

*Mount Polley Independent Expert Engineering
Investigation and Review Panel*

Minutes
CONFIDENTIAL

Panel Meeting: #1, August 22, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Project Coordinator

1.1 Call to Order and Approval of Agenda – N. Morgenstern

- The meeting was called to order at 7:00 a.m. P.D.T
- The agenda was approved as circulated.

1.2 Approval of Minutes – N/A

- This is the first meeting of the panel.

Panel Status Updates

1.3 Secretariat Update – K. Richter

Minutes:

- Members agreed key points of meeting will be captured.
- Meeting minutes will be reviewed and approved by all panel members.

Contracts:

- Panel member's contracts will be finalized and returned for their approval in the next two days.

Interested third parties:

- Inquiries received by panel members will be forwarded to KR for inventorying and follow up.

s.14

First Nations:

- Connecting with Williams Lake Indian Band and Xat'sull First Nation (Soda Creek Indian Band) to understand who the First Nations liaison person will be.
- Connecting with Esk'etemc regarding the details around the grounding/connecting ceremony.

Imperial Metals Corporation:

- Discussed email from Imperial Metals Corporation regarding company's desire to construct a berm to seal the breach.
- Panel members request additional information such as LIDAR mapping and stereo contact prints.

Freedom of Information and Protection of Privacy Act (FOIPPA):

- An overview of *FOIPPA* was discussed.
- **Action:** KR will follow up with Williams Lake Indian Band, Xat'sull First Nation (Soda Creek Indian Band), and Esk'etemc.
- **Action:** KR to obtain LIDAR mapping and stereo contact prints.
- **Action:** KR to send an information email and a link to the Act.

1.4 SharePoint Framework – D. Morgenstern

- Panel agreed with proposed SharePoint framework.
- Ministry of Energy and Mines to provide documents for the week of August 25, 2014.
- SV requested that hard copies be available.
- **Action:** KR to arrange set-up of SharePoint framework and numbering system.
- **Action:** KR to initiate input of documents onto SharePoint.
- **Action:** KR to provide email to panel members on how to access SharePoint site.

1.5 Communications – S. Vick

- Panel discussed three topics:
 - Press releases:
 - Panel needs to discuss and agree with message prior to issuing.
 - Requests for interviews:
 - Panel members need to discuss the interview points prior to conducting an interview.
 - Communications protocol and resourcing:
 - Panel to discuss at next meeting.

1.6 Ancillary Services – K. Richter

- Ancillary services contractor required to provide services such as: geotechnical investigations, materials testings, survey, analysis, numerical modelling, administrative and project support.
- Ancillary services contractor must have:
 - Relevant technical experience
 - Necessary technical capabilities
 - No conflict of interest
 - Capacity
- Companies contacted to date:
 - Golders: conflict of interest, not pursuing
 - Tetra Tech: conflict of interest, not pursuing
- Other company being considered:
 - Thurber Engineering
- **Action:** KR to follow up with Thurber.

1.7 Site Visits – K. Richter

- Panel members checking their schedules.
- Tentatively first week of September, perhaps September 3rd, 4th, and 5th, 2014.
- Stacy Scriver is available to assist panel members with their provincial travel arrangements.
- **Action:** KR to prepare a draft itinerary.

1.8 Future Meetings – K. Richter

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- The next meeting is tentatively proposed during the site visit.

1.9 Adjournment – N. Morgenstern

- The meeting was adjourned at 8:45 a.m. P.D.T.

Panel Meeting: #2, August 29, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

s.14 Guest
Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes

2.1 Call to Order and Approval of Agenda – N. Morgenstern

- The meeting was called to order at 10:30 a.m. P.D.T
- The agenda was approved as circulated.

2.2 Approval of Previous Minutes – N. Morgenstern

- Panel meeting # 1 minutes were approved.

Panel Status Updates

2.3 Secretariat Update – K. Richter

First Nations:

- On Thursday morning September 6, Panel members will travel to Alkali Lake and meet Esk'etemc elders and Chief Belleau - Esk'etemc. The Panel will also participate in a ceremony.
 - Chief Sellars of the Soda Creek Indian Band has advised that the First Nations liaison will be Jim Kuipers.

Materials from Imperial Metals Corporation:

- LIDAR mapping information will be provided.

Freedom of Information and Protection of Privacy Act (FOIPPA):

- KR sent the Panel members a link to FOIPPA.

SharePoint Site

- Panel members have been provided information to access the SharePoint site.
- Stacy Sriver can assist panel members with SharePoint, if needed.
- Thurber Engineering is working on establishing a numbering system for all SharePoint documents.
- All documents provided by the Ministry of Energy and Mines documents have been posted on the SharePoint site.

Geo-technical engineering investigations:

- Klohn Crippen is working with the B.C. Ministry of Energy and Mines.
- Golders Associates is working for Imperial Metals Corporation.

Third-Party Inquiries:

- KR will continue to follow up with third-party inquiries.
- KR has connected with Megan, Government Employees Union, advising them to connect with him for inquiries. Also KR advised that the Panel is in the early stages of start-up.
- KR spoke with the Association of Professional Engineers and Geotechnical Scientists of B.C., and advised them that the Panel is in the early stages of start-up.
- KR replied to an email from the Information and Privacy Commissioner for B.C. with the same message.

2.4 Legal Services – ^{s.14} / All

- ^{s.14}

2.5 Site Visits – K. Richter

- Mount Polley Mine staff will provide supply vests, hard hats, and safety eye glasses.
- Site Itinerary discussed

ACTION:

- Stacy Scriver to courier flash drives, containing the information from the SharePoint site, to each panel member's home address by Tuesday, September 2, 2014 for the upcoming site visits.
- Stacy Scriver to arrange September 3rd and 4th accommodation for Panel members site visits.
- s.14

2.6 Adjournment – N. Morgenstern

- The meeting was adjourned at 11:25 a.m. P.D.T.

Panel Meeting: #3, September 3, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat

3.1 Call to Order and Approval of Agenda – N. Morgenstern

- The meeting was called to order at 6:00 pm P.D.T.

3.2 Approval of Minutes – N. Morgenstern

- Previous minutes being finalized.

3.3 Panel Status Updates – N. Morgenstern/All Panel

Mount Polly Mining Corporation & Imperial Metals Corporation Orders Filed:

- s.14

s.16

Contract Terms of Reference:

- Panel has reviewed its Terms of Reference, particularly the last time (other matters.... and wished to include):
 - i. Role of Imperial Metals in the constant management of the Tailings Storage Facility.
 - ii. Corporate processes with respect to tailings risk management.
 - iii. Other items may follow in due course.

3.4 Adjournment – N. Morgenstern

- The meeting was adjourned at 7:00 pm P.D.T.

Panel Meeting: #4, September 5, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

s.22, Guest (*only present for item 4.3.1*)
Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes

4.1 Call to Order and Approval of Agenda – N. Morgenstern

- The meeting was called to order at 2:30 p.m. P.D.T
- The agenda was approved as circulated.

4.2 Approval of Previous Minutes – N. Morgenstern

- Minutes being finalized.

4.3 Action Plan – Panel

4.3.1 Work Request – Thurber – KR

September 5, Site Visit Summary Deliverable

- 4.3.1.1 Provide high resolution photographs
- 4.3.1.2 Provide index for the high resolution photographs (location, captions, etc.)
- 4.3.1.3 Provide Geo-reference, photographs are to be placed onto orthos with chainage
- 4.3.1.4 Provide stitched photographs which create a panorama
 - Delivery of items 1 thru 3 by September 10
 - Delivery of item 4 by September 12

4.3.2 Information Request – Mount Polley Mining Corporation - KR

- 4.3.2.1 Prepare letter requesting information
- 4.3.2.2 Attach order letter to request
- 4.3.2.3 Dr. Morgenstern to sign request letter

4.3.3 Information Request – AMEC – Steve Rice – KR

- 4.3.3.1 Prepare letter requesting information
- 4.3.3.2 Attach order letter to request
- 4.3.3.3 Dr. Morgenstern to sign request letter

4.3.4 Information Request – BGC – Steve Hedberg - KR

- 4.3.4.1 Prepare letter requesting information
- 4.3.4.2 Attach order letter to request
- 4.3.4.3 Dr. Morgenstern to sign request letter

4.3.5 Work Request – Thurber

Field Mapping of the breach area (\pm 200 m on either side of the scarps)

- 4.3.5.1 Undertake a site visit
- 4.3.5.2 Prepare a field work plan which includes details about the map and the inclusion of photo geometrics
- 4.3.5.3 Provide the name of the experienced senior field geologists who will be undertaking the field work
- 4.3.5.4 Deliver a map and X-sections
- 4.3.5.5 Deliver the last as-builts and X-sections at the same scale as the map
- 4.3.5.6 Undertake the site visit the week of September 8
- 4.3.5.7 Provide a draft of the map, X-sections and as-builts by September 23

4.3.6 Work Request – Thurber

Informal Workshop – September 26

- 4.3.6.1 Thurber to provide office space in Vancouver for informal workshop

4.3.7 Work Request – Thurber

Data Consolidation

- 4.3.7.1 Produce a map with all subsurface investigation activities, such as but not limited to boreholes, test pits, etc.
- 4.3.7.2 Provide all subsurface investigation logs
- 4.3.7.3 Produce X-sections which include the investigation logs and surface relief at the time of the investigation
- 4.3.7.4 Delivery by September 24
- 4.3.8 Work Request – Thurber
Laboratory Results
 - 4.3.8.1 Prepare a document that provides all laboratory testing results throughout the life of the project
 - 4.3.8.2 Delivery by September 24
- 4.3.9 Work Request – Thurber
Synthesis of Instrumentation
 - 4.3.9.1 Produce a site map locating all instrumentation
 - 4.3.9.2 Produce X-sections from as-builts which includes the instrumentation and surface relief
 - 4.3.9.3 Provide the chronology and history of the installation of instrument installation
 - 4.3.9.4 Provide a synthesis of the operating data
 - 4.3.9.5 Delivery by September 24
- 4.3.10 Work Request – Thurber
Seepage Data
 - 4.3.10.1 Produce a map of the location of drains
 - 4.3.10.2 Provide the drain flow readings
 - 4.3.10.3 Delivery by September 24

4.3.11 Work Request – Thurber
SharePoint Site

- 4.3.11.1 Reorder the SharePoint Site into libraries by organization (eg. MEM, AMEC, KP, BGC, etc.) and ordered chronologically
- 4.3.11.2 Create a means to alert the user when new materials have been added
- 4.3.11.3 Investigate with legal firms how they structure case files and advise panel
- 4.3.11.4 Review records and identify common records, cross reference them and if there are differences note those
- 4.3.11.5 Delivery by September 15

4.3.12 Work Request – Thurber
Tailings Dam Performance History

- 4.3.12.1 Research and populate spreadsheet
- 4.3.12.2 Delivery by October 15

4.3.13 Work Request – KR
MPMC Discussions Regarding Investigations

- 4.3.13.1 Prepare email to Don Parsons for DVZ
- 4.3.13.2 Provide DVZ telephone conference call information
- 4.3.13.3 DVZ to advise Panel if there will be a call on Tuesday

4.3.14 Information Request – Knight Piesold – Ken Brouwer - KR

- 4.3.14.1 NM to call Knight Piesold
- 4.3.14.2 Prepare letter requesting information
- 4.3.14.3 Attach order letter to request
- 4.3.14.4 Dr. Morgenstern to sign request letter

4.3.15 Communications Advice - KR

- 4.3.15.1 Query how to formally invite formal written submissions directly related to the Panel's TOR

5.0 Adjournment – N. Morgenstern

- The meeting was adjourned at 3:30 p.m. P.D.T.

Panel Meeting: #5, September 30, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP). Minutes
s.14

5.1 Call to Order and Approval of Agenda – N. Morgenstern

- The meeting was called to order at 5:00 p.m. P.D.T.
- The agenda was approved.

5.2 Approval of Minutes – N. Morgenstern

- Site Visit #1 record approved.
- Panel meeting #2 minutes were approved.
- Panel meeting #3 minutes were approved.
- Panel meeting #4 minutes were approved.

5.3 Panel Status Updates – K. Richter

- KR has requested advice from Government Communication and Public Engagement (GCPE) on how to formally invite formal written submissions directly from the public related to the Panel's Terms of Reference from the public.
KR following up with GCPE.

- AMEC, BGC, Knight Piesold, and MPMC have been emailed and telephoned regarding the timing of their responses to the Panel's request for information. Received response from AMEC – no responses from BGC, Knight Piesold, and MPMC; KR following up.

5.4 Legal Services – s.14

- s.14
-

5.5 First Nation Liaison Update – K. Richter

- KR advised Panel of B.C. Ministry of Energy and Mines' (MEM) modifications to Panel's Terms of Reference.

5.6 Investigation Activities Update – D. Van Zyl

- DVZ summarized KCB investigations including sonic drilling, proposed mud rotary, proposed CPT, and field mapping observations.

5.7 Thurber Action Items – Panel

5.7.1 Documentation Request

- 5.7.1.1 Prepare an email to Thurber acknowledging the attention to their work and requesting action items – KR
- 5.7.1.2 Prepare a memorandum identifying what field mapping works were taken and how (dates, processes, etc.) - Thurber
- 5.7.1.3 Prepare a Field Mapping Observations Report to be reviewed by Panel prior to being shared with MPMC & KCB – Thurber

5.7.2 Figures/Plans/Sections Request

- 5.7.2.1 Create profile section through breach - Thurber

- 5.7.2.2 Create profile section through left abutment across down drop scarps – Thurber
 - 5.7.2.3 Create key plan for X-sections reconciling various X-section names, locations and including history – Thurber
 - 5.7.2.4 Remove Ministry of Transportation and Infrastructure from title blocks and replace with Mount Polley Independent Expert Engineering Investigation and Review Panel – Thurber
 - 5.7.2.5 Create vector displacement plan – Thurber
 - 5.7.2.6 Insert new photos onto as-built sections - Thurber
 - 5.7.2.7 Change color of active instrumentation to green and color of not functioning instrumentation to red – Thurber
 - 5.7.2.8 Create a borehole location plan which includes borings identified & separated by type, date of completion (actual or estimated and ensuring that the borings have proper designation – Thurber
- 5.7.3 Field Work Request
- 5.7.3.1 Undertake field mapping of the right abutment to discover filter/core – Thurber
 - 5.7.3.2 Undertake field mapping of the right abutment downstream to locate marker beds – Thurber
 - 5.7.3.3 Undertake field mapping of right abutment to understand bench and other upstream features – Thurber
 - 5.7.3.4 Undertake field mapping of the left abutment to better understand hole feature identified by Terry Eldridge – Thurber
 - 5.7.3.5 Undertake field mapping of the left abutment to identify drop scarps – Thurber
 - 5.7.3.6 Provide daily rough borehole logs – Thurber
 - 5.7.3.7 Provide photographs of all borehole cores – Thurber
 - 5.7.3.8 Secure drill rig to undertake soil sampling (Shelby Tubes desirable) at locations determined by the Panel - Thurber
- 5.7.4 Laboratory Testing Request
- 5.7.4.1 Prepare a letter summarizing all soil laboratory testing capabilities for Thurber and their subcontractors, such as Marine & Earth Geosciences, and paying particular attention to what the different strength testing

capabilities are and confirming how significant amounts of testing will completed within the limited timeframe (October/November window) –
Thurber

5.7.5 Modelling Analysis Request

- 5.7.5.1 Undertake with the contributions of Panel members 2 & 3 D limit equilibrium slope stability analyses at Panel designated locations –
Thurber
- 5.7.5.2 Undertake with contributions of the Panel members FLAC analyses at Panel designated locations – Thurber

5.7.6 Instrumentation Request

- 5.7.6.1 Provide list of what instrumentation installation data is required and from whom – Thurber
- 5.7.6.2 Locate SI 01-02 and SI 02-01 data from 2014 AMEC report – Thurber
- 5.7.6.3 Determine direction of A-axis on SI - Thurber
- 5.7.6.4 Review drainage and seepage data for anomalies - Thurber

5.7.7 Other Party Actions/Requests

- 5.7.7.1 Provide instrumentation installation data – KR : MPMC/AMEC/KP
- 5.7.7.2 Provide pumping set levels and pond level details – KR : MPMC
- 5.7.7.3 Provide information regarding dangling pipe observed in right abutment in photographs – KR : MPMC
- 5.7.7.4 Provide detailed information regarding any and all changes to the topographic contours between august 2013 and the time of the breach –
KR : MPMC
- 5.7.7.5 Provide details regarding construction of buttress on dam main – KR :
MPMC
- 5.7.7.6 Provide details regarding the operation of the Hematite mine prior to the breach – KR : MPMC
- 5.7.7.7 Provide details regarding all cracks observed on or around TSF – KR :
MPMC

5.8 Site Visit – Panel

- Next site visit Oct. 21st – Oct. 23rd; Panel to fly in Oct. 20th and depart Oct. 23rd.
- Tentative ad-hoc meeting proposed for October 9th after 2:00 pm P.D.T.
– time and agenda to be confirmed with Panel members.

5.9 Report Organizational Structure – K. Richter

- MEM has been contacted and will provide feedback for report organizational structure.
- Options for editorial report will be prepared.

5.10 Adjournment – N. Morgenstern

- The meeting was adjourned at 6:00 p.m. P.D.T.

Panel Meeting: #6, October 9, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP). Minutes
s.14

6.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 14:00 hrs. P.D.T.
- The agenda was approved.

6.2 Approval of Minutes – Panel

- Panel meeting #5 minutes were approved.

6.3 Panel Status Updates – K. Richter

6.3.1 First Nation Liaison Update:

- Letter of Agreement provided to First Nation and First Nation Liaison.
- Awaiting approval and signature.

6.3.2 3rd Party Inquiries:

- KR presented invitation to assist by Terracon Geotechnique.

- KR presented Professional Association of Employees (PEA) request --
Action: *KR following up with Scott McCannell.*

6.3.3 Information Requests (AMEC, BGC, KP, MPMC):

- AMEC: Received materials. **Action:** *KR to send binders to Panel and Thurber.*
- BGC: Received materials. Panel members confirmed receipt of flash drives.
- KP: Received materials. **Action:** *KR to send non-duplicate materials to Panel members and Thurber.*
- MPMC: Not received, awaiting materials – **Action:** *KR to follow-up.*

6.3.4 Communications:

- KR in process of retaining services.

6.3.5 Report Organizational Structure:

- Awaiting direction from Ministry of Energy and Mines – **Action:** *KR to follow-up.*

6.3.6 Thurber Activity:

- Summary provided.

6.4 First Nation Liaison –^{s.14} / Panel

- s.14

6.5 Information Sharing –^{s.14} Panel

6.5.1 Field Mapping Observation Report/Cover Letter

- **Action:** *KR to send cover letter and Thurber geological record to MPMC; NM indicated KR may sign the letter on his behalf.*

6.5.2 Borehole Records:

- To be discussed at next meeting.

6.5.3 Laboratory Testing:

- To be discussed at next meeting.

6.6 Thurber Subsurface Investigation Program – Panel

6.6.1 Hole priority:

- Prioritization is flexible, could drill boreholes in sequence 1, 2, 3, 4, 5, etc.

6.6.2 CPT:

- Standard CPT measurements: tip, sleeve friction, pore pressure.

6.6.3 Sampling:

- Priority is to advance CPT first to enable determination of sampling location.
- Use three inch piston sampler and be able to adjust as conditions dictate.
- **Action:** KR to provide guidance to Thurber's on sampling.

6.6.4 Pore Pressure Dissipation:

- Perform tests only at locations with cohesive soils.

6.6.5 Instrumentation:

- No instrumentation required.

6.6.6 Additional

- No additional in-situ testing required.

6.7 Looking Forward Action List – Panel

- **Action:** Panel to provide list of questions, actions, and interviewees to KR by morning of Wednesday, October 15th, 2014.
- **Action:** List will be summarized and returned to Panel by Thursday, October 16th, 2014.

6.8 October Site Visit – Panel

- **Action:** *To be updated based on discussions.*

6.9 Adjournment – N. Morgenstern

- The meeting was adjourned at 15:40 hrs. P.D.T.

Panel Meeting: #7, October 20, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
David Regher, Thurber (DR)
Ben Singleton-Polster, Thurber (BSP)

7.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 19:20 P.D.T.
- The agenda was approved.

7.2 Approval of Previous Minutes – Panel

- Panel meeting #6 minutes were approved.

7.3 Panel Status Updates – K. Richter

7.3.1 First Nation Liaison Update:

- First Nations have concerns with Letter of Agreement and Confidentiality Undertaking.

7.3.2 Communications:

- Shawn Robins will provide communications support to the Panel.
- **Action:** *Shawn Robins to present to the Panel a plan for soliciting public and stakeholder written submissions relevant to the Panel's terms of reference at the meeting in Williams Lake next week.*
- **Action:** *KR to send Shawn Robins' resume and will invite Shawn to next meeting.*

7.3.3 Report Organizational Structure:

- **Action:** MEM to provide organization structure of report by Thursday.
- **Action:** KR to obtain resumes and examples of work for candidate editors.

7.3.4 Additional Interviewees:

- Panel to conduct interviews with MPMC employees on Wednesday – Luke Moger, s.22
- **Action:** KR to locate and arrange other interviews with s.22

7.4 Update: Thurber Subsurface Investigation Program – Panel

- Thurber provided summary of all subsurface investigations underway.
- Overall subsurface investigation activities proceeding well.
- Recovery of till samples is difficult.
- Thurber provided a subsurface investigation summary binder which included site plans, borehole records, and geophysics sections.
- Thurber presented large size plans and X-sections.
- Panel discussed investigation activities with Thurber and identified future activities.
- **Action:** Thurber to utilize triple tube core barrel with a ceramic sleeve to try to obtain samples within the till.
- **Action:** Thurber to try sampling in till with pitcher sampler.
- **Action:** Thurber to obtain more pore pressure dissipation tests in the current hole and future holes where GLU soils are encountered.
- **Action:** Thurber to add new subsurface investigation information to Thurber X-sections 3, 4 and 5, as the material becomes available.
- **Action:** Thurber to create longitudinal X-section through the breach section.
- **Action:** Thurber to engage s.22 to discuss interpretation of seismic and resistivity data.
- **Action:** Thurber to present to Panel sonic hole cores for SH14-07, SH14-09, SH14-15, SH14-16 and SH14-17.
- **Action:** Thurber to core whale back feature with masonry drill and core barrel.

- **Action:** *Thurber to investigate the availability and applicability of pressuremeter testing with pressuremeter experts.*
- **Action:** *During site visit tomorrow, Panel to assess excavation in slices of the right abutment to map, survey and sample embankment zones.*
- **Action:** *During field visit tomorrow, Panel to assess drilling through core from embankment crest to investigate the possibility intercepting any possible voids.*
- **Action:** *During site visit tomorrow, Panel to assess pushing 2 additional CPTs west of SH14-14, in the breach area.*

7.5 Site Visit #2 Itinerary – Panel

- Site itinerary acceptable recognizing activities may be adjusted as necessary.

7.6 Adjournment – N. Morgenstern

- The meeting was adjourned at 20:50 hrs. P.D.T.

Panel Meeting: #8, October 21, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
David Regher, Thurber (DR)
Ben Singleton-Polster, Thurber (BSP)

8.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 14:00 P.D.T.
- The agenda was approved.

8.2 Discussion of Site Tour Observations – Panel

- Panel satisfied with progress and accomplishments of subsurface investigation activities.
- Panel discussed investigation activities with Thurber and identified future activities.
- Due to results of KCB investigations, Panel decided not to pursue further investigation of left abutment from the crest to investigate the possibility intercepting any possible voids.
- **Action:** *Thurber to push 2 additional CPTs, west of SH14-14, in the breach area.*
- **Action:** *Thurber to utilize triple tube core barrel with a ceramic sleeve to try to obtain samples within the till.*
- **Action:** *Thurber to try sampling in till with pitcher sampler.*

- **Action:** Thurber to obtain more pore pressure dissipation tests in the current hole and future holes where GLU soils are encountered.
- **Action:** Thurber to core whale back feature with masonry/concrete drill and core barrel.
- **Action:** Thurber to core whale back feature with triple tube core barrel with ceramic sleeve.
- **Action:** Thurber to conduct electronic shear vane tests in soft GLU.
- **Action:** Thurber to excavate, map, survey and sample in slices of the right abutment.
- **Action:** Thurber to engage MPMC, KCB and Golders regarding excavation of the right abutment.
- **Action:** Thurber to engage s.22 to discuss interpretation of seismic and resistivity data.
- **Action:** Thurber to investigate the availability and applicability of pressuremeter testing with pressuremeter experts (John Hughes).
- **Action:** Thurber to redo CPT plots to incorporate: Q_t , S_u , δ'_p , OCR, K_o , SBT, employing Electric Power Research Institute correlations.
- **Action:** Thurber to make nKT correlation with vane and CPT.
- **Action:** Thurber to compare Thurber and KCB sonic logs.

8.3 Discussion of Laboratory Testing Program – Panel

- Thurber presented summary of laboratory testing capabilities and availability.
- **Action:** Thurber to perform moisture content and atterberg limit tests
- **Action:** Thurber to redo CPT plots to incorporate: Q_t , S_u , δ'_p , OCR, K_o , SBT, employing Electric Power Research Institute correlations.
- **Action:** Thurber to make nKT correlation with vane and CPT.
- **Action:** Thurber to CAT scan tubes to identify presence of gravel and stones and record their size.
- **Action:** During sample preparation, Thurber to note presence of gravel of stones.
- **Action:** Thurber to extrude specimens using standard procedures.
- **Action:** Thurber to determine K_o from odometer and correlate with CPT results.

- **Action:** *Thurber to consolidate specimens to ½ height of embankment fill in drained condition prior to conducting direct simple shear test.*
- **Action:** *After consolidation, Thurber to conduct undrained direct simple shear test, conforming to ASTM.*
- **Action:** *Thurber to ensure back pressure is high during testing to mitigate dilation effects.*
- **Action:** *Thurber to perform compression and extension tests, undrained in triaxial.*
- **Action:** *Thurber to provide post-test description of specimen's appearance and structure and to take photographs of the specimens.*
- **Action:** *Thurber to prepare interim summary experimental laboratory report for Panel which is updated as results become available.*

8.4 Discussion of SharePoint Site & Report – Panel

- Panel discussed the SharePoint site.
- Panel discussed the possible report structure and appendix framework/content.
- **Action:** *Thurber to provide SharePoint structure options.*
- **Action:** *Thurber to provide CPT records for appendices in basic format and in meters.*
- **Action:** *Thurber to assemble new subsurface information package to be provided to MPMC which includes new field mapping observations, Thurber mud rotary logs, Thurber CPT records (basic format & in meters), pressure dissipation results, vane test results and index test results.*
- **Action:** *DR to prepare cover letter for new subsurface information package.*
- **Action:** *Final report appendix to include Thurber and KCB test records.*
- **Action:** *Panel to discuss in future meeting the release of laboratory strength test results.*

8.5 Adjournment – N. Morgenstern

- The meeting was adjourned.

Panel Meeting: #9, October 23, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
David Regher, (DR) Thurber
Paul Wilson, (PW) Thurber
Denny Ma, (DM) Thurber
Ben Singleton-Polster, (BSP) Thurber
Shawn Robins, (SR) Communications, only for
communications discussion
John Hughes, (JH) pressuremeter expert, only
for pressuremeter discussion
John Howie, (JH2) pressuremeter expert, only
for pressurement discussion
Keith Brown, (KB) pressuremeter expert, only
for pressuremeter discussion

9.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 08:00 P.D.T.
- The agenda was approved.

9.2 Tailing Storage Facility Historic Data Collection

- The telephone conference with MEM staff discussing status and next steps.

9.3 Future Meetings – Panel

- October 31 - Telephone conference call: Subsurface Investigation Update, Laboratory Testing Update, Equilibrium Stability Analysis Update; Thurber representatives to attend; 13:30 PDT.

- November 12 & 13 - In person meeting: Subsurface Investigation Update, Laboratory Testing Update, Equilibrium Stability Analysis Update, Numerical Modelling Update, Report Preparation Update, Communications Update, Thurber Representatives to attend, all day, Thurber Vancouver Office
- November 14 - In person meeting: Subsurface Appendix Discussion, Steve Vick, Thurber Representatives to attend, day as required, Thurber Vancouver Office
- December 11 & 12 - In person meeting: Equilibrium Stability Analysis Update, Numerical Modelling Update, Report Preparation Update, Communications Update, Thurber Representatives to attend, all day, Thurber Vancouver Office
- **Action:** KR to arrange meeting and provide draft agendas.
- **Action:** KR to provide Panel resume and previous works of editors and then arrange meeting with preferred candidate on November 12.

9.3 Interviews Discussion – Panel

- **Action:** KR to connect with ^{s.22} regarding interviews.
- **Action:** KR to connect with ^{s.22} regarding seepage pond pump records. (PST or PDT, why August 3 data, unit of measure, when were pumps on)
- **Action:** KR to follow up with Luke regarding MPMC's water balance plans and observations.
- **Action:** KR to follow up with Luke regarding 2013 to 2014 rainfall records, daily and long term averages.
- **Action:** KR to follow up with Dale Reimer regarding installation and operation history (records and explanation for end) of piezometer D3.

9.4 Subsurface Investigation Discussion – Panel

- Panel discussed field observations and future activities as presented in meeting 8.
- **Action:** KR to obtain KCB CPT electronic plots from MPMC and provide to Thurber.
- **Action:** KR to obtain Frontier seismic raw data from MPMC and provide to Thurber.
- **Action:** Thurber to prepare right abutment excavation plan for review by Panel and discussion with MPMC, Golder and KCB.

9.5 Analysis Discussion – Panel

- Panel discussed analysis plan going forward and identified future activities for Thurber.
- **Action:** *Thurber to incorporate Peterson survey information into X-sections and analysis.*
- **Action:** *Thurber to consider BGC parameters for till and compare with laboratory test results.*
- **Action:** *Thurber to consider GLU parameters based on CPT from KCB and Thurber and correlate with torvane and laboratory results.*
- **Action:** *Thurber to undertake 2D equilibrium (non circular and circular) analyses on 4 cross sections (section D and 3 Thurber sections) and present to Panel in advance of October 31 meeting.*
- **Action:** *Thurber to undertake 3D equilibrium analysis on one section.*
- **Action:** *Thurber to undertake a 2D FLAC analysis to determine shear stress conditions in undrained conditions, using strength parameters from direct simple shear data.*
- **Action:** *Thurber to add contour labels to figure 105.*
- **Action:** *Thurber to add notations on document 26 regarding swampy area and till borrow area in TSF impoundment area.*
- **Action:** *SV to meet and work with Thurber to develop Appendix B (site investigation materials).*

9.6 Communications Discussion – Panel

- Panel discussed the communications, focused on actions to seek public and stakeholder written submissions related to Panel's terms of reference.
- **Action:** *SR to undertake development of website related to Panel's interest invite public and stakeholder written submissions related to the Panel's terms of reference.*
- **Action:** *SR to prepare communications materials to invite public and stakeholder written submissions related to the Panel's terms of reference.*
- **Action:** *SR to develop stakeholder list.*
- **Action:** *SR responsible for engaging media to notify the public regarding invite public and stakeholder written submissions related to the Panel's terms of reference.*

- **Action:** KR responsible for informing stakeholders of the Panel's interest to invite public and stakeholder written submissions related to the Panel's terms of reference.

9.7 Subsurface Investigation Discussion: Pressuremeter – Panel

- Panel discussed with Thurber and pressuremeter experts use of pressuremeter.
- **Action:** Thurber to provide pressuremeter experts picture of whaleback feature where the coarse matrix is exposed and discuss the impact of possible plucking.

9.8 Adjournment – N. Morgenstern

- The meeting was adjourned.

Panel Meeting: #10, October 31, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
David Regher, Thurber (DR)
Paul Wilson, Thurber (PW)
Denny Ma, Thurber (DM)

10.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 13:30 P.D.T.
- The agenda was approved.

10.2 Update: Thurber Subsurface Investigation Program – Panel

- Panel discussed investigation activities and next steps.
- **Action:** *Thurber to undertake KCB and Thurber CPT records correlation with vane.*
- **Action:** *Thurber to proceed with pressuremeter testing on Tuesday.*
- **Action:** *Thurber to prepare pressuremeter package for Panel in advance of November 6 telephone conference call.*
- **Action:** *Thurber to target an additional 5 to 10 tubes from the GLU horizon.*
- **Action:** *Thurber to provide update of tube sampling for November 6 telephone conference call.*
- **Action:** *KR to arrange telephone conference call for November 6 (06:00 PST or 07:00 MST) to discuss initial pressuremeter results and progress on tube sampling.*

10.3 Update: Laboratory Testing – Panel

- Thurber presented summary of laboratory testing capabilities.
- Panel discussed laboratory investigation activities and next steps.
- **Action:** *Thurber to undertake comprehensive moisture content and other index testing.*
- **Action:** *Thurber to undertake comprehensive odometer testing.*
- **Action:** *Thurber to prepare pressuremeter package for Panel in advance of November 6 telephone conference call.*
- **Action:** *KR to arrange telephone conference call for November 6 to discuss initial pressuremeter results.*

10.4 Update: 2D and 3D Equilibrium Analysis – Panel

- Thurber presented the results of their analyses.
- Panel discussed results and provided direction for next steps.
- **Action:** *Thurber to use sonic logs to define zones of GLU in the geometry used in the analyses.*
- **Action:** *Thurber to analyze circular and non-circular failures.*
- **Action:** *Thurber to analyze undrained conditions.*
- **Action:** *Thurber to declare hypotheses for each analysis, such consolidation condition, K_o , etc..*
- **Action:** *Thurber to undertake 2D analyses before undertaking 3D analysis.*
- **Action:** *Thurber to consider different consolidation zones of GLU beneath the embankment.*
- **Action:** *Thurber to assume undrained behaviour of till.*

10.5 Update: Numerical Modeling – Panel

- Thurber discussed analyses to-date.
- Panel discussed next steps.
- **Action:** *Thurber to perform 2D elastic analysis.*

10.6 Secretariat Update – KR

10.6.1 First Nations:

- KR provided update of MEM engagement with First Nations.

10.6.2 Communications:

- KR provided update on communications material preparation.
- s.14

10.6.3 Editorial Services:

- KR provided an update on retaining editorial services.
- **Action:** *KR to provide Panel resumes and examples of previous works by candidate editorial service providers.*

10.6.4 Additional Topics:

- **Action:** *KR to include the following topics in the next in person meeting: interviews with others (engineers, MEM, MPMC management, etc.), report compilation and assignments, selection of editor, graphic design requirements).*

s.14

- **Action:** *KR to follow up with AMEC as to status of additional materials to be provided to Panel.*
- **Action:** *KR to check with MEM if there is a file size limitation to the final report.*

10.7 Adjournment – N. Morgenstern

- The meeting was adjourned at 14:45 p.m. P.D.T.

***Mount Polley Independent Expert Engineering
Investigation and Review Panel***

Minutes
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Panel Meeting: #11, November 6, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
David Regher (DR), Thurber
Paul Wilson (PW), Thurber
Denny Ma (DM), Thurber
Ben Singleton-Polster (BSP), Thurber

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11.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 06:05 P.S.T.
- The agenda was approved.

11.2 Update: Thurber Subsurface Investigation Program – Panel

- Panel discussed investigation activities and next steps.
- Additional tube samples are being collected.
- Pressuremeter testing underway.
- Right abutment excavation and mapping activities underway.
- Field work to be completed by next week.
- No additional geophysics field work required.
- **Action:** KR following up with MPMC to determine when Frontier and CPT data will be provided to the Panel.

11.3 Update: Laboratory Testing – Panel

- Thurber provided update on laboratory testing completed and planned.

- **Action:** Thurber to perform index tests (visual record, grain size, Atterberg limits, moisture content) on highly disturbed till samples, where tubes have been mangled.
- **Action:** Thurber to increase maximum consolidation pressure to 600 kPa on DSS tests.
- **Action:** KR to inquire with Howard Plewes as to the status of KCB laboratory testing, what will be the flow of information to the Panel, and what is the timeline for KCB deliverables.
- **Action:** KR to send Thurber, Mayne paper, A Review of Undrained Strength in Direct Simple Shear.

11.4 Update: 2D and 3D Equilibrium Clara Analysis – Panel

- Thurber presented the results of their analyses.
- Thurber will provide a technical note outlining their analyses.
- **Action:** Thurber to use sonic logs to define zones of GLU in the geometry used in the analyses.
- **Action:** Thurber to consider development of zonations based on moisture content.
- **Action:** Thurber to conduct 2D equilibrium analysis starting with stage 6 construction and progressing to stage 9 varying strength parameters and including the presence of the toe excavation work. Thurber to provide summary of FS at the different stages and varying strength ratios (0.2 to 0.25).
- **Action:** Thurber to look at effects of pore pressure.

11.5 Update: Numerical Modeling – Panel

- Thurber advised that analyses to-date were elastic to determine stress conditions.
- Thurber will provide a technical note outlining their analyses.
- Panel advised Thurber that no further numerical modelling work is necessary until further laboratory testing and limit equilibrium results have been discussed and next steps identified.

11.6 Secretariat Update – KR

11.6.1 Future Interviews:

- Panel to discuss potential interviewees and questions during meetings next week.

11.6.2 Report Management:

- KR confirmed that KR & Stacey Scriver will be responsible for report preparation coordination.
- **Action:** *KR to present to Panel next meeting timeline for report production and development processes.*

11.6.3 Production of Documents from Others:

- KR provided an update on receipt of materials from others.
- **Action:** *KR to discuss with DL the next approach to request information from AMEC and others.*

11.6.4 Next Meeting Agenda:

- Next meeting at Thurber Vancouver office on November 12th, starting at 08:00 PST.
- **Action:** *KR to create next meeting agenda and distribute to Panel.*
- **Action:** *KR to coordinate call in times for DVZ during the meetings next week.*
- **Action:** *KR to arrange for Judith Brand to meet Panel and discuss Panel expectations.*
- **Action:** *Thurber to develop relevant boring plan for three dams recording only quantitative information for holes in footprint or adjacent to the dam which would be useful in the foundation design.*
- **Action:** *KR to speak to DR regarding the completion of a tailing facility history summary by November 21.*

11.7 Approval of Previous Minutes – Panel

- Panel meeting #7, 8, 9 and 10 minutes were approved.
- Site Visit #2 summary approved.

*Mount Polley Independent Expert Engineering
Investigation and Review Panel*

Minutes
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11.8 Adjournment – N. Morgenstern

- The meeting was adjourned at 07:05 hrs. P.S.T.

Panel Meeting: #12, November 12, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member - Telephone call in
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
David Regher (DR), Thurber – Technical only
Paul Wilson (PW), Thurber – Technical only
Judith Brand (JB), Editor – Report Compilation only
Stacy Scriver (SS), Report Coordinator – Report Compilation only

12.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 08:20 hrs. P.S.T.
- The agenda was approved.
- Panel discussed the importance of being prudent and maintaining confidentiality.
- **Action:** *RP to prepare and send highlights of today's discussions to DVZ in advance of afternoon telephone call.*

12.2 Technical: Thurber Subsurface Investigation Program Update – Thurber / Panel

- Thurber presented technical briefs 303 – Thurber Vane Shear Results, and 304 – Thurber Pressuremeter Test Results.
- Thurber summarized the activities and outcomes of block sampling the core. Thurber is taking many photographs of samples at all stages of the work.

- Thurber presented a status update regarding the slice excavation program. Slice excavation program will continue for the next few days. During the excavation, no evidence of piping was observed.
- Thurber reported that additional sampling of the GLU has been successful and a few more tube samples are in process of being secured.
- Thurber advised that pressuremeter testing is wrapping up.
- **Action:** *Thurber to create concise and clear KCB borehole records and ensure that numbering/hole location are clearly identified on the plan and easy to locate.*
- **Action:** *KR to ensure that Thurber receives final data (CPT, vane shear, geophysics etc.) from MPMC/KCB.*

12.3 Technical: Laboratory Testing Update – Thurber / Panel

- Thurber provided update on laboratory testing.
- Thurber presented and discussed technical briefs 421 – Undisturbed Sampling CT Scanning Results, 431 - MEG Direct Simple Shear Test Results, 441 – Thurber Triaxial Test Results, 451 – Thurber Oedometer Test Results, 502 – CPT Tip Resistance and Moisture Content Comparison, 503 – Advanced CPT Interpretation, 504 – Comments on Moisture Content Sampling Procedures, and 508 – Soil Structure Variability and Deformation in Lower GLU.
- Panel discussed the trigger analysis in conjunction with the available testing data and what additional testing is required.
- **Action:** *Thurber to change labels from initial confining stress to vertical stress.*
- **Action:** *Thurber to assess GLU sensitivity based on field and laboratory data in both disturbed and non-disturbed zones (plot peak and residual vane shear and CPT calculated strengths).*
- **Action:** *Thurber to assess strain weakening.*
- **Action:** *Thurber to model deformation and investigate creating a deformation animation for the Panels consideration.*
- **Action:** *For tomorrow, Thurber to present:*
 - *Plot peak and residual strengths from vane shear and CPT correlations,*

- *Plans for future testing in till,*
- *Relationship between varying overburden stress to strength,*
- *Relationship of moisture content to strength,*
- *Effect of initial shear stress on the strength,*
- *Influence of creep on pore pressure,*
- *Summary of all oedometer results for the GLU including, C_c , C_v , C_H and C_α*
- *CPT C_H data from pore pressure dissipation tests,*
- *Update on index test results,*
- *More information, in a concise form, defining the difference between the upper and lower GLU,*
- **Action:** *Thurber to provide for tomorrow stress path results for several locations beneath the crest, mid slope and toe of the embankment at different stages of construction.*
- **Action:** *Thurber to continue with CIU tests on upper till.*
- **Action:** *Thurber to perform direct shear tests on GLU.*
- **Action:** *Thurber to conduct individual testing of laminations,*
- **Action:** *Thurber to search logs for any reference to slickensides,*
- **Action:** *Thurber to understand residual strength from back analysis.*
- **Action:** *Thurber to review field stress history before determining next suite of laboratory testing.*
- **Action:** *Thurber to obtain more information about bedrock.*

12.4 Technical: 2D and 3D Equilibrium Analysis Update – Panel

- Thurber presented technical briefing 600 – Preliminary Limit Equilibrium Analysis at Section 3 and 601 – Pre-Breach FS Comparison for Past Stages.
- Panel discussed the trigger mechanisms in relationship to analyses performed and what additional analyses are required.
- **Action:** *Thurber to map the changes in FS for all stages, starting with stage 1.*
- **Action:** *Thurber to include crest elevation and pond height to plot of 2D Limit Equilibrium analyses.*

- **Action:** *Thurber needs to conduct a validation of stability analyses performed by previous consultants.*
- **Action:** *Thurber to complete an effective stress limit equilibrium analysis.*

12.5 Technical: Trigger Analysis – Panel

- Panel discussed trigger hypotheses.
- Panel discussed history of loading of the dam and possible
- 1 and 2 D consolidation.
- **Action:** *Thurber to plot pond level and crest height with piezometer gradient information.*
- **Action:** *Thurber to perform a 1D CV analysis before undertaking more complex consolidation analysis.*
- **Action:** *Thurber to compare % change in FS between 2D and 3D Limit Equilibrium analyses.*
- **Action:** *KR to forward Mining Association of Canada Guidelines to Panel.*

12.6 Report Preparation – Panel

- Panel discussed report outline and report contents.
- Panel members discussed writing assignments and schedule of deliveries.
- Panel discussed having the SharePoint available to the public.
- **Action:** *Thurber to prepare glossary of technical terms.*
- **Action:** *Thurber to prepare introduction for SharePoint which can guide a reader.*
- **Action:** *Thurber will be assisting with the development of Appendix B.*

12.7 Report Compilation – Panel

- Panel met with Judith Brand and discussed her role.

12.8 Production of Documents – Panel

- KR presented a summary of document production proposals from 2 firms requiring the Panel to have final drafts ready by the beginning of January.
- Panel remarked that this timeline was unacceptable and other service providers needed to be canvased.
- **Action:** *KR and Thurber to discuss alternate document production options.*
- **Action:** *KR to investigate how report will be distributed.*

12.9 Telephone Call with DVZ – Panel

- Panel provided DVZ with an update of the morning's discussions.
- Panel discussed having interviews with s.22
s.22 and the type of questions to be asked.
- **Action:** *Panel to consider including a note in the final report regarding the submission of late documents.*
- **Action:** *KR to draft interviewee questions and distribute to Panel for review.*
- **Action:** *KR to send invitation to interviewees for meeting on December 12, at Thurber office.*
- **Action:** *KR to obtain from MEM resumes of staff.*

12.10 Adjournment – Panel

- Next meeting to be held November 13th, 2014.
- The meeting was adjourned at 17:20 hrs. P.S.T.

Panel Meeting: #13, November 13, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member – Telephone call in
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
David Regher (DR), Thurber – Technical only
Paul Wilson (PW), Thurber – Technical only
Judy Kirk (JK), Kirk & Co. – Report Development only
Karen Schroder (KS), Kirk & Co. – Report Development only

13.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 08:00 hrs. P.S.T.
- The agenda was approved.

13.2 Report Content - Panel

- Panel discussed failure hypotheses in conjunction with the results of the field work, laboratory testing, interviews, documentation and limit equilibrium and numerical modelling analyses results.
- Panel discussed the CDA guidelines.
- Panel discussed the general outline of the report chapters and contents of appendices.
- Panel discussed assignment accountabilities and delivery schedule.
- Panel discussed the process for report production, editing legal review and final Panel member approval.

13.3 Report Development – Panel / JK

- Panel discussed their expectation of report management and production services and the timeline requirements.

- Panel and JK discussed the responsibilities and the process for report management and preparation.
- **Action:** KR to circulate list of key contacts and their contact information who are involved in the report and appendices preparation.
- **Action:** KR to arrange meeting between JB and JK.
- **Actions:** KR to send KS: Panel TOR, report outline, website address (invitation for submissions), and information so KS can access the SharePoint site.
- **Action:** KR to ask SR to prepare communications rollout plan.
- **Action:** Panel to provide an updated report delivery schedule for the week of November 17.

13.4 SharePoint Discussion – Panel

- Panel discussed final framework of SharePoint
- Panel discussed the how materials will be shared openly and transparently.
- **Action:** Thurber to organize SharePoint with the first identifier as to where the document was received from.
- **Action:** Thurber to create a summary list of all documents on the SharePoint and to identify which are duplicates and where they are duplicates.
- **Action:** Thurber to prepare an introductory section identifying how the SharePoint is organized to assist a user in understanding the SharePoint.

13.5 Technical Update: Field Work, Laboratory Testing, Analyses – Panel / Thurber

- Thurber provided an update of Field Work, Laboratory Testing and Limit Equilibrium/Numerical Modelling activities completed and planned and presentation of materials requested the previous day.
- Presented results of:
 - Inclinator data from recently installed instruments,
 - CPT Q_t correlations with vane shear for both disturbed and non-disturbed zones.
 - The relationship between varying overburden stress to strength,

- a C_V and C_H summary,
- CPT dissipation data,
- Consolidation and stress path summaries for different construction stages load, permeability conditions and locations under the embankment,
- A summary of plots showing different borehole, CPT, SPT and test pit packages,
- The progress of a peer geophysics review,
- The status of pressuremeter testing and results,
- An inventory of Shelby tubes and analyses of their contents which will be utilized to determine future tests,
- The laboratory testing that has been completed,
- The plans for future testing of the GLU and till sample, (index tests, oedometer, triaxial, direct shear, direct simple shear),
- How different stress histories and stress biases were incorporated into the tests,
- How variations within GLU will effect deformation strength parameters,
- How bedrock influenced stability,
- Limit equilibrium modelling (2D and 3D):
 - The residual strength is based on back analysis,
 - Confirmation of stability analyses performed by previous consultants,
 - The FS at different stages of construction,
 - The changes in FS for different stages of construction,
 - An effective stress limit equilibrium analysis.
- Plaxis modelling which included stress conditions, deformations and an deformation animation
- Thurber provided an update on the conference call regarding KCB field investigation program.
 - Field drilling has been completed.
 - Piezometer readings will continue.
 - Laboratory testing in process, index testing nearing completion

- KCB is not planning to excavate deep trench to expose the GLU.
- **Action:** *Thurber to provide updated field and laboratory testing results.*
- **Action:** *Thurber to investigate the opportunity for Thurber staff to witness the excavation of the left abutment.*
- **Action:** *Thurber to complete triaxial GLU tests based on different confining stresses and stress biases.*
- **Action:** *Thurber to compare index test results with soil description (presence of laminations, structure and gravel, etc.) and strength parameters (moisture content may be key index test),*
- **Action:** *Thurber to review results of pressuremeter tests with triaxial tests for the till.*
- **Action:** *Thurber to analyse the effects of shell rate loading on the stress conditions created in the foundation.*
- **Action:** *Thurber to perform simple Plaxis analysis which incorporates new test results and stress reduction to failure.*
- **Action:** *KR to follow up with MPMC regarding the status of the final KCB logs.*
- **Action:** *KR to obtain minutes of the KCB/MPMC/MEM/Golders field investigation update meeting which occurred today, November 13.*

13.6 Telephone Call with Dirk – Panel

- Panel provided of summary of the days discussions.
- Panel discussed additional meeting on November 21, 2014.
- **Action:** *KR to organize a conference call for the afternoon, 14:00 hrs. PST to 15:00 hrs. PST (15:00 hrs. MST to 16:00 hrs. MST), November 21, 2014 and prepare an agenda which includes an update on field work, laboratory testing, analysis work and report progress.*

13.7 Adjournment – Panel

- The meeting was adjourned at 17:00 hrs. P.S.T.

Panel Meeting: #14, November 21, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
David Regher, Thurber (DR)
Paul Wilson, Thurber (PW)
Denny Ma, Thurber (DM)

14.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 14:05 hrs. P.S.T.
- The agenda was approved.

14.2 Technical: Laboratory Testing – Panel

- Thurber provided a summary of laboratory testing completed, underway and planned.
- Panel concluded that planned laboratory testing is sufficient and no additional testing is anticipated.
- Thurber provided an update on the status of field work and indicated that field work would be concluding within a few days.
- **Action:** *Thurber to complete laboratory testing as planned.*
- **Action:** *KR to request from MPMC the final KCB CPT plots.*

14.3 Technical: Analysis Update – Panel

- Thurber presented technical briefings 600, 650, and 670 which summarized completed analyses.
- Panel was satisfied with Thurber analyses.
- **Action:** *Thurber to analyze the effects of a thinning of GLU layer.*

- **Action:** *Thurber to present results of numerical modelling analysis which provides crest displacement information.*

14.4 Technical: Report Schedule Update – Panel

- Panel discussed the report body and appendices organization and production.
- Panel discussed organization of the SharePoint.
- Panel has received package of hard copy materials from Thurber, containing documents from MPMC, BGC, and KP.
- DVZ will be meeting with Thurber on November 26 to discuss appendices.
- **Action:** *Thurber will create Thurber a SharePoint to house appendix information for Panel access.*
- **Action:** *Thurber to create introductory text for SharePoint describing the organizational structure.*
- **Action:** *Thurber to prepare introductory text for Appendix C.*
- **Action:** *KR to prepare agenda and arrange next telephone call meeting for Friday, November 28, 2014 from 15:00 to 16:00 PST (16:00 to 17:00 MST)*
- **Action:** *Panel will provide an updated forecast of report deliverable timelines for the next meeting.*

14.5 Adjournment – N. Morgenstern

- The meeting was adjourned at 14:45 p.m. P.S.T.

Panel Meeting: #15, November 28, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Rupinder Prihar (RP), Minutes
Karen Schroeder (KS), Kirk & Co.
David Regher, Thurber (DR)
Paul Wilson, Thurber (PW)

15.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 15:00 hrs. P.S.T.
- The agenda was approved.

15.2 Technical Update – Panel

15.2.1 Thurber provided a field and laboratory testing update

- Field work has been completed.
- Index testing will be completed mid-December.
- Oedometer testing will be completed next week.
- Strength testing will be completed next week.
- Thurber provided an update on limit equilibrium analyses which included higher pond levels and toe excavation.
- **Action:** *Thurber to provide laboratory testing summary table for this weekend.*
- **Action:** *Thurber to comment on:*
 - *What stage GLU reached OCR=1*
 - *How does stress history vary with depth in till and GLU*

- *How does stress history vary laterally*
- **Action:** *Thurber to determine pre-breach tailing height and incorporate this in an updated PLAXIS model*
- **Action:** *KR to follow up with MEM / MoE regarding panel information requests.*
- **Action:** *Thurber to send raw CPT records to KR to distribution to KCB*
- **Action:** *KR to request from MPMC / KCB KCB field investigation summary report*

15.3 Report Update – Panel

- *Panel discussed sections and reviewed assignments and delivery schedule*
- *Shawn Robbins is preparing a communication package.*
- s.22 confirmed attendance at interview
- s.22 confirmed attendance at interview (will be accompanied by legal counsel); s.22 suggested that s.22 joined the interview on December 12, 2014.
- *Verbal consent received from Imperial Metals s.22 to be interviewed on December 12, 2014.*
- *Panel discussed additional meetings the week of January 12, 2014 to work on the report together in Vancouver.*

15.4 Adjournment – N. Morgenstern

- *The meeting was adjourned at 16:05 hrs. P.S.T.*

Panel Meeting: #16, December 2, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Dr. Dirk Van Zyl (DVZ), Panel Member
Steven Vick (SV), Panel Member

Panel Support:

Kevin Richter (KR), Secretariat
Stacy Sriver (SS), Secretariat Assistant
Rupinder Prihar (RP), Minutes
David Regher (DR), Thurber
Paul Wilson (PW), Thurber

16.1 Call to Order and Approval of Agenda – N. Morgenstern / Panel

- The meeting was called to order at 08:00 hrs. P.S.T.
- The agenda was approved.

16.2 Technical: Consolidation Discussion – Panel / Thurber

- Thurber provided a summary of consolidation data.
- **Action:** *Thurber to update settle 3D consolidation analysis using 2D embankment loading – average data from the consolidation tests and 2 different drainage boundary conditions.*
- **Action:** *Thurber to send CPT correlated and vane shear sensitivity data to NM.*

16.3 Other Items – Panel

- KR provided an update on various activities.
- MoE to provide requested materials by December 3.
- KR meeting MEM today to receive requested materials and discuss.
- SS will assist Panel during meetings on December 11 and 12, 2014.

*Mount Polley Independent Expert Engineering
Investigation and Review Panel*

Minutes

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- **Action:** KR to follow up with Howard regarding site investigation report.
- **Action:** KR to follow up with Luke Moger, MPMC, regarding pre-breach tailings and pond water volume.

16.3 Adjournment – N. Morgenstern

- The meeting was adjourned at 08:30 hrs. P.S.T.

Panel Meeting #17, December 12, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Steven Vick (SV), Panel Member
Dr. Dirk Van Zyl (DVZ), Panel Member

Interviewees:

s.22	MEM
s.22	, Knight Piesold
s.22	. Knight Piesold
s.22	Imperial Metals

Panel Support:

Kevin Richter (KR), Secretary – on phone
Stacy Scriver (SS), Secretary Assistant
David Regehr (DR), Thurber – As needed
Paul Wilson (PW), Thurber – As needed
Shawn Robins (SR), Communications

17.1 Opening and Agenda Approval - N. Morgenstern / Panel

- The meeting was called to order at 08:10 hrs. P.S.T.
- Agenda approved

17.2 Interview with s.22 – Panel

- Refer to separate interview notes summary.

17.3 Interview with s.22 – Panel

- Refer to separate interview notes summary.

17.4 Interview with s.22 – Panel

- Refer to separate interview notes summary.

17.5 Report & Appendix Preparation – Panel

- Thurber reported out on actions assigned the previous day and presented technical packages.
- Discussed the development and content of report chapters.
- Discussed the accountabilities for report sections and appendices.
- Discussed the timelines for completion for sections and appendices.
- Discussed the contents of the Appendices.
- Discussed SharePoint layout.
- Determined that the Panel will conduct a final review of SharePoint contents after SharePoint “How to” was share with them.
- Discussed written submissions.
- Submissions have been posted on the website.
- Next meeting is planned for Thursday, December 18th, 2014 at 6:00am P.S.T.
- **Action:** Thurber to prepare a write up regarding the block samples.
- **Action:** Thurber to incorporate field vane and oedometer tests on CPT.

- **Action:** *Thurber to test GLU with consolidation stress of 75 kPa.*
- **Action:** *Thurber to undertake a stability analysis of the 2005 build out design with crest width of 10 m.*
- **Action:** *Thurber to run new Plaxis model with simplified soil model.*

s.14

- **Action:** *Thurber to create a “how to understand” the SharePoint data site, including a note about duplicate files.*

17.6 Communications Rollout – Shawn / Panel

- SR advised that window for receipt of written submissions is now closed, however late submissions have been accepted.
- Discussed the posting of a final report on the Mt. Polley website.
- Discussed the possibility of a technical briefing on February 3, 2015 in Victoria.
- Discussed presenting hard copies of report to the three parties.
- SR advised that there had only been one media inquiry so far.
- **Action:** *SS to send Shawn written submissions*

17.7 Adjournment - N. Morgenstern

- The meeting was adjourned at 17:00 hrs. P.S.T

Panel Meeting #18, December 18, 2014

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Steven Vick (SV), Panel Member
Dr. Dirk Van Zyl (DVZ), Panel Member

Panel Support:

Kevin Richter (KR), Secretary
Stacy Sriver (RP), Secretary Assistant
David Regehr (DR), Thurber
Karen Schroder (KS), Kirk & Co.

18.1 Opening and Agenda Approval - N. Morgenstern / Panel

- The meeting was called to order at 06:00 hrs. P.S.T.
- Agenda approved

18.2 Technical Update - Thurber/Panel

- Thurber discussed packages that were provided to the panel over the last week.
- Appendices G - Water Balance, H - Brach analyses, I - Dam Failure frequency, and J - Cariboo Video were discussed.

18.3 Report Development Update - K&C/Panel

- Karen provided an update on the report production.
- Section 1-4 have been reviewed and edits sent back to panel.
- Section 5.3 and 5.4 have been reviewed and will be sent back to panel shortly.

18.4 Written Submissions – Panel

s.14

18.5 KP Response – Panel

- Discussed the KP request.
- **Action:** *KR to send response to KP indicating that minutes will be released upon report release.*

18.6 Section Review (1 to 4, 5.3, 5.4) – Panel

- Reviewed edits made on sections 1-4
- Discussed sections 5.3 and 5.4.
- Discussion on section 5.1, edits should be out to the panel by end of day.

s.14

- **Action:** *Thurber to flip drawing for Appendix C and highlight embankment*

18.7 Secretariat Update - KR/Panel

- Advised KR has not heard back from MEM
- Follow up meeting to be scheduled on December 23 at 7:00am P.S.T.
- Confirmed January meeting times in Vancouver
- **Action:** *KR to draft and distribute agenda for December 23*

18.8 Adjournment - N. Morgenstern

- The meeting was adjourned at 08:00 hrs. P.S.T

Panel Meeting #19, January 16, 2015

Panel Members:

Dr. Norbert Morgenstern (NM), Panel Chair
Steven Vick (SV), Panel Member
Dr. Dirk Van Zyl (DVZ), Panel Member

Panel Support:

Kevin Richter (KR), Secretary
Stacy Sriver (SS), Secretary Assistant
David Regehr (DP), Thurber – as needed
Paul Wilson (PW), Thurber – as needed
John Sobkowicz (JS), Thurber
Shawn Robins (SR), Robins Communications
Karen Schroder (KS), Kirk & Co.

19.1 Opening and Agenda Approval - N. Morgenstern / Panel

- The meeting was called to order at 08:05 hrs. P.S.T.
- Agenda approved

19.2 Report preparation Update – K&C / Panel

- Updated appendices presented
- Panel discussion concerns and questions with names in the report.
- KS advises end of day today updates will be on FTP site and next Friday is drop-dead DEADLINE.
- **Action:** KR to draft a letter with instructions of privacy – one for MEM, one for MOE, privacy group with deadline confirmed next Friday
- **Action:** KS to add note in report *interview redacted due to privacy
- **Action:** ALL - Final sign off next Friday, KS will email file to panel for call
- **Action:** KR to book call Friday Jan 23 7am PST / 8 MST - Panel, KR, KS re: final signoff
- **Action:** KR to follow up with MEM/MOE/Privacy team.
- **Action:** KS to look into ownership to the report
- s.14

19.3 Update: Document Privacy & Investigations Impact Review – KR / Panel

- The panel has accepted request of privacy team – report will comply and included no personal information
- **Action:** KR to advise MEM: complying with request and if they need/want anything else let us know

- **Action:** KR to advise MOE: the panel is complying

19.4 Event Discussion – Panel

- SR provides the panel with communications roll out
- Tentative plan: NM and SV in Victoria and DV and KR in Williams Lake
- Discussion around connecting remotely (maybe or not technology available)
- Panel will draft a 20 slides PP, and expect 30 mins for Q&A
- PP brought to leg / pressroom on flash drive
- Discussion about invitations - GCPE to invite media, stakeholders, FN
- Briefing Jan 29 8:00am TRAN Office
- Website will be announced on governments news release
- SR provides update on data room / SharePoint
- Test site can be viewed mid-next week, this will include (data room and report)
- **Action:** KR follow up - What role should the panel have to link in the FN
- **Action:** KR to share exec summary to SR to draft Q&A's
- **Action:** SR to follow up with AI on how files will be sorted on SharePoint/web
- **Action:** KR to book call with privacy team and Shawn on Monday PM
- **Action:** SR to update roll out for Panels review

19.5 Future Panel Obligations – KR / Panel

- KR advised the panel that he had asked and follow-up but has not rec'd anything back from MEM on future panel obligations.
- Contracts end April 2015

19.6 Report Review – JS / Panel

- John provided hand out comments on report
- Discussion on report process
- John walked through the report with the panel and discussed his views and comments.

19.7 Other - KS / Panel

19.8 Adjournment - N. Morgenstern

- The meeting was adjourned at 16:30 hrs. P.S.T