeting on June 2nd as an opportunity to discuss the incident in more detail once MPMC has time to review the data.
- MEM noted (internally) that the upcoming MEM site inspection could be moved forward if considered necessary.

Based on MEM's understanding of the incident from discussions with MPMC during the May 27th teleconference call, it was determined that MPMC appeared to have the situation under control. MEM indicated that follow-up would be required to confirm whether an "overtopping" and possible unauthorized discharge occurred, as well as to discuss future dam design and operations.

The "Advice of Geotechnical Incident" form submitted indicated the incident as "loss of design operating freeboard allowance at tailings storage facility". MEM does not have record of receiving correspondence from MPMC during this incident to clarify whether a dam "overtopping" occurred or what the minimum freeboard was during the event. The first survey of freeboard was received by MEM on June 2nd in AMEC's memo dated May 30th that indicated the pond elevation and the dam elevation at corner "3" to be recorded as the same elevation (zero freeboard) on May 26th. Based on this information, MEM would consider this incident to be classified as a dam "overtopping".

MEM follow-up on this incident included weekly updates from MPMC on the status of the site conditions (freeboard, construction activities etc.), a memo issued by AMEC outlining the timeline and incident daily status, and a water management plan endorsed by AMEC.

It is understood from a February 2, 2015 Vancouver Sun article authored by Vaughn Palmer that emails were obtained of correspondence between AMEC engineers related to this freeboard incident. The accuracy of these emails has not been confirmed. The internal email exchange between the AMEC engineers discusses the incident and indicates that the "freeboard level is basically zero". The article describes that despite some effort to reduce the amount of water behind the dam, tailings were still being added to the pond because the mine was continuing to operate. An AMEC engineer is quoted: "basically there has not been much (de-watering)," he wrote, "as they are still focused on making sure the mine can operate."

This was the first time that MEM was made aware that tailings were possibly being disposed in the facility during the incident. Correspondence from both MPMC and AMEC never indicated any of the following:

- Freeboard of the facility being zero (until June 2nd)
- Tailings being actively disposed in the facility during the incident
- Concerns around safety status during the incident

From:	Warnock, George MEM:EX
To:	Narynski, Heather M MEM:EX
Subject:	FW: Tailings Dam
Date:	Thursday, April 23, 2015 3:59:49 PM

From: Warnock, George MEM:EX
Sent: Tuesday, May 27, 2014 9:22 AM
To: Narynski, Heather M MEM:EX
Subject: Re: Tailings Dam

Thanks Heather,
Steve's cell number is 250-319-2054.
George

Sent from my iPhone

On May 27, 2014, at 9:16 AM, "Narynski, Heather M MEM:EX" <Heather.Narynski@gov.bc.ca> wrote:

Hi George,
I will give Steve a call today (hopefully he won't be too difficult to reach as I know he is in the field with Chris today).
Michael will be in the office any minute and I will include him in the conversation with Steve as well.
Thanks,
Heather

From: Warnock, George MEM:EX
Sent: Tuesday, May 27, 2014 9:08 AM
To: Narynski, Heather M MEM:EX
Cc: Rothman, Stephen MEM:EX; Michael Cullen
Subject: Fwd: Tailings Dam

Hi Heather,
Could you please follow this up with a phone call to Steve? I'm not sure how to make a call out of here (no cell service and phone is local only). Involve Michael if/as appropriate. Michael will be conducting the inspection here. Perhaps this should be his first priority. Please make sure tha s.15, s.22 name is not included on any correspondence with Mt. Polley. Also, please send me a quick email once you have had a chance to talk to Steve.

s.22

Regards,
George

Sent from my iPhone

Begin forwarded message:

From: "Rothman, Stephen MEM:EX" <Stephen.Rothman@gov.bc.ca>
Date: May 27, 2014 at 6:35:16 AM PDT
To: "Warnock, George MEM:EX" <George.Warnock@gov.bc.ca>
Subject: Fwd: Tailings Dam

George,
Can you give me a call
This is not official please do not mention the source as I have to keep my network intact
Steve

Sent from my iPhone

Begin forwarded message:

From s.15, s.22
Date: May 26, 2014 at 4:34:56 AM PDT
To: "Rothman, Stephen MEM:EX" <Stephen.Rothman@gov.bc.ca>
Subject: Tailings Dam

First off let me start by saying I wish to have my name left off of any reports but if you need to speak to me privately that is ok I will give you more information. The tailings dam at Mount Polley has breached on Saturday at "3" corner and is flowing over the top of the till we all saw it coming a long way off but it seems management is still unconcerned about it no haul truck have brought rock to the dam in seven months and still are not all the sand cells are under water and the buttress at the base of the dam is still not started I could list more but I am on

s.22, s.15

pull me aside at work and talk to me or call me or email me but please leave my name private.

s.15, s.22

From:	Narynski, Heather M MEM:EX
To:	Parent, Matthew MEM:EX; Nakatsuka, Caroline M MEM:EX; "Chris Carr"
Cc:	Pocklington, Cheryl M MEM:EX; Hemphill, Naomi MEM:EX; Kuppers, Haley MEM:EX; Narynski, Heather M MEM:EX
Subject:	RE: Mount Polley Outstanding Notes Needed by FRIDAY, MAY 15TH
Date:	Wednesday, May 6, 2015 1:23:46 PM
Attachments:	HN field notes Aug 5th and 6th.pdf

Hi Matthew,

Please find attached my hard copy notes from the site visit carried out on Aug 5th/6th.

A typed summary of this site visit (carried out by Chris Carr and myself) has previously been provided to the investigation team and I have confirmed with Cheryl that this is in the dataset (it provides much more information than provided in these rough notes).

[Caroline – I have added my photos to G:\Mines Operations\Chief Inspector Investigations\Mount Polley TSF Breach 2014\SITE\Photos Field\Pictures under the folder "H.Narynksi Photos – Aug 5, 2014"].

[Chris – could you please scan your hard copy notes from our site visit on Aug 5th/6th and email to Matthew. Could you also please bring in a memory stick into the Victoria office with your photos from this site visit and leave with Caroline. You may have done this previously as I see a dated email request from myself for these photos, but if these were previously provided to MEM, they can no longer be located.]

Thanks!
Heather

From: Parent, Matthew MEM:EX
Sent: Wednesday, May 6, 2015 10:49 AM
To: Nakatsuka, Caroline M MEM:EX; Thorpe, Rolly MEM:EX; Hoffman, Al MEM:EX; Pocklington, Cheryl M MEM:EX; Demchuk, Tania MEM:EX; s.22 Kuppers, Haley MEM:EX; Hemphill, Naomi MEM:EX; Bellefontaine, Kim MEM:EX; Narynski, Heather M MEM:EX
Subject: Mount Polley Outstanding Notes Needed by FRIDAY, MAY 15TH

Hi Everyone,

If everyone could collect and provide any outstanding notes you may have in relation to the Mount Polley Investigation no later than **Friday, May 15th** it would be greatly appreciated. In order to stick to our timeline we cannot afford to have notes coming in after said date.

If you have already provided us with all your notes and you are confident that you do not have any documents for us – thank you!

If you have any notes in hard copy, please just provide them to me and I will take care of the scanning, etc.

If they are messy – there is no need to correct, edit or "clean-up" your notes, we just need them as they are.

Although proper naming conventions are appreciated, at this point in time there is no need to go through your documents and edit these – we will be able to do this for you.

If you have any concerns / questions, please do not hesitate to ask. Again, if you are 100% you have provided everything to us, please confirm with me that this is the case so we can audit your contributions to the dataset. Otherwise, I look forward to receiving your notes by **May 15th**.

Regards,

Matthew Parent
Information Analyst
Mount Polley TSF Breach Investigation

Cell: (204) 880 - 2108
Matthew.1.Parent@gov.bc.ca

Mines and Mineral Resource Division
Ministry of Energy and Mines
PO BOX 9320 STN PROV GOV,
Victoria, BC
V8W 9N3

Mt. Polley

-Dale Reimer - indicate no changes in piezometers / inclinometers
- Ryan, Braun - Senior Mine Engineer.
- Nicholas Bergeron, Junior Mine Engineer (report to Luke Moger).
- Luke Marquis, Junior Geotechnical Engineer, EIT - Prince George office

Luke Marquis - Present at start of construction then approximately 1 per month. Last on site on July 9, 10, 11th.

RB - originally ≈ 100 m gap - Now

Last time Piezometer read - last weekend - either July 26 or 27th.

SI 11-04 - deformed at top so replaced with SI2-01 - but both SI's continue to be read.

- Highland - Quesnel - helicopter co.

Water seeping at 401300 or 401400 on the dam.

EMBC call - 1:00 pm
- Mt Polley intention is to manage Mt Polley lake level - currently putting in booms to retrieve logs.
- Next EMBC call Thursday 1:30pm

- arranging to pump WRD contact water into Springer Pit.
- Art Frye will send memo to Kim in next couple of days

Weekend

Week before - were not raising core and filter - only raising rock.

Stage 9 - 967.5 - 970.00.
Very little of Stage 9 completed last year ^this year^ 969.1 up to pipe crossing then 967.0 or 2 after pipe crossing 968.8. - Main embankment

→ 1-877-353-9184

s.17

Peterson - till, filter
MW till, filter, transition, rockfill

Mt. Polley does filter sample tests.

- piezometer read every 2 weeks during construction and every month outside of construction

- Tania, Kim, Rolly, [illegible]
-
- clarify whether dam construction founded on sand cells.

James Shook - Erin Marshall
Environment Canada →
Dave Kelly-Dahl

→ Question: Peterson Contracting
- Is Polley Road blocked on both sides of the lake.

- July 26, 27, 28 last work on perimeter embankment - placing C zone ..

AUG 6/2014

Brian

Polley Lake - run a line from Polley Lake to downstream of Hazeltine Creek - white pit - HDPE - size unknown

#2 reconstruct the gap:
- 2 options - 10 days
- 4 weeks beginning

Leaning towards option #2 - get it in quicker.

- most logs are now boomed.

• toe drain existed at toe of dam - No readings on toe drains.

-

- survey currently being carried out by drone - local firm.

-

- won't be over 2000 Gallons / minute from Polley to white pit to Springer Pit.

- pipeline ≈ 2 km

778-679-5228

Kim - MPMC should be providing notification

GW - it's treating as emergency measure

Telephone conversation with Ron, Al, Tania, Chris, Steve, George - Re: update & role of MEM Geotech

Luke Moger
- 1 am - alarm in mill
shipper - Greg Walters - lives in Okanagan - Greg Walters tried to get through to on-call person (IVT)
??? then contacted Art - then EMBC -

- Luke left site on the 30th. handed duties to Nicholas (been there for 1 year) -
hadn't noticed anything unusual with the dam.
- dam being constructed in accordance with design - meet spec - daily

EMAILS_Part 9-2 Page 245 of 330

Samples - AMEC (Colin or Dimitri) receive reports every day -
one crew responsible for SI's /
one responsible for piezometers.
- Amec responsible for converting data from pressure to water height.
- Art contacted

- Peterson finished 5th corner 1 and pennies on the 3rd.
completed sand cell btw
STN 09+00 - 10+80 prepped
Next sand cell STN 10+80 - 11+90
placed C core material at
3+950 - and graded.

- 14 hauling line breaks - it is noticed in the mid - at the time discharge was only on the South embankment - end dumps worked with dozer.

- JULY 31st - placing till on the pennies STN 33+57 - 31+55
and placed to 28+21 - 21+00
on main embankment

STN 600 - 1020

elevation 969.1 till
road 969.1
filter 968.2
pond level 966.83 -
steel monitoring daily.
- GPS reading of water level.
- track cover elevation

- requested BH logs for Quebec area.
- was foundation keyed into bedrock
always keyed into till at corners

- compaction all meets spec - 95%
Sheepsfoot and smooth drum roller
to proof - compaction testing
done by MPMC

- last time.

Peterson contracting - placing clay,
MPMC QC - AMEC QA.
MPMC - always does placing
for sand cells - MPMC does
all

upstream toe drain stn 32+00

- toe drain - 2 outlets on the perimeter - 45+72 elev 946.7m existing ground 949.2
- colleen (Katie) measurements

3 "OD" · 39175 - 40+40

toe drain at 45+72 - colleen sample - TSS is higher than the other.

- ~~true~~ confirmed not an overtopping event in May.

- working off construction drawings
- toe drains have no flow?

Brian Kynoch. - president MPMC.

Aug

- water quality testing met drinking water + aquatic life
-
- will need site presence for 2-3 weeks.
- want to do interviews with employees right away.
-
- Keith Ellwood - has previously written fatality reports.

2008[DA], 2007,[CC] 2007 NR, 2006[NR], 2005[NR]
2005,[CC] 2001[CC], 2000[GH], 1999[GH]
1998[GH], 1997[GH], 1996[GH], 1995[GH]

Dale Reimer - spent 2 days interviewing - Dale has indicated that nobody does there was work there - .

Dale has mentioned that trees were in foundation?

Dale is unaware of the frequency of the visual inspections at the facility

- Sunday during day shift - trees and dogs passing

-

From:	Gregory Smyth
To:	Kuppers, Haley MEM:EX
Cc:	Ken Brouwer
Subject:	Mount Polley Investigation - Follow-up from May 6, 2015 Meeting with KP
Date:	Friday, May 8, 2015 5:59:04 PM
Attachments:	Mount Polley Presentation to MEM - May 6, 2015.pdf Mount Polley 2014 Incident - Timeline.pdf

Hi Haley

Great to meet with you this week. As discussed, please find attached the two presentations that we showed at our meeting on Wednesday.

If you have any questions, please let us know.

Kind Regards,

Greg Smyth, B.Sc.
Project Manager | Associate
Knight Piésold Ltd.

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Vancouver | British Columbia | Canada | V6C 2T8
phone: +1 604 685 0543 | **fax:** +1 604 685 0147
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email: gsmyth@knightpiesold.com
web: http://www.knightpiesold.com

Knight Piésold
CONSULTING

2010

2014

Post Breach - 2014

Mount Polley Dam Breach

Overview Presentation

Ken Brouwer

May 6, 2015

Knight Piésold Concerns

1. We have determined that some of the conclusions drawn in the Panel Report are based on incorrect data and assumptions.

2. This has negatively and unfairly affected the good name of Knight Piésold

Knight Piésold Concerns

The Panel Report includes the following:

- Section 3.1 of the Panel Report names the EORs under the heading "Description of the TSF".
- Section 5.2.4 again names EORs and opines that of the pre-failure site investigation drill holes, many were "of limited usefulness for embankment design purposes"
- Section 6.5 "Causes of Failure" names KP only and indicates that "the design was doomed to fail"
- Subsequent inflammatory discussion of the foundation characterization is referred to as "loading the gun"….despite "the large number of experienced geotechnical engineers associated with the TSF over the years"

Knight Piésold Concerns

The Panel Report used incorrect data and assumptions as follows:

- Incorrectly chose the relevant cross-section of the embankment stages developed by Knight Piésold
- Incorrectly extrapolated embankment geometry and loading conditions, and erroneously presented these as Knight Piésold design
- Incorrectly calculated a Factor of Safety for the embankment developed by Knight Piésold when it was EOR
- Incorrectly concluded that the “original design” therefore “loaded the gun”

Knight Piésold Concerns

Further, the analysis in the Panel Report ignored information that was supplied by Knight Piésold in December 2014 that would have had a bearing on the results

It also ignored specific statements made by KP during the interview with the Panel.

It also ignored the confirmatory information provided in the follow up email after the interview

Part of the information provided and ignored indicated that there was an Independent Engineering Review Panel on Mount Polley initially, but it was disbanded by MEM at the request of Imperial Metals Corp.

Knight Piésold Concerns

We can demonstrate that the tailings dam was constructed with stable slopes and the impoundment was functioning properly with extensive drained tailings beaches and a relatively small volume of ponded water when we departed from the Mount Polley Project in 2010.

We can conclude that no breach would have occurred under the conditions prevalent during our tenure as EOR.

We can also demonstrate that after our departure, the embankment slopes became oversteepened, and water volumes dramatically increased, inundating the drained beaches in the breach location.

Presentation to DvZ

What follows in Slides 8 to 35 is the presentation as given to Dirk van Zyl on April 13, 2015, wherein we demonstrate:

- the errors in the Panel Report,
- stability of the tailings facility up to 2010,
- the reduction in stability factors from 2011 to the breach in 2014.

Knight Piésold
CONSULTING

2010

2013

Post Breach - 2014

Mount Polley Dam Breach

Overview Presentation

Ken Brouwer

April 13, 2015

Overview

- Knight Piésold (Vancouver) was the Engineer of Record (EoR) for the Mount Polley TSF from initial site investigations through Stage 6B (late 1980's through 2010)
- Knight Piésold (Vancouver) withdrew from the project and declined to bid on an RFP in late 2010
- In a letter dated February 10, 2011, Knight Piésold (Vancouver) stated that all contracted assignments pertaining to the Mount Polley TSF were complete as of January 25, 2011 and thereafter relinquished their role as EoR
- A formal handover was completed during the subsequent months to AMEC , who became the EoR

Why did KP Depart?

- Specific communications (Oct - Dec, 2010) highlighted KP concerns about:
  - geotechnical instrumentation,
  - potential weak foundation conditions,
  - tailings deposition,
  - water management procedures,
  - future operation of the tailings facility.

- MPMC did not come to agreement with KP on how to manage the identified concerns

- KP subsequently decided to depart from the project and resign as EoR

TSF Water Management

Knight Piésold

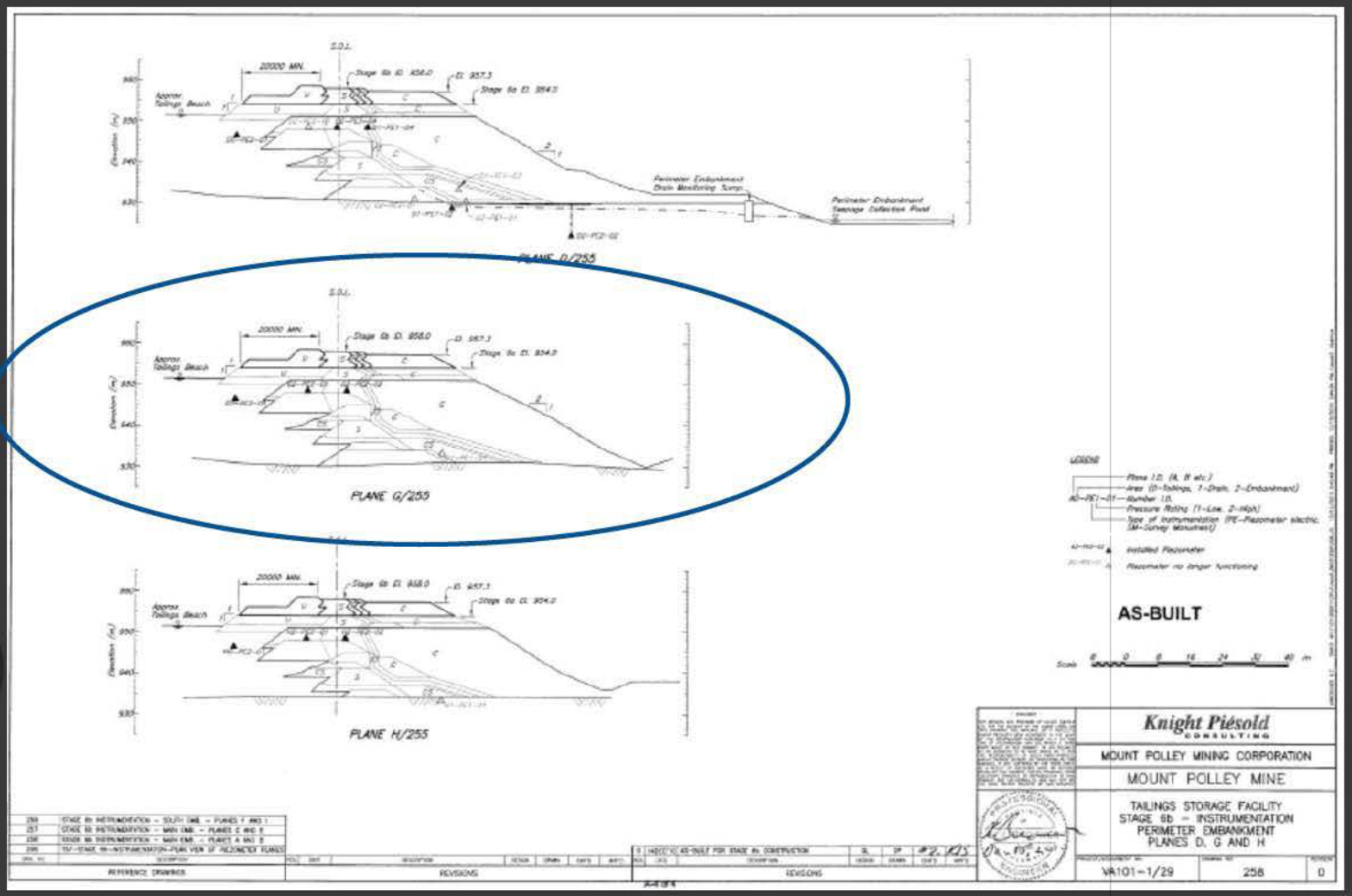
Stage 6B As-built - 2010

Knight Piésold

KP Design Philosophy

- KP's design philosophy was to assume that weak materials could be present in complex glacial materials in the foundations
- Embankment designs and associated monitoring systems were required to accommodate for these weak foundation materials
- Flat embankment slopes and/or buttresses were incorporated to ensure appropriate Factors of Safety for each stage of development.

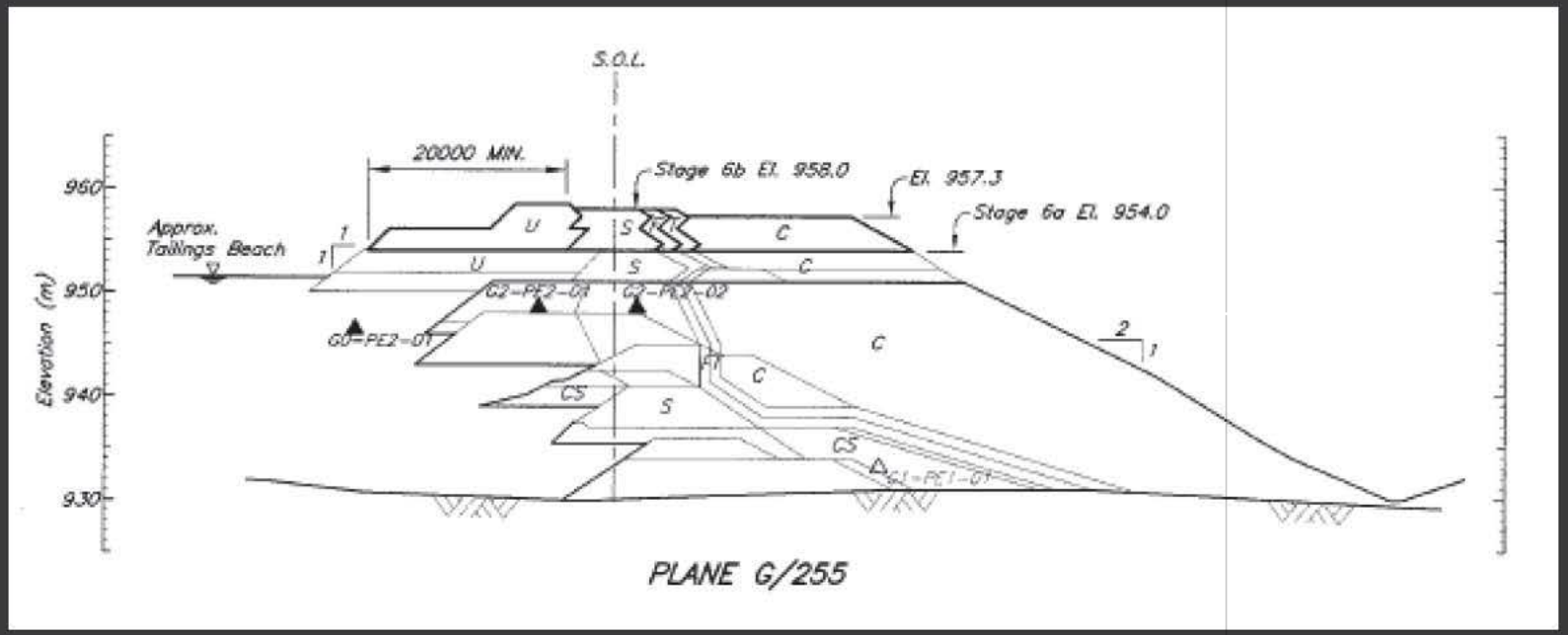
Stage 6B PE As-Built Geometry



From 'Tailings Storage Facility – Report on Stage 6B Construction' (2011)

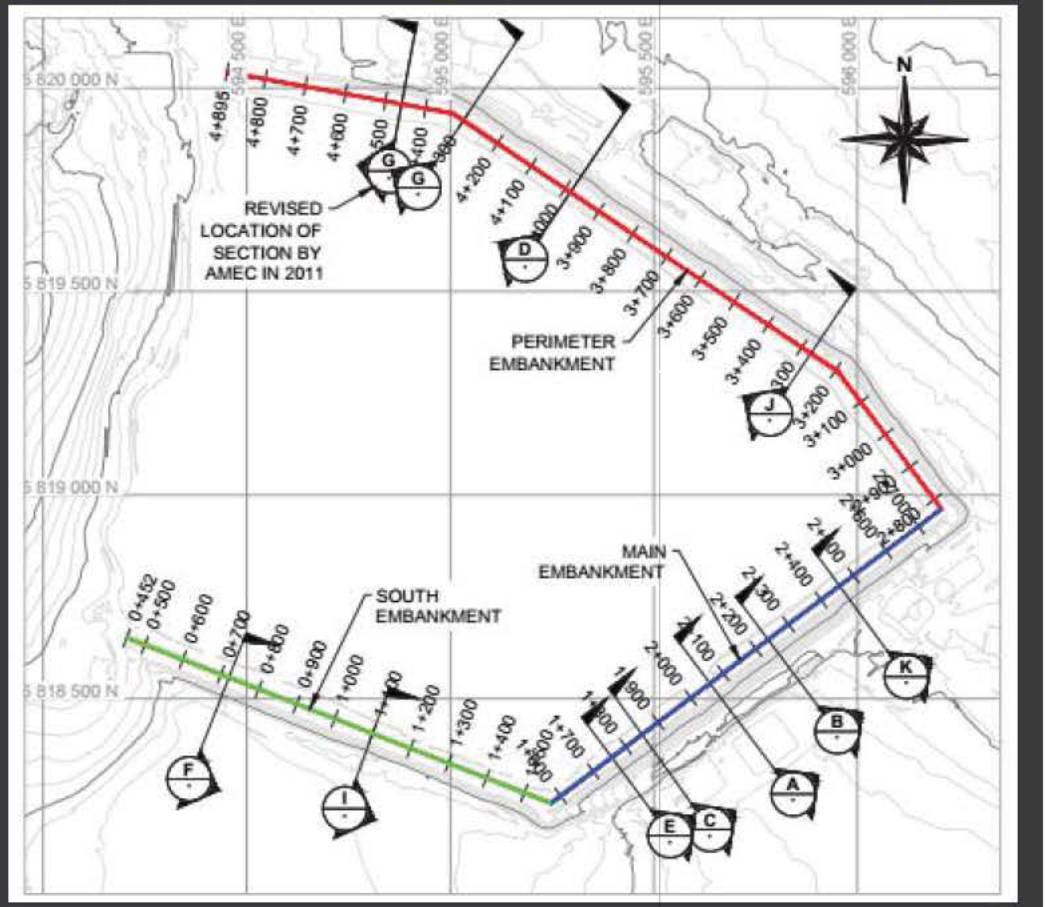
Stage 6B As-Built

- Stage 6B Construction Report (KP, 2011)
  - crest at 958 masl
  - Constructed February 2010 – August 2010
  - Perimeter Embankment 28 m high
  - Downstream slope designed with 2H:1V slope



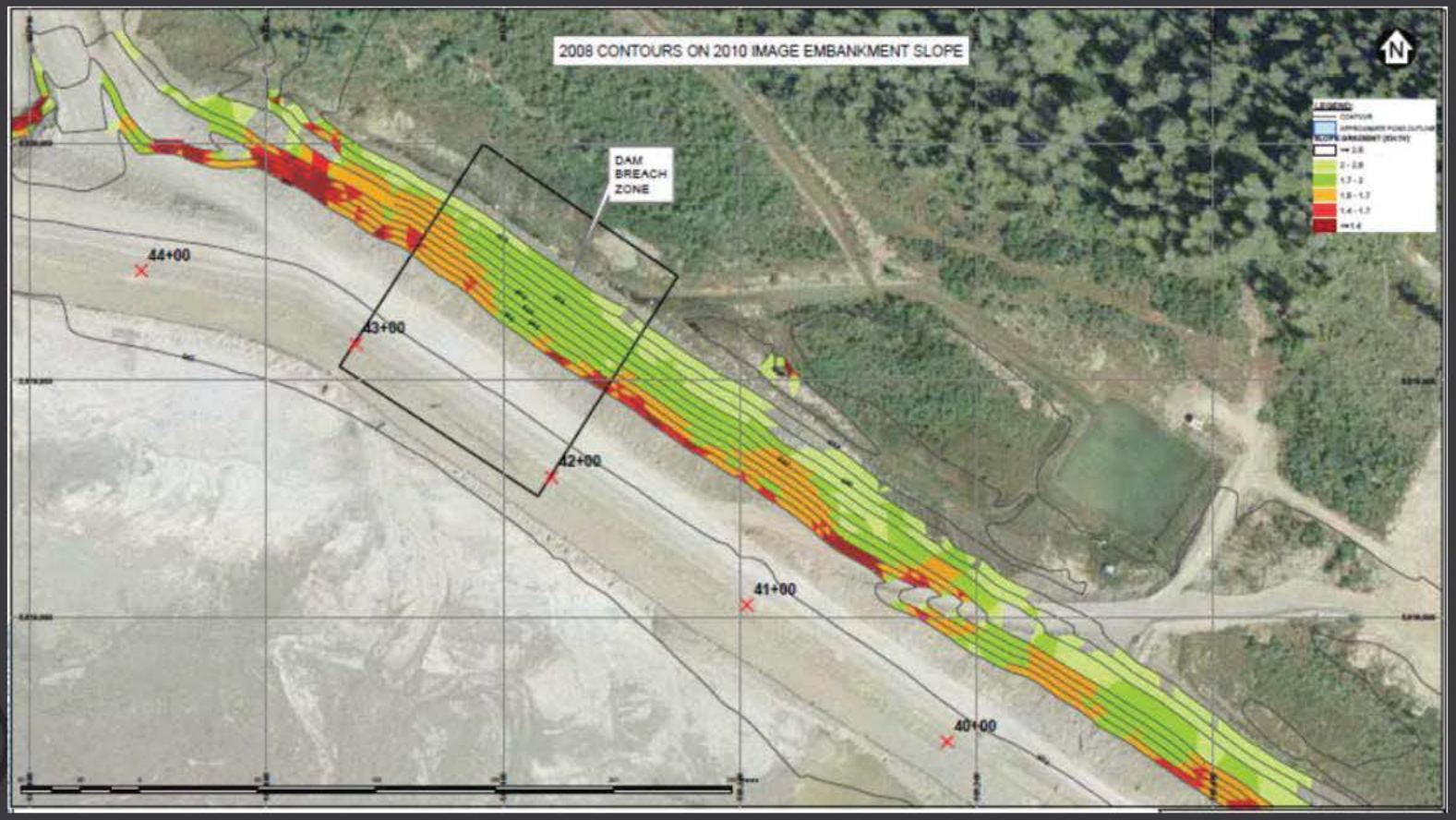
Panel - Stage 6B Geometry

- Panel extrapolated geometry from Section 1/Plane D at Ch. 39+86 instead of Plane G at Ch. 43+00
- Panel assumed angle of repose embankment slopes incorporated in Stage 6 and subsequent stages



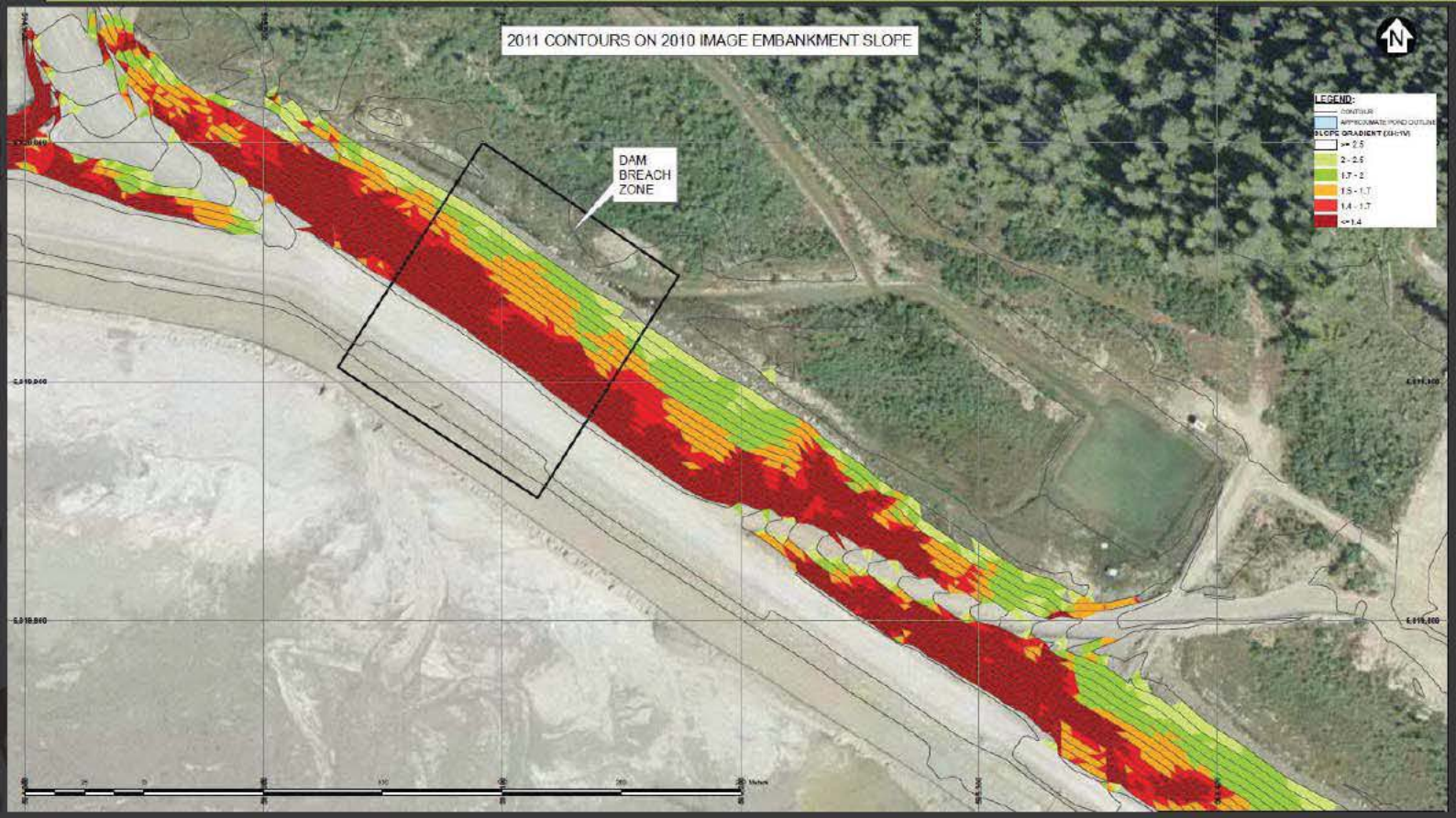
2010 Ortho at Plane G

Breach Area 2008 Slope Angles



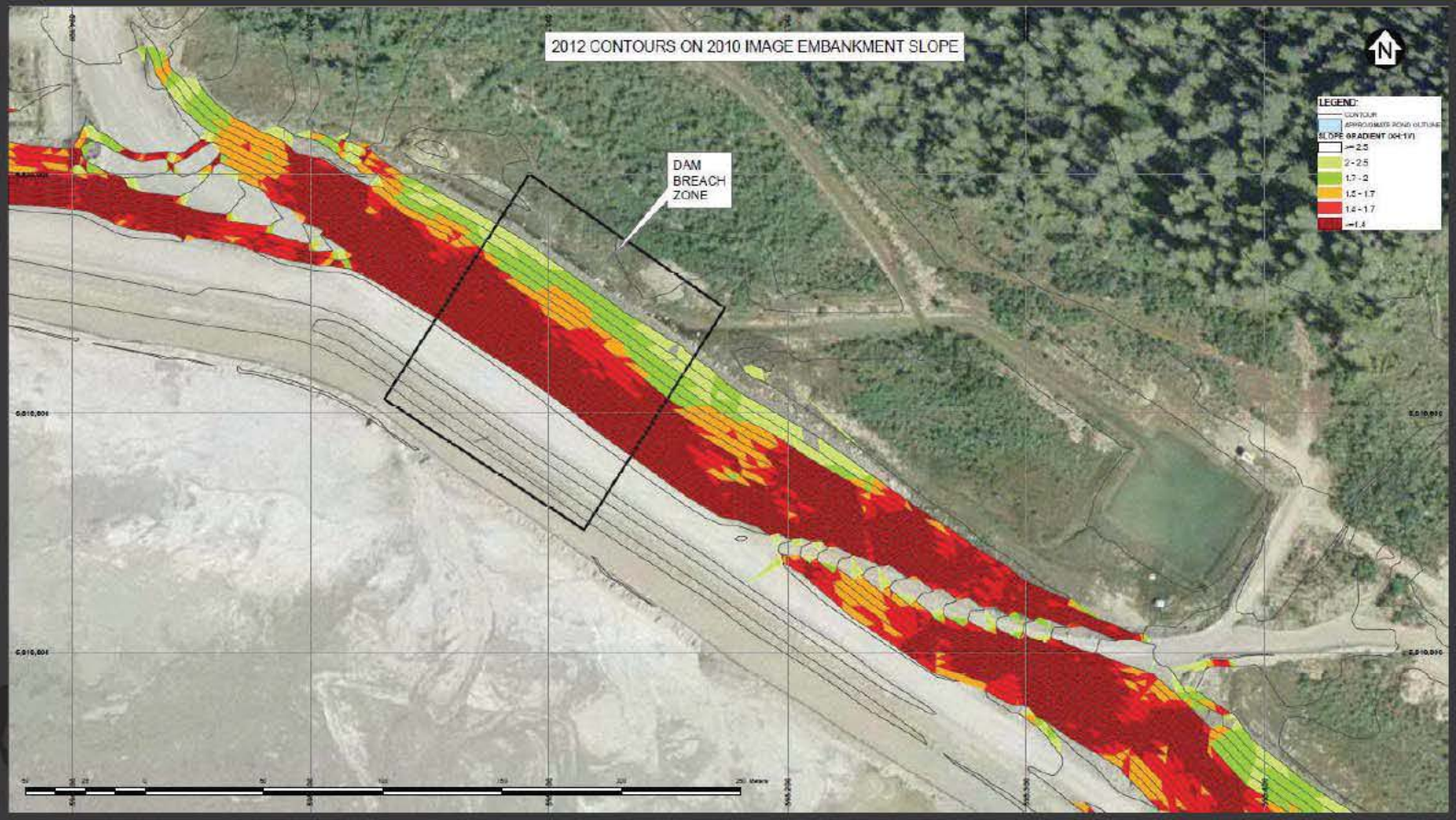
- Detailed topography used to develop slope angle plots
- Embankment slopes generally approx. 2H:1V prior to 2011

2011 Slope Angles



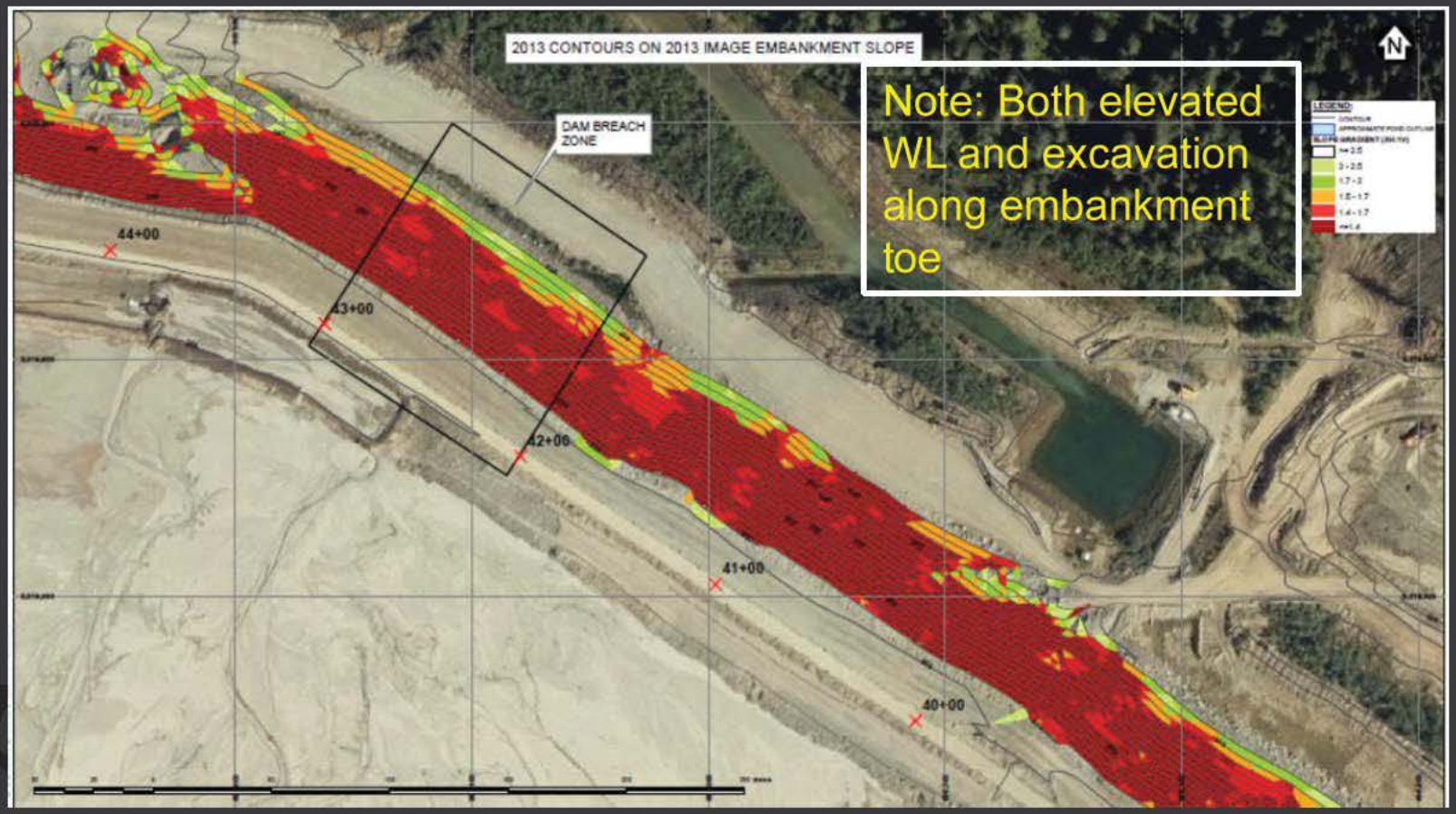
- Angle of repose slopes extended from crest down the slope

2012 Slope Angles



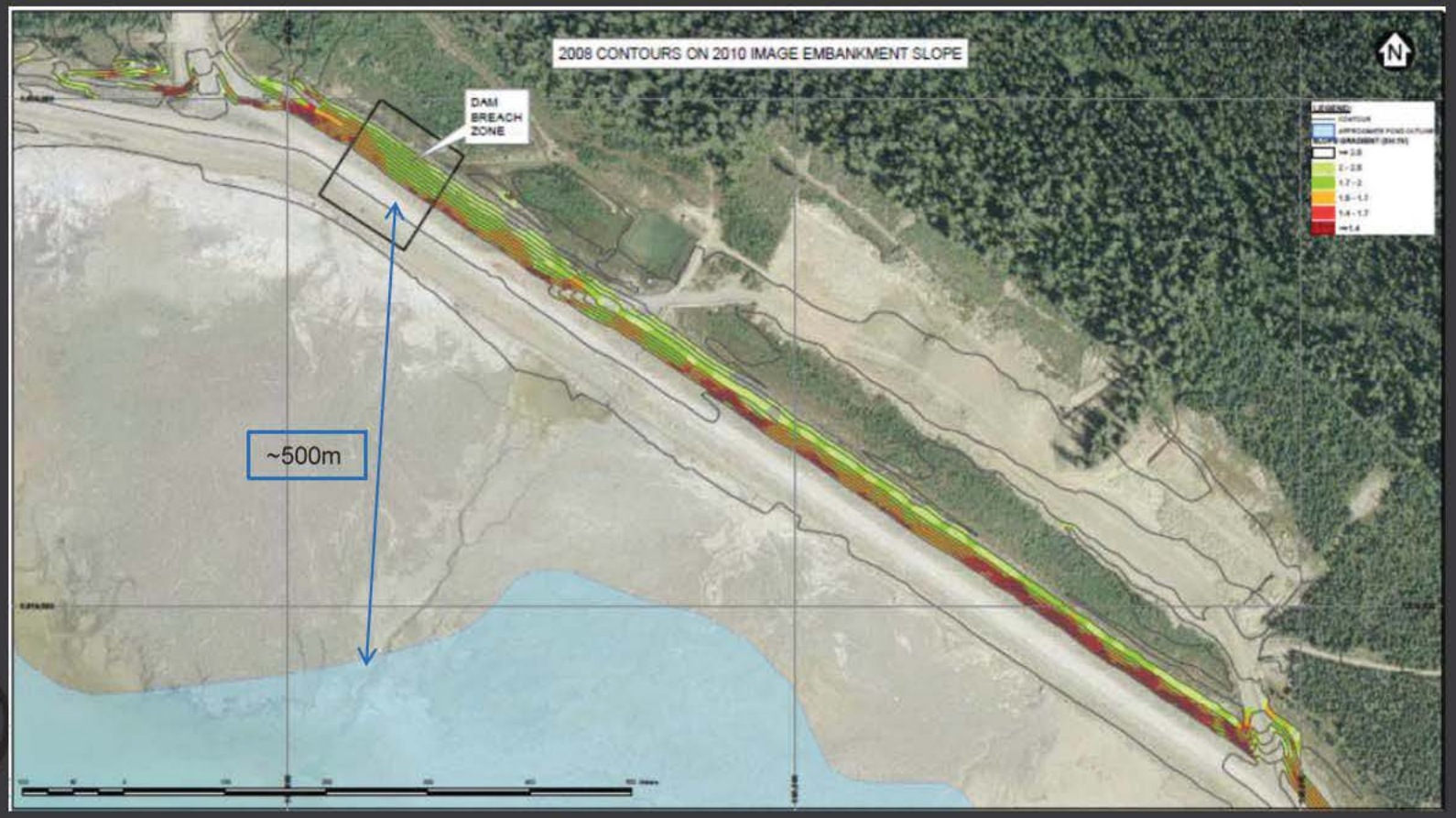
- Angle of repose slopes extended from crest down the slope

2013 Slope Angles



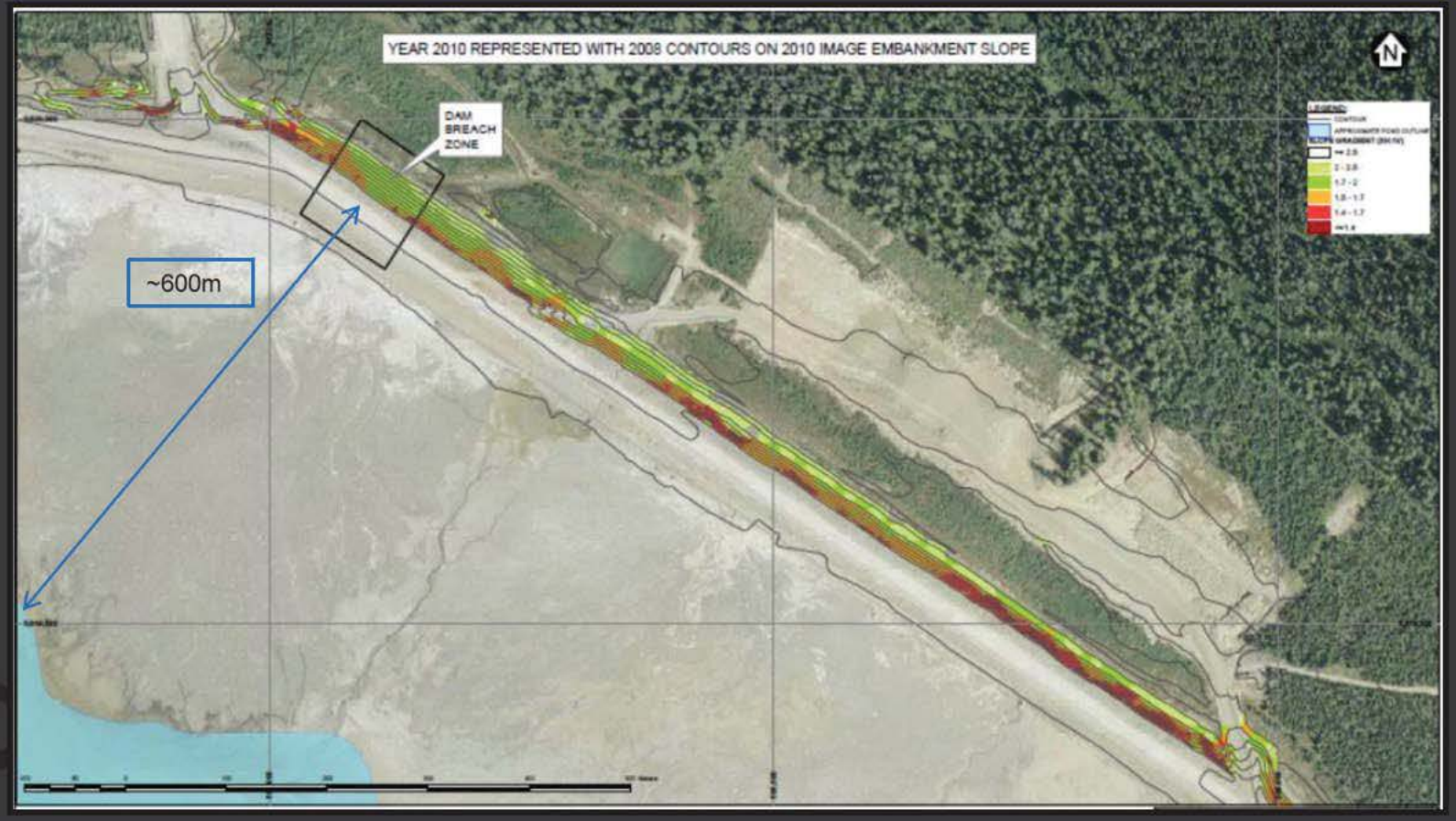
- Embankment slopes generally at angle of repose down entire slope by 2013
- Excavation at downstream toe noted
- Higher water levels at Seepage pond and ditch are evident

2008 Slope Angles



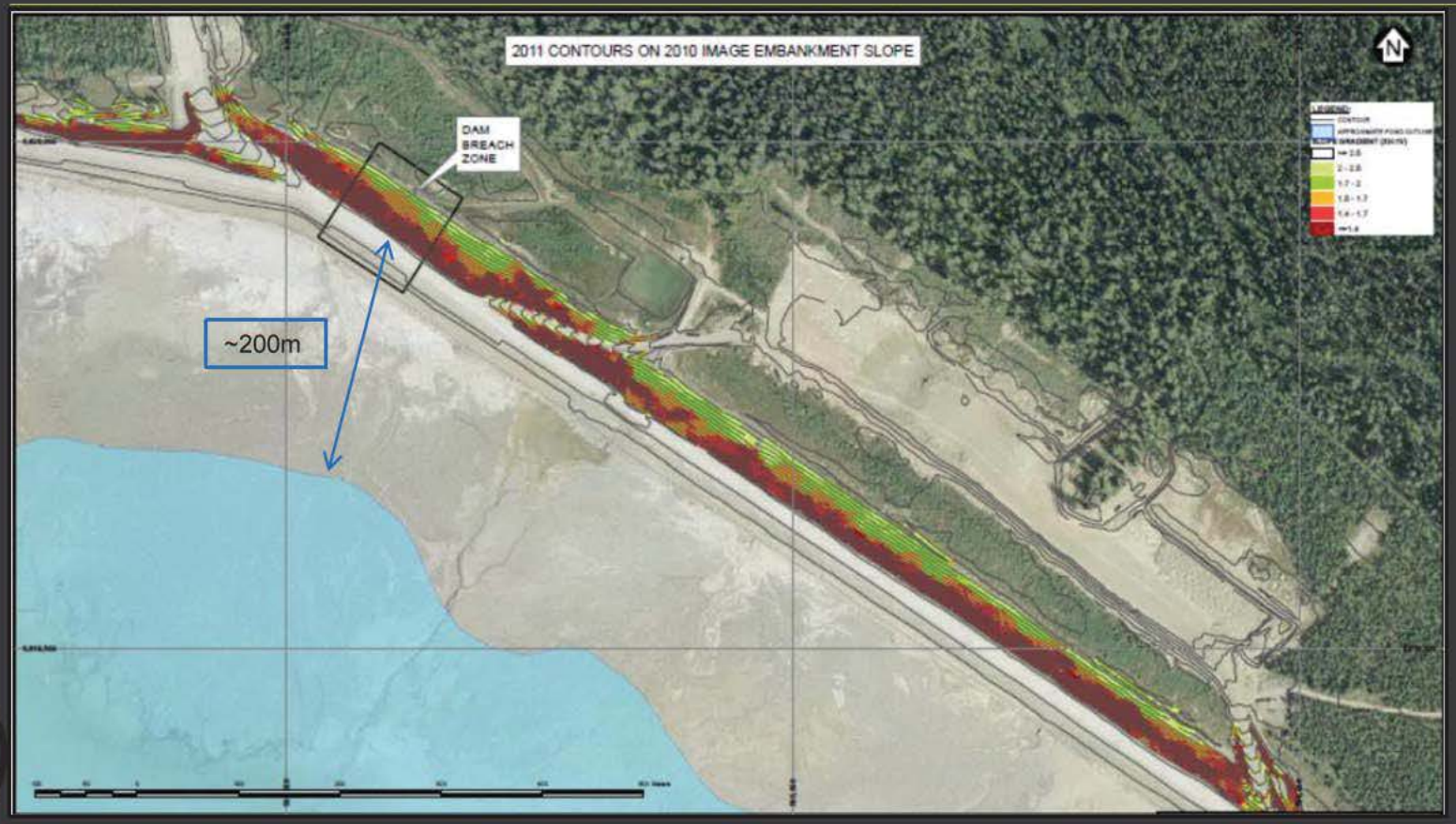
- Steeper slopes evident further to the south (where tension cracking noted in 2010 Annual Inspection Report)
- Extensive tailings beach present along 'dam breach zone'

2010 Slope Angles



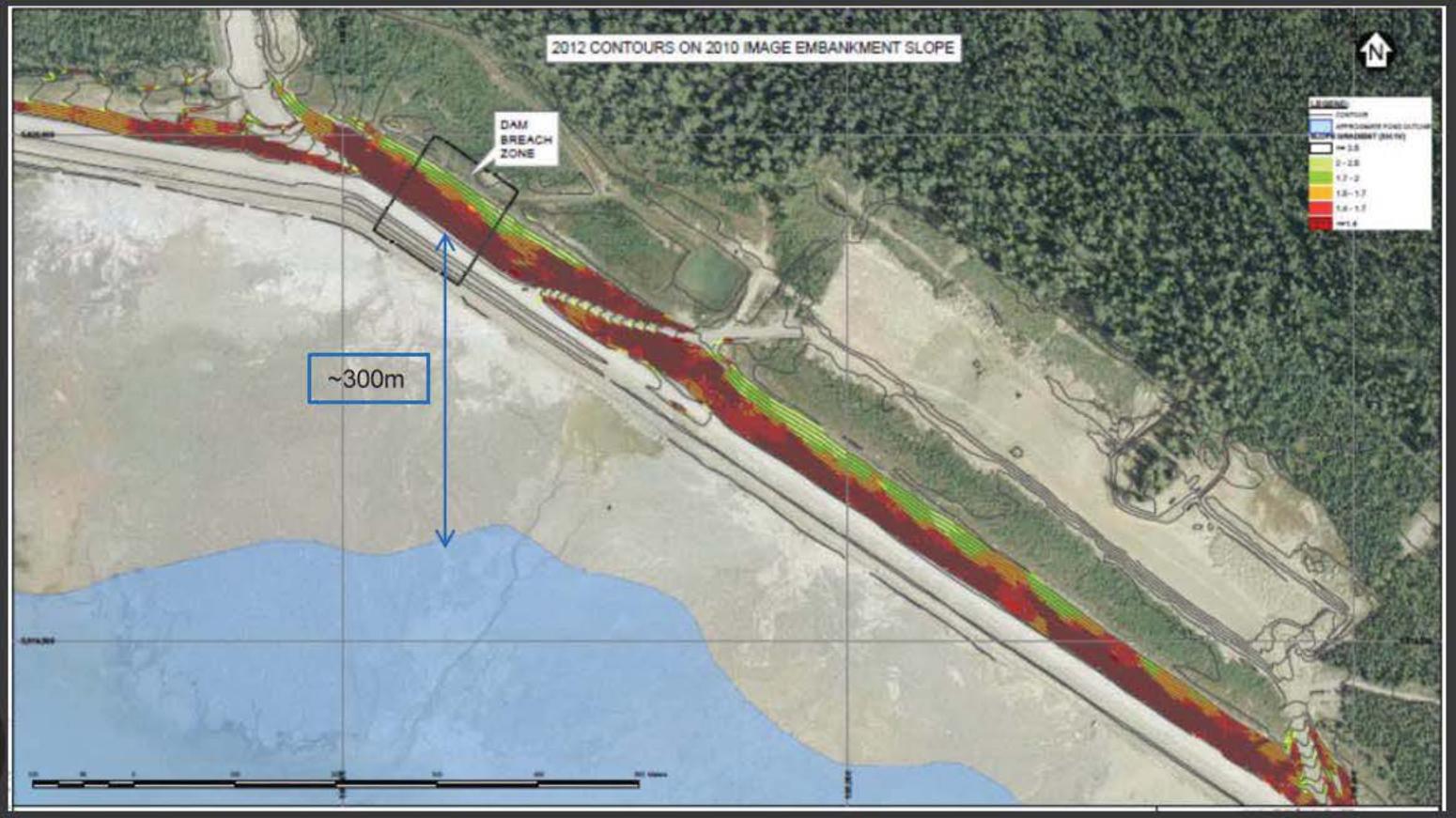
- Extensive tailings beaches present along entire PE
- Represents conditions when KP departed from the project.

2011 Slope Angles



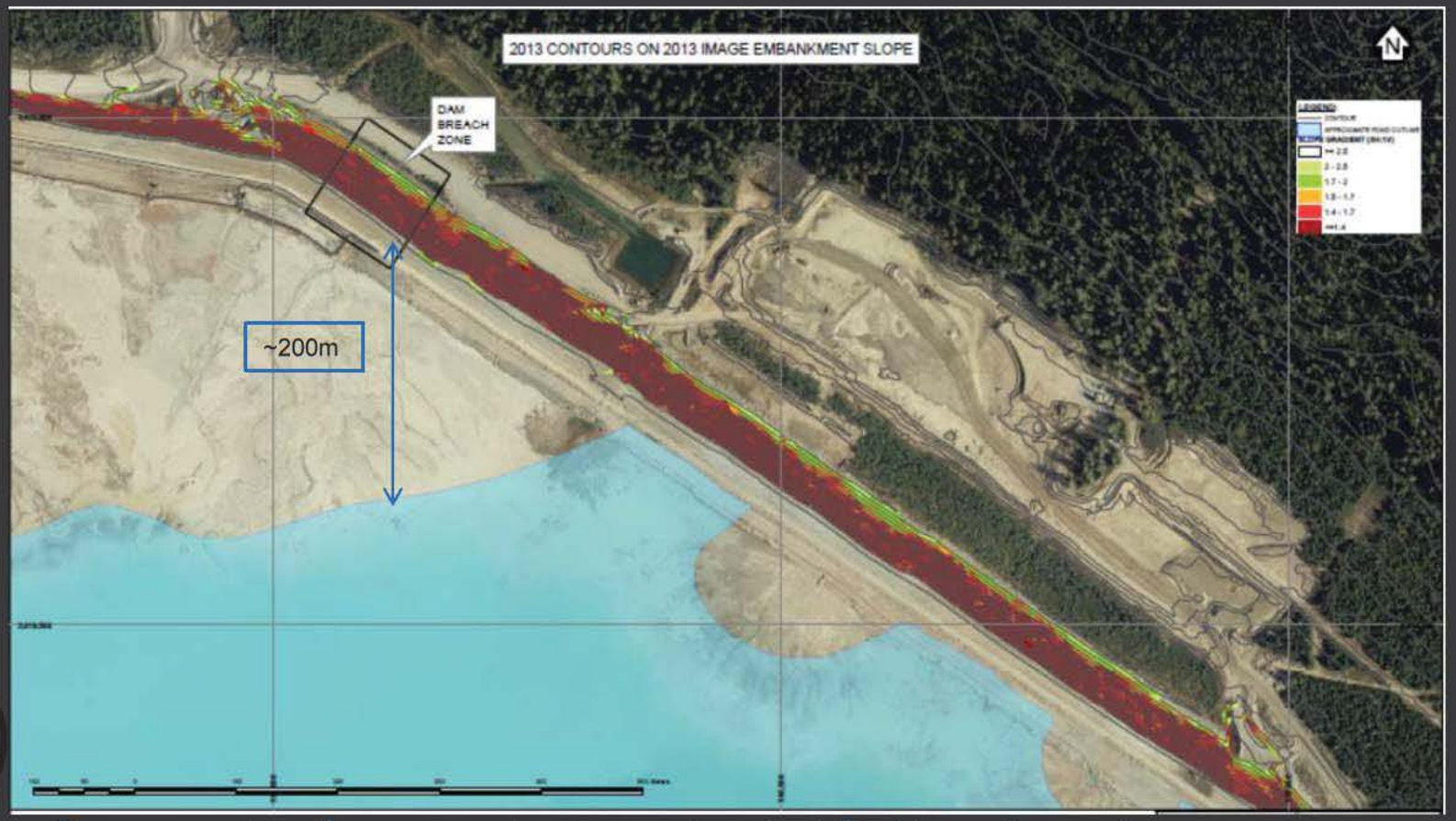
- Steep angle of repose slopes developed along entire PE
- Pond encroached closer, but large beaches still present

2012 Slope Angles



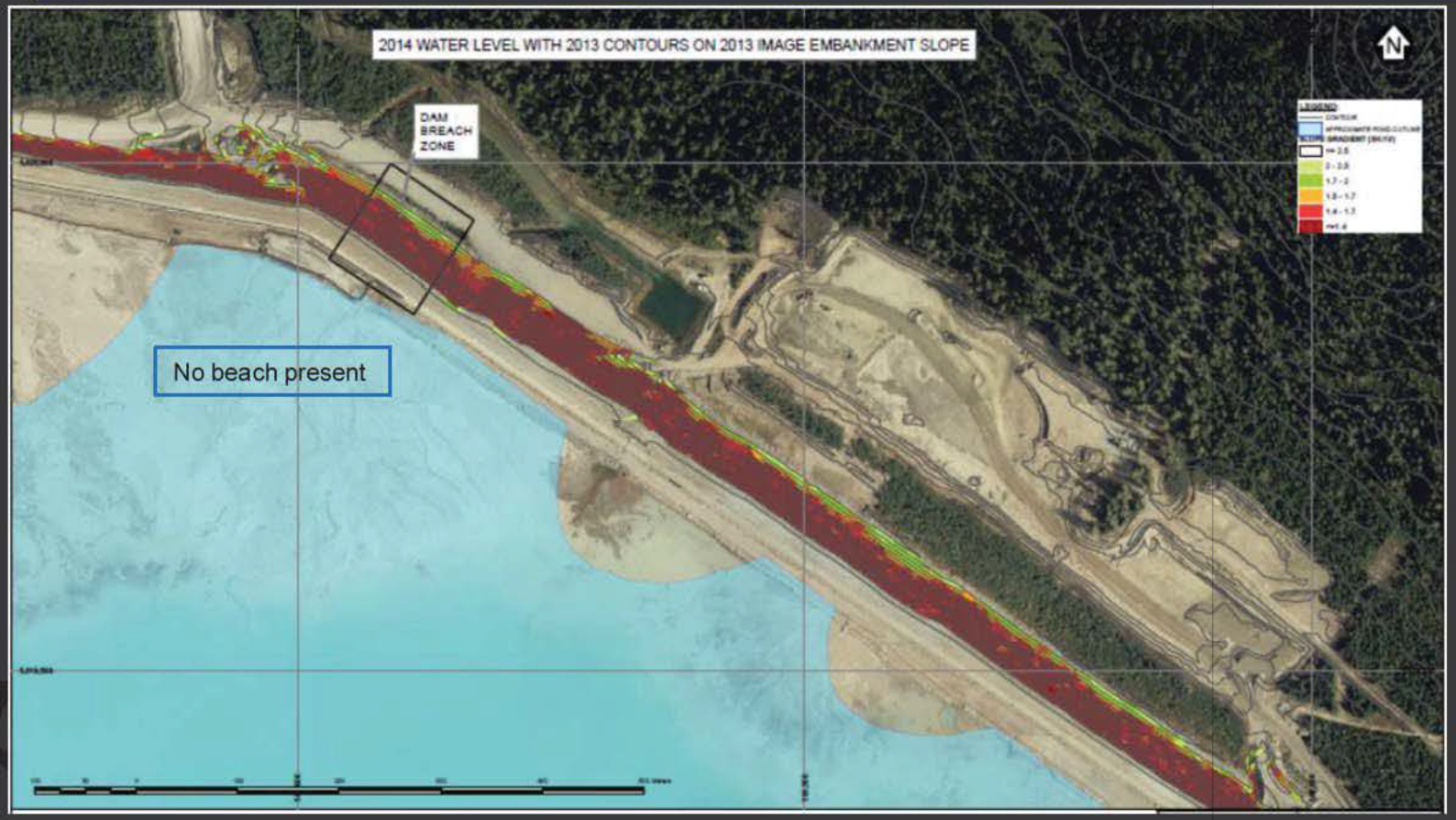
- Steep angle of repose slopes extended further downslope
- Large beaches still present adjacent to 'Dam Breach Zone'

2013 Slope Angles



- Steep angle of repose slopes extended further downslope
- Large beaches still present adjacent to 'Dam Breach Zone', but absent at other locations along PE.
- Note that the embankment slump would have been an 'incident' and not a 'Dam Breach failure' up to this point in time.

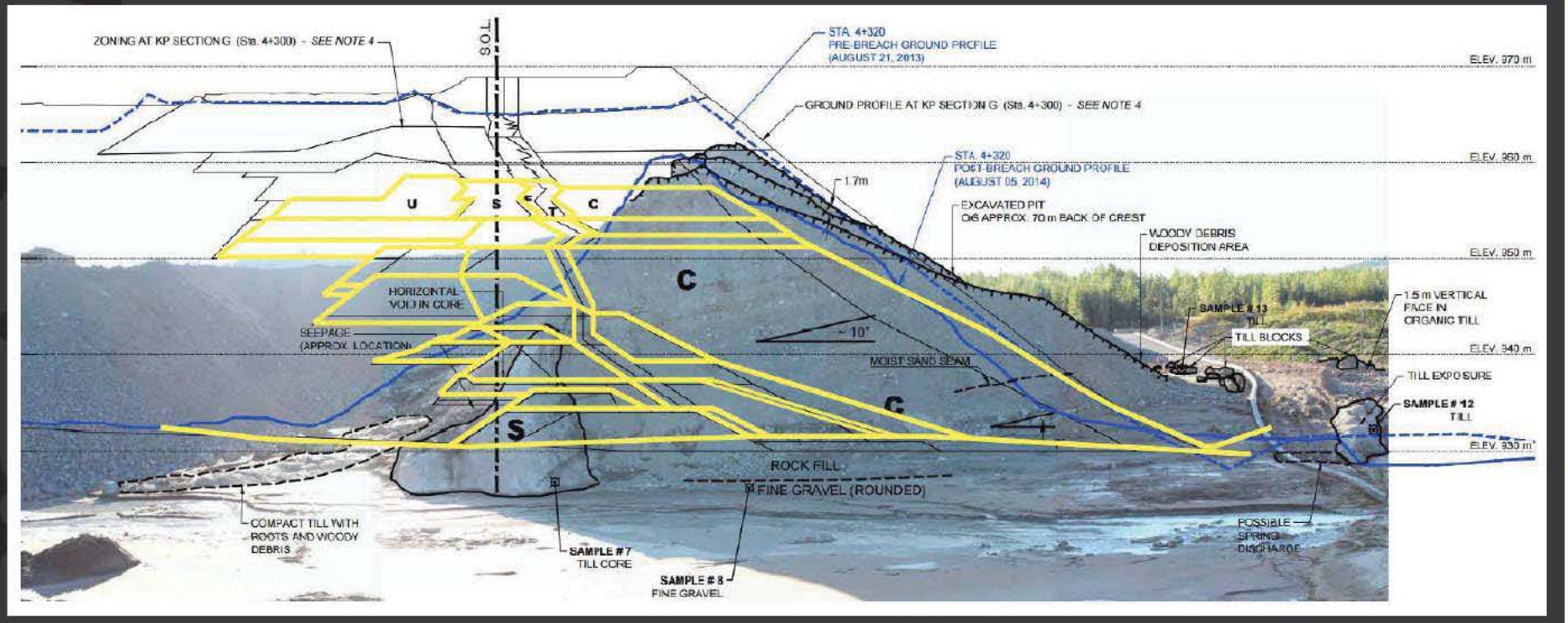
2014 Slope Angles



- No data available for 2014 slopes - 2013 slopes shown above.
- Pond extends to the dam and along the dam breach zone.
- Pond overtopping the slumped area allowed for erosive breach to develop.

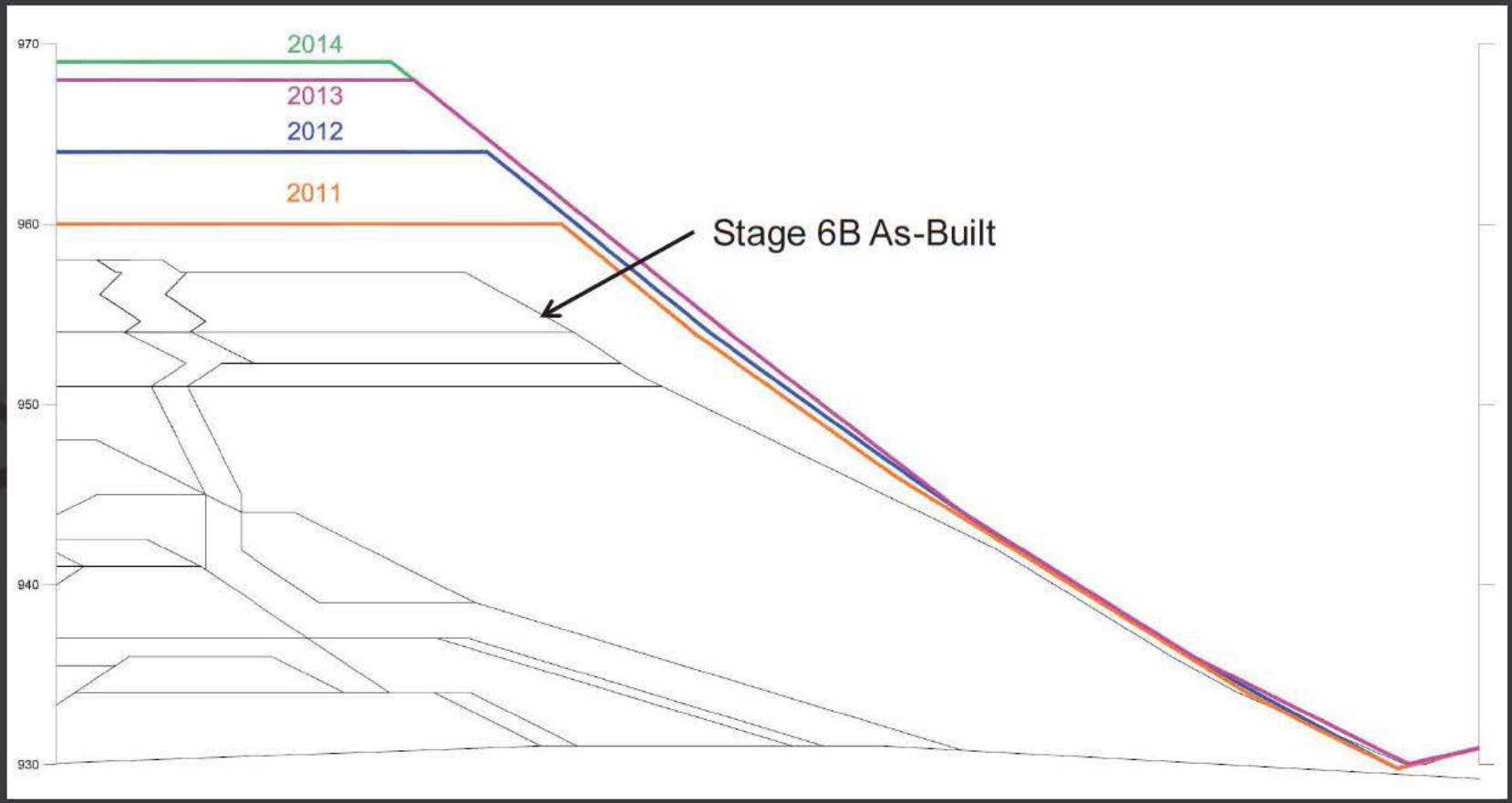
Panel - Compacted Rockfill Layering

- Left Abutment Field Mapping Notes and Zoning at KP Section (Sta 4+300) (Figure C5) vs. Stage 6B As-Built
- Fill layering confirms flatter Stage 6B geometry rather than angle of repose slope
- Illustrates “bottom up” construction in compacted lifts up to Stage 6B

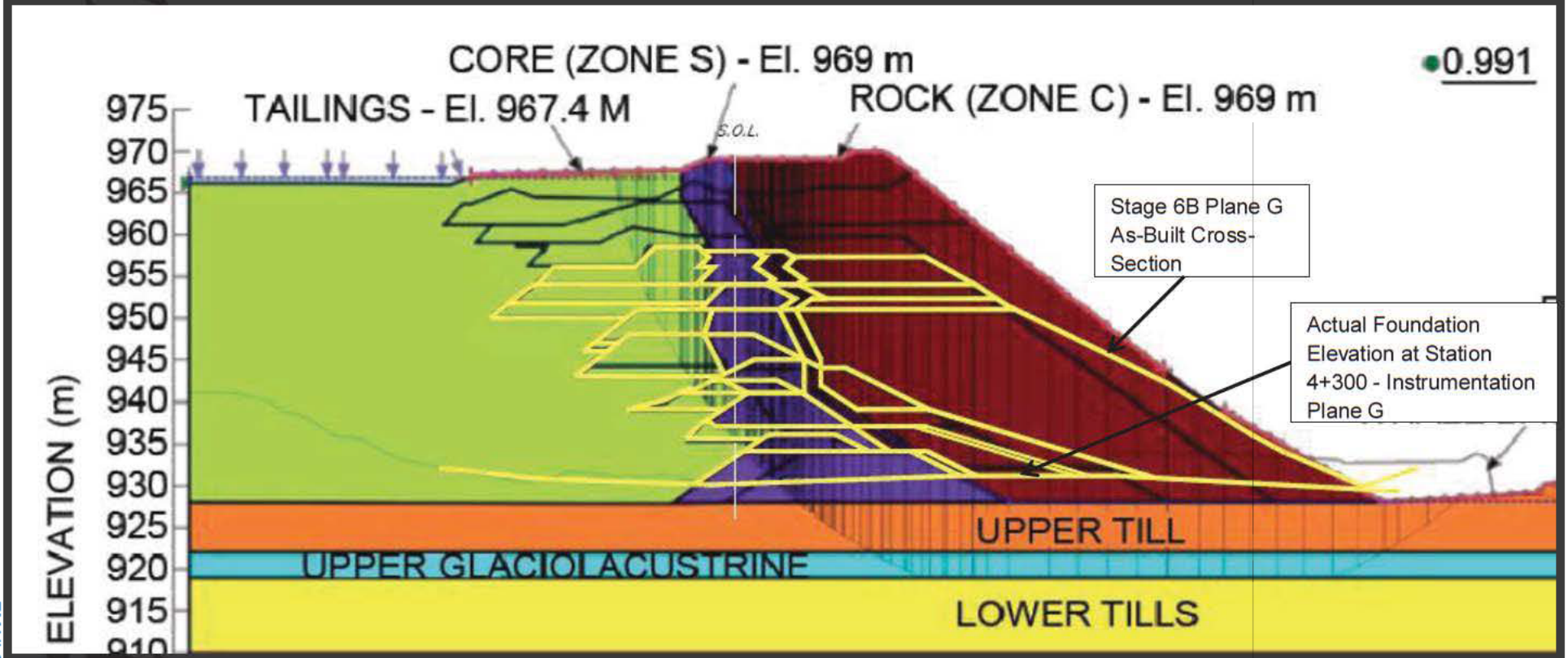


Top Down End Dump

- Simplified sections generated from the 2011, 2012 and 2013 topography (backup information from the Panel report) and from the Panel's stability analysis (2014)
- Angle of Repose slopes developed using "top down" end dumping after Stage 6 (after 2010)

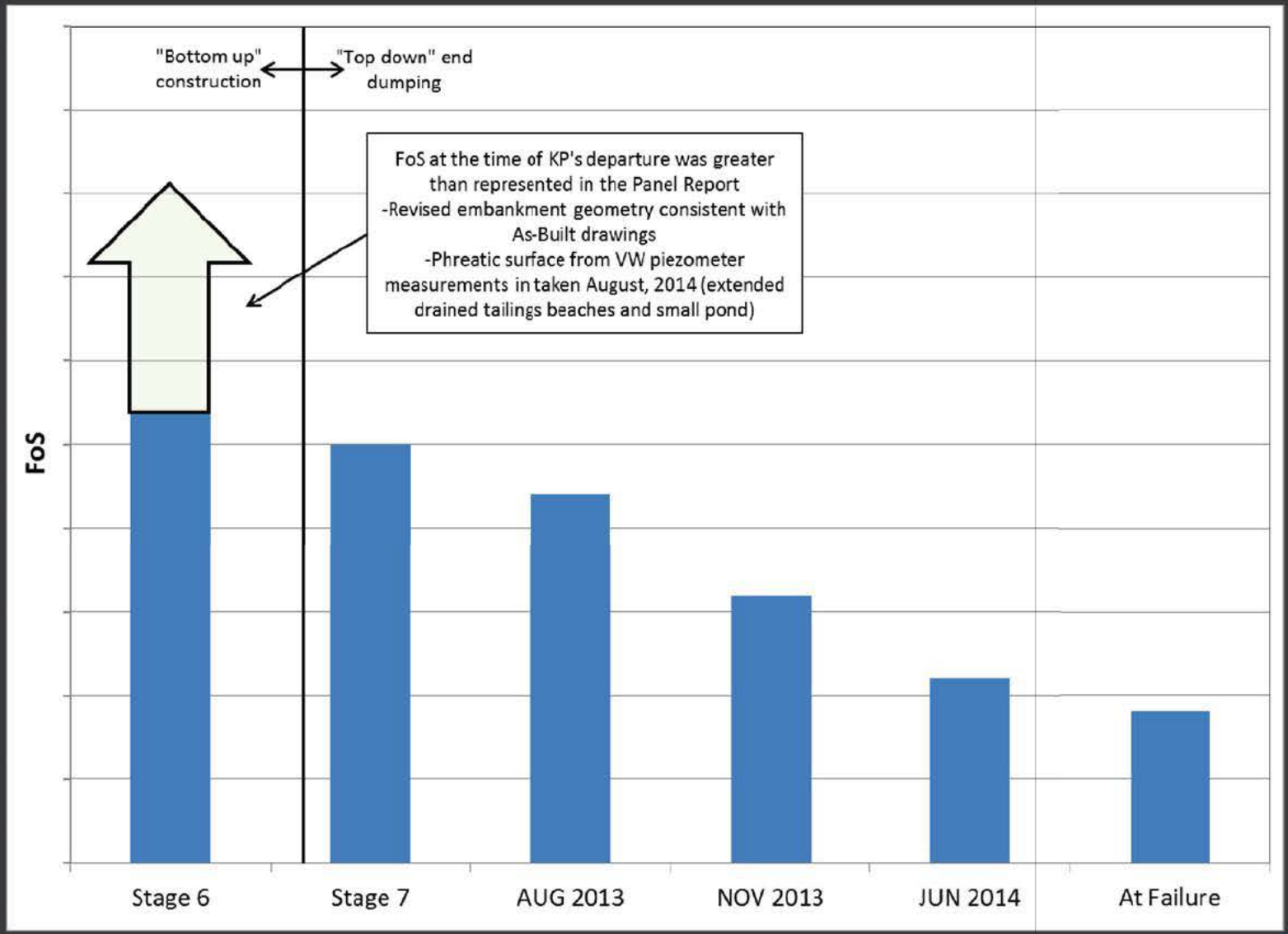


Panel Stability Section vs Stage 6B As-Built



- Yellow outline shows actual geometry superimposed on Panel geometry
- Internal staging used by Panel is incorrect

Panel Stability Assessment



Some Inconsistencies in Panel Report

- Stage 6B Perimeter Embankment Geometry at Breach
  - Panel assumed Stage 6B constructed at angle of repose which is inconsistent with as-built drawings and 2010 orthophotos
  - Stage 6B constructed in lifts from the bottom up at ~2H:1V
- Phreatic Surface (Beach Development/Pond Size)
  - Extensive drained tailings beaches and a small pond volume were present in 2010.
- Panel stability analyses underestimated the Factor of Safety for Stage 6B
- Factor of Safety at the Perimeter Embankment met design criteria when KP departed from project

Other Items

- KP made the following additional observations in the supplemental information package provided to MEM (VA15-02287, Mar 27, 2015):
  - The Panel's attempt to extrapolate from a preliminary 2005 tailings embankment concept to develop a predictive stability model was questionable and is not relevant. The Panel's model was incorrectly represented as a KP embankment design.
  - KP maintained a secure web-based data management system for the Mount Polley project. These electronic data are available for the investigating parties.

Other Items (cont.)

- Page 62 of the Panel report indicated that AMEC conducted certain optimization studies for MPMC while KP was still the EoR. KP was unaware of these communications until reading the Panel report and recognizes that these communications may have contradicted or complicated the communications between KP and MPMC/IMC.
  - The AMEC optimization study documents were publically released by the Panel. KP found that many of the items presented in the optimizations studies contradicted KP's recommendations and advice as follows:
    - Questions requirements for a buttress
    - Indicates the water balance is "fine-tuned to an accuracy that is in the range of centimeters in terms of pond elevation"
    - Indicates the freeboard requirement may be reduced
    - States that beach development is not integral to the design as "there is no real need, subject to continued good piezometric conditions, for a formal subaerial beach during operations"
    - A thinner truncated core zone could be incorporated
    - Adjustments to site supervision and QA/QC requirements

Closing

- KP continues to review the information that was released with the Panel report and will be developing additional comments and opinions.
- KP continues to support the on-going investigations by MEM and the Conservation Officers.
- KP is concerned that some public communications are inaccurate and are potentially damaging to KP's reputation
- KP is currently reviewing and developing a communications strategy.

End Presentation to DvZ

End of Presentation to Dirk van Zyl

Knight Piésold Concerns

Knight Piésold is active in the mineral industry in British Columbia, Canada, and globally.

The errors in the Panel Report have cast aspersions on Knight Piésold that we are defending throughout the jurisdictions in which we work.

This is primarily because the global mineral industry is very focused on the Mount Polley incident and the Government of British Columbia's response.

It is enhanced through ongoing conference presentations by Panel members.

Knight Piésold Concerns

We further note that:

- MAC committees are relying on input from individuals who may have a conflict of interest
- APEGBC is developing guidelines that ignore key aspects of the Mount Polley breach, with undue focus on only certain aspects of the conclusions in the Panel Report

What Went Right?

So where does Knight Piésold agree with the Panel Report?

1. The foundation included complex glacial layers that impacted stability
2. Slopes of the Perimeter Embankment grew high and very steep
3. The height of the embankment coupled with the steep slope angle resulted in sliding along the GLU in the foundation
4. The very high volume of water stored in the facility eroded the dam and transported tailings to Hazeltine Creek and on to Quesnel Lake

These are the very specific points that we feel should have been the focused conclusion of the Panel.

A more concise and dispassionate statement would also likely have resonated better with the mineral industry.

Where could we go from here?

Communications:

- It is important to remember at all times that two additional, more extensive investigations are ongoing.
- Language from the Ministry and from the Panel members should indicate this
- In public presentations and with the media, the Minister and Panel Members should specifically state that additional information may be forthcoming that could augment the Panel findings

Where could we go from here?

Any mention of Knight Piésold should be done based on the corrected facts as outlined in this presentation that at the time of Knight Piésold's departure from the project:

- The embankments were stable
- The impoundment had large drained beaches
- The impoundment contained a relatively small volume of water
- Knight Piésold formally transferred the EOR responsibilities in February 2011

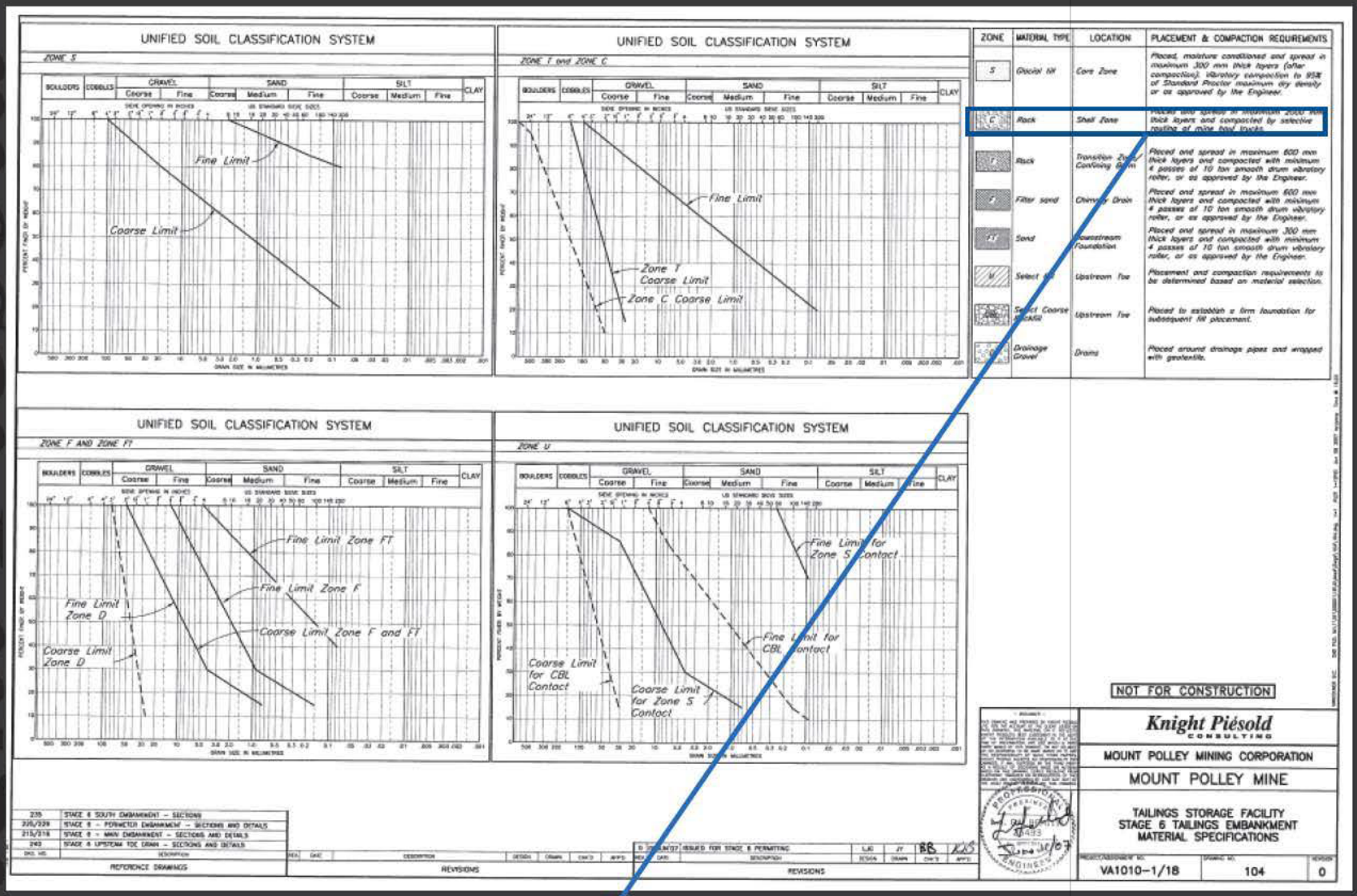
Where could we go from here?

Corrective Action:

Short of issuing errata to the Panel Report, it is important that the investigation under the Chief Inspector acknowledge discrepancies between the findings in its investigative report (expected in June) and the Panel Report (both conducted under MEM) to ensure that incorrect and unfair aspersions against KP are lifted

THANK YOU

Stable Tailings Impoundment in 2010



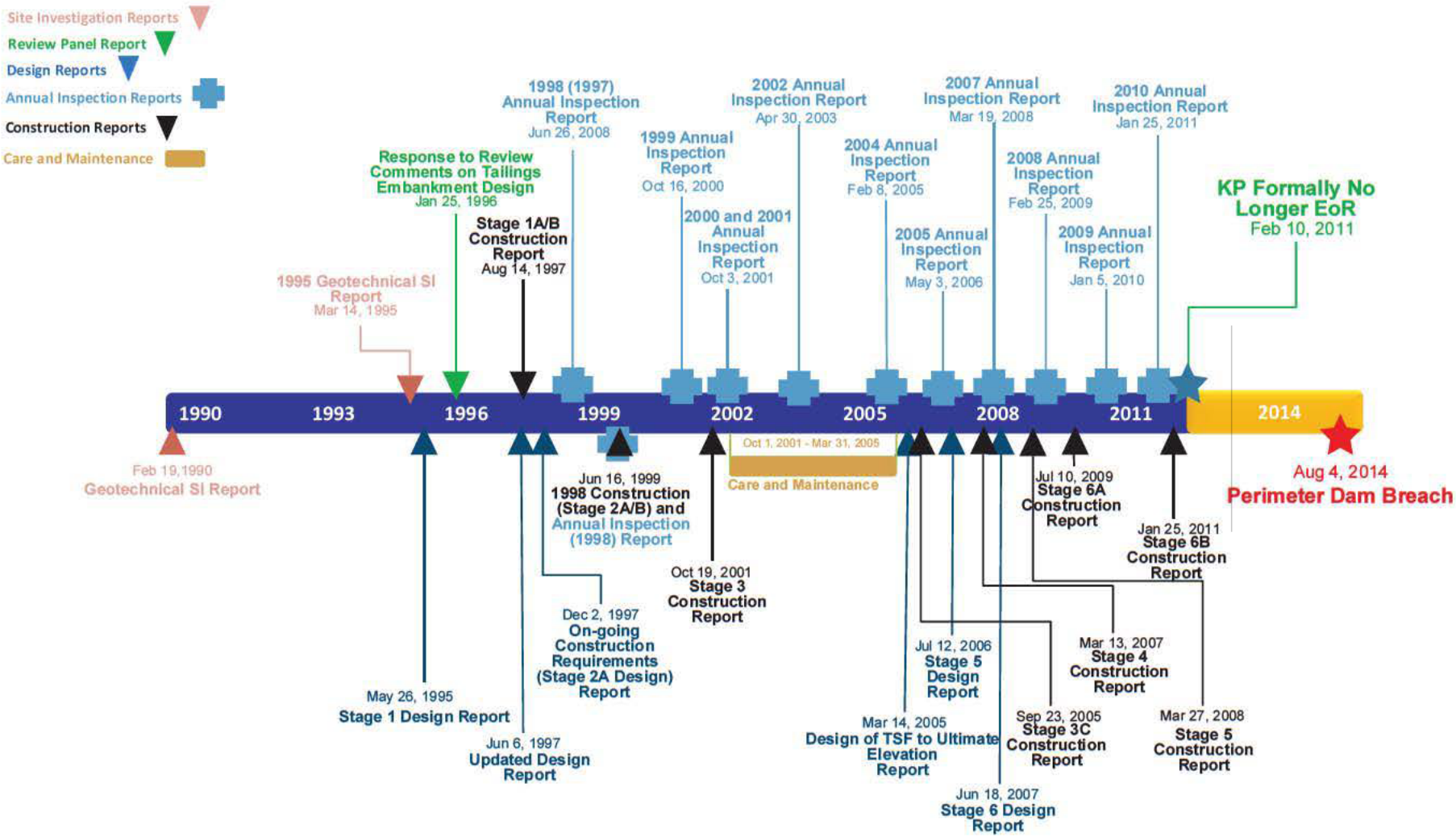
C	Rock	Shell Zone	Placed and spread in maximum 2000 mm thick layers and compacted by selective routing of mine haul trucks.

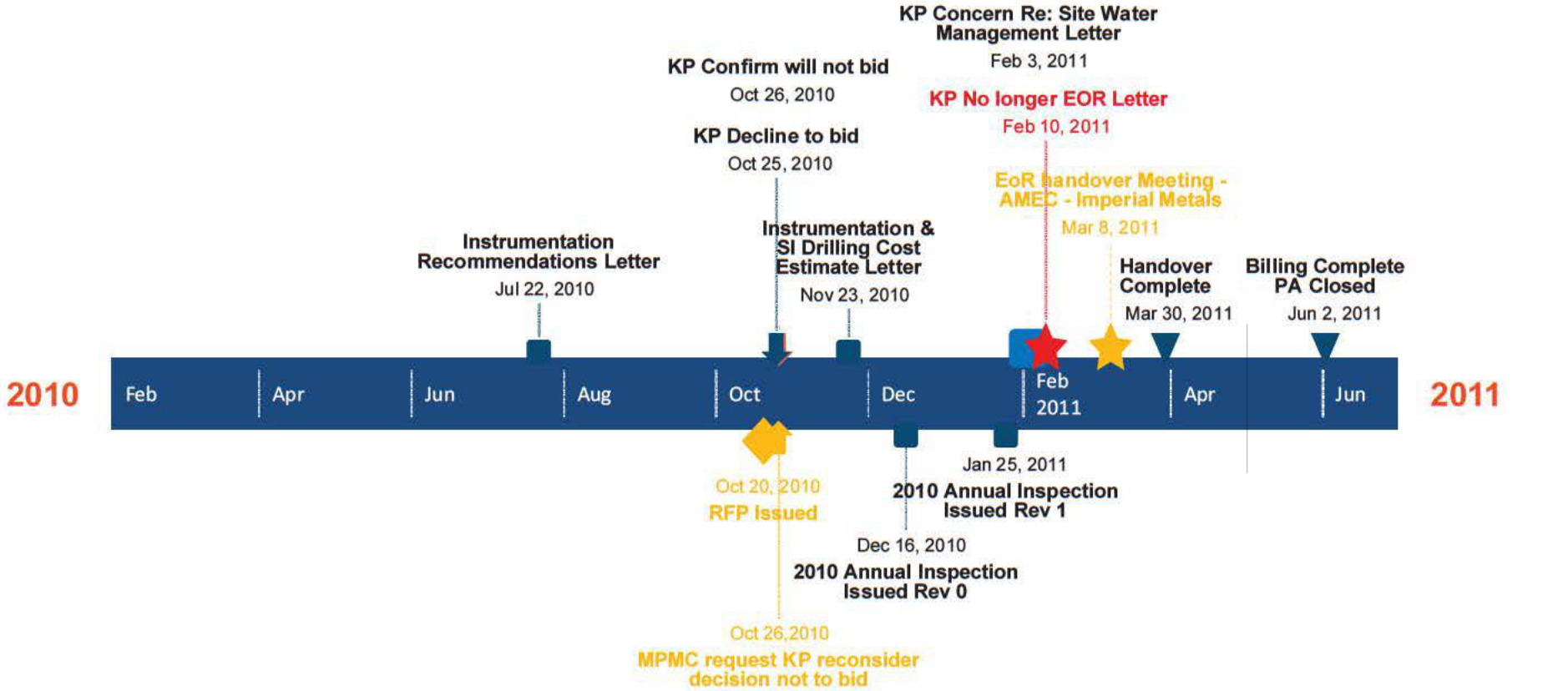
Knight Piésold CONSULTING

Adding Value. Delivering Results.

Mount Polley 2014 Incident
Historic KP Involvement
Preliminary Timeline

Mount Polley TSF Timeline – Four Phases


Site Investigation Reports
Review Panel Report
Design Reports
Annual Inspection Reports
Construction Reports
Care and Maintenance
1990
1993
1996
1999
2002
2005
2008
2011
2014
Feb 19,1990
Geotechnical SI Report
1995 Geotechnical SI Report
Mar 14, 1995
Response to Review Comments on Tailings Embankment Design
Jan 25, 1996
Stage 1A/B Construction Report
Aug 14, 1997
1998 (1997) Annual Inspection Report
Jun 26, 2008
1999 Annual Inspection Report
Oct 16, 2000
2000 and 2001 Annual Inspection Report
Oct 3, 2001
2002 Annual Inspection Report
Apr 30, 2003
2004 Annual Inspection Report
Feb 8, 2005
2005 Annual Inspection Report
May 3, 2006
2007 Annual Inspection Report
Mar 19, 2008
2008 Annual Inspection Report
Feb 25, 2009
2009 Annual Inspection Report
Jan 5, 2010
2010 Annual Inspection Report
Jan 25, 2011
KP Formally No Longer EoR
Feb 10, 2011
Aug 4, 2014
Perimeter Dam Breach
Oct 1, 2001 - Mar 31, 2005
Care and Maintenance
May 26, 1995
Stage 1 Design Report
Jun 6, 1997
Updated Design Report
Dec 2, 1997
On-going Construction Requirements (Stage 2A Design) Report
Jun 16, 1999
1998 Construction (Stage 2A/B) and Annual Inspection (1998) Report
Oct 19, 2001
Stage 3 Construction Report
Mar 14, 2005
Design of TSF to Ultimate Elevation Report
Jul 12, 2006
Stage 5 Design Report
Jun 18, 2007
Stage 6 Design Report
Sep 23, 2005
Stage 3C Construction Report
Mar 13, 2007
Stage 4 Construction Report
Jul 10, 2009
Stage 6A Construction Report
Jan 25, 2011
Stage 6B Construction Report
Mar 27, 2008
Stage 5 Construction Report


KP Concern Re: Site Water Management Letter
Feb 3, 2011
KP Confirm will not bid
Oct 26, 2010
KP No longer EOR Letter
Feb 10, 2011
KP Decline to bid
Oct 25, 2010
EoR handover Meeting - AMEC - Imperial Metals
Mar 8, 2011
Instrumentation Recommendations Letter
Jul 22, 2010
Instrumentation & SI Drilling Cost Estimate Letter
Nov 23, 2010
Handover Complete
Mar 30, 2011
Billing Complete PA Closed
Jun 2, 2011
2010
Feb
Apr
Jun
Aug
Oct
Dec
Feb 2011
Apr
Jun
2011
Jan 25, 2011
Oct 20, 2010
RFP Issued
2010 Annual Inspection Issued Rev 1
Dec 16, 2010
2010 Annual Inspection Issued Rev 0
Oct 26,2010
MPMC request KP reconsider decision not to bid
VA101-00001/29 Project Assignment Duration
Feb 8, 2010 – Jun 2, 2011
KP Site services (Construction QA)
Feb 8, 2010 – Aug 13, 2010

From:	Gregory Smyth
To:	Kuppers, Haley MEM:EX
Cc:	Ken Brouwer
Subject:	RE: Mount Polley Investigation - Follow-up from May 6, 2015 Meeting with KP
Date:	Friday, May 8, 2015 6:23:11 PM

Hi Haley

Our pleasure. We're available if anything comes up.

Best of the weekend to you.

Kind Regards,

Greg

From: Kuppers, Haley MEM:EX [mailto:Haley.Kuppers@gov.bc.ca]
Sent: Friday, May 8, 2015 6:21 PM
To: Gregory Smyth
Cc: Ken Brouwer
Subject: RE: Mount Polley Investigation - Follow-up from May 6, 2015 Meeting with KP

Hi Greg,

Thank you for following up so quickly. We appreciated the opportunity to meet on the 6th, and will stay in contact if there are follow-up items in the future.

Regards,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Gregory Smyth [mailto:gsmyth@knightpiesold.com]
Sent: Friday, May 8, 2015 5:58 PM
To: Kuppers, Haley MEM:EX
Cc: Ken Brouwer
Subject: Mount Polley Investigation - Follow-up from May 6, 2015 Meeting with KP

Hi Haley

Great to meet with you this week. As discussed, please find attached the two presentations that we showed at our meeting on Wednesday.

If you have any questions, please let us know.

Kind Regards,

Greg Smyth, B.Sc.
Project Manager | Associate
Knight Piésold Ltd.

Suite 1400 - 750 West Pender
Vancouver | British Columbia | Canada | V6C 2T8
phone: +1 604 685 0543 | **fax:** +1 604 685 0147
direct: +1 604 685 0543 ext 319
email: gsmyth@knightpiesold.com
web: http://www.knightpiesold.com

From:	McLeod, Harvey
To:	Pocklington, Cheryl M MEM:EX; Kuppers, Haley MEM:EX
Subject:	Fwd: Mt Polley Beach Width Requirements
Date:	Saturday, May 9, 2015 9:04:11 AM
Attachments:	image003.jpg image005.jpg image007.png image008.png image009.png image010.png

---

Regards Harvey
604-671-8860

Begin forwarded message:

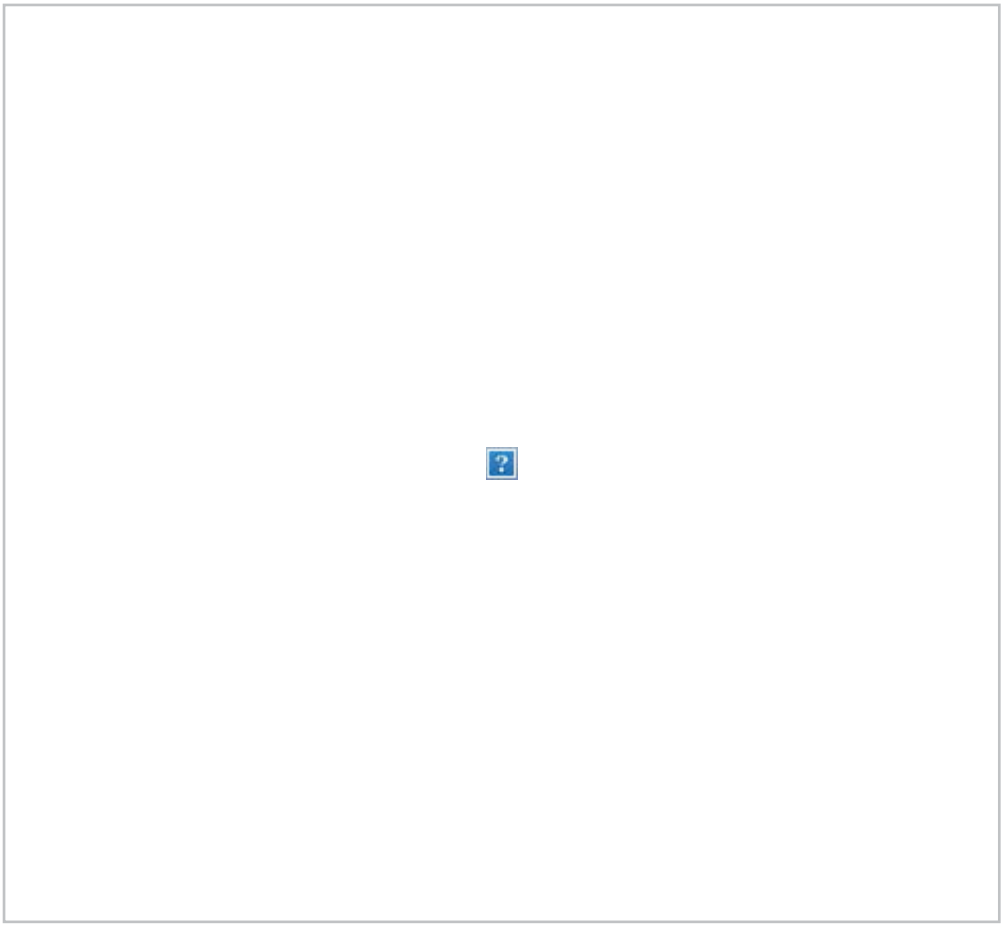
From: "Casey, Jim" <JCasey@klohn.com>
Date: May 8, 2015 at 9:30:52 AM PDT
To: "McLeod, Harvey" <HMcLeod@klohn.com>
Subject: Mt Polley Beach Width Requirements

Harvey,

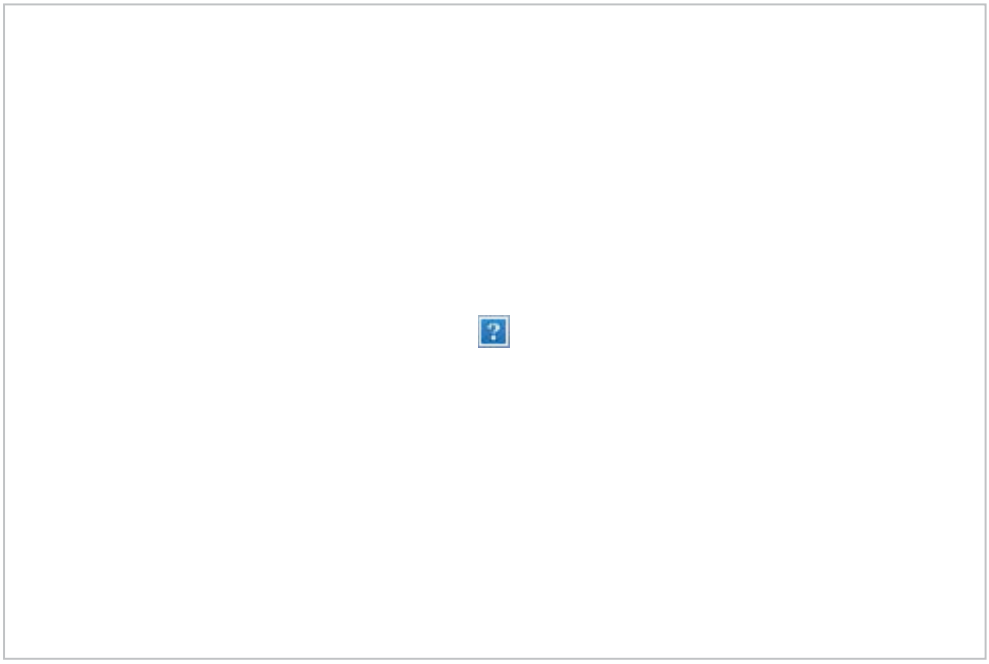
I did a bit of searching for comments made by KP and AMEC on beach development. KP state that 10 m to 20 m beaches are required. No mention of beach requirements in the AMEC design reports and lack of beach development is discussed but not flagged as an item of concern in the AMEC/BGC DSI's. The MPMC OMS manuals state that beach development is a "fundamental requirement" of tailings deposition but that temporary shallow flooding of beaches is anticipated. No minimum beach width requirements are given in the OMS.

Jim

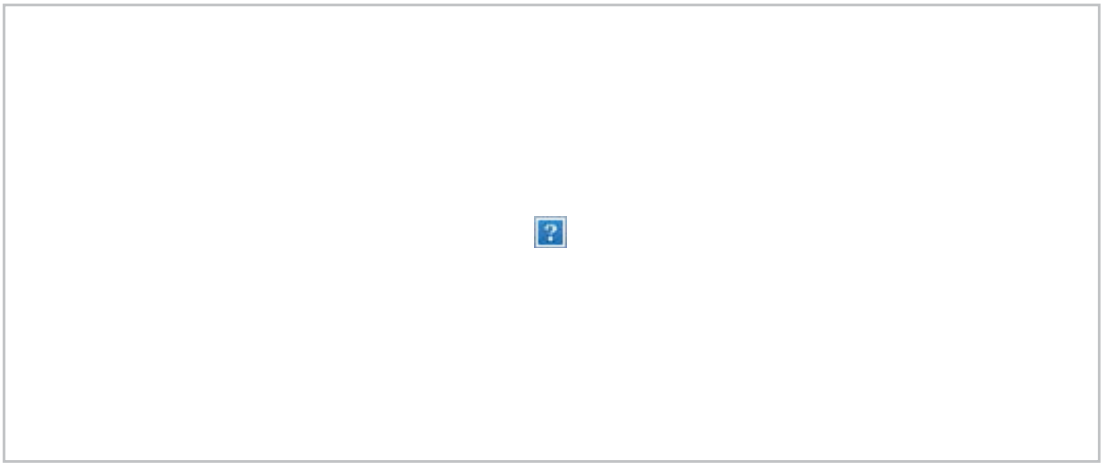
KP Stage 6 Design Report:



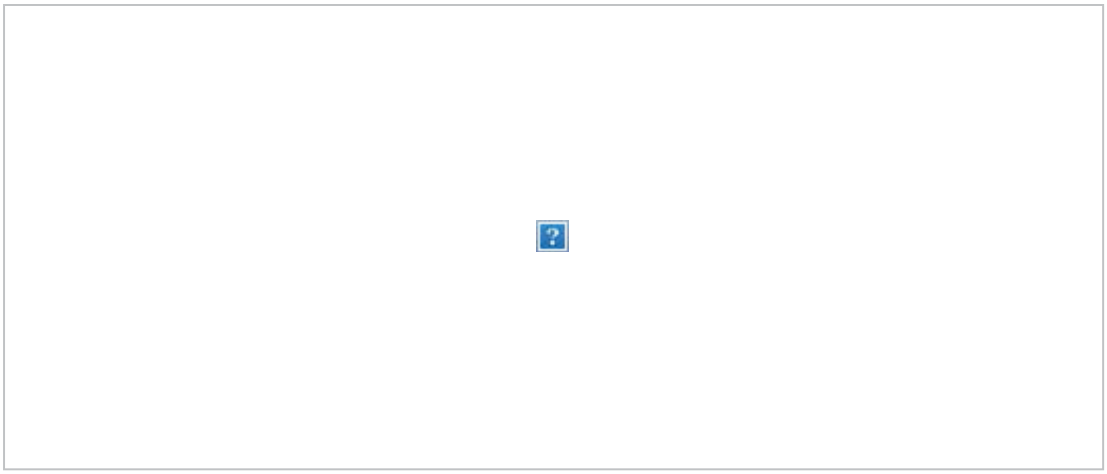
KP 2010 DSI



BGC 2012 DSI



AMEC 2013 DSI



2010 OMS (by MPMC)

2013 OMS (by MPMC)

Jim Casey, P.Eng.
Geological Engineer

Klohn Crippen Berger 500-2955 Virtual Way, Vancouver BC V5M 4X6, CANADA
T 604.251.8586 | jcasey@klohn.com | www.klohn.com

ISO 9001 • **ISO 14001** • **OHSAS 18001**

2.3 TAILINGS AND RECLAIM PIPELINES

The tailings pipeline comprises 7 km of HDPE pipe of varying diameters and pressure ratings extending from the mill down to the crest of the tailings embankment and has a design flow of 20,000 tonnes/day at 35% solids by dry weight. The tailings pipeline has a single, movable discharge section, which allows for controlled deposition of tailings from an isolated section of the embankment to evenly distribute tailings from around the perimeter of the facility. Evenly discharging the tailings from around the facility optimizes the development of tailings beaches and keeps the supernatant pond clear of the embankments, thereby enhancing embankment stability, increasing seepage paths and limiting seepage loss from the facility. Beached tailings,

when left to drain and consolidate, form the competent foundations needed for the modified centreline construction embankment raises. The minimum recommended tailings beach width is at least 20 m along the abutments of the embankments (where the embankment contacts natural ground) and at least 10 m elsewhere to separate the pond from the embankments. Tailings material was also being used during the Stage 4 and Stage 5 construction programs as Zone U material upstream of the core zone.

The reclaim pipeline system returns water from the TSF to the mill site for re-use in the process. The system comprises a pump barge, a reclaim pipeline and a reclaim booster pump station.

3.2.3 Tailings Beach

MPMC is currently single point discharging tailings near the northwest corner of the TSF. Prolonged discharge from this location has resulted in the supernatant pond migrating towards the Main and South Embankments where there is a lack of beach development. The beached tailings, when left to drain and consolidate, form the competent foundation required for the modified centerline construction embankment raises.

Knight Piésold has previously recommended to MPMC[6] the following regarding tailings beach development in the TSF:

- A beach width of at least 20 m is to be maintained along the abutments of the embankments (where the embankment contacts natural ground) and at least a 10 m width elsewhere to keep the pond away from the embankments.
- MPMC should develop a plan and schedule to enable the minimum target beach widths to be re-established within a 2 week period should they be infringed upon.
- MPMC shall increase the frequency of measurements for embankment instrumentation systems (piezometers and foundation drains - flow rate and turbidity) to at least once per week during any periods that ponded water encroaches within the minimum target beach widths.

It is recommended that MPMC adhere to the previous recommendations and develop a tailings management strategy that results in the MEMPR requirements for beach development along all of the embankments.

2.2 Tailings Discharge and Beach Management

Tailings are transported from the mill to the impoundment via an approximately 7 km long HDPE pipeline. The pipeline design flow is 22,000 tpd at about 35% solids by dry weight.

Cell construction was carried out from Corner 5 advancing along the Perimeter Embankment to the Main Embankment to about Station 2+500. Near the end of the 2013 construction season, the pipeline route was re-graded near Corner 5 to provide room for embankment expansion at the abutment. Insufficient tailings line pressure prevented cell construction along the central portion of the Main Embankment and single point discharge was employed (approximately Sta. 2+500) to facilitate the beach development in this area. Discharge from Station 2+500 was maintained for about two weeks, after which discharge was relocated to Corner 4. Cellular development began along the South Embankment towards the end of 2013. Figure 2.1 illustrates the cell development locations during 2013.

Staged tailings deposition strategy is currently being implemented by MPMC, and one of the objectives of this plan is to ensure that tailings solids are deposited along the extent of all tailings embankments. The fundamental requirement of the tailings deposition plan is to ensure that a blanket of tailings solids is present immediately upstream of all embankments and along the abutments. Thus, there is a fundamental objective to establish beaches adjacent to the embankments, but it is not necessary to continuously maintain a minimum width of exposed beach adjacent to the embankment, and periodic temporary (less than 2 months duration) shallow flooding (less than 0.5 meters depth) of the beaches is anticipated.

A staged tailings deposition strategy is currently being implemented by MPMC, and one of the objectives of this plan is to ensure that tailings solids are deposited along the extent of all three embankments. The fundamental requirement of the tailings deposition plan is to ensure that a blanket of tailings solids is present immediately upstream of all embankments and along the abutments. There is a fundamental objective to establish beaches adjacent to the embankments, but it is not necessary to continuously maintain a minimum width of exposed beach adjacent to the embankment, and periodic, temporary (less than two month duration), shallow flooding (less than 0.5m depth) of the beaches is anticipated.

3.2. Tailings Discharge and Beach Management

Tailings are transported from the mill to the impoundment via an approximately 7 km long HDPE pipeline. The pipeline design flow is 20,000 tpd at about 35% solids by dry weight.

In 2012, given the orientation of the gravity-fed tailings line, insufficient tailings line pressure prevented cell construction along the central portion of the Main Embankment. As shown in Figure 3-1, 2012 cell construction was carried out from Corner 5 advancing along the Perimeter Embankment to the Main Embankment, where single-point discharge was employed at Sta. 24+00 to facilitate the beach development. Cellular development was employed along the South Embankment and around Corner 3 where single-point discharge was resumed at Sta. 18+50. The tailings delivery line is currently being redesigned with the expectation that the new alignment will allow for upstream tailings cell construction to take place along the Main Embankment in 2013.

From: Kuppers, Haley MEM:EX
To: McLeod, Harvey
Cc: Pocklington, Cheryl M MEM:EX
Subject: FW: Summary of May 24th freeboard Incident
Date: Monday, May 11, 2015 1:24:00 PM
Attachments: Advice of Geotechnical Incident - Mount Polley - 2014 05 27.pdf
May 24th Freeboard Incident - Summary for Investigation Team.docx

---

Hi Harvey,

FYI. An analysis and summary of the May 24th freeboard incident by Heather Narynski is attached. This may be useful for you to check for consistency, it is an example of emergency response practices. I can't recall if you will be speaking to this event in your inquiry report, could you please let me know what your plans are for this?

Also, would you please be able to send an updated copy of the Inquiry Report s.22 s.22 would be useful for us to review and ensure consistency with the CI investigation report being written by Keith Elwood.

Please do not hesitate to contact me if you need any further information.

Thanks,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Narynski, Heather M MEM:EX
Sent: Thursday, April 30, 2015 2:07 PM
To: Kuppers, Haley MEM:EX; Pocklington, Cheryl M MEM:EX
Subject: Summary of May 24th freeboard Incident - CONFIDENTIAL email attached

Haley, Cheryl,

I have attached my summary of the May 24th freeboard incident at Mount Polley, as requested. Please let me know if you have any questions and modify as you see fit to work with the format of the investigation report.

The summary is fairly lengthy and depending on the nature of the investigation report, you may want to include the timeline as an appendix (and refer to it in the text summary)?

I have also attached the "Advice of Geotechnical Incident" form that was submitted by MPMC. This form does not seem to have been included in the MP database that we created for the Panel (only the email which references this attachment has an MP#). I think you might have previously received this form and created a file number for it? If so, please add this reference in my summary (where my comment indicates this). If not, this document should be added to the dataset.

I have also attached the email thread from the informant that provides the original notification for this incident. I don't think this email thread was ever tagged with an MP#? I had George send this to me before he left. It is critical that this informant is kept CONFIDENTIAL and that the informant's email and name is not made public or known to the company. I will refer to the investigation team on how this should be handled in the dataset and summary of the incident I provided. As far as I know, we have successfully managed to keep this person protected to date.

I have not followed up with MPMC (Luke Moger) regarding the "dangerous occurrence" status and whether MPMC investigated this incident as such. I did recently confirm with S. Rothman that he did not pursue follow-up with MPMC. There seems to be a disconnect internally to who typically follows up on dangerous occurrences – something that should be sorted out internally. I am now questioning our previous discussion and whether it is worth pursuing requesting a dangerous occurrence investigation from MPMC based on:

- The time that has passed
- The risk that this could compromise the investigation by opening up dialogue between myself and MPMC

Your thoughts?

Heather

Heather Narynski, P.Eng
A/ Manager, Geotechnical Engineering
Ministry of Energy and Mines
Office/Cell: 250-893-3396

Ministry of Energy, Mines and Natural Gas

ADVICE OF GEOTECHNICAL INCIDENT

PART A: To be completed by mine management to document geotechnical incidents.

APPLICABILITY OF THIS FORM

This form applies to any geotechnical incident classified as a dangerous occurrence or to any geotechnical incident that requires changes to an existing standard operating procedure or the creation of a site-specific safe work plan. In addition, any multi-bench pit slope failure, spoil failure resulting in full loss of the crest berm, or dam embankment instability (regardless of size) is to be documented on this form. This form is not intended for single bench failures fully captured by catchment berms or for "sliver" failures on spoils not resulting in a dangerous occurrence.

GENERAL INFORMATION

Name of Mine: MOUNT POLLEY — Permit Number: M200

Mining Company: MOUNT POLLEY MINING CORP. — Location: LIKELY, BC.

Manager: DALE REMER — Appropriate Contact: — SAME —

Phone: (250) 790-2215 ext 2600 — Phone: — SAME —

Part of Mine Involved/Affected: MOUNT POLLEY TAILINGS STORAGE FACILITY

Date of Event: SATURDAY — Probable Time: _____

Summary of Incident: LOSS OF OPERATING CONDITION FREE BOARD AT TAILINGS STORAGE FACILITY.

Type of slope: ☐ Pit Wall ☐ Waste Rock Spoil ☒ Dam Embankment ☐ U/G Rockfall ☐ Other

DETAILS OF EVENT

Potential triggers (weather, mining activity, etc.): EXTENDED WEATHER EVENT

Volume or Mass Involved / Type of Material: N/A / WATER

Description of Incident (include likely failure mechanism, run-out distance, slope height, and pre/post failure slope angle):
LOSS OF DESIGN OPERATING FREEBOARD ALLOWANCE AT TAILINGS STORAGE FACILITY

Damage or Consequences: IMPLEMENTATION OF WATER MANAGEMENT PLANS

Immediate (Short-term) Actions Taken by Mine: IMMEDIATE TARGETED RAISE (LOW ELEVATIONS) OF TILL CORE & DIVERSION OF TSF INFLOW WATER.

ADVICE OF GEOTECHNICAL INCIDENT OR UNUSUAL OCCURRENCE

PART B: To be completed by mine management to document follow-up actions.

Date / Time of Incident (if Part B not submitted at same time as Part A): /

Follow-up actions by in-house geotechnical personnel: IDENTIFICATION OF MOST CRITICAL AREAS OF LOW FREEBOARD ELEVATION FOR CORE CONSTRUCTION

Has this incident been discussed with / reviewed by a geotechnical consultant? YES (AMEC DESIGN ENGINEER)

Follow-up actions recommended by geotechnical consultant (if applicable): ZONE 5 (TILL) CORE CONSTRUCTION & DIVERSION OF WATER COLLECTION IN TSF.

Any required changes to standard operating procedures? YES, AS PER OMS (I.E. INCREASED MONITORING)

Any site-specific safe work plan(s) required? NO.

Report from mine (including plans and section) or other attachments?

1.) N/A

2.)

3.)

Items to be forwarded at a future date / expected date of submission?

1.) DETAILED EVENT TIMELINE / MAY 30, 2014

2.) DESIGN ENGINEER LETTER REGARDING EVENT / MAY 30, 2014

3.) JOINT MPMC / DESIGN ENGINEER PLAN AND TIMELINE / JUNE 6, 2014

Additional Comments:

Mt. Polley May 24th Freeboard Incident

The following is a summary of the May 24, 2014 freeboard incident that occurred at the Mt. Polley TSF based on MEM's understanding of the event and correspondence records.

Timeline of event

Date / Time	Action
May 26th/ 4:34pm	Informant notifies MEM in confidence by email of an overtopping event at the Mt. Polley TSF: "The tailings dam at Mount Polley has breached on Saturday at "3" corner and is flowing over the top of the till"
May 27th/6:35 am	S. Rothman notifies G. Warnock by email of a potential overtopping
May 27th/9:08am	G. Warnock requests by email for H. Narynski to follow-up with S.Rothman regarding the notification
May 27th/9:16am	H. Narynski responds by email to G. Warnock confirming her commitment to contact S.Rothman by phone as it is known he is currently in the field. H. Narynski indicates that she will involve M. Cullen as he is expected to be in the office that day and is the inspector scheduled to carry out the next site inspection at Mount Polley.
May 27th	H. Narynski contacts S. Rothman by phone. S.Rothman does not have any additional information beyond that received in the original email from the informant. H. Narynski requests for S.Rothman to fly over Mount Polley that day to observe the TSF and take pictures (this helicopter flight was previously scheduled for reconnaissance of another mine site under shutdown orders in the vicinity).
May 27th	H. Narynski makes a multitude of calls to the mine site and to various cell phones in attempts to reach D. Reimer (Mine Manager), A. Frye (Operations Manager) and L. Moger (Project Engineer). It takes in the order of 1-2 hours to reach MPMC staff. D. Reimer is the first MPMC staff member reached by cell. He is not at the site and cannot provide details of the incident. He refers H. Narynski to L. Moger. L. Moger responds to messages previously left by H. Narynski. H. Narynski arranges a teleconference meeting with MPMC staff at 2pm to discuss.
May 27th/2pm	Teleconference meeting occurs between H. Narynski, M. Cullen, L. Moger and additional MPMC staff (MPMC attendees not documented)
May 27th/4:59pm	Email sent from H. Narynski to G. Warnock documenting MEM's understanding of the event and the details of the discussion between MPMC and MEM at the 2pm meeting. [MP00188]. MEM's understanding of the incident based on this meeting is summarized in the associated report text.
May 27th / 5:01pm	Email sent from H. Narynski to L. Moger requesting and "Advice of Geotechnical Incident" form to be submitted to MEM outlining the details of the event and MPMC's follow-up. H. Narynski also requests that MEM be notified should site conditions change. It is stated that MEM considers this event to be a "dangerous occurrence" as per Section 1.7.3 (2) of the Code.[MP00189]
May 28th/5:07pm	Email from L. Moger to H. Narynski [MP00190] with the attached "Advice

Comment [HMN1]: The first 4 items in this table do not have an MP reference number and are covered under one email thread. I have attached the email chain for your consideration in inclusion in the dataset and to provide an associated reference for this email thread. I do not know how you want to handle this email. It is critical that this informants name is kept CONFIDENTIAL and that the informant email and name is not made public or known to the company. I will refer to the investigation team on how this should be handled in the dataset and summary of the incident.

	of Geotechnical Incident" form completed [MP#?]. The form provides a description of the event as "loss of design operating freeboard allowance at tailings storage facility" with immediate short-term action taken by the mine as "immediate targeted raise (low elevations) of the till core & diversion of TSF inflow water". L. Moger's email states "we are still gathering all of the information for a detailed event timeline, and will submit this in combination with a report from our design engineer, who has been on site since Sunday".
May 29th/8:26pm	Email from L. Moger to a number of MEM and ENV staff with attached presentation on the TSF prepared by Bruce Geotechnical Consultants (BGC) for discussion on Monday, June 2, 2014 meeting. This meeting was previously scheduled (prior to the May freeboard incident) to discuss the upcoming Stage 10 dam raise application.[MP00191]
June 2nd/ 8:34am	Email from D. Ostritchenko (AMEC) to H. Narynski with AMEC's attached report of the events that occurred after the incident. [MP00192]
June 6th/ 12:42pm	Email from L. Moger to H. Narynski [MP00194] with attached "MPMC & Design Engineer Plan and Timeline" titled "Advice of Geotechnical Incident Form Follow-up (Design Plan)" [MP00195]. This report indicates that the water has been routed to the Cariboo Pit, the TSF pond elevations have seen no increases over the last seven days, minimum freeboard is 0.6m for a length of 1,225m along the Main embankment (El. 967.0m) and 0.9m (El. 967.3m) for the remainder of the embankment (~3,300m). Additional information regarding construction activities are provided in the report.
June 6th/ 4:54pm	Response email from G. Warnock (on behalf of H. Narynski) to L. Moger indicating "the actions taken to date and the plan moving forward seem appropriate. Continued updates would be appreciated until the normal operating freeboard is re-established".
June 13th / 11:41am	Email from L. Moger to H. Narynski with attachment "Advice of Geotechnical Incident Form Follow-up (Design Plan) – Update #1" [MP00196]. Update #1 indicates that the TSF pond elevation remains at El. 966.4m, minimum freeboard is 0.9m for a length of 925 m along the Main embankment and 1,150m along the South Embankment, minimum freeboard for the remainder of the Main Embankment and for the Perimeter embankment (~2,200 m) is 1.2 m (El. 967.6m).
June 18th / 8:25am	Response email from H. Narynski to L. Moger acknowledging receipt of Update #1 and MPMC's commitment to continued updates. [MP00197]
June 20th / 2:32pm	Email from L. Moger to H. Narynski [MP00199] with "Advice of Geotechnical Incident Form Follow-up (Design Plan) – Update #2" [MP00198]. Update #2 indicates that the TSF pond elevation remains at El. 966.4, minimum freeboard is 0.9 m for a length of 400m along the Main embankment and 1,150m along the South Embankment, minimum freeboard for the remainder of the Main embankment (~825m) and for the Perimeter embankment (~2,200m) is 1.2m (El. 967.6m).
June 20th / 4:38pm	Response from M. Cullen (on behalf of H. Narynski) to L. Moger recognizing receipt of Update #2 and advising of upcoming site inspection.[MP00199]
June 27th / 11:04am	Email from L. Moger to H. Narynski with "Advice of Geotechnical Incident

Comment [HMN2]: Does the investigation team have a document reference for the actual "advice of geotechnical incident" form? If not, I have attached the form for inclusion in the database. Please update this section with appropriate reference number.

	Form Follow-up (Design Plan) – Update #3" [MP00200]. Update #3 indicates that the TSF pond elevation remains at 966.4m, minimum freeboard is 0.9m for a length of 1,150 m along the South embankment, minimum freeboard for (~200m) of the Perimeter embankment is 1.2 m (El. 967.6m), the rest of the dam (~3,200m) is minimum 1.5m (El. 967.9m)
June 27th / 11:05am	Response email from G. Warnock to L. Moger recognizing receipt of Update #3. [MP00201]
July 4th / 9:13am	Email from L. Moger to H. Narynski with attachment "Advice of Geotechnical Incident Form Follow-up (Design Plan) – Update #4" [MP00203]. Email indicates that minimum freeboard of 1m has been established, and weekly reporting to MEM is planned to cease, and that prior to water being re-introduced to the TSF, the 1.3 m standard operating freeboard will be established and a freeboard management plan will be discussed with AMEC and forwarded to MEM.
July 4th / 1:20pm	Response from H. Narynski to L. Moger acknowledging the final update on the May 24th geotechnical incident, and requesting MPMC to forward AMEC's freeboard management plan to MEM when complete. [MP00203]
July 10th / 1:46pm	Email from L. Moger to H. Narynski providing confirmation that 1.3 m standard operating freeboard at the TSF has been re-established, and that MPMC will be providing a freeboard management strategy update early next week. [MP00203]
July 18th / 2:57pm	Email from L. Moger to H. Narynski [MP00205] with attached water management plan for the TSF endorsed by AMEC [MP00204]. The water management plan indicates that construction to increase the level of freeboard going forward to a minimum of 1.5m for the entire TSF may result in the existing freeboard dropping below the normal operating level of 1.3m in advance of construction areas. This is proposed to be for a period of less than 2 weeks with freeboard not dropping below 1.1m. The email itself indicates the plan has been discussed with G. Warnock and that he has suggested that the plan is acceptable as the proposed condition (1.1m) is still above the MEM indicator levels (of 1m). MPMC commits to communicating with MEM when the temporary normal operating level of 1.1m is revoked by AMEC and they revert to the 1.3m level.
July 18th / 4:10pm	Response from H. Narynski to L. Moger that H. Narynski concurs with G. Warnock response and that document will be added to records when back in the office the following week. [MP00205]

In summary, MEM's understanding of the incident based on the May 27th teleconference with MPMC, and as documented in the May 27th email from H. Narynski to G. Warnock is as follows:

- The event occurred on Saturday, May 24th as a result of a large rainfall event (approximately 24 mm in 24 hours)
- The water level rose to within 0.7 m freeboard (possibly less freeboard)
- L. Moger indicated that MPMC did not believe the dam overtopped, and would be checking data records (he was away from site when the event occurred)

- MPMC confirmed that no additional water was being directed to the TSF and instead being sent to the mill. MPMC also indicated the option to redirect water to one of the pits, if needed.
- MPMC confirmed no snow remains in the catchment area for additional water
- MPMC indicated that standing water was observed at the toe of the downstream dam, but not able to test to see whether it is from the TSF as the water is now gone. No sediment was observed within this seepage.
- MPMC confirmed that water levels are being monitored daily (and MEM recommended to monitor more frequently as required)
- MEM recommended that all staff are familiarized with emergency response procedures should there be more issues arising with the dam
- MPMC confirmed they are currently raising the dam core at approximately 5 spots including corner "3". MPMC confirmed that all dam raises are within permitted elevation (El. 970m)
- MPMC confirmed that last year's dam raise was constructed as per the design and incorporated the stabilization berm (as-built report was submitted to MEM)
- MPMC confirmed AMEC is currently present on site and are evaluating the situation and any resulting design implications
- MEM requested MPMC follow-up with an "Advice of Geotechnical Incident" form which outlines the details of the event and MPMC's response, and in future to provide MEM with a call regarding similar incidents as this would be considered a "dangerous occurrence"
- MEM/MPMC discussed the previously scheduled meeting on June 2nd as an opportunity to discuss the incident in more detail once MPMC has time to review the data.
- MEM noted (internally) that the upcoming MEM site inspection could be moved forward if considered necessary.

Based on MEM's understanding of the incident from discussions with MPMC during the May 27th teleconference call, it was determined that MPMC appeared to have the situation under control. MEM indicated that follow-up would be required to confirm whether an "overtopping" and possible unauthorized discharge occurred, as well as to discuss future dam design and operations.

The "Advice of Geotechnical Incident" form submitted indicated the incident as "loss of design operating freeboard allowance at tailings storage facility". MEM does not have record of receiving correspondence from MPMC during this incident to clarify whether a dam "overtopping" occurred or what the minimum freeboard was during the event. The first survey of freeboard was received by MEM on June 2nd in AMEC's memo dated May 30th that indicated the pond elevation and the dam elevation at corner "3" to be recorded as the same elevation (zero freeboard) on May 26th. Based on this information, MEM would consider this incident to be classified as a dam "overtopping".

MEM follow-up on this incident included weekly updates from MPMC on the status of the site conditions (freeboard, construction activities etc.), a memo issued by AMEC outlining the timeline and incident daily status, and a water management plan endorsed by AMEC.

It is understood from a February 2, 2015 Vancouver Sun article authored by Vaughn Palmer that emails were obtained of correspondence between AMEC engineers related to this freeboard incident. The accuracy of these emails has not been confirmed. The internal email exchange between the AMEC engineers discusses the incident and indicates that the "freeboard level is basically zero". The article describes that despite some effort to reduce the amount of water behind the dam, tailings were still being added to the pond because the mine was continuing to operate. An AMEC engineer is quoted: "basically there has not been much (de-watering)," he wrote, "as they are still focused on making sure the mine can operate."

This was the first time that MEM was made aware that tailings were possibly being disposed in the facility during the incident. Correspondence from both MPMC and AMEC never indicated any of the following:

- Freeboard of the facility being zero (until June 2nd)
- Tailings being actively disposed in the facility during the incident
- Concerns around safety status during the incident

From: McLeod, Harvey
To: Kuppers, Haley MEM:EX
Subject: Re: Summary of May 24th freeboard Incident
Date: Monday, May 11, 2015 1:57:18 PM

Thanks Haley. I am planning my time to be able to complete the inquiry report before I leave. Plus our budget is getting low so we need to manage out time

Regards Harvey
604-671-8860

On May 11, 2015, at 4:24 PM, Kuppers, Haley MEM:EX <Haley.Kuppers@gov.bc.ca> wrote:

> Hi Harvey,
>
> FYI. An analysis and summary of the May 24th freeboard incident by Heather Narynski is attached. This may be useful for you to check for consistency, it is an example of emergency response practices. I can't recall if you will be speaking to this event in your inquiry report, could you please let me know what your plans are for this?
>
> Also, would you please be able to send an updated copy of the Inquiry Report s.22 s.22 t would be useful for us to review and ensure consistency with the CI investigation report being written by Keith Elwood.
>
> Please do not hesitate to contact me if you need any further information.
>
> Thanks,
>
> Haley Kuppers, MSc.
> Inspector of Mines
> Health and Safety Specialist
>
> Ministry of Energy and Mines
> 1810 Blanshard Street, Victoria, B.C. V8W 9N3
> Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
> Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca
>
> ---
>
> **From:** Narynski, Heather M MEM:EX
> **Sent:** Thursday, April 30, 2015 2:07 PM
> **To:** Kuppers, Haley MEM:EX; Pocklington, Cheryl M MEM:EX
> **Subject:** Summary of May 24th freeboard Incident - CONFIDENTIAL email attached
>
> Haley, Cheryl,

I have attached my summary of the May 24th freeboard incident at Mount Polley, as requested. Please let me know if you have any questions and modify as you see fit to work with the format of the investigation report.

The summary is fairly lengthy and depending on the nature of the investigation report, you may want to include the timeline as an appendix (and refer to it in the text summary)?

I have also attached the "Advice of Geotechnical Incident" form that was submitted by MPMC. This form does not seem to have been included in the MP database that we created for the Panel (only the email which references this attachment has an MP#). I think you might have previously received this form and created a file number for it? If so, please add this reference in my summary (where my comment indicates this). If not, this document should be added to the dataset.

I have also attached the email thread from the informant that provides the original notification for this incident. I don't think this email thread was ever tagged with an MP#? I had George send this to me before he left. It is critical that this informant is kept CONFIDENTIAL and that the informant's email and name is not made public or known to the company. I will refer to the investigation team on how this should be handled in the dataset and summary of the incident I provided. As far as I know, we have successfully managed to keep this person protected to date.

I have not followed up with MPMC (Luke Moger) regarding the "dangerous occurrence" status and whether MPMC investigated this incident as such. I did recently confirm with S. Rothman that he did not pursue follow-up with MPMC. There seems to be a disconnect internally to who typically follows up on dangerous occurrences – something that should be sorted out internally. I am now questioning our previous discussion and whether it is worth pursuing requesting a dangerous occurrence investigation from MPMC based on:

- <!--[if !supportLists]--><!--[endif]-->The time that has passed
- <!--[if !supportLists]--><!--[endif]-->The risk that this could compromise the investigation by opening up dialogue between myself and MPMC

Your thoughts?

Heather

Heather Narynski, P.Eng
A/ Manager, Geotechnical Engineering
Ministry of Energy and Mines
Office/Cell: 250-893-3396

<Advice of Geotechnical Incident - Mount Polley - 2014 05 27.pdf>

<May 24th Freeboard Incident - Summary for Investigation Team.docx>

From:	Kuppers, Haley MEM:EX
To:	Hoffman, Al MEM:EX; "Douglas Kiloh"; McLeod, Harvey; Pocklington, Cheryl M MEM:EX; Demchuk, Tania MEM:EX; Hynes, Michelle MEM:EX
Cc:	Hemphill, Naomi MEM:EX
Subject:	FW: Mount Polley Investigation - Follow-up from May 6, 2015 Meeting with KP
Date:	Monday, May 11, 2015 12:03:00 PM
Attachments:	Mount Polley Presentation to MEM - May 6, 2015.pdf Mount Polley 2014 Incident - Timeline.pdf

Attached please find the two presentations provided by Knight Piesold during our meeting on Wednesday, May 6th.

Regards,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Gregory Smyth [mailto:gsmyth@knightpiesold.com]
Sent: Friday, May 8, 2015 5:58 PM
To: Kuppers, Haley MEM:EX
Cc: Ken Brouwer
Subject: Mount Polley Investigation - Follow-up from May 6, 2015 Meeting with KP

Hi Haley

Great to meet with you this week. As discussed, please find attached the two presentations that we showed at our meeting on Wednesday.

If you have any questions, please let us know.

Kind Regards,

Greg Smyth, B.Sc.
Project Manager | Associate
Knight Piésold Ltd.

Suite 1400 - 750 West Pender
Vancouver | British Columbia | Canada | V6C 2T8
phone: +1 604 685 0543 | **fax:** +1 604 685 0147
direct: +1 604 685 0543 ext 319
email: gsmyth@knightpiesold.com
web: http://www.knightpiesold.com

From:	Hynes, Michelle MEM:EX
To:	Kuppers, Haley MEM:EX; Demchuk, Tania MEM:EX
Cc:	Pocklington, Cheryl M MEM:EX
Subject:	RE: Estimates response
Date:	Tuesday, May 12, 2015 12:34:47 PM

Be nice to get it by the end of the week – is that ok?

Michelle Hynes
Senior Policy Analyst **I** Mines and Mineral Resources Division
Ministry of Energy and Mines

Mailto Michelle.Hynes@gov.bc.ca

From: Kuppers, Haley MEM:EX
Sent: Tuesday, May 12, 2015 12:34 PM
To: Hynes, Michelle MEM:EX; Demchuk, Tania MEM:EX
Cc: Pocklington, Cheryl M MEM:EX
Subject: RE: Estimates response

Hi Michelle,

What is the priority/timeline for this information? We are in the process of verifying your question.

Thanks,
Haley

From: Hynes, Michelle MEM:EX
Sent: Tuesday, May 12, 2015 11:42 AM
To: Kuppers, Haley MEM:EX; Demchuk, Tania MEM:EX
Cc: Pocklington, Cheryl M MEM:EX
Subject: RE: Estimates response

Do we know if anyone at MEM reviewed the DSR at that time?

Michelle Hynes
Senior Policy Analyst **I** Mines and Mineral Resources Division
Ministry of Energy and Mines

Mailto Michelle.Hynes@gov.bc.ca

From: Kuppers, Haley MEM:EX
Sent: Tuesday, May 12, 2015 11:42 AM
To: Hynes, Michelle MEM:EX; Demchuk, Tania MEM:EX
Cc: Pocklington, Cheryl M MEM:EX
Subject: RE: Estimates response

Todd Martin is not a contractor of MEM.

s.22

¡ s.22

Hope that helps.

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Hynes, Michelle MEM:EX
Sent: Tuesday, May 12, 2015 11:32 AM
To: Kuppers, Haley MEM:EX; Demchuk, Tania MEM:EX
Cc: Pocklington, Cheryl M MEM:EX
Subject: RE: Estimates response

Hey Haley – question on this. Was Todd Martin a contractor of MEM at that time and what company did he work for?

Thanks!
Michelle

Michelle Hynes
Senior Policy Analyst **I** Mines and Mineral Resources Division
Ministry of Energy and Mines

Mailto Michelle.Hynes@gov.bc.ca

From: Kuppers, Haley MEM:EX
Sent: Friday, May 8, 2015 11:30 AM
To: Hynes, Michelle MEM:EX; Demchuk, Tania MEM:EX
Cc: Pocklington, Cheryl M MEM:EX
Subject: RE: Estimates response

Sorry for the delay, for the first question I believe the standard response is best at this time.

The second question with regards to 2006 Mount Polley Dam Safety Review, this document is available online via the IEP website, therefore I feel it is acceptable to disclose of this information. Conducted by AMEC Earth & Environmental, written by Michael Davies, Ph.D, P.Eng., P.Geo. Principal Geotechnical Engineer; Reviewed by Todd Martin, P.Eng., P.Geo. Principal Geotechnical Engineer.

Regards,

Haley Kuppers, MSc.
Inspector of Mines
Health and Safety Specialist

Ministry of Energy and Mines
1810 Blanshard Street, Victoria, B.C. V8W 9N3
Phone: 250-387-4808 | Cell: 778-677-0624 | Fax: 250-952-0491
Email: haley.kuppers@gov.bc.ca | Website: www.em.gov.bc.ca

From: Hynes, Michelle MEM:EX
Sent: Friday, May 8, 2015 10:31 AM
To: Demchuk, Tania MEM:EX
Cc: Kuppers, Haley MEM:EX
Subject: RE: Estimates response

I have to have the bullets approved and to Daymon by Tuesday.

Michelle Hynes
Senior Policy Analyst **I** Mines and Mineral Resources Division
Ministry of Energy and Mines

Mailto Michelle.Hynes@gov.bc.ca

From: Demchuk, Tania MEM:EX
Sent: Friday, May 8, 2015 10:31 AM
To: Hynes, Michelle MEM:EX
Cc: Kuppers, Haley MEM:EX
Subject: RE: Estimates response

Ok, probably best for Haley to answer.
What's the timeline on this?

From: Hynes, Michelle MEM:EX
Sent: Friday, May 8, 2015 10:30 AM
To: Demchuk, Tania MEM:EX
Cc: Kuppers, Haley MEM:EX
Subject: RE: Estimates response

He is not clear. But am guessing both. FYI – this is for the opposition.

Michelle Hynes
Senior Policy Analyst **I** Mines and Mineral Resources Division
Ministry of Energy and Mines

Mailto Michelle.Hynes@gov.bc.ca

From: Demchuk, Tania MEM:EX
Sent: Friday, May 8, 2015 10:29 AM
To: Hynes, Michelle MEM:EX
Cc: Kuppers, Haley MEM:EX
Subject: RE: Estimates response

Same as below, Haley is probably best to answer. Do they mean the MEM person who reviewed the DSR, or the name of the engineering firm who wrote the DSR?

Tania

From: Hynes, Michelle MEM:EX
Sent: Friday, May 8, 2015 10:10 AM
To: Demchuk, Tania MEM:EX
Cc: Kuppers, Haley MEM:EX
Subject: RE: Estimates response

Got another one:

Name, title and qualifications of the individual who reviewed the 2006 Mount Polley Dam Safety Review.

Are we able to provide this as well?? Or use the wording below again.

Michelle Hynes
Senior Policy Analyst I Mines and Mineral Resources Division
Ministry of Energy and Mines

Mailto Michelle.Hynes@gov.bc.ca

From: Demchuk, Tania MEM:EX
Sent: Friday, May 8, 2015 10:03 AM
To: Hynes, Michelle MEM:EX
Cc: Kuppers, Haley MEM:EX
Subject: Re: Estimates response

Probably best for Haley to answer this one if we are allowed to say??

Tania Demchuk, MSc, PGeo
Mount Polley Project Manager
Sr Environmental Geoscientist
Ministry of Energy and Mines
(250) 952-0417

From my mobile device

On May 8, 2015, at 10:00 AM, Hynes, Michelle MEM:EX <Michelle.Hynes@gov.bc.ca> wrote:

> Hey there – have a question from Estimates and I am pretty sure we should give standard response but thought I'd ask just to make sure.
>
> **Did inspectors know how many piezometers (water pressure meters) were not working at Mt Polley?**
>
> I think we should say the following:
>
> - As this information is part of the Chief Inspector of Mines investigation, we are unable to comment at this time.
>
> Unless we are able to give this info out. And if so, do we know?
>
> Thanks!
> M.

Michelle Hynes
Senior Policy Analyst **I** Mines and Mineral Resources Division
Ministry of Energy and Mines
6th Floor, 1810 Blanshard Street **I** Victoria, BC V8W 9N3
Phone 250 356-0087
Cell 778 679-1491 **Fax** 250 952-0491
Mailto Michelle.Hynes@gov.bc.ca