Narynski, Heather M MEM:EX

MP00192

From: Ostritchenko, Dmitri <Dmitri.Ostritchenko@amec.com>
Sent: Monday, June 2, 2014 8:34 AM
To: Narynski, Heather M MEM:EX
Cc: Rice, Steve (Burnaby); Witte, Andrew
Subject: MPMP Geotechnical Inceident Memo May 30
Attachments: Memo_MPMC_Geotechnical Incident_30May2014.pdf

Heather,

Please find attached AMEC's report of the events that occurred after the incident.
Please let me know if you have any questions.

Thanks,

Dmitri Ostritchenko, EIT
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MEMO

To:	**Heather Narynski, P.Eng.** Sr. Geotechnical Inspector Ministry of Energy and Mines 1810 Blanshard St., Victoria, BC V8W 9N3	**File No.:**	KX05414-01
From:	Dmitri Ostritchenko, EIT Geotechnical Engineer	**Project No.:**	KX05414
Tel:	250-564-3243	**cc:**	Andrew Witte, M.Eng, P.Eng. Steve Rice, P.Eng.
Fax:	250-562-7045		
Date:	May 30, 2014		

Subject: Mt. Polley Tailing Facility Field Review

This memo presents the day by day account of activities, observations, and recommendations made by AMEC for the Mount Polley Mine tailings storage facility (TSF) during the period of May 25 to May 29, 2014. Please find attached figure for location references and selected photos.

Sunday, 25 May

Activities:

- AMEC was informed by Mount Polley Mining Corporation (MPMC) representative Nicholas Bergeron that seepage flow was observed over the dam core on Saturday at a low area on Corner 3 of the TSF, and that a temporary upstream fill was being placed to limit/contain the seepage.

AMEC Recommendations:

- Place additional fine grained core (till) material in the affected area upstream of the core (or on the core if upstream berm cannot be established) to maintain freeboard.
- Divert inflow water to the TSF, and start removing water from the TSF to re-establish the required 0.9 m minimum freeboard as outlined in the OMS manual (Section 6.0, revision 11).

Monday, 26 May

Activities:

- Dmitri Ostritchenko of AMEC arrived on site at 11:00 am.
- AMEC reviewed the conditions at corner 3, no direct seepage over the core, or significant erosion was noted in or around the identified low area.
- AMEC requested that the MPMC review and establish all the low points along the dam (with survey) to assess the effective freeboard within the TSF. Low areas were identified as followed:
    - Corner 3 (approximately stn.1+500 to 1+600) – 966.3 m (the low area was localized to a smaller section between stn. 1+565 to 1+579).
    - Corner 2 (approximately stn. 2+270 to 2+800) – 966.4 m, no seepage noted.
    - Corner 5 abutment tie-in (approximately stn 4+900 to 4+950) – 965.5 m, no seepage noted.
    - The pond water level elevation was reported as 966.3 m.
    - All other areas of the dam were reported as having a minimum core elevation of 967.0 m.
- Due to poor weather conditions, construction activities for raising the core were very limited and only temporary berms were able to be constructed.

AMEC Recommendations:

- Reconfirmed the recommendation to divert water away from the TSF, and remove water from the the TSF to establish the required minimum freeboard as previously noted.
- Increase instrumentation monitoring frequency from bi-weekly to a weekly readings, and conduct a new set of readings as soon as possible.
- Maintain ongoing surveillance of the localized low spots along the TSF core and establish upstream berms to provide temporary required freeboard for the TSF.
- Address all the low spots to establish a minimum core elevation of 967.0 m along the entire crest of the TSF.

Tuesday, 27 May

Activities:

- AMEC attended a meeting with the Mine Superintendent and MPMC Engineering department to discuss and assign strategies/priorities for diverting water away from the TSF facility.
- AMEC observed core construction at Corner 3 to raise the effective elevation of the core to 966.7 m. Additional seepage noted during construction. At the lowest section, the construction work was deemed to be temporary; as a minimum core width of only 4 m was established (minimum 5 m core width is required as per design).
- No seepage was noted at corner 2 or corner 5.
- A low spot in the core was observed at the perimeter pipe crossing (approximately stn. 3+950 to 4+000). Standing water noted to be present on the core, no major erosion or water movement was noted. The surveyed low point of the core at this location was 966.2 m.
- The pond elevation was reported to be at 966.4 m.

AMEC Recommendations:

- Verify the source of the standing water found at perimeter pipe crossing.
- Establish an upstream berm to provide a temporary freeboard at the perimeter pipe crossing.
- Continue to monitor all the low core locations for changing conditions on a regular basis.
- Lower the pond level to establish the required freeboard.

Wednesday, 28 May

Activities:

- AMEC observed till placement for establishing a minimum core elevation of 967.0 m at corner 3. A 4 m wide core section between elevation 966.2 to 966.5 remains and will have to be addressed as this lift was deemed to be temporary.
- AMEC observed core construction at Corner 2 to establish an effective elevation of the core to 966.7 m. The material was placed/sealed but was not compacted due to a change in weather.
- AMEC observed core construction at perimeter pipe crossing to an effective core elevation of 966.3 m. Due to bad weather additional core construction was not possible. Thus an upstream berm around the perimeter pipe crossing was established at the end of the day to provide temporary freeboard.
- No seepage was noted at corner 5.
- The pond elevation was reported to be at 966.37 m.

Recommendations:

- No new recommendations were provided, addressing the low core areas and lowering the pond elevation was reiterated.

Thursday, 29 May

Activities:

- AMEC observed core construction at the perimeter pipe crossing and an effective core elevation of 967.0 m was established with the last lift of (between 966.7 to 967 m) material being placed/sealed but not compacted due to change in the weather.
- No seepage was noted at corner 5.
- The pond elevation was reported to be at 966.45 m.
- Luke Marquis of AMEC arrived on site and will remain to monitor progress for planned works.

AMEC Recommendations:

- No new recommendations were provided, addressing the low core areas and lowering the pond elevation was reiterated, however to date no extensive effort to lower the pond elevation was implemented.

AMEC understand that the following priority construction list will be followed:

- Till core placement in corner 5 is scheduled for construction on May 30th.
- Core placement at corner 2 is to be completed during preparation work of corner 5.
- Till placement along the perimeter including perimeter pipe crossing and main embankment to bring the minimum elevation of the core to 967.3 m.
- Address corner 3 deficiency.
- Place filter material in deficient areas during poor weather and to maintain the filter no more than 1.5m below the core elevation.

Sincerely,
AMEC Environment & Infrastructure
A division of AMEC Americas Limited

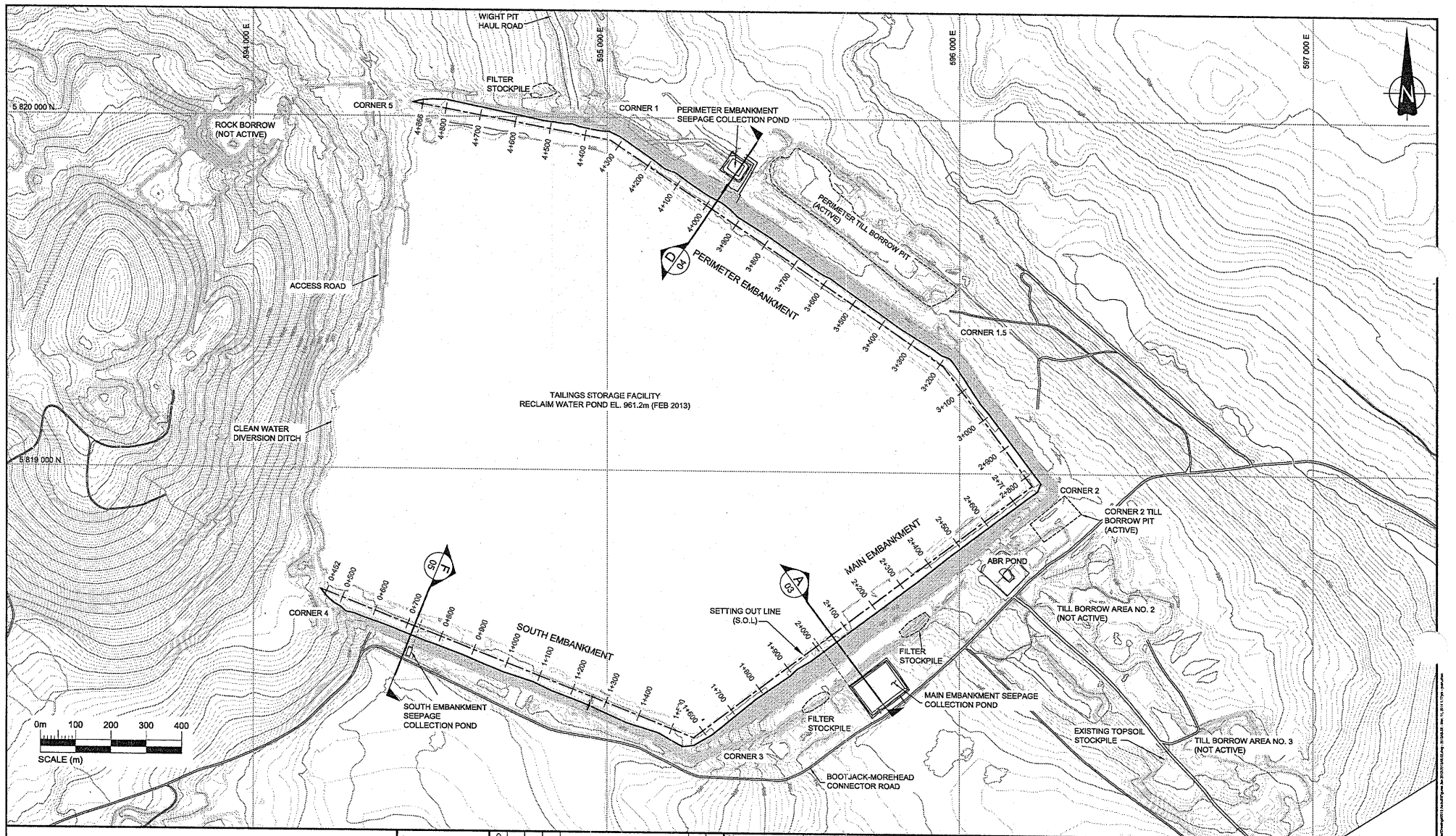
Reviewed by:

Dmitri Ostritchenko, EIT.
Geotechnical Engineer

Andrew Witte, M.Eng., P.Eng.
Senior Geotechnical Engineer

Steve Rice, P.Eng.
Principal Engineer

Attachments:
Drawing 2013AB.02
Photos 1 to 6
Photos 7 to 12



NOTES:

1. TOPOGRAPHY BASED ON OCTOBER 2013 FLYOVER DATA PROVIDED BY MPMC.

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
2	20	02	2014	ISSUED FOR 2013 AS-BUILT/ANNUAL REPORT	LW	SR
1	30	03	2013	ISSUED FOR 2012 AS-BUILT REPORT	LW	SR

Client Logo:

Client:
MOUNT POLLEY MINING CORPORATION

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DATUM:	NAD 83
PROJECTION:	UTM ZONE 10
DRAWN BY:	YC
REVIEWED BY:	SR
ORIGINAL SCALE:	AS SHOWN

PROJECT:
MOUNT POLLEY MINE TAILINGS STORAGE FACILITY
2013 AS-BUILT/ANNUAL REVIEW REPORT

TITLE:
AS-BUILT PLAN VIEW

PROJECT NO.:	VM00560C
REVISION NO.	1
DATE:	FEBRUARY 2014
DRAWING NO.:	2013AB.02
SHEET NO.:	1 of 1

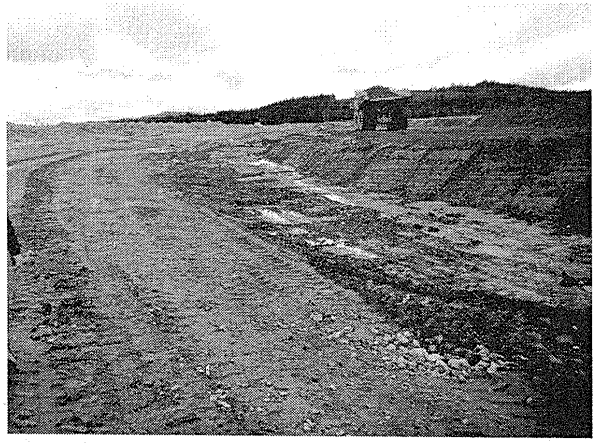

Photo 1: Corner 3, May 26

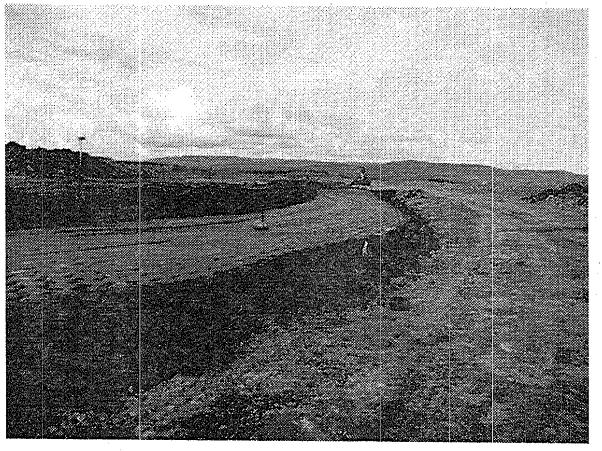

Photo 2: Corner 3, end of day May 27

Photo 3: Standing water over the core at perimeter pipe crossing on May 27th

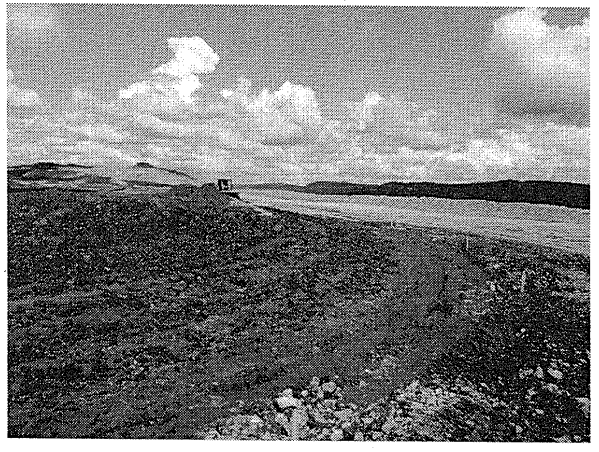

Photo 4: Corner 2, May 28 prior to core construction

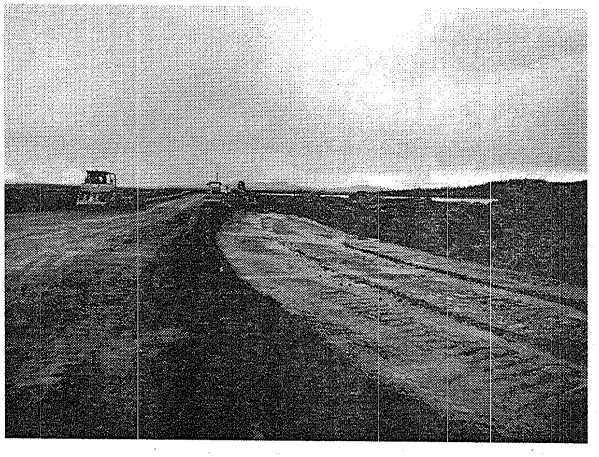

Photo 5: Corner 2, May 28 end of day

Photo 6: Till compaction at perimeter pipe crossing on May 28th

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Mt. Polley TSF

DATE PREPARED: 30 May 2014

SCALE: NTS

PREPARED BY: Dmitri Ostritchenko

PROJECT No: KX05414

Photos 1 to 6

Taken: 26 through 28 May 2014

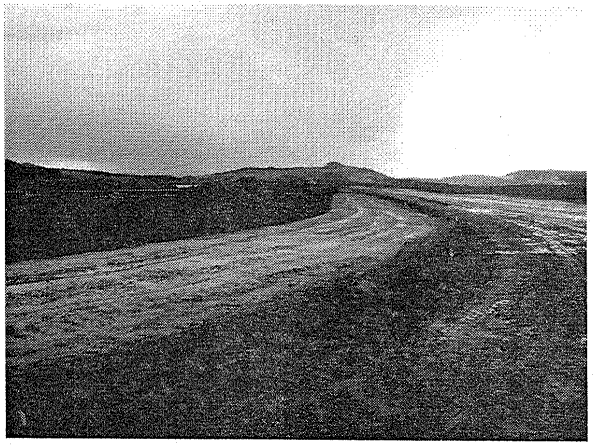

Photo 7: Corner 3, May 28

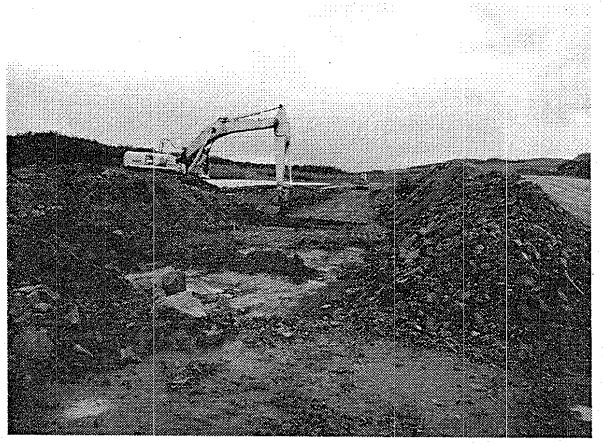

Photo 8: Establishing a temporary berm at perimeter pipe crossing due to weather on May 28

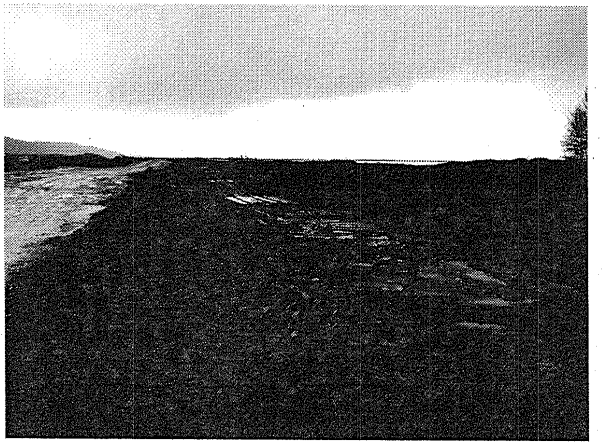

Photo 9: Corner 5, May 28

Photo 10: Perimeter pipe crossing, prior to construction on May 29

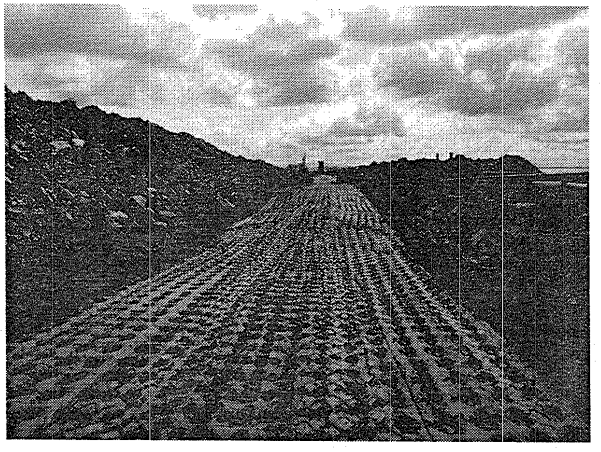

Photo 11: Perimeter pipe crossing construction on May 29

Photo 12: Corner 3, May 29

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Mt. Polley TSF

DATE PREPARED: 30 May 2014

SCALE: NTS

PREPARED BY: Dmitri Ostritchenko

PROJECT No: KX05414

Photos 7 to 12

Taken: 28 through 29 May 2014