MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION REPORT

Submitted to:

Nyrstar Myra Falls Ltd.
Campbell River, BC

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited
Nanaimo, BC

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EXECUTIVE SUMMARY

This document provides a Dam Safety Inspection (DSI) report from the fourth quarter of 2014 to the end of 2015 for the tailings disposal facilities (TDFs) at Nyrstar Myra Falls Ltd. (NMF) Myra Falls mine. The TDFs at NMF comprise the original or “Old” TDF and the Lynx TDF. This report also summarizes the activities related to the mine site’s surface water management system.

This report has been prepared by Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) in accordance with the requirements of the British Columbia Ministry of Energy and Mines (MEM), including MEM’s “Guidelines for Annual Dam Safety Inspection Reports”, dated August 2013 (MEM 2013).

The following list provides the information to be included in the executive summary as required by the MEM Guidelines.

a) Classification of the dam(s) in terms of Consequence of Failure in accordance with Table 2-1 of the CDA Dam Safety Guidelines (2007)

The Old TDF and the Lynx TDF are both classified as “high” hazard dams. The classification is primarily due to the potential environmental consequences associated with a massive release of tailings, which are interpreted to constitute a “significant loss or deterioration of important fish habitat”.

Further details are available in Sections 2.4.2 and 2.5.2.

b) Significant changes in instrumentation and/or visual monitoring records

Visual inspections of both TDFs were carried out weekly by NMF personnel and monthly by Amec Foster Wheeler’s personnel. Visual monitoring indicates that the Lynx TDF continues to perform satisfactorily. Deficiencies have been noted in the water management, surface erosion, and seepage conditions at the Old TDF and construction projects are underway in order to upgrade to current recommended standards.

Additional details regarding visual inspections are in Section 6.0.

Piezometer readings for the Old TDF were similar to previous years with some piezometers exceeding the Level I and II thresholds in response to wetter climatic conditions in the fall and winter. The Level III thresholds were exceeded at several locations as a result of the storm event of 8-12 December 2014. The piezometer thresholds remained unchanged from the previous year.

Additional vibrating wire piezometers were installed in Lynx TDF and the Paste Berm.

A new network of surface survey monuments were installed along all embankment crests in both of the TDFs in December 2014 and have been surveyed at least once per every two months since then. No significant displacements have been recorded to date. A full review of displacements is presented in Sections 7.1.2 and 7.2.2.

Slope inclinometers were installed in both facilities, one in Lynx TDF and three in the Old TDF. One of the inclinometers in the Old TDF was destroyed in construction before any useful information was obtained. The other two were initialized in 2015 and the next scheduled reading was in March 2016, but prior to this reporting period. The inclinometer in Lynx TDF was not initialized in 2015.

Additional details with respect to instrumentation are in Section 7.0.

c) Significant changes to dam stability and/or surface water control

The Lower Lynx Diversion Ditch was upgraded to pass the inflow design flood (IDF) between Station 0+000 and 0+225 in Q4-2014. Upgrade of the rest of the diversion from Station 0+225 to 0+975 was initiated in 2015 and is planned for completion in 2016. Additional details can be found in Section 5.1.3.

Upgrade of water management structures for the Old TDF was initiated in 2015 as the Decants and Spillways project. The upgrades will improve the operational water management of the facility to pass all flows less than 1/1000 annual exceedance probability to the treatment system, and provide emergency flood routing capable of conveying the IDF to spillways for all areas. Additional details can be found in Section 5.2.

d) For major impoundments, as described in Part 10 of the Code, a current Operation, Maintenance and Surveillance (OMS) Manual is required. The annual report shall indicate the latest revision date of the OMS Manual.

The OMS Manual (Nyrstar Myra Falls 2014) was last updated on 29 June 2015 and the next revision is scheduled for June 2016.

e) For tailings dams classified as High, Very High, or Extreme Consequence, an Emergency Preparedness Plan (EPP) is required. The annual report shall indicate the latest revision date of the EPP document.

The EPP document was last updated on 30 June 2015. Some sections are currently being revised by NMF’s Health & Safety department with a full revision scheduled for completion in September 2016. The EPP can be found in Section 6 of the OMS Manual.

f) Scheduled date for the next formal Dam Safety Review (DSR) in accordance with Table 5-1 of the CDA Dam Safety Guidelines (2007):

NMF has retained a third party to conduct a formal DSR of both tailings facilities during 2016. The review is slated to occur the week of 27 June 2016.

Summary of Instrumentation

The assessment of the performance of the Old TDF and Lynx TDF included monitoring of pore water pressures, survey of surface monuments for movement, and monitoring of slope inclinometers for internal deformation. New piezometers were installed and slope inclinometer casings were installed for the first time in 2015 at both tailings facilities. Slope inclinometers at the Old TDF were initially surveyed in July 2015 with the first subsequent reading scheduled for March 2016. Several piezometers were connected to an automated instrument logging system in 2015 and the instrumentation automation work was completed in early March 2016.

Piezometer levels generally followed precipitation trends through the fall and winter months of 2014 and 2015 and dropped significantly during the spring and summer of 2015. The highest groundwater levels were observed in midst of the wet season of 2014 with several peaks marking significant precipitation events.

Piezometers in Lynx TDF dam fill remained dry throughout the reporting period and those in the shallow foundation remained relatively stable and more or less affected by seasonal precipitation trends. After the interruption of tailings deposition in June 2015 and throughout the dry season, the pore pressures in Lynx TDF paste tailings dropped to levels lower than in previous years.

Piezometers at the Old TDF recorded pore pressures trends generally consistent with previous annual records but reached higher levels during the 8-10 December 2014 rainfall event, which approximately corresponded to a 24-hour 1/50 year rainfall event. Alert thresholds were exceeded below the Paste Berm foundation and critical water levels were observed in the Strip causing some internal erosion damage at the edge of the OEB or former tailings beach. Most piezometers also showed high levels in early February, end of March, and early December 2015 in response to high rainfall but reached comparatively lower levels than those attained in December 2014.

In Q4-2014, new surface deformation monuments were installed at the Lynx and Old TDFs. Since the time of installation and throughout the reporting period, total settlements and lateral displacements at most locations remained small. Some monuments along the upstream side of Lynx dam south arm showed slight displacements associated with local settlement of the upstream dam shell before July 2015 but no additional displacements were observed thereafter.

Summary of Construction

In 2014, construction on Lynx TDF consisted of raising Lynx Dam to El. 3404.3 m and building the Springs Drain from the “capture zone” where bedrock springs are intercepted to beyond the limits of the dam raise. The dam raise was most complete by mid-September and the works were all completed in November 2014.

In 2015, construction activities mainly consisted foundation preparation activities at the base of Lynx Dam’s south arm. In the fall, the construction of the Old TDF Surge Pond and Decant Pipeline begun as part of the Decants and Spillway project, and a portion of access road along the Lower Lynx Diversion Ditch was shaped for the ditch upgrade project.

The Lower Lynx Diversion Ditch upgrade project was halted in November as construction quality control requirements could not be achieved in the wet weather. Moreover, the Decants and Spillway project that had started later ran into similar issues. Because it could not be finished before the winter, an interim water management system was designed by Amec Foster Wheeler to convey the 1:200 AEP flood, and components of that system were built and set up to make the facility safe until the 2016 construction season.

Summary of Recommendations

In addition to the recommendations already outlined in the 2014-Q3 Dam Inspection Report that are still outstanding, Amec Foster Wheeler is making the following recommendations with respect to the operations, maintenance, and surveillance of the Lynx and Old TDF dams and associated structures based on engineering work carried out between Q3-2014 and the end of 2015 (refer to Table 8 and 9 for additional details):

- Where possible, adopt updated design criteria derived from CDA guidelines and MEM/MOE requirements:
    - at the Lynx TDF, adopting these criteria would translate into design implications such as the need to develop additional storage capacity outside of the primary tailings facility impoundment in future dam raise designs; and,
    - at the Old TDF, these criteria were formally adopted in a permit amendment in regards to Lower Lynx Diversion Ditch and Old TDF Decants and Spillways upgrade projects.
- Continue to use 1.2 t/m³ (dry) for cyclone overflow paste tailings for tailings storage density for planning purposes;
- Reslope the flat bench of the TDF Seismic Upgrade Berm to 2% crossfall to mitigate standing water on the berm;
- Install freeboard indicators in the east and west Strip and Old TDF Surge Pond;
- Survey slope inclinometer casing profiles annually, before and after construction, and after significant earthquakes; and
- Revise piezometer alarm thresholds for the Old TDF based on the stability assessments that are currently underway.

One outstanding recommendation of particular note is investigation of the stability and seepage conditions and design remedial drainage and/or buttressing for the APA Paste Berm. The investigation was completed in 2015 but the design was delayed by the need to incorporate results from the Old TDF glaciolacustrine investigation and stability assessment. This also deferred planning and execution of the Old TDF closure works. The Paste Berm Stabilization design is proposed for 2016.

Improvements were required at the Old TDF decants to allow the structures to perform as intended both from a hydraulic capacity and sedimentation standpoint. The Decants and Spillways construction project initiated in 2015 aims at re-establishing both functions and is scheduled for completion in 2016.

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IMPORTANT NOTICE

This report was prepared exclusively for Nyrstar Myra Falls Ltd. by Amec Foster Wheeler Environment & Infrastructure. The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in Amec Foster Wheeler services and based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions and qualifications set forth in this report. This report is intended to be used by Nyrstar Myra Falls Ltd. only, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

1.0 INTRODUCTION

This document provides the 2015 Dam Safety Inspection (DSI) Report, which presents a summary of the operation, maintenance, and surveillance of the Tailings Disposal Facilities (TDFs) for Myra Falls Mine (the mine), operated by Nyrstar Myra Falls Ltd. (NMF). These facilities comprise the Old TDF and the Lynx TDF. For details regarding the construction on the TDFs, refer to the 2014 and 2015 construction reports (Amec Foster Wheeler 2015d and 2016e). The location of the mine is shown on Drawing 010501.

1.1 Scope of Report

Typical reporting requirements for annual DSI reports require that the report addresses the calendar year and be submitted no later than 31 March of the following year. The 2014 DSI report was prepared in accordance with a special order dated August 2014 by the Chief Inspector's that all mines with permitted tailings facilities submit a DSI report by 01 December 2014. The scope of the 2014 DSI report was therefore based on instrumentation and climate data only up to 31 September 2014. That report also discussed ongoing construction and occurrences from October 2014.

Since the last year's DSI report did not cover the fourth quarter of 2014, the scope of this report has been extended back to 1 October 2014. The period spanning 1 October 2014 through 31 December 2015 is referred to as the "reporting period" in this report.

Construction activities undertaken in 2015 for both the Old TDF and Lynx TDF will be documented under separate cover as an as-built construction report (Amec Foster Wheeler 2016e), as in previous years. This report is scheduled for issue by 31 March 2015.

1.2 Annual Reporting Requirements

This report has been prepared in accordance with the requirements of the British Columbia Ministry of Energy and Mines (MEM), including MEM's "Guidelines for Annual Dam Safety Inspection Reports", dated August 2013 (MEM, 2013).

For the reader's convenience the numbered items required by the guidelines can be found in the following sections of this report:

1. Executive summary – precedes the table of contents
2. Summary of construction activities – Section 7.0
3. Plan and representative cross sections – drawings appended to the end of the report
4. Site Photographs – in Appendix A and in Appendix E
5. Review of Climate Data – Section 3.0

6. Water balance review – Section 5.0
7. Freeboard and storage availability (in excess of the design flood) – Section 4.0
8. Water discharge system, quantities, and volume – Section 5.0 and the Annual 2015 Effluent Report under Effluent Permit PE-06858 submitted to the Ministry of Environment (MoE) (NMF 2016b)
9. Seepage occurrence and water quality – Section 5.0 and the 2015 Annual Reclamation Report under M-26 submitted to MEM (NMF 2015, 2016a)
10. Instrumentation Review – Section 7.0 and in Appendix B.

2.0 BACKGROUND AND FACILITY DESIGN

2.1 Site Coordinate System

Myra Falls mine maintains a local grid coordinate system. Grid north is on a bearing of approximately 48° relative to true north, and elevations are adjusted upwards by 3047.5 m so that all values remain positive to the bottom of the underground mine. Mine grid distances are in metres. Mine grid is shown where appropriate on the drawings accompanying this report.

All references to northing, easting, and elevation in this report are referenced to the local mine system, unless otherwise noted. Azimuth directions given in descriptions in the text are generally with respect to true north.

2.2 Historical Development

Prospecting began in the early 1900s, with the first industrial mine production in the 1960s with the development of the Lynx open pit. Most surface mining operations concluded around 1975, after which the underground development of the Lynx and H-W ore bodies commenced. During this period, the cyclone segregated sand fraction of the tailings was used as backfill in decommissioned underground workings, and the fine fraction of the tailings was deposited directly in the south end of Buttle Lake.

In the early 1980s the provincial government prohibited further tailings deposition to Buttle Lake due to concerns over water quality, which required the design and construction of the Old TDF. The Old TDF operated as the primary tailings facility between 1984 and 2008, with final deposition in 2009.

The Lynx TDF was designed in the old Lynx pit area as the Old TDF neared its ultimate design life. The Lynx TDF first received tailings in 2008 and is currently the active tailings disposal facility on site.

Additional details on the design and operation of each facility are presented below.

2.3 Updated Seismic Hazard Assessment

Amec Foster Wheeler (2016a) carried out an updated seismic hazard assessment in 2015 and developed a new uniform hazard response spectra for the mine site. The study was prompted by the need to update the historic hazard spectra in light of improved understanding of subduction earthquakes since the previous site specific study, which was carried out in 1999 (Klohn-Crippen 1999). Various hazard assessment levels for the site are summarized in Table 1, including comparison to the levels determined by the National Building Code of Canada (NBCC) earthquake hazard calculator for various years (Natural Resources Canada 2016a, b and c):

Table 1: Comparison of Seismic Hazard Assessments

Annual Exceedance Probability	**Firm-Ground Peak Ground Acceleration (g)**				
	Klohn 1999	**NBCC 2005**	**NBCC 2010**	**NBCC 2015**	**Amec Foster Wheeler 2015**
1/475	0.20	0.18	0.18	0.18	0.22
1/975 or 1/1000	50% of MCE*	-	0.22	0.29	0.35
1/2475		0.34	0.34	0.44	0.55
MCE* or 1/10000	0.60	-	-	-	0.71

*MCE is the Maximum Credible Earthquake. The CDA Guidelines accept a 1/10000 AEP as equivalent to the MCE.

Key differences in past models is that the NBCC 2015 and Amec Foster Wheeler 2015 studies include the probabilistic component of the Cascadia Subduction Event, where previous studies only included it in deterministic assessment. The Amec Foster Wheeler study predicts that the Cascadia Subduction Event provides by far the largest contribution to probabilistic hazard at the site at moderate to low annual exceedance probabilities (medium to long return periods) and is effectively the design event for the site.

2.4 Old TDF

2.4.1 Summary

The Old TDF was designed by Knight Piésold Ltd. as a modified-centerline (upstream) constructed tailings retention facility in the early 1980s. Conventional cyclone overflow tailings in the Old TDF were hydraulically placed from the outer embankment berm (OEB), which was raised periodically by filling with till and waste rock on top of the upstream side of the previous berm and over the edge of the uncompacted tailings beach, achieving an overall dam slope of about 4H:1V. The Old TDF included two primary deposition cells: Area I and Area II.

Further investigations and stability analysis in the mid-1990s by Knight Piésold Ltd. and Klohn-Crippen Consultants Ltd. (Klohn) determined that the tailings had a high susceptibility to liquefaction, and therefore the Old TDF had a high probability of failure during strong seismic ground motion. Klohn was retained to design a seismic upgrade of the Old TDF and assume the role of geotechnical engineering consultant for the tailings facility.

In the early 2000s it was determined that the Old TDF had reached its practical elevation limit with respect to overall post-seismic slope stability. Klohn designed a new berm constructed on the tailings surface at a setback from the OEB, and created two new cells for tailings deposition. The mine constructed a Paste Plant to produce thickened paste soon after the construction of the new cells. The two cells were combined to form the Amalgamated Paste Area (APA), and the perimeter cell berm was designated the Paste Berm.

The Paste Berm was also designed by Klohn and is constructed primarily of well-graded waste rock, with some coarse tailings sand inclusion near the toe on the upstream side. The Paste Berm design criteria allowed for large post-seismic deformations, provided any mobile material was retained within the OEB (Klohn, 2001a).

Amec Foster Wheeler[1] assumed the role of geotechnical engineering consultant for the tailings facilities in 2006. A conceptual design upgrade of the Paste Berm to withstand the design seismic ground motions was prepared by AMEC in 2011 and included in the conceptual closure plan (NMF 2012). Engineering analysis to refine the stabilization plan is proposed for 2016.

The Old TDF underwent a formal DSR in 2013 by Robertson GeoConsultants Inc. (RGC). RGC concluded the following:

> *“We do not believe, however, that is [sic] would be correct to say that the Old TDF is “reasonably safe” or that it conforms to established dam safety management practices. As noted in this report, we believe that the closure works are needed to bring the Old TDF into a condition where it may be considered to be reasonably safe. Pending completion of closure works, there are risks that we do not consider it reasonable to tolerate.”*

The primary rationale for this conclusion is understood to stem from the difference between the magnitude of the IDF used in the original design of the diversion ditch (1/200 AEP event) and spillway structure (1/1000 AEP event) and the magnitude of IDF recommended in Table 6-1 of the CDA Guidelines for a dam with a “HIGH” consequence of failure, which is 1/3 between the 1/1000 AEP and Probable Maximum Flood. For a full discussion of the rationale behind this conclusion, refer to the Old TDF Dam Safety Review report (RGC, 2014a).

In response to the findings of the DSR, MEM issued a number of orders in August 2014 with respect to the Old TDF. These included completion of an updated formal Dam Breach Inundation study, which was completed in December 2014 (Amec Foster Wheeler 2015a), and upgrades to the diversion system to be designed and carried out by 31 December 2014. These upgrades were in progress as of the end of 2015, as detailed further in Section 8.2.2.2.

2.4.2 Dam Classification

The Old TDF is classified as having a “HIGH” consequence rating relative to criteria outlined in the CDA Guidelines, based primarily on the significant environmental impacts that would result from a hypothetical failure of the facility. During the 2013 DSR, RGC concluded that it was reasonable and prudent to maintain the “HIGH” hazard classification for the Old TDF (RGC 2014a). The consequence rating was most recently confirmed by Nyrstar upon the completion of the dam breach inundation study (Amec Foster Wheeler 2015a).

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[1] Through predecessor companies: AMEC Earth & Environmental from 2006-2011 and AMEC Environment & Infrastructure from 2011 to 2014, each respectively a Division of AMEC Americas Limited.

2.4.3 Key Design Criteria

Key design criteria for the Old TDF are summarized in Table 2:

Table 2: Old TDF Design Criteria

Aspect	Original Design Criteria	Recommended Updated Criteria[2]
Environmental Design Flood	Based on 24-hour storm event Assume diversion functions 1/200 AEP, 24-hour storm event	Based on 24-hour storm event Assume diversion functions 1/200 AEP, 24-hour storm event
Inflow Design Flood	Based on 24-hour storm event Assume diversion failure Operations and Closure: 1/1000 AEP, 24-hour storm event	Based on 24-hour storm event Applies to both diversions and impoundment Operations, Transition, Active Closure[3]: 1/3 between 1/1000 AEP and PMF Passive Closure: 2/3 between 1/1000 AEP and PMF
Flood storage and freeboard	Operations: Dry in normal conditions Flood attenuation through storage Spillway flow if diversion ditch breaches Spillway flow if EDF exceeded Minimum 0.5 m freeboard Closure: Dry cover, no flood storage or freeboard	Operations, Transition: Dry in normal conditions Minimize water storage Spillway flow if EDF exceeded Minimum 1.0 m freeboard up to IDF Active and Passive Closure: Dry cover, no flood storage or freeboard
Dam Stability (static)	Short term or temporary: FoS ≥ 1.3 Long term, steady state: FoS ≥ 1.5	Short term or temporary: FoS ≥ 1.3 Long term, steady state: FoS ≥ 1.5
Dam stability (seismic)	Operations and Closure: Based on 50% of the Maximum Credible Earthquake, PGA = 0.30 g M7.5 intraplate earthquake Post-seismic FoS ≥ 1.1 FoS ≥ 1.25 through the toe drain. (FoS: Factor of Safety)	Operations, Transition, Active Closure[3]: 1/2475 AEP, 0.55 g, M9.0 subduction earthquake Passive Closure: 1/2 between 1/2475 and 1/10000 AEP, 0.63 g M9.0 subduction earthquake FoS ≥ 1.2, post-earthquake

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[2] Updated criteria are derived from the updated CDA Guidelines and Mining Dams Supplement (CDA 2007, 2014), revised MEM requirements for 1.0 m minimum freeboard, MoE requirements for the EDF magnitude, and the updated seismic hazard assessment (Amec Foster Wheeler 2016a). Assessment of the existing and closure configurations under the recommended design criteria is ongoing.

[3] CDA Mining Dams Supplement (CDA 2014) implies that the higher “Closure - Passive Care” standards might be applied where it is anticipated that the “Closure - Active Care” configuration is expected to last decades or centuries if there are not sufficient resources on hand to address emergencies stemming from extreme floods or major earthquakes.

Of the recommended updated criteria noted above, the hydrological criteria for Operations, Transition and Active Closure were formally adopted in a permit amendment dated 26 June 2015, in regards to upgrade of the Lower Lynx Diversion Ditch and Old TDF Decants and Spillways project. These projects are scheduled for completion in 2016.

The updated seismic design criteria noted above have not yet been adopted, but are being considered in ongoing engineering analysis to investigate the stability of the facility relative to new information regarding subsurface conditions, the updated seismic design criteria, and the updated seismic hazard assessment.

2.5 Lynx TDF

2.5.1 Summary

The Lynx TDF is retained by the by a roughly C-shaped, centerline constructed, rock fill embankment dam across the low side of the Lynx open pit, with its base at a minimum of about El. 3373 m. The dam has been raised four times, most recently in 2014, and the current crest is at El. 3404.3 m. During each raise, the centreline is fixed and the downstream toe extends further from centreline. The ultimate design crest height is El. 3430 m. The south and west sides of the embankment are 2H:1V and the east side is 4H:1V. The upstream slope is 1.5H:1V. The embankment has a relatively wide crest, at a total width of 16 m.

The most recent update to the Lynx TDF design can be found in the 2015 stability assessment and design report (Amec Foster Wheeler 2015e), with prior design details additionally found in Klohn (2001b), AMEC (2008b, 2010a, b, c, 2011a, b, and 2013).

The Lynx TDF was subject to a formal Dam Safety Review by RGC in 2013. RGC concluded (RGC, 2014b):

> *"Recent drilling and sampling near the Lynx TDF indicate that foundation conditions may vary from those assumed in the design. It is recommended that the new information be considered and embankment stability analyses updated. Pending confirmation of the fact that the embankment is stable for the recently characterized foundation conditions, it is not possible to make a conclusion as to whether or not the Lynx TDF is "reasonably safe," and conforms to established dam safety management practices."*

For a full discussion of the rationale behind this conclusion, the reader is referred to the Lynx TDF Dam Safety Review report (RGC, 2014b). A stability assessment intended to address this statement was completed in 2015 (Amec Foster Wheeler 2015e), as further discussed in Section 2.5.3, below. The conclusion of that assessment is that the embankment is stable.

2.5.2 Dam Classification

The Lynx TDF is classified as having a "HIGH" consequence rating relative to criteria outlined in the CDA Guidelines, based primarily on the significant environmental impacts that would result from a hypothetical failure of the facility. During the 2013 DSR, RGC concluded that it was reasonable and prudent to maintain the "HIGH" hazard classification for the Lynx TDF (RGC 2014a). The consequence rating for the current and ultimate configurations were reassessed upon the completion of the dam breach inundation study (Amec Foster Wheeler 2015a), and it was concluded that the existing classifications were appropriate.

2.5.3 Key Design Criteria

Key design criteria for the Lynx TDF are summarized in Table 3:

Table 3: Lynx TDF Design Criteria

Aspect	Original Design Criteria	Recommended Updated Criteria[4]
Environmental Design Flood	Based on 24-hour storm event Assume diversion functions 1/200 AEP, 24-hour storm event	Based on 24-hour storm event Assume diversion fails 1/200 AEP, 24-hour storm event 300,000 m^3 total volume
Inflow Design Flood	Based on 24-hour storm event Assume diversions function effectively Operations: 1/1000 AEP 78,000 m^3 total volume Closure: PMF	Based on 24-hour storm event Assume diversions fail Operations, Transition, Active Closure[5]: 1/3 between 1/1000 AEP and PMF Passive Closure: 2/3 between 1/1000 AEP and PMF
Flood storage and freeboard	Operations: Maximum 1 m water against dam crest in normal conditions Store IDF Minimum 0.5 m freeboard No spillway Closure: Not designed, presumed dry cover and spillway	Operations, Transition: Minimize water against dam crest in normal conditions Store EDF Minimum 1.0 m freeboard Spillway required to route IDF. Active and Passive Closure: Minimize storage, clean water spillway.
Dam Stability (static)	Short term or temporary: FoS ≥ 1.3 Long term, steady state: FoS ≥ 1.5	Short term or temporary: FoS ≥ 1.3 Long term, steady state: FoS ≥ 1.5
Dam stability (seismic)	Operations and Closure: Based on 100% of the Maximum Credible Earthquake, PGA = 0.60 g M7.5 intraplate earthquake Post-seismic FoS ≥ 1.3	Operations, Transition, Active Closure[5]: 1/2475 AEP, 0.55 g, M9.0 subduction earthquake Passive Closure: 1/2 between 1/2475 and 1/10000 AEP, 0.63 g M9.0 subduction earthquake FoS ≥ 1.2, post-earthquake

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[4] Updated criteria are derived from the updated CDA Guidelines and Mining Dams Supplement (CDA 2007, 2014), revised MEM requirements for 1.0 m minimum freeboard, MoE requirements for the EDF magnitude, and the updated seismic hazard assessment (Amec Foster Wheeler 2016a).

[5] CDA Mining Dams Supplement (CDA 2014) implies that the higher "Closure - Passive Care" standards might be applied where it is anticipated that the "Closure - Active Care" configuration is expected to last decades or centuries

Amec Foster Wheeler (2015e) presents an updated stability assessment for the current condition and a proposed dam raise to 3410 m. The study included new information on subsurface stratigraphy and material properties obtained in the 2014 drill program and 2015 supplementary drilling program (Amec Foster Wheeler 2015c and 2016b). The report concluded that the configuration meets the updated static and seismic design criteria. Currently proposed engineering work on the Lynx TDF includes extension of the assessment to include the ultimate design envelope with crest elevation at El. 3430 m.

Future engineering tasks include a review of IDF and EDF storage routing and their implications to design, with appropriate measures to be implemented in future raise construction. It is anticipated that up to about 200,000 m³ of the recommended preliminary EDF storage requirement may need to be outside the primary tailings facility impoundment due to practical limitations on the constructible height of the upstream slope, which overlies tailings. Alternatively, measures to improve the reliability of the upslope diversion may be investigated, which could potentially reduce the volume associated with the EDF, but given the steep terrain above the facility, the degree to which the upstream diversions can be reliably constructed may be limited.

3.0 CLIMATIC REVIEW

The climate in the Myra Falls area is classified as Marine West Coast, based on the Köppen Climate Classification System (Government of Canada, 1957) and weather patterns are typical of the coastal regions of British Columbia. The climate at Myra Falls is characterized by a cool, wet season starting in September and extending until May and a warm, dry season starting in May and extending to September. Most winters are temperate in that they do not have prolonged periods of sub-zero temperatures. Most of the annual precipitation at the mine site falls in the wet season as rain, with occasional snow during the winter months. Snow is common at higher elevations between mid-fall and late spring, and so the hydrology of the surrounding natural streams typically includes a significant spring runoff component, usually peaking in late May to late June.

There are two weather stations at the mine site. One is located at the power house between the mill and Lynx TDF, and the other is located near the Paste Plant. The power house station manually collects daily precipitation and temperature data. The Paste Plant station automatically collects hourly precipitation, humidity, temperature, and wind data.

In previous years, annual weather data reviews have been based on data from the power house station. However, manual daily readings at this station were not consistently taken throughout the year partly due to altered employee tasks, and close to 35 % of the data are missing with the greater part during the wet season (80 days missing in Q4-2015). Therefore, the Paste Plant station data were used for 2015 and compared to previous year statistics below.

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if there are not sufficient resources on hand to address emergencies stemming from extreme floods or major earthquakes.

3.1 Precipitation

Monthly precipitation and extremes are presented in Figure 1. Monthly variations in precipitation and temperature are given in Table 4 and Table 5. Incomplete monthly precipitation values at the power house weather station are included in Table 4 for comparison purposes only, i.e., they are not accounted for in the statistics. Based on complete yearly precipitation totals from 1979 to 2015, the site has an average annual precipitation of 2,499 mm.

Yearly precipitation totals are summarized on Figure 2. Complete monthly precipitation records and statistics are found in Appendix B.

Figure 1: Monthly Paste Plant Weather Station Precipitation Data

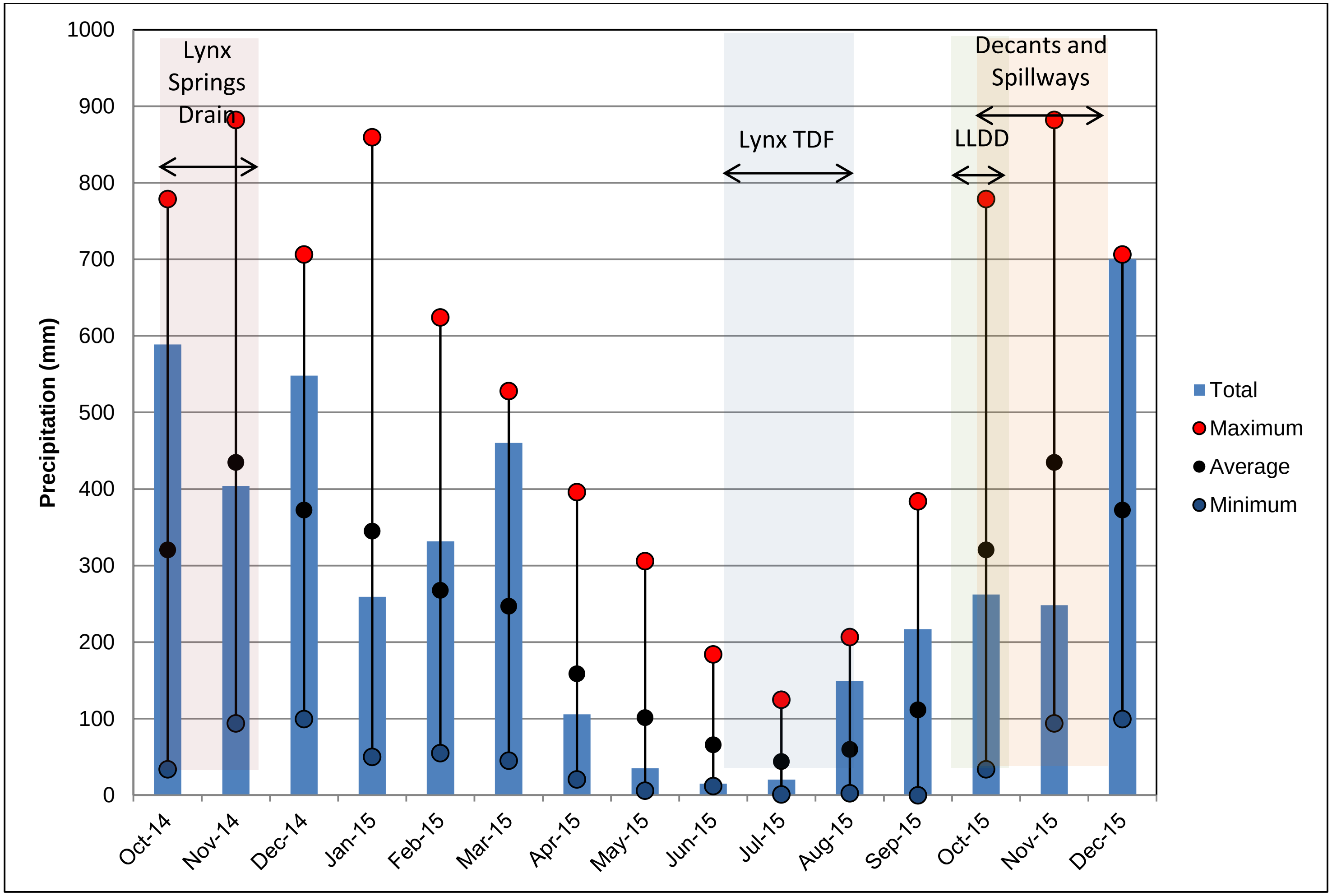
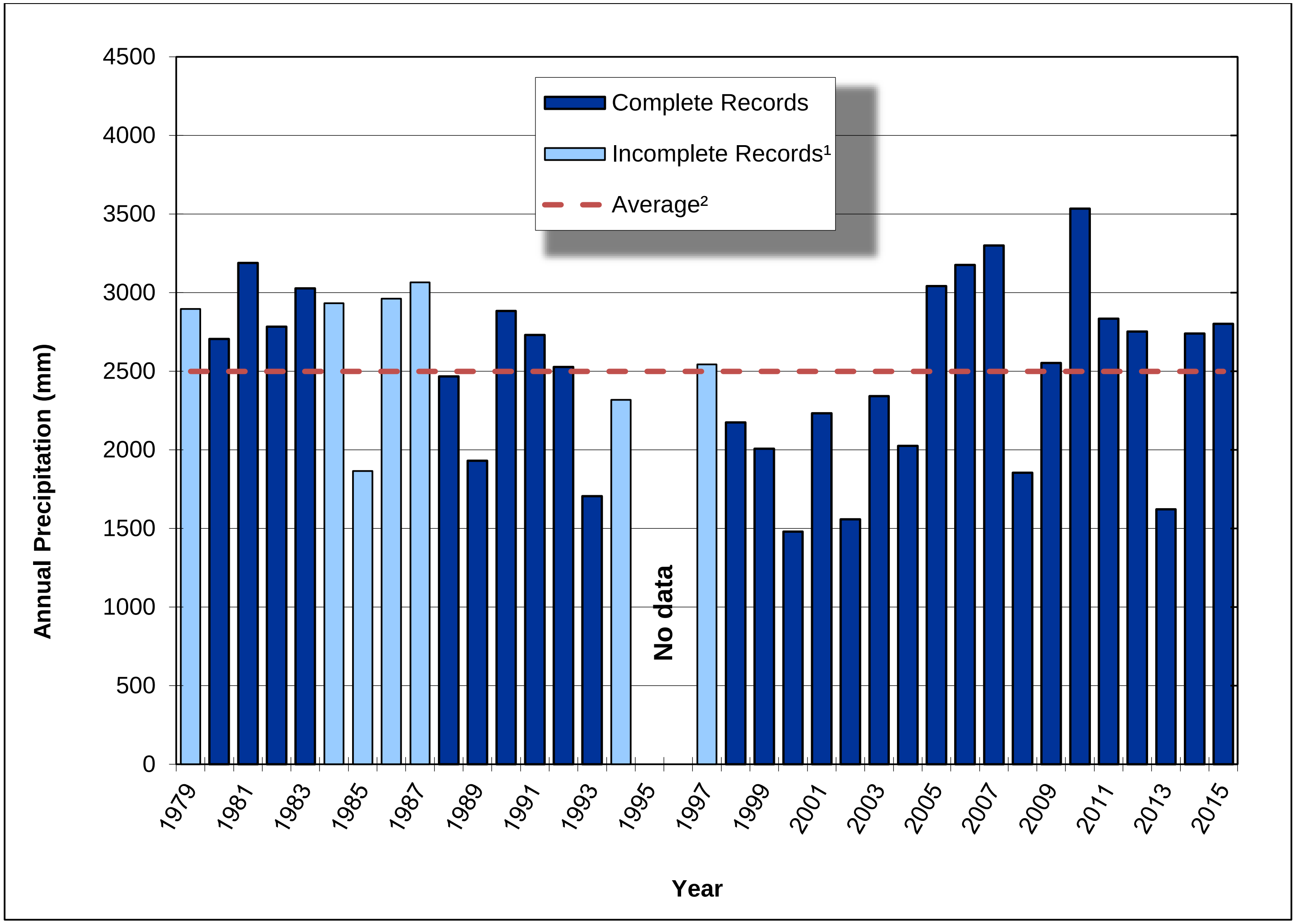


Figure 2: Annual Total Precipitation 1979-2015



[1] For years with incomplete records, the average monthly rainfall from years with complete records have been used to fill gaps (precipitation data for the power house station between 1979 to 2014 and for the Paste Plant station from 2015 and onwards).

[2] Average annual precipitation is based only on years with complete records.

Table 4: Monthly Precipitation

Month	**Precipitation (mm)**			
	Average[1]	**2014**	**2015 (Paste Plant)**	**2015 (Power House)**
January	345		259	*276*
February	268		332	*437*
March	247		460	*473*
April	159		105	*108*
May	102		35	*48*
June	66		15	*17*
July	44		20	*23**
August	60		149	*153**
September	111		217	*212**
October	321	589	262	*Not Available*
November	435	404	248	*93**
December	373	548	700	*Not Available*
Total	**2499**	**2740**	**2803**	***1840****

[1] Precipitation data obtained from NMF (average based precipitation data for the power house station from 1979 to 2014 and for the Paste Plant station from 2015 and onwards).

* Partial totals from power house station data.

3.2 Temperature

The 2014-2015 winter was warm with most precipitation falling in the form of rain. The winter months had above average precipitation levels with the exception of January 2015. On the contrary, with the exception of August and September, the summer and fall months of 2015 were drier than average. Total precipitation for 2015 was comparable to the average total yearly precipitation over the 1979 to 2015 period.

Monthly minimum temperatures in 2015 were warmer than the minimum temperature recorded for each month over the previous period of record from 2006 to 2014. Maximum monthly temperatures were the same or slightly cooler than the maximum monthly temperature recorded over the previous period of record. Although not as cold and not as hot as monthly temperatures recorded in previous years, the temperature change patterns for 2015 were typical for the climate.

Table 5: Monthly Temperatures

Month	Previous Period of Record[1]		Q4-2014 (Paste Plant)		2015 (Paste Plant)	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
January	11.0	-12.0			10.9	-3.9
February	12.0	-12.0			11.9	-1.0
March	19.0	-8.3			14.8	-1.5
April	22.5	-4.0			22.5	0.2
May	31.0	-1.5			27.1	2.6
June	34.0	1.0			33.6	8.2
July	38.9	4.2			34.8	9.9
August	36.0	4.9			33.0	9.8
September	32.0	-1.0			27.5	4.1
October	23.5	-2.0	19.9	2.7	21.0	4.5
November	13.0	-11.0	11.4	-6.1	9.2	-3.3
December	12.8	-13.0	**12.8**	-5.6	9.4	-8.0

[1] Temperature data obtained from Myra Falls site from 2006 to 2014.

4.0 TAILINGS MANAGEMENT

The milling process produces tailings that consist of a well-graded slurry of sand, silt, and clay sized particles, referred to as “whole tails”. The whole tails pumped as a slurry to the paste plant where they are processed via a cyclone plant to produce cyclone underflow (coarser fraction), and cyclone overflow (finer fraction).

The cyclone overflow tailings consists mostly of silt sized particles, with no more than about 2% sand (coarser than 0.075 mm) and up to about 20% clay sized particles (finer than 0.005 mm). The cyclone overflow is pumped to a thickener tank where excess water is removed by gravity settling. A fraction of the thickener underflow is then vacuum filtered to a cake and remixed with the remainder, and the resulting paste tailings are then pumped to the Lynx TDF. During times when the paste plant is not operating (generally due to unforeseen mechanical issues or maintenance shutdowns), the cyclone overflow tailings are discharged directly to Lynx TDF as a slurry. If it is available they are first passed through the thickener, with only the thickener underflow going to the TDF.

Paste tailings have comprised the majority of surface tailings at the mine since 2006. Very little supernatant water bleeds from the paste due to its relatively low initial moisture content and inherently high final settled void ratio (AMEC 2012a). The paste deposition slope forms a cone centred on the discharge location, with a concave slope of approximately 6% at the top diminishing radially to around 3% for most of the paste surface. Distal areas near ponded water have very low gradients, less than 1%.

Increasingly frequent mechanical issues or planned shutdowns in the Paste Plant require discharge of thickener underflow to the Lynx TDF. During these periods, the thickener underflow discharge behaves more like conventional tailings, resulting in negligible surface slope and an increased supernatant pond.

The cyclone underflow tailings include most of the sand sized fraction. The gradation is typically about 35-66% finer than 0.075 mm (i.e. 45% silt and clay sizes, 55% fine to medium sand sizes on average). The cyclone underflow is pumped to the backfill plant for mixing with cement before being sent underground to fill decommissioned stopes. Under normal operating conditions almost all coarse tailings are sent underground.

Prior to June 2015, excess water and cyclone underflow tailings from the backfill plant was pumped to the Reclaim Sands Area (RSA), at the west end of the Old TDF. The RSA was operated as a settling and stockpile area. In the latter half of 2015 the RSA was repurposed into a surge pond as part of the Decants and Spillways project. In the future, excess sand will likely be deposited selectively in Lynx TDF.

Reclaim sand is typically stockpiled until it is recovered at a suitable moisture content for compaction at drier times of the year and used for construction where filtration needs are met by the particle size gradation. For example, reclaim sand is blended with mine waste rock to produce Zone J filter core material for Lynx TDF dam construction.

4.1 Q4-2014 Tailings Production

Total tailings production for Q4-2014 was 76,218 t, bringing the total for 2014 to 397,680 t. This represents a 12.6% production decrease from 454,847 t in 2013. Of the total production, 43% was produced as fine tailings and 57% was produced as coarse tailings. All of the fine tailings deposited after the middle of 2014 have been deposited in Lynx TDF as thickener underflow. No coarse tailings deposition at the RSA was reported in Q4-2014.

4.2 2015 Tailings Production

Milling operations stopped in June 2015 in order to upgrade various infrastructure at the site, including tailings facility water management structures.

Total tailings production for 2015 was 125,071 t, 22,660 t of which was used underground for backfill. NMF was not able to report the fraction of surface tailings that were produced as coarse or fine tailings; historically the split is approximately 45% fine, 55% coarse. Fine tailings were deposited in Lynx TDF as thickener underflow until 8 April 2015, then deposited primarily as paste thereafter. The surface component of coarse tailings were stored in Lynx TDF as a sand beach against the dam.

The RSA did not receive coarse tailings in 2015. Excavation of reclaim sand was undertaken as part of the Old TDF Decants and Spillways project. Coarse tailings were stockpiled on top of Waste Dump 1 near Phillips Reach portal for future use as underground backfill and construction materials. Mixed materials including coarse tailings, fine tailings, and waste rock were excavated from the RSA and deposited in the west side of Lynx TDF, near the west abutment. The total estimated volume of material placed in Lynx TDF during 2015 as part of construction activities is 19,200 m^3.

4.3 Tailings Production Projected For 2016

Myra Falls mine is anticipated to continue under “care and maintenance” status throughout 2016, and with no tailings production.

4.4 Old TDF Tailings Management

The Old TDF is in the post-operation, transition phase of its lifecycle. No significant volume of tailings have been placed in the facility since 2009. The Paste Berm is at its final elevation of approximately 3391.5 m and has not been raised since May 2006. The tailings along the Paste Berm are at the maximum storage level of EL 3389.5 m. Survey data suggests the Paste Berm is relatively static, without significant ongoing settlement or deformation.

The sloping paste surface of the APA continues to be gradually eroded by surface runoff. The lidar survey of July 2015 indicates the gullies are up to about 2 m deep and 6 m wide. The eroded material ultimately collects along the Paste Berm, reducing flood storage of the facility. Occasional ditching is required to maintain surface runoff along the Paste Berm towards the decant in the southwest corner of the APA. Some of the eroded tailings is conveyed by runoff to the decant and enters the treatment system. This results in extra sediment accumulation in the treatment ponds, which necessitates additional dredging and pumping into the Lynx TDF. Addition of sedimentation capacity prior to treatment is one of the goals of the Decants and Spillways project.

4.5 Lynx Tailings Management

Paste tailings are pumped approximately 1 km from the Paste Plant to the Lynx TDF through a 200-mm diameter steel pipeline. The primary paste discharge location is from the Spring Drain Road along the north pit-wall at an elevation of approximately 3401 m, as shown on Drawing 010507. Thickener underflow tailings were discharged in lieu of paste from August 2014 to April 2015. In addition to paste tailings and thickener underflow, coarse tailings overflow from the backfill plant was also sent to Lynx Pit, to build a beach along the south arm of the dam. Past year’s tonnages are reflected in Table 6.

Other contributions to filling the pit include:

- Construction waste (mixed tailings and mine waste from cut areas);
- Sludge from treatment system settling ponds (variable volumes);
- Fines from sump cleanouts (~20 m^3/year).

4.5.1 As-Built Storage

Ongoing monitoring of in-situ paste density is carried out by comparing production tonnages with surveys of the paste surface over the same time period. Volume comparison is carried out using AutoCAD Civil3D. Table 6 provides the paste tailings, reclaim sand, and sludge tonnage estimates, volume changes between surveys, and estimated total overall storage dry density from late 2012 through September 2015. As in previous years, paste surface surveys were completed approximately on a quarterly basis except at the end of 2015, as there was no new tailings produced, and water and snow were covering most of the area.

Based on volume and tonnage values to date, Amec Foster Wheeler recommends using an overall average dry density of 1.2 t/m³ for forward planning purposes. Intensified deposition of thickener underflow tailings and treatment pond dredge material, both of which having densities lower than paste tailings, will lower this value. Future consolidation of the tailings already in the facility may improve the overall density. Quarterly monitoring of the paste surface elevation and placed tonnages will assist in refining the estimate. The 2011 paste investigation concluded that the final settled density could be as high as about 1.4 t/m³, but is unlikely to be significantly denser for cyclone overflow paste (AMEC 2012a).

Table 6: Lynx Overall Storage Dry Density Estimate

Date Range	Paste Tailings	Hauled-in Materials	Sludge	Volume	Dry Density
Oct 2012-Jun 2013	148,300 t	4,800 t	5,500 t	118,900 m³	1.33 t/m³
Jun 2013-Oct 2013	65,300 t	26,200 t	3,500 t	82,800 m³	1.15 t/m³
Oct 2013-6 Feb 2014	51,000 t	1,200 t	1,600 t	41,600 m³	1.29 t/m³
6 Feb-27 June 2014	66,600 t	Not Available	Not Available	66,200 m³	1.01 t/m³
27 June-16 Aug 2014	20,800 t	Not Available	Not Available	24,500 m³	0.85 t/m³
16 Aug-3 Oct 2014	20,500 t	Not Available	Not Available	26,000 m³	0.79 t/m³
3 Oct-6 Nov 2014	18,100 t	Not Available	Not Available	18,400 m³	0.98 t/m³
6 Nov 2014-3 Mar 2015	61,700 t	Not Available	Not Available	56,200 m³	1.10 t/m³
3 Mar-10 June 2015	57,400 t	Not Available	Not Available	54,300 m³	1.06 t/m³
10 June-17 Sept 2015	0 t	4,000 t	Not Available	-16,400 m³	Not applicable
Overall Oct 2012- Sept 2015	**509,700 t**	**36,200 t**	**10,600 t**	**472,500 m³**	***1.18* t/m³**
Typical Paste Density as determined in the Paste Investigation Report (AMEC 2012a)					*1.23 t/m³*

Note apparent discrepancies in totals are due to rounding. Full precision was maintained through calculations.

As of the September 2015 survey the minimum dam crest elevation is 3404.1 m. MEM requires a minimum 1.0 m freeboard, resulting in a maximum allowable water elevation of 3403.1 m. As of the survey date there was 159,000 m³ below this elevation. The current permit for Lynx Dam requires a storage volume of 78 000 m³ to store the environmental design flood (Amec Foster Wheeler 2015e). This leaves approximately 81,000 m³ for tailings and waste storage. Some of this capacity has been consumed by placement of construction waste and pond dredging since September 2015. The construction waste is estimated to be approximately 19,300 m³, reducing the total as of December 2015 to approximately 62,000 m³. Estimates for the volume consumed by pond treatment pond dredging are not available at this time.

Note that any reduction in overall storage density represents a corresponding reduction in overall waste storage capacity and therefore has an impact on the projected life of the facility. General actions to improve the effective tailings density include:

- Review of operation and maintenance procedures in the paste plant with a view to reducing the frequency of upset conditions which require direct deposition of thickener underflow to Lynx TDF;
- Investigate options for dewatering of dredge material prior to deposition in Lynx TDF;
- Investigate alternatives to deposition of excess cyclone underflow tailings directly into Lynx TDF. It may be more efficient to store excess coarse tailings in a dry-stack impoundment; and,
- Expedite cover of the APA tailings area to reduce the tailings volume reporting to the treatment system and/or Old TDF Surge Pond through erosion.

4.5.2 Raise Requirements

As the mine is in care and maintenance status, Amec Foster Wheeler did not evaluate the raise requirements in terms of tailings storage needs. Dam stability reviews and seismic response modelling have been carried out for a nominally 5.7 m dam raise to crest El. 3410 m, originally proposed for construction during 2015 (Amec Foster Wheeler 2015e, 2016c). It is estimated that the El. 3410 m raise would increase the total volume storage capacity in Lynx TDF by approximately 420,000 m³. Some of this capacity is offset by increased flood storage requirements, as discussed in Section 2.5.3.

5.0 WATER MANAGEMENT

The mine’s water management system has two main purposes:

- to divert non-contact water around the surface workings, waste dumps, and tailings facilities and convey the water directly into Myra Creek; and,
- to capture contact water including surface runoff and pumped water from mine-affected areas, and convey the water through a treatment system prior to release into Myra Creek.

The water management system consists of a series of diversion ditches upslope of the mine area, storage within the tailings facilities, various pumping systems, decant structures, and a series of treatment ponds. NMF monitors the treated water for water quality.

NMF has retained RGC to update the site operational water balance model in light of 2012 revisions to the rainfall intensity-return period relationship for the site and to changes to the water management systems since 2008. This work is ongoing.

Engineering work is currently underway to examine the capacity of existing diversion and flood handling structures around the tailings facilities, identify specific shortfalls with respect to the current IDF levels recommended by the CDA Guidelines, and design upgrades or additional works to bring the facilities up to current standards. The Lower Lynx Diversion Ditch and Old TDF Decants and Spillways construction projects were derived from these efforts, and will bring the Old TDF into compliance with the recommended hydrological design criteria once completed. Future proposed work will address the hydrological standards in the Lynx TDF area.

The following sections give a brief description on the configuration and performance of the pertinent aspects of the water management system. For a detailed account of water quality monitoring results and objectives, the reader is referred to the NMFs annual reports to MEM and MoE for 2014 and 2015 (NMF 2015, 2016a, 2016b). For a detailed account of site water balance under peak demand, see AMEC's previous water management report (AMEC 2008a).

5.1 Non-Contact Water

Non-contact runoff from the three primary drainage areas upslope from the active mine site on the north side of the valley is collected and diverted by the main diversion ditch system. Drainage areas for the mine are shown on Drawing 010512. The main diversion system consists of the following ditches:

- Arnica Diversion Ditch, which flows east to west above Lynx TDF into Arnica Creek
- The Upper Lynx Diversion Ditch which flows from west to east above Lynx TDF and into Cascade Creek
- The Lower Lynx Diversion Ditch which diverts Cascade Creek and runoff from the hillside from west to east behind the Old TDF and into Myra Creek
- Alder Reach Ditch, a short tributary ditch to the Lower Lynx Diversion Ditch above the east end of the APA.

Past design of structures on the site was carried out under previous standards which considered lower flood thresholds. Since the late 1990s the design threshold has been the 1/1000 AEP event. Prior to the mid-1990s most structures were designed for 1/200 AEP events. The upper diversions above Lynx TDF lack documentation of design criteria and were likely field fit to accommodate observed conditions.

NMF carries out formal inspections of the diversion ditch system on an approximately monthly basis, and more frequently during and immediately after significant storm events. Informal checks of the lower portions of the ditch are carried out more frequently. Inspection reports are included in Appendix C, included digitally on the CD-ROM appended to this report. Typical maintenance activities includes removal of fallen trees, clearing of rocks or debris from the ditches, and minor repairs to the LLDD shotcrete lining.

5.1.1 Arnica Diversion

Upper Arnica Reach functioned as intended through the reporting period. No specific issues were noted.

Lower Arnica Reach was subject to aggradation near the lower end of the ditch, which led to overtopping and flow over the slope below the diversion. The flow down the slope did not enter the mine site, but flowed directly downslope and entered Arnica Creek. Some minor deposition of gravel and cobbles was noted within the forest below the ditch, but in general the escaped flow is not known to have caused any material terrain stability or erosion issues. The aggraded area was dredged and the dredged material was used to raise the containing berm.

5.1.2 Upper Lynx Diversion

The Upper Lynx Diversion functioned as intended during the reporting period. The storm event of 8-12 December 2014 caused debris aggradation within the upper portion of the ditch and erosion of the containing berm, but did not result in overtopping of the ditch. The aggraded material was removed and the eroded area of the containing berm was repaired and armoured with large riprap.

The December 2014 storm also resulted in a small landslide off the access road immediately adjacent to the confluence of the diversion with Cascade Creek. The diversion now turns into the slide track and flows down an exposed bedrock surface. The failure likely initiated in part due to blockage of the end of the ditch by small woody debris accumulation against trees growing in the invert. The blockage redirected flow onto the fill slope supporting the access road switchback at the end of the ditch, which then likely failed due to saturation. The crest of the headscarp was pulled back to limit future erosion and slumping. The lower part of the headscarp remains extremely steep, and the site is being monitored for further changes. Further instability may result in sediment deposition in Cascade Creek, and may further undermine the remains of the road switchback, cutting off the lower access route, but does not pose a concern with respect to water diversion around the site facilities.

5.1.3 Lower Lynx Diversion

The Lower Lynx Diversion functioned as intended through the reporting period.

The Lower Lynx Diversion was upgraded from Sta. 0+000 to 0+225 in fall/winter of 2014, with work concluding on 7 December 2014. The flood event of 8-12 December 2014 resulted in significant aggradation of granular material at the start of the diversion, at the base of Cascade Creek. The source of the aggraded material was likely a combination of debris washed down from the small slide noted in the preceding section, and normal alluvial bedload from the rest of Cascade Creek. The aggraded material was cleaned from the channel shortly after the flood event.

The remainder of the Lower Lynx Diversion from Sta. 0+225 to 0+975 is the subject of an upgrade construction project that was initiated but not completed in 2015, as discussed in Section 8.2.2.2.

5.1.4 Alder Reach

Alder Reach functioned as intended during the reporting period.

Amec Foster Wheeler continues to recommend full deactivation of the Alder Reach Ditch. Engineering prescriptions for deactivating the remaining portion of the ditch were issued by Amec Foster Wheeler (2015i). The timeline on deactivation is flexible, but it should be completed as part of closure works for the Old TDF. In July 2015, trees were cut and cleared to re-establish access to the proposed work area but no other work has been undertaken. It is critical that the deactivation work be supervised by a geotechnical engineer because of the potential for further slope instability due to the steep cross slope gradient and the amount of groundwater seepage intercepted in the ditch cut slope.

5.1.5 Old TDF Seismic Upgrade Berm

The design intent for water management of the Old TDF Seismic Upgrade Berm area is to have distributed runoff over the clean fill cover and directly into Myra Creek.

Following the completion of the Seismic Upgrade Berm there have been some observed areas of ponded water on the relatively flat surface of its main bench. Each of the ponded areas has an associated outlet point, where the accumulated surface runoff flows over the crest of the upgrade berm and down towards Myra Creek. To date the crest of the slope above Myra Creek has exhibited “self-armouring” due to the gravel and cobble content of the fill used to complete the upgrade.

The Seismic Upgrade design assumes that the buttress remains unsaturated. Ponding water on top of the buttress increases infiltration and could reduce stability conditions, and therefore represents a departure from the design. Amec Foster Wheeler continues to recommend filling or regrading of the areas which pond water to promote surface runoff rather than infiltration. The surface should be graded at not less than 2% towards Myra Creek to promote sheet flow.

5.2 Old TDF Contact Water

The Old TDF receives water from the following sources:

- Release of porewater from within the tailings mass during long-term consolidation;
- Precipitation on the impoundment area; and,
- Groundwater flux into the facilities.

The release of water due to the long-term consolidation of the tailings in the APA and the Strip is considered to be negligible in the current surface water balance (as the consolidation of these areas is functionally complete with respect to measurable settlements). Precipitation is, therefore, the largest source of water to the Old TDF (about 1 million m^3 per year) and the influx of groundwater is an important secondary source (about 5 to 10 L/s of additional flow to the sub-surface) (RGC 2014c). Shallow groundwater flows are significant with respect to the contaminant load balance for this area of the site and also affects surface water management when it flows to the Strip Area at the toe of the east abutment of the Paste Berm (discussed in the following section).

Water leaves the Old TDF by surface drainage or pumping to decants, and subsurface drainage through into the underlying aquifer, which is then collected by the Inner and Outer Drains (reporting to Pumphouse 4) or bypasses the drains and flows down the valley in the underlying aquifer.

Surface water from the Old TDF was managed during the reporting period as follows:

- The APA was drained by a single decant at the west end. Following an incidence of seepage and erosion in October 2014, a pump was added in the east end to assist in minimizing water levels.

- The East Strip was drained to the West Strip by gravity through two culverts below the APA operations spillway. Starting during the flood event of December 2014, the culverts have been supplemented using diesel powered pumps. The pumps will be retained until the Decants and Spillways project is completed.

- The West Strip was drained by a decant, but the decant was known to be not functioning at design levels. The decant was supplemented by a pump to move water to the RSA. A passive overflow to the RSA was added during the flood event of December 2014. Following the start of the Decants and Spillways project, the pump discharge was moved to the APA decant.

- The RSA was drained to the treatment system by a decant. The decant functioned well during normal conditions but did not function adequately at high rates of discharge. It was supplemented by an overflow pipe to the Phillips Sump (near Super Pond/Lynx Dam toe) during the flood event of December 2014. The decant was removed during Decants and Spillways construction, and was replaced by a diesel pump[6].

The Decants and Spillways project will substantially replace the previous surface water management system for the Old TDF. It is designed to convey flows to treatment for events up to 1/1000 AEP. Flows in excess of 1/1000 AEP, up to the IDF, will be discharged to Myra Creek through a proposed spillway. The pond includes approximately 2 m of freeboard between the normal operating level and the spillway lip, which will provide flow attenuation between the Old TDF and treatment system. Normal water levels in the Surge Pond will include approximately

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[6] In January 2016 a large diameter passive overflow pipe to the former Phillips Sump area (Lynx Dam toe) was added.

1.5 m depth of water in order to promote sedimentation upstream of the treatment system. The Surge Pond will be lined with HDPE geomembrane to reduce the infiltration of water through the tailings and into the underlying aquifer and assist with sediment removal during maintenance. Full details of the project can be found in the detailed design report (Amec Foster Wheeler 2015h). The project is scheduled to be completed in 2016 and includes:

- Replacement of the current APA decant and addition of a decant in the east end of the APA,
- Replacement of the culverts between East and West Strip below the APA operations spillway,
- Construction of the Old TDF Surge Pond,
- Construction of a new large diameter pipeline from the surge pond to the head of the treatment system, and
- Creation of a new emergency spillway from the surge pond to Myra Creek.

Groundwater flows to the Inner and Outer Drains also report to the treatment system via Pumphouse 4. Further discussion of flows to groundwater and the Old TDF under-drains is provided in RGC (2014a) and was incorporated into the Interim Site-Wide Closure and Reclamation Plan that was submitted in July 2014 (see RGC 2014d).

Key water management issues encountered in the Old TDF during the period ranging from Q4-2014 to the end of 2015 are discussed in the following sections.

5.2.1 Amalgamated Paste Area

A shallow pond is sometimes present near Instrument Plane C in the southeast corner of the APA with the exception of the driest times of the year. Some surface moisture or minor seepage discharge is occasionally noted at the base of the Paste Berm when the pond is present. The seepage discharge area is within the catchment of the Strip. The area is monitored regularly by NMF personnel during weekly facility inspections. A discrete source of seepage was noted in this area on 23 October 2014. The discharge area included deposition of minor amounts of tailings sand, indicating internal piping erosion of the Paste Berm. Measures were taken to address the piping erosion, as outlined recommended in a letter to NMF dated 25 October 2014 (AMEC 2014a).

Water levels in the APA were managed within design levels by passive drainage through the decant during the 8-12 December 2014 storm event.

5.2.2 TDF Strip and RSA/Old TDF Surge Pond

Water management in the Strip Area was generally within normal levels during the reporting period with the notable exception of the storm event of 8-12 December 2014, which caused critical freeboard exceedances in the RSA and both the East and West Strip.

During the 2014 storm, the inflow of water exceeded water management capabilities in the following ways:

- A large spring at the Paste Berm east abutment, known as the Main Spring, contributed excess water to the east strip. Peak flows were observed on the order of 0.2 m^3/s. The spring flowed for several days. The Main Spring is discussed in the following section.

- The culverts under the operations spillway were blocked with sediment, preventing effective movement of water from the East Strip to West Strip.

- The decant at the west end of the West Strip was not functioning and pumping capacity at the decant was not sufficient to keep up with inflow rates at the height of the event.

- The decant in the RSA was not functioning at necessary levels and no additional pumping capacity had been provided. Pumping from the West Strip to the RSA placed additional demand on the available storage.

The available freeboard in each of these areas was below the minimum requirement of 1.0 m at the peak of the event, but no overtopping occurred. Emergency water management measures consisting of additional pumping and selective controlled release of water to contained areas of the site brought freeboard levels back to acceptable limits before the end of the storm. The high water levels led to some piping erosion of the original tailings beach. Full details can be found in a letter to NMF dated 12 February 2015 (Amec Foster Wheeler 2015b). The Decants and Spillways project addresses the vulnerabilities of the system that were identified both prior to and after the flood event.

The presence of a pipe cover berm in the west strip, inconsistent crest elevations along the length of the facility, and configuration changes in the facility make causal inspection of freeboard challenging. Installation of permanent, clearly marked freeboard indicators in the east and west Strip and Old TDF Surge Pond is recommended. The markers should be installed by survey and should be checked for correct elevation annually.

5.2.3 Main Spring

Details regarding the probable source of the Main Spring can be found in RGC (2016). RGC predicts that there have been on the order of five or more groundwater discharge events per year at the Main Spring based on correlation of piezometric monitoring records and rainfall exceedance probability relationships.

The groundwater source for the Main Spring is thought to originate along the valley sidewall within the natural talus below the facility, and likely flows through the coarse rockfill under and adjacent to the dam abutment, rather than through the dam itself. Catastrophic loss of contents of the tailings dam as a result of the Main Spring is not considered probable because the adjacent tailings area upslope of the Paste Berm lacks a pond; however, a lack of filtration between the spring water discharge and the nearby tailings or sand inclusions within the Paste Berm could cause future damage through piping erosion. This deficiency is to be addressed by the Diversion

Ditch Springs Drain, a component of the Lower Lynx Diversion Ditch upgrade project, which is scheduled for completion in 2016. Full details are presented in the technical specifications (Amec Foster Wheeler 2015j).

5.3 Lynx TDF Contact Water

The Lynx TDF does not have a detailed water balance that is kept current. However, because the facility is operated such that all excess water either infiltrates into the pit walls, or is pumped out, detailed tracking of inputs and outputs is not required, provided sufficient storage is maintained for flooding events.

The Lynx TDF receives water from the following four sources:

- Release of water from tailings or waste materials deposited as slurries upon initial deposition;
- Additional release of porewater from within the tailings mass during long-term consolidation;
- Precipitation on the impoundment catchment area; and
- Groundwater flux into the facilities.

The volume of water released on deposition of slurry waste streams varies depending on the type of slurry deposited. Paste tailings contribute very little free water. Thickener underflow contributes significantly to the volume of water in the facility during periods of deposition. Dredging wastes are deposited at the highest water content of any of the slurry inputs. Settlement of these materials to a void ratio of approximately 2.0 is generally rapid.

The volume of water released through consolidation in Lynx is not insignificant, but is far less than inputs from precipitation and seepage.

Precipitation is a significant source of water to the facility with an average of approximately 2,500 mm of rainfall per year. Operational surface water inputs to the facility as a direct result of precipitation are limited to the immediate pit walls. During peak events, overland flow from the slopes above the pit can result in additional water input.

Groundwater sources are significant within Lynx TDF. The bedrock springs captured by the Springs Drain are an example of one of the higher volume sources. These springs have been sequestered and diverted; however, there are a variety of other less significant springs around the pit walls and it is not practical to divert all of them.

Water management in the Lynx TDF is generally consistent with the design concept. The facility is operated with minimal water retained in the pond. Under normal operating circumstances, water either infiltrates into the pit walls or Lynx TDF, or is pumped from the facility and discharged into the treatment system. Pumping is typically handled by an electric pump with a capacity of

0.04 m^3/s (600 gpm). When this pumping capacity is insufficient, multiple additional diesel pumps with capacities varying from 0.07 to 0.16 m^3/s (1200 to 2600 gpm) are deployed.

The small amount of water that does accumulate on the Lynx TDF paste surface typically forms a shallow pond across most of the tailings surface. The pond depth slightly deeper towards the north end of the facility, along the pit walls due to the placement of a sand beach along the south arm.

Peak water accumulation events are accommodated by maintenance of sufficient freeboard to accommodate temporary retention of storm water as noted in Section 2.5.3. No significant accumulations of flood water were noted during the reporting period, and water levels generally remained at normal operational levels.

The following sections detail specific water management items addressed in Lynx TDF during the reporting period.

5.3.1 Lynx Springs Drain

A significant bedrock source of groundwater was uncovered in 2011 near elevation 3400 m along the east side of the Lynx TDF, below Waste Dump 2. Drainage of the spring is essential to the long-term stability of the Lynx TDF surface, particularly during closure conditions (AMEC 2013). Following a conceptual design phase, AMEC issued IFC drawings on 23 May 2014 for construction of the Lynx Springs Drain. Construction of the drain from the bedrock springs to Sta. 2+00 (just beyond the 2014 dam footprint) was completed in November 2014. Completion of the springs drain to the ultimate toe of the east arm of the dam is scheduled for completion during the next dam raise.

5.3.2 Flow Monitoring in the Underground Lynx Mine

Due to potential connection of the base of Lynx TDF to the underlying Lynx Underground Mine, pro-active monitoring of the flow volume and water quality in the 15 Level Phillips Reach sump is required as part of the facility operating procedures. Turbidity or sudden increases in water pressures at the 15335XN Bulkhead could indicate catastrophic erosion of the paste tailings and/or sand filled stopes under the Lynx TDF. NMF's operating procedures call for evacuation of the mine and assessment of the situation given an increase in flow, pressure, or turbidity at the 15335XN bulkhead. Automated warning systems are in place at the bulkhead. NMF (personal communication) indicated that the following events occurred at the bulkhead during the reporting period:

- 01 December 2014 to 06 December 2014 – Bulkhead pressure rose above 20 PSI and the mine was evacuated; and,

- 19 December 2015 to 25 December 2015 – Bulkhead pressure rose above 20 PSI and the mine was evacuated.

5.3.3 Depressions in the Tailings Surface

A depression with a diameter of approximately 10 m has repeatedly formed in the paste surface near the northeast corner of the Lynx TDF. The feature was initially observed in spring 2012. The depression is persistent, re-forming from time to time after being covered with fresh tailings or pond dredging material. Formation of the depression is likely the result of internal erosion of the tailings by downwards groundwater flow, presumably into the underground workings. The depression was observed during parts of the reporting period, but has not apparently changed in location or size. Monitoring of the depression continues when it is evident. The area is inspected weekly by NMF and monthly by Amec Foster Wheeler.

The groundwater flow paths involved with any depression formation in Lynx TDF are likely complicated and could involve exposed stopes, intercepted drifts, manways, ore passes, mill holes, exploration drill holes, or natural joints and manmade fractures in the pit walls. Survey data and mine records indicate that the depression directly overlies 12J65 Stope, which is directly below the base of the Lynx TDF and was partly exposed during removal of the crown pillar. NMF has indicated that entry into the underground mine below the facility for the purposes of investigation of the sinkhole is not safe, as the area has not been maintained in decades.

As noted in Section 5.3.2, a bulkhead is in place to prevent catastrophic release of tailings into the underground from impacting manned areas. As such, the depression does not present an immediate risk to mine safety. The depression is well away from the tailings dam, therefore it presents a very low risk to the integrity of the dam embankment. However, internal erosion of the tailings presents a potential long-term issue relating to stability of the tailings surface and therefore may influence closure cover designs.

5.4 Other Contact Water Management

In other areas of the mine site where runoff, seepage, and other flows are potentially impacted by acid rock drainage, these flows are collected in various sumps and directed to the treatment system. Around the tailings facilities, these areas include waste dumps, haul roads, and the dam shells. Flows are directed to the treatment system by a combination of ditching, pumping and decants.

5.5 Water Treatment

The water treatment system is based on mitigation of high pH in order to reduce the solubility of dissolved metals. Lime is added at a number of locations on the mine site including along the Strip and in several mixing tanks at the inlet of the treatment system at the head of Super Pond. Super Pond is the primary settling pond, after which the treated water flows through six additional polishing ponds to improve water clarity. The locations of Super Pond and the polishing ponds are shown on Drawing 010502. The various aspects of the water treatment system are inspected monthly by NMF personnel. The details of the operation and performance of the water treatment system including water management inspection reports by NMF are summarized in NMFs annual reports to MEM and MoE for 2014 and 2015 (NMF 2015, 2016a, 2016b).

6.0 DAM INSPECTIONS

6.1 Inspections by Amec Foster Wheeler

Amec Foster Wheeler inspected the Old TDF, the Lynx TDF, and the diversion ditch systems on an approximately monthly basis in Q4-2014 and in 2015 as part of the work done to satisfy the terms of the OMS. Amec Foster Wheeler observed conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions. Amec Foster Wheeler personnel met with NMF staff during the inspection site visits to discuss any concerns relating to the facility operation. Dam inspection summaries are presented in Appendix E. Some of the key observations related to these monthly inspections are briefly summarized below:

Table 7: Summary of Key Monthly Dam Inspection Observations

Date	Q4-2014 to 2015 Dam Inspection Observations	Action Taken
Lynx TDF		
2014-10-23	Seepage noted about 5 m below dam crest on east arm, adjacent to springs drain construction site. Seep is above tailings elevation.	Monitor in the future.
2014-10-23	Standing water at the toe of Lynx Dam, between dam and Zone J stockpile	Drainage improved by ditching to Philips Sump.
2014-12-10	Small flow slide from Waste Dump 3 blocked Back Road above Lynx TDF but did not enter tailings facility. Slide occurred due to water directed onto the dump crest during 1/50 AEP storm event.	Road closed, site monitored. Remedial actions deferred to drier weather.
2015-01-09	Redirected runoff from the upper Lynx Pit was observed running into the slide in Waste Dump 3, similar to the redirection that caused the slide.	Water was redirected away from the slide crest, down the haul road onto Waste Dump 2.
2015-01-09	The flat surfaces of the intermediate benches of Lynx TDF were observed to be wet and soft underfoot. This is attributed to wet weather and frost action.	No action required. The upper, disturbed surface of the benches should be stripped, compacted and proof rolled before additional fill is added.
2015-02-09	Settlement and cracking observed along the upstream crest of Lynx TDF dam in most areas.	Settlement and cracking are anticipated. No immediate actions required. Upstream slope geometry to be revisited in next raise design.
2015-02-09	Seepage observed above “Back Road” from known bedrock topple area.	No action. Seepage is likely above final ultimate tails level.
2015-02-09	Seepage noted at toe of west arm, but above tailings pond level. Attributed to infiltration on dam crest.	No action.
2015-02-09	Fines in Phillips sump at the toe of Lynx Dam traced to haul road runoff.	Continue to routinely inspect the toe of Lynx dam for seepage or sediment discharge, per OMS.

Date	Q4-2014 to 2015 Dam Inspection Observations	Action Taken
2015-03-05	Ponded water at the toe of Lynx Dam identified as seepage from the toe of the Zone J stockpile.	Zone J stockpile was regraded to promote surface runoff and reduce water retention in the area.
2015-03-05	Avulsion between upper and lower Arnica Reaches, partial washout of Upper Lynx Diversion Ditch above Waste Dump 2.	Ditch channels and access roads re-established, damage on ULDD armoured with boulders.
2015-05-22	Increased washing of fines from haul road to Phillips sump, as noted on 2015-02-09.	Continue to routinely inspect the toe of Lynx dam for seepage or sediment discharge, per OMS.
2015-06-17	Washout of Lower Arnica Reach noted. Road fill failure/slide at downstream end of Upper Lynx Diversion Ditch discovered (likely occurred in December 2014)	Arnica ditch re-established. Crest of ULDD slide area pulled back to prevent further sloughing.
2015-07-23	Recurrent sinkhole reformed in paste surface. Normal appearance and size.	Continue to monitor.
2015-08-24	Back Road re-established and protective berm added at toe of slide in Waste Dump 3.	Continue to monitor upslope area.
2015-08-24	Drought conditions, accessed Lynx TDF to install piezometers in the paste surface at ~El. 3399.	No actions.
2015-08-24	1.5 m diameter depression noted at upstream toe, Sta 1+20 (reported by NMF). Cause unknown. Could be related to flow underground through fractures in old open pit wall, or alternately could be caused by tailings filling voids in the nearby historic in-pit refuse dump.	Reviewed downstream toe and surrounding area for indications of piping erosion/discharge. None found. Continue to monitor.
2015-09-24	Noted standing water across central areas of Lynx TDF, but no pumps in place.	Pumps reinstalled, water levels lowered.
2015-09-24	Observed approximately 150 mm depth of water in parts of 2015 toe foundation construction area.	Drainage of the area improved by adding a culvert to Super Pond.
2015-09-24	New significant spring noted in northeast corner of foundation prep area, and seepage noted along natural ground/dam fill/waste dump contact along Panels 13/14/15. Likely replaces the springs that formerly flowed into Phillips sump before the area was reconstructed. Similar flow volumes.	Continue to monitor the area for changes.
2015-09-24	Recurrent sinkhole is absent, filled by mudwave from waste dumping at the west abutment.	Continue to monitor for sinkhole recurrence.
2015-12-22	Recurrent sinkhole reformed in paste surface. Normal appearance and size.	Continue to monitor.
2015-12-22	Snow covered TDF.	Limited inspection.

Date	Q4-2014 to 2015 Dam Inspection Observations	Action Taken
Old TDF		
2014-10-23	Water levels in west strip near minimum freeboard limit.	Increased pumping to lower water levels.
2014-10-23	Large puddles of water noted on seismic upgrade berm in several areas. Flow from puddles over the slope is gradually causing rilling/erosion.	Ongoing problem, not yet addressed. Prior recommendations include resloping the flat bench at ~2%.
2014-10-23	Minor piping erosion noted at southeast corner of Paste Berm	Measures taken to address seepage and piping. See AMEC 2014a and Amec Foster Wheeler 2015d for details.
2014-10-23	Minor accumulations of alluvium noted in LLDD at base of Cascade Reach.	Alluvium cleaned from diversion channel.
2014-11-27	Main spring active during inspection.	Photos and video taken.
2014-11-27	Minor seepage noted generally everywhere along Paste Berm toe east of spillway. No indications of piping erosion.	Monitored for any development of piping erosion, continued to actively pump east APA.
2014-12-09	Critical freeboard in east and west strip and RSA during 1/50 AEP storm event.	Emergency measures taken to lower water levels. See Amec Foster Wheeler 2015b.
2015-01-09	Alluvium in LLDD at base of Cascade Reach, remnants from December flood.	Channel cleaned to pre-flood geometry.
2015-08-24	Drought conditions. Myra Creek and LLDD at lowest levels observed since 2006.	No actions.
2015-08-24	Drought conditions, culverts below Operations Spillway inspected, confirmed to be plugged with tailings.	Culverts cleaned out by flushing/hydrovac.
2015-09-24	Higher than minimum water levels in east APA (No seepage or piping noted below Paste Berm).	Pump levels changed to maintain minimum water levels.
2015-12-22	Snow covered TDF.	Limited inspection.
2015-12-22	Two large holes in LLDD shotcrete liner downstream of OEB near Old TDF east abutment.	Monitor the ditch and surrounding area for further shotcrete degradation, erosion, scour, seepage, or springs.
2015-12-22	Interim water management measures only partially implemented.	Complete interim water management plan as soon as practical. Maintain minimum water levels prior to plan completion.

6.2 Inspections by NMF

NMF staff prepared weekly inspection reports for the Old TDF and Lynx TDF as part of ongoing monitoring activities. The reports are included in Appendix C, and include two-page forms, typically with several pages of photographs appended. The reviews are based on visual inspection of the following:

- Lynx TDF for active areas of paste deposition, the location, extent, and clarity of ponded water, and the function of the sump pump;
- The APA, Strip, and RSA areas for the extent and clarity of ponded water and the function of the decant in each area;
- Lynx TDF, Old TDF Paste Berm, OEB, and Seismic Upgrade for surface erosion, settlement, depressions, cracks, bulges, and signs of seepage;
- The diversion ditch for flow rate, obstructions (slumps, fallen trees, etc.), and damage to shotcreted areas; and,
- Any other anomalies or changes for any of the above structures.

NMF completed 33 weekly inspections between 5 February and 22 December 2015. No inspection records were found for the period from October 2014 to February 2015, and for the month of March 2015, however NMF maintains that the inspections were performed. In general, the observations in the weekly inspections are consistent with those made by Amec Foster Wheeler during monthly inspections. NMF responds to operational issues identified during inspection, such as pump locations and water level maintenance. At several points in the reporting period, NMF made Amec Foster Wheeler aware of key issues such as the following:

- Formation of cracks parallel to the upstream crest of Lynx TDF dam (these cracks are anticipated given the centreline raise design) early in 2015.
- Formation of a small depression near Sta. 1+20 at the upstream toe of Lynx TDF dam in September 2015.
- Seepage on the downstream face of the Paste Berm during October and November 2014.

Copies of the weekly inspection reports are included in Appendix C.

7.0 INSTRUMENTATION MONITORING RESULTS

The assessment of the performance of the Old TDF and Lynx TDF includes monitoring of pore water pressures, survey of surface monuments for movement, and monitoring of slope inclinometers for internal deformation. This section presents a summary of the observed data. Full data is included in Appendix B.

Amec Foster Wheeler's and RST Instruments current scope of work includes connection of most of these piezometers to an automated, central instrument logging system. This work was commenced in 2015 and was completed in early March 2016.

Slope inclinometer casings were installed at the tailings facilities for the first time in 2015. The casings were installed primarily for the purposes of allowing down-hole shear wave velocity measurements, but will also allow for future monitoring of internal deformation of the dams. The casing profiles should be surveyed not less than once per year, but also before and after construction activities, any time the surface monument network suggests that significant crest movement has occurred, and after any seismic events that produce shaking at the site that is greater than or equal to Level V ("Moderate") on the Modified Mercalli Intensity Scale.

7.1 Lynx TDF Monitoring

This section summarizes the Lynx TDF instrumentation monitoring results and modifications brought to the instrumentation network during the reporting period. In addition to slope inclinometer casings, vibrating wire piezometers were added to complement those already in place, and surface monuments were installed along the dam crest to monitor displacements.

7.1.1 Piezometers

Lynx TDF piezometer network consists of a total of twenty-nine vibrating wire piezometers installed within the dam, dam foundation, and tailings mass. During August and September 2015, three VWPs were installed in the ultimate dam footprint and two vibrating wires were installed along Planes E and F within the paste in the Lynx TDF as part of the 2015 Lynx Supplemental Drilling Program (Amec Foster Wheeler 2016b). Piezometer VW29336 (installed in BH14-08) has been showing inconsistent results since its installation and was replaced by VW33784 (installed in BH14-08A). The configuration of the network is shown on Drawing 010507. Cross-sections along Instrumentation Planes D, E and F are provided on Drawings 010509, 010510 and 010511.

The VWPs were monitored manually by Amec Foster Wheeler throughout the reporting period from weekly during the construction season to monthly during the winter and spring. Data loggers were installed in March 2016 to record these daily. The pore pressure monitoring data is provided in Appendix B and includes piezometer plots of the measured elevation head versus time. A summary table showing the status of all VWP instruments is also found in the same appendix. A brief summary of the results is presented below.

The piezometer levels follow general precipitation trends through the wet season, typically from late September through to late April. Once prevailing dry season conditions begin, the piezometer level tend to drop steadily through the dry period. Following the first rains of the wet season, the pore pressures rapidly return to typical wet season values and resume following precipitation trends.

In October 2014, at the beginning of the reporting period, the wet season was at its onset. Pore pressures then drastically increased and peaked in late-October and late-November in response to a particularly wet October and November months. Piezometer levels then decreased through the rest of the winter until early April 2015 when they peaked again following a wetter than average month of March. Piezometer levels continuously decreased thereafter from April to September 2015 until precipitation in autumn. Piezometer levels then progressively increased to peak in early December 2015 and started to decrease towards the end of the reporting period.

Piezometers in the dam fill remained dry throughout the reporting period. Piezometers in the shallow foundation remained relatively stable and seemed more or less affected by seasonal precipitation trends. The most sensitive piezometers showed a damped response to precipitation trends with occasional spikes in pressure of up to 1 m in relation with high rainfall events. VW32221 shows a peak in pore pressure equivalent to a rise in elevation head of approximately 4 m between 23 and 30 November 2015. Because the readings before and after this peak are very similar to one another and both indicate dry conditions, this is suspected to be a false reading.

In 2014 and 2015, groundwater levels in the deep foundation piezometers rose by up to about 3 m following the start of the wet season, and showed strong response to precipitation trends. It is noted that the effects of two significant precipitation events in the December 2014 and February 2015 months are not reflected in the record because there were no manual readings taken between 5 December 2014 and 26 February 2015.

Recorded pore pressures in the paste tailings were also generally consistent with recorded precipitation levels. At the end of the summer of 2015, the pore pressures had dropped to levels lower than in previous years due to a net negative water balance in the paste mass following the interruption of tailings deposition in June and very dry and warm weather from May through August. Pore pressures went down below previously recorded minima for the two deep piezometers (VW17733 and VW17734).

7.1.2 Surface Monuments

In Q4-2014, new survey monuments were installed along the upstream and the downstream crest of Lynx dam at about 1 m in from the crest. The first survey following the installation was performed in January 2015 and the monuments have been surveyed at least once every two months thereafter using a total station. The survey monument layout is reflected on Drawing 010508. Position data and total displacement in the transverse (i.e. perpendicular to the dam alignment), longitudinal (i.e. parallel to the dam alignment) and vertical directions are reported in Appendix B in a tabulated form.

Since the time of installation and throughout the reporting period, total settlements and lateral displacements at most locations have been smaller than 2 cm, nearing the precision of the current surveying methods. Monuments LYNX14-08, -10, -14, -16 and -18, all situated along the upstream dam crest, experienced slight displacements between March and July 2015 associated with local settlement of the upstream shell, but have not significantly moved since then. At the end of the reporting period, the maximum cumulative settlement and upstream transverse movements were less than 4 cm in the central portion of the zone of upstream deformation (LYNX14-16 and 18). The Lynx dam did not exhibit significant surface movement at other monument locations.

Survey monuments will continue to be monitored on a monthly basis in 2016 until they are temporarily removed to allow dam raise works to proceed.

7.1.3 Slope Inclinometers

One slope inclinometer casing was installed during 2015 through the dam crest on Instrument Plane F (Sta. 4+57). It was primarily installed for the purposes of allowing down-hole shear wave velocity measurements and the casing profile was not surveyed until March 2016.

Future plans include addition of slope inclinometer casings on the dam crest at Instrument Planes D and E. No date has been set for these installs.

7.2 Old TDF Monitoring

This section summarizes the Old TDF instrumentation monitoring results and modifications brought to the instrumentation network during the reporting period. In addition to slope inclinometer casings, vibrating wire piezometers were added along the Paste Berm and the OEB, and surface monuments were installed along the various dam crests to monitor displacements.

7.2.1 Piezometers

In the spring of 2015, eighteen vibrating wire piezometers have been added as part of the APA Paste Berm Paste Investigation (Amec Foster Wheeler 2015f and g) to the Old TDF piezometer network which now counts 78 active instruments. The configuration of the network is shown on Drawings 010503 and 010504. The new VWPs fall along six instrument planes oriented perpendicular to the APA Paste Berm and referred to as Planes 1 to 6. The other VWPs either fall on Planes A or C, which are respectively oriented perpendicular to the Old TDF embankments at Stations 0+350 and 1+250 m, or along the base of the APA Paste Berm referred to as Plane B. Plane 2 is more or less in line with Plane A and was intended to replace some instruments that had ceased to function. Another set of VWPs is installed within the paste tailings in the southeast corner of the APA near Plane 5, which coincides with Plane C. Cross-sections of the Old TDF along Instrumentation Planes A and C are provided on Drawing 010505. The majority of the piezometers monitor porewater pressures within the tailings with the exception of two VWPs in Plane A that were installed in the underlying foundation soils.

A number of instruments have ceased to function since their installation or have malfunctioning thermistors. Appendix B provides a summary table showing the status of all VWPs and the sensors for which temperature correction data is estimated from other instruments with historically similar temperature trends.

Plane A, B and C piezometer readings are logged daily by an automated logging system. NMF manually downloads the data loggers and forwards the information to Amec Foster Wheeler quarterly or on request. Manual readings of the four APA VWPs installed within the paste tailings during the 2011 Paste Investigation (AMEC 2012a) have been completed together with the manual VWP readings from Lynx TDF paste, and therefore are those piezometer records are reported together in appendix. About half of the new VWPs were connected to data loggers at the end of April 2015 but the other half has been read manually by Amec Foster Wheeler until March 2016, when the balance of the VWPs were connected to automated data loggers. The pore pressures within the Old TDF are used to model the dam stability and these values have direct bearing on the design configuration of the dam. Given the importance of the data to the dam engineering, monitoring should continue at a minimum daily frequency.

The following deficiencies were noted in the vibrating wire piezometer data set for the reporting period:

- Data from Plane A includes various gaps of duration up to sixteen days where data was not collected.
- The atmospheric pressure and temperature baseline for Instrument Plane A has a malfunctioning temperature sensor. Replacement this sensor was replaced in March 2016.
- Data from Plane B was not collected from 16 May through 01 July 2015.
- Data was not collected from Plane C piezometers from 6 to 27 October 2014, a few isolated days were missing between November 2014 and the end of Q1-2015, and fifteen days were missing in Q4-2015. Data logger troubleshooting and maintenance was completed in March 2016.
- Barometric compensations for Instrument Planes A, B and C are based off readings from Plane C barometer. When Plane C readings are missing, barometric pressure measurements from Campbell River Airport or Tofino Airport weather stations (Environment Canada) are used in barometric compensations. The accuracy of this correlation depends on various factors, and introduces an additional source of error into the readings.

Appendix B summarizes the 2013-2015 piezometer monitoring records. Pore pressure monitoring data is also presented as elevation head versus time plots and grouped by location (Outer Embankment Slope, Upper Tailings Beach, and Paste Berm Areas 1 and 2).

Weekly maximum readings for Instrument Planes A, B and C are compared to alert thresholds that were established during facility operation and active tailings deposition, primarily to monitor porewater pressures during raising and placement of tailings. Details of the alert thresholds are presented on the data tables in Appendix B. Since the facility is inactive and no additional load is being placed, the comparisons are of little utility in monitoring current stability conditions but are included pending development of a more appropriate long-term stability performance framework that will incorporate the piezometers installed in 2015. These thresholds will be developed as part of the ongoing stabilization design of the Paste Berm. The definitions of the historic thresholds are noted on the piezometer data sheets in Appendix B.

Initially the thresholds were going to be revised in 2015 to formulate a new rationale for threshold conditions based on estimated reductions in effective stress at each piezometer, however, it is more appropriate to include the results of the overall stability review of the facility and stabilization plan for the Paste Berm when considering the appropriate porewater pressures. These stability assessments were delayed in order to include information from subsurface investigations carried out in summer 2015, and the results of an update of the seismic hazard profile for the site. Results from these studies have recently been published and therefore the revision of thresholds is targeted for 2016.

Recorded pore pressures during the reporting period for the APA paste piezometers were generally consistent with previous annual records.

Recorded pore pressures during the reporting period for Plane A, B and C piezometers were also generally consistent with previous annual records. Piezometer records exhibiting a more sensitive response appear to correlate well with rainfall data, showing peaks and troughs in elevation heads that are in agreement with the times of higher and lower amounts rainfall. Before the onset of the wet season in the fall of 2014, piezometric levels had reached their lowest level in the period of record.

The highest pore pressures over the last five years were recorded during the 347-mm 3-day rainfall event of 8-10 December 2014, which 24-hour maximum of 199.5 mm corresponded to an event with approximately 1/50 AEP based on intensity-return period curves developed by AMEC (2012b). Level II alert thresholds were exceeded below the Paste Berm foundation at all locations except at P-1 and P-12, and Level III was exceeded at P-14. Very high water levels were observed in the Strip and the RSA, the Main Spring discharged approximately 0.2 m^3/s, and distributed runoff from the toe of the berm entered the TDF Strip Area (Amec Foster Wheeler 2015b). It was also discovered later that high water levels in the east TDF Strip had caused a series of small sinkholes and infiltration areas to form below the high water mark at the edge of the OEB, which could explain the porewater pressure peaks observed below the outer embankment slope at C-35E and in the upper tailings beach area at C-37E, both located below the Strip.

Most piezometers also showed high levels in early February, end of March, and early December 2015 in response to high rainfall but reached comparatively lower elevation heads than those attained in December 2014. Piezometers P-5/P-6/P-7 of Paste Berm Area II (East Strip), and P-10 near the west abutment, exceeded thresholds Level II at least on one occasion in response to rainfall events in 2015. Some piezometers also typically exceeded the Level I or Level II thresholds throughout the reporting period as in previous years, whereas others just showed exceedances during the wet season.

Previous recommendations with respect to the piezometer network in the Old TDF included the installation of additional piezometers on Instrument Plane A, around the Paste Berm and near the crest of the 6:1 Buttress. These instruments were added in 2015.

7.2.2 Surface Monuments

Survey monuments were installed on the crest of the Paste Berm, the Outer Embankment Berm (6:1 Buttress), and the Seismic Upgrade Berm in December 2014. The first survey following the installation was performed in January 2015 and monuments have been surveyed at least once every two months thereafter using a total station. The survey monument layout is reflected on Drawing 010506. Position data and total displacement in the transverse, longitudinal and vertical directions are reported in Appendix B.

Since their installation and throughout the reporting period, total settlements and lateral displacements have been smaller than 2 cm, i.e. within the precision range of current surveying methods. The above-mentioned structures did not exhibit any significant surface movement trends at the control locations. Survey monuments will continue to be monitored on an approximately monthly basis in 2016.

7.2.3 Slope Inclinometers

Three slope inclinometer casings were installed during the Old TDF Glaciolacustrine investigation. One casing (BH15-27) located in the RSA has subsequently been destroyed by construction during the water management upgrades. The remaining two casings (BH15-32 and BH15-35) are installed through the OEB near Sta. 0+575 and 1+100. These casings were initially surveyed in July 2015. The first subsequent reading was scheduled for March 2016.

8.0 SUMMARY OF CONSTRUCTION

8.1 Q4-2014 Construction

Full details of the 2014 construction activities on the site, including material volumes, quality control data, and observations from construction review are presented in the 2014 Construction Report (Amec Foster Wheeler, 2015a). This section briefly highlights the construction activities completed on the Lynx TDF during the last quarter of 2014. During Q4-2014, no significant construction works have been carried out on the Old TDF.

In 2014, construction on Lynx TDF consisted of raising Lynx Dam to El. 3404.3 m and building the Springs Drain from the “capture zone” where bedrock springs are intercepted to Sta. 2+00, beyond the limits of the dam raise. The dam raise was most complete by mid-September and the remaining work on Lynx TDF during the last quarter of 2014 consisted of:

- Raising the Paste Line Road by approximately 2 m to provide interim freeboard and storage capacity in the Lynx TDF until the completion of the Springs Drain (completed in the first week of October 2014);

- Finishing the upstream portion of the Springs Drain (completed on 15 November 2014);

- Completing the 2014 Lynx TDF raise to 3404.3 m at the east abutment, following the completion of the Springs Drain.

The portion of the Springs Drain upstream of the Lynx TDF was built up to elevation 3402.3 m in order to be accessible for completion at a later date. This included 1 m of freeboard above the projected paste elevation as of 01 June 2015 (3401.3 m).

8.2 2015 Construction

Full details of the 2015 construction activities on the site, including material volumes, quality control data, and observations from construction review are presented in Amec Foster Wheeler's 2015 Construction Report (2016e). This section briefly highlights the 2015 construction activities undertaken on the Lynx TDF and the Old TDF.

8.2.1 Lynx TDF

Construction on Lynx TDF in 2015 consisted of:

- Demolition of the 80-Foot building (formerly part of the tailings and process water system), and relocation of all associated underground and above ground services;
- Clearing of the treed area around Phillips Sump and removal of the sump; and,
- Foundation preparation activities at the base of Lynx Dam's south arm (excavation, foundation preparation and backfilling with Zone A fill to pre-existing elevation). These works were performed within the limits of prior construction permits in preparation for a future dam raise at 3410 m crest elevation.

8.2.2 Old TDF

Two significant construction projects were initiated on the Old TDF in 2015, both related to water management upgrades. The Decants and Spillways project upgrades the operational water management of the facility, with all surface flows up to 1:1000 AEP being directed to treatment, and adds emergency flow capacity up to the operational IDF for all areas. The Lower Lynx Diversion Ditch upgrade project upgrades the clean water diversion adjacent to the Old TDF in order to pass flows up to the IDF.

These projects were initiated late in the year due to the timelines required for design, permitting, financing, and procurement for the projects.

8.2.2.1 Decants and Spillways

Construction took place from 22 October to 22 December 2015. It should be noted that this time period is entirely outside the optimal weather window for construction on the site, resulting in slow and difficult work.

The following works were undertaken as part of the Decants and Spillways project:

- Excavation of tailings from Reclaim Sands Area to convert the area into the Old TDF Surge Pond;
- Removal of the RSA decant;
- Partial excavation of the Surge Pond Overflow Spillway;

- Partial installation of the Old TDF Decant Pipeline and two downstream structures (Manhole 1 and the Energy Dissipater);
- Excavation trials at two sections of the proposed West Strip Channel.
- Improvements to storm water management along haul roads upstream of the new Surge Pond, including drainage ditches along those roads and a new headwall and pipeline to divert and convey runoff to the Super Pond.

Because the project was not finished, in mid-December the focus switched to creating an interim water management system to make the facility safe until the 2016 construction season. The interim system was designed to convey 1:200 AEP and consists of the following (Amec Foster Wheeler 2016d):

- Pumping to supplement drainage of the southeast corner of the APA, the east strip, the west strip, and the Surge Pond. The pumping utilizes the capacity of the existing APA decant and some other existing pipelines that report to the treatment system.
- A passive overflow channel between the West Strip and the Surge Pond,
- A passive overflow pipe from the Surge Pond to the Lynx Toe area, where water would ultimately drain overland into Super Pond; and
- Provision of additional pumps for emergency water management.

As of the time of writing, the interim system has functioned as intended and maintained water levels below critical freeboard levels.

8.2.2.2 Lower Lynx Diversion

The project initiated in 2015 follows on earlier work carried out in 2014 to upgrade the diversion to accommodate the IDF from Cascade Creek and the hillside above the Old TDF. The project spans from Sta. 0+225 above Waste Dump 6 to Sta. 0+975 east of Pumphouse 4, near the confluence with Myra Creek. When completed, the diversion will accommodate the IDF along its entire length.

Construction took place from 15 October to 04 November 2015, but was halted as construction quality control requirements could not be achieved in the wet weather. It should be noted that this time period is entirely outside the optimal weather window for construction on the site, resulting in slow and difficult work.

The existing diversion is nearly dry in the summer, during the optimal construction period, but in the rainy season, the diversion carries the peak flows from rainfall events, routinely resulting in flows of several metres cubed per second. This flow is beyond what can safely be conveyed by alternate temporary diversions during the construction work. For this reason the late start of construction required that the existing shotcrete diversion be left intact, and work on upgrading the actual ditch be deferred to 2016.

The work completed consisted primarily of preparatory works, including:

- Cutting of material to design subgrade parallel to the existing ditch from the east end of Dump 6 between Sta. 0+220 and 0+400,
- Placement of fill over the tailings surface between Sta. 0+340 and 0+600,
- Relocating of the Pumphouse 4 discharge line out of the project footprint, and
- Clearing of brush from the entire length of the project.

9.0 SUMMARY OF RECOMMENDATIONS

9.1 Previous Recommendations

Outstanding recommendations discussed in the 2014-Q3 Dam Inspection Report are provided in Table 8. The table indicates what action has been taken with respect to the recommendations and the status of each recommendation in terms of priority from both dam safety and mine management/planning perspectives. Recommendations that were indicated in the previous report as completed or no longer relevant due to changed circumstances have been omitted from the table.

Table 8: Summary of Previous Recommendations

Tracking Number	Previous Recommendation	Actions Taken in 2014/2015	Status/Importance
2014 Dam Status Report			
2013-02	Review tailings and waste storage practices in Lynx TDF with respect to overall storage density and potentials for improvement.	NMF commissioned studies in 2014 and future planning is incorporating the results	Complete Safety – Low Planning – High
2013-04	Revisit the IDF requirements for both the Old TDF and Lynx TDF in light of the 2007 CDA Guidelines	Recommended updated design criteria are included in Sections 2.4.3 and 2.5.3 of this report.	Complete Safety – Urgent Planning – Urgent
2013-05	Carry out investigation regarding groundwater and seepage conditions at the east abutment of the Paste Berm.	Investigations were completed by Amec Foster Wheeler and RGC in 2015.	Complete Safety – High Planning – High
2013-06	Survey existing movement monuments and establish an updated network of movement hubs.	New network established and surveyed quarterly.	Complete Safety – High Planning – Low
2013-08	Improve the decanting of clean water from the APA and RSA decants. Decants must be capable of passing design inlet flows and must not be impeded.	The Decants and Spillways project includes measures to address this recommendation.	In progress Safety – High Planning – High

Tracking Number	Previous Recommendation	Actions Taken in 2014/2015	Status/Importance
2013-11	Additional grading should be undertaken on any remaining areas of the main bench of the Old TDF Seismic Upgrade Berm that continue to pond or redirect surface water.	Some limited ditching has been undertaken and flexible drain pipe has been installed on the face of the upgrade berm to limit erosion.	Incomplete Safety – High Planning – Low See recommendation 2015-03
2013-12	The Alder Reach Diversion Ditch should be fully deactivated under the direction of a geotechnical engineer.	NMF has elected to defer the remaining deactivation, likely until implementation of closure.	Deferred Safety – Moderate Planning – Moderate
2013 Old TDF DSR (RGC, 2013a)			
2013-18	Update and simplify documents dealing with emergency preparedness and emergency management (also recommended in the Lynx TDF DSR).	NMF updated the OMS and EPP in 2015, and is proposing further revisions in 2016.	Complete Safety – High Planning – High
2013-19	Expedite closure planning and construction of approved closure works.	Closure planning has been delayed due to the need to investigate GLU (glaciolacustrine unit) stability and design seismic upgrade measures for the Paste Berm.	In Progress Safety – High Planning – Urgent
2013 Lynx TDF DSR (RGC, 2013b)			
2013-21	Reassess the static stability and seismic response of the Lynx TDF in the light of recent information about foundation conditions.	Stability analysis has been completed for the current configuration and a raise to El. 3410 m. Proposed engineering tasks include extending the analysis to the ultimate configuration.	Complete Safety – High Planning – Urgent
2013-22	Asses the stability and performance of the waste rock dumps above the Lynx TDF.	The waste dump study was initiated late in 2015 after receipt of lidar and funding, and completed in March 2016.	Complete Safety – High Planning – Moderate
2013-23	Consider relocating the waste rock dumps [above Lynx TDF] as soon as is practical.	Considerations should include the results of the stability assessment and closure planning objectives.	Not completed Safety – Low Planning – Moderate
2014-Q3 DSI Report (AMEC 2014b)			
2014-01	Investigate Paste Berm stability and seepage conditions. Design remedial drainage and/or buttressing during 2015. The design must incorporate measures to address the groundwater discharge at the east abutment. See also recommendation 2013-05.	Investigation was completed in 2015. Design of the buttressing was delayed by the need to incorporate results from the GLU investigation and stability assessment. Stabilization design is proposed for 2016.	Ongoing Safety – High Planning – Urgent

Tracking Number	Previous Recommendation	Actions Taken in 2014/2015	Status/Importance
2014-02	Pump the pond that forms in the southeast corner of the APA to limit the potential for seepage erosion of the Paste Berm toe.	A pump was installed and water levels are generally maintained at a low level.	Complete Safety – Urgent Planning – Low
2014-03	Measures should be taken to mitigate erosion of the paste stack in the APA. Implementation of a simple waste rock cover is likely the most practical option.	The springs along the top of the paste stack were collected in a surface ditch. The ditch will be re-established as part of the LLDD project. No other actions have been taken.	Incomplete Safety – Moderate Planning – High
2014-04	Old TDF piezometer network should be reviewed for data gaps and additional and/or replacement sensors should be installed if necessary.	Additional instruments were installed as part of the Paste Berm investigation.	Complete Safety – Moderate Planning – Low
2014-05	Alarm thresholds for piezometers on the Old TDF should be reviewed and adjusted as necessary to represent conditions which would actually present a concern.	Assessment of thresholds is planned for 2016, and will take into account the recent/ongoing stability analyses.	Incomplete Safety – Low Planning – Low
2014-07	An access into the north side of the pit wall should be established from the dam to facilitate placement of garbage away from the dam structure. Garbage must not be placed on the dam or on the upstream face.	NMF no longer allows garbage to be placed in the tailings facility.	No longer relevant.
2014-08	Review and improve operation and maintenance procedures in the Paste Plant to reduce the frequency of deposition of raw thickener underflow to Lynx TDF	Paste plant infrastructure is under review by NMF and improvements/maintenance will be incorporated in restarting the mine.	Complete/ongoing Safety – Low Planning – High
2014-09	Investigate options for dewatering of dredge material prior to deposition in Lynx TDF. As of the time of writing, the dredge line had been relocated to the paste thickener tank.	Dewatering options relied on the paste plant, which is not currently operational.	Incomplete Safety – Low Planning - High
2014-10	Expedite clearance of waste from foundation areas between the current dam toe and Super Pond. Develop a surface waste management strategy that focuses on keeping dam construction areas clear.	The stockpile was removed out to the toe of a proposed raise to El. 3410 m. It is anticipated construction of the raise will consume the remainder of the stockpile.	Complete Safety – Moderate Planning – Urgent

Tracking Number	Previous Recommendation	Actions Taken in 2014/2015	Status/Importance
2014-11	Connect all piezometers to an automated logging system. Implement real-time networking and internet access to the system to improve the timely availability and use of data.	The automated logging system was implemented in March 2016. Work to provide real-time access is ongoing.	Ongoing Safety – High Planning – Low
2014-12	Manually read piezometers not less than weekly for those instruments not on data loggers.	This was completed up to the point where the instruments were connected to loggers.	Complete Safety – High Planning – Low

9.2 New Recommendations from 2015

The following section summarizes Amec Foster Wheeler's recommendations with respect to the operations, maintenance, and surveillance of the tailings dams and associated structures based on engineering work carried out between Q3-2014 and the end of 2015.

Table 9: Summary of New Recommendations

ID	Recommendation	Importance
2015-01	Where possible, adopt updated design criteria derived from CDA guidelines and MEM/MOE requirements, as outlined in Table 2 in Section 2.4.3 and Table 3 in Section 2.5.3	Planning – High Dam Safety – High
2015-02	Continue to use 1.2 t/m³ (dry) for cyclone overflow paste tailings for tailings storage density for planning purposes, as outlined in Section 4.5.1.	Planning - High
2015-03	Reslope the flat bench of the TDF Seismic Upgrade Berm to 2% crossfall to mitigate standing water on the berm, as discussed in Section 5.1.5. Note regrading is preferred to ditching.	Dam safety - High
2015-04	Install freeboard indicators in the east and west Strip and Old TDF Surge Pond, as outlined in Section 5.2.2	Dam Safety – High Operations - Moderate
2015-05	Survey slope inclinometer casing profiles annually, before and after construction, and after significant earthquakes, as outlined in Section 7.0	Dam safety - High
2015-06	Revise piezometer alarm thresholds for the Old TDF based on ongoing stability assessments, as outlined in Section 7.2.1	Dam safety - High

10.0 LIMITATIONS AND CLOSURE

This Dam Safety Inspection report has been prepared using the available information, including observations and measurements carried out within the reporting period. It necessarily relies on available background information including design, as-built, and assessment reports by Amec Foster Wheeler and others. The site has a long historical legacy and in some cases has significant gaps in as-built information and performance records. The observations, conclusions, and recommendations presented in this report are accordingly based on the known and inferred conditions and are subject to revision should any new information be made available.

This report has been prepared for the exclusive use of Nyrstar Myra Falls Ltd. for specific application to the area within this report. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. Amec Foster Wheeler accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. It has been prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

Respectfully submitted,

Amec Foster Wheeler Environment & Infrastructure,
a Division of Amec Foster Wheeler Americas Limited

Reviewed by:

Original paper copies signed and sealed by
Dan Hughes-Games, P.Eng.

Original paper copies signed by
Ed McRoberts, P.Eng., Ph.D.

Dan Hughes-Games, P.Eng.
Senior Geotechnical Engineer

Ed McRoberts, P.Eng., Ph.D.
Principal Geotechnical Engineer

Original paper copies signed by
Frederic Besozzi, P.Eng.

Frederic Besozzi, P.Eng.
Senior Geotechnical Engineer

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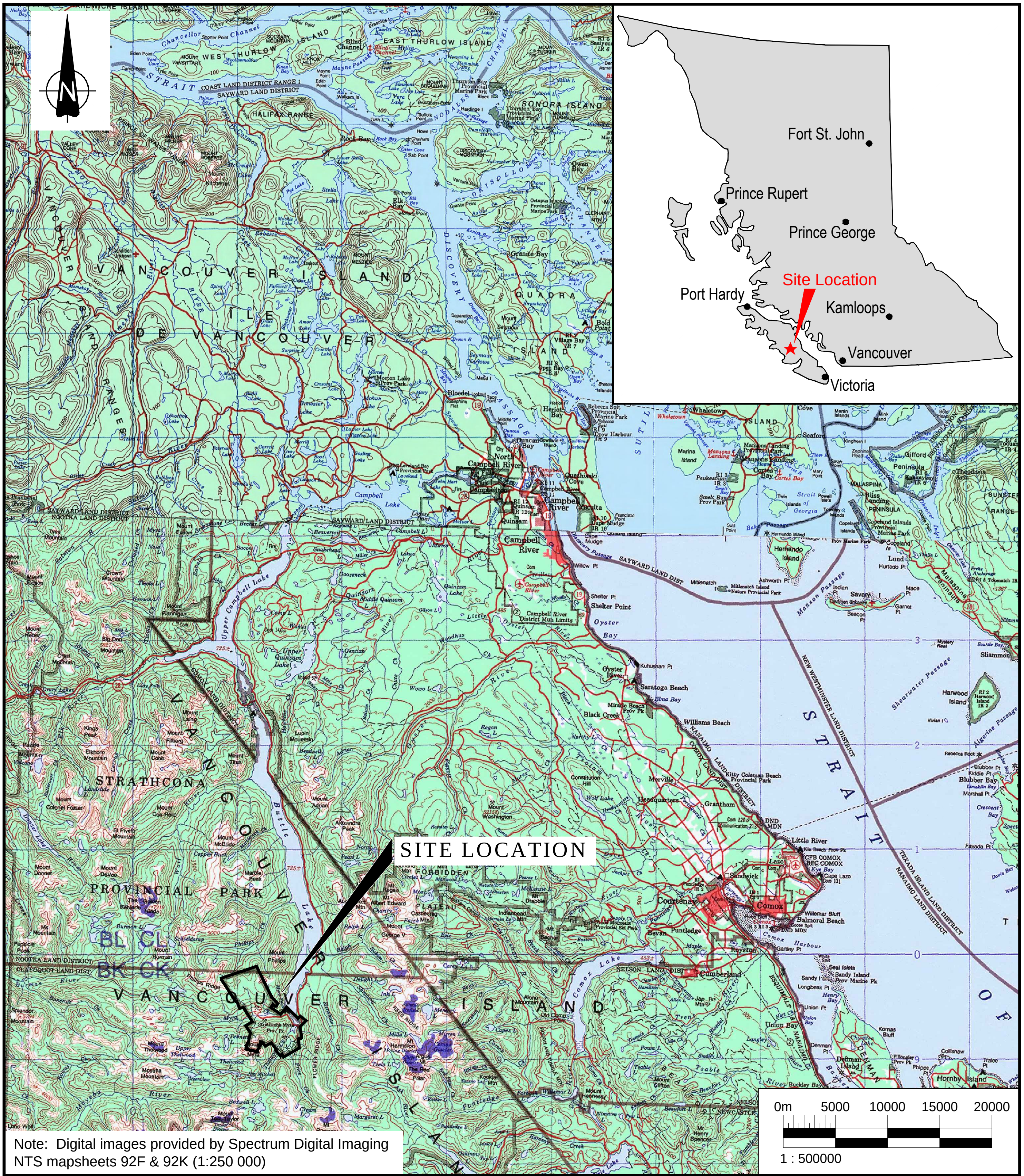
Drawings



Note: Digital images provided by Spectrum Digital Imaging
NTS mapsheets 92F & 92K (1:250 000)

amec foster wheeler
Environment & Infrastructure

CLIENT:
nyrstar

Amec Foster Wheeler
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DWN BY: F.Besozzi
CHK'D BY: D.Hughes-Games
DATUM: NAD 83
PROJECTION: UTM ZONE 10
SCALE: 1:500000

PROJECT:
MYRA FALLS TAILINGS FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
SITE LOCATION PLAN

DATE: MARCH 2016
PROJECT NO: NX14001B
REV. NO:
FIGURE NO: 010501

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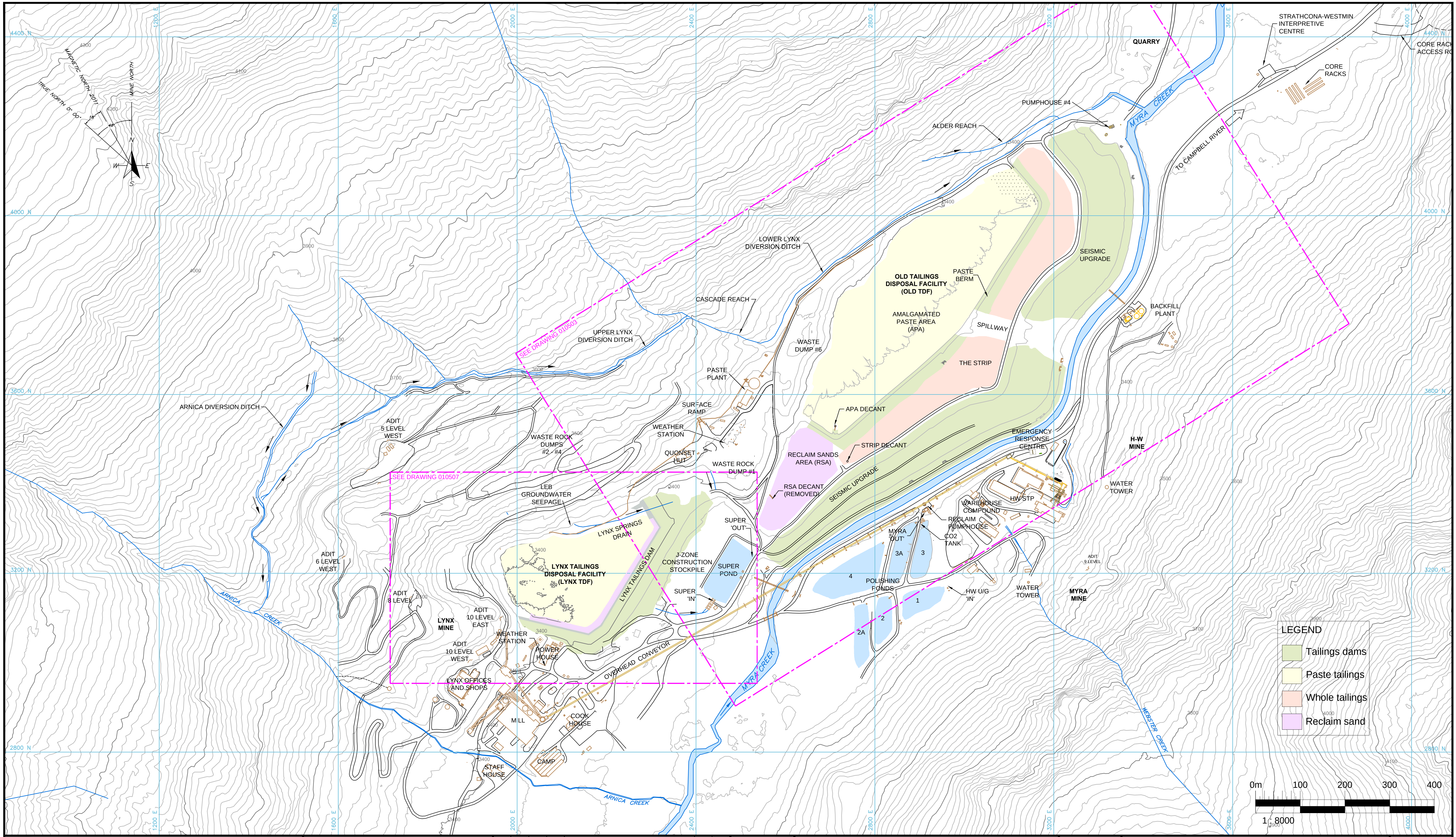

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2. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT AND PREDATES THE 2015 CONSTRUCTION. REFER TO THE "2015 CONSTRUCTION REPORT" FOR ADDITIONAL DETAILS.
3. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).

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Environment & Infrastructure

Client:
nyrstar

Amec Foster Wheeler
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: 1:8000

PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
GENERAL SITE ARRANGEMENT PLAN

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010502
SHEET NO.: 2 of 12

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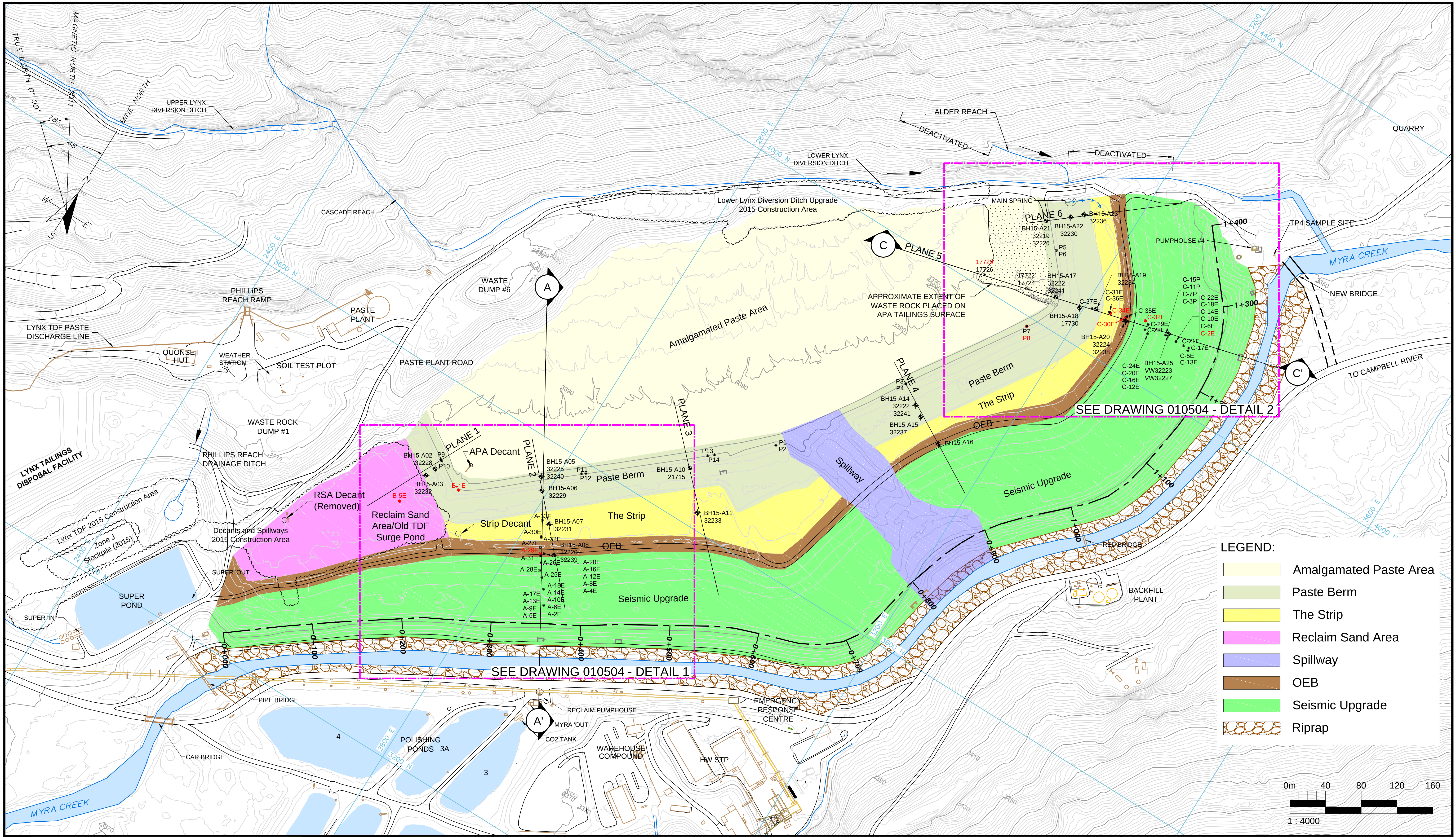

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LEGEND:

● A-28E	PIEZOMETER (FUNCTIONAL)
● A-28E	PIEZOMETER (NOT FUNCTIONAL)
⌖ BH15-A07 32231	NEW PIEZOMETER 2015

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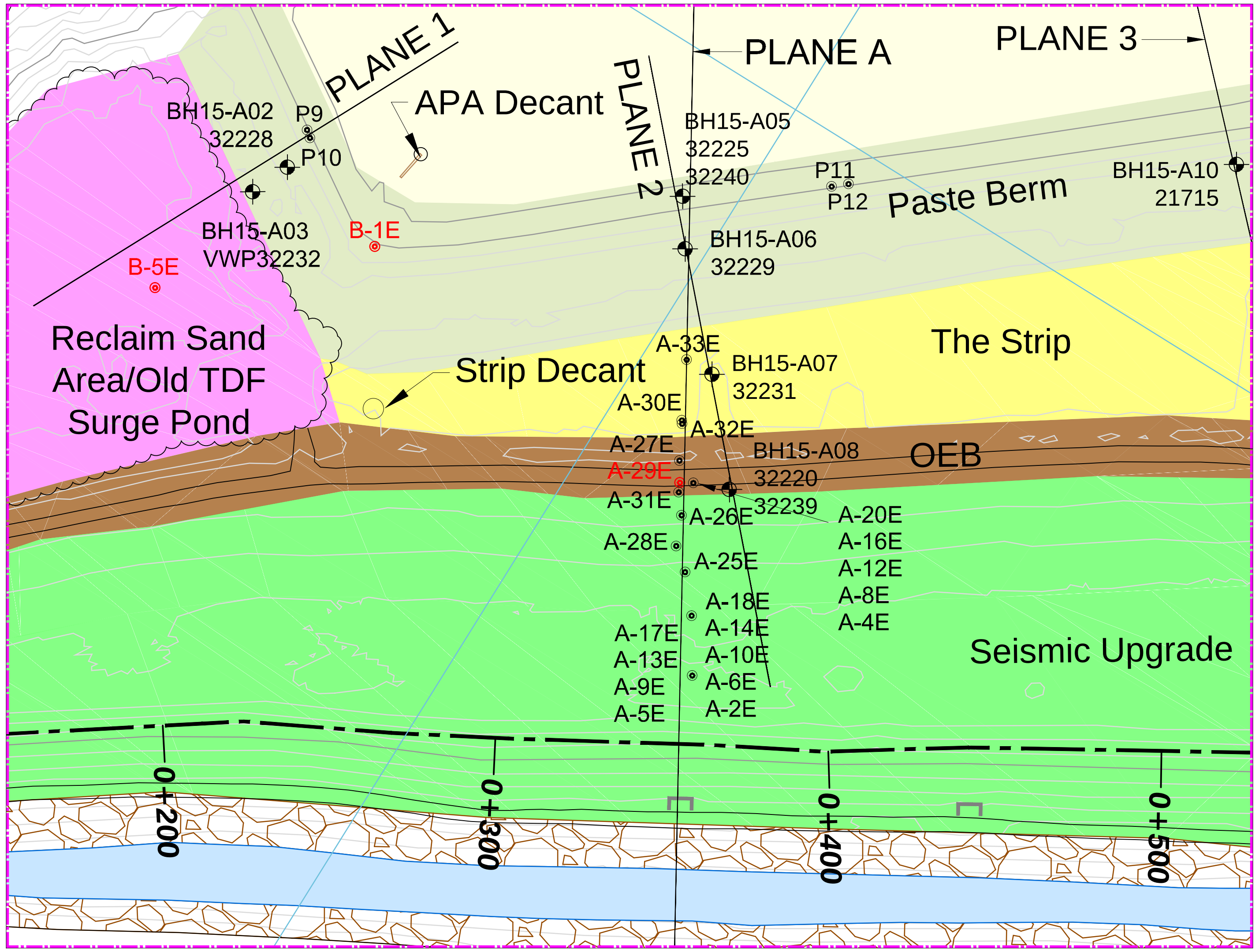
Amec Foster Wheeler
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: 1:4000

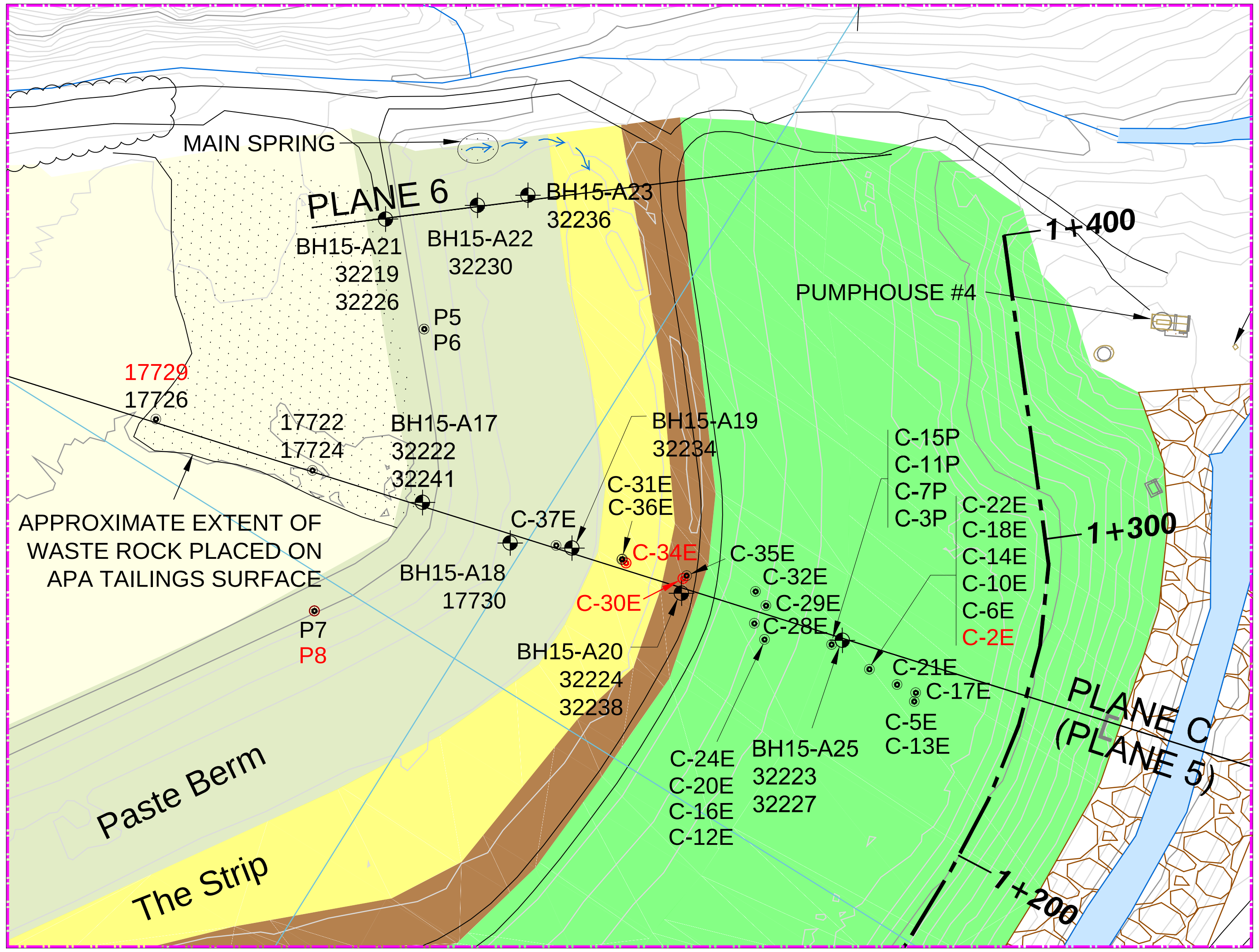
PROJECT: MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION

TITLE: OLD TAILINGS DISPOSAL FACILITY INSTRUMENTATION PIEZOMETERS

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010503
SHEET NO.: 3 of 12



DETAIL 1
INSTRUMENT PLANES 1, 2 AND A



DETAIL 2
INSTRUMENT PLANES 6 AND C

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1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
2. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT AND PREDATES THE 2015 CONSTRUCTION. REFER TO THE "2015 CONSTRUCTION REPORT" FOR ADDITIONAL DETAILS.
3. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).

LEGEND:

◉ A-28E	PIEZOMETER (FUNCTIONAL)
◉ A-28E	PIEZOMETER (NOT FUNCTIONAL)
⌖ BH15-A07 (VWP32231)	NEW PIEZOMETER (2015)

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amec foster wheeler
Environment & Infrastructure

Client:
nyrstar

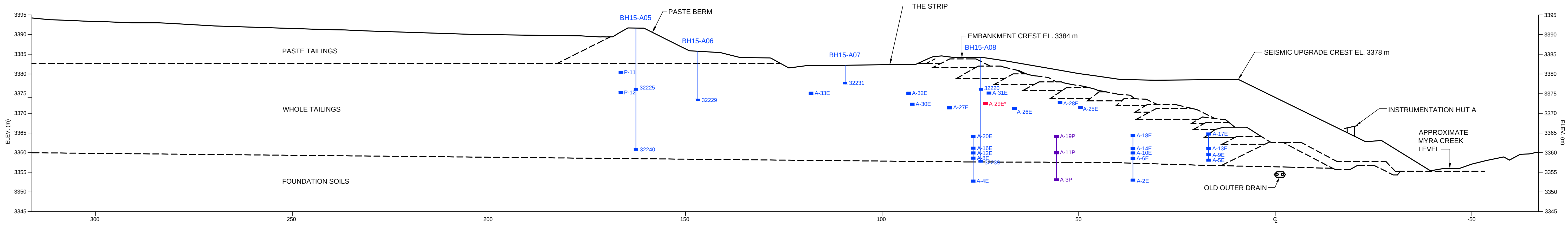
Amec Foster Wheeler
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: 1:2000

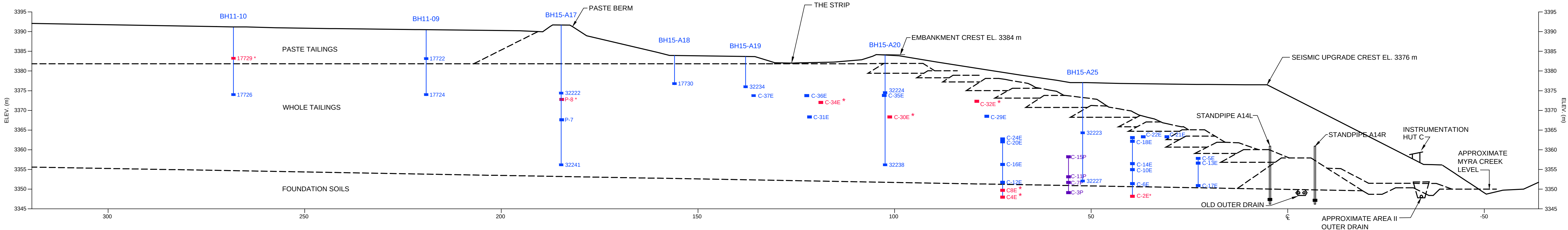
PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
OLD TAILINGS DISPOSAL FACILITY
INSTRUMENTATION - PIEZOMETERS
DETAILS 1 & 2

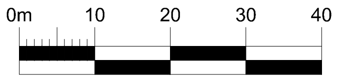
PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010504
SHEET NO.: 4 of 12



SECTION A 503 INSTRUMENTATION PLANE A
STA. 0+355



SECTION C 503 INSTRUMENTATION PLANE C
STA. 1+252



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NOTES:
1. SECTION ADOPTED FROM KLOHN CRIPPEN BERGER, PROJECT No. M07632 A52, DRAWING No. D-52304, REV. B DATED MARCH 31, 2006. SECTION LOCATIONS AND ORIENTATIONS ARE APPROXIMATE.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
3. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT.
4. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).

LEGEND:

■ A-20E	VIBRATING WIRE PIEZOMETER
■ A-19P	PNEUMATIC PIEZOMETER
■ A-20E *	NO LONGER FUNCTIONING OR LOST

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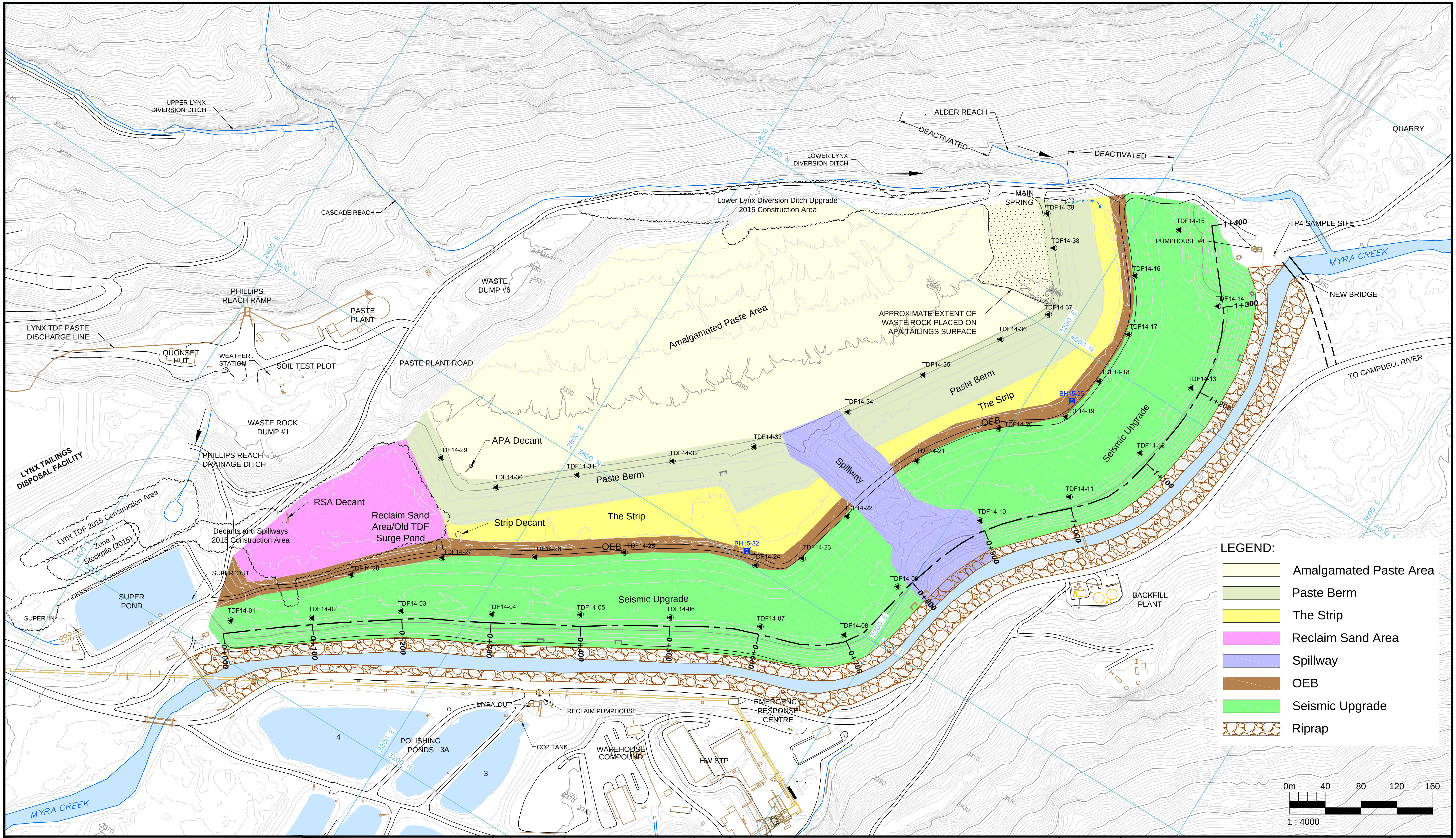
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: 1:1000

PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
OLD TAILINGS DISPOSAL FACILITY
INSTRUMENTATION PLANES
SECTIONS A & C

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010505
SHEET NO.: 5 of 12



NOTES:
1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
2. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT AND PREDATES THE 2015 CONSTRUCTION. REFER TO THE "2015 CONSTRUCTION REPORT" FOR ADDITIONAL DETAILS.
3. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).

LEGEND:

TDF14-04	◀	SURFACE MOVEMENT MONUMENT
BH15-35	⌧	SLOPE INCLINOMETER

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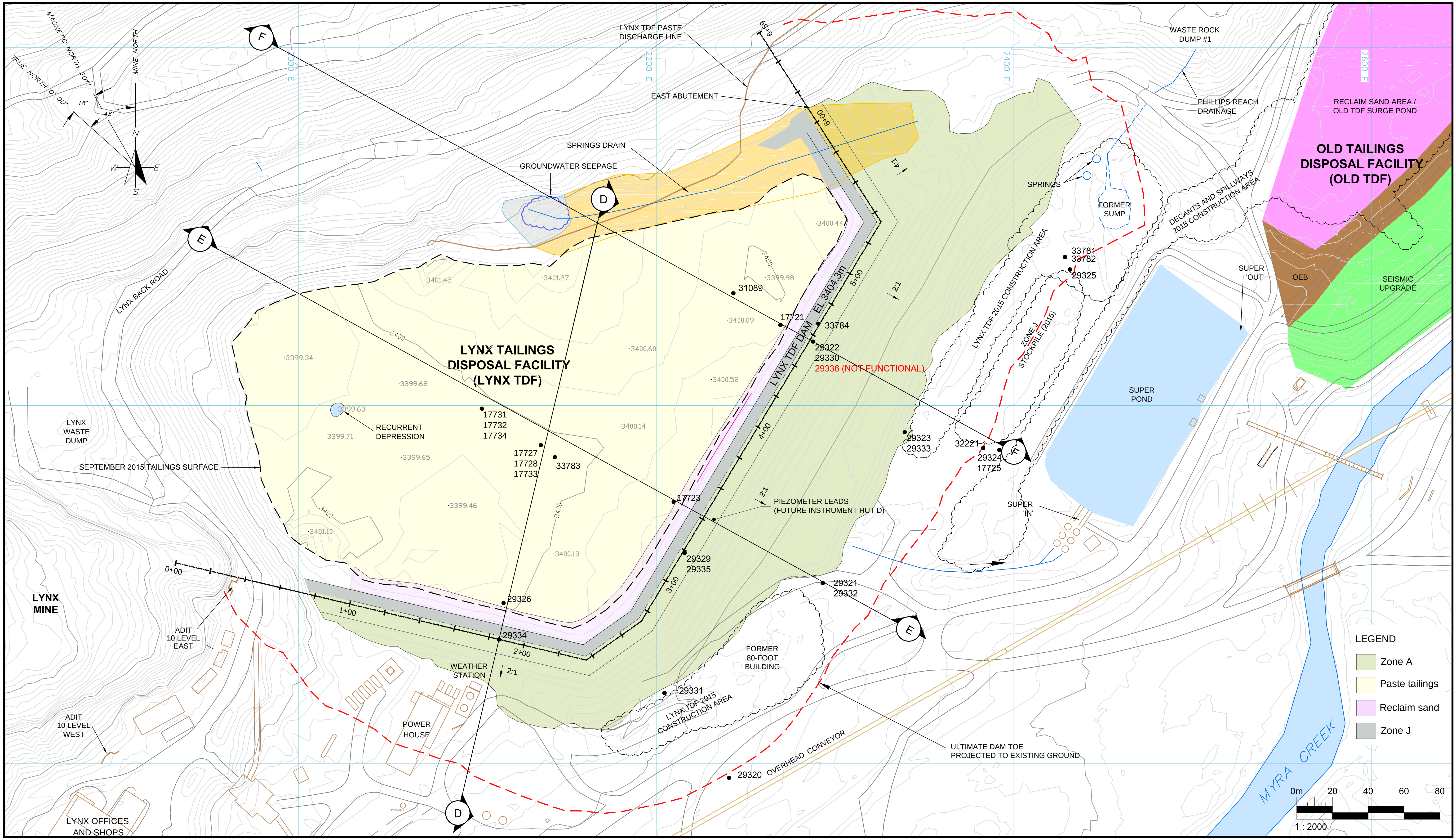
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
ORIGINAL SCALE: 1:4000

PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
OLD TAILINGS DISPOSAL FACILITY
INSTRUMENTATION
MONUMENTS AND INCLINOMETERS

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010506
SHEET NO.: 6 of 12



NOTES:
1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
2. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT AND PREDATES THE 2015 CONSTRUCTION. REFER TO THE "2015 CONSTRUCTION REPORT" FOR ADDITIONAL DETAILS.
3. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).
4. INSTRUMENT SECTION E LABELED AS D IN EARLIER REPORTS

LEGEND:

● 29334 VIBRATING WIRE PIEZOMETERS

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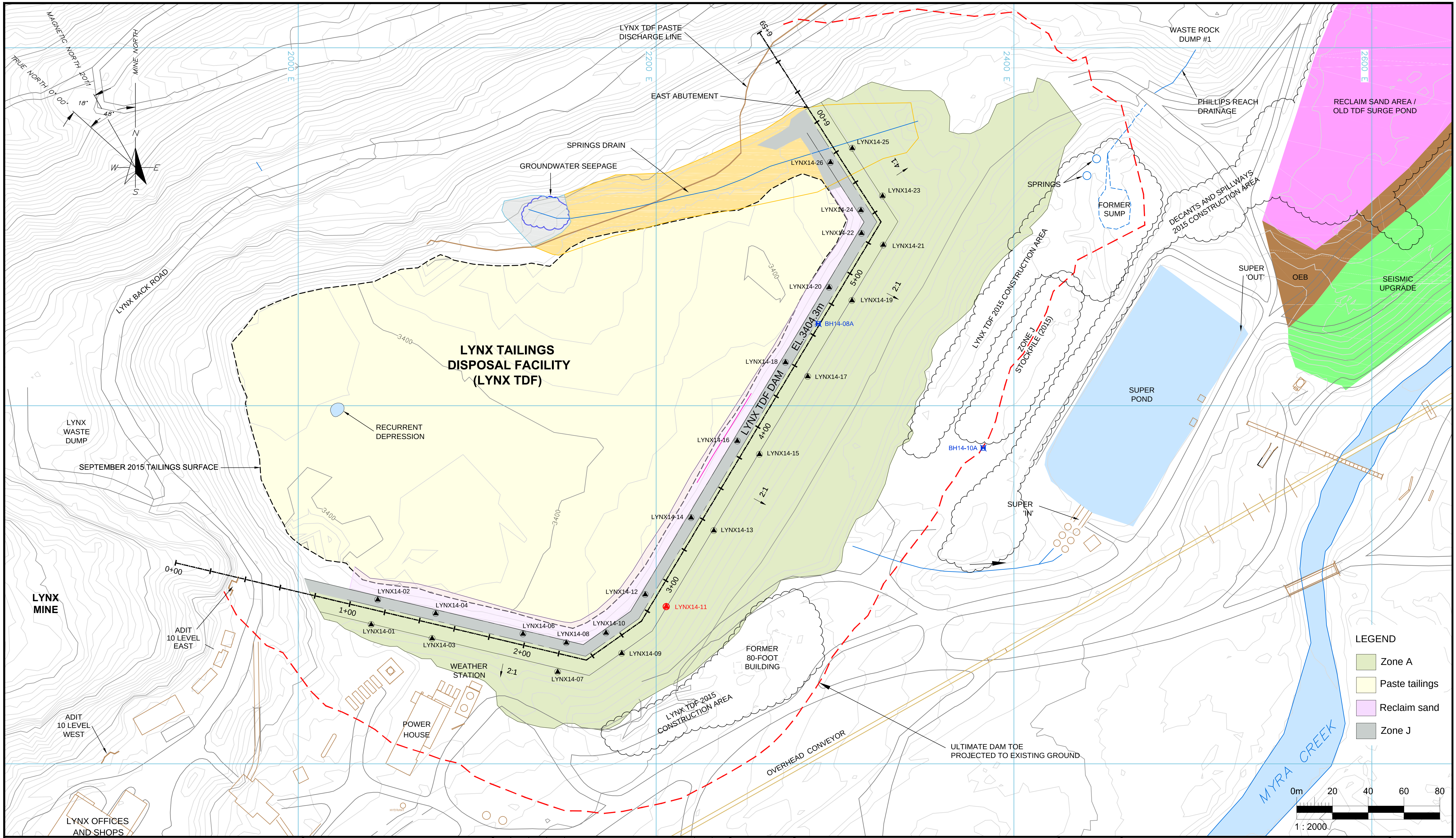
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: 1:2000

PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
LYNX TAILINGS DISPOSAL FACILITY
INSTRUMENTATION
VIBRATING WIRE PIEZOMETERS

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010507
SHEET NO.: 7 of 12



NOTES:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
2. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT AND PREDATES THE 2015 CONSTRUCTION. REFER TO THE "2015 CONSTRUCTION REPORT" FOR ADDITIONAL DETAILS.
3. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).
4. INSTRUMENT SECTION E LABELED AS D IN EARLIER REPORTS

LEGEND:

LYNX14-04 ◀	SURFACE MOVEMENT MONUMENT
LYNX14-04 ●	SURFACE MONUMENT (DESTROYED)
BH14-10A ⌧	SLOPE INCLINOMETER

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nyrstar

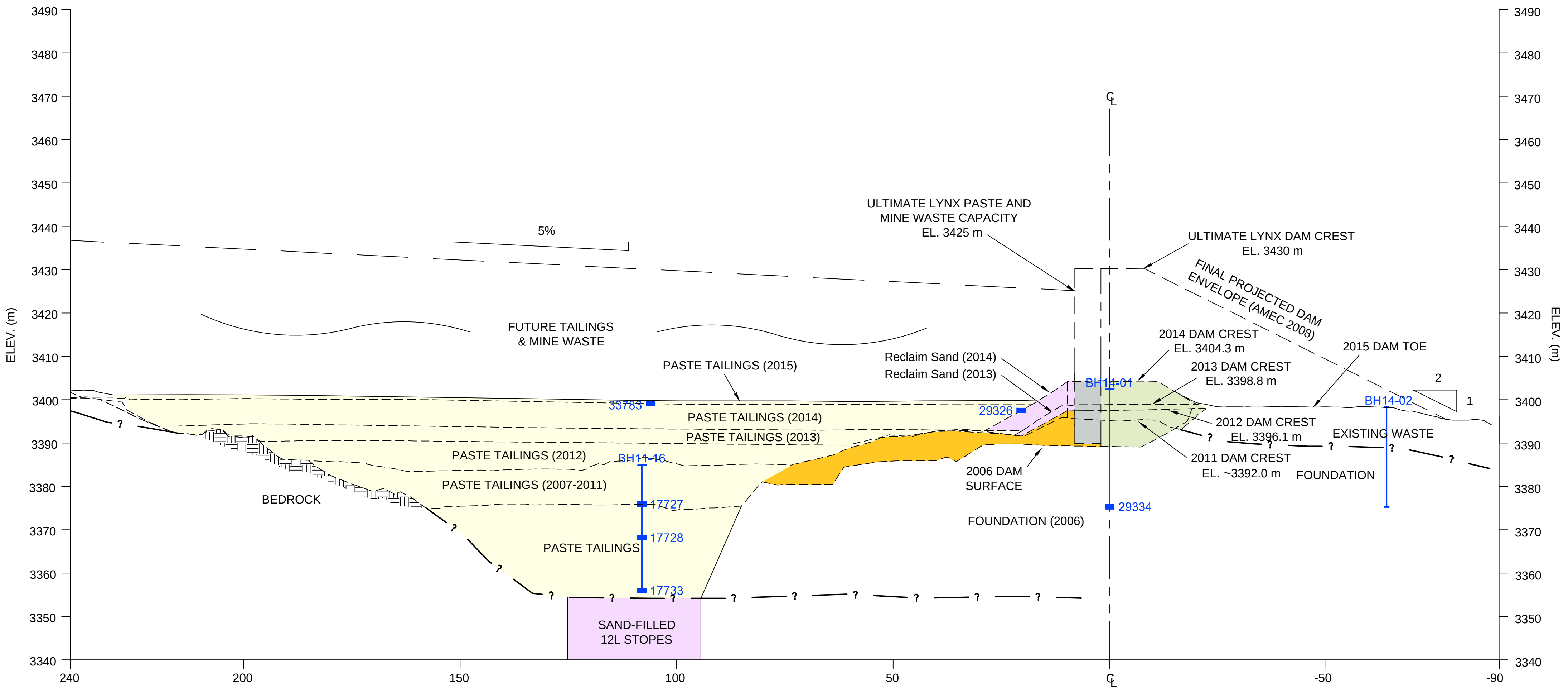
Amec Foster Wheeler
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: 1:2000

PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
LYNX TAILINGS DISPOSAL FACILITY
INSTRUMENTATION
MONUMENTS AND INCLINOMETERS

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010508
SHEET NO.: 8 of 12



INSTRUMENT PLANE D
(SCHEMATIC CROSS SECTION)
STA. 1+85

LEGEND:

🟩 Compacted Rockfill (Zone A)
▩ Compacted Rockfill and Fines (Zone J)
▨ Compacted Rockfill (Gradation not known)
🟧 Uncompacted Rockfill and Tailings (Nominally Zone J)
☐ Cyclone Overflow (Fine) Tailings - Paste or Thickener Underflow
🟨 Paste Tailings (Cemented)
🟦 Permeable Rockfill (Zone C1-C4)
🟪 Cyclone Underflow (Coarse) Tailings
▬ 17724 Vibrating Wire Piezometers

0m 10 20 30 40 50
1 : 1250

NOTES:
1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
2. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT.
3. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).

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nyrstar

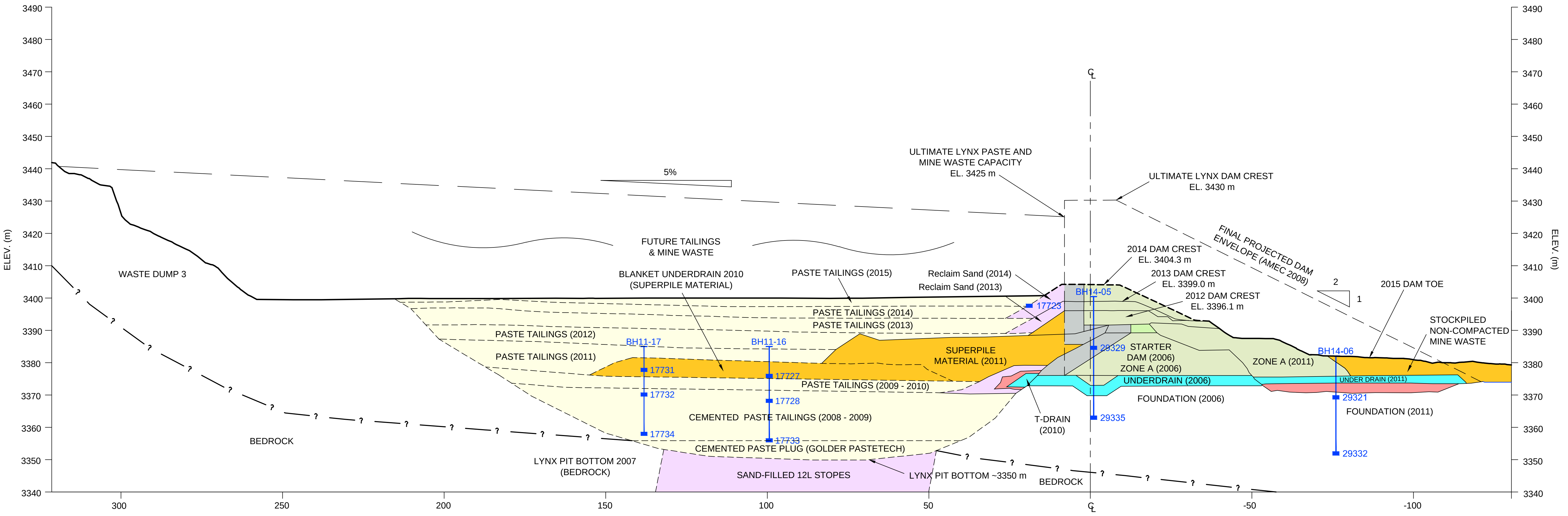
Amec Foster Wheeler
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM:	MINE
PROJECTION:	MINE
DRAWN BY:	F. Besozzi
REVIEWED BY:	D. Hughes-Games
SCALE:	1:1250

PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
LYNX TAILINGS DISPOSAL FACILITY
INSTRUMENT PLANE D
(STA. 1+85)

PROJECT NO.:	NX14001B
REVISION NO.	
DATE:	MARCH 2016
DRAWING NO.:	010509
SHEET NO.:	9 of 12



LEGEND:

🟩 Compacted Rockfill (Zone A)

▨ Compacted Rockfill and Fines (Zone J)

▨ Compacted Rockfill (Gradation not known)

🟧 Uncompacted Rockfill and Tailings (Nominally Zone J)

☐ Cyclone Overflow (Fine) Tailings - Paste or Thickener Underflow

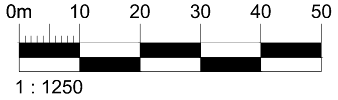
🟨 Paste Tailings (Cemented)

🟦 Permeable Rockfill (Zone C1-C4)

🟪 Cyclone Underflow (Coarse) Tailings

▬ 17724 Vibrating Wire Piezometers

INSTRUMENT PLANE E
(SCHEMATIC CROSS SECTION)
STA. 3+40



NOTES:
1. SECTION MODIFIED FROM NYRSTAR MYRA FALLS, LYNX PIT TAILINGS FACILITY, SECTION 3: 0+340 m, OCTOBER 2013.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
3. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT.
4. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m.

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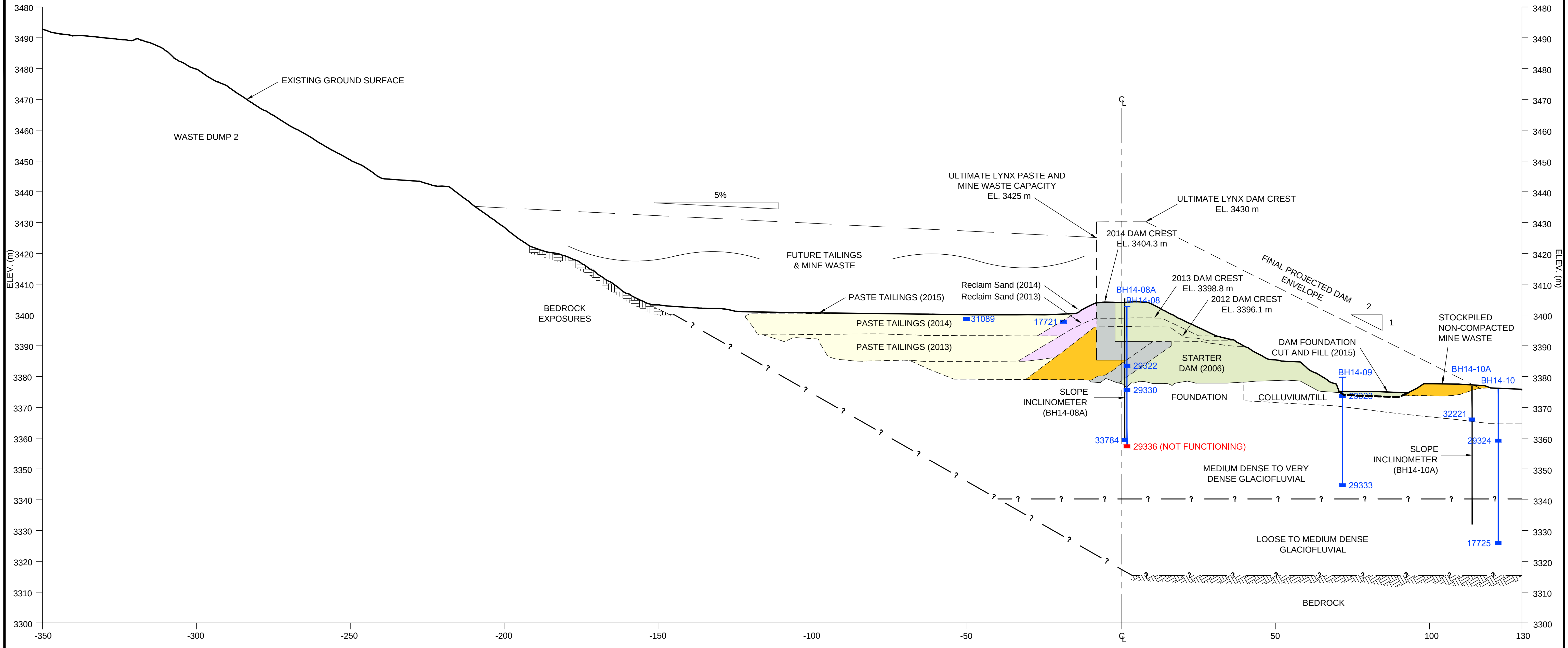
Amec Foster Wheeler
Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: 1:1250

PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
LYNX TAILINGS DISPOSAL FACILITY
INSTRUMENT PLANE E
(STA. 3+40)

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010510
SHEET NO.: 10 of 12



LEGEND:

🟩 Compacted Rockfill (Zone A)

▩ Compacted Rockfill and Fines (Zone J)

🟧 Uncompacted Rockfill and Tailings (Nominally Zone J)

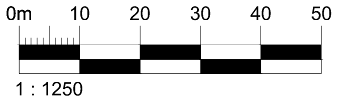
🟨 Paste Tailings

🟪 Reclaim Sands (cyclone underflow/coarse tailings)

▬ 17724 Vibrating Wire Piezometers

—— Slope Inclinometers

INSTRUMENT PLANE F
(SCHEMATIC CROSS SECTION)
STA. 4+57



NOTES:
1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
2. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT
3. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).
4. PASTE TAILINGS LEVEL AS OF SEPTEMBER 2015 WAS BELOW THE PASTE TAILINGS LEVEL IN MARCH 2015 & JUNE 2015 DUE TO CONSOLIDATION OF THE TAILINGS MASS.

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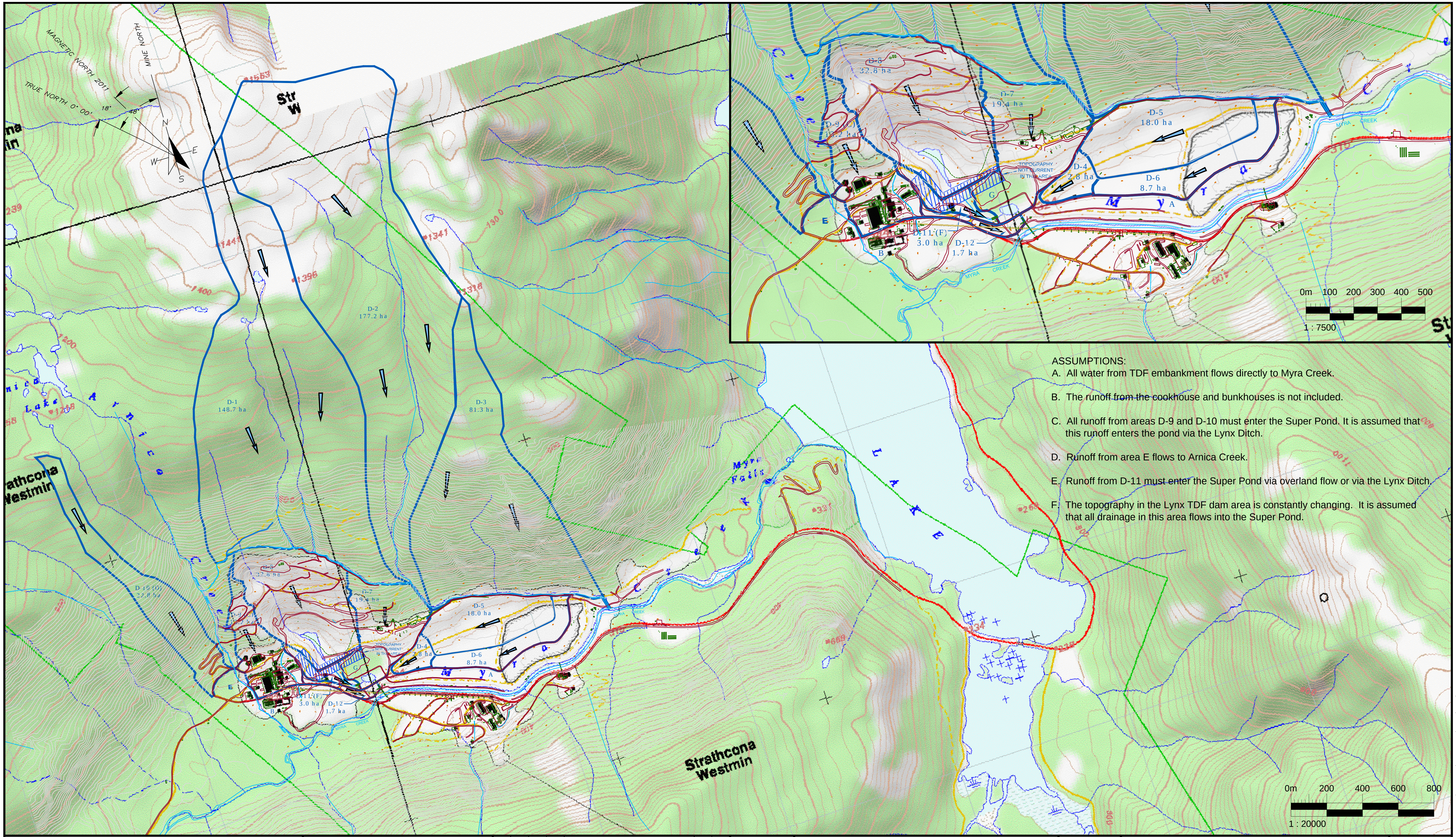
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: 1:1250

PROJECT: MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE: LYNX TAILINGS DISPOSAL FACILITY
INSTRUMENT PLANE F
(STA. 4+57)

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010511
SHEET NO.: 11 of 12



ASSUMPTIONS:

A. All water from TDF embankment flows directly to Myra Creek.

B. The runoff from the cookhouse and bunkhouses is not included.

C. All runoff from areas D-9 and D-10 must enter the Super Pond. It is assumed that this runoff enters the pond via the Lynx Ditch.

D. Runoff from area E flows to Arnica Creek.

E. Runoff from D-11 must enter the Super Pond via overland flow or via the Lynx Ditch.

F. The topography in the Lynx TDF dam area is constantly changing. It is assumed that all drainage in this area flows into the Super Pond.

NOTES:
1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE REPORT NO. NX14001B "MYRA FALLS TAILINGS STORAGE FACILITIES 2015 DAM SAFETY INSPECTION REPORT", DATED MARCH 2016.
2. SURFACE TOPOGRAPHY BASED ON 2006 SURVEY DATA.
3. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3047.5 m).
4. THE IMAGE PROVIDES CONTOUR INFORMATION OUTSIDE OF THE SURVEY DATA. THIS INFORMATION IS ON MASL DATUM. THE IMAGE WAS OBTAINED FROM SPECTRUM DIGITAL IMAGING LTD.

LEGEND

━	DRAINAGE BOUNDARY
⇐	FLOW DIRECTION
D-4 2.8 ha	DRAINAGE AREA ID DRAINAGE AREA (in Hectares)

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4385 Boban Drive, Nanaimo, B.C., V9T 5V9
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DATUM: MINE
PROJECTION: MINE
DRAWN BY: F. Besozzi
REVIEWED BY: D. Hughes-Games
SCALE: AS SHOWN

PROJECT:
MYRA FALLS TAILINGS STORAGE FACILITIES
2015 DAM SAFETY INSPECTION

TITLE:
DRAINAGE AREA MAP

PROJECT NO.: NX14001B
REVISION NO.:
DATE: MARCH 2016
DRAWING NO.: 010512
SHEET NO.: 12 of 12

Appendix A

Selected Photographs

Photo 1: Construction of Lynx Springs Drain, going through the east arm of Lynx Dam, looking southeast (October 23, 2014).

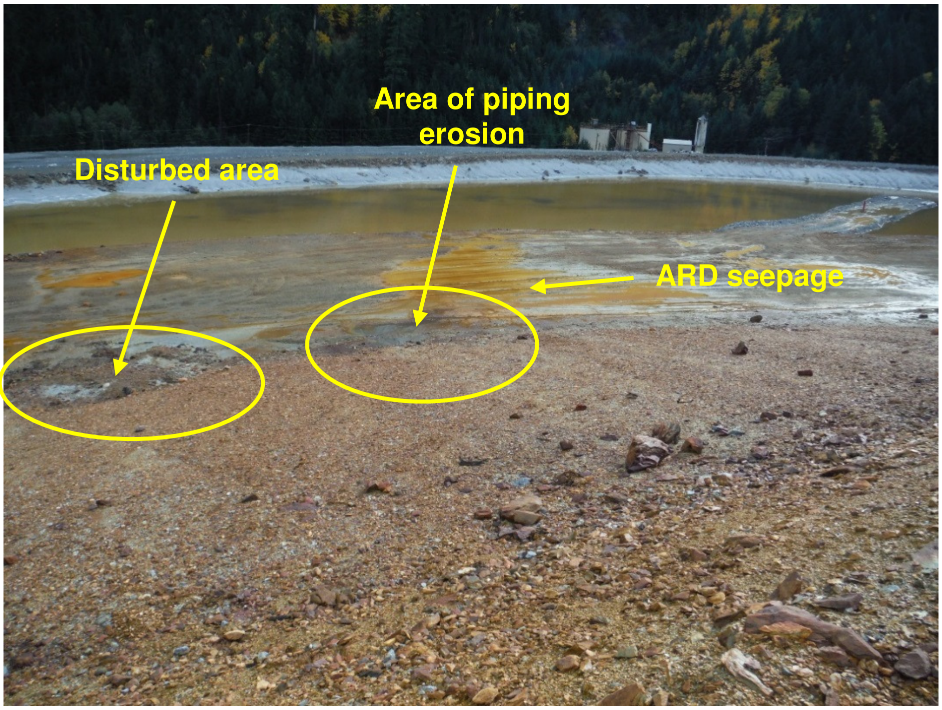


Photo 2: Disturbed wet ground, ARD seepage and a discrete seepage source with signs of piping erosion at the corner of the Paste Berm near Instrument Plane C (October 23, 2014).

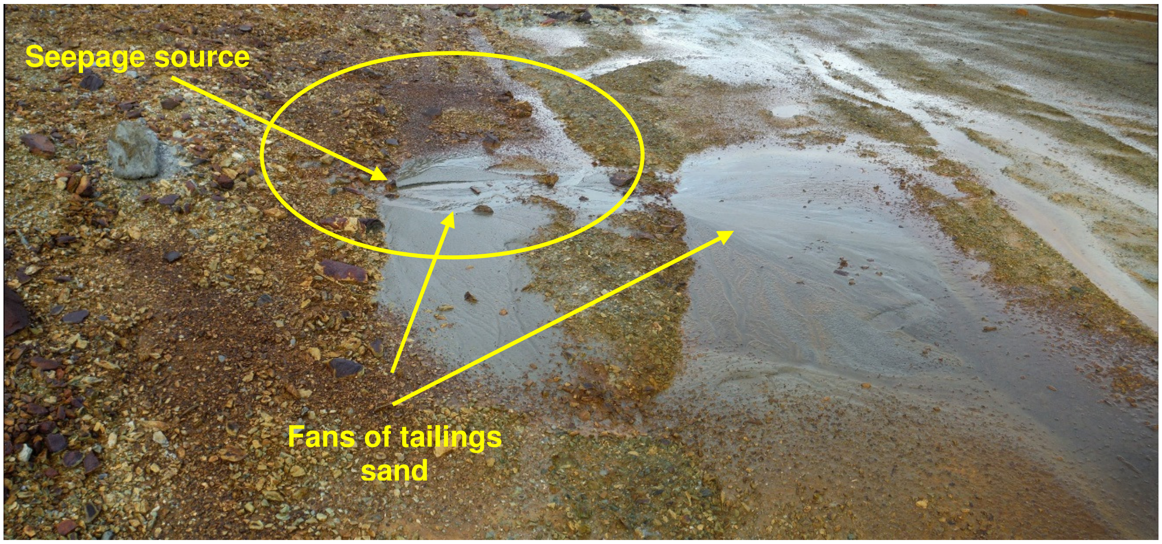


Photo 3: Close-up of seepage source at the toe of the Paste Berm. Note the tailings sand deposited along surface flow path (October 23, 2014).

Photo 4: Water ponded at the southeast corner of the APA between the Paste Investigation Road and the northeast rock pad (October 23, 2014).

Photo 5: Areas of ARD seepage on the Seismic Berm caused by runoff from the access road between the West Strip and the RSA, looking southwest (October 23, 2014).

Photo 6: Patching work completed for the piping erosion at the Paste Berm toe, constructed using geotextile filter fabric and free draining material, looking northeast (November 27, 2014).

Photo 7: High water flow out of the main spring at the Paste Berm east abutment, looking east (November 27, 2014).

Photo 8: Ponded water observed in trees around Phillips Reach sump after major flooding, tailings/sediments from Phillips Reach inflow, looking southwest (December 2, 2014).

Photo 9: High flow of water from Phillips Reach into the flooded Phillips Reach Sump, looking south (December 10, 2014).

Photo 10: Flooding at toe of Lynx Dam, looking west (December 10, 2014).

Photo 11: High water level in East Strip, required emergency actions
(December 10, 2014).

Photo 12: West Strip decant area completely submerged (December 11, 2014).

Photo 13: Pump located at the west end of the East Strip (January 9, 2015).

Photo 14: View of Lynx Pit Slide area, looking north towards waste dumps (January 9, 2015).

Photo 15: Head of Lynx Pit Slide area, looking east (January 9, 2015).

Photo 16: Lynx Springs Drain outlet (February 9, 2015).

Photo 17: APA (large diameter) and RSA/Strip decant (small diameter) pipes discharging into Superpond 'In' channel (February 9, 2015).

Photo 18: Crack along the upstream side of Lynx Dam south arm, looking east (March 5, 2015).

Photo 19: Lynx Dam west arm, looking south, showing minor sloughing of the upstream shell (August 24, 2015).

Photo 20: Ponding at the toe of the “Zone J” stockpile, showing Lynx Dam south arm east lower benches and toe area, looking west (March 5, 2015).

Photo 21: Overview of Lynx TDF in dry season, looking southeast, showing recurrent depression in yellow. Note tailings beach against south arm (July 23, 2015).

Photo 22: Overview of Lynx TDF in wet season, looking south. Note recurrent depression not visible (October 31, 2015).

Photo 23: View of Lynx TDF, looking southwest. Note mud wave in tailings created by construction waste deposition in the northwest corner (October 31, 2015).

Photo 24: Lynx TDF, looking west. Note pump located on Lynx Springs Drain Road (October 31, 2015).

Photo 25: Toe area of Lynx Dam south arm. Phillips Reach sump has been taken out. Foundation panel construction ongoing (July 23, 2015).

Photo 26: Seepage and surface runoff on Lynx Dam mid-level "2011" bench, looking southeast (September 24, 2015).

Photo 27: Panel area below Lynx TDF south arm inundated with water at the south end, looking west (September 24, 2015).

Photo 28: View of Lynx TDF panels area, looking southeast, showing improved drainage out of the south end due to a culvert leading to Super Pond (October 31, 2015).

Photo 29: Working on dismantling the 80-Foot Building, looking south (May 22, 2015).

Photo 30: Overview of Lynx TDF south arm toe area after dismantling of 80-Foot Building, looking west (July 16, 2015).

Photo 31: View of the RSA, looking east (February 9, 2015).

Photo 32: RSA, looking west (July 23, 2015).

Photo 33: Construction at the RSA for the Decants and Spillways project, looking east (October 29, 2015).

Photo 34: View of the APA in dry season, looking southeast (August 24, 2015).

Photo 35: View of APA ditch in dry season, looking east (July 23, 2015).

Photo 36: View of APA in wet season, looking southeast (October 30, 2015).

Photo 37: Pump located in southeast corner of APA, looking northwest
(October 30, 2015).

Photo 38: View of the APA ditch in wet season, looking east (October 30, 2015).

Photo 39: View of West Strip and strip decant area, looking east (July 23, 2015).

Photo 40: View of West Strip from the decant area, looking east. Note presence of pump to manage water levels (October 30, 2015).

Photo 41: East Strip showing minor erosional features along the OEB upstream beach, looking east from the Old TDF spillway area (February 9, 2015).

Photo 42: Dry East Strip, looking east (August 24, 2015).

Photo 43: Lower Lynx Diversion Ditch near Cascade Reach outlet, looking east (August 24, 2015).

Photo 44: Lower Lynx Diversion Ditch near Cascade Reach outlet, looking east (September 24, 2015).

Photo 45: Hole in shotcrete lining of the Lower Lynx Diversion Ditch (October 31, 2015).

Photo 46: Lower Arnica Reach Ditch, looking upstream. Note side erosion to the right due to high water levels (June 17, 2015).

Photo 47: Lower Arnica Reach Ditch breach of the side of the slope caused by lack of freeboard (Taken June 17, 2015).

Photo 48: Lower Arnica Reach Ditch, looking upstream (September 24, 2015).

Photo 49: Junction of Upper Arnica Reach Ditch and Upper Lynx Diversion Ditch (September 24, 2015).

Photo 50: Upper Arnica Reach Ditch, looking upstream (June 17, 2015).

Photo 51: Erosion of slope at the east end of Upper Lynx Diversion Ditch near Cascade Reach (Taken September 24, 2015).

Photo 52: Debris blocking the Upper Lynx Diversion Ditch, looking downstream (June 17, 2015).

Photo 53: Debris at Alder Reach Ditch outfall into Lynx Lower Diversion Ditch (September 24, 2015).

Photo 54: New decant pipeline along Super Pond, looking west (October 31, 2015).

Photo 55: Decant pipeline leading to energy dissipater (December 15, 2015).

Photo 56: Energy dissipater at the end of the decant pipeline (December 15, 2015).

Appendix B

Instrumentation Summary Tables and Plots

Monthly Precipitation Data by Year

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual Total	
YEAR	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Actual	Inferred
*1979						71	125	47	384	343	187	620		(2896)
1980	270	296	90	241	52	87	70	37	181	180	497	706	2706	
1981	346	428	118	278	114	125	78	63	310	450	466	412	3189	
1982	299	505	110	193	22	27	19	35	89	779	213	493	2783	
1983	530	624	375	84	42	130	95	60	60	218	619	193	3028	
*1984	399	520		263	193	32	9	40	95	576	340	220		(2933)
*1985	64	175	148	114	85	21	32	21	77					(1866)
*1986			418	88	239	89	41	4	54	590		390		(2961)
*1987		337	425	263	223	184	59	18	98	84	592	437		(3066)
1988	343	203	212	215	215	80	25	29	114	246	582	201	2467	
1989	329	102	224	198	63	72	42	42	18	339	250	253	1931	
1990	372	283	123	59	82	130	31	70	19	565	806	344	2883	
1991	353	543	86	126	80	28	33	207	8	60	596	610	2730	
1992	860	305	45	244	6	41	11	36	90	390	257	241	2527	
1993	57	55	289	207	148	64	77	92	1	180	141	393	1705	
*1994	258		203	149	79	137	6	47	74	219	380	499		(2319)
*1995	- no data -													
*1996	- no data -													
*1997		64	259	217	124	183	72	114	0	442	348	374		(2543)
1998	571	419	159	21	37	14	67	3	3	130	473	279	2175	
1999	219	295	174	96	50	16	1	114	55	138	667	183	2007	
2000	50	218	99	76	132	50	124	52	62	325	168	125	1479	
2001	333	123	144	107	132	38	38	163	67	200	519	367	2233	
2002	195	134	56	93	41	23	28	27	51	34	588	288	1557	
2003	471	61	412	177	50	51	44	30	45	558	94	348	2341	
2004	327	134	160	40	24	42	23	74	157	218	489	340	2026	
2005	433	70	223	396	306	58	100	54	98	515	268	522	3043	
2006	616	316	379	125	76	46	28	5	77	139	811	561	3176	
2007	538	288	438	208	75	129	71	69	167	410	491	416	3300	
2008	250	176	188	59	80	29	8	162	22	260	458	163	1854	
2009	140	139	291	91	171	44	35	17	165	321	882	258	2553	
2010	666	353	381	223	171	60	2	19	269	478	285	629	3535	
2011	284	327	528	166	80	12	82	42	340	295	478	200	2834	
2012	601	241	424	199	55	86	10	14	16	317	525	264	2752	
2013	96	267	168	112	125	66	3	125	277	57	227	100	1622	
2014	170	243	341	170	48	32	32	17	144	589	404	548	2740	
2015	259	332	460	105	35	15	20	149	217	262	248	700	2803	
Num.	31	32	33	34	34	35	35	35	35	34	33	34	**28**	(30)
Avg.	345	268	247	159	102	66	44	60	111	321	435	373	**2499**	(2527)
St. Dev.	193	149	137	82	71	47	34	51	102	184	201	168	**565**	(551)
Max.	860	624	528	396	306	184	125	207	384	779	882	706	**3535**	(3535)
Min.	50	55	45	21	6	12	1	3	0	34	94	100	**1479**	(1479)

Notes: Compiled from daily observations recorded at the powerhouse weather station (Environment Canada)

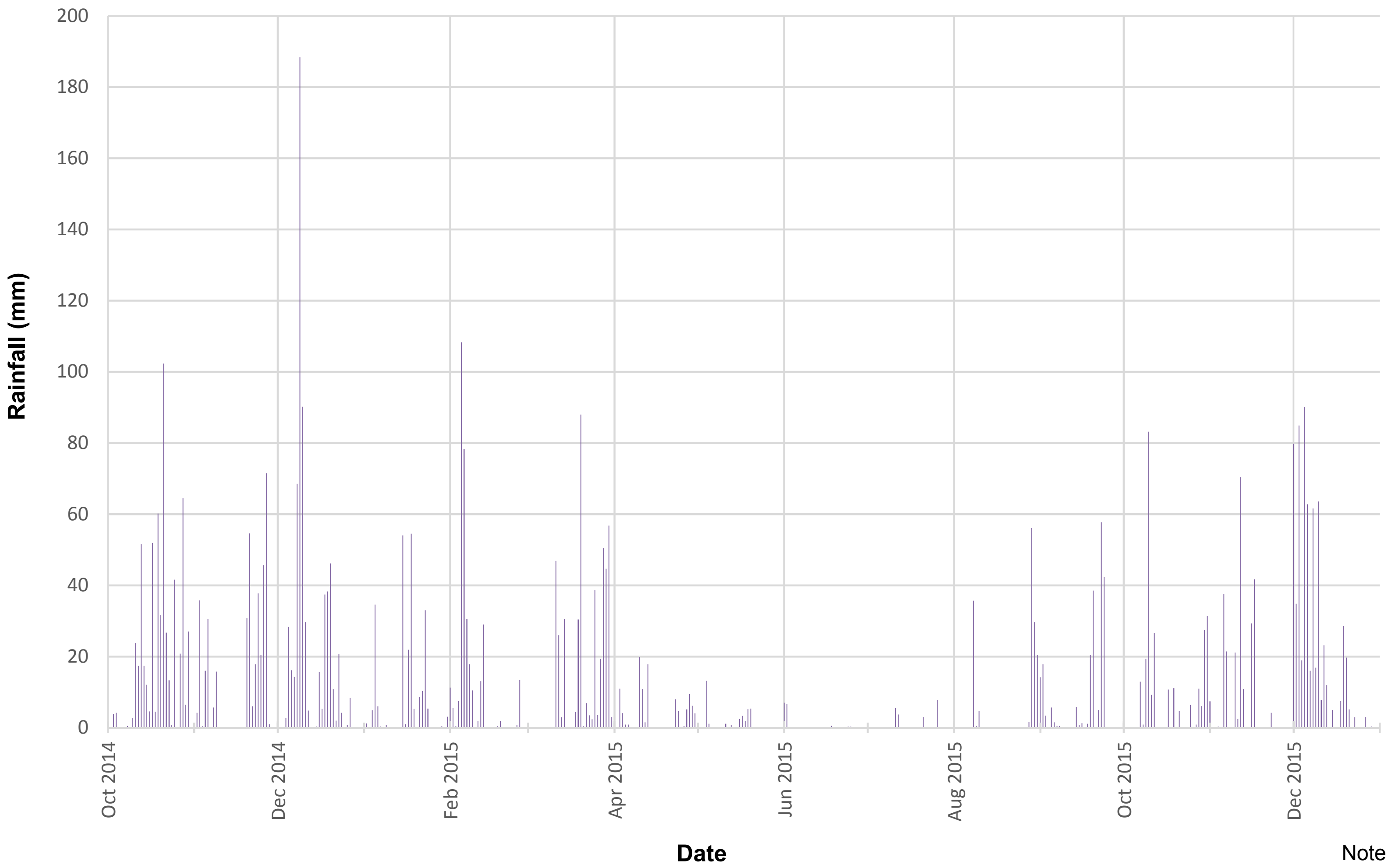
Lime shading - dry (value < monthly mean - standard deviation)

Aqua shading - wet (value > monthly mean + standard deviation)

Peach shading - Precipiation data for the year is taken from the Paste Plant weather station.

* = years with incomplete data sets

Myra Falls Daily Rainfall - Q4 2015 to Q4 2015



Note: Data in this chart is from the Paste Plant weather station.

Operational Status of Old TDF - Plane A Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status[1]
ATM	-	-	OK	OK - used thermistor data from Plane C
A-0E	3356.19	-	-	Destroyed August 1999
A-1E[2]	3352.76	OK	OK	OK, functioning
A-2E	3352.90	OK	OK	OK, functioning
A-4E	3352.73	OK	OK	OK, functioning
A-5E	3357.91	OK	OK	OK, functioning
A-6E	3358.44	OK	OK	OK, functioning
A-8E	3358.52	OK	OK	OK, functioning
A-9E	3359.24	-	OK	Thermistor not functioning
A-10E	3359.82	OK	OK	OK, functioning
A-12E	3359.90	OK	OK	OK, functioning
A-13E	3360.90	OK	OK	OK, functioning
A-14E	3360.92	-	OK	Thermistor not functioning
A-16E	3361.11	OK	OK	OK, functioning
A-17E	3364.50	OK	OK	OK, functioning
A-18E	3364.26	OK	OK	OK, functioning
A-20E	3364.15	OK	OK	OK, functioning
A-25E[2]	3371.40	OK	OK	OK, functioning
A-26E	3371.20	OK	OK	OK, functioning
A-27E	3371.40	OK	OK	OK, functioning
A-28E	3372.65	-	OK	Thermistor not functioning
A-29E	3372.43	-	-	Not functioning
A-30E	3372.33	OK	OK	OK, functioning
A-31E	3375.33	OK	OK	OK, functioning
A-32E	3375.18	OK	OK	OK, functioning
A-33E	3374.97	OK	OK	OK, functioning

[1] Hut A is missing 30 days of data in Q4-2015 and 50 days of data throughout 2015. Some functioning piezometers have additional sporadic days of missing or false readings.

[2] Functioning, but not reported in 2015 Annual Dam Safety Inspection.

Operational Status of Myra TDF - Plane B Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status[3]
ATM	-	OK	-	No transducer installed
B-1E	3375.49	-	-	Not functioning after July 2009
B-5E	3365.13	-	-	Not functioning
P-1	3371.90	OK	OK	OK, functioning
P-2	3376.87	OK	OK	OK, functioning
P-3	3371.77	OK	OK	OK, functioning
P-4	3376.77	OK	OK	OK, functioning
P-5	3372.62	OK	OK	OK, functioning
P-6	3376.90	OK	OK	OK, functioning
P-7	3367.34	OK	OK	OK, functioning
P-8	3372.49	-	-	Not functioning after August 2011
P-9	3378.94	-	-	Not functioning
P-10	3374.05	OK	OK	OK, functioning
P-11	3380.14	OK	OK	OK, functioning
P-12	3374.05	OK	OK	OK, functioning
P-13	3379.68	OK	OK	OK, functioning
P-14	3374.20	OK	OK	OK, functioning

[3] Hut B is missing data from May 16 through to July 1, 2015.

Operational Status of Myra TDF - Plane C Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status[4]
ATM	-	OK	OK	OK, occasional false readings
C-2E	3348.00	OK	-	Not functioning
C-4E	3348.08	OK	-	Not functioning
C-5E	3357.59	-	OK	Thermistor not functioning
C-6E	3351.23	-	OK	Thermistor not functioning
C-8E	3350.02	-	-	Not functioning
C-10E	3354.78	-	OK	Thermistor not functioning
C-12E	3353.02	-	OK	Thermistor not functioning
C-13E	3356.41	OK	OK	OK, functioning
C-14E	3356.26	-	OK	Thermistor not functioning
C-16E	3356.20	-	OK	Thermistor not functioning
C-17E	3350.66	OK	OK	OK, functioning
C-18E	3362.00	OK	OK	OK, functioning
C-20E	3362.00	OK	OK	OK, functioning
C-21E	3363.12	OK	OK	OK, functioning
C-22E	3362.93	OK	OK	OK, functioning
C-24E	3362.71	-	OK	Thermistor not functioning
C-29E	3369.80	OK	OK	OK, functioning
C-30E	3369.53	OK	-	Transducer not functioning
C-31E	3369.50	OK	OK	OK, functioning
C-32E	3372.30	-	-	Not functioning
C-34E	3372.17	-	-	Not functioning
C-35E	3374.20	OK	OK	OK, functioning
C-36E	3374.10	OK	OK	OK, functioning
C-37E	3374.10	OK	OK	OK, functioning
17722	3382.9	OK	OK	OK
17724	3373.7	OK	OK	OK
17726	3373.8	OK	OK	OK
17729[5]	3383.0	OK	OK	OK

[4] Hut C is missing 25 days of data in Q4-2014 and 17 days of data throughout 2015.

[5] VW17729 was lost on March 4, 2016 as wires were dug in a trench and routed towards a datalogger.

Operational Status of Myra TDF - Plane 1 Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
32228	3378.9	OK	OK	OK, Installed 18 April 2015
32232	3376.9	OK	OK	OK, Installed 18 April 2015

Operational Status of Myra TDF - Plane 2 Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
32225	3376.1	OK	OK	OK, Installed 11 April 2015
32240	3360.8	OK	OK	OK, Installed 11 April 2015
32229	3373.4	OK	OK	OK, Installed 19 April 2015
32231	3377.7	OK	OK	OK, Installed 19 April 2015
32220	3376.1	OK	OK	OK, Installed 19 April 2015
32239	3357.8	OK	OK	OK, Installed 19 April 2015

Operational Status of Myra TDF - Plane 3 Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
21715	3376.8	OK	OK	OK, Installed 19 April 2015
32233	3379.9	OK	OK	OK, Installed 19 April 2015

Operational Status of Myra TDF - Plane 4 Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
1204	3376.8	OK	OK	OK, Installed 19 April 2015
32237	3379.9	OK	OK	OK, Installed 19 April 2015

Operational Status of Myra TDF - Plane 5 Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
32222	3374.4	OK	OK	OK, Installed 19 April 2015
32241	3356.2	OK	OK	OK, Installed 19 April 2015
17730	3376.8	OK	OK	OK, Installed 19 April 2015
32234	3376.0	OK	OK	OK, Installed 19 April 2015
32224	3374.5	OK	OK	OK, Installed 19 April 2015
32238	3356.2	OK	OK	OK, Installed 19 April 2015
32223	3364.3	OK	OK	OK, Installed 19 April 2015
32227	3352.1	OK	OK	OK, Installed 19 April 2015

Operational Status of Myra TDF - Plane 6 Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
32219	3382.7	OK	OK	OK, Installed 19 April 2015
32226	3378.1	OK	OK	OK, Installed 19 April 2015
32230	3376.3	OK	OK	OK, Installed 19 April 2015
32236	3377.9	OK	OK	OK, Installed 19 April 2015

Operational Status of Lynx TDF - Plane D Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
29334	3375.9	OK	OK	OK, Installed 24 August 2014
29326	3397.5	OK	OK	OK, Installed 1 December 2014

Operational Status of Lynx TDF - Plane E Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
17727	3375.9	OK	OK	OK
17728	3368.2	OK	OK	OK
17731	3377.8	OK	OK	OK
17732	3370.2	-	OK	OK
17733	3356.0	-	OK	Must remove transducer wires for temperature
17734	3358.0	OK	OK	Must remove transducer wires for temperature
29321	3369.9	OK	OK	OK, Installed 12 August 2014
29329	3384.4	OK	OK	OK, Installed 26 July 2014
29332	3352.7	OK	OK	OK, Installed 12 August 2014
29335	3363.4	OK	OK	OK, Installed 26 July 2014
17723	3398.2	OK	OK	OK, Installed 27 November 2014
33783	3399.2	OK	OK	OK, Installed September 2015

Operational Status of Lynx TDF - Plane F Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
17725	3325.8	OK	OK	OK, Installed 30 August 2014
29322	3384.8	OK	OK	OK, Installed 26 August 2014
29323	3373.6	OK	OK	OK, Installed 14 August 2014
29324	3359.1	OK	OK	OK, Installed 30 August 2014
29330	3375.9	OK	OK	OK, Installed 26 August 2014
29333	3344.2	OK	OK	OK, Installed 14 August 2014
29336	3358.6	OK	OK	Reporting erroneous data, Installed 26 August 2014
31089	3398.8	OK	OK	OK, Installed late August/early September 2015
32221	3366.1	OK	OK	OK, Installed 6 August 2015

Operational Status of Lynx TDF - Other Vibrating Wire Piezometers

Piezometer Number	Tip Elevation (m)	Thermistor Status	Transducer Status	Piezometer Status
29320	3371.0	OK	OK	OK, Installed 22 July 2014
29325	3351.8	OK	OK	OK, Installed 23 August 2014
29331	3353.8	OK	OK	OK, Installed 20 July 2014
33781	3361.9	OK	OK	OK, Installed 11 September 2015
33782	3342.0	OK	OK	OK, Installed 11 September 2015
33784	3359.4	OK	OK	OK, Installed

2015 Vibrating Wire Piezometer Threshold Levels

Instrument Plane A

PIEZOMETER	LOCATION [1,2,3]	TIP ELEVATION (m)	THRESHOLD LEVEL I [5,6,9]	THRESHOLD LEVEL II [5,7,9]	THRESHOLD LEVEL III [5,8,9]
A-2E	Foundation	3352.90	3360.0	3360.2	3361.2
A-4E	Foundation	3352.73	3360.0	3359.8	3360.8
A-5E	OES	3357.91	3362.5	3361.3	3362.3
A-6E	OES	3358.44	3362.5	3361.4	3362.4
A-8E	OES	3358.52	3362.5	3361.3	3362.3
A-9E	OES	3359.24	3362.5	3361.8	3362.8
A-10E	OES	3359.82	3362.5	3362.7	3363.7
A-12E	OES	3359.90	3362.5	3361.0	3362.0
A-13E	OES	3360.90	3362.5	3364.1	3365.1
A-14E	OES	3360.92	3362.5	3363.3	3364.3
A-16E	OES	3361.11	3362.5	3365.0	3366.0
A-17E	OES	3364.50	3366.8	3366.5	3367.5
A-18E	OES	3364.26	3366.8	3367.2	3368.2
A-20E	OES	3364.15	3366.8	3366.7	3367.7
A-26E	OES	3371.20	3377.9	3377.5	3378.5
A-27E	OES	3371.40	3377.9	3379.0	3380.0
A-28E	OES	3372.65	3377.9	3375.9	3376.9
A-30E	LTB	3372.33	3377.9	3377.3	3378.3
A-31E	OES	3375.33	3377.9	3378.0	3379.0
A-32E	LTB	3375.18	3377.9	3378.5	3379.5
A-33E	UTB	3374.97	3377.9	3379.4	3380.4

Notes:
1) OES - below outer embankment slope
2) LTB - lower 1/3 of upstream tailing beach deposits
3) UTB - upper 2/3 of upstream tailings beach deposits
4) PBF - below paste berm foundation
5) Meters of total head
6) Generally, set as average of historical maximum readings within the representative section of the stability model.
7) Set as individual historical maximum reading
8) Set as 1.0 m above historical maximum reading
9) 2015 threshold values are a continuation of 2014 threshold values and are presented for historical purposes

2015 Vibrating Wire Piezometer Threshold Levels

Instrument Plane C

PIEZOMETER	LOCATION [1,2,3]	TIP ELEVATION (m)	THRESHOLD LEVEL I [5,6,9]	THRESHOLD LEVEL II [5,7,9]	THRESHOLD LEVEL III [5,8,9]
C-5E	OES	3357.59	3358.8	3359.5	3360.5
C-6E	OES	3351.23	3358.8	3357.6	3358.6
C-10E	OES	3354.78	3358.8	3357.5	3358.5
C-12E	OES	3353.02	3358.8	3358.9	3359.9
C-13E	OES	3356.41	3358.8	3357.2	3358.2
C-14E	OES	3356.26	3358.8	3358.8	3359.8
C-16E	OES	3356.20	3358.8	3361.8	3362.8
C-17E	OES	3350.66	3354.8	3354.8	3355.8
C-18E	OES	3362.00	3364.4	3364.6	3365.6
C-20E	OES	3362.00	3364.4	3365.8	3366.8
C-21E	OES	3363.12	3364.4	3363.7	3364.7
C-22E	OES	3362.93	3364.4	3363.8	3364.8
C-24E	OES	3362.71	3364.4	3363.9	3364.9
C-29E	OES	3369.80	3377.3	3375.5	3376.5
C-31E	LTB	3369.50	3377.3	3380.1	3381.1
C-35E	OES	3374.20	3381.1	3379.9	3380.9
C-36E	LTB	3374.10	3381.1	3380.2	3381.2
C-37E	UTB	3374.10	3381.1	3383.6	3384.6

Notes:
1) OES - below outer embankment slope
2) LTB - lower 1/3 of upstream tailing beach deposits
3) UTB - upper 2/3 of upstream tailings beach deposits
4) PBF - below paste berm foundation
5) Meters of total head
6) Generally, set as average of historical maximum readings within the representative section of the stability model.
7) Set as individual historical maximum reading
8) Set as 1.0 m above historical maximum reading
9) 2015 threshold values are a continuation of 2014 threshold values and are presented for historical purposes

2015 Vibrating Wire Piezometer Threshold Levels

Instrument Plane B and Paste Berm

PIEZOMETER	LOCATION [1,3,4]	TIP ELEVATION (m)	THRESHOLD LEVEL I $_{5,6,9}$	THRESHOLD LEVEL II $_{5,7,9}$	THRESHOLD LEVEL III $_{5,8,9}$
P-1	PBF Area 2	3371.90	3376.8	3371.7	3372.7
P-2	PBF Area 2	3376.90	3376.8	3378.4	3379.4
P-3	PBF Area 2	3371.80	3376.8	3372.2	3373.2
P-4	PBF Area 2	3376.80	3376.8	3379.1	3380.1
P-5	PBF Area 2	3372.60	3376.8	3379.0	3380.0
P-6	PBF Area 2	3376.90	3376.8	3382.8	3383.8
P-7	PBF Area 2	3367.30	3376.8	3372.3	3373.3
P-10	PBF Area 1	3374.37	3380.7	3377.9	3378.9
P-11	PBF Area 1	3380.14	3380.7	3385.5	3386.5
P-12	PBF Area 1	3374.05	3380.7	3381.6	3382.6
P-13	PBF Area 1	3379.68	3380.7	3382.4	3383.4
P-14	PBF Area 1	3374.20	3380.7	3376.3	3377.3

Notes:
1) OES - below outer embankment slope
2) LTB - lower 1/3 of upstream tailing beach deposits
3) UTB - upper 2/3 of upstream tailings beach deposits
4) PBF - below paste berm foundation
5) Meters of total head
6) Generally, set as average of historical maximum readings within the representative section of the stability model.
7) Set as individual historical maximum reading.
8) Set as 1.0 m above historical maximum reading.
9) 2015 threshold values are a continuation of 2014 threshold values and are presented for historical purposes

Old TDF - Instrument Plane A - Weekly Maximum Vibrating Wire Piezometer Readings -Q4 2014 to Q4 2015

Location	Outer Embankment Slope - 1				Outer Embankment Slope - 2					Outer Embankment Slope - 3					Upper Tailings Beach						
ID	**A-5E**	**A-9E**	**A-13E**	**A-17E**	**A-2E**	**A-6E**	**A-10E**	**A-14E**	**A-18E**	**A-4E**	**A-8E**	**A-12E**	**A-16E**	**A-20E**	**A-26E**	**A-27E**	**A-28E**	**A-30E**	**A-31E**	**A-32E**	**A-33E**
Tip Elev (m)	**3357.91**	**3359.24**	**3360.90**	**3364.50**	**3352.90**	**3358.44**	**3359.82**	**3360.92**	**3364.26**	**3352.73**	**3358.52**	**3359.82**	**3361.11**	**3364.15**	**3371.20**	**3371.40**	**3372.65**	**3372.33**	**3375.33**	**3375.18**	**3374.97**
Threshold 1	**3362.5**	**3362.5**	**3362.5**	**3366.8**	**3360.0**	**3362.5**	**3362.5**	**3362.5**	**3366.8**	**3360.0**	**3362.5**	**3362.5**	**3362.5**	**3366.8**	**3377.9**	**3377.9**	**3377.9**	**3377.9**	**3377.9**	**3377.9**	**3377.9**
Threshold 2	**3361.3**	**3361.8**	**3364.1**	**3366.5**	**3360.2**	**3361.4**	**3362.7**	**3363.3**	**3367.2**	**3359.8**	**3361.3**	**3361.0**	**3365.0**	**3366.7**	**3377.5**	**3379.0**	**3375.9**	**3377.3**	**3378.0**	**3378.5**	**3379.4**
Threshold 3	**3362.3**	**3362.8**	**3365.1**	**3367.5**	**3361.2**	**3362.4**	**3363.7**	**3364.3**	**3368.2**	**3360.8**	**3362.3**	**3362.0**	**3366.0**	**3367.7**	**3378.5**	**3380.0**	**3376.9**	**3378.3**	**3379.0**	**3379.5**	**3380.4**
2014-10-05	3358.11	3359.18	3362.43	3364.93	3357.18	3359.11	3360.61	3361.15	3364.37	3356.41	3359.78	3357.73	3362.89	3364.80	3374.07	3373.76	3373.89	3372.00	3376.18	3375.99	3375.48
2014-10-12																					
2014-10-19	3358.90	3359.59	3362.71	3365.25	3358.91	3359.87	3360.93	3361.80	3365.17	3358.28	3360.09	3358.23	3363.17	3365.09	3374.45	3374.45	3374.03	3373.01	3376.46	3376.30	3376.29
2014-10-26	3359.01	3359.77	3362.62	3365.18	3359.04	3359.92	3360.93	3361.90	3365.39	3358.34	3360.00	3358.27	3363.12	3365.01	3374.69	3375.02	3373.92	3373.55	3376.38	3376.23	3376.46
2014-11-02	3359.17	3360.33	3362.61	3365.17	3358.48	3359.94	3361.09	3362.04	3365.61	3357.67	3359.97	3358.26	3363.18	3364.98	3375.23	3375.51	3374.05	3373.93	3376.37	3376.42	3376.64
2014-11-09	3359.43	3360.84	3362.87	3365.10	3358.30	3360.04	3361.21	3362.16	3365.75	3357.51	3359.88	3358.27	3363.16	3364.89	3375.26	3375.77	3374.36	3374.12	3376.30	3376.47	3376.69
2014-11-16	3359.47	3360.89	3362.98	3365.12	3357.90	3360.05	3361.27	3362.20	3365.75	3357.14	3359.90	3358.26	3363.21	3364.93	3375.35	3375.78	3374.37	3374.06	3376.35	3376.46	3376.56
2014-11-23	3360.12	3361.23	3363.17	3365.24	3358.99	3360.64	3361.64	3362.47	3365.98	3358.33	3360.06	3358.51	3363.43	3365.06	3375.48	3375.96	3374.47	3374.30	3376.47	3376.65	3376.87
2014-11-30	3360.05	3361.26	3363.26	3365.11	3358.62	3360.45	3361.56	3362.45	3365.96	3357.96	3359.88	3358.38	3363.38	3364.94	3375.55	3376.00	3374.55	3374.32	3376.37	3376.61	3376.74
2014-12-07	3360.63	3361.61	3363.54	3365.20	3359.76	3361.09	3362.03	3362.94	3366.27	3359.20	3360.89	3359.24	3364.00	3365.18	3375.68	3376.20	3374.65	3374.59	3376.46	3376.76	3377.06
2014-12-14	3360.48	3361.67	3363.67	3365.17	3359.00	3360.92	3361.99	3362.93	3366.27	3358.33	3360.39	3358.98	3363.97	3365.15	3375.87	3376.30	3374.82	3374.67	3376.51	3376.81	3377.00
2014-12-21	3360.41	3361.61	3363.60	3365.13	3358.65	3360.62	3361.78	3362.70	3366.14	3357.96	3359.89	3358.54	3363.57	3365.03	3375.79	3376.21	3374.75	3374.58	3376.47	3376.76	3376.97
2014-12-28	3360.24	3361.47	3363.48	3365.06	3358.08	3360.41	3361.62	3362.50	3366.01	3357.28	3359.81	3358.37	3363.40	3364.93	3375.70	3376.13	3374.65	3374.53	3376.39	3376.68	3376.87
2015-01-04	3360.06	3361.21	3363.26	3365.07	3357.99	3360.24	3361.54	3362.35	3365.88	3357.23	3359.83	3358.31	3363.31	3364.92	3375.54	3375.97	3374.44	3374.29	3376.34	3376.54	3376.65
2015-01-11	3359.87	3361.09	3363.13	3365.12	3357.83	3360.16	3361.50	3362.30	3365.83	3357.08	3359.88	3358.36	3363.33	3364.98	3375.47	3375.87	3374.37	3374.15	3376.40	3376.51	3376.67
2015-01-18	3360.06	3361.10	3363.12	3365.12	3358.45	3360.35	3361.46	3362.35	3365.86	3357.72	3359.89	3358.32	3363.31	3364.98	3375.46	3375.94	3374.35	3374.28	3376.40	3376.55	3376.74
2015-01-25	3360.11	3361.21	3363.25	3365.13	3358.46	3360.41	3361.57	3362.46	3365.97	3357.70	3359.90	3358.41	3363.43	3364.99	3375.59	3376.06	3374.49	3374.40	3376.42	3376.66	3376.80
2015-02-01	3360.33	3361.32	3363.30	3365.36	3358.88	3360.57	3361.70	3362.52	3366.00	3358.19	3360.14	3358.57	3363.47	3365.24	3375.65	3376.18	3374.56	3374.55	3376.66	3376.86	3377.05
2015-02-08	3360.49	3361.57	3363.52	3365.17	3359.04	3360.66	3361.72	3362.64	3366.12	3358.38	3360.05	3358.59	3363.56	3365.03	3375.75	3376.16	3374.73	3374.50	3376.46	3376.69	3376.87
2015-02-15	3360.40	3361.55	3363.53	3365.03	3358.34	3360.49	3361.66	3362.59	3366.08	3357.60	3359.78	3358.39	3363.44	3364.92	3375.75	3376.15	3374.72	3374.50	3376.40	3376.67	3376.82
2015-02-22	3360.19	3361.37	3363.35	3365.12	3357.86	3360.28	3361.57	3362.38	3365.94	3357.12	3359.89	3358.36	3363.37	3364.98	3375.60	3376.05	3374.55	3374.38	3376.43	3376.64	3376.76
2015-03-01	3359.89	3361.08	3363.12	3365.02	3357.61	3360.09	3361.42	3362.24	3365.82	3356.88	3359.79	3358.26	3363.24	3364.88	3375.47	3375.93	3374.36	3374.27	3376.33	3376.54	3376.68
2015-03-08	3359.69	3360.90	3363.00	3365.13	3357.98	3360.06	3361.37	3362.23	3365.76	3357.24	3359.93	3358.33	3363.28	3364.99	3375.37	3375.85	3374.55	3374.14	3376.44	3376.52	3376.68
2015-03-15	3359.85	3360.91	3363.02	3365.15	3358.40	3360.18	3361.36	3362.27	3365.83	3357.58	3359.94	3358.36	3363.28	3365.01	3375.41	3375.93	3374.60	3374.25	3376.46	3376.60	3376.75
2015-03-22	3360.03	3361.17	3363.19	3365.12	3358.34	3360.35	3361.51	3362.40	3365.93	3357.55	3359.90	3358.35	3363.35	3364.97	3375.54	3376.02	3374.60	3374.36	3376.44	3376.64	3376.78
2015-03-29	3360.38	3361.50	3363.50	3365.12	3358.88	3360.60	3361.71	3362.64	3366.10	3358.20	3359.99	3358.50	3363.54	3365.01	3375.79	3376.26	3374.71	3374.64	3376.45	3376.78	3376.88
2015-04-05	3360.30	3362.12	3363.50	3365.18	3358.19	3360.52	3361.68	3362.60	3367.43	3357.42	3359.95	3358.46	3363.55	3365.05	3375.83	3376.27	3374.73	3374.66	3376.52	3376.84	3376.99
2015-04-12	3359.95	3361.17	3363.22	3365.11	3357.80	3360.19	3361.50	3362.33	3365.90	3357.04	3359.89	3358.34	3363.29	3364.92	3375.60	3376.06	3374.67	3374.42	3376.43	3376.67	3376.84
2015-04-19	3359.95	3361.17	3363.22	3365.15	3357.75	3360.19	3362.33	3362.34	3365.91	3357.03	3359.94	3358.34	3363.34	3364.93	3375.59	3376.04	3374.75	3374.40	3376.46	3376.65	3376.80
2015-04-26	3359.64	3360.84	3362.91	3365.07	3357.69	3359.98	3362.05	3362.17	3365.71	3356.98	3359.86	3358.25	3363.18	3364.83	3375.31	3375.80	3374.68	3374.15	3376.38	3376.49	3376.67
2015-05-03	3359.51	3360.80	3362.93	3365.14	3357.62	3359.98	3361.30	3362.20	3365.70	3356.85	3359.93	3358.28	3363.22	3364.89	3375.32	3375.81	3374.76	3374.16	3376.44	3376.53	3376.70
2015-05-10	3359.40	3360.67	3362.78	3365.14	3357.56	3359.89	3361.22	3362.12	3365.63	3356.78	3359.93	3358.25	3363.20	3364.89	3375.26	3375.73	3374.78	3374.06	3376.44	3376.47	3376.59
2015-05-17	3359.28	3360.50	3362.60	3365.07	3357.50	3359.78	3361.12	3361.98	3365.52	3356.72	3359.86	3358.15	3363.08	3364.81	3375.14	3375.58	3374.72	3373.86	3376.36	3376.34	3376.33
2015-05-24	3359.09	3360.26	3362.48	3365.08	3357.43	3360.69	3361.00	3361.92	3365.41	3356.65	3359.87	3358.13	3363.08	3364.82	3375.11	3375.41	3374.74	3373.63	3376.36	3376.25	3376.12
2015-05-31	3358.92	3360.01	3362.26	3365.10	3357.40	3359.59	3360.86	3361.77	3365.25	3356.61	3359.89	3358.06	3363.11	3364.84	3375.09	3375.22	3374.75	3373.36	3376.36	3376.22	3375.84
2015-06-07																					
2015-06-14	3358.69	3359.77	3362.08	3365.06	3357.25	3359.41	3360.68	3361.56	3364.94	3356.47	3359.86	3357.98	3363.07	3364.81	3374.98	3374.69	3374.71	3372.82	3376.31	3376.13	3375.40
2015-06-21	3358.58	3359.64	3362.05	3365.01	3357.19	3359.31	3360.54	3361.44	3364.78	3356.41	3359.82	3357.90	3363.02	3364.77	3374.92	3374.45	3374.64	3372.61	3376.26	3376.08	3375.21
2015-06-28	3358.39	3359.44	3362.01	3364.97	3357.75	3359.14	3360.35	3361.23	3364.30	3356.29	3359.77	3357.77	3363.01	3364.73	3374.88	3374.19	3374.56	3372.25	3376.22	3376.04	3374.93
2015-07-05	3359.28	3360.23	3362.10	3365.06	3357.12	3359.16	3360.53	3361.25	3365.49	3356.35	3359.87	3357.76	3363.10	3364.82	3374.97	3374.18	3374.62	3372.25	3376.30	3376.13	3374.93
2015-07-12	3358.42	3359.42	3362.08	3365.04	3357.14	3359.16	3360.51	3361.18	3364.06	3356.38	3359.84	3357.76	3363.07	3364.80	3374.94	3374.04	3374.59	3372.10	3376.27	3376.11	3374.86
2015-07-19	3359.11	3359.33	3362.13	3365.05	3357.10	3359.11	3360.54	3361.10	3363.80	3356.34	3359.86	3357.72	3363.06	3364.80	3374.35	3373.91	3374.55	3371.93	3376.28	3376.12	3374.74
2015-07-26	3358.32	3359.31	3362.09	3365.00	3357.13	3360.03	3360.50	3361.03	3363.69	3356.37	3359.81	3357.69	3362.99	3364.75	3374.28	3373.82	3374.47	3371.82	3376.23	3376.07	3374.66
2015-08-02	3358.22	3360.03	3362.19	3365.06	3357.08	3359.04	3360.58	3360.91	3363.49	3356.30	3359.87	3357.63	3363.03	3364.81	3374.23	3373.82	3374.45	3371.63	3376.29	3376.13	3374.55
2015-08-09	3358.20	3359.18	3362.17	3365.03	3357.24	3359.01	3360.56	3360.87	3363.42	3356.47	3359.84	3358.50	3363.00	3364.78	3374.20	3373.80	3374.40	3371.68	3376.26	3376.10	3374.93
2015-08-16	3358.14	3359.18	3362.16	3365.00	3357.07	3358.95	3360.55	3360.80	3363.28	3356.31	3359.81	3357.57	3362.95	3365.32	3374.11	3373.78	3374.28	3371.63	3376.23	3376.07	3374.87
2015-08-23	3358.12	3359.92	3362.39	3365.21	3357.04	3359.06	3360.78	3360.91	3363.24	3356.29	3360.03	3357.70	3363.15	3364.97	3374.22	3373.97	3374.42	3371.55	3376.43	3376.29	3374.68
2015-08-30	3358.16	3359.05	3362.27	3365.08	3357.57	3358.98	3360.65	3360.76	3363.20	3356.83	3359.90	3357.56	3363.02	3364.84	3374.10	3373.85	3374.27	3371.88	3376.31	3376.17	3375.36
2015-09-06	3358.10	3359.02	3362.18	3364.99	3357.37	3358.96	3360.57	3360.77	3363.90	3356.59	3359.81	3357.58	3362.90	3364.74	3374.06	3373.83	3374.10	3372.22	3376.21	3376.07	3375.62
2015-09-13	3358.07	3359.10	3362.29	3365.08	3357.30	3358.97	3360.67	3360.81	3363.19	3356.54	3359.90	3357.62	3362.99	3364.82	3374.15	3373.93	3374.14	3372.29	3376.30	3376.17	3375.67

Old TDF - Instrument Plane A - Weekly Maximum Vibrating Wire Piezometer Readings -Q4 2014 to Q4 2015

Location	Outer Embankment Slope - 1				Outer Embankment Slope - 2					Outer Embankment Slope - 3					Upper Tailings Beach						
ID	**A-5E**	**A-9E**	**A-13E**	**A-17E**	**A-2E**	**A-6E**	**A-10E**	**A-14E**	**A-18E**	**A-4E**	**A-8E**	**A-12E**	**A-16E**	**A-20E**	**A-26E**	**A-27E**	**A-28E**	**A-30E**	**A-31E**	**A-32E**	**A-33E**
Tip Elev (m)	**3357.91**	**3359.24**	**3360.90**	**3364.50**	**3352.90**	**3358.44**	**3359.82**	**3360.92**	**3364.26**	**3352.73**	**3358.52**	**3359.82**	**3361.11**	**3364.15**	**3371.20**	**3371.40**	**3372.65**	**3372.33**	**3375.33**	**3375.18**	**3374.97**
Threshold 1	**3362.5**	**3362.5**	**3362.5**	**3366.8**	**3360.0**	**3362.5**	**3362.5**	**3362.5**	**3366.8**	**3360.0**	**3362.5**	**3362.5**	**3362.5**	**3366.8**	**3377.9**	**3377.9**	**3377.9**	**3377.9**	**3377.9**	**3377.9**	**3377.9**
Threshold 2	**3361.3**	**3361.8**	**3364.1**	**3366.5**	**3360.2**	**3361.4**	**3362.7**	**3363.3**	**3367.2**	**3359.8**	**3361.3**	**3361.0**	**3365.0**	**3366.7**	**3377.5**	**3379.0**	**3375.9**	**3377.3**	**3378.0**	**3378.5**	**3379.4**
Threshold 3	**3362.3**	**3362.8**	**3365.1**	**3367.5**	**3361.2**	**3362.4**	**3363.7**	**3364.3**	**3368.2**	**3360.8**	**3362.3**	**3362.0**	**3366.0**	**3367.7**	**3378.5**	**3380.0**	**3376.9**	**3378.3**	**3379.0**	**3379.5**	**3380.4**
2015-09-20	3358.28	3359.02	3362.31	3365.10	3358.03	3359.04	3360.69	3360.81	3363.13	3357.32	3359.92	3357.64	3362.99	3364.84	3374.17	3373.96	3374.09	3372.36	3376.31	3376.18	3375.81
2015-09-27	3358.20	3359.05	3362.25	3365.02	3357.71	3359.04	3360.63	3360.87	3363.34	3356.98	3359.84	3357.67	3362.91	3364.98	3374.16	3373.98	3373.94	3372.62	3376.23	3376.11	3375.98
2015-10-04	3358.28	3359.11	3362.45	3365.20	3358.15	3359.18	3360.82	3361.02	3363.50	3357.46	3360.02	3357.82	3363.08	3364.94	3374.40	3374.25	3374.04	3372.85	3376.40	3376.30	3376.08
2015-10-11	3358.33	3359.10	3362.28	3365.03	3358.16	3359.11	3360.66	3361.01	3363.53	3357.35	3359.84	3357.76	3362.90	3364.76	3374.26	3374.31	3373.82	3373.00	3376.23	3376.13	3376.22
2015-10-18	3358.20	3359.12	3362.26	3365.00	3357.68	3359.12	3360.64	3361.12	3363.99	3356.98	3359.82	3357.83	3362.88	3364.74	3374.29	3374.48	3373.78	3373.17	3376.20	3376.12	3376.33
2015-10-25	3358.19	3359.15	3362.42	3365.14	3357.75	3359.20	3360.77	3361.25	3364.28	3357.05	3359.95	3357.90	3363.01	3364.87	3374.46	3374.71	3373.82	3373.41	3376.33	3376.28	3376.49
2015-11-01	3358.40	3359.22	3362.36	3365.08	3358.03	3359.31	3360.72	3361.34	3364.60	3357.33	3359.89	3357.95	3362.96	3364.81	3374.49	3374.95	3373.76	3373.61	3376.27	3376.24	3376.53
2015-11-08	3358.53	3359.31	3362.36	3365.07	3358.39	3359.45	3360.71	3361.45	3364.85	3357.58	3359.88	3358.00	3362.94	3364.78	3374.68	3375.21	3373.65	3373.82	3376.25	3376.34	3376.61
2015-11-15	3358.57	3359.45	3362.49	3365.20	3358.50	3359.55	3360.85	3361.60	3365.19	3357.70	3360.00	3358.11	3363.07	3364.91	3374.95	3375.43	3373.76	3373.98	3376.39	3376.50	3376.73
2015-11-22	3358.48	3359.53	3362.37	3365.07	3357.97	3359.57	3360.75	3361.66	3365.28	3357.26	3359.86	3358.07	3363.07	3364.77	3374.84	3375.63	3373.61	3374.07	3376.27	3376.49	3376.66
2015-11-29	3358.40	3359.53	3362.38	3365.05	3357.75	3359.48	3360.70	3361.67	3365.31	3357.03	3359.84	3358.03	3363.03	3364.78	3375.02	3375.68	3373.68	3374.03	3376.28	3376.44	3376.52
2015-12-06	3359.28	3359.83	3362.53	3365.19	3359.77	3360.17	3361.12	3362.11	3365.63	3359.18	3360.35	3358.53	3363.50	3364.94	3375.33	3375.96	3374.13	3374.31	3376.41	3376.63	3376.80
2015-12-13	3359.00	3360.12	3362.55	3365.20	3358.65	3360.03	3361.12	3362.15	3365.75	3357.98	3359.99	3358.47	3363.51	3365.00	3375.61	3376.11	3374.50	3374.48	3376.45	3376.73	3376.88
2015-12-20	3359.34	3360.75	3362.77	3365.27	3358.02	3360.01	3361.24	3362.22	3365.82	3357.27	3360.03	3358.31	3363.32	3364.99	3375.64	3376.16	3374.55	3374.54	3376.53	3376.81	3376.96
2015-12-27	3359.46	3360.96	3362.96	3365.08	3357.74	3360.08	3361.29	3362.22	3365.84	3357.01	3359.82	3358.26	3363.20	3364.83	3375.53	3376.00	3374.48	3374.38	3376.37	3376.63	3376.80

Old TDF - Paste Berm - Weekly Maximum Vibrating Wire Piezometer Readings - Q4 2014 to Q4 2015

Location	Paste Berm Area I					Paste Berm Area II						
Piezometer	**P-10**	**P-11**	**P-12**	**P-13**	**P-14**	**P-1**	**P-2**	**P-3**	**P-4**	**P-5**	**P-6**	**P-7**
Tip Elevation	**3374.37**	**3380.14**	**3374.05**	**3379.68**	**3374.20**	**3371.90**	**3376.90**	**3371.80**	**3376.80**	**3372.60**	**3376.90**	**3367.30**
Threshold 1	3380.7	3380.7	3380.7	3380.7	3380.7	3376.8	3376.8	3376.8	3376.8	3376.8	3376.8	3376.8
Threshold 2	3377.9	3385.5	3381.6	3382.4	3376.3	3371.7	3378.4	3372.2	3379.1	3379.0	3382.8	3372.3
Threshold 3	3378.9	3386.5	3382.6	3383.4	3377.3	3372.7	3379.4	3373.2	3380.1	3380.0	3383.8	3373.3
2014-10-05	3375.40	3380.20	3374.44	3378.72	3373.58	3370.47	3376.33	3372.62	3376.67	3375.22	3378.55	3369.83
2014-10-12	3375.81	3380.73	3374.72	3379.23	3373.59	3370.55	3376.61	3372.77	3376.84	3375.93	3379.67	3370.46
2014-10-19	3377.26	3381.93	3375.42	3380.48	3374.77	3370.81	3377.34	3372.86	3377.97	3378.55	3382.21	3371.68
2014-10-26	3377.72	3382.74	3375.91	3381.04	3374.78	3370.86	3377.48	3372.78	3378.37	3378.59	3381.85	3371.94
2014-11-02	3377.68	3383.24	3376.21	3381.38	3374.97	3370.90	3377.60	3372.76	3378.55	3377.97	3381.37	3371.93
2014-11-09	3377.67	3383.41	3376.39	3381.45	3374.96	3370.94	3377.62	3372.68	3378.57	3377.53	3381.16	3371.90
2014-11-16	3377.43	3383.46	3376.48	3381.45	3374.78	3370.99	3377.54	3372.86	3378.50	3377.06	3380.69	3371.72
2014-11-23	3377.85	3383.93	3376.75	3381.80	3375.27	3371.03	3377.71	3372.83	3378.75	3379.19	3382.80	3372.27
2014-11-30	3377.86	3383.86	3376.75	3381.64	3375.25	3371.02	3377.71	3372.72	3378.78	3378.82	3381.80	3372.17
2014-12-07	3378.29	3384.32	3377.16	3382.62	3377.75	3371.35	3378.71	3372.95	3379.34	3379.94	3383.57	3372.78
2014-12-14	3378.20	3384.18	3377.14	3382.04	3376.64	3371.22	3378.29	3372.76	3379.28	3378.96	3381.94	3372.52
2014-12-21	3377.92	3384.19	3377.08	3381.82	3375.56	3371.13	3377.83	3372.72	3378.93	3377.84	3381.36	3372.27
2014-12-28	3377.76	3383.99	3376.98	3381.64	3375.03	3371.21	3377.74	3372.65	3378.79	3377.43	3381.05	3372.11
2015-01-04	3377.39	3383.63	3376.75	3381.43	3374.55	3371.10	3377.53	3372.66	3378.53	3376.89	3380.49	3371.82
2015-01-11	3377.28	3383.57	3376.65	3381.48	3374.55	3371.11	3377.55	3372.72	3378.56	3376.93	3380.68	3371.78
2015-01-18	3377.59	3383.86	3376.77	3381.64	3374.89	3371.15	3377.68	3372.72	3378.75	3377.33	3381.07	3371.99
2015-01-25	3377.63	3383.89	3376.83	3381.66	3374.93	3371.18	3377.73	3372.72	3378.85	3377.57	3381.14	3372.05
2015-02-01	3377.53	3383.88	3376.85	3381.84	3375.30	3371.19	3377.86	3372.96	3378.82	3378.54	3382.69	3372.22
2015-02-08	3377.96	3384.06	3376.97	3381.95	3376.02	3371.25	3378.12	3372.74	3379.06	3379.35	3382.80	3372.43
2015-02-15	3377.83	3383.95	3376.95	3381.67	3375.27	3371.24	3377.82	3372.59	3378.91	3377.69	3381.22	3372.22
2015-02-22	3377.47	3383.63	3376.74	3381.49	3374.83	3371.22	3377.67	3372.68	3378.66	3377.02	3380.65	3371.91
2015-03-01	3377.19	3383.38	3376.56	3381.35	3374.45	3371.18	3377.52	3372.59	3378.49	3376.71	3380.36	3371.68
2015-03-08	3377.03	3383.29	3376.46	3381.24	3374.20	3371.19	3377.51	3372.70	3378.49	3376.65	3380.40	3371.62
2015-03-15	3377.22	3383.35	3376.49	3381.44	3374.67	3371.26	3377.61	3372.70	3378.64	3377.45	3381.56	3371.86
2015-03-22	3377.52	3383.64	3376.66	3381.56	3374.96	3371.29	3377.74	3372.65	3378.86	3378.09	3381.44	3372.06
2015-03-29	3377.88	3383.99	3376.94	3381.80	3375.41	3371.33	3377.90	3372.64	3379.08	3379.22	3382.72	3372.41
2015-04-05	3377.75	3384.02	3376.97	3381.71	3375.27	3371.36	3377.88	3372.69	3379.03	3377.78	3381.24	3372.28
2015-04-12	3377.35	3383.60	3376.70	3381.47	3374.94	3371.28	3377.67	3372.61	3378.66	3376.97	3380.63	3371.87
2015-04-19	3377.24	3383.40	3376.54	3381.40	3374.77	3371.32	3377.63	3372.63	3378.61	3376.81	3380.47	3371.74
2015-04-26	3376.99	3383.09	3376.37	3381.14	3374.29	3371.26	3377.44	3372.54	3378.36	3376.57	3380.19	3371.55
2015-05-03	3376.92	3383.05	3376.30	3381.10	3374.05	3371.27	3377.44	3372.60	3378.37	3376.52	3380.16	3371.52
2015-05-10	3376.82	3382.89	3376.19	3380.99	3373.89	3371.24	3377.38	3372.59	3378.29	3376.42	3380.04	3371.44
2015-05-17												
2015-05-24												
2015-05-31												
2015-06-07												

Old TDF - Paste Berm - Weekly Maximum Vibrating Wire Piezometer Readings - Q4 2014 to Q4 2015

Location	Paste Berm Area I					Paste Berm Area II						
Piezometer	**P-10**	**P-11**	**P-12**	**P-13**	**P-14**	**P-1**	**P-2**	**P-3**	**P-4**	**P-5**	**P-6**	**P-7**
Tip Elevation	**3374.37**	**3380.14**	**3374.05**	**3379.68**	**3374.20**	**3371.90**	**3376.90**	**3371.80**	**3376.80**	**3372.60**	**3376.90**	**3367.30**
Threshold 1	3380.7	3380.7	3380.7	3380.7	3380.7	3376.8	3376.8	3376.8	3376.8	3376.8	3376.8	3376.8
Threshold 2	3377.9	3385.5	3381.6	3382.4	3376.3	3371.7	3378.4	3372.2	3379.1	3379.0	3382.8	3372.3
Threshold 3	3378.9	3386.5	3382.6	3383.4	3377.3	3372.7	3379.4	3373.2	3380.1	3380.0	3383.8	3373.3
2015-06-14												
2015-06-21												
2015-06-28	3375.97	3381.68	3375.08	3380.01	3373.51	3370.83	3376.72	3372.36	3377.04	3375.37	3378.82	3370.30
2015-07-05	3375.93	3381.64	3375.05	3379.97	3373.58	3370.85	3376.71	3372.46	3377.04	3375.33	3378.76	3370.26
2015-07-12	3375.91	3381.55	3375.01	3379.90	3373.59	3370.86	3376.69	3372.43	3377.02	3375.25	3378.67	3370.18
2015-07-19	3375.72	3381.32	3374.83	3379.71	3373.58	3370.79	3376.54	3372.44	3377.03	3375.01	3378.42	3369.98
2015-07-26	3375.69	3381.23	3374.78	3379.65	3373.61	3370.77	3376.48	3372.39	3376.99	3374.94	3378.35	3369.92
2015-08-02	3375.49	3381.01	3374.62	3379.46	3373.57	3370.68	3376.30	3372.46	3377.13	3374.74	3378.13	3369.75
2015-08-09	3375.43	3380.92	3374.60	3379.39	3373.57	3370.66	3376.23	3372.43	3377.13	3374.73	3378.09	3369.73
2015-08-16	3375.32	3380.74	3374.51	3379.24	3373.54	3370.56	3376.01	3372.41	3377.14	3374.59	3377.94	3369.63
2015-08-23	3375.18	3380.58	3374.39	3379.09	3373.54	3370.51	3375.84	3372.63	3377.39	3374.48	3377.79	3369.51
2015-08-30	3375.24	3380.55	3374.53	3379.11	3373.54	3370.63	3376.56	3372.51	3377.27	3375.03	3378.38	3369.84
2015-09-06	3375.37	3380.54	3374.59	3379.12	3373.51	3370.71	3376.80	3372.42	3377.21	3375.43	3378.81	3370.10
2015-09-13	3375.42	3380.50	3374.58	3379.16	3373.52	3370.76	3376.89	3372.52	3377.32	3375.53	3378.92	3370.23
2015-09-20	3375.74	3380.67	3374.69	3379.48	3373.50	3370.76	3376.98	3372.54	3377.35	3375.86	3379.47	3370.55
2015-09-27	3376.11	3380.76	3374.78	3379.69	3373.55	3370.81	3377.09	3372.47	3377.34	3376.15	3379.80	3370.85
2015-10-04	3376.28	3380.92	3374.94	3379.73	3373.62	3370.88	3377.15	3372.67	3377.66	3376.23	3379.83	3371.04
2015-10-11	3376.68	3381.32	3375.09	3380.21	3373.83	3370.85	3377.27	3372.50	3378.03	3376.66	3380.36	3371.29
2015-10-18	3376.77	3381.67	3375.28	3380.37	3374.28	3370.88	3377.33	3372.48	3378.20	3376.65	3380.35	3371.34
2015-10-25	3376.77	3381.92	3375.47	3380.55	3374.36	3370.93	3377.41	3372.63	3378.29	3376.62	3380.33	3371.41
2015-11-01	3376.93	3382.26	3375.67	3380.92	3374.58	3370.95	3377.47	3372.57	3378.41	3376.86	3380.59	3371.55
2015-11-08	3377.17	3382.60	3375.87	3381.20	3374.73	3370.99	3377.55	3372.56	3378.53	3377.59	3381.11	3371.74
2015-11-15	3377.45	3382.91	3376.06	3381.33	3374.84	3371.06	3377.63	3372.69	3378.69	3377.77	3381.15	3371.88
2015-11-22	3377.39	3382.96	3376.14	3381.34	3374.82	3371.07	3377.62	3372.56	3378.65	3377.30	3380.88	3371.81
2015-11-29	3377.45	3383.20	3376.24	3381.45	3375.11	3371.07	3377.53	3372.61	3378.51	3378.54	3381.86	3371.86
2015-12-06	3377.84	3384.02	3376.82	3381.82	3375.76	3371.08	3377.87	3372.68	3378.93	3379.78	3382.96	3372.38
2015-12-13	3377.88	3384.02	3376.93	3381.81	3375.69	3371.17	3377.90	3372.68	3378.96	3378.44	3381.64	3372.37
2015-12-20	3377.66	3383.99	3376.91	3381.73	3375.55	3371.15	3377.81	3372.75	3378.85	3377.47	3381.12	3372.21
2015-12-27	3377.50	3383.97	3376.84	3381.65	3375.35	3371.18	3377.76	3372.54	3378.75	3377.21	3380.90	3371.97

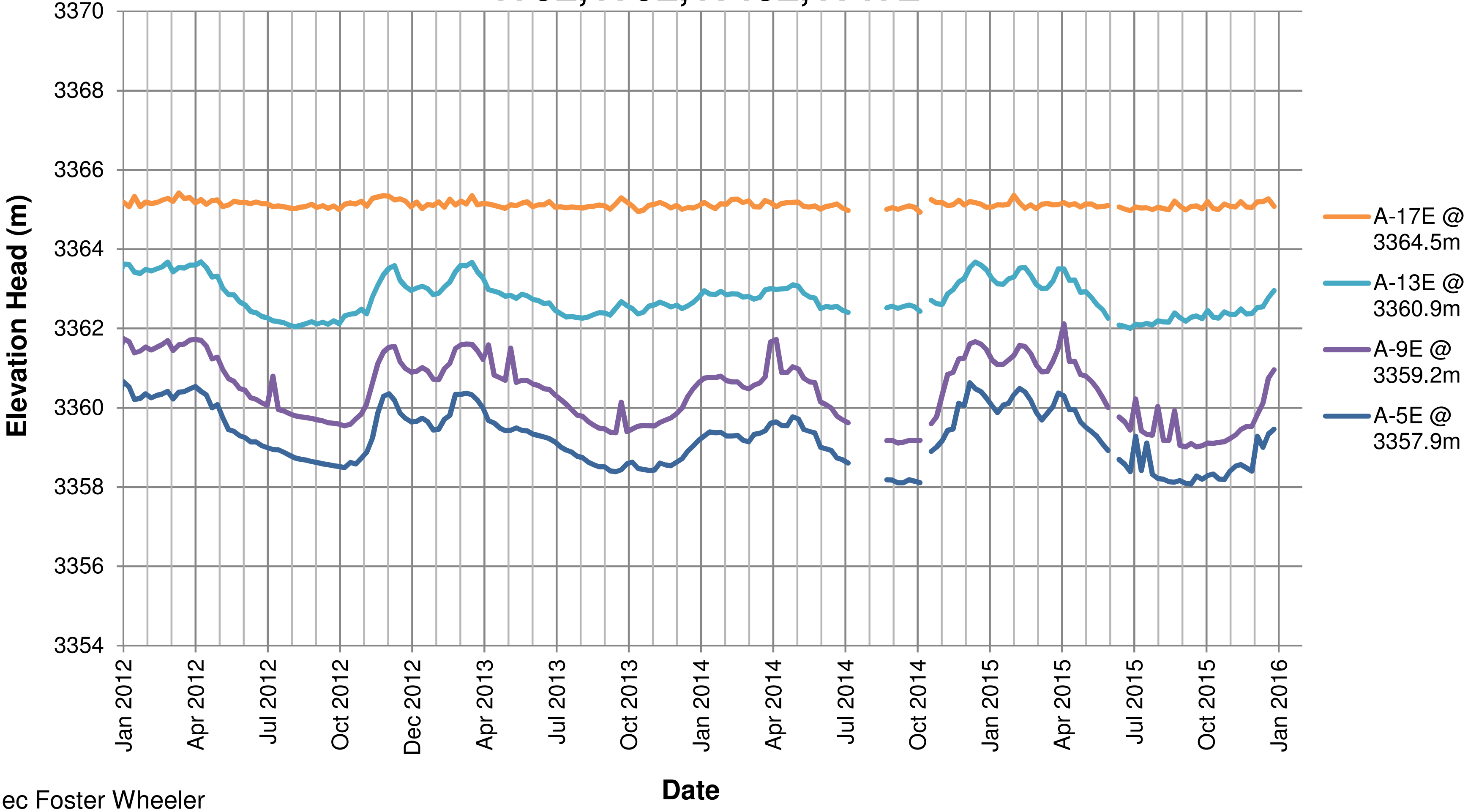
Old TDF - Instrument Plane C: Weekly Maximum Vibrating Wire Piezometer Readings - Q4 2014 to Q4 2015

Location	Outer Embankment Slope - 1				Outer Embankment Slope - 2					Outer Embankment Slope - 3				Upper Tailings Beach				
ID	**C-5E**	**C-13E**	**C-17E**	**C-21E**	**C-6E**	**C-10E**	**C-14E**	**C-18E**	**C-22E**	**C-12E**	**C-16E**	**C-20E**	**C-24E**	**C-29E**	**C-31E**	**C-35E**	**C-36E**	**C-37E**
Tip Elev (m)	**3357.59**	**3356.41**	**3350.66**	**3363.21**	**3351.23**	**3354.78**	**3356.41**	**3362.00**	**3362.93**	**3353.02**	**3356.20**	**3362.00**	**3362.71**	**3369.80**	**3369.50**	**3374.20**	**3374.10**	**3374.10**
Threshold 1	3358.8	3358.8	3354.8	3364.4	3358.8	3358.8	3358.8	3364.4	3364.4	3358.8	3358.8	3364.4	3364.4	3377.3	3377.3	3381.1	3381.1	3381.1
Threshold 2	3359.5	3357.2	3354.8	3363.7	3357.6	3357.5	3358.8	3364.6	3363.8	3358.9	3361.8	3365.8	3363.9	3375.5	3380.1	3379.9	3380.2	3383.6
Threshold 3	3360.5	3358.2	3355.8	3364.7	3358.6	3358.5	3359.8	3365.6	3364.8	3359.9	3362.8	3366.8	3364.9	3376.5	3381.1	3380.9	3381.2	3384.6
2014-10-05	3357.50	3356.35	3351.36	3362.90	3353.90	3354.57	3356.70	3359.20	3363.14	3354.13	3355.83	3361.23	3363.23	3371.99	3375.70	3373.24	3375.02	3376.99
2014-10-12																		
2014-10-19																		
2014-10-26	3357.51	3356.55	3352.43	3363.15	3354.63	3354.61	3356.91	3359.46	3363.35	3355.14	3357.05	3362.12	3363.53	3374.16	3378.08	3376.16	3377.66	3379.65
2014-11-02	3357.53	3356.53	3352.05	3363.11	3354.53	3354.64	3356.88	3359.42	3363.38	3354.99	3356.93	3362.22	3363.53	3374.59	3378.12	3376.37	3377.74	3379.57
2014-11-09	3357.54	3356.45	3352.05	3363.05	3354.46	3354.66	3356.80	3359.35	3363.32	3354.97	3356.91	3362.27	3363.45	3374.64	3378.10	3376.42	3377.68	3379.54
2014-11-16	3357.53	3356.64	3352.01	3363.21	3354.55	3354.67	3357.00	3359.88	3363.51	3354.99	3356.74	3362.36	3363.61	3374.58	3377.89	3376.28	3377.49	3379.24
2014-11-23	3357.53	3356.61	3352.76	3363.24	3354.96	3354.63	3356.96	3360.17	3363.49	3355.51	3356.98	3362.81	3363.61	3374.76	3378.25	3376.56	3377.83	3379.95
2014-11-30	3357.53	3356.49	3352.54	3363.19	3354.79	3354.66	3356.83	3360.51	3363.43	3355.39	3357.14	3363.13	3363.51	3374.98	3378.42	3376.56	3377.81	3379.83
2014-12-07	3357.54	3356.70	3353.49	3363.34	3355.43	3354.75	3357.03	3360.92	3363.66	3356.23	3357.30	3363.64	3363.75	3375.45	3378.83	3377.09	3378.34	3380.47
2014-12-14	3357.51	3356.52	3353.11	3363.28	3355.49	3354.89	3356.82	3361.15	3363.48	3356.17	3357.59	3363.84	3363.56	3375.39	3378.79	3376.85	3378.02	3380.09
2014-12-21	3357.90	3356.50	3353.36	3363.16	3355.84	3355.19	3357.13	3360.82	3363.42	3356.27	3357.83	3363.51	3363.52	3375.05	3378.40	3376.59	3377.82	3379.81
2014-12-28	3357.89	3356.45	3353.13	3363.18	3355.71	3355.19	3357.23	3360.79	3363.35	3356.02	3357.66	3363.41	3363.44	3374.95	3378.27	3376.48	3377.66	3379.61
2015-01-04	3357.66	3356.48	3353.07	3363.19	3355.61	3355.03	3357.10	3360.60	3363.35	3355.92	3357.50	3363.18	3363.44	3374.67	3377.90	3376.22	3377.36	3379.10
2015-01-11	3357.57	3356.56	3352.84	3363.27	3355.50	3354.97	3357.13	3360.54	3363.40	3355.80	3357.36	3363.10	3363.49	3374.51	3377.80	3376.19	3377.28	3379.06
2015-01-18	3357.53	3356.56	3353.15	3363.18	3355.63	3354.92	3357.07	3360.40	3363.40	3355.96	3357.66	3363.09	3363.49	3374.56	3378.07	3376.35	3377.61	3379.46
2015-01-25	3357.53	3356.57	3353.13	3363.21	3355.68	3354.98	3357.08	3360.47	3363.41	3356.07	3357.79	3363.20	3363.52	3374.65	3378.18	3376.43	3377.69	3379.50
2015-02-01	3357.55	3356.79	3353.48	3363.34	3355.82	3355.10	3357.07	3360.66	3363.65	3356.25	3357.88	3363.25	3363.74	3374.66	3378.24	3376.51	3377.84	3379.80
2015-02-08	3357.55	3356.55	3353.36	3363.09	3355.90	3355.22	3357.27	3360.94	3363.44	3356.37	3358.08	3363.55	3363.57	3375.12	3378.52	3376.64	3377.85	3380.00
2015-02-15	3357.78	3356.42	3353.21	3363.14	3355.91	3355.30	3357.35	3360.90	3363.33	3356.29	3357.93	3363.57	3363.42	3374.98	3378.37	3376.52	3377.73	3379.73
2015-02-22	3357.81	3356.55	3353.04	3363.16	3355.73	3355.19	3357.29	3360.76	3363.41	3356.01	3357.59	3363.32	3363.50	3374.83	3378.01	3376.28	3377.49	3379.24
2015-03-01	3357.59	3356.45	3352.86	3363.09	3355.57	3355.03	3357.08	3360.57	3363.31	3355.89	3357.45	3363.13	3363.40	3374.57	3377.75	3376.13	3377.11	3378.87
2015-03-08	3357.56	3356.61	3352.72	3363.24	3355.42	3354.88	3356.98	3360.43	3363.42	3355.67	3357.27	3362.96	3363.51	3374.41	3377.55	3376.06	3377.03	3378.85
2015-03-15	3357.54	3356.63	3352.82	3363.22	3355.42	3354.82	3356.83	3360.34	3363.43	3355.78	3357.41	3362.91	3363.52	3374.38	3377.74	3376.15	3377.28	3379.18
2015-03-22	3357.55	3356.56	3352.81	3363.16	3355.45	3354.78	3356.83	3360.36	3363.39	3355.84	3357.48	3363.01	3363.50	3374.58	3378.08	3376.44	3377.61	3379.47
2015-03-29	3357.54	3356.56	3353.15	3363.12	3355.66	3354.97	3357.03	3360.79	3363.41	3356.17	3357.95	3363.45	3363.51	3375.08	3378.51	3377.41	3377.86	3379.92
2015-04-05	3357.52	3356.60	3352.95	3363.19	3355.67	3355.11	3357.36	3360.90	3363.49	3356.16	3357.81	3363.52	3363.57	3375.06	3378.43	3376.51	3377.76	3379.70
2015-04-12	3357.51	3356.54	3352.78	3363.08	3355.54	3355.04	3357.01	3360.67	3363.40	3355.89	3357.42	3363.22	3363.49	3374.70	3377.93	3376.24	3377.36	3379.57
2015-04-19	3357.55	3356.59	3352.79	3363.13	3355.54	3355.01	3357.01	3360.60	3363.43	3355.87	3357.39	3363.15	3363.52	3374.57	3377.75	3376.18	3377.16	3378.92
2015-04-26	3357.53	3356.52	3352.65	3363.03	3355.35	3354.82	3356.79	3360.32	3363.34	3355.66	3357.26	3362.88	3363.43	3374.37	3377.55	3375.99	3376.93	3378.75
2015-05-03	3357.56	3356.59	3352.60	3363.06	3355.36	3354.81	3356.80	3360.34	3363.41	3355.66	3357.25	3362.89	3363.50	3374.36	3377.50	3375.95	3376.89	3378.75
2015-05-10	3357.51	3356.59	3352.53	3363.04	3355.27	3354.63	3356.77	3360.21	3363.41	3355.51	3357.17	3362.77	3363.49	3374.25	3377.41	3375.82	3376.78	3378.65
2015-05-17	3357.52	3356.53	3352.32	3362.94	3355.07	3354.48	3356.69	3360.06	3363.35	3355.26	3357.04	3362.63	3363.43	3374.13	3377.31	3375.66	3376.65	3378.51
2015-05-24	3357.50	3356.52	3352.22	3362.88	3354.98	3354.43	3356.67	3359.99	3363.34	3355.19	3356.91	3362.55	3363.42	3374.04	3377.13	3375.52	3376.51	3378.26
2015-05-31	3357.51	3356.53	3352.11	3362.88	3354.88	3354.34	3356.70	3359.92	3363.35	3355.10	3356.74	3362.47	3363.43	3373.86	3377.00	3375.41	3376.39	3378.16
2015-06-07	3357.50	3356.50	3352.01	3362.82	3354.77	3354.25	3356.69	3359.85	3363.28	3355.01	3356.70	3362.31	3363.37	3373.68	3376.86	3375.26	3376.22	3377.99
2015-06-14	3357.50	3356.51	3351.95	3362.83	3354.71	3354.23	3356.75	3359.73	3363.29	3354.94	3356.69	3362.18	3363.38	3373.55	3376.75	3375.15	3376.13	3377.86
2015-06-21	3357.51	3356.51	3351.89	3362.82	3354.65	3354.21	3356.76	3359.39	3363.28	3354.90	3356.60	3362.11	3363.37	3373.39	3376.62	3374.96	3375.94	3377.68
2015-06-28	3357.43	3356.44	3351.79	3362.74	3354.50	3354.18	3356.72	3359.03	3363.21	3354.78	3356.53	3361.90	3363.29	3373.19	3376.40	3374.63	3375.54	3377.42
2015-07-05	3357.44	3356.51	3351.74	3362.82	3354.44	3354.52	3357.00	3358.75	3363.29	3354.71	3356.60	3361.76	3363.36	3373.08	3376.28	3374.42	3375.41	3377.28

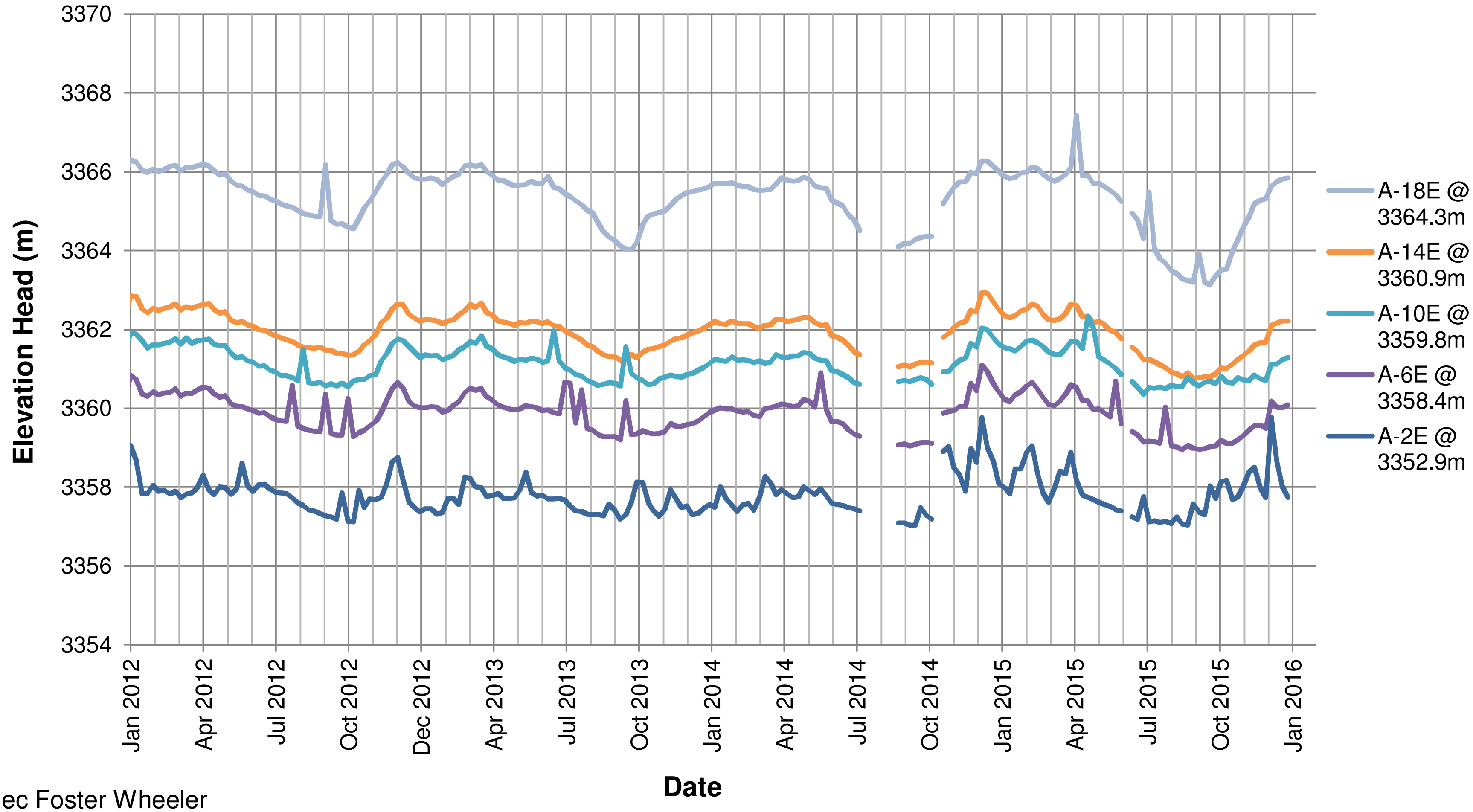
Old TDF - Instrument Plane C: Weekly Maximum Vibrating Wire Piezometer Readings - Q4 2014 to Q4 2015

Location	Outer Embankment Slope - 1				Outer Embankment Slope - 2					Outer Embankment Slope - 3				Upper Tailings Beach				
ID	**C-5E**	**C-13E**	**C-17E**	**C-21E**	**C-6E**	**C-10E**	**C-14E**	**C-18E**	**C-22E**	**C-12E**	**C-16E**	**C-20E**	**C-24E**	**C-29E**	**C-31E**	**C-35E**	**C-36E**	**C-37E**
Tip Elev (m)	**3357.59**	**3356.41**	**3350.66**	**3363.21**	**3351.23**	**3354.78**	**3356.41**	**3362.00**	**3362.93**	**3353.02**	**3356.20**	**3362.00**	**3362.71**	**3369.80**	**3369.50**	**3374.20**	**3374.10**	**3374.10**
Threshold 1	3358.8	3358.8	3354.8	3364.4	3358.8	3358.8	3358.8	3364.4	3364.4	3358.8	3358.8	3364.4	3364.4	3377.3	3377.3	3381.1	3381.1	3381.1
Threshold 2	3359.5	3357.2	3354.8	3363.7	3357.6	3357.5	3358.8	3364.6	3363.8	3358.9	3361.8	3365.8	3363.9	3375.5	3380.1	3379.9	3380.2	3383.6
Threshold 3	3360.5	3358.2	3355.8	3364.7	3358.6	3358.5	3359.8	3365.6	3364.8	3359.9	3362.8	3366.8	3364.9	3376.5	3381.1	3380.9	3381.2	3384.6
2015-07-12	3357.48	3356.47	3351.70	3362.80	3354.42	3354.55	3356.96	3358.46	3363.26	3354.66	3356.40	3361.69	3363.34	3372.98	3376.19	3374.29	3375.36	3377.12
2015-07-19	3357.48	3356.48	3351.64	3362.80	3354.40	3354.55	3356.96	3358.62	3363.27	3354.59	3356.31	3361.63	3363.34	3372.82	3375.99	3373.93	3375.09	3376.88
2015-07-26	3357.52	3356.43	3351.62	3362.79	3354.36	3354.58	3356.90	3358.63	3363.22	3354.55	3356.23	3361.56	3363.29	3372.77	3375.91	3373.82	3374.98	3376.76
2015-08-02	3357.48	3356.48	3351.56	3362.87	3354.31	3354.55	3356.99	3358.84	3363.28	3354.46	3356.14	3361.54	3363.35	3372.61	3375.63	3373.64	3374.63	3376.50
2015-08-09	3357.50	3356.44	3351.58	3362.85	3354.30	3354.55	3356.95	3358.87	3363.25	3354.46	3356.17	3361.50	3363.32	3372.58	3375.60	3373.60	3374.57	3376.41
2015-08-16	3357.50	3356.41	3351.50	3362.84	3354.22	3354.57	3356.91	3358.91	3363.22	3354.38	3356.13	3361.43	3363.29	3372.47	3375.47	3373.45	3374.43	3376.25
2015-08-23	3357.48	3356.61	3351.52	3363.05	3354.23	3354.55	3357.12	3359.17	3363.43	3354.44	3356.38	3361.53	3363.49	3372.42	3375.35	3373.28	3374.22	3375.93
2015-08-30	3357.49	3356.46	3351.75	3362.94	3354.31	3354.57	3356.96	3359.06	3363.30	3354.47	3356.35	3361.38	3363.38	3372.36	3375.78	3373.55	3375.23	3377.18
2015-09-06	3357.49	3356.39	3351.59	3362.88	3354.23	3354.56	3356.89	3359.03	3363.21	3354.39	3356.13	3361.35	3363.29	3372.32	3376.14	3373.77	3375.49	3377.46
2015-09-13	3357.49	3356.48	3351.49	3363.00	3354.12	3354.57	3357.01	3359.14	3363.29	3354.33	3356.00	3361.37	3363.38	3372.33	3376.19	3373.82	3375.56	3377.49
2015-09-20	3357.49	3356.48	3351.80	3362.99	3354.31	3354.56	3357.01	3359.19	3363.31	3354.56	3356.35	3361.37	3363.40	3372.30	3376.42	3374.22	3376.06	3377.88
2015-09-27	3357.49	3356.42	3351.62	3362.94	3354.21	3354.57	3356.95	3359.13	3363.23	3354.46	3356.26	3361.40	3363.34	3372.36	3376.67	3374.58	3376.27	3378.15
2015-10-04	3357.52	3356.59	3351.96	3363.15	3354.38	3354.58	3357.12	3359.37	3363.40	3354.61	3356.45	3361.51	3363.52	3372.43	3376.81	3374.80	3376.40	3378.24
2015-10-11	3357.47	3356.43	3351.88	3363.00	3354.33	3354.59	3356.99	3359.23	3363.23	3354.67	3356.41	3361.53	3363.37	3372.60	3377.10	3375.09	3376.72	3378.71
2015-10-18	3357.52	3356.40	3351.66	3362.98	3354.24	3354.60	3356.98	3359.21	3363.21	3354.55	3356.37	3361.55	3363.35	3372.96	3377.17	3375.27	3376.77	3378.75
2015-10-25	3357.49	3356.53	3351.68	3363.13	3354.25	3354.56	3357.08	3359.36	3363.34	3354.55	3356.44	3361.61	3363.49	3373.20	3377.22	3375.42	3376.84	3378.79
2015-11-01	3357.48	3356.47	3352.02	3363.08	3354.38	3354.55	3357.02	3359.30	3363.28	3354.75	3356.50	3361.69	3363.44	3373.45	3377.41	3375.64	3377.02	3378.87
2015-11-08	3357.52	3356.44	3352.20	3363.05	3354.48	3354.56	3357.00	3359.29	3363.29	3354.97	3356.81	3361.84	3363.44	3373.71	3377.64	3375.97	3377.23	3379.14
2015-11-15	3357.55	3356.56	3352.10	3363.19	3354.56	3354.65	3357.13	3359.43	3363.42	3355.00	3356.92	3362.00	3363.58	3374.17	3377.95	3376.15	3377.53	3379.39
2015-11-22	3357.53	3356.43	3351.92	3363.06	3354.46	3354.66	3357.00	3359.31	3363.32	3354.96	3356.80	3362.04	3363.46	3374.33	3377.92	3376.22	3377.50	3379.29
2015-11-29	3357.54	3356.41	3351.78	3363.01	3354.36	3354.61	3356.99	3359.30	3363.33	3354.84	3356.60	3362.04	3363.42	3374.34	3377.71	3376.13	3377.19	3378.96
2015-12-06	3357.49	3356.53	3352.78	3363.12	3354.93	3354.55	3357.09	3359.87	3363.46	3355.55	3357.17	3362.43	3363.60	3375.00	3378.70	3376.62	3377.93	3380.09
2015-12-13	3357.54	3356.49	3352.48	3363.18	3354.79	3354.67	3357.05	3360.57	3363.52	3355.39	3357.15	3363.05	3363.61	3375.03	3378.67	3376.63	3377.91	3380.01
2015-12-20	3357.51	3356.55	3352.45	3363.23	3354.89	3354.62	3357.10	3360.59	3363.58	3355.46	3357.18	3363.13	3363.66	3374.87	3378.23	3376.44	3377.78	3379.58
2015-12-27	3357.54	3356.27	3352.49	3363.03	3354.98	3354.67	3356.84	3360.43	3363.33	3355.50	3357.17	3362.95	3363.41	3374.67	3378.00	3376.29	3377.57	3379.37

Old TDF Piezometric Records: Q1 2012 to Q4 2015 - Plane A
Outer Embankment Slope, Location 1
A-5E, A-9E, A-13E, A-17E

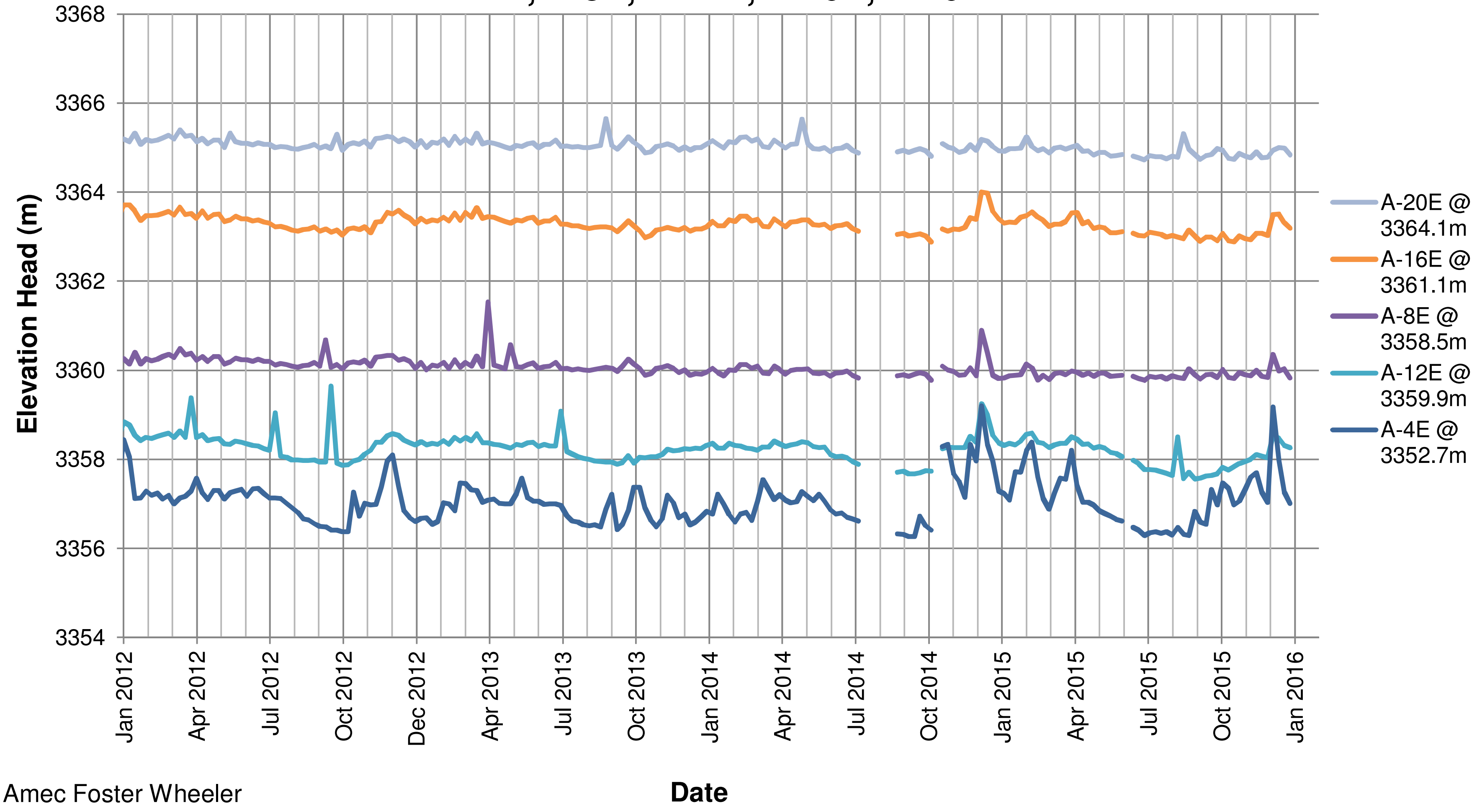


Old TDF Piezometric Records: Q1 2012 to Q4 2015 - Plane A
Outer Embankment Slope, Location 2
A-2E, A-6E, A-10E, A-14E, A-18E



Nyrstar Myra Falls
2015 Dam Safety Inspection
March 2016

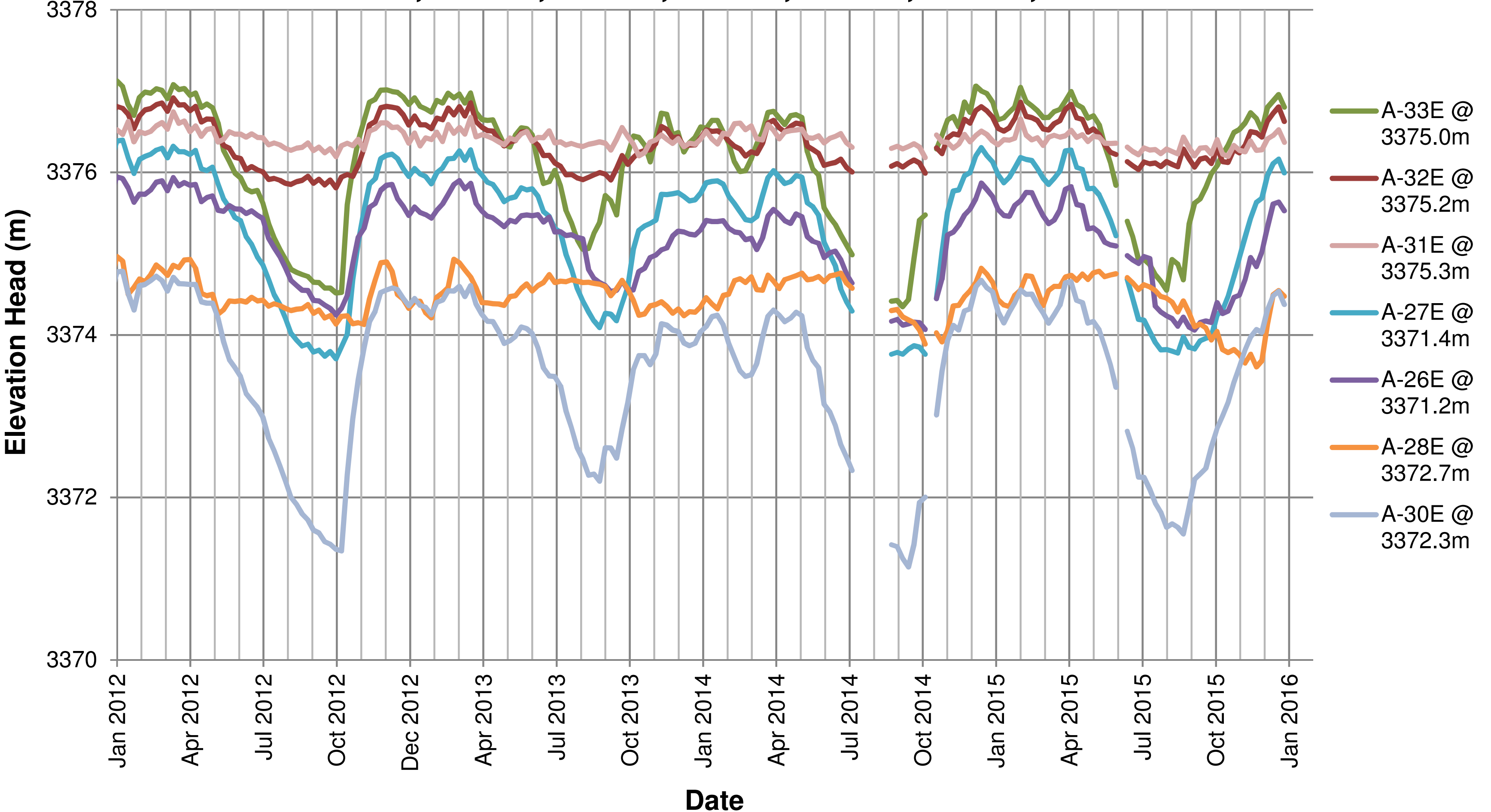
Old TDF Piezometric Records: Q1 2012 to Q4 2015 - Plane A
Outer Embankment Slope, Location 3
A-4E, A-8E, A-12E, A-16E, A-20E



Amec Foster Wheeler
File No.: NX14001B.2015.300

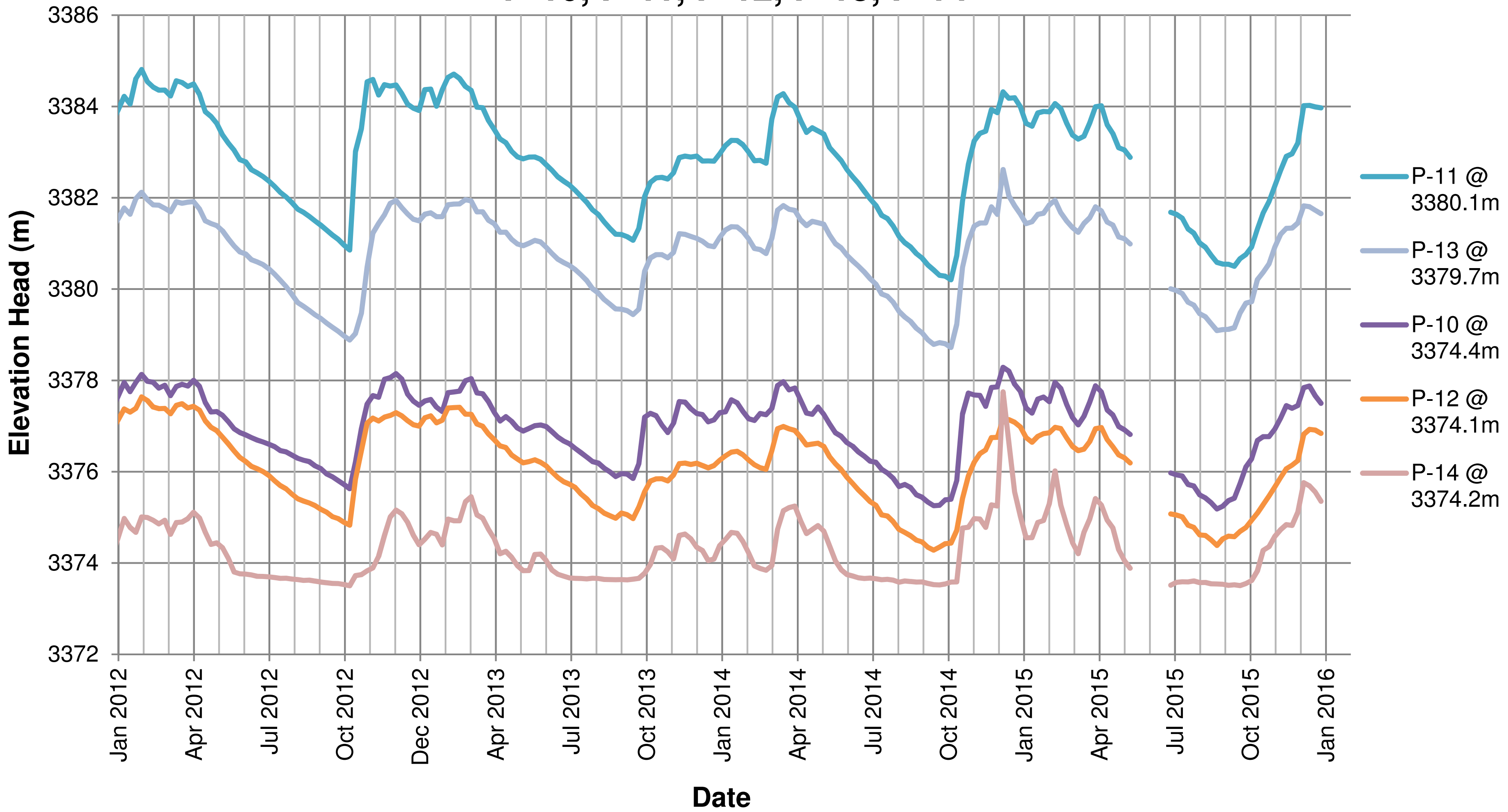
Nyrstar Myra Falls
2015 Dam Safety Inspection
March 2016

Old TDF Piezometric Records: Q1 2012 to Q4 2015 - Plane A
Upper Tailings Beach
A-26E, A-27E, A-28E, A-30E, A-31E, A-32E, A-33E

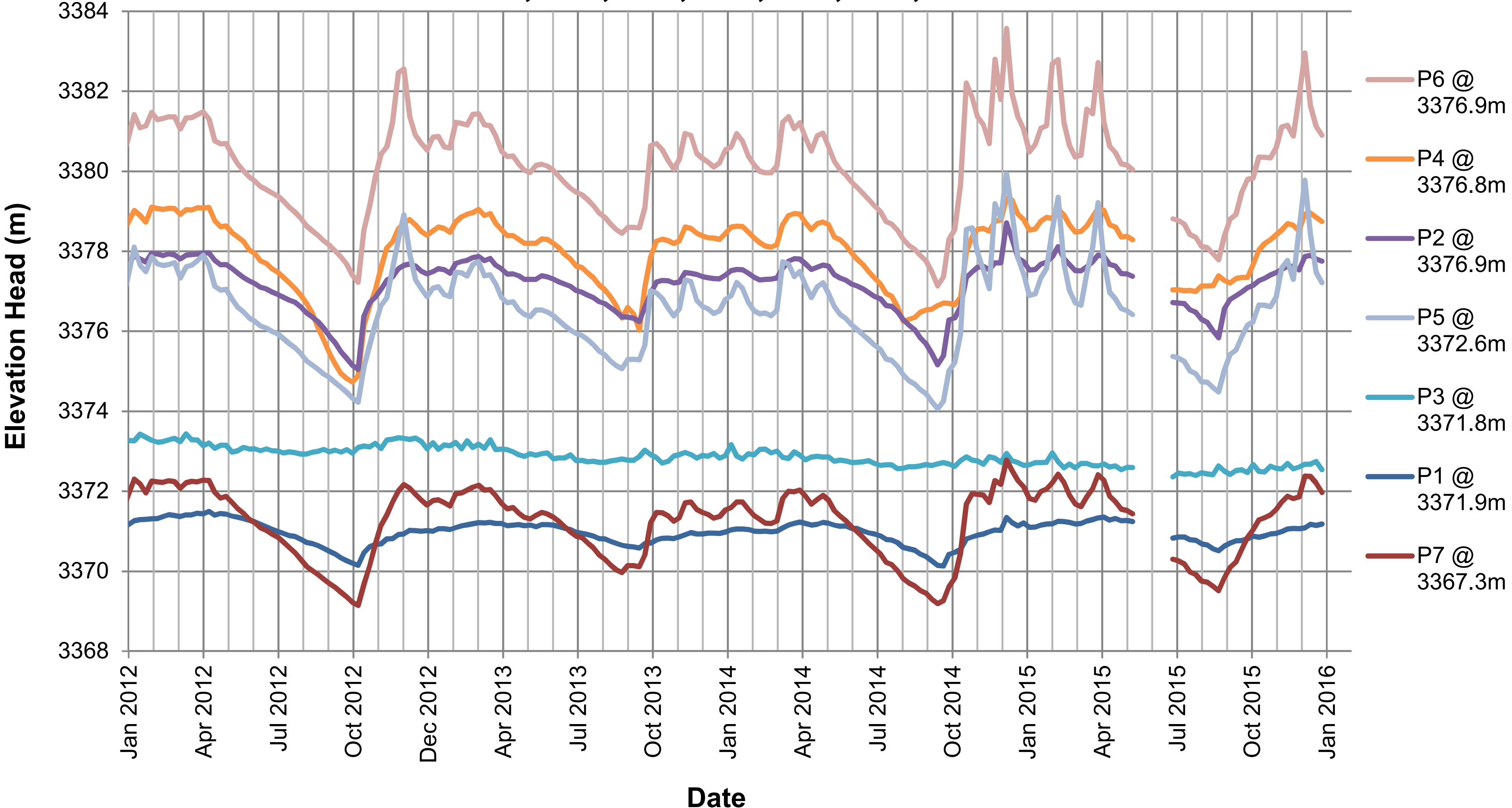


Amec Foster Wheeler
File No.: NX14001B.2015.300

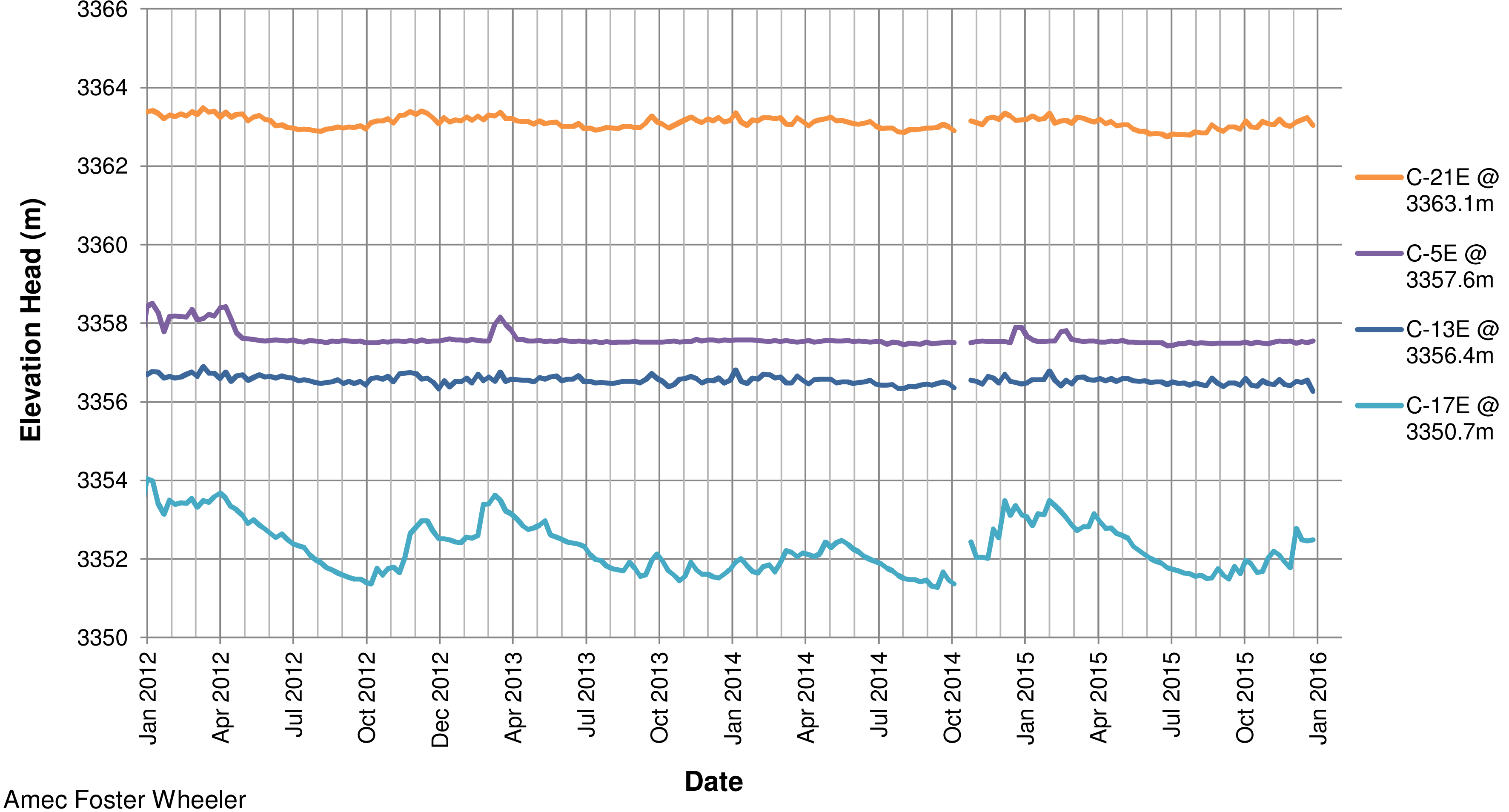
Old TDF Piezometer Records : Q1 2012 to Q4 2015
Paste Berm Area I
P-10, P-11, P-12, P-13, P-14



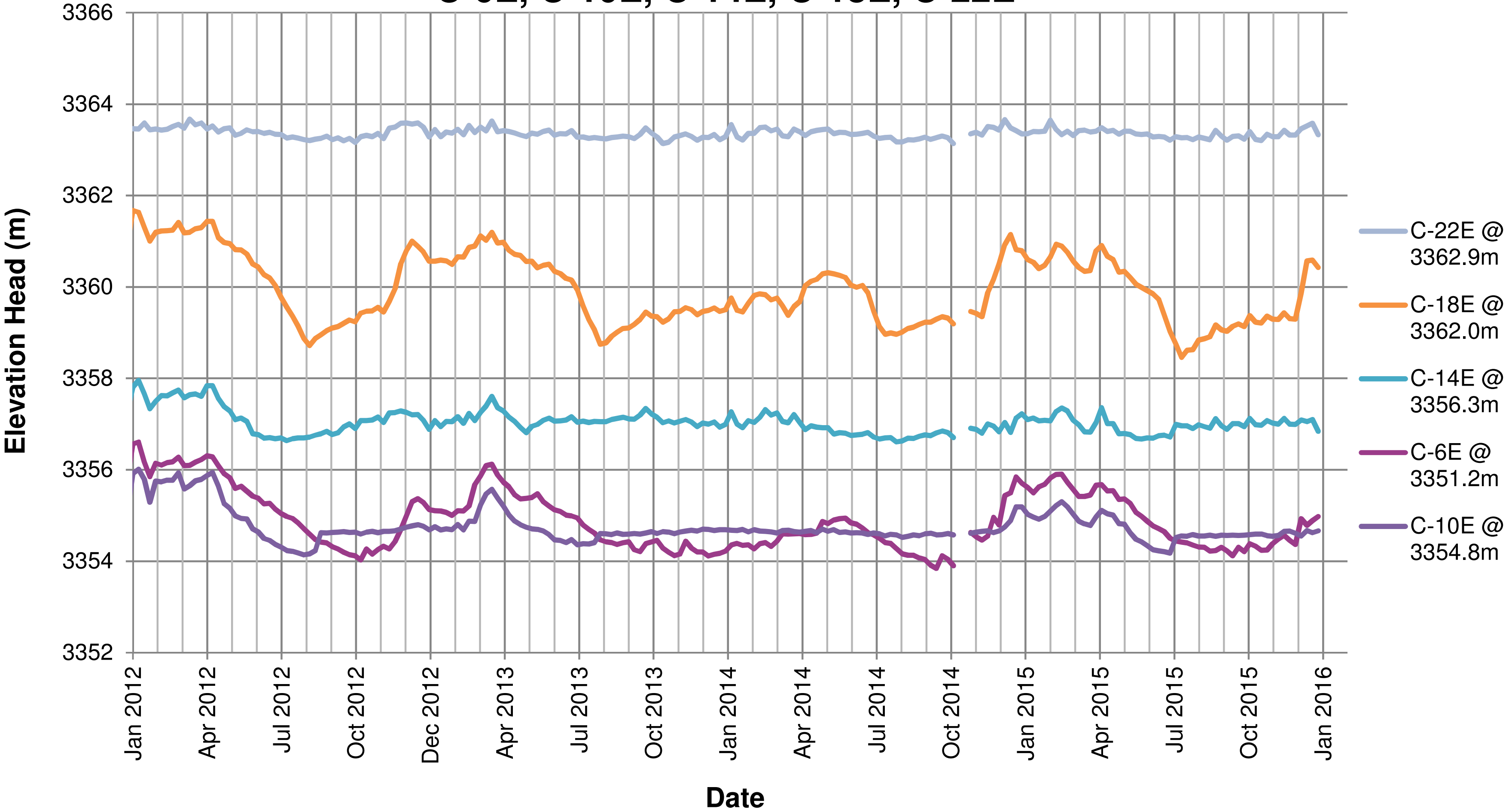
Old TDF Piezometer Records: Q1 2012 to Q4 2015
Paste Berm Area II
P-1, P-2, P-3, P-4, P-5, P-6, P-7



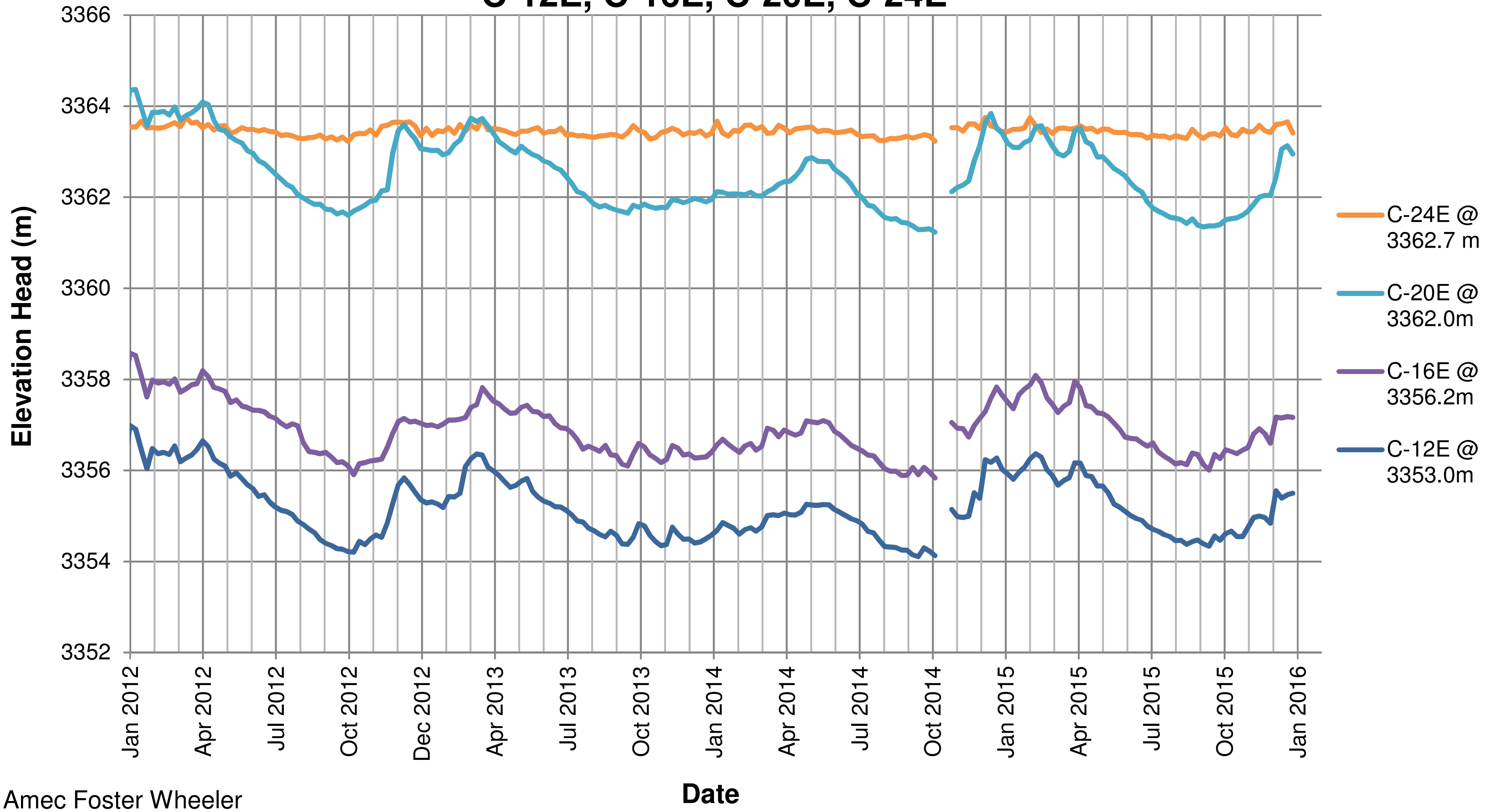
Old TDF Piezometer Records: Q1 2012 to Q4 2015 - Plane C
Outer Embankment Slope, Location 1
C-5E, C-13E, C-17E, C-21E



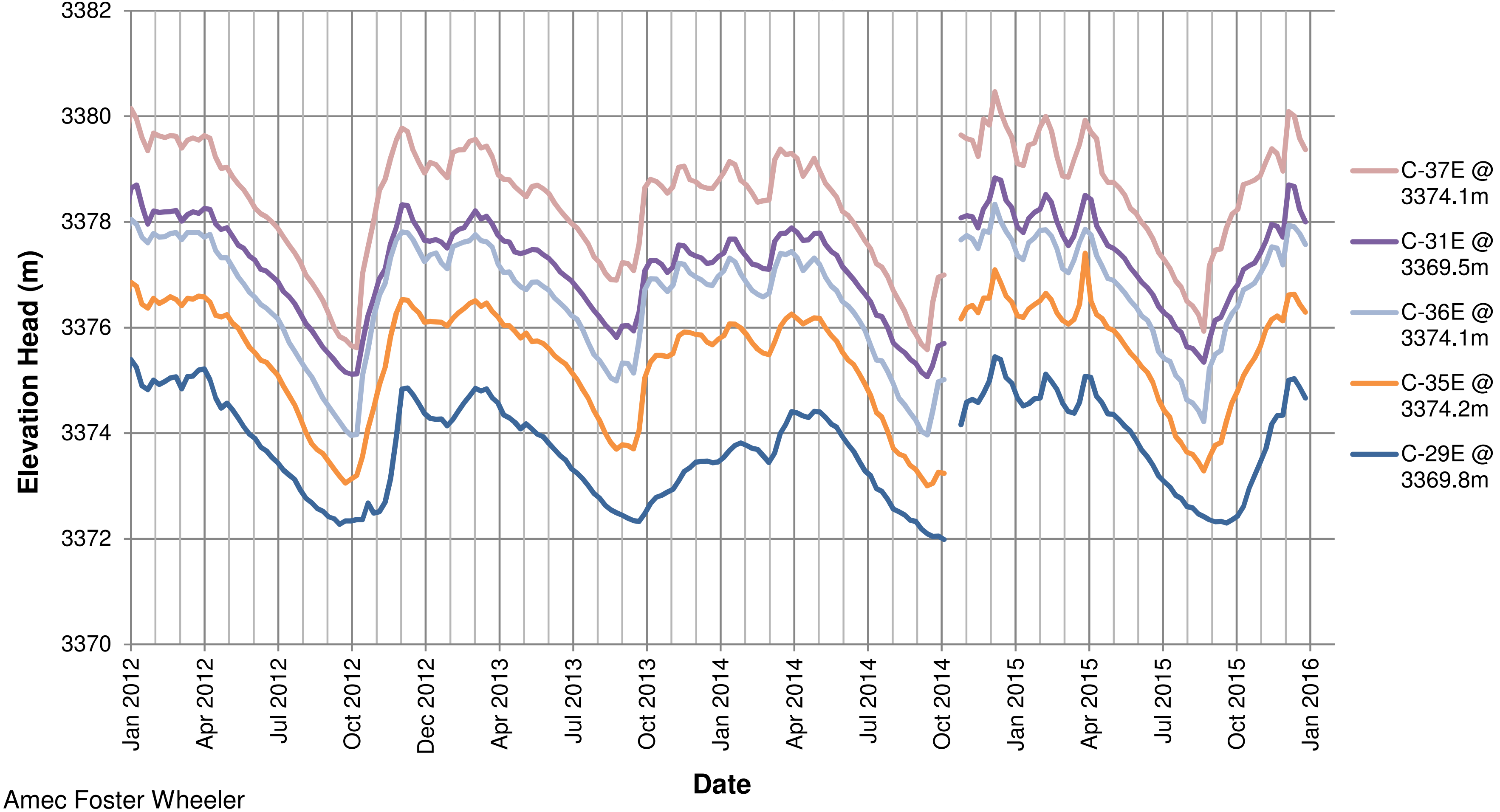
Old TDF Piezometer Records: Q1 2012 to Q4 2015 - Plane C
Outer Embankment Slope, Location 2
C-6E, C-10E, C-14E, C-18E, C-22E



Old TDF Piezometer Records: Q1 2012 to Q4 2015 - Plane C
Outer Embankment Slope, Location 3
C-12E, C-16E, C-20E, C-24E



Old TDF Piezometer Records: Q1 2012 to Q4 2015 - Plane C
Upper Tailings Beach
C29E, C-31E, C-32E, C-35E, C-36E, C-37E



Paste Tailings - Weekly Maximum Vibrating Wire Piezometer Readings - Q4 2014 to Q4 2015

Location	Old TDF - Amalgamated Paste Area (APA)				Lynx TDF - Upstream Dam Toe and Paste Tailings										
Borehole	**BH11-09**	**BH11-09**	**BH11-10**	**BH11-10**	**Plane D - U/S Toe**	**Plane E - U/S Toe**	**Plane F - U/S Toe**	**BH11-16**	**BH11-16**	**BH11-16**	**BH11-17**	**BH11-17**	**BH11-17**	**Lynx Paste - Plane E**	**Lynx Paste - Plane F**
Piezometer	**17724**	**17722**	**17726**	**17729**	**29326**	**17723**	**17721**	**17727**	**17728**	**17733**	**17731**	**17732**	**17734**	**33783**	**31089**
Maximum (m)	**3378.60**	**3386.35**	**3377.66**	**3386.09**	**3402.02**	**3402.71**	**3400.79**	**3388.70**	**3383.00**	**3371.46**	**3393.25**	**3387.90**	**3374.88**	**3400.91**	**3400.48**
Tip Elevation (m)	**3373.70**	**3382.90**	**3373.80**	**3383.00**	**3397.50**	**3398.20**	**3398.40**	**3375.90**	**3368.20**	**3356.00**	**3377.80**	**3370.20**	**3358.00**	**3399.16**	**3398.76**
2014-10-01	3375.25	*3382.79*	3376.33	*3382.98*				3386.60	3379.28	3365.95	3389.69	3383.72	3371.03		
2014-10-08	3375.91	3383.01	3376.37	*3382.98*				3386.69	3379.27	3365.89	3389.84	3383.60	3370.82		
2014-10-14								3386.90	3379.48	3366.05	3390.01	3383.74	3370.90		
2014-10-15	3376.31	3384.87	3376.50	3384.22											
2014-10-22	3377.40	3385.70	3376.61	3385.34				3387.43	3380.98	3368.11	3390.38	3386.33	3374.53		
2014-10-29	3377.96	3385.78	3376.41	3385.16				3387.58	3381.01	3368.22	3390.89	3386.55	3374.72		
2014-11-04	3378.02	3385.68	3376.42	3385.06				3387.73	3380.92	3367.93	3391.25	3386.47	3374.18		
2014-11-11	3378.05	3385.35	3376.51	3385.35				3387.81	3380.71	3367.43	3391.47				
2014-11-18	3377.74	3385.10	3376.37	3386.09				3387.65	3380.42	3367.01	3391.32	3385.45	3372.40		
2014-11-30	3378.32	3385.06	3376.49	3385.41		*3398.04*	3398.94	3387.62	3380.63	3367.22	3391.02	3385.82	3372.98		
2014-12-05	3378.09	3384.94	3376.60	3385.11	3397.92	3398.34	3398.92	3387.87	3380.84	3367.48	3391.31	3386.39	3373.44		
2015-02-26	3377.87	3384.73	3376.74	3384.80	3397.64	3398.38	3399.51	3387.58	3380.34	3366.30	3391.41	3384.85	3371.19		
2015-03-05	3377.73	3384.51	3376.60	3384.50	3397.53	3398.31	3399.66	3387.45	3380.41	3366.36	3391.11	3384.91	3371.36		
2015-03-28	3378.22	3385.04	3376.64	3385.59	3397.79	3399.28	3399.94	3388.15	3381.54	3368.06	3392.24	3387.42	3374.58		
2015-04-06	3378.40	3385.06	3376.83	3385.75	3397.78	3399.50	3399.80	3388.60	3381.75	3368.15	3393.25	3387.90	3374.66		
2015-04-07															
2015-04-08															
2015-04-09															
2015-04-10															
2015-04-11															
2015-04-16	3377.95	3384.66	3376.67	3385.49	3398.00	3399.58	3399.84	3388.70	3381.79	3367.87	3393.18		3374.12		
2015-04-20	3377.79	3384.66	3376.62	3384.86	3397.97	3402.71	3399.89	3388.04	3381.68	3367.73	3392.09	3387.75	3373.94		
2015-06-02	3376.93	3383.60	3376.37	*3382.91*	3397.55	3399.32	3400.18	3388.32	3381.67	3367.40	3392.12	3385.97	3371.74		
2015-06-10	3376.65	3383.47	3376.37	*3382.89*	*3397.43*	3398.97	3400.38	3388.27	3381.58	3367.27	3391.97	3385.91	3371.64		
2015-06-17	3376.36	3383.30	3376.35	*3382.90*	*3397.33*	3398.69	3399.96	3388.12	3381.49	3367.27	3391.80	3385.63	3371.62		
2015-06-26	3376.00	3383.09	3376.32	*3382.91*	*3397.24*	3398.50	3399.54	3387.89	3381.04	3366.71	3391.56	3385.22	3371.12		
2015-06-30	3375.83	3383.05	3376.33	*3382.88*	*3397.17*	3398.41	3399.35	3387.74	3380.78	3366.36	3391.46	3385.00	3370.84		
2015-07-06					*3397.14*	3398.32	3399.14	3387.56	3380.48	3365.98	3391.36	3384.77	3370.49		
2015-07-17	3375.34	*3382.78*	3376.31	*3382.89*	*3397.04*	*3398.20*	3398.80	3387.19	3379.94	3365.31	3391.02	3384.32	3369.86		
2015-07-19	3375.30	*3382.86*	3376.36	*3382.88*	*3397.03*	3398.21	3398.73	3387.14	3379.86	3365.19	3391.00	3384.26	3369.74		
2015-07-27	3375.06	*3382.67*	3376.29	*3382.87*	*3396.98*	*3398.06*	3398.52	3386.89	3379.52	3364.77	3390.76	3383.97			
2015-08-03	3374.95	*3382.70*	3376.36	*3382.87*	*3396.91*	*3398.03*	*3398.34*	3386.75	3379.27	3364.42	3390.70	3383.74			
2015-08-12	3375.07	*3382.60*	3376.33	*3382.90*	*3397.00*	*3397.97*	3398.51	3386.51	3378.95	3363.97	3390.46	3383.46	3368.54		
2015-08-19	3375.32	*3382.60*	3376.35	*3382.90*	*3396.85*	*3397.91*	*3398.18*	3386.39	3378.72	3363.67	3390.36	3383.26			
2015-09-03	3375.47	3383.02	3376.31	3383.53	*3397.30*	*3397.94*	3399.37	3386.09	3378.40	3363.43	3390.02	3382.91	3367.82		
2015-09-16	3376.39	3383.48	3376.36	*3382.92*	*3396.96*	*3397.95*	3399.49	3385.93	3378.14	3363.43	3389.86	3382.66	3367.56	*3398.98*	3399.52
2015-09-24	3376.62	3385.66	3376.33	3384.67	*3397.32*	*3397.98*	3399.92	3385.85	3378.10	3363.54	3389.76	3382.66	3367.71	3399.71	3399.72
2015-09-30	3376.96	3384.84	3376.32	3384.17	*3397.20*	*3398.07*	3399.81	3385.88	3378.86	3365.58	3389.73	3383.59	3370.29	*3399.00*	3399.68
2015-10-06	3377.09	3384.74	3376.35	3383.58	*3397.12*	*3398.03*	3399.60	3385.88	3378.69	3365.23	3389.80	3383.21	3369.58	*3398.72*	3399.60
2015-10-17															
2015-10-20	3377.44	3385.29	3376.30	3384.63	*3397.33*	*3398.19*	3399.67	3385.80	3379.01		3389.71	3383.72		3399.47	3399.67
2015-10-25	3377.53	3385.35	3376.52	3384.76	*3397.25*	*3398.18*	3399.62	3385.83	3378.77	3365.60	3389.91	3383.34	3369.95	3399.59	3399.70
2015-11-03	3377.62	3385.54	3376.43	3385.04	*3397.33*	3398.24	3399.59	3385.51	3378.29	3364.87	3389.61	3382.68	3368.83	3399.73	3399.70
2015-11-08	3377.70	3385.55	3376.54	3385.24	*3397.44*	3398.31	3399.63	3385.60	3378.55	3365.25	3389.68	3383.00	3369.50	3399.90	3399.71

Paste Tailings - Weekly Maximum Vibrating Wire Piezometer Readings - Q4 2014 to Q4 2015

Location	Old TDF - Amalgamated Paste Area (APA)				Lynx TDF - Upstream Dam Toe and Paste Tailings										
Borehole	BH11-09	BH11-09	BH11-10	BH11-10	Plane D - U/S Toe	Plane E - U/S Toe	Plane F - U/S Toe	BH11-16	BH11-16	BH11-16	BH11-17	BH11-17	BH11-17	Lynx Paste - Plane E	Lynx Paste - Plane F
Piezometer	17724	17722	17726	17729	29326	17723	17721	17727	17728	17733	17731	17732	17734	33783	31089
Maximum (m)	3378.60	3386.35	3377.66	3386.09	3402.02	3402.71	3400.79	3388.70	3383.00	3371.46	3393.25	3387.90	3374.88	3400.91	3400.48
Tip Elevation (m)	3373.70	3382.90	3373.80	3383.00	3397.50	3398.20	3398.40	3375.90	3368.20	3356.00	3377.80	3370.20	3358.00	3399.16	3398.76
2015-11-15	3377.89	3385.40	3376.58	3385.33	*3397.46*	3398.43	3399.70	3385.68	3378.90	3365.89	3389.66	3383.59	3370.58	3399.89	3399.70
2015-11-23	3377.90	3385.30	3377.66	3385.38	*3397.29*	3398.29	3399.59	3385.71	3379.03	3366.16	3389.78	3383.79	3370.86	3399.81	3399.74
2015-11-30					*3397.14*	*3398.13*	3399.14	3385.53	3378.52	3365.35	3389.78	3383.16	3369.58	3399.70	3399.60
2015-12-01	3377.67	3384.99	3376.55	3384.30											
2015-12-13	3378.49	3385.97	3376.69	3385.35	3398.02	3398.63	3400.33	3386.67	3380.97	3368.45	3390.60	3386.72	3374.88	3400.32	3400.00
2015-12-19															
2015-12-20	3378.26	3386.35	3376.72	3385.16	3397.71	3398.62	3399.84	3386.78	3380.49	3367.72	3391.38	3386.05	3373.28	3400.28	3399.86

Legend:

3370.05	Historical maximum value
3369.82	Negative pore pressure (elevation head below tip elevation)

Lynx Dam - Weekly Maximum Vibrating Wire Piezometer Readings - Q4 2014 to Q4 2015

Location	Lynx Dam - Shallow Foundation								Lynx Dam - Deep Foundation								Lynx Dam Fill	
Borehole	**BH14-01**	**BH14-04**	**BH14-05**	**BH14-06**	**BH14-08**	**BH14-09**	**BH14-10A**	**BH14-11A**	**BH14-03**	**BH14-06**	**BH14-09**	**BH14-10**	**BH14-10**	**BH14-11**	**BH14-11A**	**BH14-08A**	**BH14-08**	**BH14-05**
Piezometer	**29334**	**29320**	**29335**	**29321**	**29330**	**29323**	**32221**	**33781**	**29331**	**29332**	**29333**	**17725**	**29324**	**29325**	**33782**	**33784**	**29322**	**29329**
Maximum (m)	**3376.98**	**3371.84**	**3366.36**	**3370.71**	**3377.09**	**3373.88**	**3369.85**	**3363.04**	**3366.45**	**3364.57**	**3363.27**	**3363.41**	**3364.65**	**3362.69**	**3362.49**	**3366.71**	**3384.99**	**3384.48**
Tip Elevation (m)	**3375.90**	**3371.00**	**3363.40**	**3369.90**	**3375.90**	**3373.60**	**3366.05**	**3361.90**	**3353.80**	**3352.70**	**3344.20**	**3325.80**	**3359.10**	**3351.80**	**3341.95**	**3359.35**	**3384.80**	**3384.40**
2014-10-01	*3375.84*	3371.05	3365.69	3369.97	3376.99	3373.67			3362.10	3361.23	3359.37	3360.26	3361.06	3358.01			3384.87	*3384.37*
2014-10-08	3375.95	3371.04	3365.80	3369.92	3377.06	3373.61			3361.98	3361.10	3359.23	3360.12	3360.89	3358.09			3384.84	*3384.37*
2014-10-14	3376.06		3365.97	3370.06	3376.78					3361.56		3360.94	3361.68	3358.49			3384.85	
2014-10-15		3371.05				3373.73					3359.86							
2014-10-22	3376.55	3371.84	3366.14	3370.47	3376.86					3362.89	3361.54		3364.30				3384.82	
2014-10-29	3376.67	3371.23	3365.98	3370.07	3376.76	3373.82			3365.43	3363.96	3362.20	3363.34	3364.56	3361.15			*3384.75*	*3384.35*
2014-11-04	3376.51	3371.03	3366.00	3370.01	3376.33	3373.78			3364.93	3364.00	3362.13	3362.88	3363.94	3361.86			*3384.74*	*3384.14*
2014-11-11	3376.66	3371.11	3366.08						3364.62	3363.73	3361.96	3362.53	3363.51	3361.35			3384.85	3384.46
2014-11-18	3376.53	3371.05	3366.09	3369.96	3376.21	3373.63			3363.71	3363.09	3361.40	3361.84	3362.72	3361.86			*3384.76*	*3384.39*
2014-11-30	3376.74	3371.06	3366.13	3370.11	3376.14	3373.75			3365.95	3364.08	3362.74	3363.41	3364.65	3362.69			*3384.71*	*3384.38*
2014-12-05	3376.63	3371.04	3366.24	3369.99	3376.23	3373.68			3364.43	3363.75	3361.95	3362.12	3362.99	3362.54			*3384.73*	*3384.37*
2015-02-26	3376.52	3371.12	3366.29	3370.08	3376.22	3373.66			3363.76	3362.96	3361.61	3361.35	3362.09	3361.41			*3384.73*	*3384.36*
2015-03-05	3376.36	3371.07	3366.18	3369.98	3376.12	3373.63			3363.25	3362.32	3361.12	3360.96	3361.64	3360.75			*3384.64*	*3384.29*
2015-03-28	3376.86	3371.14	3366.21	3370.09	3376.15	3373.81			3364.73	3363.24	3362.23	3362.23	3363.02	3361.32			*3384.62*	*3384.33*
2015-04-06	3376.98		3366.36	3370.11	3376.27	3373.72			3364.92	3363.82	3362.51			3361.95			*3384.66*	*3384.33*
2015-04-07		3371.11										3362.06	3362.86					
2015-04-08																		
2015-04-09																		
2015-04-10																		
2015-04-11																		
2015-04-16	3376.91	3371.09	3366.12	3370.14	3376.11	3373.70			3363.96	3362.85	3361.74	3361.49	3362.22	3361.13			*3384.66*	*3384.31*
2015-04-20	3376.72	3371.19	3366.30	3370.21	3376.25	3373.84			3363.68	3362.91	3361.78	3361.39	3361.87	3361.27			*3384.74*	3384.42
2015-06-02	3376.33	3371.05	3366.14	3369.95	3376.15	*3373.55*			3362.92	3361.79	3360.82	3360.57	3361.22	3359.96			*3384.63*	*3384.24*
2015-06-10	3376.28	3371.05	3366.11	3369.94	3376.13	*3373.54*			3362.78	3361.67	3360.74	3360.45	3361.11	3359.87			*3384.64*	*3384.24*
2015-06-17	3376.02	3371.06	3366.05	3369.91	3376.09	*3373.51*			3362.60	3361.54	3360.62	3360.34	3361.04	3359.74			*3384.65*	*3384.23*
2015-06-26	3376.05	3371.06	3366.02	3369.90	3376.07	*3373.50*			3362.49	3361.40	3360.50	3360.23	3360.92	3359.60			*3384.64*	*3384.24*
2015-06-30	3375.93	3371.04	3366.01	*3369.88*	3376.07	*3373.47*			3362.46	3361.36	3360.46	3360.19	3360.86	3359.56			*3384.62*	*3384.22*
2015-07-06	3375.93	3371.04	3366.04		3376.09												*3384.60*	*3384.22*
2015-07-17	3375.92	3371.05	3365.96	*3369.89*	3376.06				3362.35	3361.25		3360.08	3360.78	3359.40			*3384.70*	*3384.22*
2015-07-19	3375.91	3371.05	3365.99	*3369.88*	3376.07				3362.33	3361.24		3360.06	3360.75	3359.44			*3384.64*	*3384.22*
2015-07-27	*3375.89*	3371.03	3365.90		3376.02				3357.49	3361.16		3360.02	3360.71	3359.29			*3384.59*	*3384.19*
2015-08-03	3375.92	3371.04	3365.97	*3369.86*	3376.09				3362.21	3361.17		3359.98	3360.65	3359.31			*3384.63*	*3384.20*
2015-08-12	*3375.89*	3371.05	3365.91	*3369.86*	3376.05	*3373.57*			3362.33	3361.21	3360.37	3360.08	3360.76	3359.25			*3384.62*	*3384.19*
2015-08-19	3375.92	3371.06	3365.92	3369.91	3376.08	*3373.55*			3362.23	3361.17	3360.31	3359.96	3360.64	3359.26			*3384.66*	*3384.21*
2015-09-03	3376.33	3371.04	3365.79	3370.08	3376.03				3365.89	3364.57		3360.75	3361.50	3359.68			*3384.61*	*3384.17*
2015-09-16	*3375.88*	3371.03	3365.86	3369.92	3376.08		*3365.90*	*3360.96*	3362.70	3361.55		3360.27	3360.99	3359.57	3359.88	3366.13	*3384.63*	*3384.21*
2015-09-24	3375.90	3371.04	3365.82	3370.37	3376.07		3366.20	3361.98	3363.42	3361.95		3361.27	3361.96	3359.98	3360.93	3366.04	*3384.67*	*3384.21*
2015-09-30	3376.01	3371.03	3365.75	3370.12	3376.03		*3365.90*	*3361.64*	3363.84	3362.47		3361.15	3361.97	3360.46	3360.68	3366.11	*3384.65*	*3384.25*
2015-10-06	*3375.87*	3371.04	3365.76	3370.01	3376.05		*3365.87*	*3361.35*	3363.26	3362.16		3360.78	3361.55	3360.25	3360.33	3365.84	*3384.65*	*3384.24*
2015-10-17		3371.12		3370.24			3366.10	*3361.85*		3362.73		3361.42	3362.23	3360.74	3360.95			
2015-10-20	*3375.82*		3365.62		3375.96				3363.80							3365.88	*3384.62*	*3384.23*
2015-10-25	3375.93	3371.08	3365.80	3370.16	3376.15		*3365.93*	*3361.57*	3363.50	3362.49		3361.01	3361.80	3360.58	3360.55	3365.72	*3384.72*	*3384.29*
2015-11-03	*3375.83*	3371.07	3365.64	3370.24	3376.02		*3365.99*	*3361.72*	3363.85	3362.37		3361.27	3362.11	3360.37	3360.81	3365.51	*3384.62*	*3384.22*
2015-11-08	*3375.86*	3371.06	3365.71	3370.36	3376.10	3373.68	*3365.96*	3361.91	3364.06	3362.63	3361.95	3361.55	3362.39	3360.62	3361.09	3365.84	*3384.67*	*3384.26*

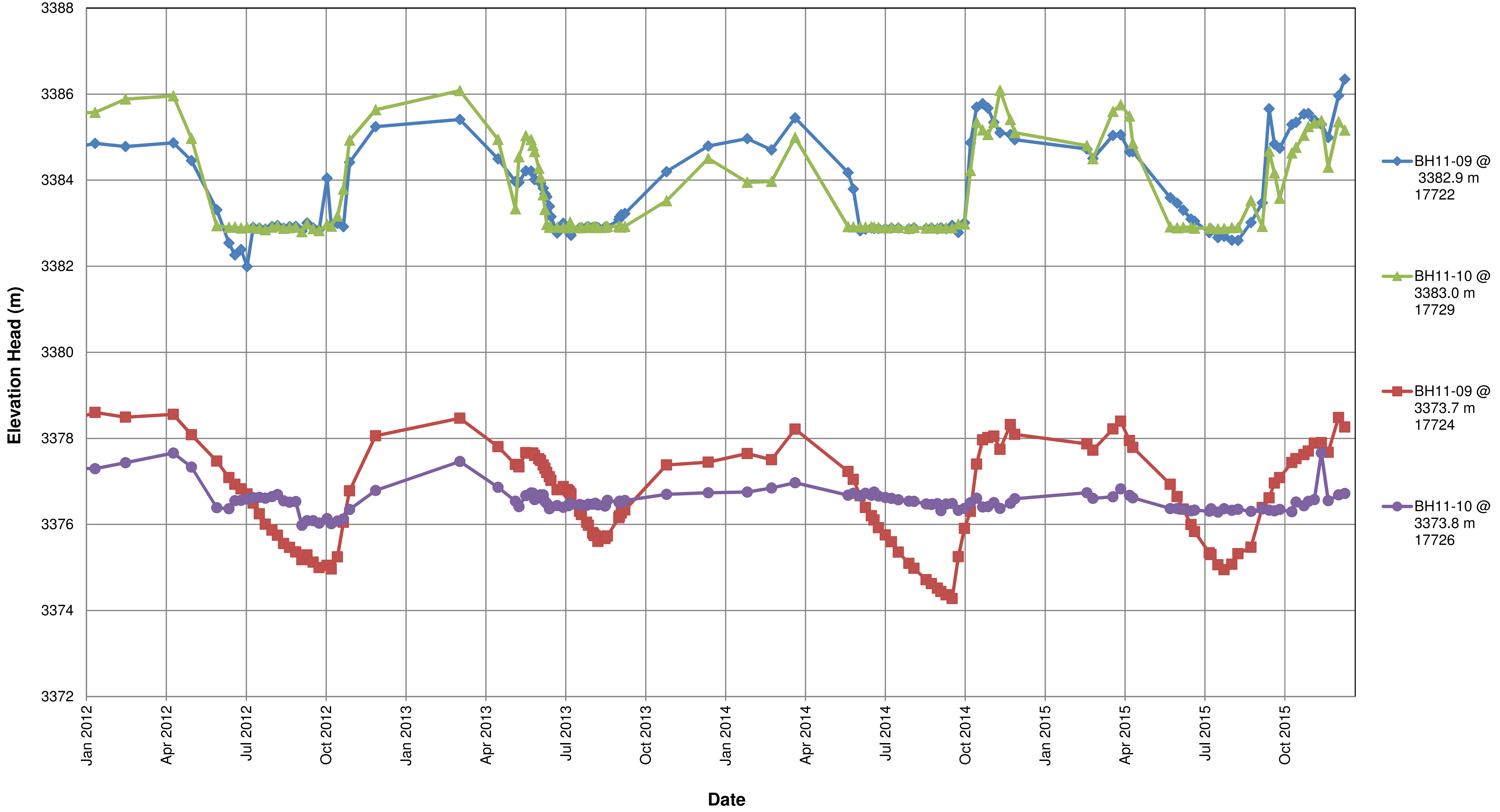
Lynx Dam - Weekly Maximum Vibrating Wire Piezometer Readings - Q4 2014 to Q4 2015

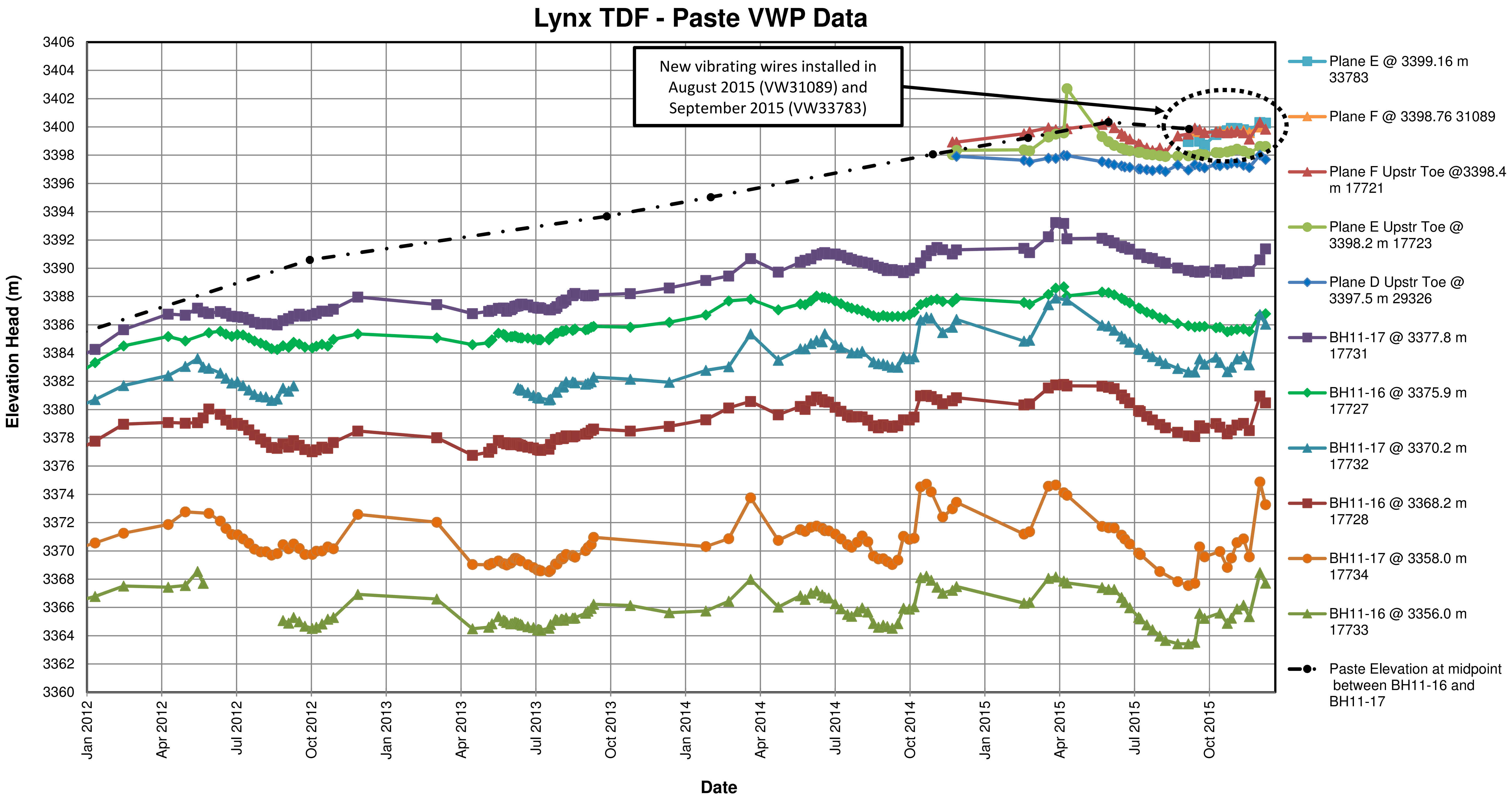
Location	Lynx Dam - Shallow Foundation								Lynx Dam - Deep Foundation								Lynx Dam Fill	
Borehole	**BH14-01**	**BH14-04**	**BH14-05**	**BH14-06**	**BH14-08**	**BH14-09**	**BH14-10A**	**BH14-11A**	**BH14-03**	**BH14-06**	**BH14-09**	**BH14-10**	**BH14-10**	**BH14-11**	**BH14-11A**	**BH14-08A**	**BH14-08**	**BH14-05**
Piezometer	**29334**	**29320**	**29335**	**29321**	**29330**	**29323**	**32221**	**33781**	**29331**	**29332**	**29333**	**17725**	**29324**	**29325**	**33782**	**33784**	**29322**	**29329**
Maximum (m)	**3376.98**	**3371.84**	**3366.36**	**3370.71**	**3377.09**	**3373.88**	**3369.85**	**3363.04**	**3366.45**	**3364.57**	**3363.27**	**3363.41**	**3364.65**	**3362.69**	**3362.49**	**3366.71**	**3384.99**	**3384.48**
Tip Elevation (m)	**3375.90**	**3371.00**	**3363.40**	**3369.90**	**3375.90**	**3373.60**	**3366.05**	**3361.90**	**3353.80**	**3352.70**	**3344.20**	**3325.80**	**3359.10**	**3351.80**	**3341.95**	**3359.35**	**3384.80**	**3384.40**
2015-11-15	3376.17	3371.07	3365.72	3370.38	3376.12	3373.69	*3365.91*	3362.24	3364.75	3363.03	3362.20	3362.02	3362.92	3360.97	3361.56	3366.10	*3384.64*	*3384.26*
2015-11-23	3376.02	3371.06	3365.67	3370.28	3376.13	3373.66	*3365.92*	3362.03	3364.47	3363.24	3362.18	3361.77	3362.62	3361.24	3361.29	3366.23	*3384.73*	*3384.31*
2015-11-30	*3375.89*	3371.06	3365.57	3370.15	3376.08	3373.65	3369.85	*3361.56*	3363.57	3362.88	3361.56	3361.11	3361.89	3360.83	3360.64	3365.53	*3384.69*	*3384.27*
2015-12-01																		
2015-12-13	3376.44	3371.08	3365.99	3370.41	3376.18	3373.72	*3366.00*	3363.04	3366.45	3364.29	3363.27	3363.02	3364.11	3362.12	3362.49	3366.71	*3384.61*	*3384.26*
2015-12-19		3371.21				3373.75	*3366.01*	3362.16	3364.71		3362.49	3362.00	3362.88	3361.91	3361.50			
2015-12-20	3375.95		3365.84		3376.18											3366.18	*3384.67*	*3384.28*

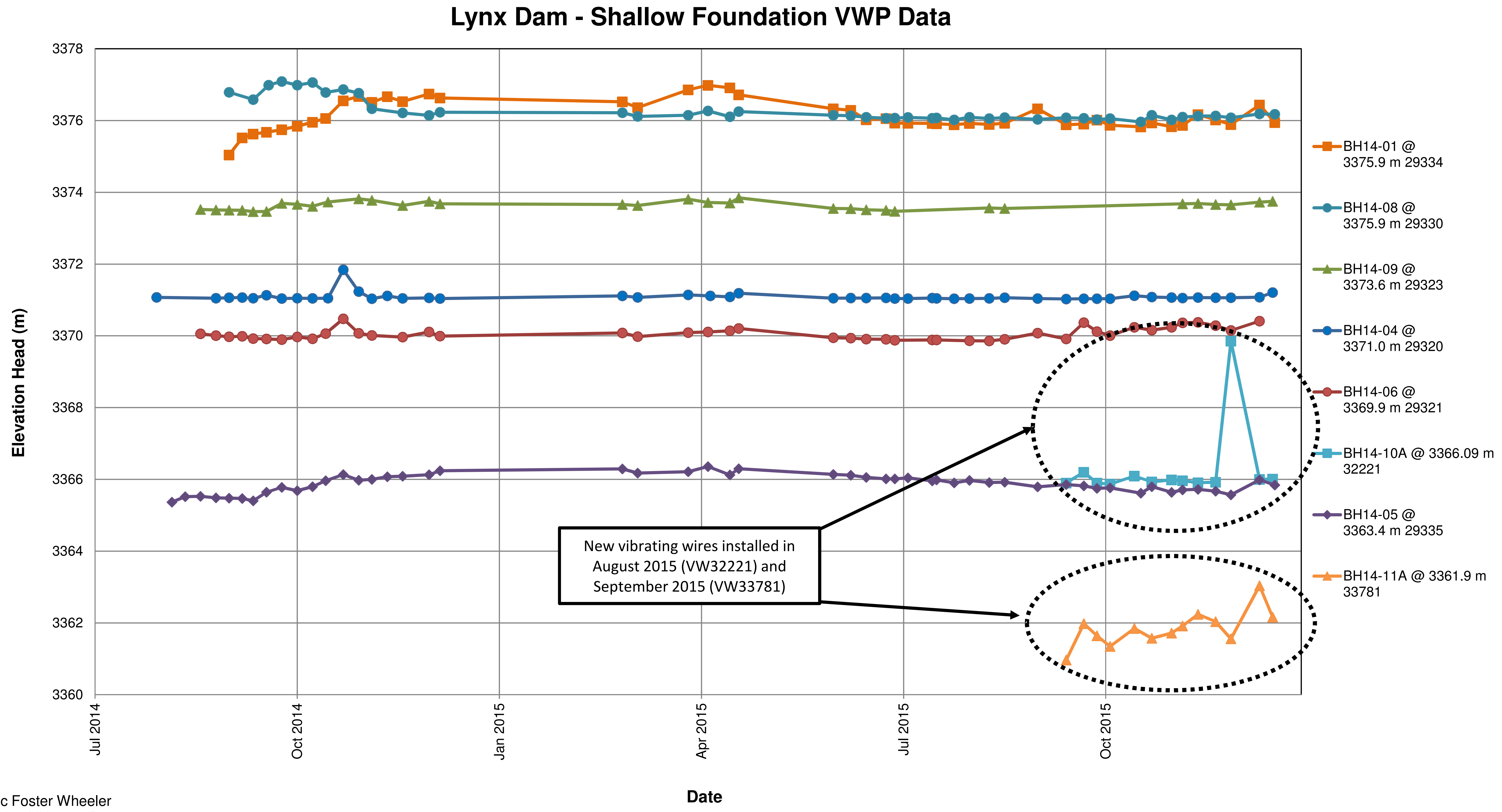
Legend:

3370.05	Historical maximum value
3369.82	Negative pore pressure (elevation head below tip elevation)

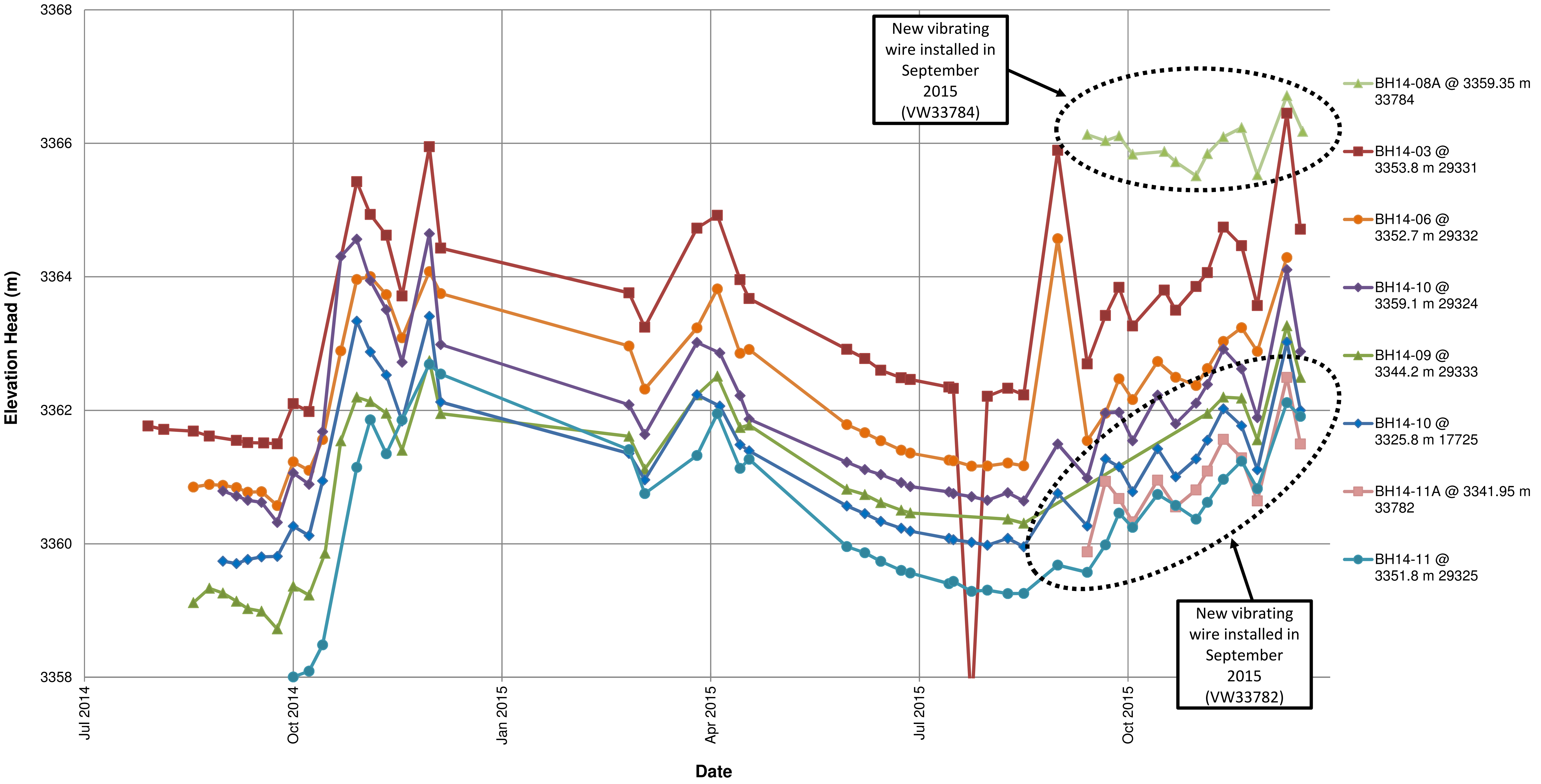
Old TDF - APA VWP Data




Lynx TDF - Paste VWP Data
New vibrating wires installed in August 2015 (VW31089) and September 2015 (VW33783)
Elevation Head (m)
3406
3404
3402
3400
3398
3396
3394
3392
3390
3388
3386
3384
3382
3380
3378
3376
3374
3372
3370
3368
3366
3364
3362
3360
Jan 2012
Apr 2012
Jul 2012
Oct 2012
Jan 2013
Apr 2013
Jul 2013
Oct 2013
Jan 2014
Apr 2014
Jul 2014
Oct 2014
Jan 2015
Apr 2015
Jul 2015
Oct 2015
Date
Plane E @ 3399.16 m 33783
Plane F @ 3398.76 31089
Plane F Upstr Toe @3398.4 m 17721
Plane E Upstr Toe @ 3398.2 m 17723
Plane D Upstr Toe @ 3397.5 m 29326
BH11-17 @ 3377.8 m 17731
BH11-16 @ 3375.9 m 17727
BH11-17 @ 3370.2 m 17732
BH11-16 @ 3368.2 m 17728
BH11-17 @ 3358.0 m 17734
BH11-16 @ 3356.0 m 17733
Paste Elevation at midpoint between BH11-16 and BH11-17


Lynx Dam - Shallow Foundation VWP Data
Elevation Head (m)
Date
3378
3376
3374
3372
3370
3368
3366
3364
3362
3360
Jul 2014
Oct 2014
Jan 2015
Apr 2015
Jul 2015
Oct 2015
BH14-01 @ 3375.9 m 29334
BH14-08 @ 3375.9 m 29330
BH14-09 @ 3373.6 m 29323
BH14-04 @ 3371.0 m 29320
BH14-06 @ 3369.9 m 29321
BH14-10A @ 3366.09 m 32221
BH14-05 @ 3363.4 m 29335
BH14-11A @ 3361.9 m 33781
New vibrating wires installed in August 2015 (VW32221) and September 2015 (VW33781)

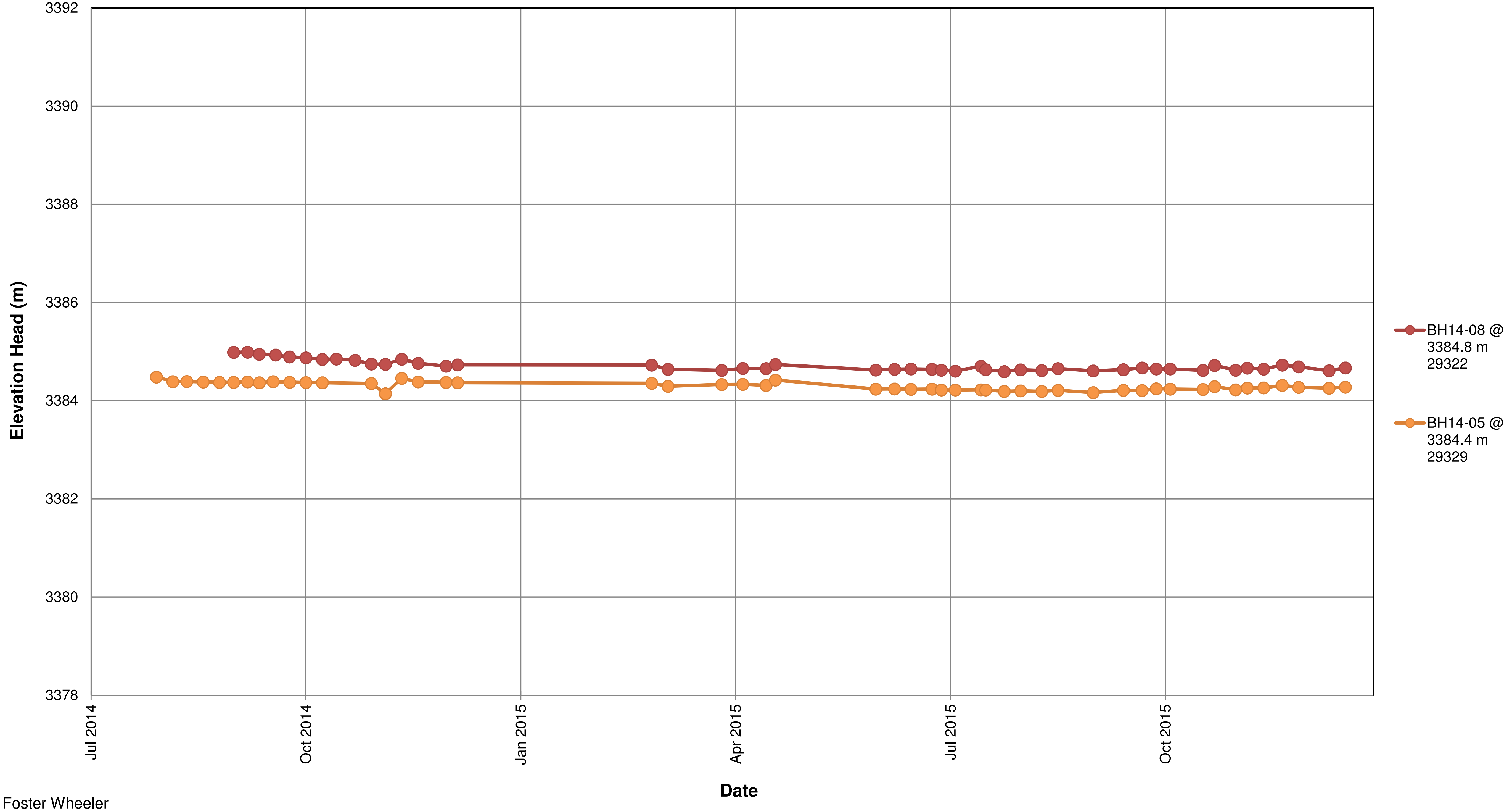
Lynx Dam - Deep Foundation VWP Data



New vibrating wire installed in September 2015 (VW33784)

New vibrating wire installed in September 2015 (VW33782)

Lynx Dam - Dam Fill VWP Data



Old TDF - Monument Monitoring Summary
Raw Data (Mine Grid)

	TDF14-01			TDF14-02			TDF14-03			TDF14-04		
	Seismic Upgrade Downstream Edge											
	Northing	**Easting**	**Elevation**	**Northing**	**Easting**	**Elevation**	**Northing**	**Easting**	**Elevation**	**Northing**	**Easting**	**Elevation**
Initial	3240.384	2575.239	3378.187	3290.925	2650.766	3378.246	3350.503	2730.906	3377.887	3400.775	2819.239	3378.042
12-Jan-15	3240.384	2575.235	3378.188	3290.927	2650.765	3378.247	3350.505	2730.906	3377.885	3400.780	2819.238	3378.036
03-Mar-15	3240.383	2575.232	3378.177	3290.924	2650.764	3378.240	3350.501	2730.906	3377.881	3400.778	2819.241	3378.037
27-May-15	3240.387	2575.232	3378.179	3290.927	2650.762	3378.244	3350.503	2730.904	3377.887	3400.774	2819.237	3378.041
02-Jul-15	3240.389	2575.239	3378.170	3290.927	2650.766	3378.245	3350.503	2730.904	3377.887	3400.779	2819.232	3378.039
06-Aug-15	3240.386	2575.233	3378.182	3290.925	2650.765	3378.247	3350.504	2730.906	3377.888	3400.780	2819.236	3378.042
03-Sep-15	3240.381	2575.239	3378.185	3290.925	2650.766	3378.248	3350.503	2730.905	3377.889	3400.782	2819.234	3378.043
13-Oct-15	3240.384	2575.234	3378.188	3290.927	2650.764	3378.250	3350.506	2730.903	3377.889	3400.783	2819.233	3378.044
24-Nov-15	3240.379	2575.234	3378.192	Obstructions			Obstructions			3400.779	2819.235	3378.043
08-Jan-16	Snow			Snow			3350.502	2730.902	3377.891	Snow		

	TDF14-05			TDF14-06			TDF14-07			TDF14-08		
	Seismic Upgrade Downstream Edge											
	Northing	**Easting**	**Elevation**	**Northing**	**Easting**	**Elevation**	**Northing**	**Easting**	**Elevation**	**Northing**	**Easting**	**Elevation**
Initial	3452.816	2903.635	3377.932	3503.305	2990.576	3377.649	3547.888	3081.342	3377.152	3589.491	3165.467	3376.238
12-Jan-15	3452.820	2903.633	3377.932	3503.304	2990.579	3377.639	3547.888	3081.345	3377.154	3589.491	3165.467	3376.237
03-Mar-15	3452.816	2903.634	3377.929	3503.306	2990.572	3377.645	3547.886	3081.343	3377.149	3589.488	3165.466	3376.234
27-May-15	3452.808	2903.631	3377.928	3503.314	2990.565	3377.649	3547.888	3081.338	3377.152	3589.482	3165.462	3376.235
02-Jul-15	3452.818	2903.622	3377.924	3503.309	2990.575	3377.647	3547.890	3081.342	3377.153	3589.492	3165.460	3376.237
06-Aug-15	3452.817	2903.627	3377.932	3503.310	2990.571	3377.654	3547.888	3081.341	3377.157	3589.487	3165.462	3376.241
03-Sep-15	3452.822	2903.627	3377.935	3503.312	2990.566	3377.654	3547.886	3081.338	3377.156	3589.484	3165.461	3376.241
13-Oct-15	3452.822	2903.624	3377.933	3503.308	2990.573	3377.655	3547.888	3081.343	3377.155	3589.489	3165.464	3376.241
24-Nov-15	Obstructions			3503.308	2990.579	3377.662	3547.890	3081.348	3377.159	3589.498	3165.467	3376.242
08-Jan-16	3452.816	2903.626	3377.941	3503.299	2990.588	3377.655	3547.890	3081.352	3377.156	3589.505	3165.465	3376.240

Notes:

1 - Survey data provided by Nyrstar Myra Falls.
2 - The measurement error (total of instrument, human and network) for the Old TDF monument survey is approximately 1.0 cm for both horizontal and vertical displacement.
3 - Values in table are reported in meters.

	TDF14-09			TDF14-10			TDF14-11			TDF14-12		
	Seismic Upgrade Downstream Edge											
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3666.952	3188.026	3375.725	3778.350	3227.227	3376.112	3853.751	3297.899	3376.336	3937.074	3338.750	3376.192
12-Jan-15	3666.950	3188.026	3375.724	3778.351	3227.227	3376.112	3853.762	3297.889	3376.339	3937.072	3338.749	3376.190
03-Mar-15	3666.949	3188.026	3375.723	3778.351	3227.224	3376.109	3853.762	3297.895	3376.345	3937.072	3338.752	3376.192
27-May-15	3666.937	3188.029	3375.722	3778.351	3227.227	3376.107	3853.738	3297.913	3376.328	3937.075	3338.749	3376.189
02-Jul-15	3666.946	3188.018	3375.725	3778.355	3227.231	3376.111	3853.754	3297.883	3376.321	3937.076	3338.747	3376.192
06-Aug-15	3666.941	3188.024	3375.728	3778.351	3227.229	3376.116	3853.749	3297.895	3376.332	3937.072	3338.749	3376.195
03-Sep-15	3666.939	3188.025	3375.730	3778.349	3227.226	3376.122	3853.741	3297.908	3376.336	3937.071	3338.750	3376.199
13-Oct-15	3666.946	3188.022	3375.729	3778.349	3227.226	3376.120	3853.754	3297.894	3376.341	3937.072	3338.748	3376.197
24-Nov-15	3666.958	3188.020	3375.727	3778.351	3227.224	3376.126	3853.780	3297.876	3376.337	3937.075	3338.749	3376.198
08-Jan-16	3666.967	3188.015	3375.729	3778.350	3227.218	3376.124	Snow			3937.069	3338.748	3376.199

	TDF14-13			TDF14-14			TDF14-15			TDF14-16		
	Seismic Upgrade Downstream Edge									6:1 Buttress Crest Edge		
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	4029.164	3348.935	3376.120	4122.223	3325.972	3375.949	4171.779	3244.206	3376.205	4102.120	3229.405	3383.179
12-Jan-15	4029.166	3348.934	3376.122	4122.222	3325.970	3375.950	4171.782	3244.205	3376.207	4102.120	3229.404	3383.180
03-Mar-15	4029.164	3348.937	3376.122	4122.227	3325.970	3375.953	4171.783	3244.203	3376.210	4102.121	3229.403	3383.182
27-May-15	4029.165	3348.932	3376.115	4122.220	3325.971	3375.949	4171.781	3244.202	3376.210	4102.119	3229.406	3383.179
02-Jul-15	4029.165	3348.930	3376.119	4122.223	3325.970	3375.949	4171.779	3244.205	3376.205	4102.120	3229.405	3383.181
06-Aug-15	4029.161	3348.933	3376.120	4122.218	3325.974	3375.958	4171.781	3244.211	3376.214	4102.120	3229.406	3383.181
03-Sep-15	4029.161	3348.936	3376.126	4122.220	3325.973	3375.963	4171.781	3244.209	3376.219	4102.120	3229.405	3383.182
13-Oct-15	4029.160	3348.932	3376.124	4122.219	3325.974	3375.967	Obstruction			4102.117	3229.407	3383.186
24-Nov-15	4029.165	3348.932	3376.124	4122.213	3325.974	3375.963	4171.778	3244.210	3376.223	4102.117	3229.405	3383.187
08-Jan-16	4029.160	3348.935	3376.125	4122.215	3325.976	3375.962	4171.778	3244.214	3376.221	4102.118	3229.407	3383.184

	TDF14-17			TDF14-18			TDF14-19			TDF14-20		
	6:1 Buttress Crest Edge											
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	4042.746	3257.881	3382.845	3980.714	3257.730	3382.881	3927.511	3247.157	3382.999	3876.791	3190.578	3383.383
12-Jan-15	4042.745	3257.879	3382.845	3980.716	3257.729	3382.881	3927.512	3247.156	3383.001	3876.795	3190.577	3383.384
03-Mar-15	4042.744	3257.884	3382.844	3980.717	3257.731	3382.878	3927.512	3247.157	3383.000	3876.796	3190.575	3383.381
27-May-15	4042.745	3257.883	3382.845	3980.715	3257.728	3382.874	3927.511	3247.157	3382.998	3876.791	3190.581	3383.376
02-Jul-15	4042.746	3257.882	3382.845	3980.715	3257.728	3382.875	3927.512	3247.157	3383.000	3876.794	3190.583	3383.378
06-Aug-15	4042.746	3257.881	3382.843	3980.715	3257.728	3382.878	3927.510	3247.157	3383.000	3876.793	3190.580	3383.380
03-Sep-15	4042.746	3257.879	3382.845	3980.714	3257.729	3382.879	3927.510	3247.157	3383.002	3876.794	3190.579	3383.384
13-Oct-15	4042.743	3257.884	3382.848	3980.711	3257.729	3382.878	3927.509	3247.156	3383.000	3876.791	3190.579	3383.381
24-Nov-15	4042.740	3257.882	3382.848	3980.717	3257.729	3382.880	3927.513	3247.157	3383.001	3876.791	3190.581	3383.387
08-Jan-16	4042.739	3257.884	3382.843	Snow			3927.511	3247.158	3383.003	Snow		

	TDF14-21			TDF14-22			TDF14-23			TDF14-24		
	6:1 Buttress Crest Edge											
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3797.264	3131.991	3383.244	3703.677	3098.221	3383.454	3637.586	3080.921	3383.339	3603.283	3040.475	3383.550
12-Jan-15	3797.265	3131.992	3383.246	3703.678	3098.221	3383.454	3637.588	3080.922	3383.348	3603.281	3040.474	3383.554
03-Mar-15	3797.268	3131.984	3383.243	3703.679	3098.221	3383.448	3637.589	3080.923	3383.341	3603.282	3040.471	3383.549
27-May-15	3797.261	3131.994	3383.237	3703.676	3098.229	3383.448	3637.589	3080.924	3383.344	3603.286	3040.472	3383.551
02-Jul-15	3797.265	3131.996	3383.239	3703.675	3098.219	3383.448	3637.587	3080.919	3383.342	3603.283	3040.472	3383.551
06-Aug-15	3797.264	3131.993	3383.242	3703.676	3098.224	3383.451	3637.588	3080.922	3383.344	3603.284	3040.472	3383.553
03-Sep-15	3797.264	3131.989	3383.249	3703.675	3098.225	3383.449	3637.587	3080.922	3383.342	3603.284	3040.471	3383.552
13-Oct-15	3797.263	3131.991	3383.247	3703.675	3098.223	3383.448	3637.586	3080.923	3383.341	3603.283	3040.473	3383.551
24-Nov-15	3797.262	3131.992	3383.253	3703.685	3098.211	3383.453	3637.593	3080.920	3383.343	3603.281	3040.474	3383.552
08-Jan-16	3797.261	3131.987	3383.250	Snow			Snow			Snow		

	TDF14-25			TDF14-26			TDF14-27			TDF14-28		
	6:1 Buttress Crest Edge											
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3537.965	2908.552	3383.562	3480.581	2826.597	3383.576	3425.168	2738.423	3383.328	3355.365	2662.120	3382.174
12-Jan-15	3537.965	2908.552	3383.562	3480.581	2826.597	3383.576	3425.168	2738.423	3383.326	3355.363	2662.120	3382.174
03-Mar-15	3537.966	2908.547	3383.555	3480.580	2826.599	3383.574	3425.167	2738.424	3383.322	3355.361	2662.119	3382.169
27-May-15	3537.985	2908.542	3383.552	3480.572	2826.597	3383.567	3425.164	2738.423	3383.326	3355.363	2662.117	3382.174
02-Jul-15	3537.970	2908.550	3383.550	3480.577	2826.589	3383.569	3425.165	2738.420	3383.325	3355.362	2662.119	3382.174
06-Aug-15	3537.976	2908.546	3383.553	3480.580	2826.594	3383.566	3425.167	2738.421	3383.325	3355.362	2662.119	3382.174
03-Sep-15	3537.978	2908.542	3383.555	3480.583	2826.590	3383.567	3425.169	2738.420	3383.324	3355.362	2662.119	3382.176
13-Oct-15	3537.973	2908.547	3383.552	3480.583	2826.590	3383.565	3425.169	2738.419	3383.324	3355.364	2662.118	3382.176
24-Nov-15	3537.950	2908.558	3383.570	3480.578	2826.594	3383.571	3425.166	2738.420	3383.323	3355.360	2662.118	3382.175
08-Jan-16	Snow			Snow			Snow			Snow		

	TDF14-29			TDF14-30			TDF14-31			TDF14-32		
	Paste Berm Downstream Crest Edge											
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3519.122	2678.367	3390.794	3523.852	2748.317	3390.664	3583.375	2817.548	3390.616	3652.889	2900.054	3390.733
12-Jan-15	3519.123	2678.368	3390.792	3523.851	2748.319	3390.659	3583.374	2817.548	3390.623	3652.889	2900.055	3390.737
03-Mar-15	3519.121	2678.367	3390.791	3523.850	2748.319	3390.659	3583.374	2817.545	3390.616	3652.890	2900.052	3390.732
27-May-15	3519.119	2678.369	3390.791	Obstructions in line of sight			3583.403	2817.545	3390.612	3652.910	2900.060	3390.730
02-Jul-15	3519.114	2678.367	3390.790	3523.845	2748.316	3390.658	3583.374	2817.553	3390.611	3652.893	2900.057	3390.729
06-Aug-15	3519.118	2678.370	3390.791	3523.848	2748.319	3390.658	3583.388	2817.548	3390.614	3652.902	2900.056	3390.729
03-Sep-15	3519.116	2678.365	3390.790	3523.849	2748.315	3390.657	3583.392	2817.544	3390.610	3652.901	2900.056	3390.728
13-Oct-15	3519.117	2678.366	3390.790	3523.849	2748.317	3390.656	3583.383	2817.548	3390.607	3652.897	2900.058	3390.729
24-Nov-15	3519.115	2678.367	3390.789	3523.844	2748.320	3390.655	3583.380	2817.545	3390.607	3652.894	2900.055	3390.729
08-Jan-16	3519.112	2678.361	3390.792	3523.837	2748.322	3390.649	3583.350	2817.551	3390.596	3652.867	2900.059	3390.723

	TDF14-33			TDF14-34			TDF14-35			TDF14-36		
	Paste Berm Downstream Crest Edge											
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3714.628	2968.901	3390.629	3803.143	3037.295	3390.448	3882.876	3087.055	3390.579	3962.492	3139.324	3390.597
12-Jan-15	3714.628	2968.900	3390.633	3803.143	3037.291	3390.449	3882.878	3087.054	3390.577	3962.494	3139.328	3390.591
03-Mar-15	3714.628	2968.899	3390.626	3803.144	3037.292	3390.444	3882.885	3087.050	3390.579	3962.501	3139.327	3390.590
27-May-15	3714.641	2968.912	3390.626	3803.146	3037.314	3390.443	3882.870	3087.057	3390.575	3962.490	3139.327	3390.588
02-Jul-15	3714.627	2968.904	3390.627	3803.138	3037.297	3390.443	3882.873	3087.060	3390.579	3962.492	3139.329	3390.591
06-Aug-15	3714.634	2968.908	3390.628	3803.143	3037.304	3390.443	3882.876	3087.055	3390.581	3962.495	3139.327	3390.591
03-Sep-15	3714.635	2968.909	3390.630	3803.143	3037.309	3390.445	3882.877	3087.056	3390.583	3962.494	3139.329	3390.595
13-Oct-15	3714.632	2968.908	3390.630	3803.141	3037.304	3390.446	3882.872	3087.057	3390.582	3962.490	3139.330	3390.595
24-Nov-15	3714.631	2968.907	3390.630	3803.140	3037.312	3390.452	3882.873	3087.057	3390.588	3962.492	3139.328	3390.596
08-Jan-16	3714.620	2968.900	3390.610	3803.139	3037.277	3390.437	3882.872	3087.054	3390.582	3962.484	3139.350	3390.594

	TDF14-37			TDF14-38			TDF14-39		
	Paste Berm Downstream Crest Edge								
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	4014.207	3170.377	3390.573	4080.292	3135.949	3390.591	4109.205	3109.708	3391.161
12-Jan-15	4014.207	3170.377	3390.573	4080.293	3135.947	3390.590	4109.208	3109.709	3391.162
03-Mar-15	4014.212	3170.380	3390.575	4080.291	3135.946	3390.591	4109.203	3109.707	3391.163
27-May-15	4014.203	3170.373	3390.569	4080.298	3135.948	3390.592	4109.207	3109.709	3391.164
02-Jul-15	4014.202	3170.376	3390.572	4080.295	3135.950	3390.592	4109.209	3109.713	3391.165
06-Aug-15	4014.204	3170.376	3390.573	4080.294	3135.949	3390.592	4109.210	3109.712	3391.165
03-Sep-15	4014.204	3170.379	3390.576	4080.296	3135.948	3390.594	4109.212	3109.712	3391.169
13-Oct-15	4014.200	3170.377	3390.577	4080.291	3135.951	3390.598	4109.207	3109.714	3391.172
24-Nov-15	4014.204	3170.376	3390.576	4080.292	3135.949	3390.599	4109.209	3109.712	3391.175
08-Jan-16	4014.203	3170.388	3390.579	4080.294	3135.950	3390.592	4109.229	3109.729	3391.167

Old TDF - Monument Monitoring Summary
Cumulative Values (Change from Initial)

	TDF14-01					TDF14-02				
	Seismic Upgrade Downstream Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.4	180	-0.2	-0.3	0.1	0.2	117	-0.2	0.0	0.1
03-Mar-15	0.7	186	-0.3	-0.6	-1.0	0.2	208	0.0	-0.2	-0.6
27-May-15	0.7	153	-0.7	-0.3	-0.8	0.4	148	-0.4	-0.2	-0.2
02-Jul-15	0.5	85	-0.4	0.4	-1.7	0.2	77	-0.1	0.2	-0.1
06-Aug-15	0.6	157	-0.5	-0.3	-0.5	0.1	158	0.0	0.0	0.1
03-Sep-15	0.3	280	0.2	-0.1	-0.2	0.1	22	0.0	0.1	0.2
13-Oct-15	0.5	176	-0.3	-0.3	0.1	0.3	124	-0.3	0.0	0.4
24-Nov-15	0.7	226	0.1	-0.6	0.5	Obstruction in sight line				
08-Jan-16	Snow					Snow				

	TDF14-03					TDF14-04				
	Seismic Upgrade Downstream Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.2	90	-0.2	0.1	-0.2	0.5	90	-0.5	0.2	-0.6
03-Mar-15	0.2	277	0.2	-0.1	-0.6	0.4	-83	-0.1	0.3	-0.5
27-May-15	0.2	171	-0.1	-0.1	0.0	0.2	215	0.0	-0.2	-0.1
02-Jul-15	0.2	171	-0.1	-0.1	0.0	0.8	171	-0.7	-0.4	-0.3
06-Aug-15	0.1	81	-0.1	0.1	0.1	0.6	81	-0.6	0.0	0.0
03-Sep-15	0.1	159	-0.1	0.0	0.2	0.8	125	-0.8	-0.1	0.1
13-Oct-15	0.4	130	-0.4	0.0	0.2	1.0	130	-1.0	-0.1	0.2
24-Nov-15	Obstruction in sight line					0.5	134	-0.5	-0.1	0.1
08-Jan-16	0.4	190	-0.2	-0.4	0.4	Snow				

Notes:

1 - Survey Data provided by Nyrstar Myra Falls.
2 - The combined measurement error (total of instrument, human and network) for the Old TDF monument survey is approximately 1.0cm for both horizontal and vertical displacement.
3 - Negative values are in the upstream direction, positive values are in the downwstream direction.
4 - Negative values are to the west, positive values are to the east.
5 - Negative values are descending stations along dam centreline and positive values are for ascending stations.
6 - Yellow shading indicates significant cumulative displacement over 2 cm has occurred.

	TDF14-05					TDF14-06				
	Seismic Upgrade Downstream Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.4	117	-0.4	0.0	0.0	0.3	342	0.2	0.2	-1.0
03-Mar-15	0.1	180	0.0	-0.1	-0.3	0.4	162	-0.3	-0.3	-0.4
27-May-15	0.9	245	0.5	-0.7	-0.4	1.4	139	-1.3	-0.4	0.0
02-Jul-15	1.3	171	-0.8	-1.0	-0.8	0.4	99	-0.4	0.2	-0.2
06-Aug-15	0.8	173	-0.5	-0.6	0.0	0.7	132	-0.7	-0.1	0.5
03-Sep-15	1.0	142	-0.9	-0.4	0.3	1.2	143	-1.1	-0.5	0.5
13-Oct-15	1.2	151	-1.0	-0.7	0.1	0.4	130	-0.4	-0.1	0.6
24-Nov-15	Obstruction in sight line					0.5	44	-0.1	0.4	1.3
08-Jan-16	0.9	180	-0.4	-0.8	0.9	1.4	335	1.1	0.8	0.6

	TDF14-07					TDF14-08				
	Seismic Upgrade Downstream Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.3	0	0.1	0.3	0.2	0.0	#DIV/0!	0.0	0.0	-0.1
03-Mar-15	0.2	285	0.2	0.0	-0.3	0.3	257	0.1	-0.3	-0.4
27-May-15	0.4	184	-0.1	-0.4	0.0	1.1	243	0.1	-1.0	-0.3
02-Jul-15	0.2	103	-0.2	0.0	0.1	0.7	175	-0.6	-0.3	-0.1
06-Aug-15	0.1	192	0.0	-0.1	0.5	0.7	223	-0.2	-0.6	0.3
03-Sep-15	0.5	208	0.1	-0.5	0.4	0.9	232	-0.1	-0.9	0.3
13-Oct-15	0.1	333	0.0	0.0	0.3	0.4	221	-0.1	-0.4	0.3
24-Nov-15	0.6	17	0.0	0.6	0.7	0.7	88	-0.3	0.6	0.4
08-Jan-16	1.0	10	0.2	1.0	0.4	1.4	98	-0.9	1.0	0.2

	TDF14-09					TDF14-10				
	Seismic Upgrade Downstream Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.2	270	0.0	-0.2	-0.1	0.1	90	-0.1	0.1	0.0
03-Mar-15	0.3	265	0.0	-0.2	-0.2	0.3	167	-0.2	-0.1	-0.3
27-May-15	1.5	281	0.6	-1.4	-0.3	0.1	56	0.0	0.1	-0.5
02-Jul-15	1.0	214	-0.7	-0.7	0.0	0.6	46	0.1	0.6	-0.1
06-Aug-15	1.1	258	0.0	-1.1	0.3	0.2	14	0.2	0.2	0.4
03-Sep-15	1.3	265	0.1	-1.2	0.5	0.2	247	0.0	-0.1	1.0
13-Oct-15	0.7	233	-0.3	-0.6	0.4	0.2	247	0.0	-0.1	0.8
24-Nov-15	0.9	134	-0.7	0.5	0.2	0.3	167	-0.2	-0.1	1.4
08-Jan-16	1.9	126	-1.4	1.3	0.4	0.9	183	-0.7	-0.6	1.2

	TDF14-11					TDF14-12				
	Seismic Upgrade Downstream Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	1.5	132	-1.5	0.0	0.3	0.2	243	-0.1	-0.2	-0.2
03-Mar-15	1.2	107	-1.1	0.5	0.9	0.2	310	0.2	-0.2	0.0
27-May-15	1.9	319	1.9	0.2	-0.8	0.2	142	-0.2	0.1	-0.3
02-Jul-15	1.6	167	-1.3	-0.9	-1.5	0.4	148	-0.4	0.2	0.0
06-Aug-15	0.4	203	-0.1	-0.4	-0.4	0.2	234	-0.1	-0.2	0.3
03-Sep-15	1.3	315	1.3	0.0	0.0	0.3	262	0.0	-0.3	0.7
13-Oct-15	0.6	143	-0.6	-0.1	0.5	0.3	218	-0.2	-0.2	0.5
24-Nov-15	3.7	127	-3.7	0.4	0.1	0.2	142	-0.2	0.1	0.6
08-Jan-16	Snow					0.5	244	-0.2	-0.5	0.7

	TDF14-13					TDF14-14				
	Seismic Upgrade Downstream Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.2	117	0.1	-0.2	0.2	0.2	207	0.2	-0.1	0.1
03-Mar-15	0.2	15	-0.2	0.0	0.2	0.5	110	-0.2	-0.4	0.4
27-May-15	0.3	154	0.3	-0.2	-0.5	0.3	257	0.2	0.2	0.0
02-Jul-15	0.5	164	0.5	-0.2	-0.1	0.2	163	0.1	-0.1	0.0
06-Aug-15	0.3	230	0.2	0.2	0.0	0.5	298	0.1	0.5	0.9
03-Sep-15	0.3	290	-0.1	0.3	0.6	0.3	299	0.1	0.3	1.4
13-Oct-15	0.5	228	0.3	0.3	0.4	0.4	304	0.0	0.4	1.8
24-Nov-15	0.3	154	0.3	-0.2	0.4	1.0	284	0.4	0.9	1.4
08-Jan-16	0.4	268	0.0	0.3	0.5	0.9	300	0.1	0.9	1.3

	TDF14-15					TDF14-16				
	Seismic Upgrade Downstream Edge					6:1 Buttress Crest Edge				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.4	108	-0.1	-0.3	0.2	0.1	180	0.1	-0.1	0.1
03-Mar-15	0.6	125	0.0	-0.6	0.5	0.2	143	0.0	-0.2	0.3
27-May-15	0.4	149	0.2	-0.5	0.5	0.2	330	-0.1	0.2	0.0
02-Jul-15	0.1	157	0.1	-0.1	0.0	0.0	27	0.0	0.0	0.2
06-Aug-15	0.4	28	-0.5	0.1	0.9	0.1	8	-0.1	0.1	0.2
03-Sep-15	0.4	42	-0.4	0.0	1.4	0.0	27	0.0	0.0	0.3
13-Oct-15	Obstruction in sight line					0.4	311	0.0	0.4	0.7
24-Nov-15	0.1	352.5	-0.3	0.3	1.8	0.3	278	0.1	0.2	0.8
08-Jan-16	0.1	356.3	-0.6	0.5	1.6	0.3	323	-0.1	0.3	0.5

	TDF14-17					TDF14-18				
	6:1 Buttress Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.2	207	0.2	0.1	0.0	0.2	117	-0.1	0.2	0.0
03-Mar-15	0.3	320	-0.2	0.3	-0.1	0.3	69	0.1	0.3	-0.3
27-May-15	0.2	323	-0.1	0.1	0.0	0.2	157	-0.2	0.1	-0.7
02-Jul-15	0.1	342	-0.1	0.0	0.0	0.2	157	-0.2	0.1	-0.6
06-Aug-15	0.0	207	0.0	0.0	-0.2	0.2	157	-0.2	0.1	-0.3
03-Sep-15	0.2	185	0.2	0.0	0.0	0.1	193	-0.1	0.0	-0.2
13-Oct-15	0.4	309	-0.2	0.4	0.3	0.3	254	-0.1	-0.3	-0.3
24-Nov-15	0.6	276	0.0	0.6	0.3	0.3	108	-0.1	0.3	-0.1
08-Jan-16	0.8	290	-0.1	0.8	-0.2	Snow				

	TDF14-19					TDF14-20				
	6:1 Buttress Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.1	135	-0.1	0.0	0.2	0.4	104	-0.3	0.3	0.1
03-Mar-15	0.1	90	-0.1	0.1	0.1	0.6	122	-0.5	0.2	-0.2
27-May-15	0.0	90	0.0	0.0	-0.1	0.3	354	0.3	0.1	-0.7
02-Jul-15	0.1	90	-0.1	0.1	0.1	0.6	28	0.3	0.5	-0.5
06-Aug-15	0.1	270	0.0	-0.1	0.1	0.3	39	0.1	0.3	-0.3
03-Sep-15	0.1	270	0.0	-0.1	0.3	0.3	68	0.0	0.3	0.1
13-Oct-15	0.2	238	0.0	-0.2	0.1	0.1	345	0.1	0.0	-0.2
24-Nov-15	0.2	90	-0.1	0.2	0.2	0.3	354	0.3	0.1	0.4
08-Jan-16	0.1	22	0.1	0.1	0.4	Snow				

	TDF14-21					TDF14-22				
	6:1 Buttress Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.1	45	0.0	0.1	0.2	0.1	90	0.0	0.1	0.0
03-Mar-15	0.8	148	-0.8	0.1	-0.1	0.2	95	-0.1	0.2	-0.6
27-May-15	0.5	320	0.4	-0.1	-0.7	0.8	353	0.8	0.1	-0.6
02-Jul-15	0.6	11	0.4	0.4	-0.5	0.3	221	-0.2	-0.2	-0.6
06-Aug-15	0.3	2	0.2	0.1	-0.2	0.3	342	0.3	0.0	-0.3
03-Sep-15	0.2	176	-0.1	-0.1	0.5	0.4	333	0.4	-0.1	-0.5
13-Oct-15	0.1	299	0.1	-0.1	0.3	0.3	313	0.2	-0.1	-0.6
24-Nov-15	0.2	308	0.2	-0.1	0.9	1.3	142	-1.2	0.5	-0.1
08-Jan-16	0.5	220	-0.2	-0.4	0.6	Snow				

	TDF14-23					TDF14-24				
	6:1 Buttress Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.2	63	0.0	0.2	0.9	0.2	243	0.2	-0.1	0.4
03-Mar-15	0.3	49	0.2	0.3	0.2	0.4	190	0.0	-0.4	-0.1
27-May-15	0.4	38	0.3	0.3	0.5	0.4	131	-0.4	-0.3	0.1
02-Jul-15	0.2	161	-0.2	0.0	0.3	0.3	174	-0.1	-0.2	0.1
06-Aug-15	0.2	51	0.1	0.2	0.5	0.3	156	-0.2	-0.3	0.3
03-Sep-15	0.1	25	0.1	0.1	0.3	0.4	162	-0.2	-0.4	0.2
13-Oct-15	0.2	350	0.2	0.0	0.2	0.2	171	-0.1	-0.2	0.1
24-Nov-15	0.7	96	-0.2	0.6	0.4	0.2	242	0.1	-0.1	0.2
08-Jan-16	Snow					Snow				

	TDF14-25					TDF14-26				
	6:1 Buttress Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.0	#DIV/0!	0.0	0.0	0.0	0.0	#DIV/0!	0.0	0.0	0.0
03-Mar-15	0.5	169	-0.3	-0.3	-0.7	0.2	336	0.2	0.1	-0.2
27-May-15	2.3	115	-2.2	0.4	-1.0	0.9	271	0.8	-0.4	-0.9
02-Jul-15	0.6	106	-0.5	0.2	-1.2	0.9	207	0.0	-0.9	-0.7
06-Aug-15	1.3	116	-1.2	0.2	-0.9	0.3	200	0.0	-0.3	-1.0
03-Sep-15	1.6	125	-1.6	0.0	-0.7	0.7	164	-0.5	-0.5	-0.9
13-Oct-15	1.0	118	-0.9	0.1	-1.0	0.7	164	-0.5	-0.5	-1.1
24-Nov-15	1.6	294	1.6	-0.3	0.8	0.4	227	0.1	-0.4	-0.5
08-Jan-16	Snow					Snow				

	TDF14-27					TDF14-28				
	6:1 Buttress Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.0	#DIV/0!	0.0	0.0	-0.2	0.2	270	0.1	-0.1	0.0
03-Mar-15	0.2	313	0.2	0.0	-0.6	0.4	257	0.2	-0.4	-0.5
27-May-15	0.4	274	0.4	-0.2	-0.2	0.4	217	0.0	-0.4	0.0
02-Jul-15	0.4	232	0.1	-0.4	-0.3	0.3	253	0.2	-0.3	0.0
06-Aug-15	0.2	219	0.0	-0.2	-0.3	0.3	253	0.2	-0.3	0.0
03-Sep-15	0.3	167	-0.2	-0.2	-0.4	0.3	253	0.2	-0.3	0.2
13-Oct-15	0.4	171	-0.3	-0.3	-0.4	0.2	213	0.0	-0.2	0.2
24-Nov-15	0.4	222	0.0	-0.4	-0.5	0.6	249	0.2	-0.5	0.1
08-Jan-16	Snow					Snow				

	TDF14-29					TDF14-30				
	Paste Berm Downstream Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.1	45	-0.1	0.0	-0.2	0.2	333	0.2	0.1	-0.5
03-Mar-15	0.1	247	0.1	0.0	-0.3	0.3	321	0.3	0.1	-0.5
27-May-15	0.3	302	0.1	0.3	-0.3	Obstructions in line of sight				
02-Jul-15	0.8	268	0.7	0.4	-0.4	0.7	266	0.5	-0.5	-0.6
06-Aug-15	0.5	306	0.2	0.4	-0.3	0.5	302	0.5	-0.1	-0.6
03-Sep-15	0.6	248	0.6	0.1	-0.4	0.3	243	0.1	-0.3	-0.7
13-Oct-15	0.5	255	0.5	0.2	-0.4	0.3	279	0.3	-0.2	-0.8
24-Nov-15	0.7	267	0.6	0.4	-0.5	0.9	294	0.8	-0.3	-0.9
08-Jan-16	1.2	237	1.2	0.0	-0.2	1.6	290	1.5	-0.6	-1.5

	TDF14-31					TDF14-32				
	Paste Berm Downstream Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.1	270	0.1	-0.1	0.7	0.1	0	0.1	0.1	0.4
03-Mar-15	0.3	198	-0.1	-0.3	0.0	0.2	161	-0.2	-0.1	-0.1
27-May-15	2.8	97	-2.3	1.5	-0.4	2.2	73.8	-1.2	1.8	-0.3
02-Jul-15	0.5	347	0.4	0.3	-0.5	0.5	51.0	-0.1	0.5	-0.4
06-Aug-15	1.3	91	-1.0	0.8	-0.2	1.3	81	-0.8	1.0	-0.4
03-Sep-15	1.7	104	-1.6	0.8	-0.6	1.2	80	-0.8	0.9	-0.5
13-Oct-15	0.8	92	-0.6	0.5	-0.9	0.9	63	-0.3	0.8	-0.4
24-Nov-15	0.6	124	-0.6	0.1	-0.9	0.5	78	-0.3	0.4	-0.4
08-Jan-16	2.5	276	2.1	-1.4	-2.0	2.3	283	2.0	-1.1	-1.0

	TDF14-33					TDF14-34				
	Paste Berm Downstream Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.1	180	-0.1	-0.1	0.4	0.4	180	-0.3	-0.2	0.1
03-Mar-15	0.2	169	-0.2	-0.1	-0.3	0.4	164	-0.3	-0.1	-0.4
27-May-15	1.7	51	-0.2	1.0	-0.3	1.9	9	1.4	1.2	-0.5
02-Jul-15	0.3	348	0.2	-0.1	-0.2	0.5	288	0.4	-0.3	-0.5
06-Aug-15	0.9	43	0.0	0.5	-0.1	0.9	0	0.7	0.4	-0.5
03-Sep-15	1.1	43	0.0	1.1	0.1	1.4	0	1.2	0.7	-0.3
13-Oct-15	0.8	33	0.2	0.4	0.1	0.9	347	0.8	0.3	-0.2
24-Nov-15	0.7	30	0.2	0.2	0.1	1.7	350	1.6	0.6	0.4
08-Jan-16	0.8	262	0.5	-0.4	-1.9	1.9	192	-1.4	-1.3	-1.1

	TDF14-35					TDF14-36				
	Paste Berm Downstream Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.2	117	-0.2	0.1	-0.2	0.4	27	0.2	0.4	-0.6
03-Mar-15	1.0	118	-0.9	0.5	0.0	0.9	70	-0.2	0.9	-0.7
27-May-15	0.7	291	0.5	-0.4	-0.4	0.4	323	0.4	0.0	-0.9
02-Jul-15	0.6	329	0.6	0.0	0.0	0.5	357	0.4	0.3	-0.6
06-Aug-15	0.0	323	0.0	0.0	0.2	0.4	41	0.1	0.4	-0.6
03-Sep-15	0.2	27	0.1	0.1	0.4	0.5	18	0.3	0.4	-0.2
13-Oct-15	0.5	299	0.4	-0.2	0.3	0.7	339	0.6	0.1	-0.2
24-Nov-15	0.4	306	0.4	-0.2	0.9	0.4	356	0.4	0.2	-0.1
08-Jan-16	0.4	262	0.2	-0.4	0.3	2.7	342	2.6	0.7	-0.3

	TDF14-37					TDF14-38				
	Paste Berm Downstream Crest Edge									
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.0	#DIV/0!	0.0	0.0	0.0	0.2	153	0.1	-0.2	-0.1
03-Mar-15	0.6	58	0.2	0.6	0.2	0.3	205	0.3	-0.1	0.0
27-May-15	0.6	226	-0.3	-0.5	-0.4	0.6	96	-0.3	-0.5	0.1
02-Jul-15	0.5	260	0.1	-0.5	-0.1	0.3	63	-0.3	-0.1	0.1
06-Aug-15	0.3	254	0.0	-0.3	0.0	0.2	77	-0.1	-0.1	0.1
03-Sep-15	0.4	304	0.3	-0.2	0.3	0.4	99	-0.2	-0.3	0.3
13-Oct-15	0.7	271	0.2	-0.7	0.4	0.3	333	-0.1	0.2	0.7
24-Nov-15	0.3	254	0.0	-0.3	0.3	0.0	333	0.0	0.0	0.8
08-Jan-16	1.2	340	1.2	-0.1	0.6	0.2	52	-0.2	0.0	0.1

	TDF14-39				
	Paste Berm Downstream Crest Edge				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial					
12-Jan-15	0.0	72	-0.3	-0.2	0.1
03-Mar-15	0.3	239	0.2	0.1	0.2
27-May-15	0.2	68	-0.2	-0.1	0.3
02-Jul-15	0.2	40	-0.6	0.0	0.4
06-Aug-15	0.6	53	-0.6	-0.1	0.4
03-Sep-15	0.6	62	-0.8	-0.3	0.8
13-Oct-15	0.8	19	-0.6	0.2	1.1
24-Nov-15	0.6	46	-0.5	0.0	1.4
08-Jan-16	0.6	49	-3.2	-0.4	0.6

Lynx TDF - Monument Monitoring Summary
Raw Data (Mine Grid)

	LYNX-14-01			LYNX-14-02			LYNX-14-03			LYNX-14-04			LYNX-14-06		
	Downstream Cr.			Upstream Cr.			Downstream Cr.			Upstream Cr.			Upstream Cr.		
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3077.757	2040.762	3404.345	3091.669	2044.452	3404.534	3070.033	2074.830	3404.393	3083.991	2076.873	3404.435	3072.531	2125.595	3404.539
12-Jan-15	3077.755	2040.765	3404.343	3091.669	2044.453	3404.532	3070.034	2074.829	3404.395	3083.990	2076.876	3404.432	3072.531	2125.594	3404.540
03-Mar-15	3077.753	2040.765	3404.345	3091.668	2044.453	3404.532	3070.030	2074.826	3404.395	3083.985	2076.874	3404.432	3072.528	2125.593	3404.536
27-May-15	3077.753	2040.765	3404.340	3091.667	2044.452	3404.530	3070.034		3404.394	3083.988	2076.872	3404.431	3072.532	2125.589	3404.531
02-Jul-15	3077.756	2040.764	3404.340	3091.669	2044.451	3404.530	3070.036	2074.826	3404.394	3083.990	2076.872	3404.430	3072.534	2125.590	3404.528
06-Aug-15	3077.755	2040.766	3404.340	3091.669	2044.452	3404.530	3070.034	2074.827	3404.394	3083.989	2076.873	3404.429	3072.534	2125.590	3404.529
03-Sep-15	3077.751	2040.765	3404.340	3091.666	2044.453	3404.530	Obstruction in sight line			3083.985	2076.874	3404.430	3072.526	2125.591	3404.529
11-Sep-15	3077.753	2040.764	3404.337	3091.668	2044.452	3404.530	Obstruction in sight line			3083.988	2076.873	3404.429	3072.532	2125.591	3404.529
01-Oct-15	3077.754	2040.765	3404.339	3091.670	2044.453	3404.530	3070.034	2074.827	3404.394	Obstruction in sight line			3072.534	2125.592	3404.529
17-Nov-15	3077.755	2040.765	3404.339	3091.672	2044.451	3404.529	3070.036	2074.826	3404.394	3083.992	2076.874	3404.428	3072.538	2125.592	3404.527
06-Jan-16	3077.752	2040.765	3404.338	3091.674	2044.452	3404.518	3070.037	2074.826	3404.394	3083.994	2076.872	3404.413	3072.544	2125.592	3404.525

	LYNX-14-07			LYNX-14-08			LYNX-14-09			LYNX-14-10			LYNX-14-11		
	Downstream Cr.			Upstream Cr.			Downstream Cr.			Upstream Cr.			Downstream Cr.		
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3051.308	2144.996	3404.274	3067.614	2149.803	3404.467	3061.717	2180.820	3404.314	3073.120	2172.036	3404.576	3087.766	2205.733	3404.329
12-Jan-15	3051.308	2144.999	3404.274	3067.617	2149.806	3404.464	3061.714	2180.821	3404.316	3073.121	2172.035	3404.577	3087.759	2205.732	3404.328
03-Mar-15	3051.307	2144.997	3404.274	3067.615	2149.804	3404.462	3061.713	2180.819	3404.312	3073.128	2172.034	3404.574	3087.762	2205.721	3404.324
27-May-15	3051.310	2144.994	3404.271	3067.628	2149.805	3404.456	3061.703	2180.812	3404.305	3073.135	2172.035	3404.547	Destroyed		
02-Jul-15	3051.312	2144.995	3404.270	3067.630	2149.805	3404.455	3061.715	2180.815	3404.310	3073.138	2172.036	3404.545			
06-Aug-15	3051.311	2144.996	3404.269	3067.629	2149.807	3404.453	3061.719	2180.818	3404.304	3073.136	2172.036	3404.544			
03-Sep-15	3051.303	2144.994	3404.269	3067.626	2149.806	3404.452	3061.709	2180.816	3404.307	3073.127	2172.035	3404.543			
11-Sep-15	Not Observed			3067.627	2149.805	3404.452	Not Observed			3073.124	2172.034	3404.546			
01-Oct-15	3051.310	2144.996	3404.269	3067.630	2149.807	3404.452	3061.717	2180.817	3404.314	3073.138	2172.037	3404.543			
17-Nov-15	3051.313	2144.994	3404.266	3067.626	2149.803	3404.452	3061.723	2180.818	3404.309	3073.140	2172.036	3404.550			
06-Jan-16	3051.318	2144.997	3404.266	3067.644	2149.807	3404.437	3061.734	2180.820	3404.306	3073.157	2172.027	3404.543			

Notes:

1 - Survey data provided by Nyrstar Myra Falls.
2 - The combined measurement error (total of instrument, human and network) for the LynxTDF monument survey is approximately 1.5 cm and 1.0 cm for horizontal and vertical displacement, respectively.
3 - Values in table are reported in meters.
4 - Cr. : crest
5 - Green shading indicates monument was replaced on that date. Displacement after that date is calculated with repect to the survey reading on the replacement date.

	LYNX-14-12			LYNX-14-13			LYNX-14-14			LYNX-14-15			LYNX-14-16		
	Upstream Cr.			Downstream Cr.			Upstream Cr.			Downstream Cr.			Upstream Cr.		
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3094.582	2193.905	3404.615	3130.282	2232.310	3404.218	3137.503	2219.576	3404.431	3172.848	2257.761	3404.211	3180.335	2245.365	3404.421
12-Jan-15	3094.583	2193.908	3404.615	3130.284	2232.313	3404.218	3137.505	2219.578	3404.431	3172.848	2257.764	3404.213	3180.336	2245.363	3404.421
03-Mar-15	3094.582	2193.906	3404.609	3130.281	2232.311	3404.219	3137.505	2219.576	3404.428	3172.846	2257.765	3404.213	3180.333	2245.360	3404.416
27-May-15	3094.583	2193.901	3404.601	3130.282	2232.301	3404.207	3137.507	2219.566	3404.416	3172.847	2257.753	3404.202	3180.336	2245.352	3404.403
02-Jul-15	3094.584	2193.901	3404.598	3130.284	2232.301	3404.209	3137.507	2219.565	3404.412	3172.849	2257.753	3404.203	3180.334	2245.352	3404.397
06-Aug-15	3094.583	2193.902	3404.597	3130.286	2232.301	3404.205	3137.511	2219.563	3404.409	3172.850	2257.753	3404.203	3180.338	2245.350	3404.397
03-Sep-15	3094.573	2193.902	3404.596	3130.271	2232.302	3404.206	3137.497	2219.567	3404.408	3172.831	2257.759	3404.205	3180.320	2245.356	3404.397
11-Sep-15	3094.583	2193.900	3404.595	3130.283	2232.300	3404.213	3137.509	2219.562	3404.405	3172.846	2257.752	3404.201	3180.333	2245.349	3404.395
01-Oct-15	3094.582	2193.901	3404.598	3130.283	2232.301	3404.215	3137.513	2219.564	3404.413	3172.847	2257.758	3404.212	3180.335	2245.351	3404.398
17-Nov-15	3094.593	2193.900	3404.593		Not Observed		3137.519	2219.559	3404.406	3172.814	2257.765	3404.177	3180.344	2245.346	3404.397
06-Jan-16	3094.601	2193.899	3404.588	3130.297	2232.299	3404.203	3137.528	2219.556	3404.394	3172.823	2257.761	3404.180	3180.351	2245.332	3404.390

	LYNX-14-17			LYNX-14-18			LYNX-14-19			LYNX-14-20			LYNX-14-21		
	Downstream Cr.			Upstream Cr.			Downstream Cr.			Upstream Cr.			Downstream Cr.		
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3216.396	2284.774	3404.066	3224.268	2272.374	3404.403	3258.816	2309.498	3404.237	3266.120	2296.734	3404.455	3289.823	2326.984	3404.485
12-Jan-15	3216.394	2284.771	3404.057	3224.274	2272.373	3404.403	3258.813	2309.498	3404.232		Not Observed		3289.818	2326.986	3404.485
03-Mar-15	3216.393	2284.768	3404.066	3224.268	2272.380	3404.402	3258.812	2309.493	3404.234	3266.118	2296.729	3404.449	3289.815	2326.980	3404.486
27-May-15	3216.399	2284.773	3404.057	3224.270	2272.369	3404.387	3258.816	2309.497	3404.229	3266.120	2296.734	3404.444	3289.818	2326.981	3404.481
02-Jul-15	3216.399	2284.767	3404.057	3224.270	2272.369	3404.384	3258.816	2309.492	3404.230	3266.119	2296.730	3404.442	3289.818	2326.979	3404.482
06-Aug-15	3216.399	2284.773	3404.057	3224.271	2272.369	3404.382	3258.815	2309.497	3404.228	3266.119	2296.734	3404.441	3289.818	2326.983	3404.481
03-Sep-15	3216.400	2284.768	3404.054	3224.254	2272.377	3404.381	3258.817	2309.492	3404.227	3266.118	2296.730	3404.439	3289.819	2326.981	3404.479
11-Sep-15		Not Observed		3224.266	2272.370	3404.382		Not Observed			Not Observed			Not Observed	
01-Oct-15	3216.400	2284.764	3404.054	3224.266	2272.371	3404.377	3258.816	2309.489	3404.225	3266.119	2296.727	3404.438	3289.819	2326.978	3404.480
17-Nov-15	3216.398	2284.760	3404.060	3224.284	2272.364	3404.380	3258.815	2309.489	3404.225	3266.120	2296.725	3404.439	3289.814	2326.976	3404.486
06-Jan-16	3216.400	2284.762	3404.058	3224.295	2272.355	3404.380	3258.813	2309.488	3404.227	3266.121	2296.723	3404.434	3289.815	2326.978	3404.483

	LYNX-14-22			LYNX-14-23			LYNX-14-24			LYNX-14-25			LYNX-14-26		
	Upstream Cr.			Downstream Cr.			Upstream Cr.			Downstream Cr.			Upstream Cr.		
	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation	Northing	Easting	Elevation
Initial	3296.326	2314.845	3404.554	3317.180	2326.613	3404.000	3309.209	2314.457	3404.531	3343.853	2309.703	3404.141	3335.953	2297.483	3404.518
12-Jan-15	3296.323	2314.846	3404.549	3317.178	2326.614	3403.999	3309.207	2314.454	3404.529	3343.851	2309.704	3404.138	3335.937	2297.490	3404.517
03-Mar-15	3296.321	2314.842	3404.549	3317.176	2326.615	3404.000	3309.204	2314.452	3404.527	3343.848	2309.698	3404.137	3335.943	2297.497	3404.512
27-May-15	3296.325	2314.845	3404.542	3317.179	2326.616	3403.994	3309.205	2314.456	3404.525	3343.850	2309.704	3404.137	3335.941	2297.492	3404.509
02-Jul-15	3296.324	2314.842	3404.542	3317.179	2326.613	3403.996	3309.206	2314.454	3404.525	3343.849	2309.701	3404.138	3335.941	2297.489	3404.508
06-Aug-15	3296.323	2314.846	3404.540	3317.179	2326.618	3403.994	3309.204	2314.458	3404.523	3343.848	2309.704	3404.138	3335.940	2297.492	3404.507
03-Sep-15	3296.323	2314.844	3404.538	3317.179	2326.615	3403.992	3309.204	2314.455	3404.521	3343.850	2309.703	3404.135	3335.940	2297.491	3404.503
11-Sep-15		Not Observed			Not Observed			Not Observed			Not Observed			Not Observed	
01-Oct-15	3296.324	2314.838	3404.538	3317.179	2326.612	3403.992	3309.204	2314.450	3404.522	3343.850	2309.701	3404.136	3335.941	2297.488	3404.505
17-Nov-15	3296.323	2314.840	3404.539	3317.177	2326.614	3403.993	3309.204	2314.453	3404.523	3343.850	2309.703	3404.137	3335.940	2297.489	3404.507
06-Jan-16	3296.329	2314.843	3404.526	3317.182	2326.614	3403.993	3309.205	2314.448	3404.524	3343.853	2309.700	3404.138	3335.943	2297.486	3404.501

Lynx TDF - Monument Monitoring Summary
Cumulative Values (Change from Initial)

	LYNX-14-01					LYNX-14-02				
	Downstream Cr.					Upstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse^3 (cm)	Longitudinal^4 (cm)	Vertical^5 (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse^3 (cm)	Longitudinal^4 (cm)	Vertical^5 (cm)
Initial										
12-Jan-15	0.4	326	0.1	0.3	-0.2	0.1	0	0.0	0.1	-0.2
03-Mar-15	0.5	307	0.3	0.4	0.0	0.1	315	0.1	0.1	-0.2
27-May-15	0.5	307	0.3	0.4	-0.5	0.2	270	0.2	0.0	-0.4
02-Jul-15	0.2	333	0.1	0.2	-0.5	0.1	180	0.0	-0.1	-0.4
06-Aug-15	0.4	333	0.1	0.4	-0.5	0.0	#DIV/0!	0.0	0.0	-0.4
03-Sep-15	0.7	297	0.5	0.4	-0.5	0.3	288	0.3	0.2	-0.4
11-Sep-15	0.4	297	0.3	0.3	-0.8	0.1	270	0.1	0.0	-0.4
01-Oct-15	0.4	315	0.2	0.4	-0.6	0.1	45	-0.1	0.1	-0.4
17-Nov-15	0.4	326	0.1	0.3	-0.6	0.3	108	-0.3	-0.2	-0.5
06-Jan-16	0.6	301	0.4	0.4	-0.7	0.5	90	-0.5	-0.1	-1.6

	LYNX-14-03					LYNX-14-04				
	Downstream Cr.					Upstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse^3 (cm)	Longitudinal^4 (cm)	Vertical^5 (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse^3 (cm)	Longitudinal^4 (cm)	Vertical^5 (cm)
Initial										
12-Jan-15	0.1	135	-0.1	-0.1	0.2	0.3	342	0.0	0.3	-0.3
03-Mar-15	0.5	217	0.4	-0.3	0.2	0.6	279	0.6	0.2	-0.3
27-May-15	0.5	169	0.0	-0.5	0.1	0.3	252	0.3	0.0	-0.4
02-Jul-15	0.5	143	-0.2	-0.5	0.1	0.1	225	0.1	-0.1	-0.5
06-Aug-15	0.3	162	0.0	-0.3	0.1	0.2	270	0.2	0.0	-0.6
03-Sep-15	Obstruction in sight line					0.6	279	0.6	0.2	-0.5
11-Sep-15	Obstruction in sight line					0.3	270	0.3	0.1	-0.6
01-Oct-15	0.3	162	0.0	-0.3	0.1	Obstruction in sight line				
17-Nov-15	0.5	143	-0.2	-0.5	0.1	0.1	45.0	-0.1	0.1	-0.7
06-Jan-16	0.6	135	-0.3	-0.5	0.1	0.3	108.4	-0.3	-0.2	-2.2

Notes:

1 - Survey Data provided by Nyrstar Myra Falls.
2 - The combined measurement error (total of instrument, human and network) for the LynxTDF monument survey is approximately 1.5 cm and 1.0 cm for horizontal and vertical displacement, respectively.
3 - Negative values are in the upstream direction, positive values are in the downwstream direction.
4 - Negative values are to the west, positive values are to the east.
5 - Negative values are descending stations along dam centreline and positive values are for ascending stations.
6 - Cr. : crest
7 - Yellow shading indicates significant cumulative displacement over 2 cm has occurred.
8 - Green shading indicates monument was replaced on that date. Displacement after that date is calculated with repect to the survey reading on the replacement date .

	LYNX-14-06					LYNX-14-07				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.1	180	0.0	-0.1	0.1	0.3	0	-0.1	0.3	0.0
03-Mar-15	0.4	236	0.3	-0.1	-0.3	0.1	315	0.1	0.1	0.0
27-May-15	0.6	171	0.0	-0.6	-0.8	0.3	135	-0.1	-0.2	-0.3
02-Jul-15	0.6	149	-0.2	-0.6	-1.1	0.4	104	-0.4	-0.2	-0.4
06-Aug-15	0.6	149	-0.2	-0.6	-1.0	0.3	90	-0.3	-0.1	-0.5
03-Sep-15	0.6	231	0.6	-0.3	-1.0	0.5	248	0.5	-0.1	-0.5
11-Sep-15	0.4	166	0.0	-0.4	-1.0	Not Observed				
01-Oct-15	0.4	135	-0.2	-0.4	-1.0	0.2	90	-0.2	0.0	-0.5
17-Nov-15	0.8	113	-0.6	-0.5	-1.2	0.5	112	-0.4	-0.3	-0.8
06-Jan-16	1.3	103	-1.2	-0.6	-1.4	1.0	84	-1.0	-0.1	-0.8

	LYNX-14-08					LYNX-14-09				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.4	45	-0.4	0.2	-0.3	0.3	288	0.3	-0.1	0.2
03-Mar-15	0.1	45	-0.1	0.1	-0.5	0.4	256	0.3	-0.3	-0.2
27-May-15	1.4	82	-1.4	-0.1	-1.1	1.6	240	0.7	-1.5	-0.9
02-Jul-15	1.6	83	-1.6	-0.2	-1.2	0.5	202	-0.1	-0.5	-0.4
06-Aug-15	1.6	75	-1.6	0.0	-1.4	0.3	135	-0.3	0.0	-1.0
03-Sep-15	1.2	76	-1.2	0.0	-1.5	0.9	243	0.4	-0.8	-0.7
11-Sep-15	1.3	81	-1.3	-0.1	-1.5	Not Observed				
01-Oct-15	1.6	76	-1.6	0.0	-1.5	0.3	180	-0.2	-0.2	0.0
17-Nov-15	1.2	90	-1.2	-0.3	-1.5	0.6	108	-0.6	0.2	-0.5
06-Jan-16	3.0	82	-3.0	-0.3	-3.0	1.7	90	-1.4	1.0	-0.8

	LYNX-14-10					LYNX-14-11				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.1	135	-0.1	0.0	0.1	0.7	262	0.3	-0.7	-0.1
03-Mar-15	0.8	104	-0.8	0.3	-0.2	1.3	198	-0.8	-1.0	-0.5
27-May-15	1.5	94	-1.3	0.8	-2.9	Destroyed				
02-Jul-15	1.8	90	-1.5	1.0	-3.1					
06-Aug-15	1.6	90	-1.3	0.9	-3.2					
03-Sep-15	0.7	98	-0.6	0.3	-3.3					
11-Sep-15	0.4	117	-0.4	0.1	-3.0					
01-Oct-15	1.8	87	-1.4	1.1	-3.3					
17-Nov-15	0.0	#DIV/0!	0.0	0.0	0.0					
06-Jan-16	1.9	118	-1.9	0.2	-0.7					

	LYNX-14-12					LYNX-14-13				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.3	18	0.2	0.2	0.0	0.4	34	0.2	0.3	0.0
03-Mar-15	0.1	0	0.1	0.1	-0.6	0.1	315	0.1	0.0	0.1
27-May-15	0.4	166	-0.4	-0.1	-1.4	0.9	180	-0.8	-0.5	-1.1
02-Jul-15	0.4	153	-0.4	0.0	-1.7	0.9	167	-0.9	-0.3	-0.9
06-Aug-15	0.3	162	-0.3	-0.1	-1.8	1.0	156	-1.0	-0.1	-1.3
03-Sep-15	0.9	252	0.2	-0.9	-1.9	1.4	234	-0.1	-1.4	-1.2
11-Sep-15	0.5	169	-0.5	-0.2	-2.0	1.0	174	-0.9	-0.4	-0.5
01-Oct-15	0.4	180	-0.3	-0.2	-1.7	0.9	174	-0.8	-0.4	-0.3
17-Nov-15	1.2	114	-1.0	0.7	-2.2	Not Observed				
06-Jan-16	2.0	108	-1.5	1.3	-2.7	1.9	126	-1.7	0.7	-1.5

	LYNX-14-14					LYNX-14-15				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.3	45	0.1	0.3	0.0	0.3	0	0.3	0.2	0.2
03-Mar-15	0.2	90	-0.1	0.2	-0.3	0.4	333	0.4	0.0	0.2
27-May-15	1.1	158	-1.1	-0.2	-1.5	0.8	187	-0.6	-0.5	-0.9
02-Jul-15	1.2	160	-1.1	-0.2	-1.9	0.8	173	-0.7	-0.3	-0.8
06-Aug-15	1.5	148	-1.5	0.0	-2.2	0.8	166	-0.8	-0.2	-0.8
03-Sep-15	1.1	214	-0.5	-1.0	-2.3	1.7	263	0.7	-1.6	-0.6
11-Sep-15	1.5	157	-1.5	-0.2	-2.6	0.9	193	-0.7	-0.6	-1.0
01-Oct-15	1.6	140	-1.5	0.2	-1.8	0.3	198	-0.2	-0.2	0.1
17-Nov-15	2.3	137	-2.3	0.5	-2.5	0.0	#DIV/0!	0.0	0.0	0.0
06-Jan-16	3.2	129	-3.0	1.1	-3.7	1.0	114	-0.8	0.6	0.3

	LYNX-14-16					LYNX-14-17				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.2	153	-0.2	0.0	0.0	0.4	214	-0.2	-0.3	-0.9
03-Mar-15	0.5	202	-0.3	-0.4	-0.5	0.7	207	-0.4	-0.6	0.0
27-May-15	1.3	176	-1.2	-0.6	-1.8	0.3	108	-0.2	0.2	-0.9
02-Jul-15	1.3	184	-1.1	-0.8	-2.4	0.8	157	-0.8	-0.1	-0.9
06-Aug-15	1.5	169	-1.4	-0.5	-2.4	0.3	108	-0.2	0.2	-0.9
03-Sep-15	1.7	239	0.0	-1.7	-2.4	0.7	146	-0.7	0.0	-1.2
11-Sep-15	1.6	187	-1.3	-1.0	-2.6	Not Observed				
01-Oct-15	1.4	180	-1.2	-0.7	-2.3	1.1	158	-1.1	-0.2	-1.2
17-Nov-15	2.1	155	-2.1	-0.2	-2.4	1.4	172	-1.3	-0.5	-0.6
06-Jan-16	3.7	154	-3.7	-0.3	-3.1	1.3	162	-1.2	-0.3	-0.8

	LYNX-14-18					LYNX-14-19				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.6	99	-0.4	0.5	0.0	0.3	270	0.2	-0.3	-0.5
03-Mar-15	0.6	355	0.5	0.2	-0.1	0.6	219	-0.2	-0.6	-0.3
27-May-15	0.5	158	-0.5	-0.1	-1.6	0.1	180	-0.1	-0.1	-0.8
02-Jul-15	0.5	158	-0.5	-0.1	-1.9	0.6	180	-0.5	-0.3	-0.7
06-Aug-15	0.6	149	-0.6	0.0	-2.1	0.1	225	0.0	-0.1	-0.9
03-Sep-15	1.4	282	1.0	-1.0	-2.2	0.6	171	-0.6	-0.2	-1.0
11-Sep-15	0.5	204	-0.3	-0.4	-2.1	Not Observed				
01-Oct-15	0.4	214	-0.2	-0.3	-2.6	0.9	180	-0.8	-0.5	-1.2
17-Nov-15	1.9	122	-1.7	0.9	-2.3	0.9	186	-0.7	-0.5	-1.2
06-Jan-16	3.3	125	-3.0	1.3	-2.3	1.0	197	-0.7	-0.8	-1.0

	LYNX-14-20					LYNX-14-21				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	Not Observed					0.5	292	0.4	-0.3	0.0
03-Mar-15	0.5	202	-0.3	-0.4	-0.6	0.9	243	0.1	-0.9	0.1
27-May-15	0.0	#DIV/0!	0.0	0.0	-1.1	0.6	239	0.0	-0.6	-0.4
02-Jul-15	0.4	194	-0.3	-0.3	-1.3	0.7	225	-0.2	-0.7	-0.3
06-Aug-15	0.1	270	0.1	-0.1	-1.4	0.5	259	0.2	-0.5	-0.4
03-Sep-15	0.4	207	-0.2	-0.4	-1.6	0.5	233	-0.1	-0.5	-0.6
11-Sep-15	Not Observed					Not Observed				
01-Oct-15	0.7	188	-0.5	-0.4	-1.7	0.7	214	-0.3	-0.7	-0.5
17-Nov-15	0.9	180	-0.8	-0.5	-1.6	1.2	228	-0.2	-1.2	0.1
06-Jan-16	1.1	175	-1.0	-0.5	-2.1	1.0	233	-0.1	-1.0	-0.2

	LYNX-14-22					LYNX-14-23				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.3	288	0.2	-0.2	-0.5	0.2	297	0.0	0.2	-0.1
03-Mar-15	0.6	239	0.0	-0.6	-0.5	0.4	297	0.0	0.4	0.0
27-May-15	0.1	270	0.1	-0.1	-1.2	0.3	342	-0.2	0.2	-0.6
02-Jul-15	0.4	214	-0.2	-0.3	-1.2	0.1	270	0.1	0.1	-0.4
06-Aug-15	0.3	288	0.2	-0.2	-1.4	0.5	349	-0.4	0.4	-0.6
03-Sep-15	0.3	252	0.1	-0.3	-1.6	0.2	333	-0.1	0.2	-0.8
11-Sep-15	Not Observed					Not Observed				
01-Oct-15	0.7	196	-0.5	-0.5	-1.6	0.1	225	0.1	0.0	-0.8
17-Nov-15	0.6	211	-0.3	-0.5	-1.5	0.3	288	0.1	0.3	-0.7
06-Jan-16	0.4	124	-0.3	0.2	-2.8	0.2	63	-0.2	-0.1	-0.7

	LYNX-14-24					LYNX-14-25				
	Upstream Cr.					Downstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial										
12-Jan-15	0.4	214	0.4	0.0	-0.2	0.2	297	0.0	0.2	-0.3
03-Mar-15	0.7	225	0.7	0.2	-0.4	0.7	225	0.7	0.2	-0.4
27-May-15	0.4	256	0.3	0.3	-0.6	0.3	288	0.1	0.3	-0.4
02-Jul-15	0.4	225	0.4	0.1	-0.6	0.4	243	0.4	0.2	-0.3
06-Aug-15	0.5	281	0.2	0.5	-0.8	0.5	281	0.2	0.5	-0.3
03-Sep-15	0.5	248	0.4	0.3	-1.0	0.3	270	0.2	0.3	-0.6
11-Sep-15	Not Observed					Not Observed				
01-Oct-15	0.9	216	0.9	0.0	-0.9	0.4	236	0.3	0.1	-0.5
17-Nov-15	0.6	231	0.6	0.2	-0.8	0.3	270	0.2	0.3	-0.4
06-Jan-16	1.0	204	1.0	-0.1	-0.7	0.3	180	0.3	-0.2	-0.3

	LYNX-14-26				
	Upstream Cr.				
	Magnitude (cm)	Direction 2 (deg)	Transverse[3] (cm)	Longitudinal[4] (cm)	Vertical[5] (cm)
Initial					
12-Jan-15	1.7	294	0.3	1.7	-0.1
03-Mar-15	1.7	324	-0.6	1.6	-0.6
27-May-15	1.5	307	-0.1	1.5	-0.9
02-Jul-15	1.3	297	0.1	1.3	-1.0
06-Aug-15	1.6	305	-0.1	1.6	-1.1
03-Sep-15	1.5	302	0.0	1.5	-1.5
11-Sep-15	Not Observed				
01-Oct-15	1.3	293	0.2	1.3	-1.3
17-Nov-15	1.4	295	0.2	1.4	-1.1
06-Jan-16	1.0	287	0.3	1.0	-1.7

Appendix C

NMF Inspection Reports
(included on digital copy)

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: Jayson Dykes

Inspector Position: Environmental Assitant

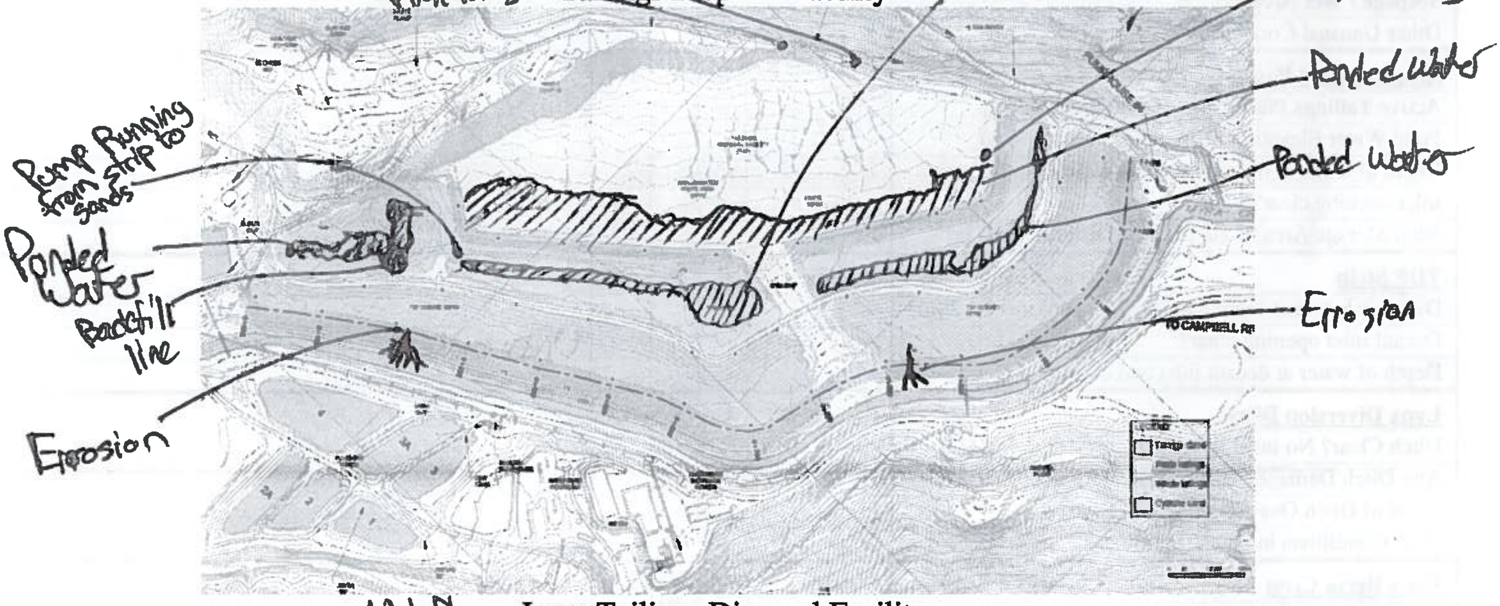
Inspection Date/Time: Feb 5, 2015 / 12:45

Weather Conditions: Overcast off/on heavy rains

Reason for Inspection:

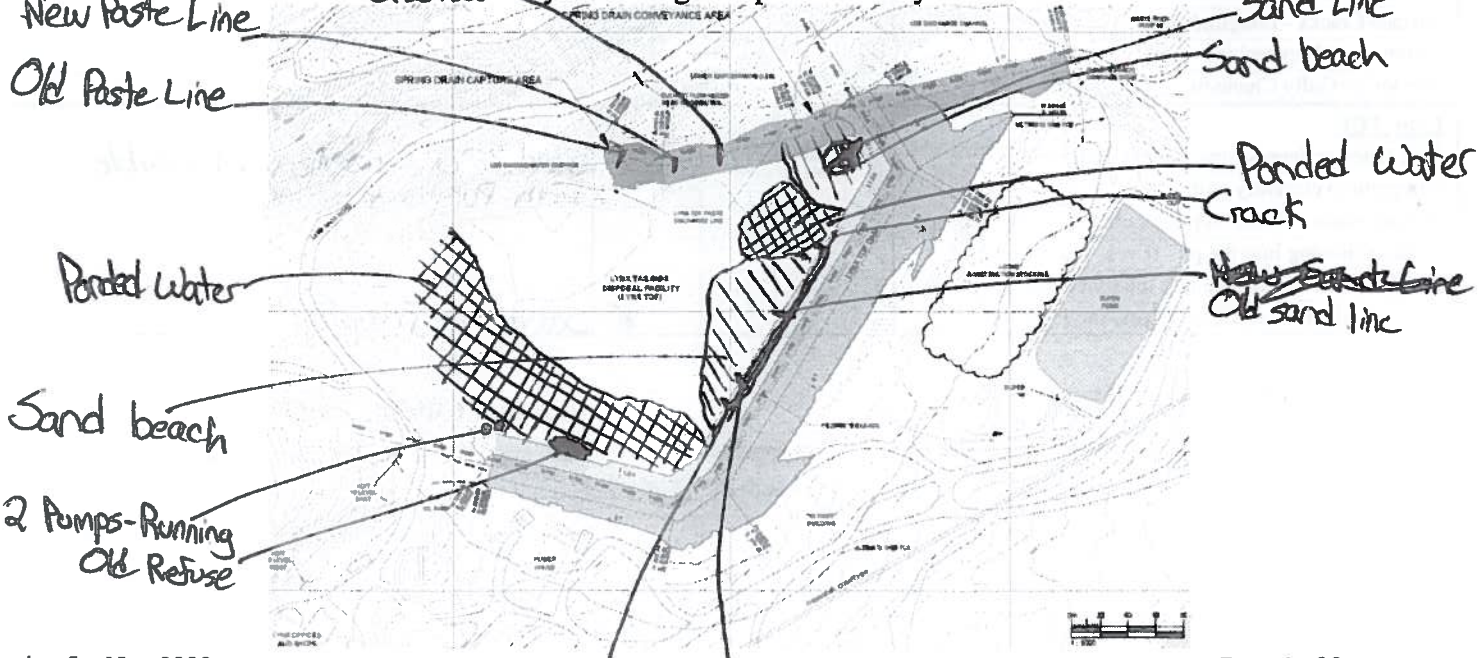
Routine ☒

Special Condition ☐



Tailings Disposal Facility

Lynx Tailings Disposal Facility



Ditch

Old Sand Line

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Joyson Dykes

DATE: February 5, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion							Errosion Gullies
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map	✓						
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						Underwater
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m³/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					Sinkhole underwater - not visible
Sump pump currently pumping?	✓						Both Pumps running
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						Sand line pumping

*** RATING LEGEND (see next page)**

S = Satisfactory (Meets the intended purpose)

F = Fair (Meets intended purpose, but some maintenance needed)

P = Poor (May not meet intended purpose, repair or modify)

U = Unsatisfactory (Will not meet intended purpose, repair or modify)

N = Not inspected

Additional Comments:

Version 5 – Nov 2008

Feb 05, 2015 TDF Inspection






Feb 05, 2015 TDF Inspection






Feb 05, 2015 TDF Inspection

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

Inspector Name: Jayson Dykes

Inspector Position: Environmental Assistant

Inspection Date/Time: Feb 19, 2015 13:30

Weather Conditions: Overcast, Rain

Reason for Inspection:

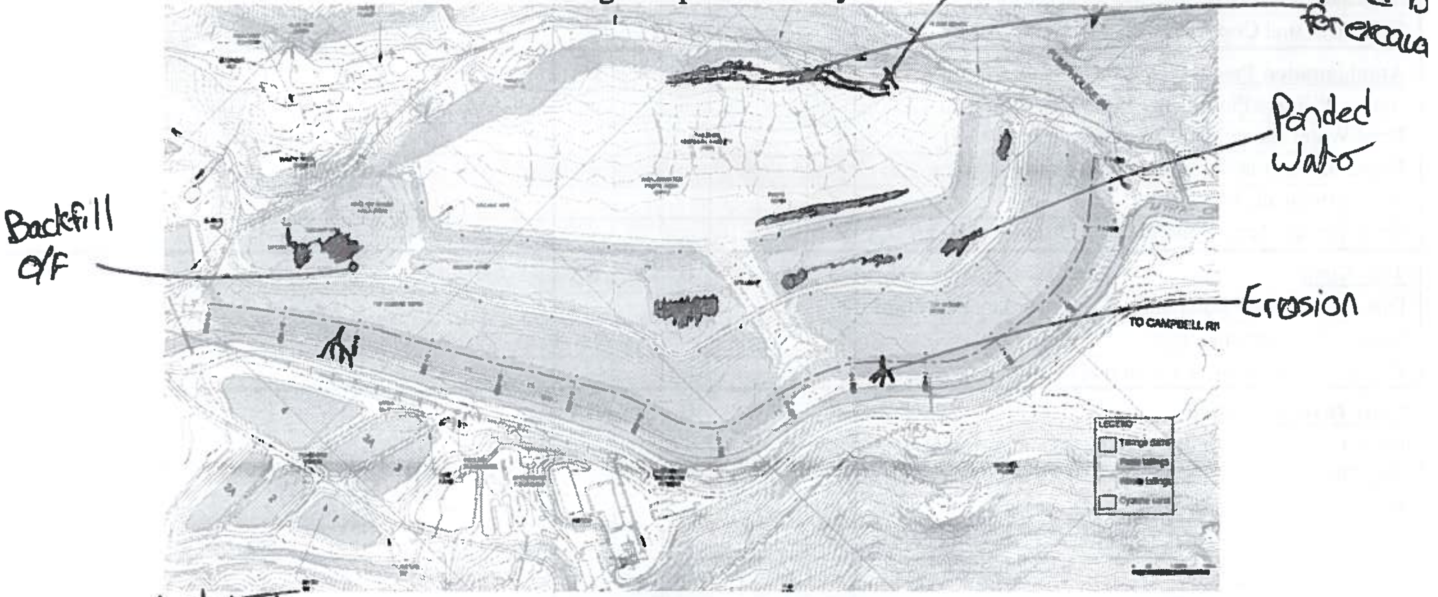
Routine ☒

Special Condition ☐

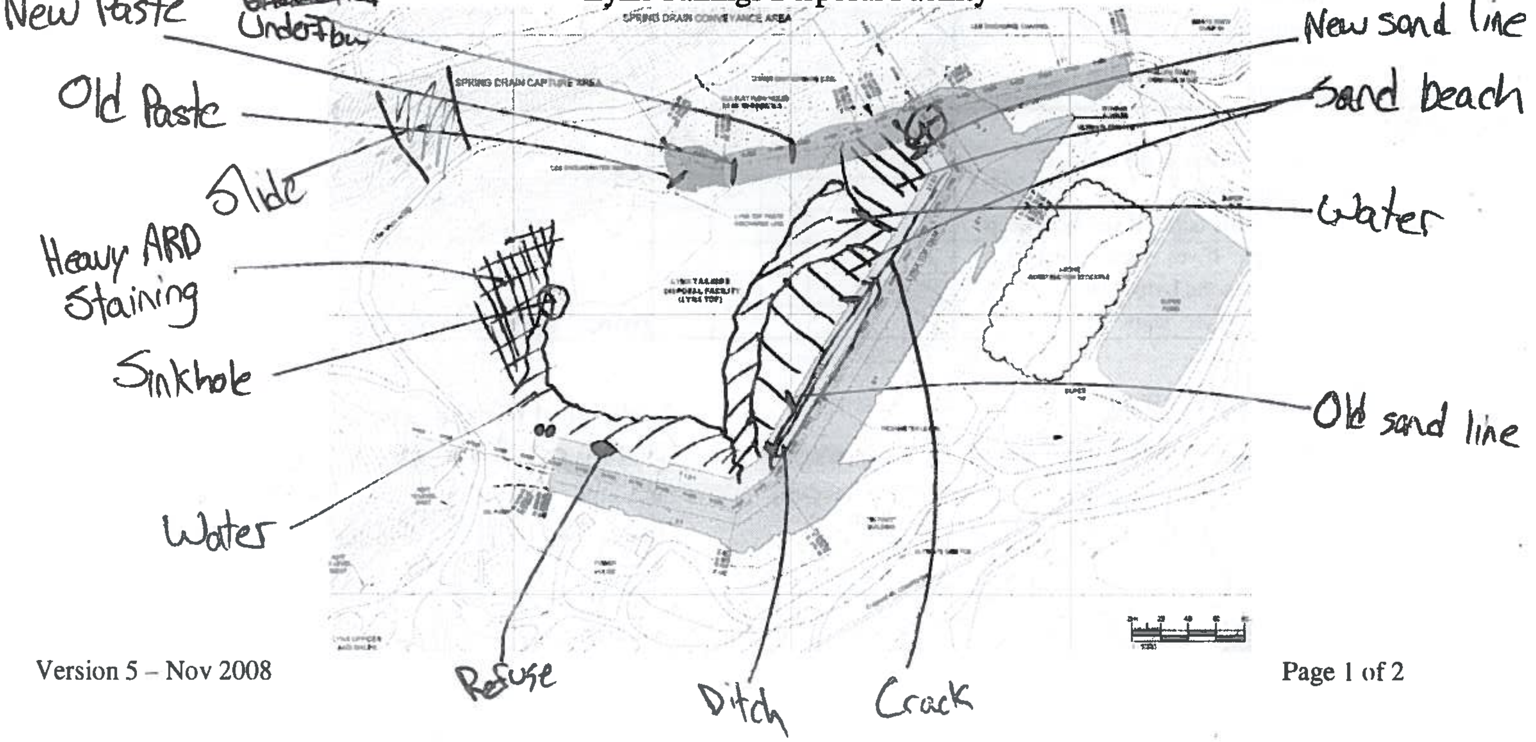
ADDITIONAL COMMENTS

Crack on Lynx has sunk up to half a foot in some areas

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Jayson Dykes **DATE:** Feb 19,2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					Erosion Gullies on upgrade Berm
Surface Settlement / Depressions		✓					Ponded water on upgrade Berm
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					Hole getting larger
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						Minor amount of underflow

*** RATING LEGEND (see next page)**

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U = Unsatisfactory (Will not meet intended purpose, repair or modify)

N = Not inspected

Additional Comments:
Crack on Lynx dam appears to be
slowly sinking near sand lines, will
keep a close eye on it to be sure

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Jayson Dykes **DATE:** Feb 19,2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					Erosion Gullies on upgrade Berm
Surface Settlement / Depressions		✓					Ponded water on upgrade Berm
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					Hole getting larger
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						Minor amount of underflow

*** RATING LEGEND (see next page)**

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F = Fair (Meets intended purpose, but some maintenance needed)

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U = Unsatisfactory (Will not meet intended purpose, repair or modify)

N = Not inspected

Additional Comments:

Crack on Lynx dam appears to be slowly sinking near sand lines, will keep a close eye on it to be sure

TDF INSPECTION FEB 19, 2015






TDF INSPECTION FEB 19, 2015

TDF INSPECTION FEB 19, 2015

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

Inspector Name: Jayson Dykes

Inspector Position: Environmental Assistant

Inspection Date/Time: Feb 27, 2015

Weather Conditions: Overcast, cool

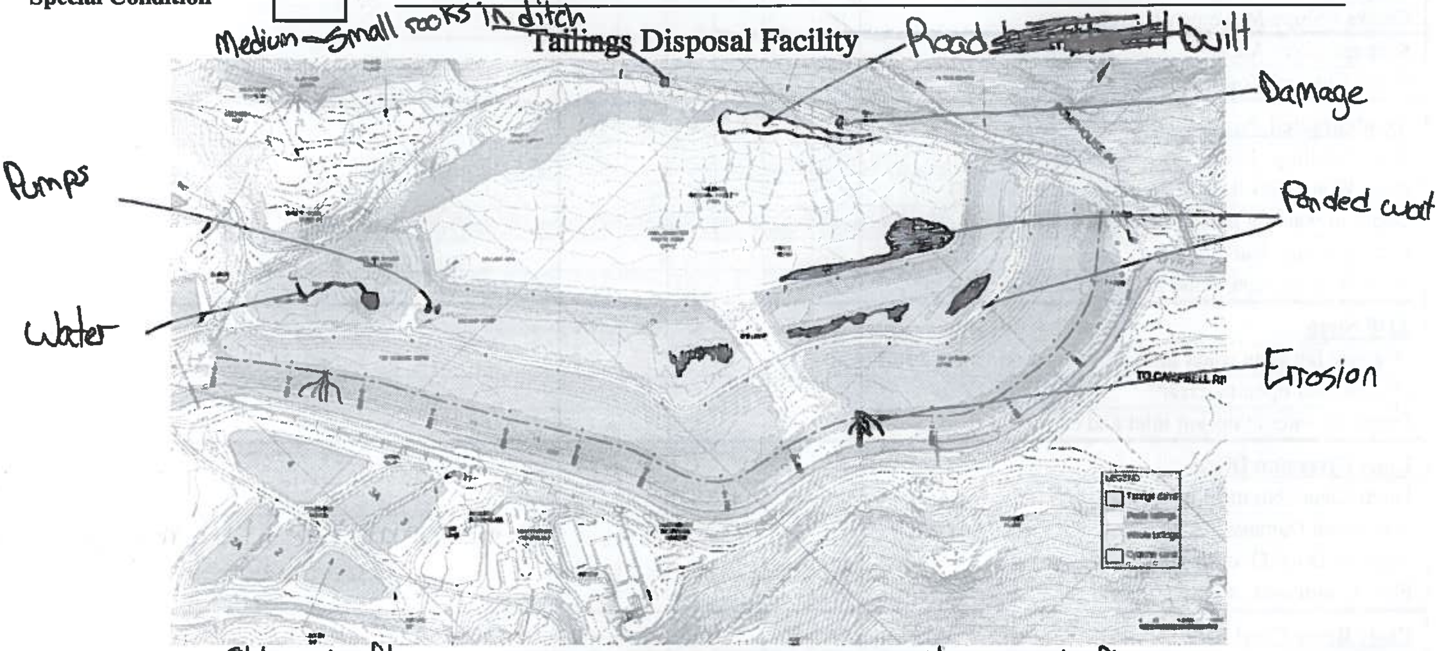
Reason for Inspection:

Routine ☒

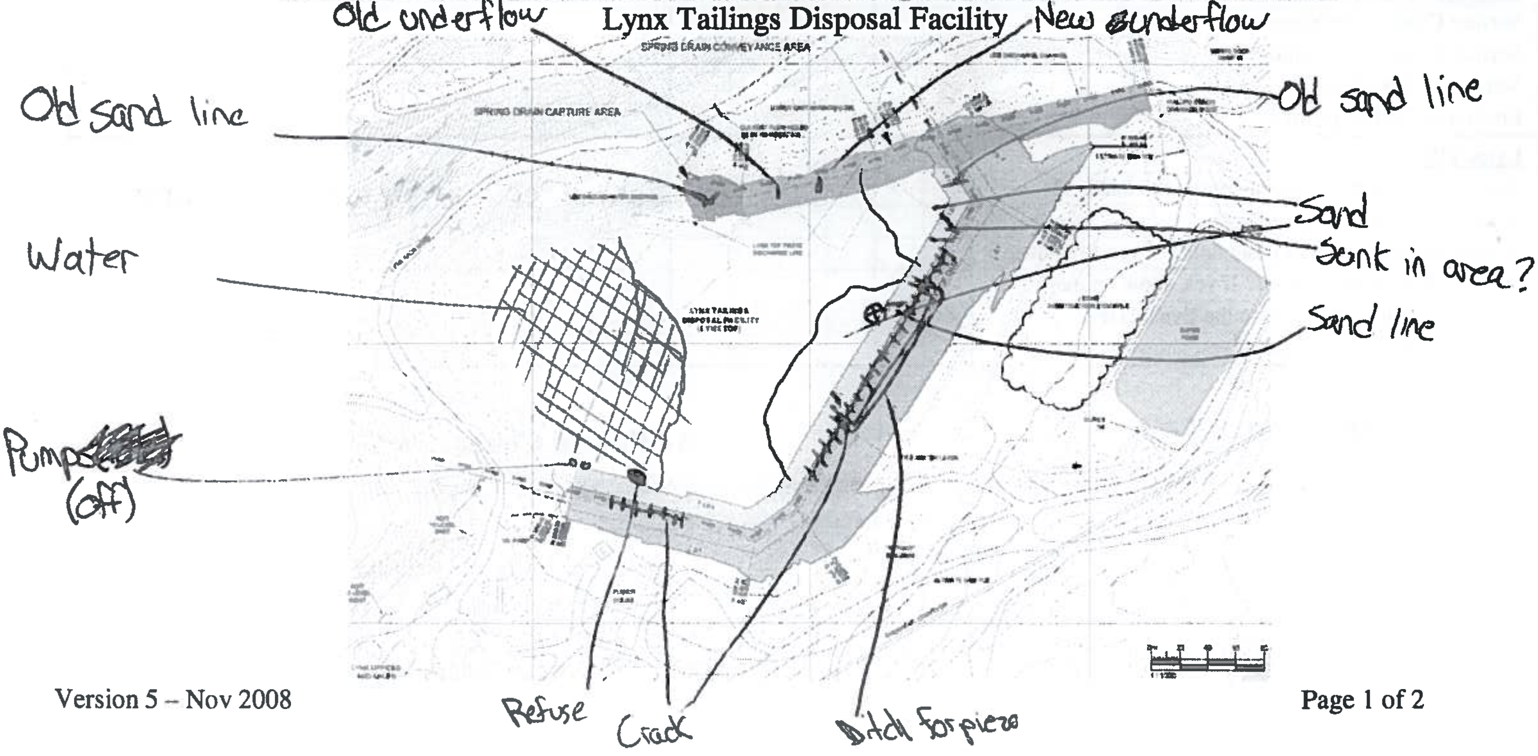
Special Condition ☐

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Jayson Dykes

DATE: 27 Feb, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					Errosion Gullies on upgrade Berm
Surface Settlement / Depressions		✓					Ponded water on upgrade berm
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					Couple small hole + 1 big hole pictured
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					Sinkhole covered by water/not visible
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						

*** RATING LEGEND (see next page)**

S = Satisfactory (Meets the intended purpose)

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N = Not inspected

Additional Comments:

TDF Inspection Feb 27, 2015






TDF Inspection Feb 27, 2015

TDF Inspection Feb 27, 2015

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS **ADDITIONAL COMMENTS**

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: April 10, 2015 ~ 13:00

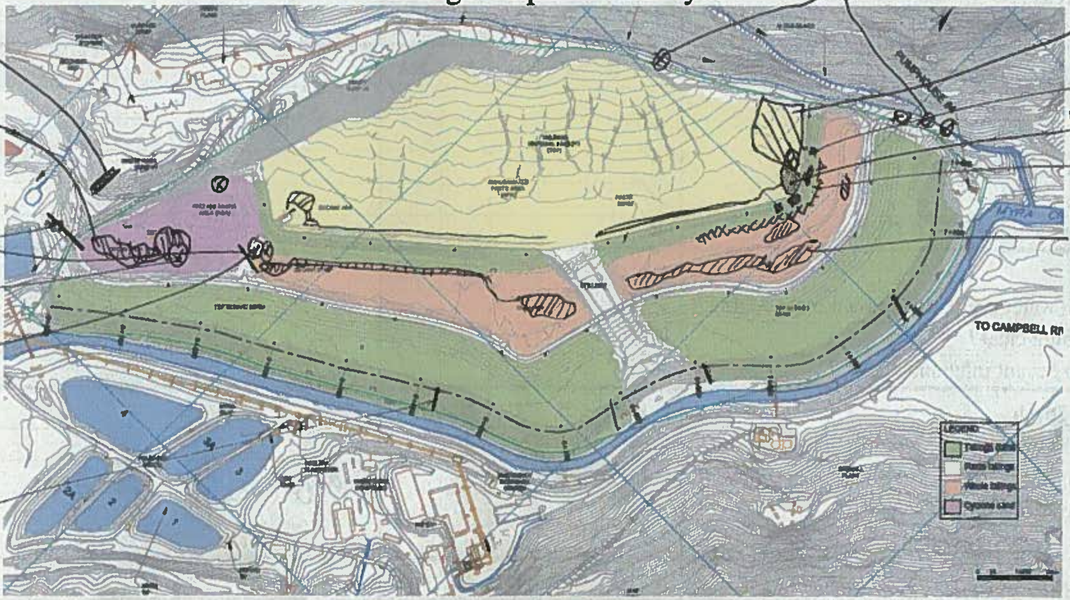
Weather Conditions: Overcast, raining ~ 3°C light wind.

Reason for Inspection:

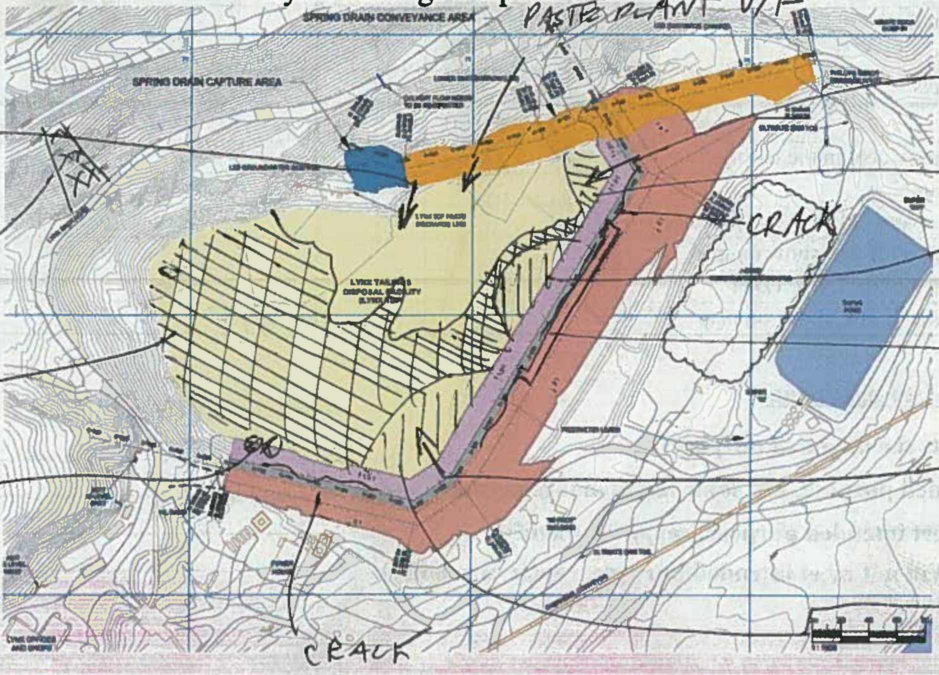
Routine ☒ DREDGE LINE VERY WATERY (POSSIBLY FLUSHING)

Special Condition ☐ DEPOSITING PASTE TO LYNX AS OF APRIL 09, 2015

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________ **DATE:** ______________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	**S**	**F**	**P**	**U**	**N**	**NA**	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Erosion		✓					Erosion Gullies on [illegible] Seismic Berm
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	**S**	**F**	**P**	**U**	**N**	**NA**	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	**S**	**F**	**P**	**U**	**N**	**NA**	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	**S**	**F**	**P**	**U**	**N**	**NA**	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?			✓				Large Holes Bottom third
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Lynx TDF	**S**	**F**	**P**	**U**	**N**	**NA**	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?		✓					
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						U/F

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Additional Comments:

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: April 16, 2015 @ 15:00

Inspector Position: Environmental Technician

Inspection Date/Time: Scott Skagford

Weather Conditions: Clear, ~8°C, calm

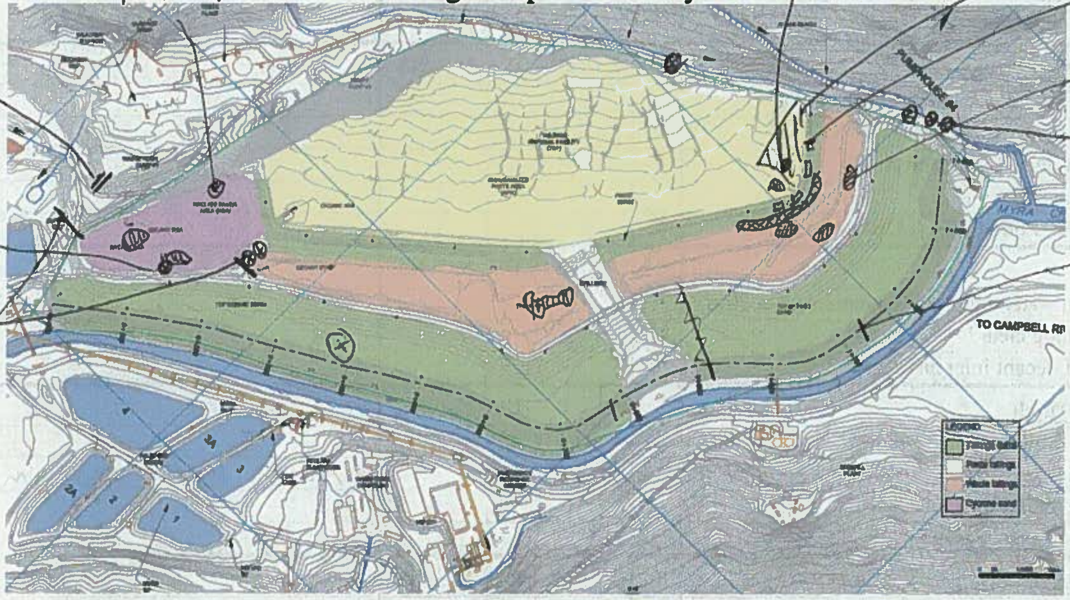
Reason for Inspection:

Routine ☒ Discharging Paste and Underflow during Inspection (simultaneously)

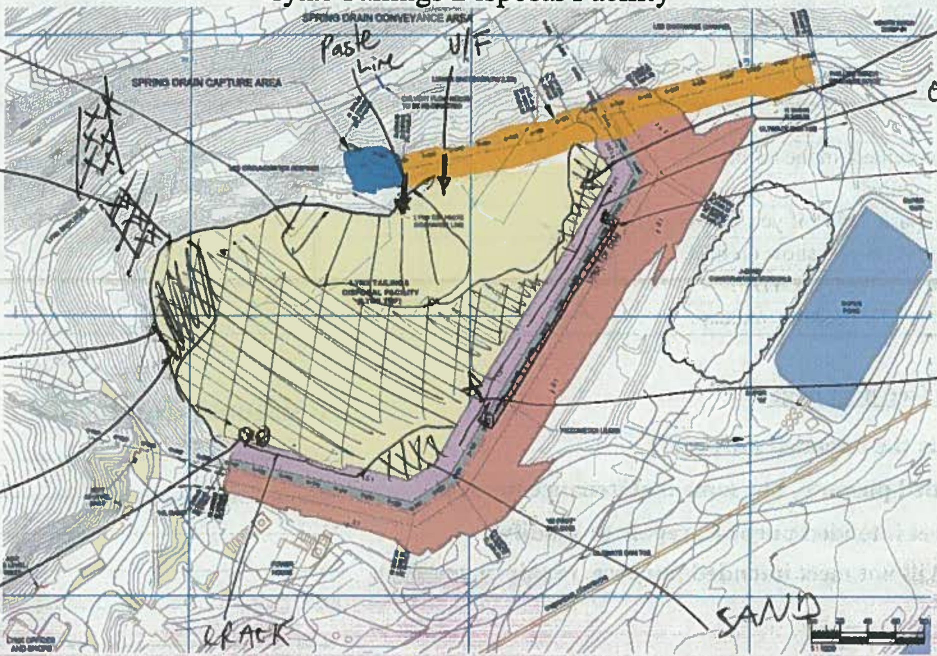
Special Condition ☐ DRilling on Seismic Bench ⓧ

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________ DATE: ______________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					EROSION GULLIES SIERRA BERM SLOPE
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					LARGE HOLES BOTTOM THIRD
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?		✓					
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						

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Additional Comments:

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MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS | **ADDITIONAL COMMENTS**

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: April 29, 2015

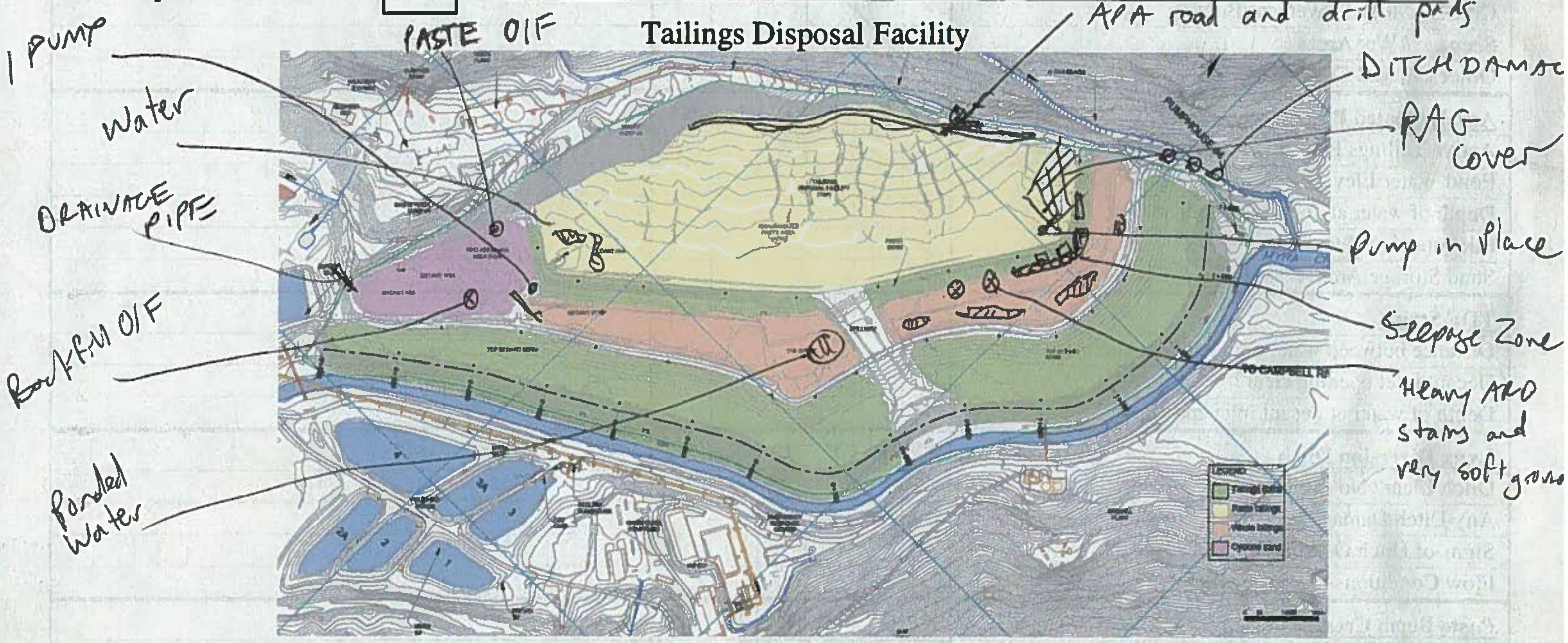
Weather Conditions: Light Rain, calm, ~ 5°C

Reason for Inspection:

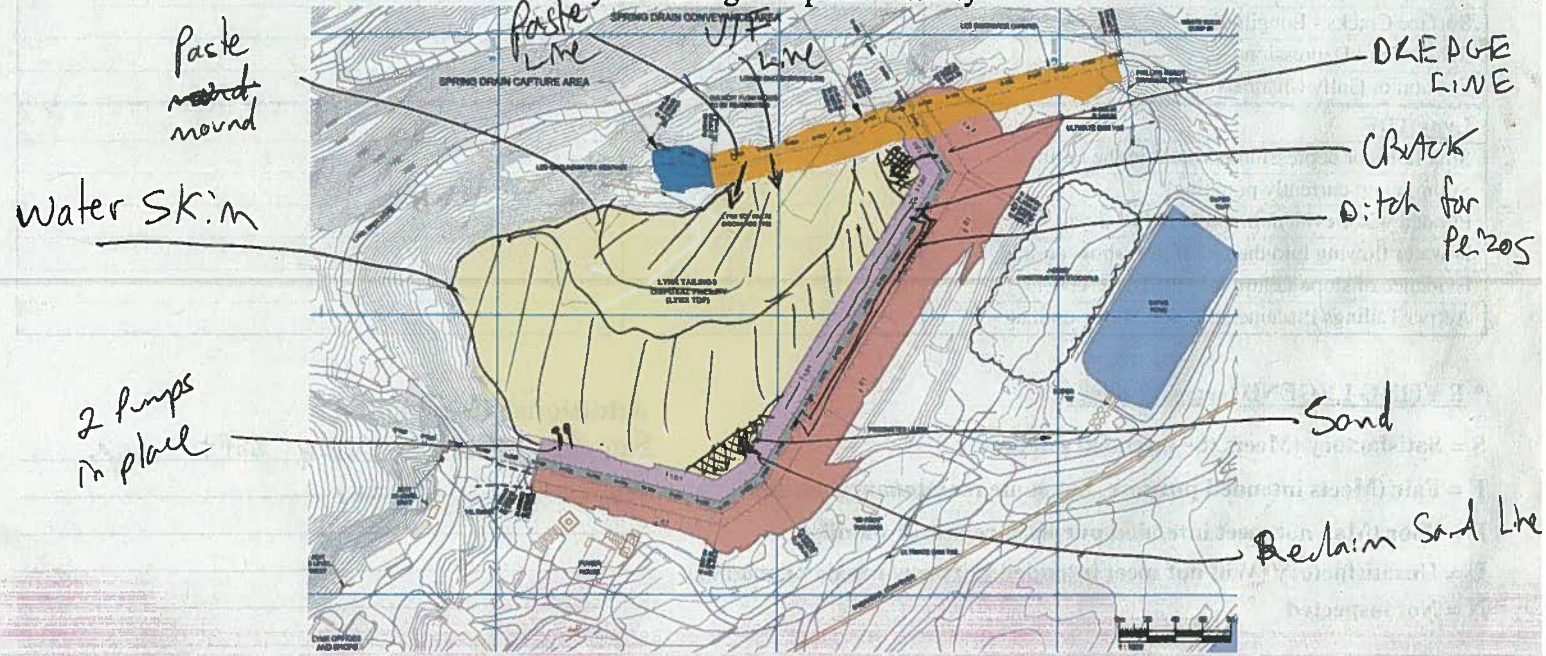
Routine ☒ Mill Down during Inspection

Special Condition ☐

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Scott Skayford **DATE:** April 29, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					EROSION GULLIES SEISMIC BERM SLOPE
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						

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Additional Comments:

Seepage Zone VERY soft esp. approaching spillway.

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: Scott Skagfor

Inspector Position: Environmental Technician

Inspection Date/Time: May 7, 2015 ~ 15:00

Weather Conditions: Breezy, Clear, ~ 20°C

Reason for Inspection:

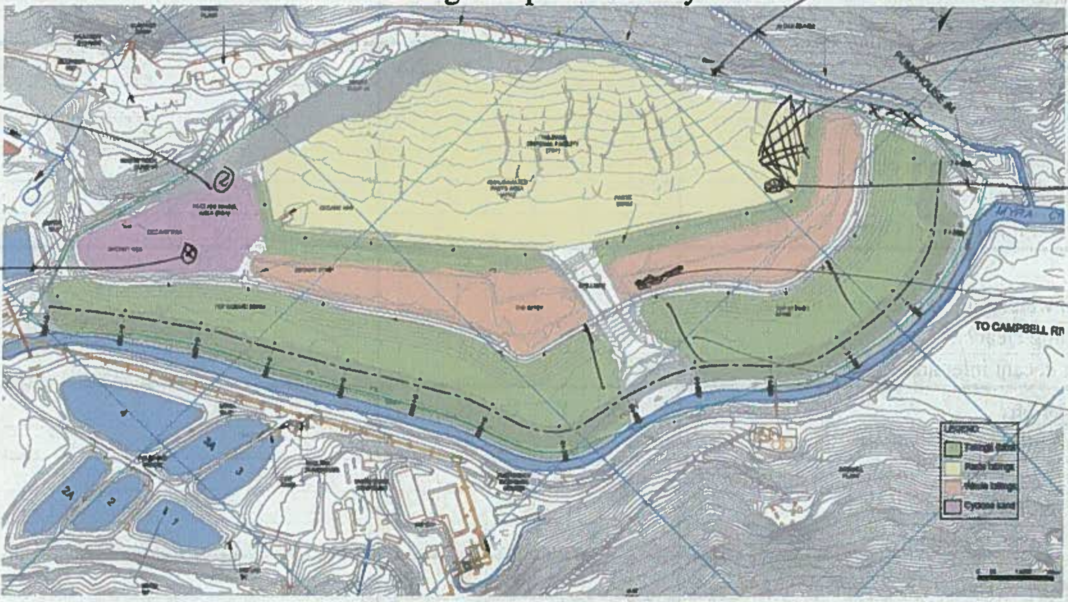
Routine ☒

Special Condition ☐

No Pumps in Lynx Pit.

Dredge Line Removed From Lynx Pit

Tailings Disposal Facility



Paste O/F

Backfill O/F

Ditch Damage

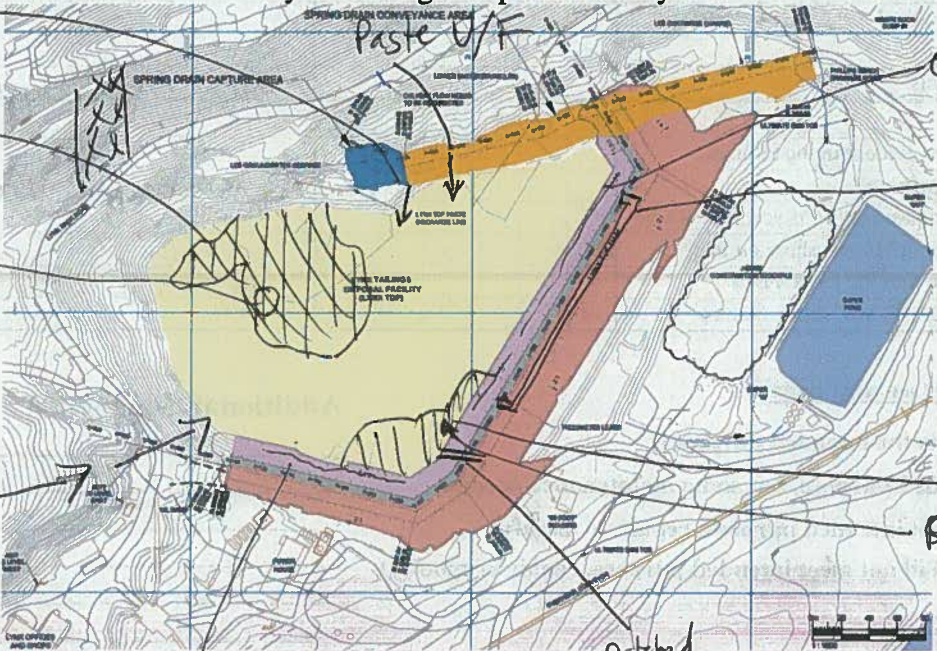
PAG Cover

Ponded Water (Pump in place)

Ponded water

Erosion Gullies

Lynx Tailings Disposal Facility



Paste Line

Paste O/F

Cracking

Ponded Water

Trench for Peizos

Sinkhole

Sand Beach

Reclaim Sand Line

Pumps Removed

Cracking

Ditched for pipe

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Scott Skagford **DATE:** May 7, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	**S**	**F**	**P**	**U**	**N**	**NA**	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Erosion		✓					EROSION GULLIES SEISMIC BERM SLOPE
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	**S**	**F**	**P**	**U**	**N**	**NA**	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	**S**	**F**	**P**	**U**	**N**	**NA**	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	**S**	**F**	**P**	**U**	**N**	**NA**	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					Minor Erosion Gullies
Lynx TDF	**S**	**F**	**P**	**U**	**N**	**NA**	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?						✓	Pumps Removed From Pit
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						

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Additional Comments:

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: Scott Skagford

Inspector Position: Enviro Tech

Inspection Date/Time: May 14, 2015 ~ 16:00

Weather Conditions: Overcast, calm, dry

Reason for Inspection:

Routine ☒

Special Condition ☐

Road For MPA wells - ditch in progress

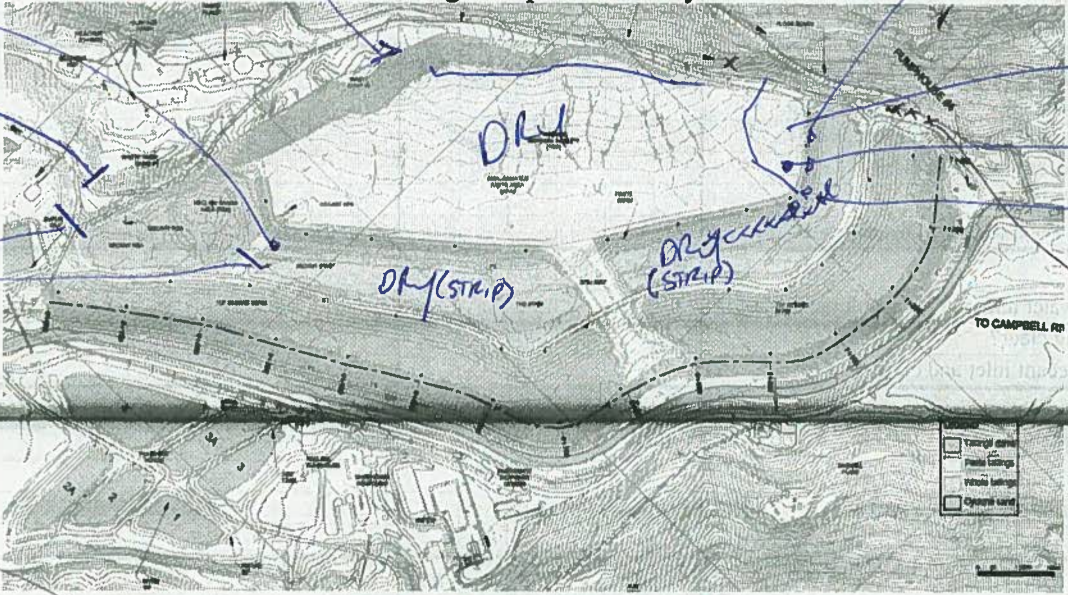
SEE ATTACHED EMAIL * * *

ADDITIONAL COMMENTS

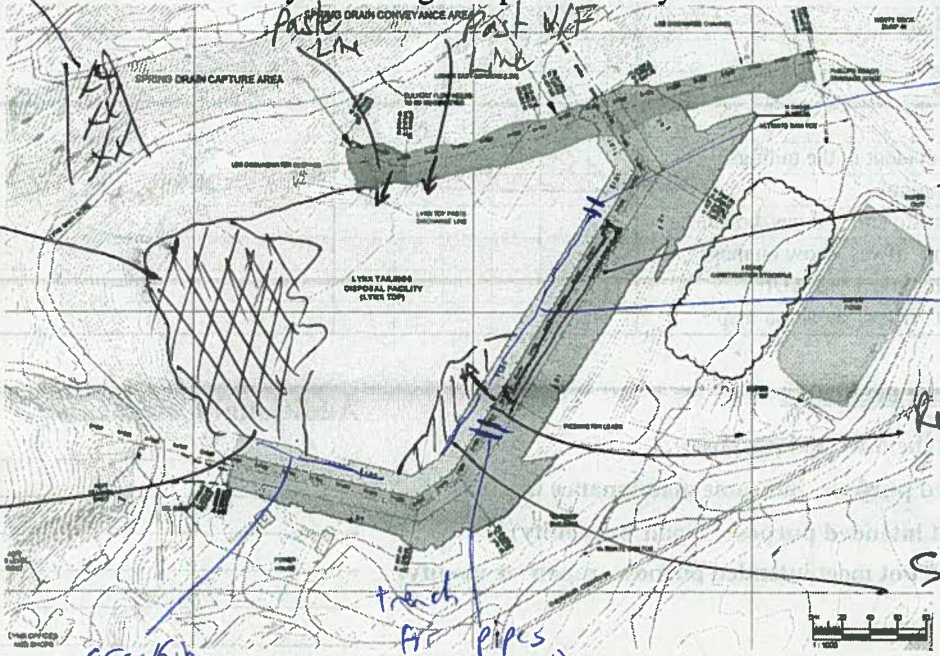
Dredging stopped + no discharge to Lynx pit.

Wales to deposit S/ Weir sludge to lynx pit.

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: **DATE:**

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	**S**	**F**	**P**	**U**	**N**	**NA**	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Erosion		✓					
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	**S**	**F**	**P**	**U**	**N**	**NA**	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	**S**	**F**	**P**	**U**	**N**	**NA**	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	**S**	**F**	**P**	**U**	**N**	**NA**	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Lynx TDF	**S**	**F**	**P**	**U**	**N**	**NA**	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓					☒	
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						

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Additional Comments:

Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: May 21, 2015

Weather Conditions: Clear, calm, Dry ~

Reason for Inspection:

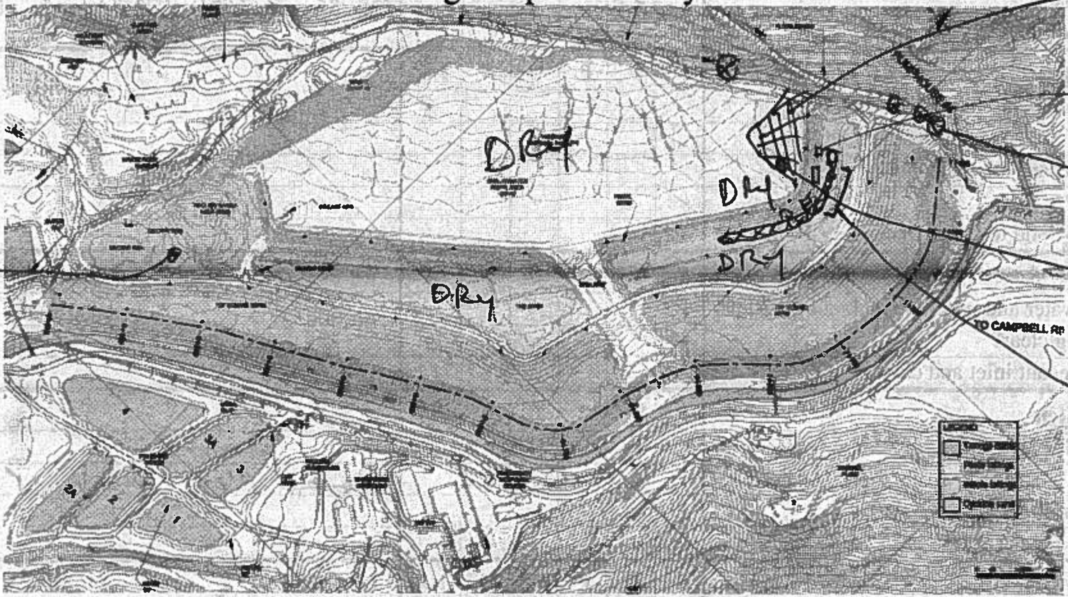
Routine ☒

Special Condition ☐

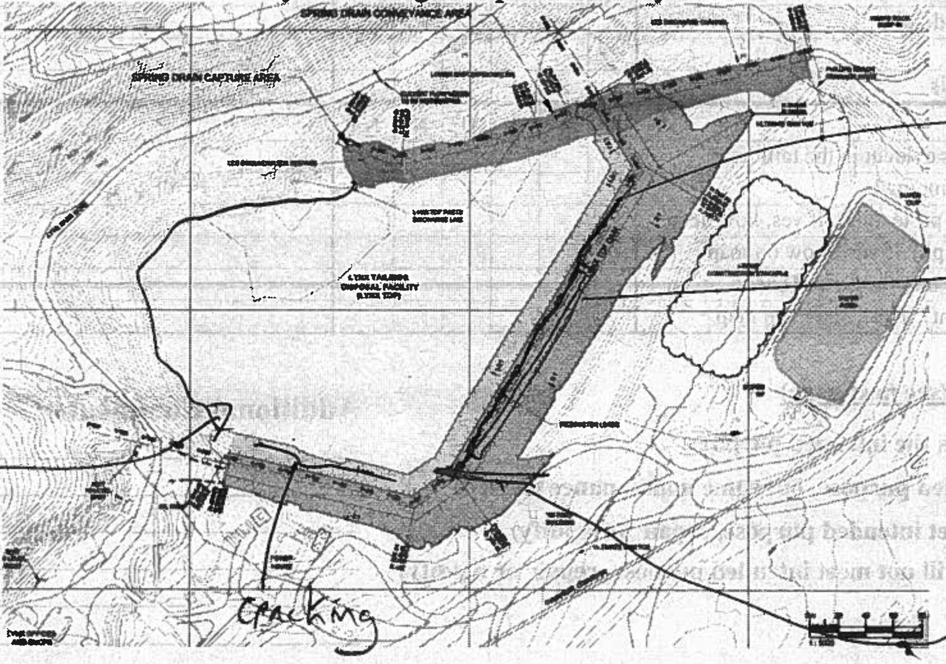
Walco Pumping SP downstream weir, discharging in Lynx Pit

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Scott Skagfird **DATE:** May 21, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					Softer around Abutment than usual.
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					~~Repair~~ New Ditch Planned.
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?	✓						
Sump pump currently pumping?							
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						

*** RATING LEGEND (see next page)**

S = Satisfactory (Meets the intended purpose)

F = Fair (Meets intended purpose, but some maintenance needed)

P = Poor (May not meet intended purpose, repair or modify)

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N = Not inspected

Additional Comments:

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MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: May 27, 2015 ~ 15:30

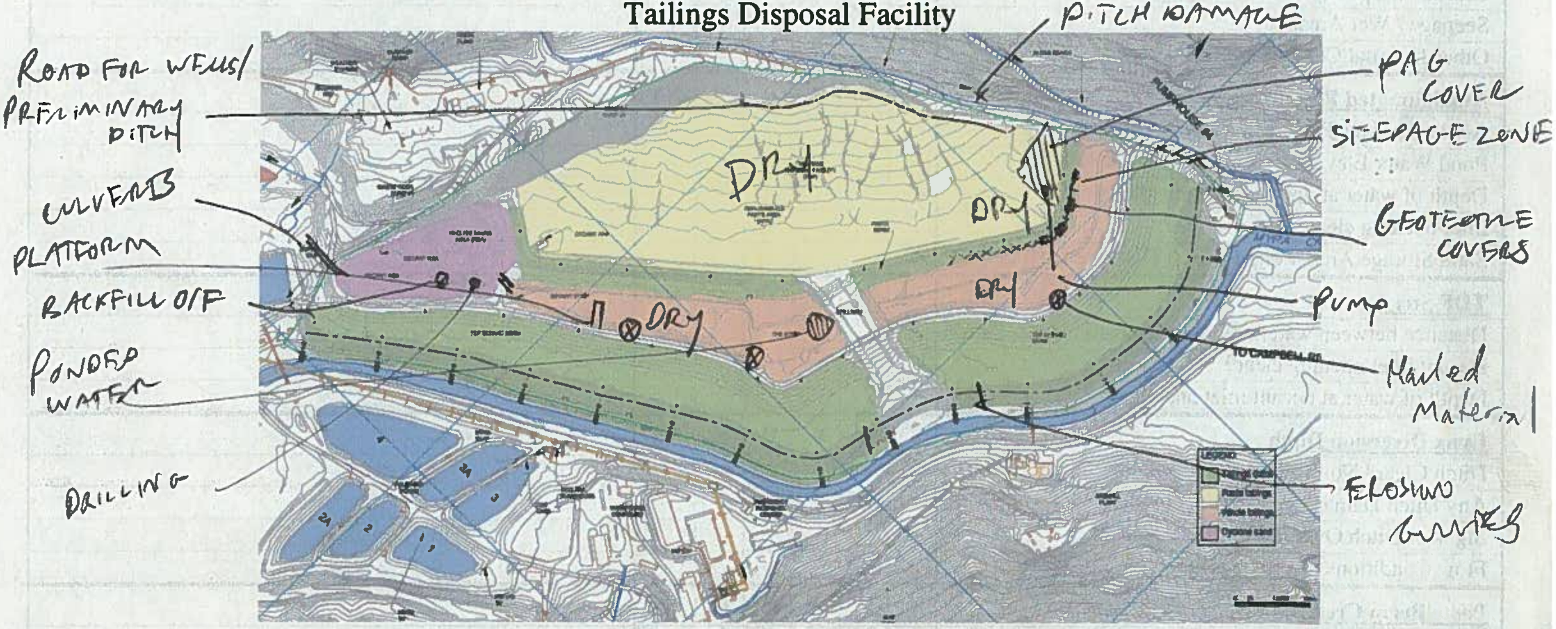
Weather Conditions: DRY, CALM, ~18°C

Reason for Inspection:

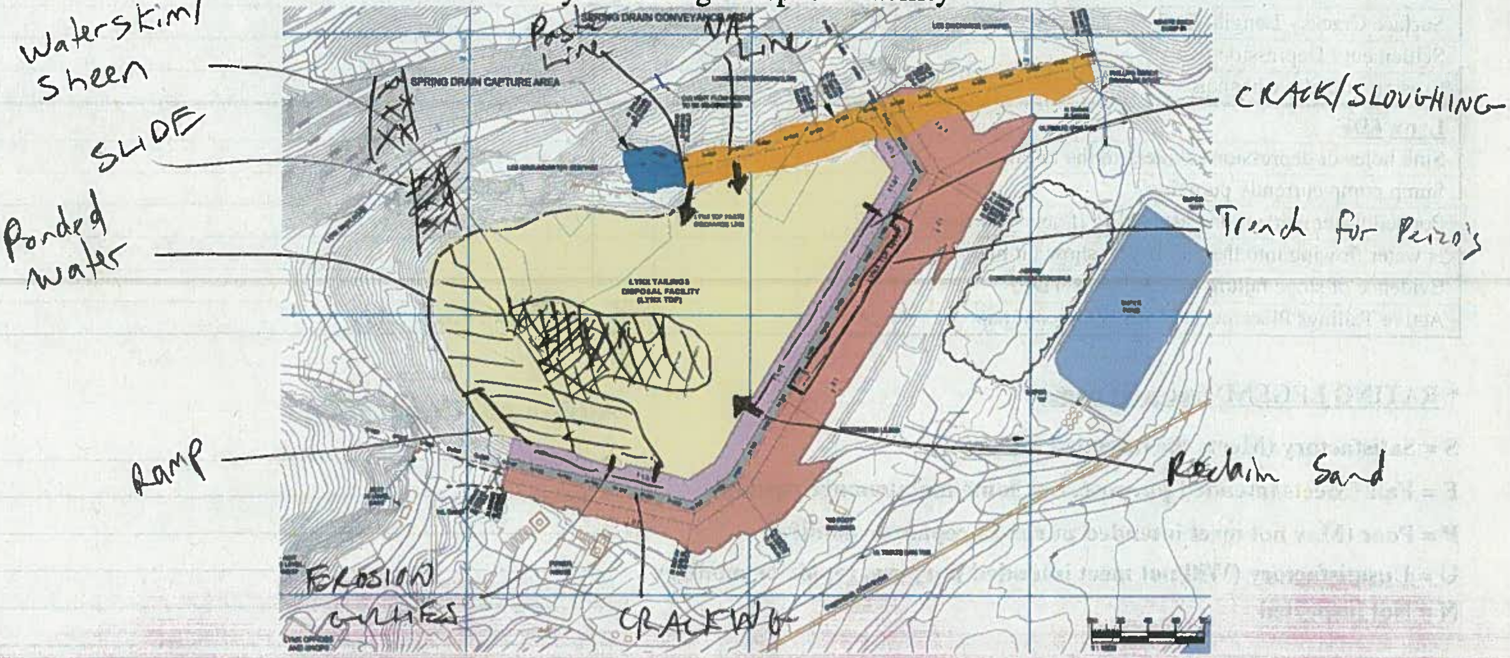
Routine ☒ Drilling on RSA Road

Special Condition ☐

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Scott Skagford **DATE:** May 27, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?	✓						
Sump pump currently pumping?						✓	Removed
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						Starting - Up

* **RATING LEGEND (see next page)**

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Additional Comments:

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: JUNE 11, 2015

Weather Conditions: Clear, Breezy, ~

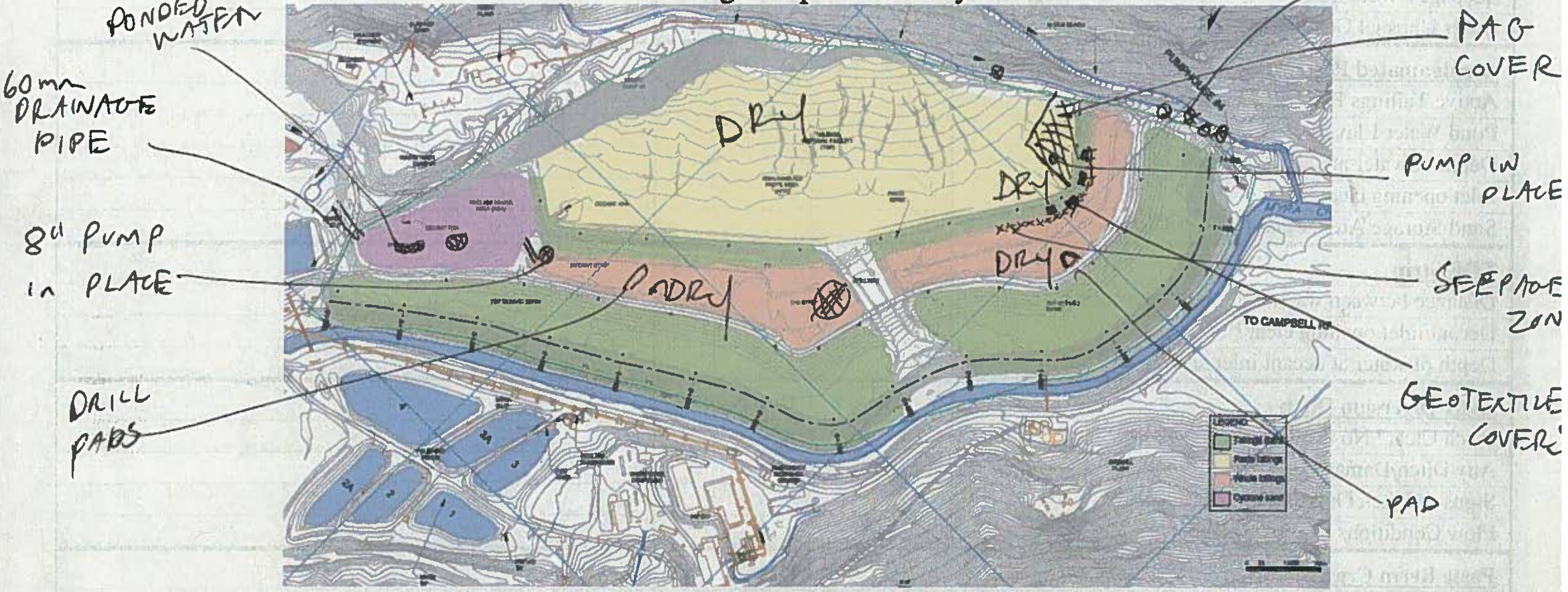
Reason for Inspection:

Routine ☒ ~~Mill Down~~ 9 80' Currently being removed

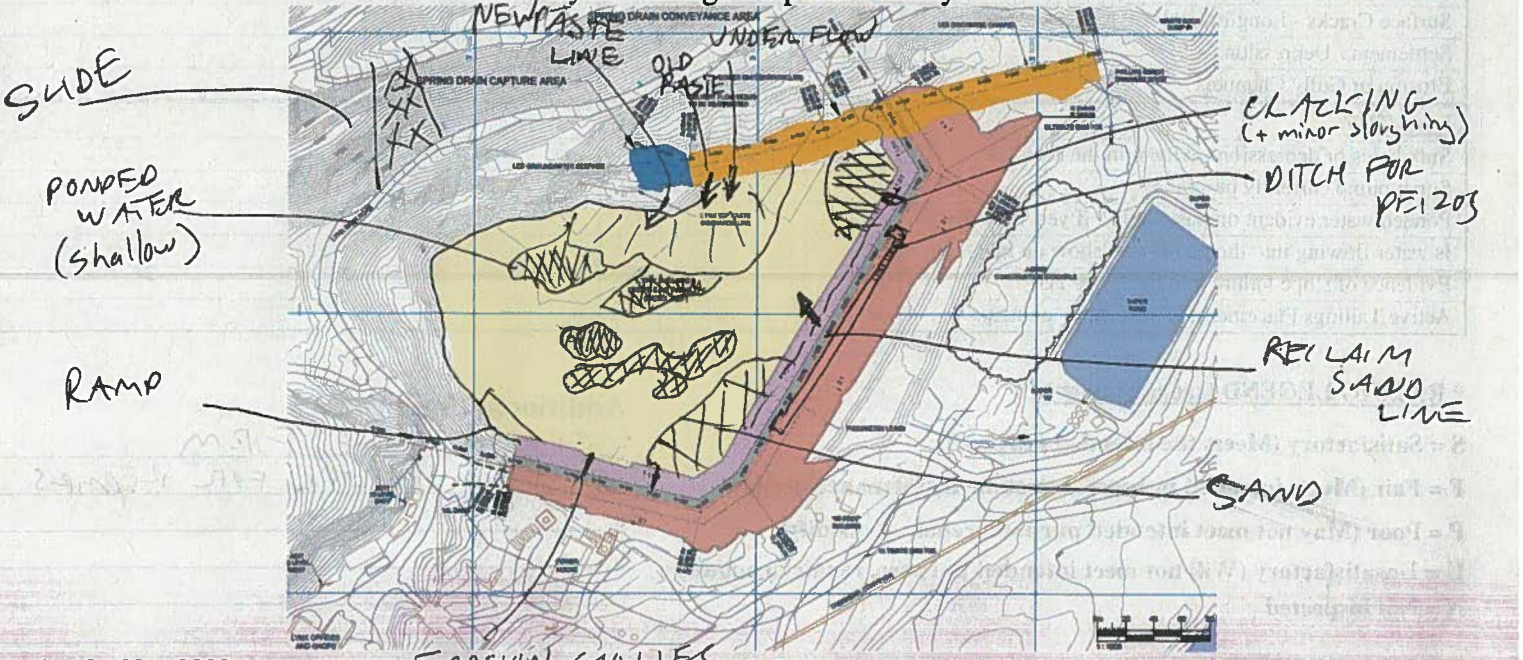
Special Condition ☐ PASTE DEPOSITING IN LYNX PIT

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ____________________ **DATE:** ____________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						

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Additional Comments:

- SEEPAGE ZONE FIRM
- DRILLING HALTED FOR REPAIRS

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MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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Deep incision from Phillips Runoff (~~[illegible]~~ now piped)

INSPECTION DETAILS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: June 27, 2015

Weather Conditions: Clear, calm, ~30°C

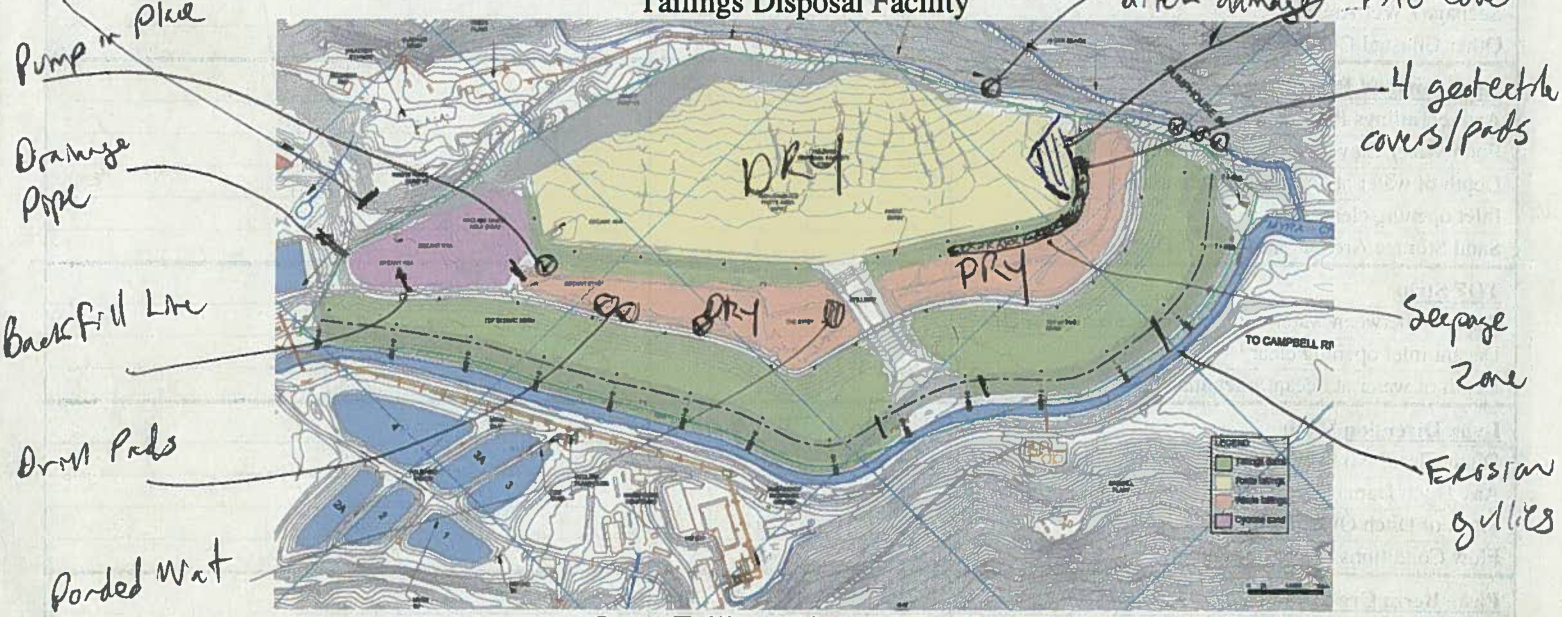
Reason for Inspection:

Routine ☒ Removing 80 foot (Foundation)

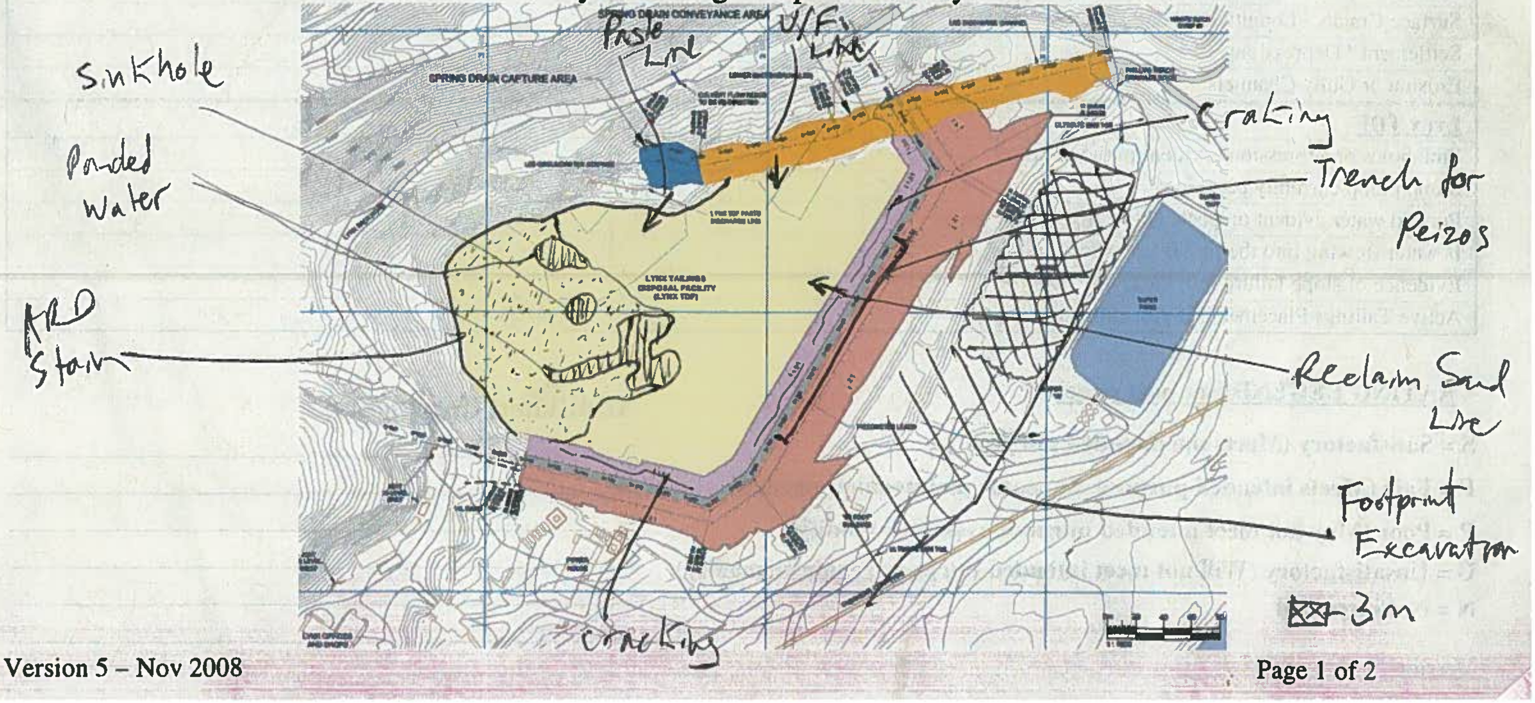
Special Condition ☐ Dam Toe (Lynx) Prep underway

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ____________________ **DATE:** ____________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes		✓					Sinkhole on Lynx Paste
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map						✓	NO

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Additional Comments:

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MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: July 09, 2015

Weather Conditions: ~30°C, calm, clear, no wind

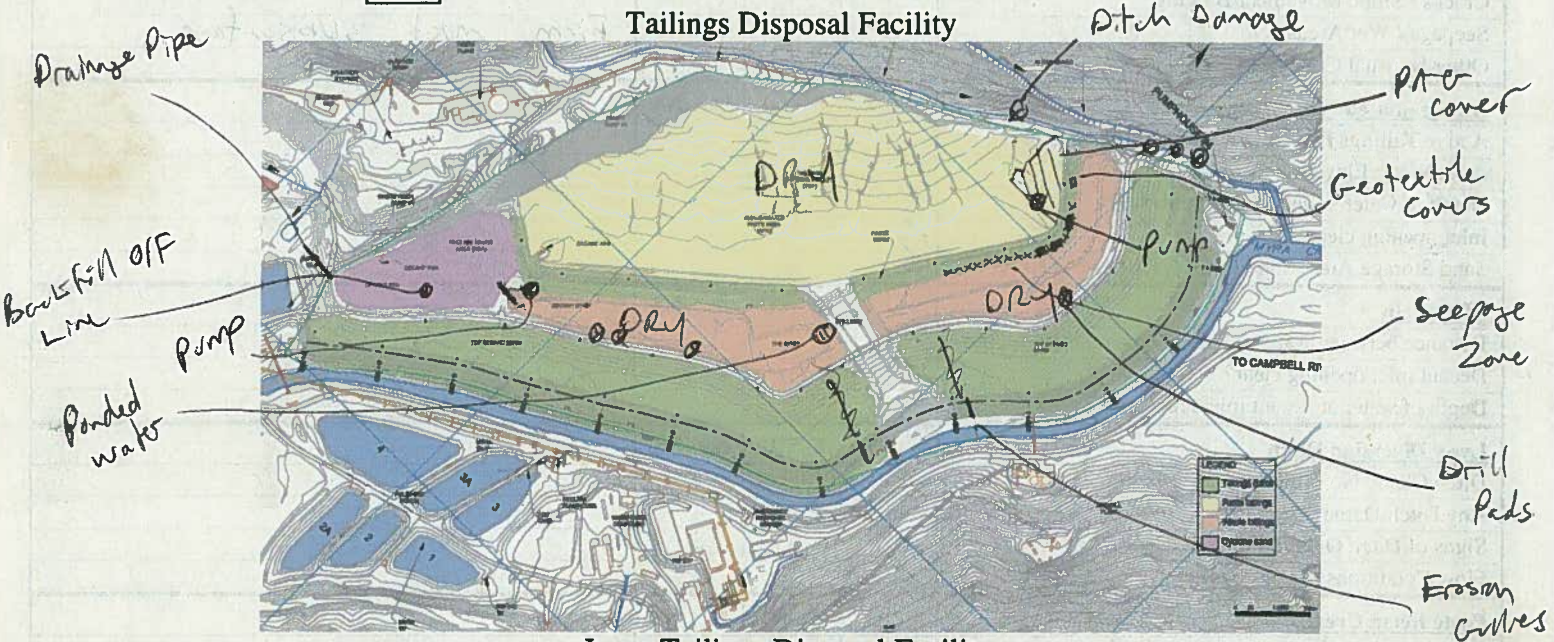
Reason for Inspection:

Routine ☒

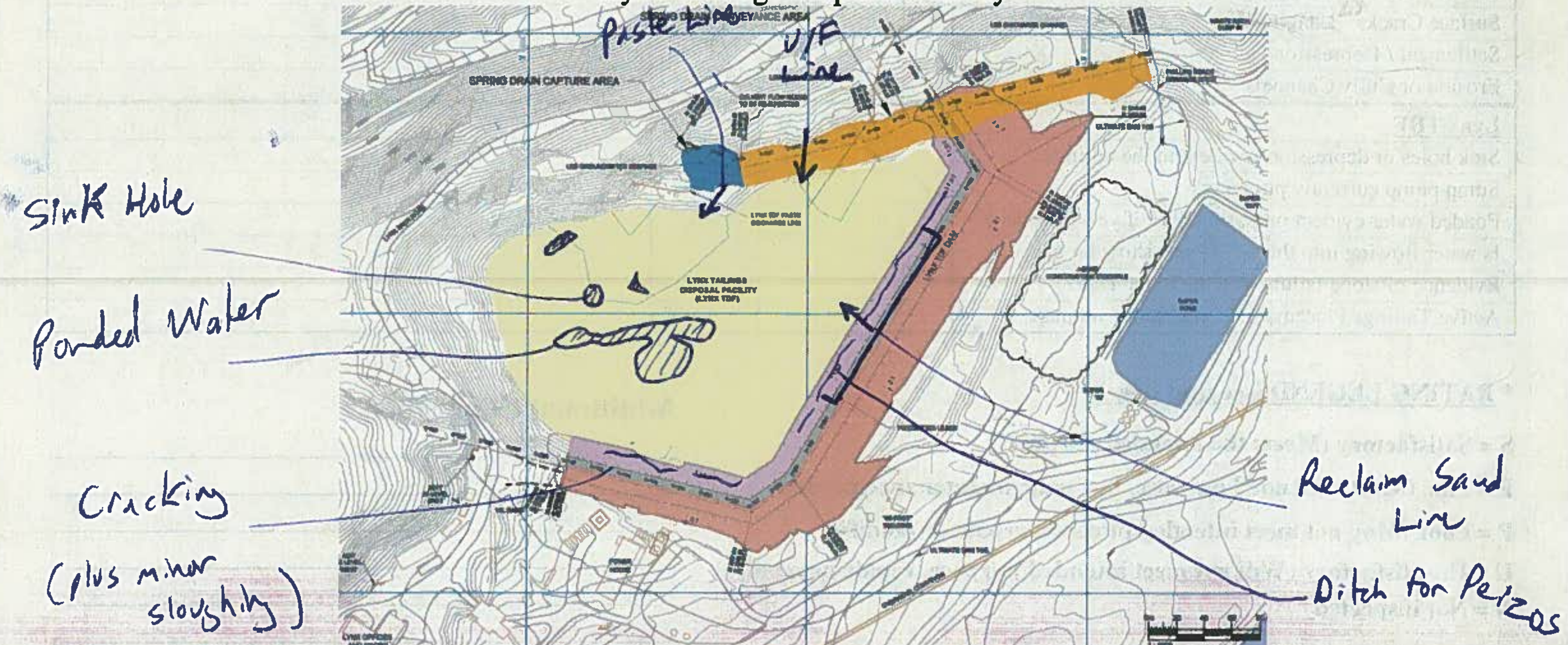
Special Condition ☐

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________ **DATE:** ______________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					Firm, most subsurface.
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map						✓	

*** RATING LEGEND (see next page)**

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Additional Comments:

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: July 16, 2015 ~ 1600

Weather Conditions: Calm, light breeze, dry, clear ~ 26°C

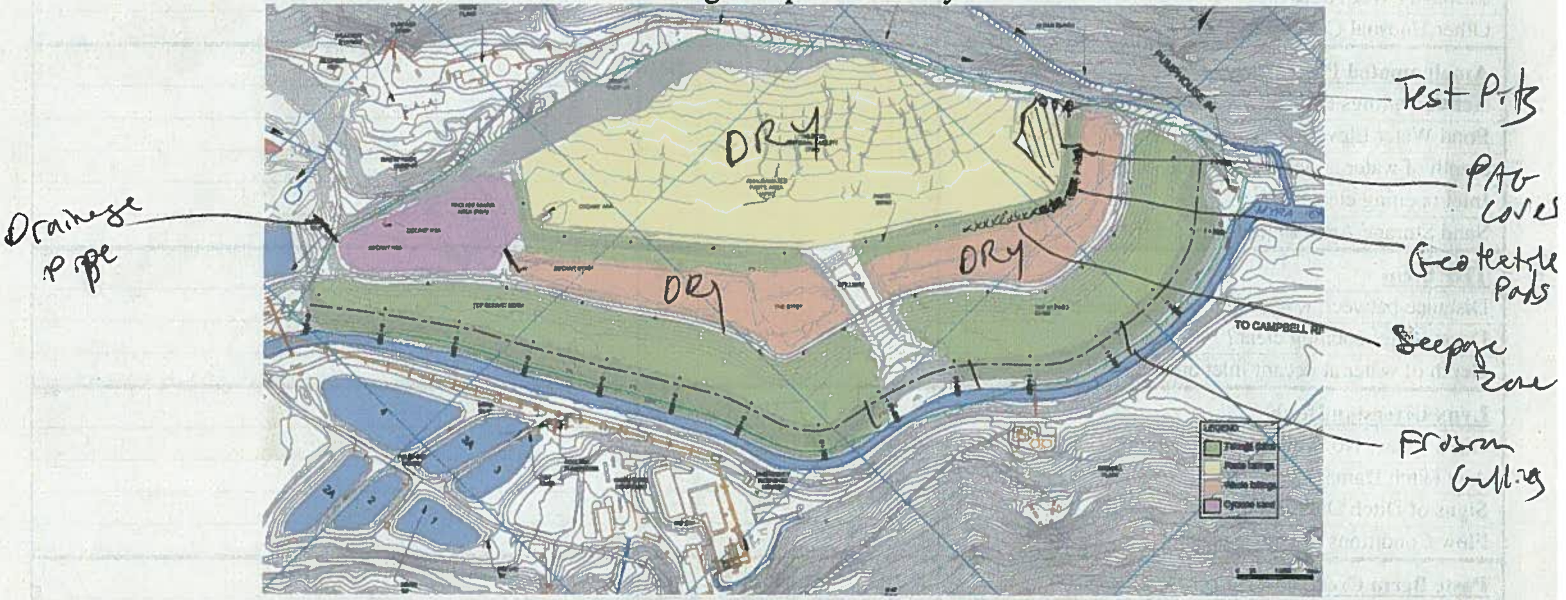
Reason for Inspection:

Routine ☒

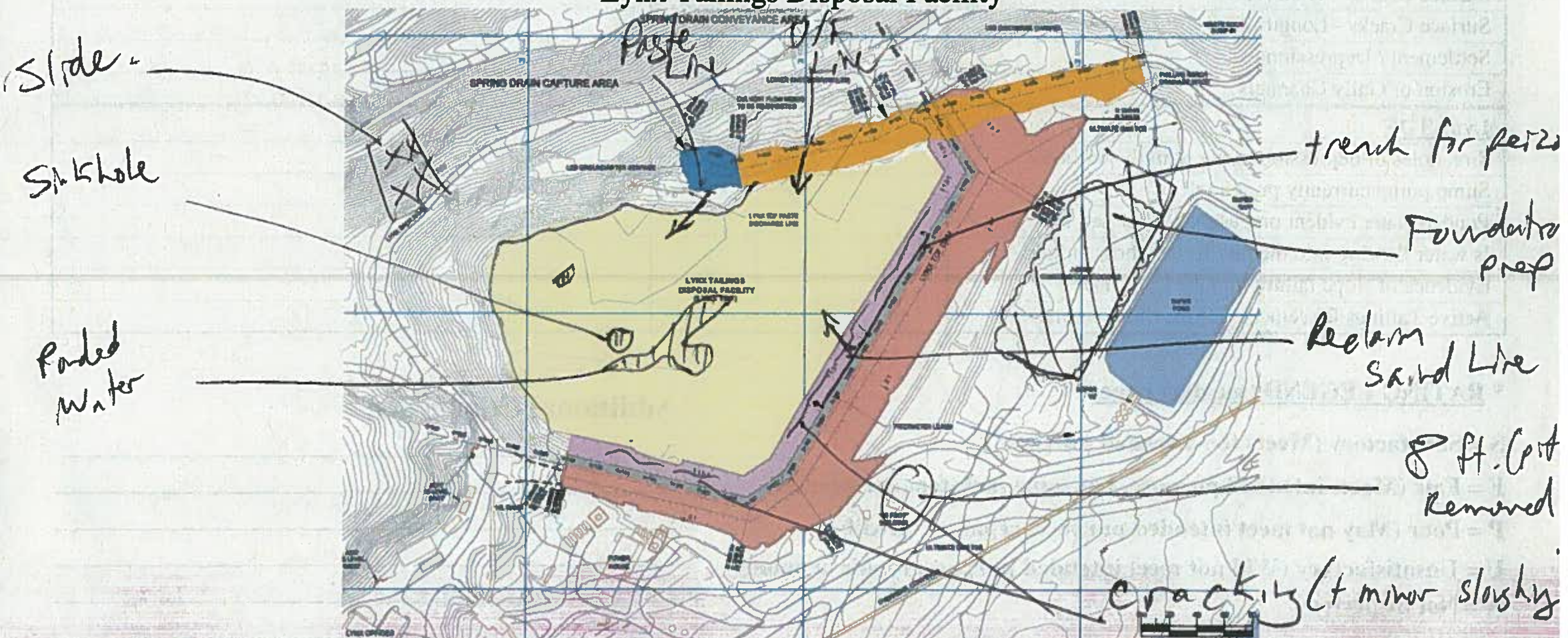
Special Condition ☐

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ____________________ **DATE:** ____________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map						✓	

*** RATING LEGEND (see next page)**

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Additional Comments:

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MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: ____________________

Inspector Position: ____________________

Inspection Date/Time: ____________________

Weather Conditions: ____________________

Reason for Inspection:

Routine ☐ JULY 23 DAM INSPECTION -

Special Condition ☐ carried out by Dan Hughes-Games (AmecFW)

ADDITIONAL COMMENTS

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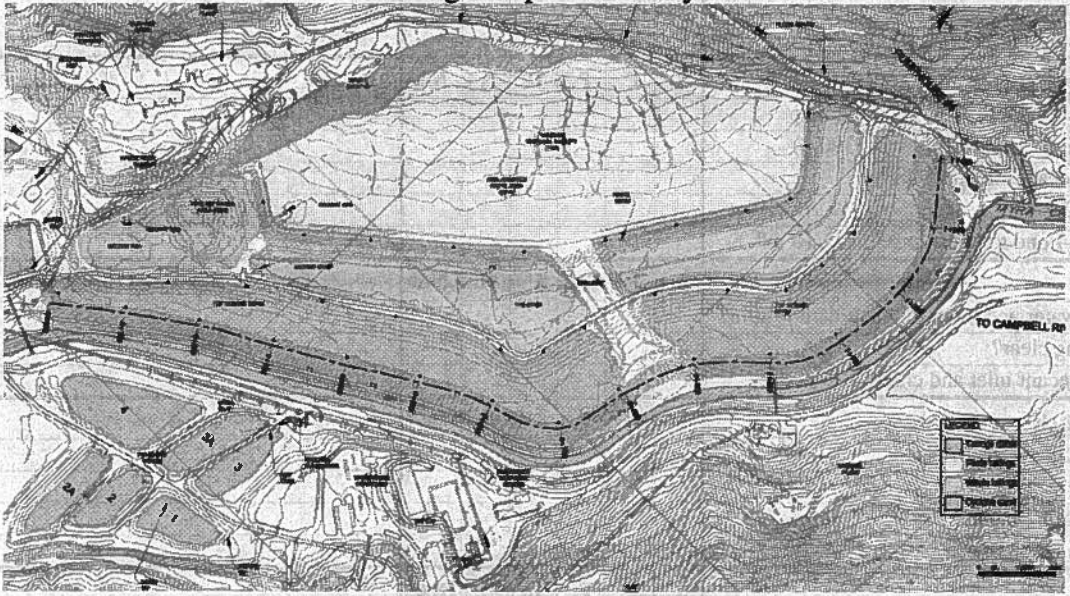
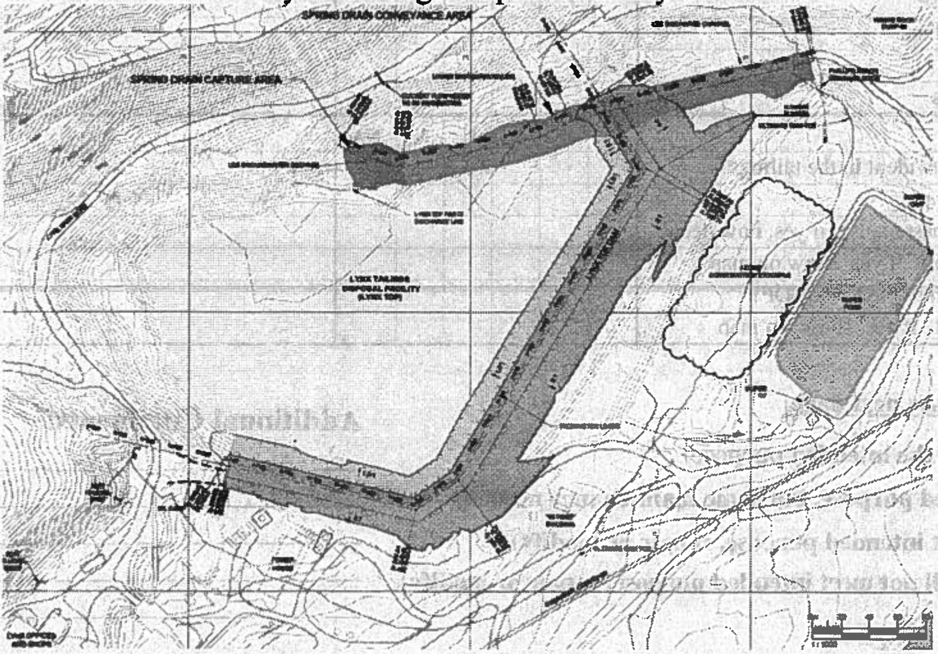
Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________________ **DATE:** ____________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?							
Riprap coverage adequate?							
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion							
Surface Settlement / Depressions							
Sinkholes							
Cracks / Slope Movement/Bulging							
Seepage / Wet Areas							
Other Unusual Conditions							
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map							
Pond Water Elevation (Top of decant is 3390.3)							
Depth of water at decant inlet and clarity							
Inlet opening clear?							
Sand Storage Area–Pond to Crest Distance > 10 m?							
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?							
Decant inlet opening clear?							
Depth of water at decant inlet and clarity?							
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?							
Any Ditch Damage?							
Signs of Ditch Overtopping?							
Flow Conditions in Ditch (m^3/s)							
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?							
Sump pump currently pumping?							
Ponded water evident on paste tails? if yes, how deep?							
Is water flowing into the pit? If yes, show on map							
Evidence of slope failure into the Lynx TDF?							
Active Tailings Placement? if yes, show on map							

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Additional Comments:

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Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: July 30, 2015

Weather Conditions: Clear, calm, ~28°C

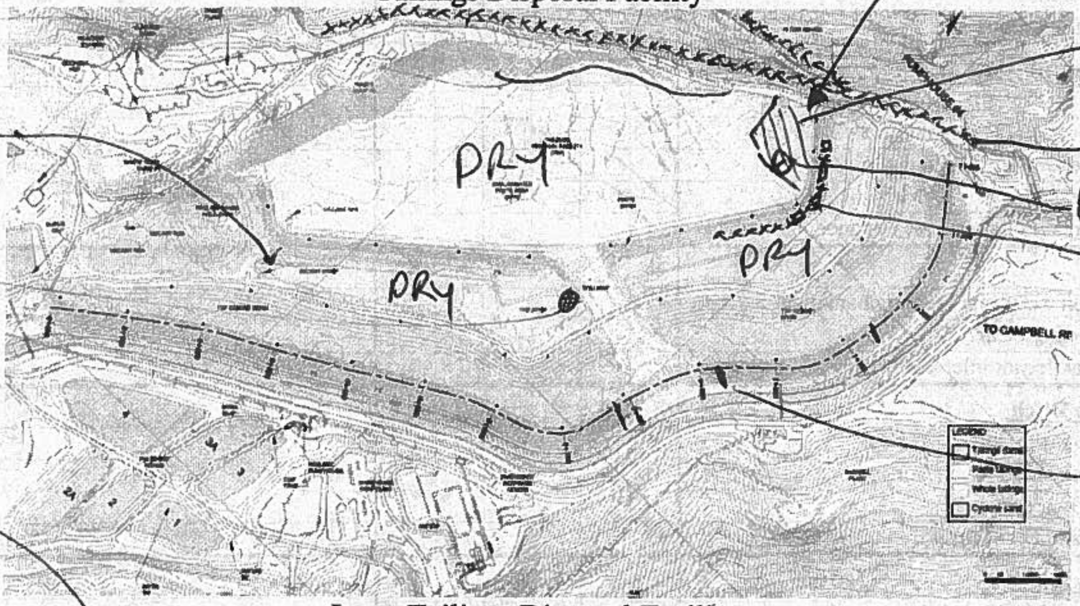
Reason for Inspection:

Routine ☒

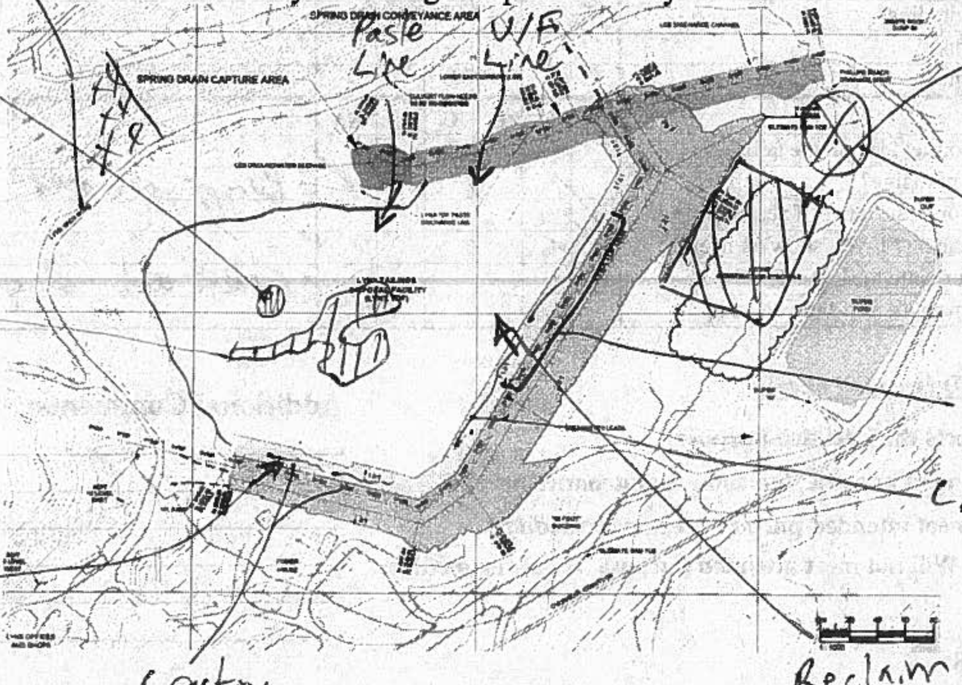
Special Condition ☐

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Scott Skagford **DATE:** July 30, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?	✓						
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?						✓	Pumps removed
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						Crack and sloughing U/S
Active Tailings Placement? if yes, show on map						✓	

*** RATING LEGEND (see next page)**

S = Satisfactory (Meets the intended purpose)
F = Fair (Meets intended purpose, but some maintenance needed)
P = Poor (May not meet intended purpose, repair or modify)
U = Unsatisfactory (Will not meet intended purpose, repair or modify)
N = Not inspected

Additional Comments:

Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: August 13, 2015

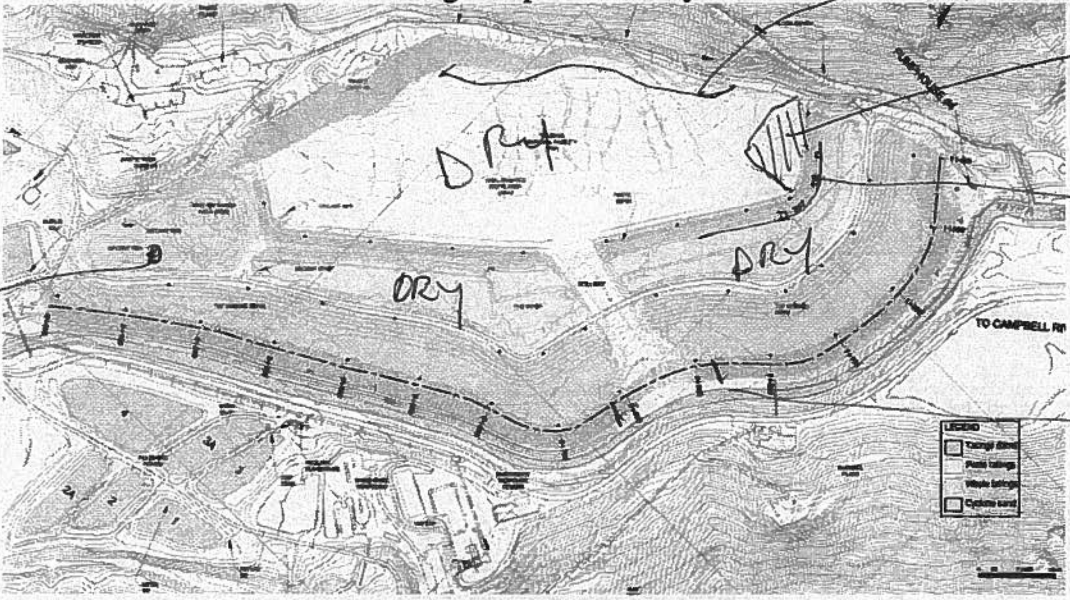
Weather Conditions: ~29°C, Light Breeze, Dry

Reason for Inspection:

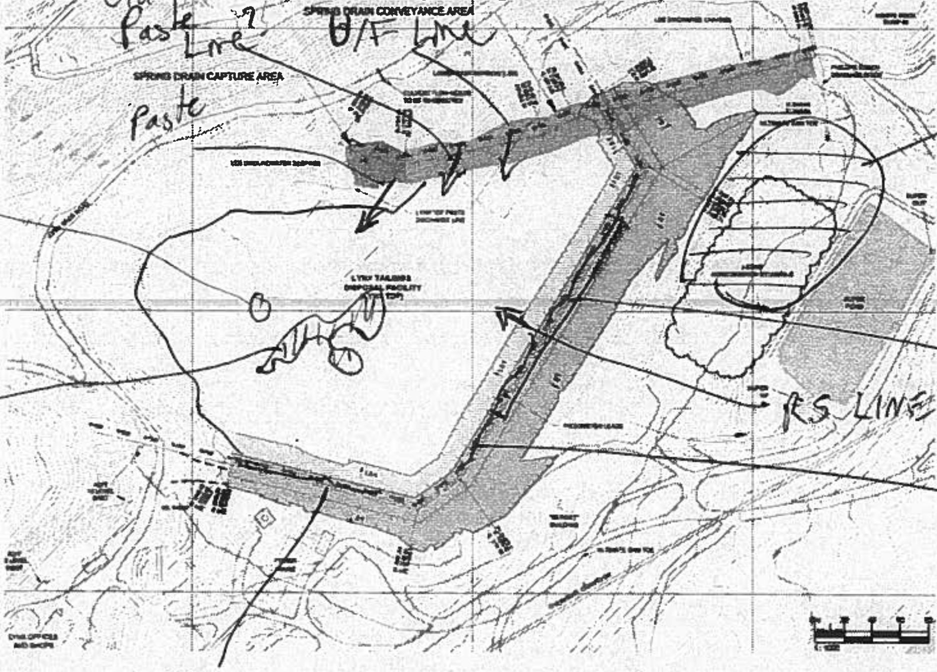
Routine ☒ Finishing Up Foundation prepp (Prep incomplete) and starting work on 1° drainage slope to SP.

Special Condition ☐

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________ **DATE:** ______________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?							
Riprap coverage adequate?							
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion							
Surface Settlement / Depressions							
Sinkholes							
Cracks / Slope Movement/Bulging							
Seepage / Wet Areas							
Other Unusual Conditions							
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map							
Pond Water Elevation (Top of decant is 3390.3)							
Depth of water at decant inlet and clarity							
Inlet opening clear?							
Sand Storage Area–Pond to Crest Distance > 10 m?							
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?							
Decant inlet opening clear?							
Depth of water at decant inlet and clarity?							
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?							
Any Ditch Damage?							
Signs of Ditch Overtopping?							
Flow Conditions in Ditch (m^3/s)							
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?							
Sump pump currently pumping?							
Ponded water evident on paste tails? if yes, how deep?							
Is water flowing into the pit? If yes, show on map							
Evidence of slope failure into the Lynx TDF?							
Active Tailings Placement? if yes, show on map							

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Additional Comments:

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Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS **ADDITIONAL COMMENTS**

Inspector Name: Scott Skayford

Inspector Position: Environmental Technician

Inspection Date/Time: August 20, 2015 ~15:00

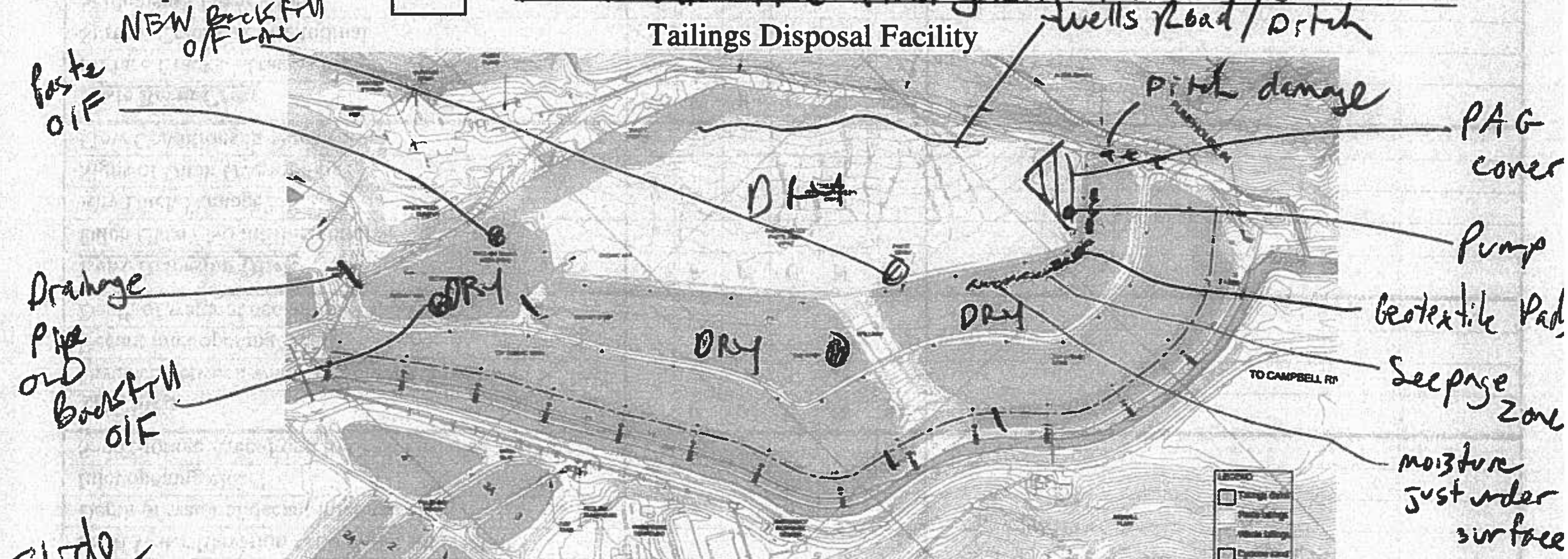
Weather Conditions: Clear ~26°C, light breeze, Dry

Reason for Inspection:

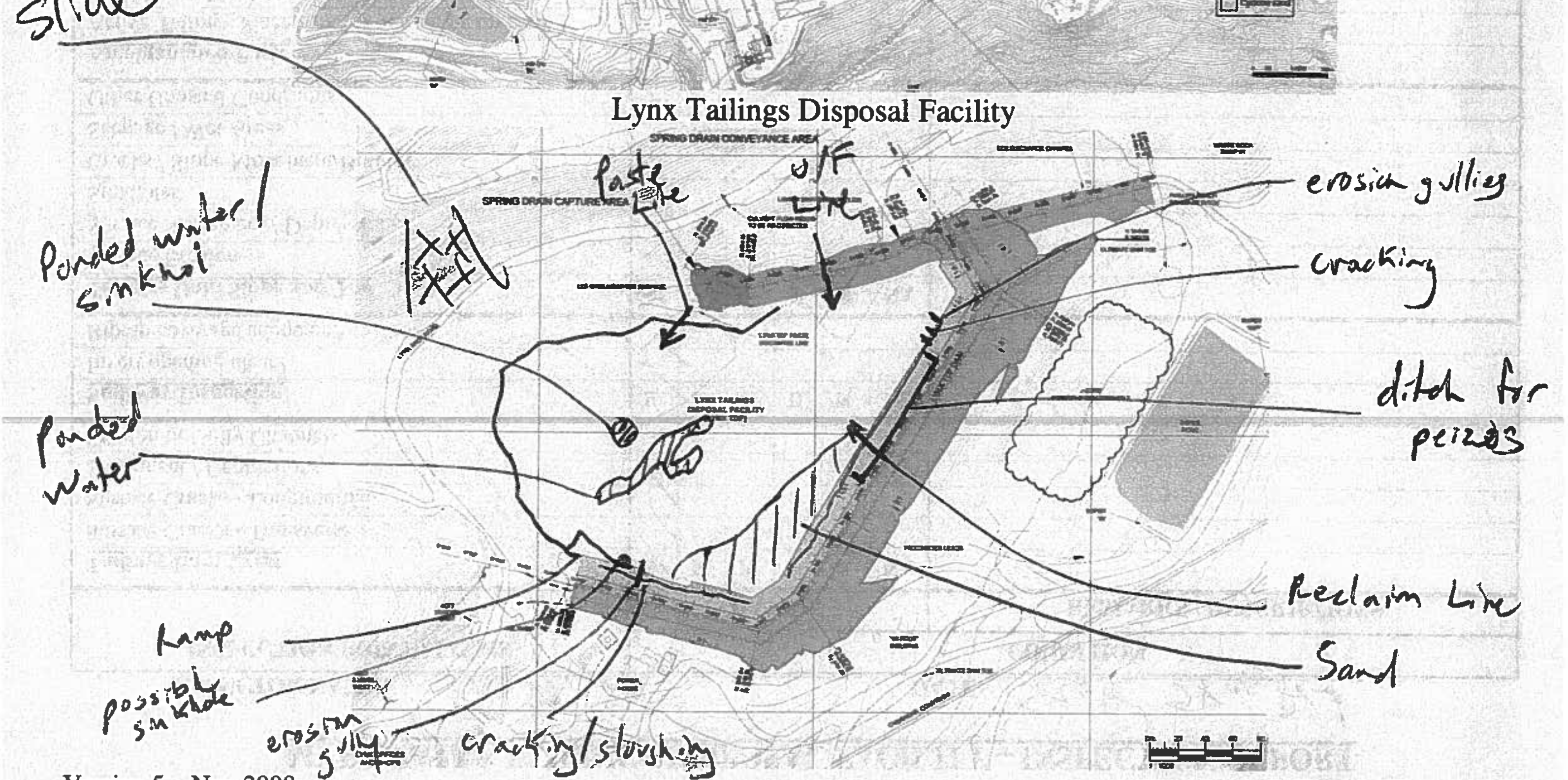
Routine ☒ ~~Past 15~~ - work on 1° grade

Special Condition ☐ TDF foundation/toe final grading for drainage

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Aug 20, 2015 **DATE:** Scott Skagford

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?		✓					
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?		✓					
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map						✓	

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Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: Scott Skagford

Inspector Position: Environmental Technician

Inspection Date/Time: August 26, 2015 ~ 13:00

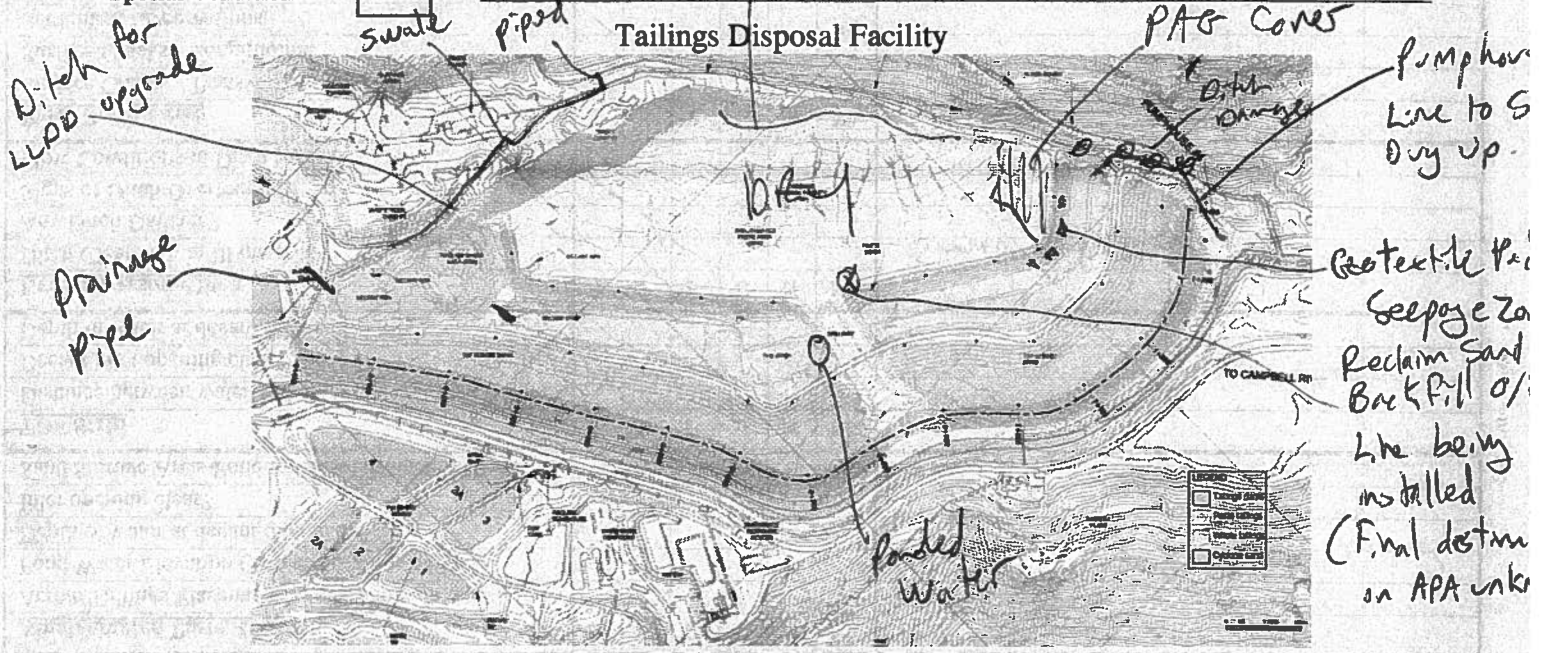
Weather Conditions: Dry, dusty, light breeze, clear, ~24°C

Reason for Inspection:

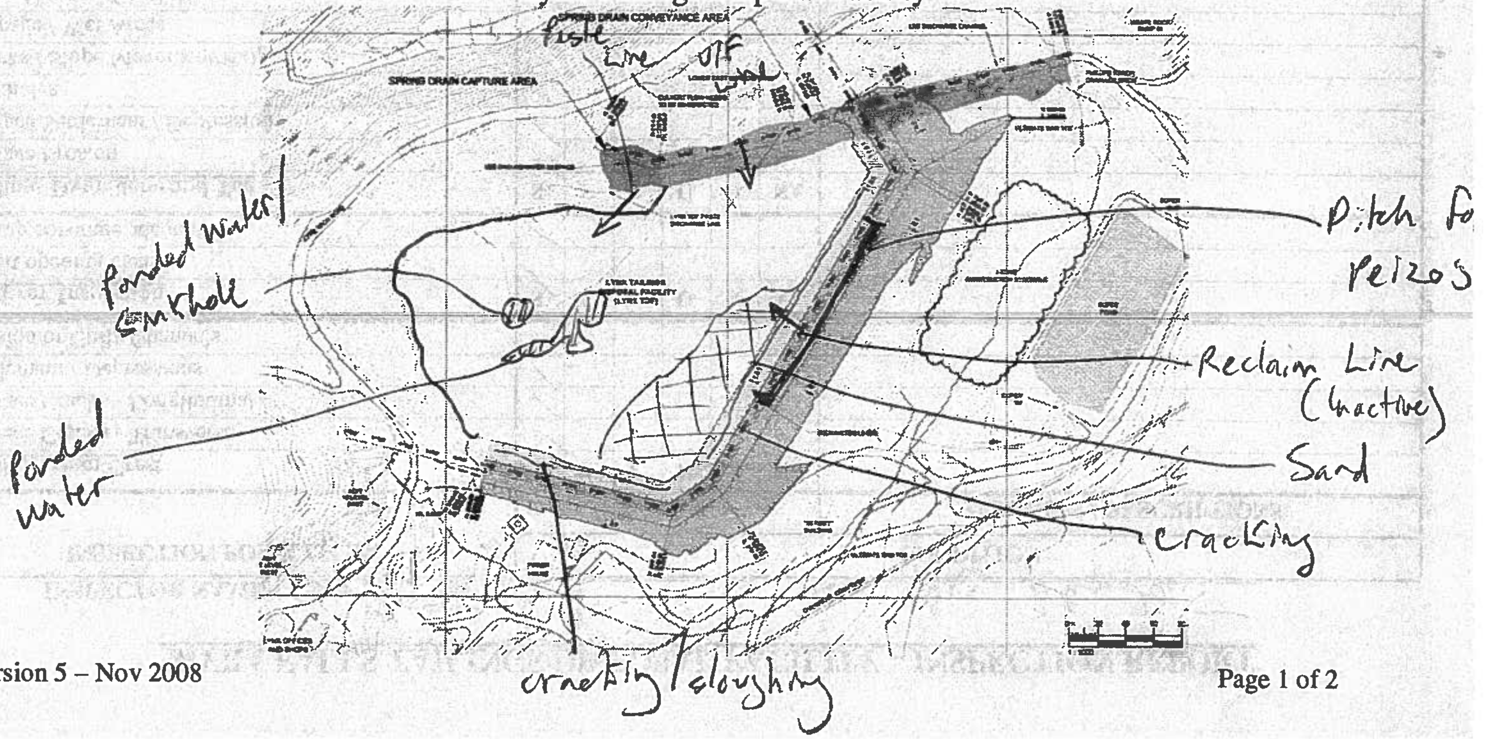
Routine ☒ Road for wells/Seep Diversion Ditch

Special Condition ☐

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Scott Skyford

DATE: Aug 26, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?		✓					
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?		✓					Small debris
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map						✓	Sloughing

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Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: Scott Stagford

Inspector Position: Environmental Technician

Inspection Date/Time: Sept 03, 2015 ~ 13:30

Weather Conditions:

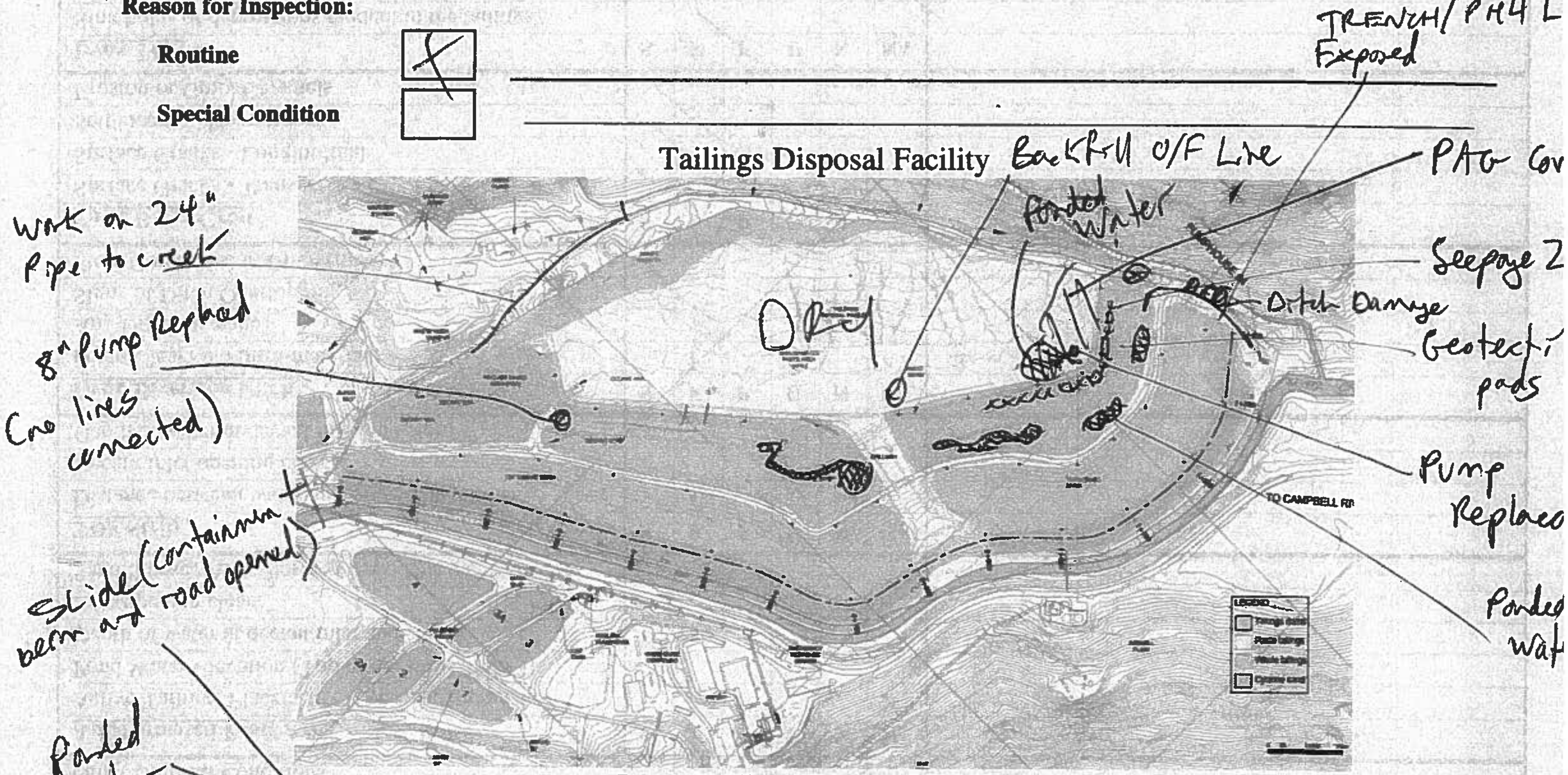
Reason for Inspection:

Routine ☒

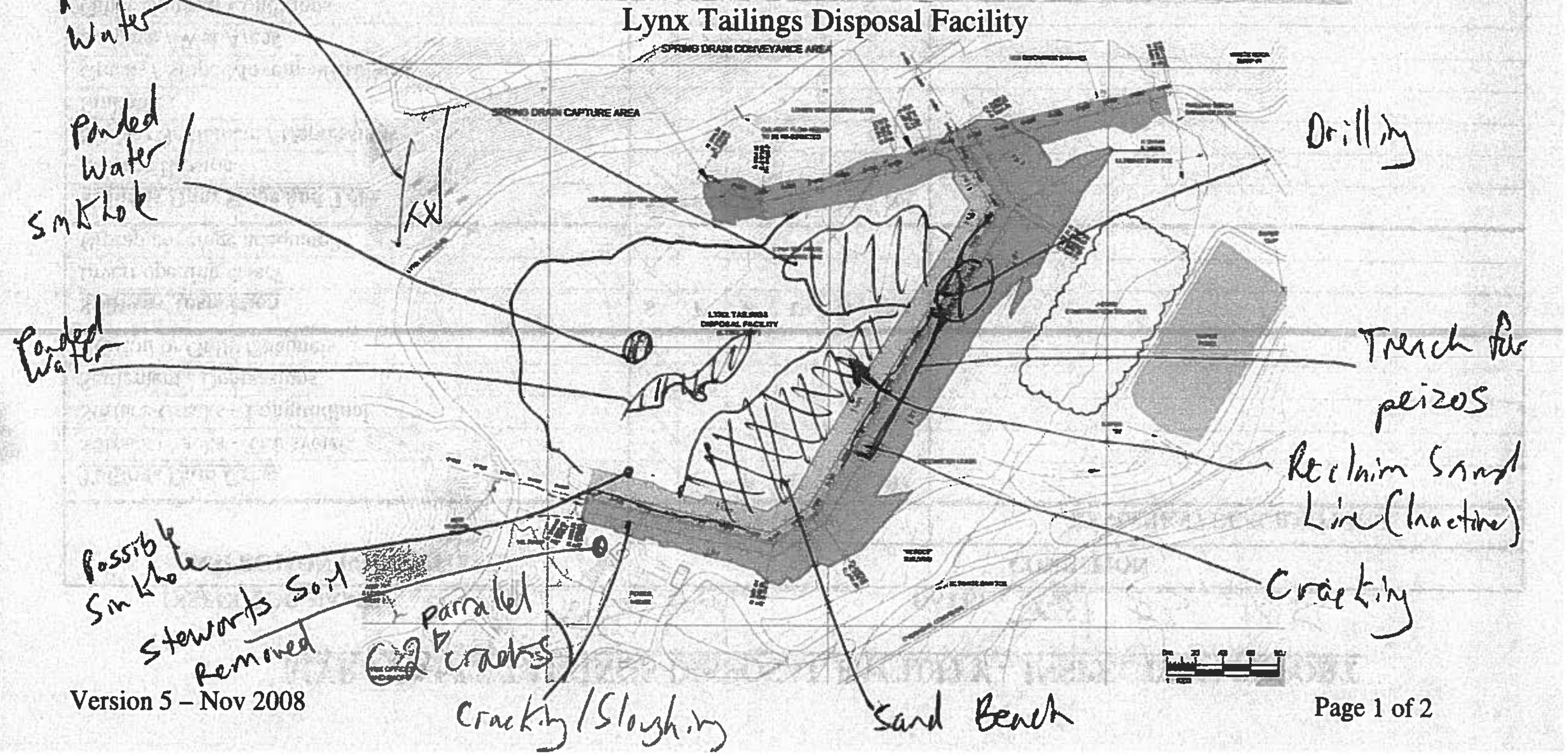
Special Condition ☐

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Scott Skagford **DATE:** Sept. 03, 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?		✓					
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?		✓					Small Debris
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						Sloughing
Active Tailings Placement? if yes, show on map						✓	

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Additional Comments:

Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: Brad Maxwell

Inspector Position: project coordinator

Inspection Date/Time: Sept 11th/2015 2:30 pm

Weather Conditions: dry 30°C

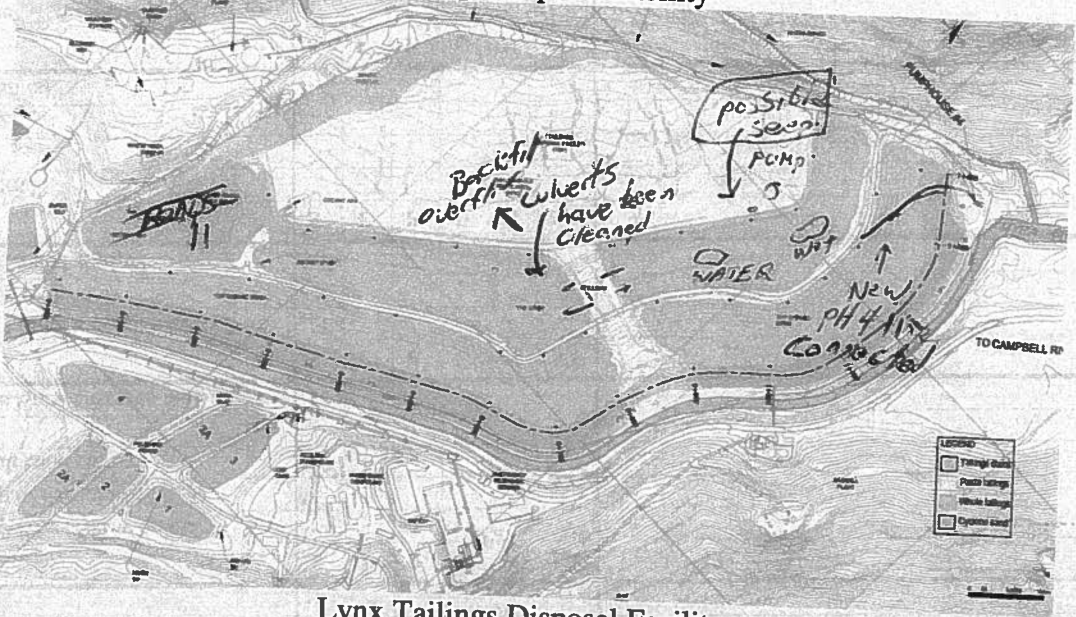
Reason for Inspection:

Routine ☑

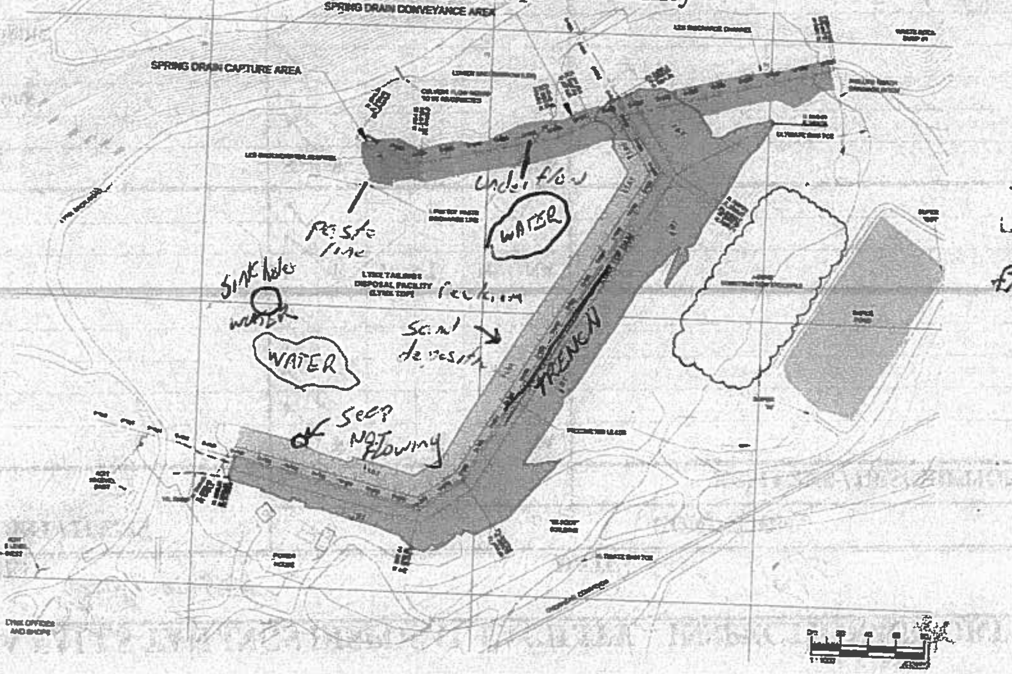
Special Condition ☐

ADDITIONAL COMMENTS

Tailings Disposal Facility



Lynx Tailings Disposal Facility



Upstream crac
from 0+85 to
2+79 to

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Brad Maxwell

DATE: Sept 11th/15

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	**S**	**F**	**P**	**U**	**N**	**NA**	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					on seismic upblock + below paste berm
Other Unusual Conditions	✓						
Amalgamated Paste Area	**S**	**F**	**P**	**U**	**N**	**NA**	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)						✓	
Depth of water at decant inlet and clarity						✓	
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	**S**	**F**	**P**	**U**	**N**	**NA**	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?						✓	
Lynx Diversion Ditch	**S**	**F**	**P**	**U**	**N**	**NA**	
Ditch Clear? No infill material?		✓					Some Rocks
Any Ditch Damage?		✓					Some holes from rocks
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						Small flow
Paste Berm Crest	**S**	**F**	**P**	**U**	**N**	**NA**	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	**S**	**F**	**P**	**U**	**N**	**NA**	
Sink holes or depressions evident in the tailings?	✓						Same as before
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						< 15 cm
Is water flowing into the pit? If yes, show on map						✓	
Evidence of slope failure into the Lynx TDF?						✓	
Active Tailings Placement? if yes, show on map						✓	

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Additional Comments:

Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: B. Maxwell

Inspector Position: Project coordinator

Inspection Date/Time: Sept 17th 2015 AM

Weather Conditions: Light RAIN 14°c

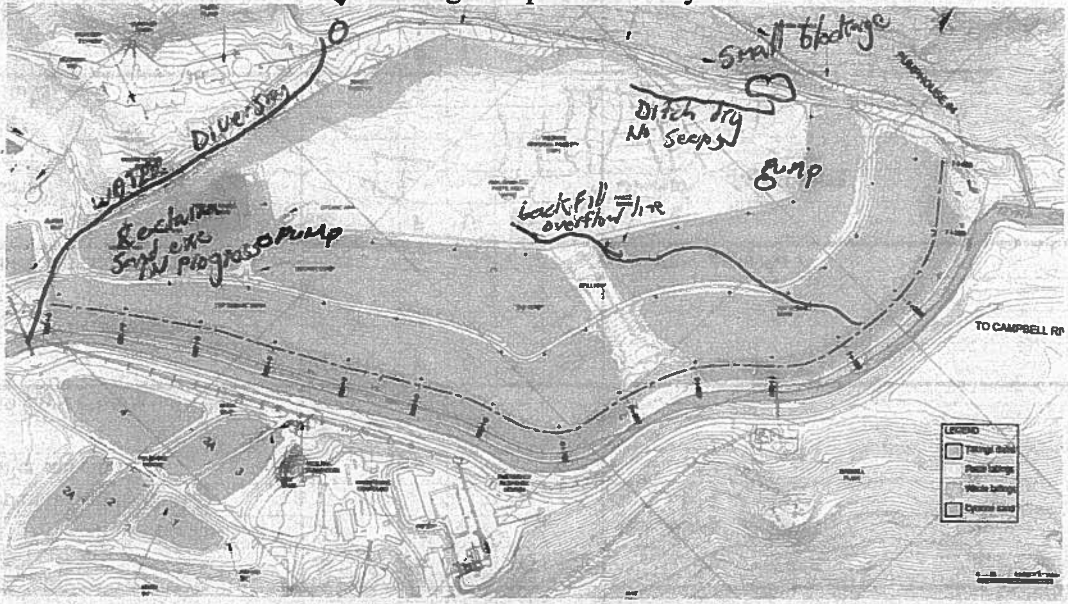
Reason for Inspection:

Routine ☑

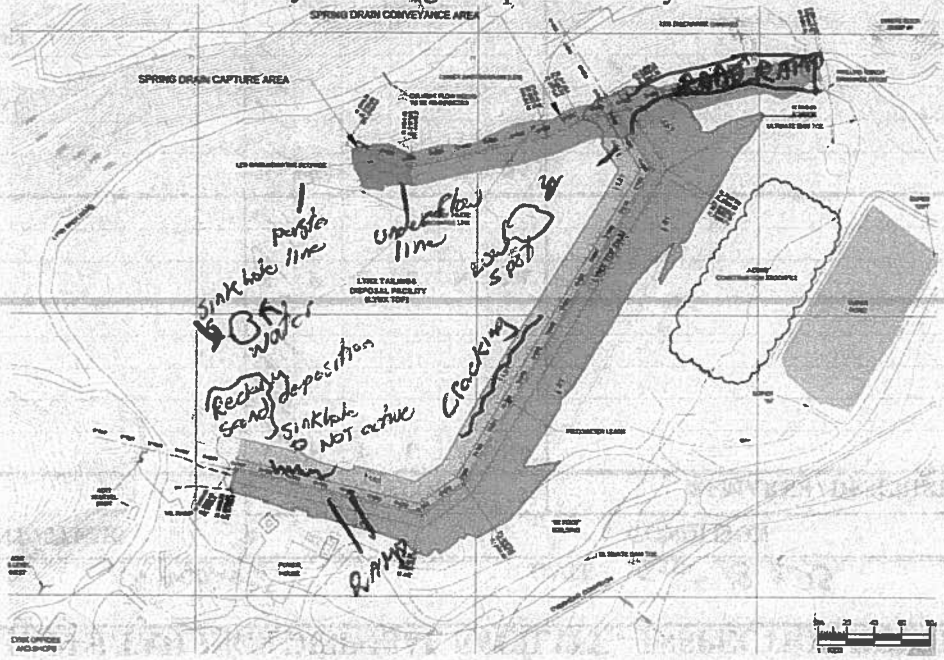
Special Condition ☐

DAM

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: B. [illegible]

DATE: Sept 18 2013

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion	✓						
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas		✓					
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map	✓						Bckam Sand
Pond Water Elevation (Top of decant is 3390.3)						✓	No water
Depth of water at decant inlet and clarity						✓	
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?							No water
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?		✓					Small blockage
Any Ditch Damage?		—					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)							~0.1
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					Sink hole near 0+100 is being monitored
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?						✓	
Is water flowing into the pit? If yes, show on map	✓						Small amounts running in from springs down
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map						✓	

* **RATING LEGEND (see next page)**

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N = Not inspected

Additional Comments:

Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

Inspector Name: B. Maxwell

Inspector Position: project coordinator

Inspection Date/Time: Sept 25th/15

Weather Conditions:

Reason for Inspection:

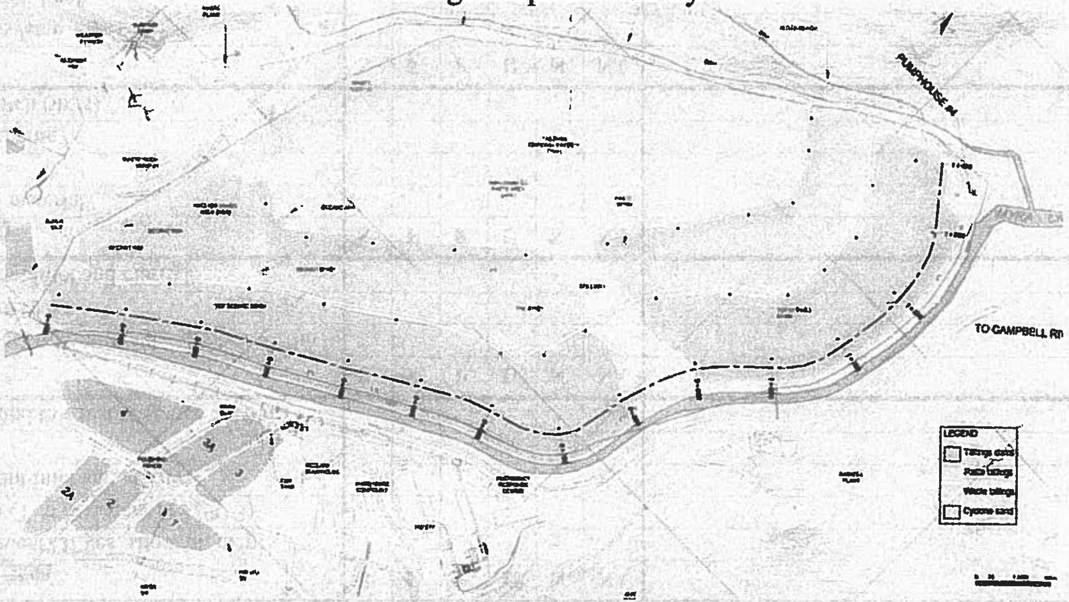
Routine ☐

Special Condition ☐

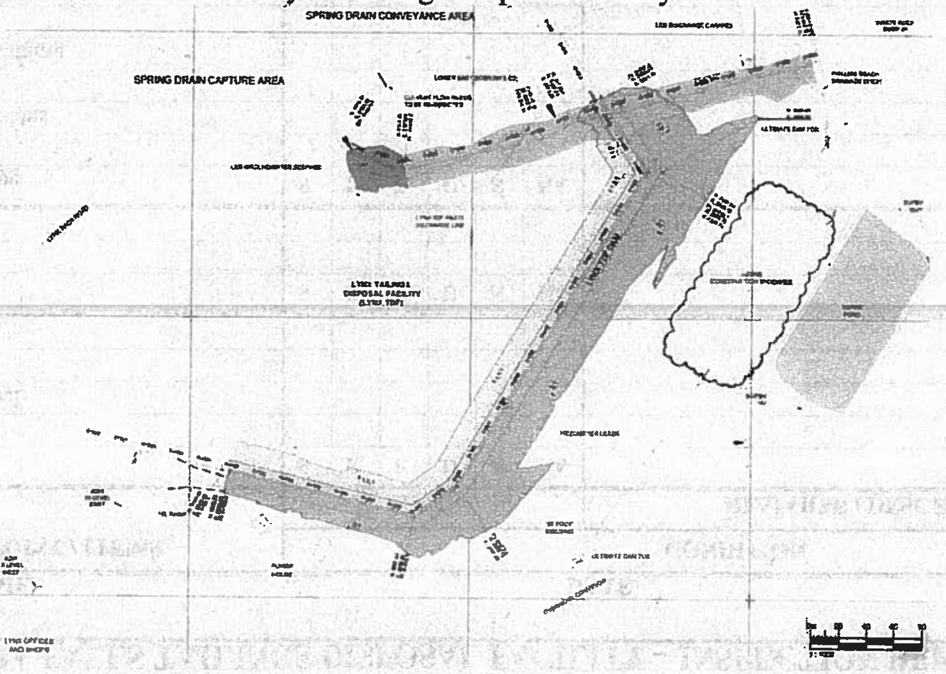
ADDITIONAL COMMENTS

DAN Hughes Games (AMEC)
did site dam inspection.
No intech review performed

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________ **DATE:** ____________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?							
Riprap coverage adequate?							
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion							
Surface Settlement / Depressions							
Sinkholes							
Cracks / Slope Movement/Bulging							
Seepage / Wet Areas							
Other Unusual Conditions							
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map							
Pond Water Elevation (Top of decant is 3390.3)							
Depth of water at decant inlet and clarity							
Inlet opening clear?							
Sand Storage Area–Pond to Crest Distance > 10 m?							
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?							
Decant inlet opening clear?							
Depth of water at decant inlet and clarity?							
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?							
Any Ditch Damage?							
Signs of Ditch Overtopping?							
Flow Conditions in Ditch (m^3/s)							
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?							
Sump pump currently pumping?							
Ponded water evident on paste tails? if yes, how deep?							
Is water flowing into the pit? If yes, show on map							
Evidence of slope failure into the Lynx TDF?							
Active Tailings Placement? if yes, show on map							

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Additional Comments:

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Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: Brad Maxwell

Inspector Position: project coordinator

Inspection Date/Time: oct 1st /15

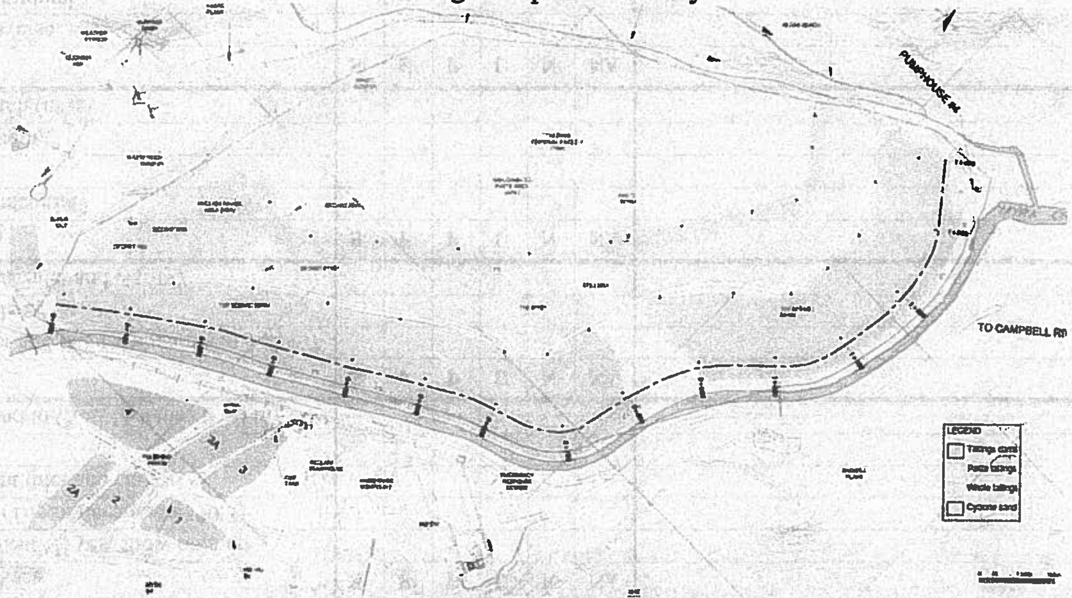
Weather Conditions:

Reason for Inspection:

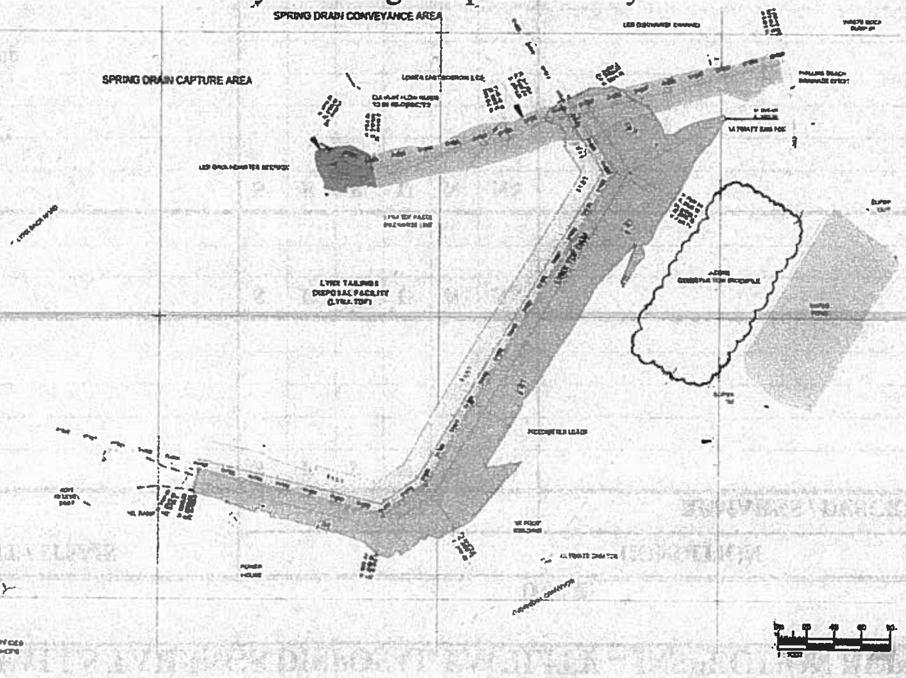
Routine ☑

Special Condition ☐

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________ DATE: ______________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?							
Riprap coverage adequate?							
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion							
Surface Settlement / Depressions							
Sinkholes							
Cracks / Slope Movement/Bulging							
Seepage / Wet Areas							
Other Unusual Conditions							
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map							
Pond Water Elevation (Top of decant is 3390.3)							
Depth of water at decant inlet and clarity							
Inlet opening clear?							
Sand Storage Area–Pond to Crest Distance > 10 m?							
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?							
Decant inlet opening clear?							
Depth of water at decant inlet and clarity?							
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?							
Any Ditch Damage?							
Signs of Ditch Overtopping?							
Flow Conditions in Ditch (m^3/s)							
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?							
Sump pump currently pumping?							
Ponded water evident on paste tails? if yes, how deep?							
Is water flowing into the pit? If yes, show on map							
Evidence of slope failure into the Lynx TDF?							
Active Tailings Placement? if yes, show on map							

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Additional Comments:

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Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: B. Maxwell

Inspector Position: Project Coordinator

Inspection Date/Time: OCT 8th/15 2015

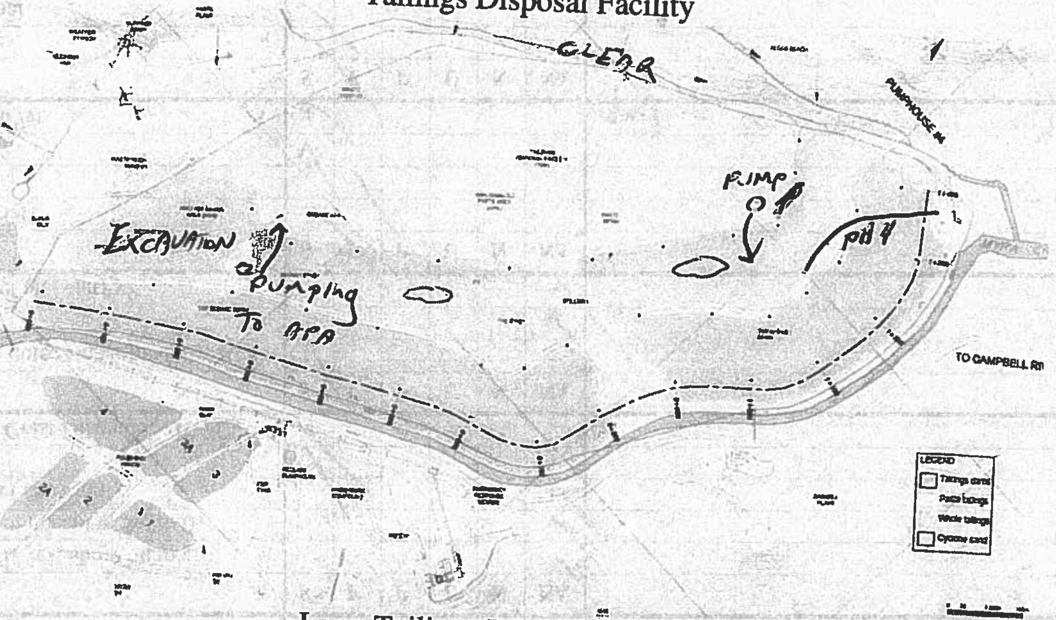
Weather Conditions: Overcast 13°c

Reason for Inspection:

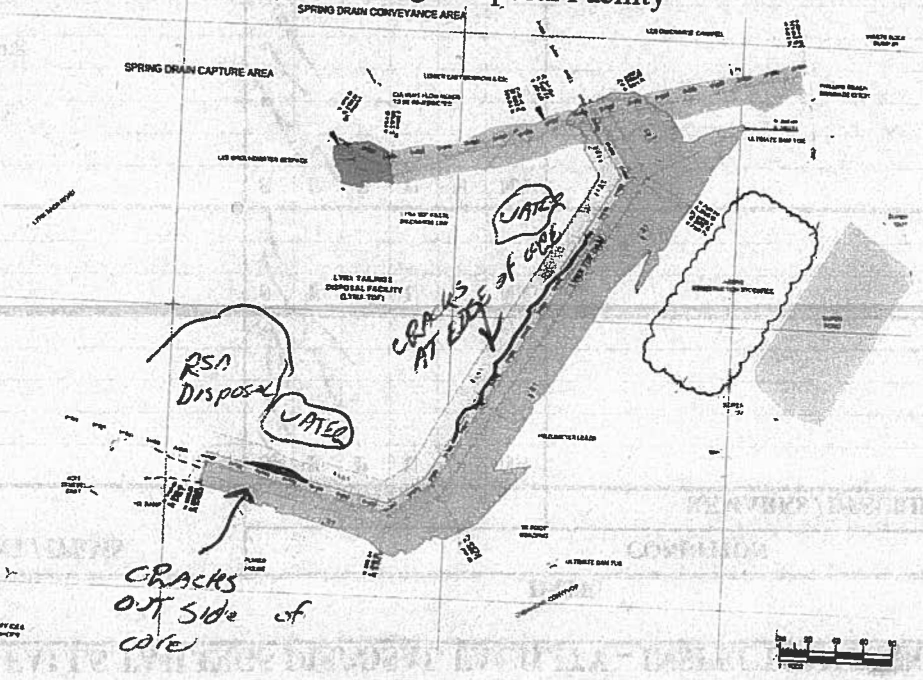
Routine ☑

Special Condition ☐

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________ **DATE:** ______________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓	✓					
Erosion or Gully Channels	✓	✓					
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)						✓	
Depth of water at decant inlet and clarity						✓	
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?						✓	
Depth of water at decant inlet and clarity?						✓	
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						good ... low flow
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?	✓						
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						Less than 0.5m
Is water flowing into the pit? If yes, show on map						✓	
Evidence of slope failure into the Lynx TDF?						✓	
Active Tailings Placement? if yes, show on map						✓	

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Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

Inspector Name: B. Maxwell

Inspector Position: PROJECT COORDINATOR

Inspection Date/Time: OCT 17th/15 4:00

Weather Conditions: RAIN 12°C

Reason for Inspection:

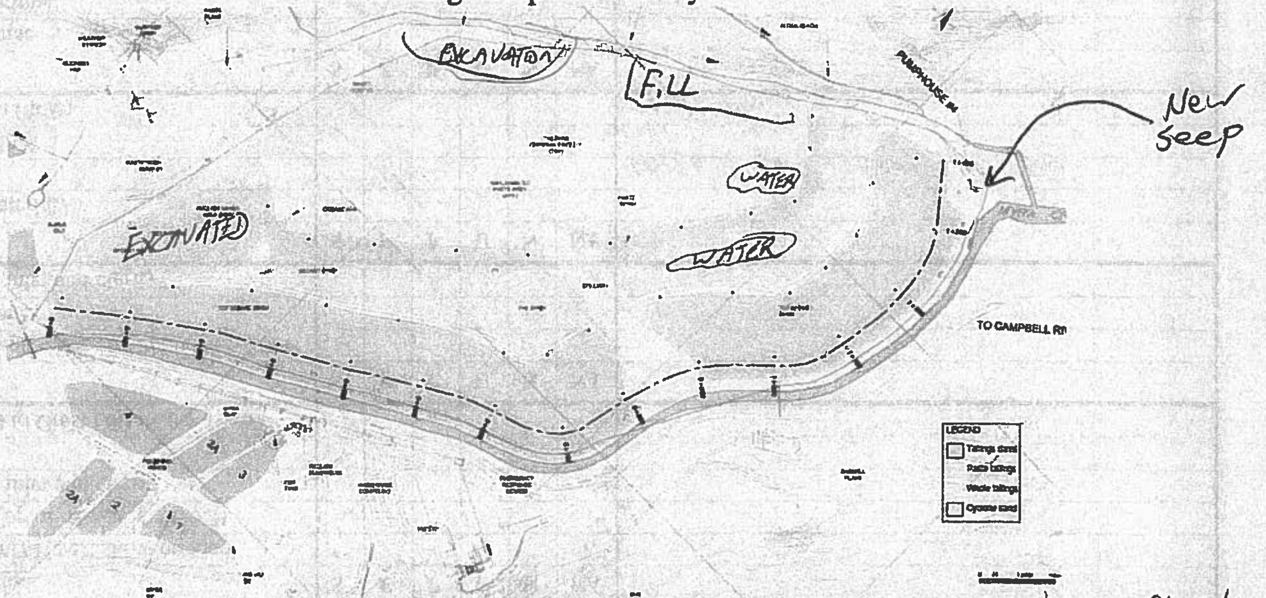
Routine ☑

Special Condition ☐

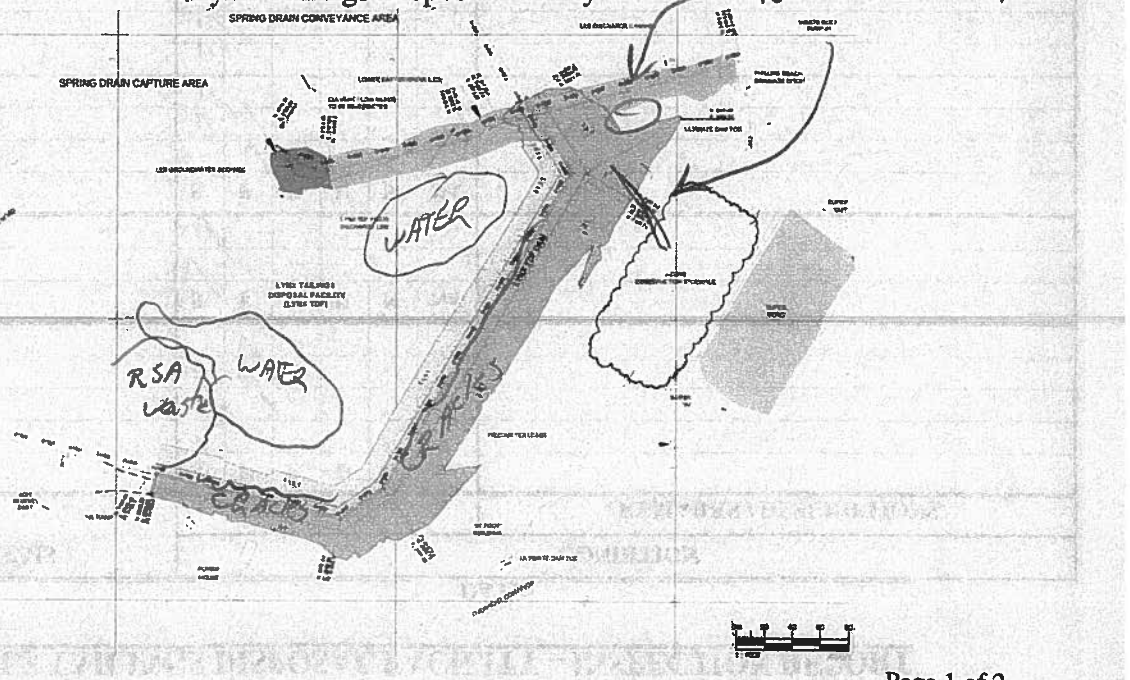
ADDITIONAL COMMENTS

Construction underway on diversion ditch

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ____________________ **DATE:** ____________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					
Erosion or Gully Channels		✓					
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)						✓	
Depth of water at decant inlet and clarity						✓	
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?						✓	
Depth of water at decant inlet and clarity?						✓	
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					LARGE holes near 0+700
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						high flow
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?	✓						
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						Less than 1m
Is water flowing into the pit? If yes, show on map						✓	
Evidence of slope failure into the Lynx TDF?						✓	
Active Tailings Placement? if yes, show on map						✓	

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MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: B. Maxwell

Inspector Position: project coordinator

Inspection Date/Time: OCT /15 24th

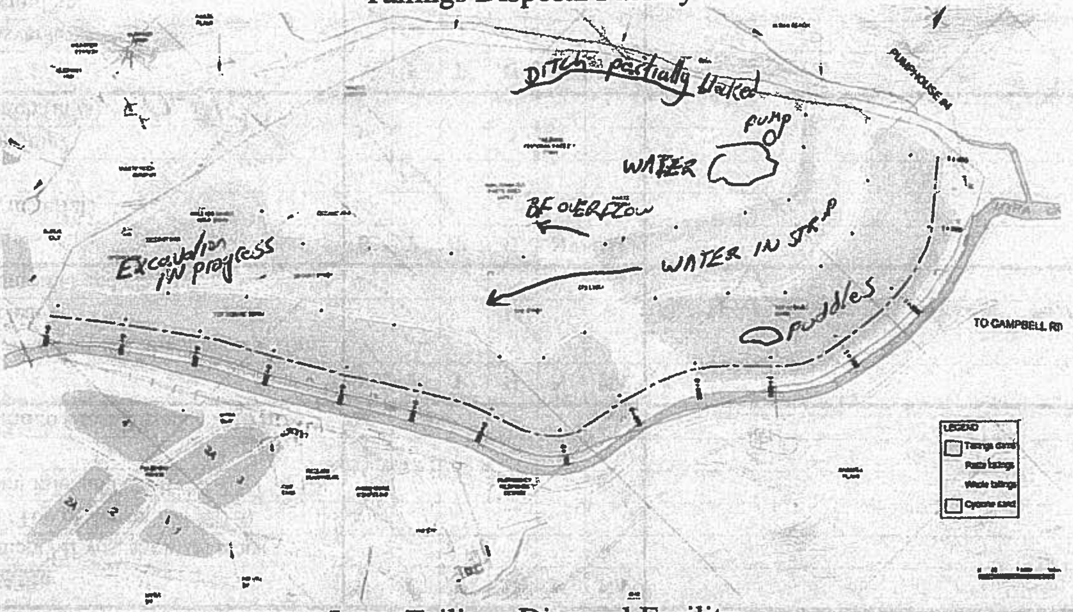
Weather Conditions: SUNNY 21°c

Reason for Inspection:

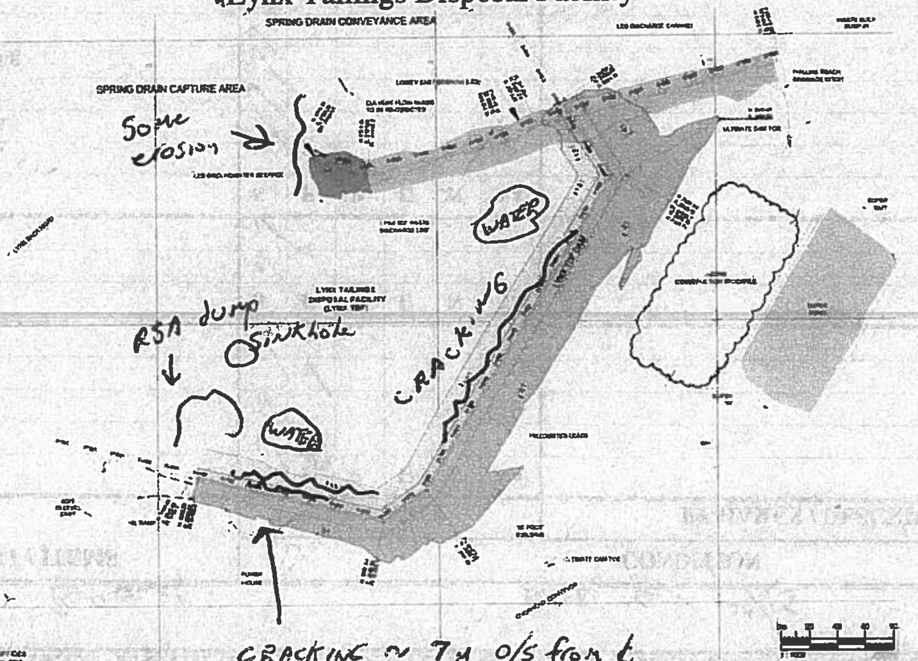
Routine ☑

Special Condition ☐

Tailings Disposal Facility



Lynx Tailings Disposal Facility



CRACKING ~ 7m o/s from ℄
FROM 0+80 4+700

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: B. Maxwell **DATE:** Oct 1st/15

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is ~~3390~~.3)	✓						
Depth of water at decant inlet and clarity 3389.3						✓	
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?				✓			pumping due to decant failure
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m³/s) 0.3?	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					RUTS
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?		✓					See Map
Sump pump currently pumping?	✓						NO
Ponded water evident on paste tails? if yes, how deep?	✓						~ 50 cM
Is water flowing into the pit? If yes, show on map	✓						NO
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map						✓	

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Additional Comments:

Version 5 – Nov 2008

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: B. Maxwell

Inspector Position: Project Coordinator

Inspection Date/Time: NOV 3rd /11:00 aM

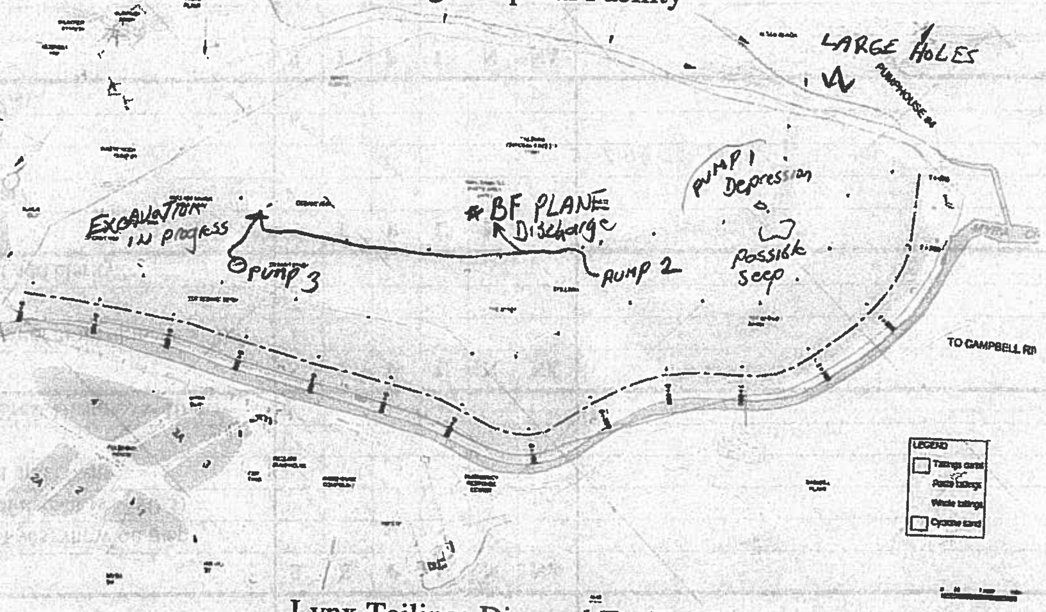
Weather Conditions: Sunny 2°C

Reason for Inspection:

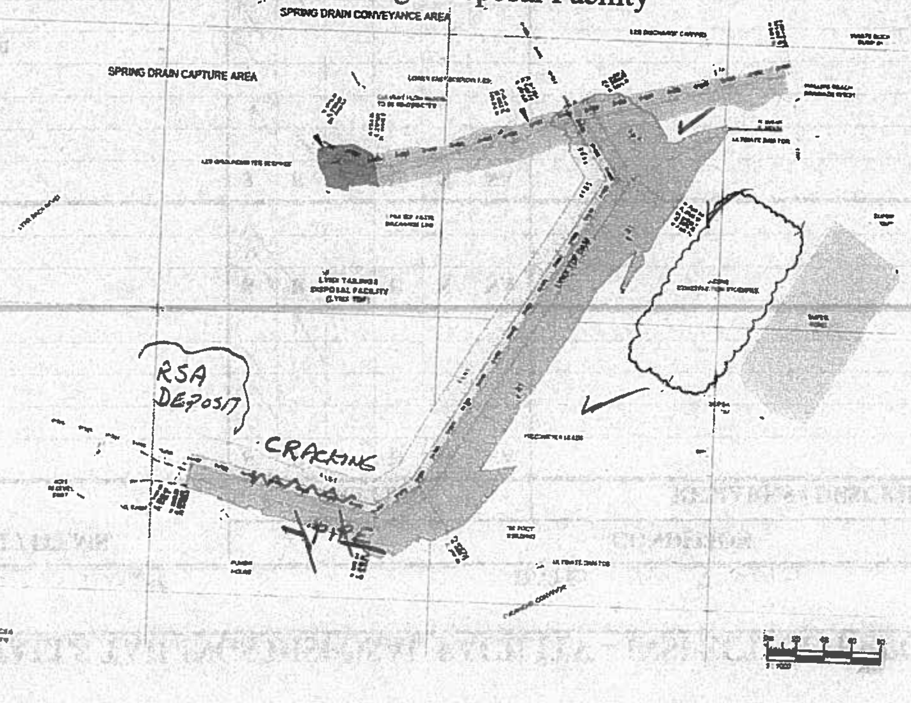
Routine ☑

Special Condition ☐

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: B. Maxwell **DATE:** Nov 3 2015

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map					✓		
Pond Water Elevation (Top of decant is 3390.3)						✓	
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?						✓	
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?			✓				LARGE HOLES
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)						✓	
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					RUTS
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?	✓						
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						<0.5 M
Is water flowing into the pit? If yes, show on map						✓	
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map	✓						

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Additional Comments:

Version 5 – Nov 2008

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: B. maxwell

Inspector Position: project coordinator

Inspection Date/Time: Nov 12 /20.5

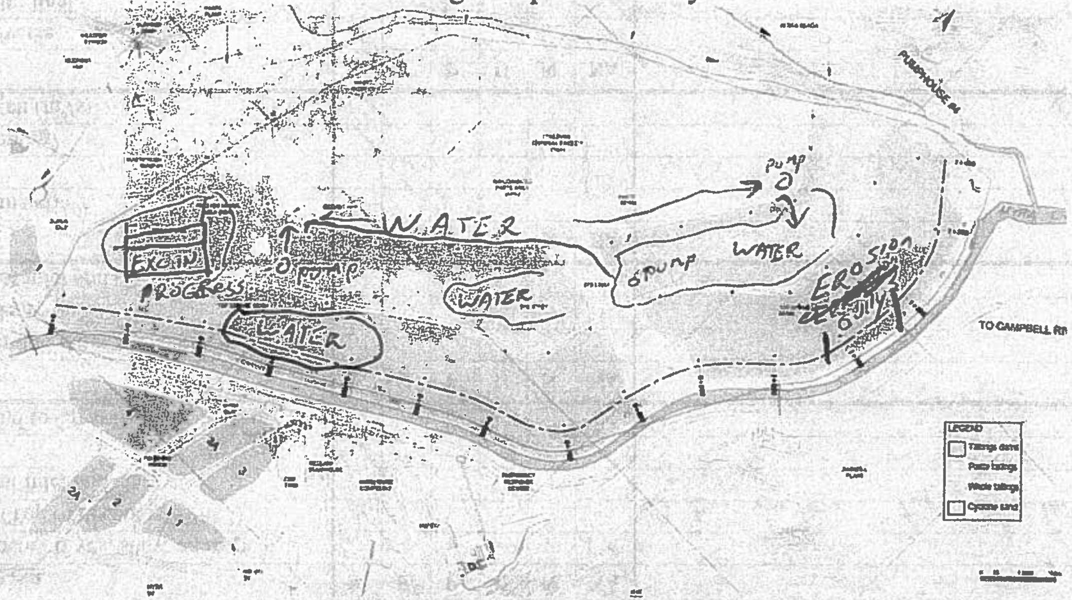
Weather Conditions: Heavy rain

Reason for Inspection:

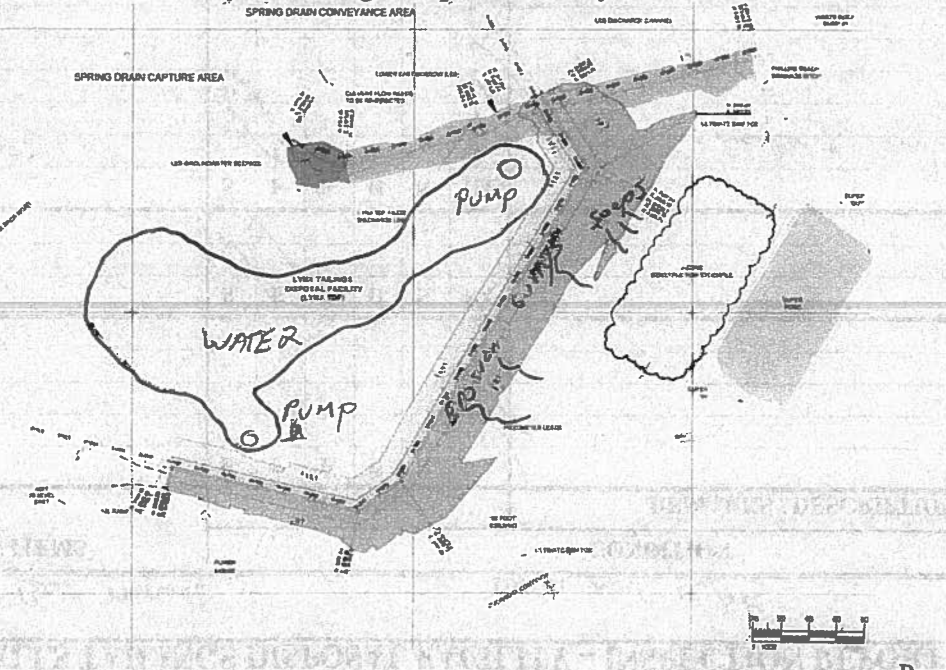
Routine ☑

Special Condition ☑

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: Brad Maxwell **DATE:** Nov 12/15

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse						✓	
Surface Cracks - Longitudinal						✓	
Settlement / Depressions						✓	
Erosion or Gully Channels						✓	
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					between spillway and pH 4
Surface Settlement / Depressions	✓						
Sinkholes						✓	
Cracks / Slope Movement/Bulging						✓	
Seepage / Wet Areas						✓	
Other Unusual Conditions						✓	
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						0.5 below top of Decant
Depth of water at decant inlet and clarity	✓						Milky
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						
Depth of water at decant inlet and clarity?							0.5m Milky
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?		✓					holes near strip
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓					✓	
Surface Cracks - Longitudinal						✓	
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?						✓	
Sump pump currently pumping?						✓	
Ponded water evident on paste tails? if yes, how deep?	✓						n/n
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?	✓						
Active Tailings Placement? if yes, show on map						✓	

*** RATING LEGEND (see next page)**

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F = Fair (Meets intended purpose, but some maintenance needed)

P = Poor (May not meet intended purpose, repair or modify)

U = Unsatisfactory (Will not meet intended purpose, repair or modify)

N = Not inspected

Additional Comments:

Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

Inspector Name: S. maxwell

Inspector Position: project coordinator

Inspection Date/Time: Nov 20th /15 4:50 pm

Weather Conditions: Cold/clear -5°c

Reason for Inspection:

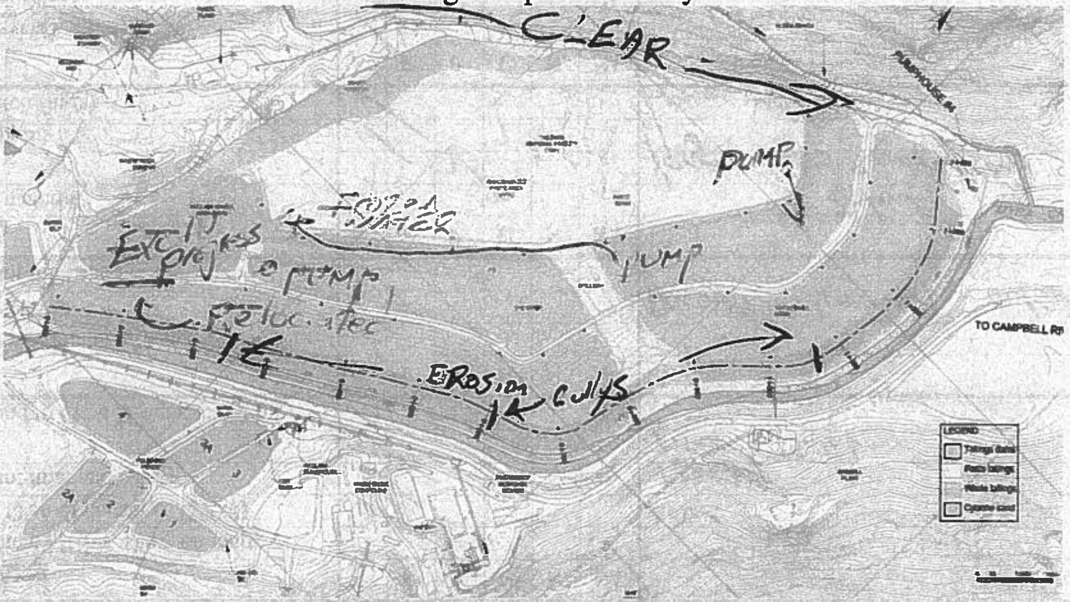
Routine ☑

Special Condition ☐

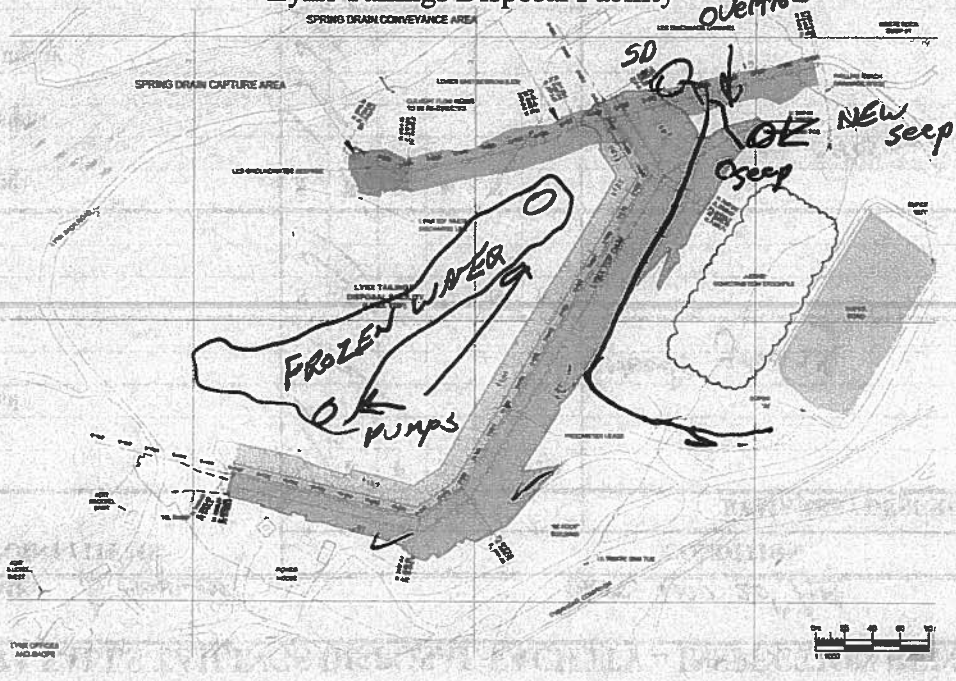
ADDITIONAL COMMENTS

No pictures

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: B. Maxwell **DATE:** Nov 20th/15

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					Needs grading
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					Gullys from errosion
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						Low
Depth of water at decant inlet and clarity	✓						FROZEN
Inlet opening clear?	✓						pipes in inlet
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
Decant inlet opening clear?	✓						Decant line cut outside of Berm
Depth of water at decant inlet and clarity?	✓						
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?			✓				large holes Below ~~near~~ strip
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						~~low~~ Med
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						Ruts
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?	✓						Nothing new
Sump pump currently pumping?	✓						2
Ponded water evident on paste tails? if yes, how deep?	✓						~~[illegible]~~ < 1M
Is water flowing into the pit? If yes, show on map						✓	
Evidence of slope failure into the Lynx TDF?						✓	
Active Tailings Placement? if yes, show on map						✓	

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Additional Comments:

Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

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INSPECTION DETAILS

ADDITIONAL COMMENTS

Inspector Name: Brad Maxwell

Inspector Position: Project coordinator

Inspection Date/Time: ~~No~~ DEC 7th/15 330 PM

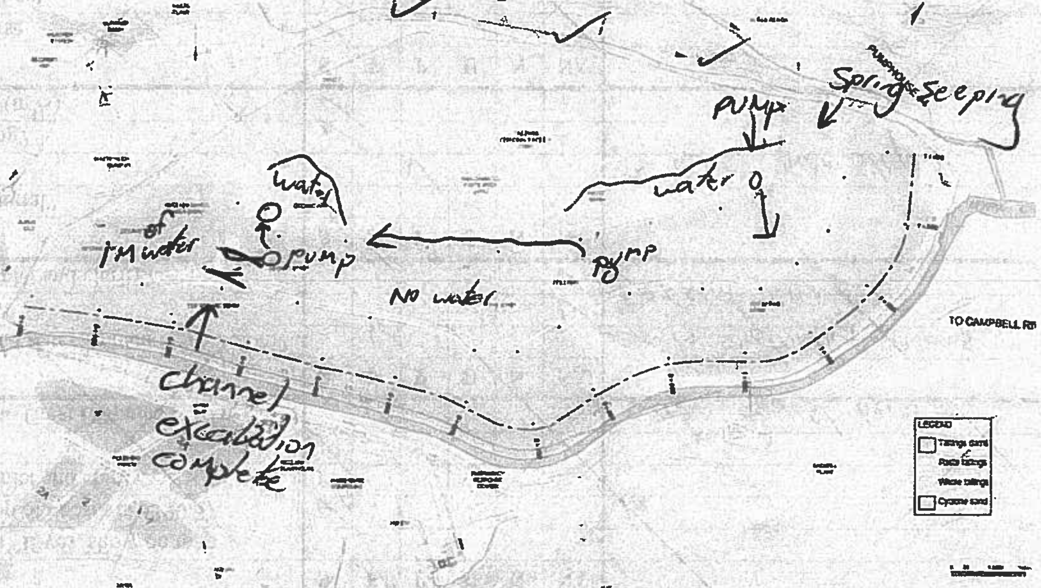
Weather Conditions: RAIN 6°C

Reason for Inspection:

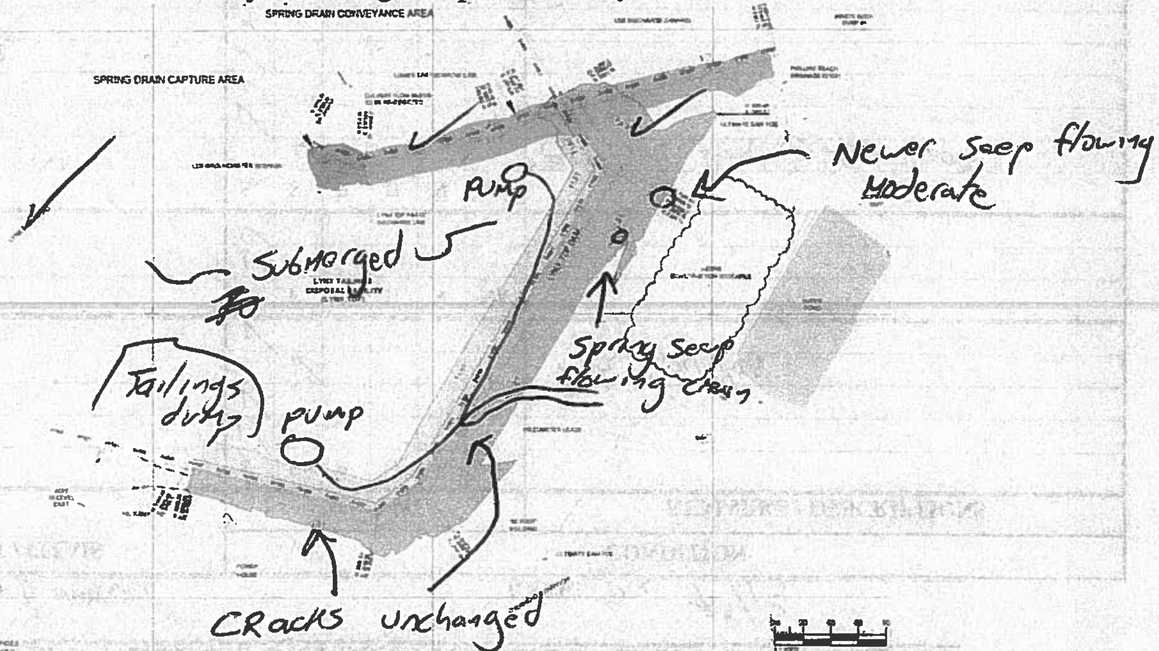
Routine ☑ Heavy rain overlast few days

Special Condition ☑

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: B. Maxwell **DATE:** Dec 7th/15

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					ruts / puddles
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion		✓					errosion from surface runoff
Surface Settlement / Depressions	✓						
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map						✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						1M
Depth of water at decant inlet and clarity	✓						
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?		✓					water against berm
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?		✓					in construction areas
Decant inlet opening clear?						✓	
Depth of water at decant inlet and clarity?						✓	Decant GONE
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?			✓				3 holes near strip
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions		✓					ruts
Erosion or Gully Channels	✓						
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?	✓						
Sump pump currently pumping?	✓						
Ponded water evident on paste tails? if yes, how deep?		✓					~ 2 Meters
Is water flowing into the pit? If yes, show on map	✓						
Evidence of slope failure into the Lynx TDF?						✓	
Active Tailings Placement? if yes, show on map						✓	

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Additional Comments:

Version 5 – Nov 2008

MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

Inspector Name: B. Maxwell

Inspector Position: Project Coordinator

Inspection Date/Time: Dec 15th/15

Weather Conditions: RAIN 0°C

Reason for Inspection:

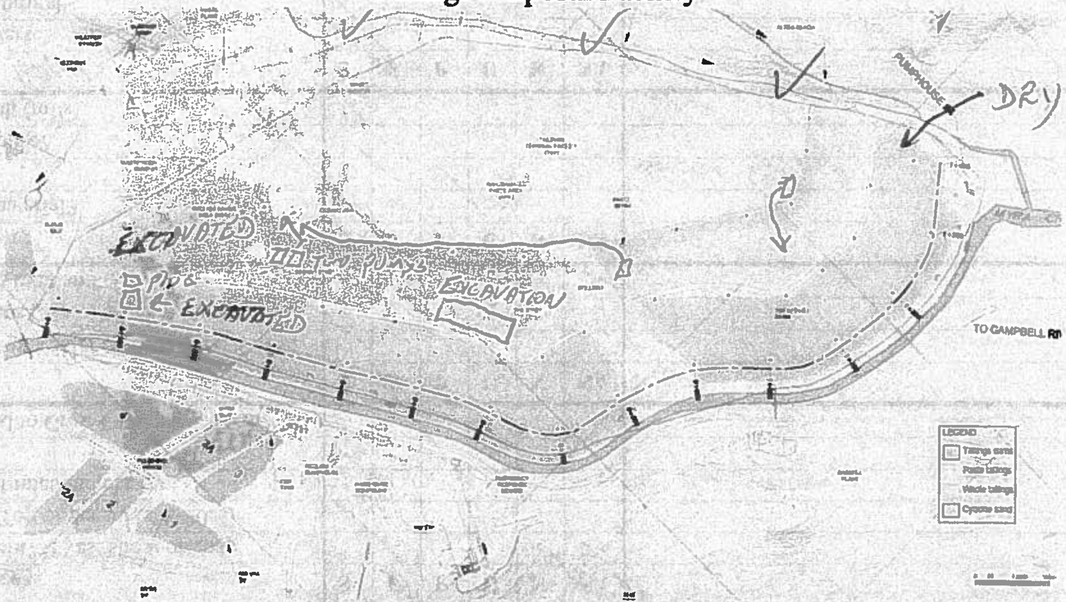
Routine ☑

Special Condition ☐

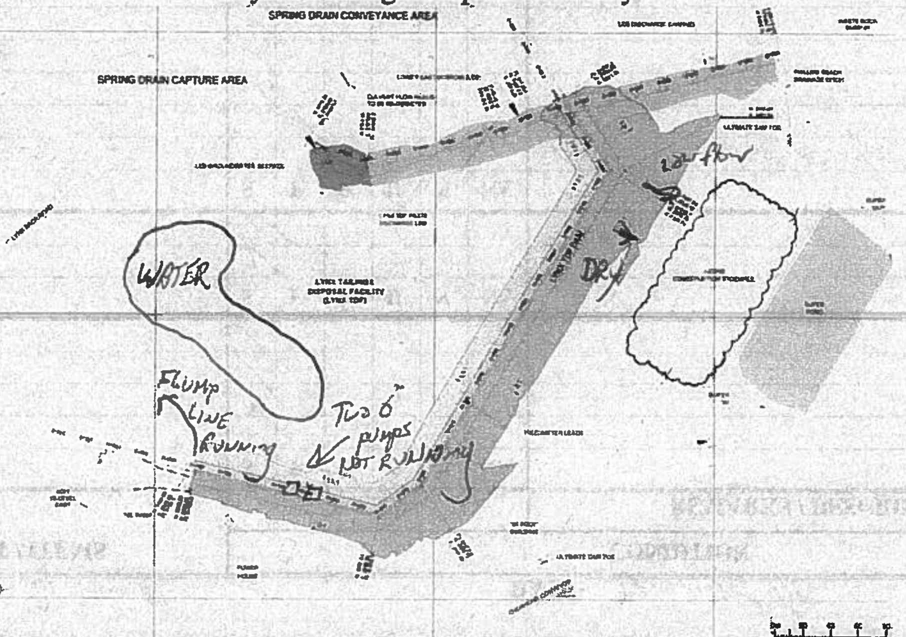
ADDITIONAL COMMENTS

Snow on ground < 30.

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: B. Maxwell **DATE:** Dec 15th/15

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest 61 Top	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels	✓						
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?	✓						
Riprap coverage adequate?	✓						
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion			✓				~~Rut~~ RUNOFF erosion
Surface Settlement / Depressions		✓					
Sinkholes	✓						
Cracks / Slope Movement/Bulging	✓						
Seepage / Wet Areas	✓						
Other Unusual Conditions	✓						
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map					~~✓~~	✓	
Pond Water Elevation (Top of decant is 3390.3)	✓						
Depth of water at decant inlet and clarity	✓						< 1m clear
Inlet opening clear?	✓						
Sand Storage Area–Pond to Crest Distance > 10 m?	✓						
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?	✓						
~~Decant inlet opening clear?~~ gone						✓	
~~Depth of water at decant inlet and clarity?~~						✓	
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?	✓						
Any Ditch Damage?			✓				below STRIP
Signs of Ditch Overtopping?	✓						
Flow Conditions in Ditch (m^3/s)	✓						low
Paste Berm Crest APA?	S	F	P	U	N	NA	
Surface Cracks - Transverse	✓						
Surface Cracks - Longitudinal	✓						
Settlement / Depressions	✓						
Erosion or Gully Channels		✓					RUTS
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?	✓						
Sump pump currently pumping?						✓	NO
Ponded water evident on paste tails? if yes, how deep?	✓						< 2m
Is water flowing into the pit? If yes, show on map	✓						flows line
Evidence of slope failure into the Lynx TDF?						✓	↑
Active Tailings Placement? if yes, show on map	✓						

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MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

All parts of this inspection report should be completed. Adverse conditions should be described. Additional information may be put on attached pages

INSPECTION DETAILS

Inspector Name: B. Maxwell

Inspector Position: PROJECT COORDINATOR

Inspection Date/Time: DEC 22nd/15

Weather Conditions: SNOWING -2°C

Reason for Inspection:

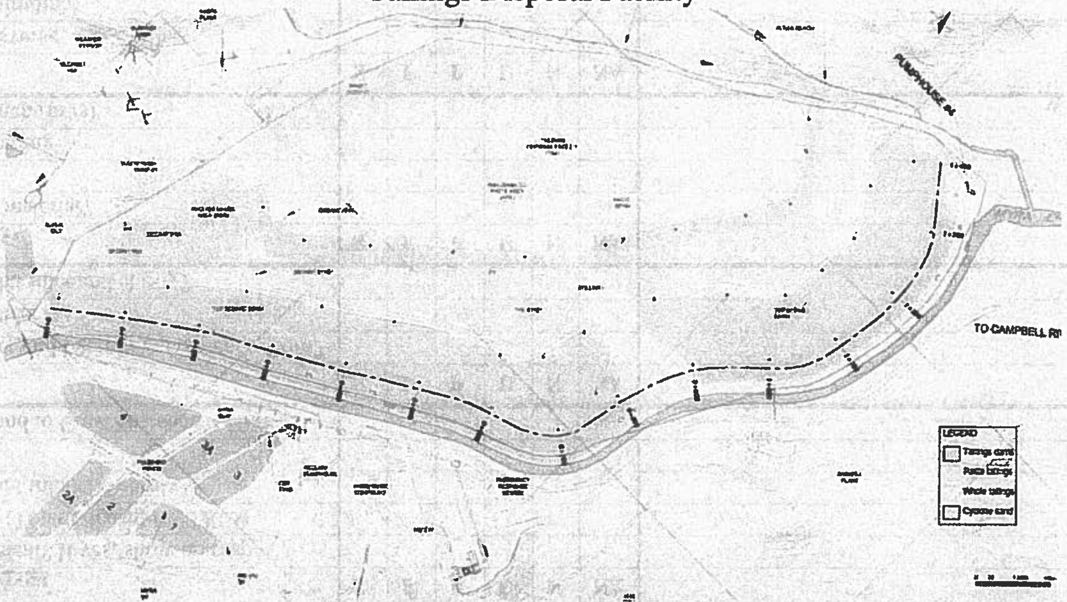
Routine ☐

Special Condition ☐

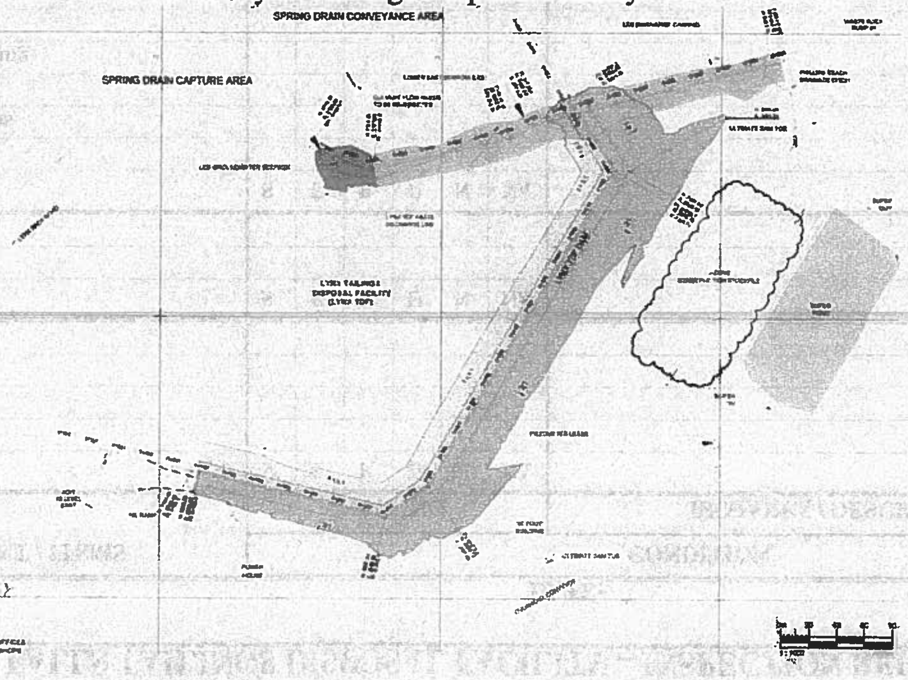
ADDITIONAL COMMENTS

AMEC ON SITE FOR DAM INSPECTION

Tailings Disposal Facility



Lynx Tailings Disposal Facility



MYRA FALLS TAILINGS DISPOSAL FACILITY – INSPECTION REPORT

INSPECTOR NAME: ______________________ **DATE:** ______________________

INSPECTION POINT / ITEMS	CONDITION						
	RATING						REMARKS / DESCRIPTIONS
Tailings Dam Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Spillway Inspection	S	F	P	U	N	NA	
Invert opening clear?							
Riprap coverage adequate?							
Tailings Dam Slope and Toe	S	F	P	U	N	NA	
Surface Erosion							
Surface Settlement / Depressions							
Sinkholes							
Cracks / Slope Movement/Bulging							
Seepage / Wet Areas							
Other Unusual Conditions							
Amalgamated Paste Area	S	F	P	U	N	NA	
Active Tailings Placement? If yes, show on map							
Pond Water Elevation (Top of decant is 3390.3)							
Depth of water at decant inlet and clarity							
Inlet opening clear?							
Sand Storage Area–Pond to Crest Distance > 10 m?							
TDF Strip	S	F	P	U	N	NA	
Distance between water and outer embankment > 20m?							
Decant inlet opening clear?							
Depth of water at decant inlet and clarity?							
Lynx Diversion Ditch	S	F	P	U	N	NA	
Ditch Clear? No infill material?							
Any Ditch Damage?							
Signs of Ditch Overtopping?							
Flow Conditions in Ditch (m^3/s)							
Paste Berm Crest	S	F	P	U	N	NA	
Surface Cracks - Transverse							
Surface Cracks - Longitudinal							
Settlement / Depressions							
Erosion or Gully Channels							
Lynx TDF	S	F	P	U	N	NA	
Sink holes or depressions evident in the tailings?							
Sump pump currently pumping?							
Ponded water evident on paste tails? if yes, how deep?							
Is water flowing into the pit? If yes, show on map							
Evidence of slope failure into the Lynx TDF?							
Active Tailings Placement? if yes, show on map							

*** RATING LEGEND (see next page)**

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Additional Comments:

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Version 5 – Nov 2008

Appendix D

Key Correspondence
(included on digital copy)

October 24, 2014

AMEC File: NX14001.0201

Nyrstar Myra Falls Ltd.
PO Box 8000
Campbell River, BC

Attn: John Knapp

**RE: Paste Berm Seepage Erosion
Dam Inspection of October 23, 2014**

AMEC Environment & Infrastructure, a Division of AMEC Americas Limited carries out inspections of the tailings dams at Myra Falls Mine on an approximately monthly basis. This letter outlines critical observations of seepage erosion (piping) observed at the toe of the Paste Berm during an inspection carried out on October 23, 2014, and outlines urgent actions required to remedy the erosion. A site plan showing the seepage erosion location and photos illustrating the observations and recommendations are appended to this letter.

Weather during the period preceding the inspection consisted of nearly a week with moderate to high daily rainfall totals culminating in over 80 mm of rain recorded in the measurement taken on October 22, 2014. During this period water levels in the east corner of the Amalgamated Paste Area appear to have ponded to up to about 300 mm above the normal pond level.

During the inspection, AMEC staff noted a discrete seepage source at the corner of the Paste Berm near Instrument Plane C, in an area historically noted as having minor seepage. The seepage has typically been observed in the past to consist of a broad area of wet ground with minor surface runoff as a result of the discharge. Distributed seepage in this area would not normally be a concern.

The newly observed seepage source noted on October 23 is of a different nature. In addition to distributed wet ground, a discrete source of discharge was observed to be issuing from a single hole in the ground, approximately 8 cm across and 4 cm high. The flow rate was estimated visually to be approximately 10 L/min. The area around the discharge point had built up tailings sand in a fan approximately 2 m wide and 3 m long. The total volume of sand discharged is not large, likely on the order of 0.1 m³ or less.

AMEC reviewed the feature again on the morning of October 24, 2014 and noted no change in condition or amount of sand deposited. The water discharge remained clear.

Careful review of the dam toe in this area suggests similar issues may have been repaired in the past by excavating, mixing, and adding material. The area where the berm toe has been disturbed in the past occurs in two areas to the east of the discrete seepage source noted above as noted on the attached site plan and photographs.

While the new seepage and piping erosion feature is very small compared to the size of the berm, AMEC believes it has potential to become a very serious issue. Piping erosion within an embankment typically worsens as time goes on, and stability conditions can in some cases deteriorate extremely rapidly leading to total failure. To address this AMEC recommends the following course of action be carried out without delay:

1. Drain the ponded water from the corner in the east end of the APA. This should be accomplished by excavating a sump in the rockfill blanket in that east corner, ditching through the paste investigation access road, and installing a pump to lift water over into the TDF Strip. Monitor the area and maintain the drainage as necessary to minimize the area of ponding.

2. Install an interim buttress over the area of observed piping and areas of dam toe disturbance suspected to be former repairs. The buttress should be constructed as follows:
    - i. Smooth the area using an excavator equipped with a smoothed-edge bucket.
    - ii. Cover the area with medium weight non-woven geotextile filter fabric having an Apparent Opening Size not larger than 0.3 mm.
    - iii. Cover the geotextile with free draining material, such as surplus Clean Coarse Filter (CCF) from the Springs Drain project.

3. Check the area for signs of continued seepage erosion, slumping, or deformation a minimum of once per day until further notice. Keep a written record of inspections and forward to AMEC if any changed conditions are noted, but no less frequently than weekly. The record should be sent to Dan Hughes-Games via email (dan.hughes-games@amec.com)

4. AMEC will continue to observe the area periodically over the course of the winter and spring and may recommend additional actions if necessary. The intent is to prescribe a permanent fix to be implemented during drier conditions next summer, when construction materials are at more suitable moisture contents for handling and construction access to the wet area below the Paste Berm will be less likely to cause severe rutting.

CLOSURE

The recommendations herein are based on conditions observed at the time of the Dam Inspection and are subject to revision upon the availability of new information.

This letter has been prepared for the exclusive use of Nyrstar Myra Falls Ltd. for specific application to the area described within this letter. Any use which a third party makes of this letter or any reliance on or decisions made based on it are the responsibility of such third parties. AMEC accepts no responsibility for damages suffered by any third party as a result of decisions made or actions based on this letter. It has been prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

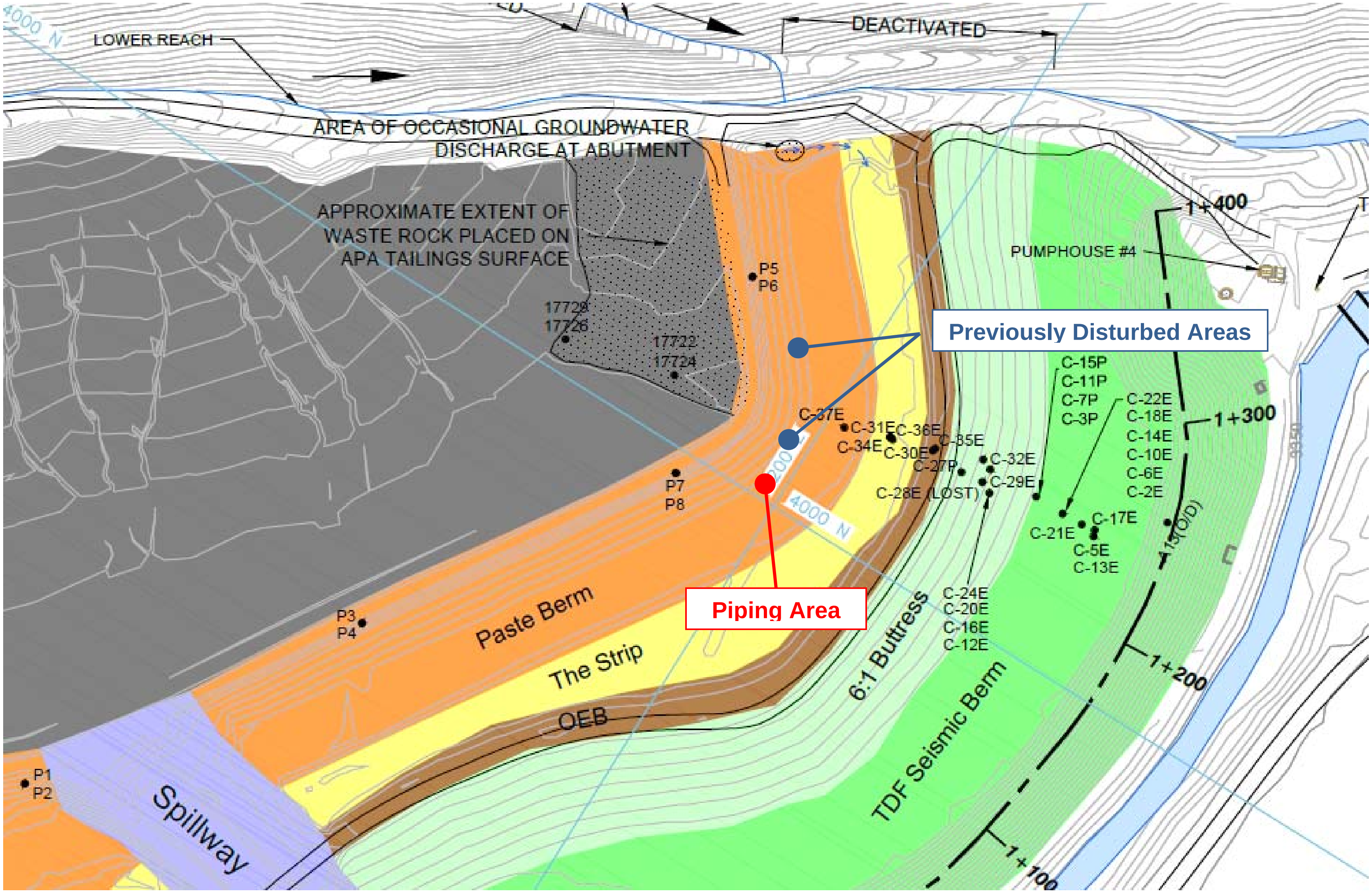
Respectfully submitted,

AMEC Environment & Infrastructure
a division of AMEC Americas Limited

Reviewed by:

Dan Hughes-Games, P.Eng.
Senior Geotechnical Engineer
Project Manager

Steve Rice, P.Eng.
Principal



Site Plan showing approximate locations of observed features (Plan from 2013 Dam Status Report).

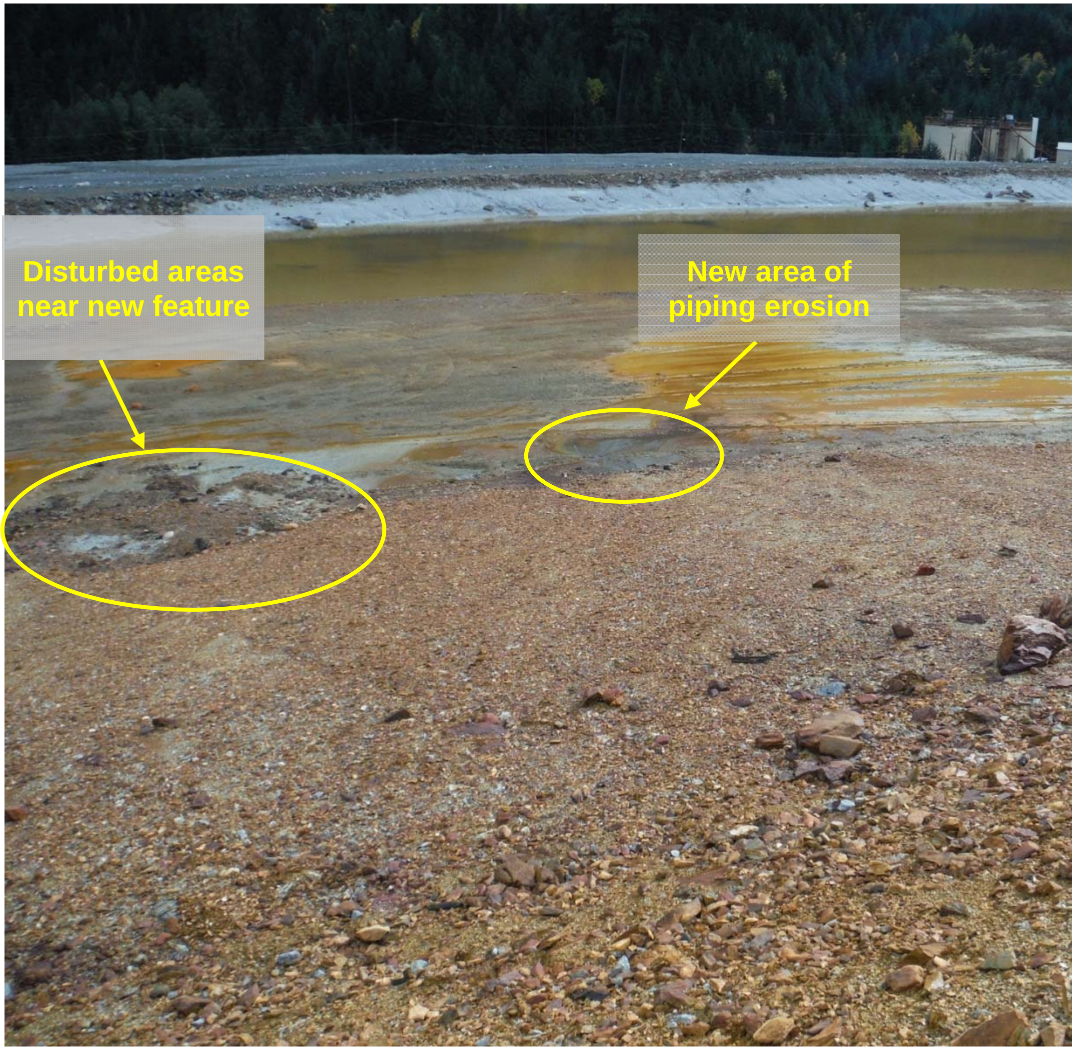


Photo 1 – View looking south, down from crest of Paste Berm from near the southeast corner. New piping area and area of former disturbacnce nearby to the east.

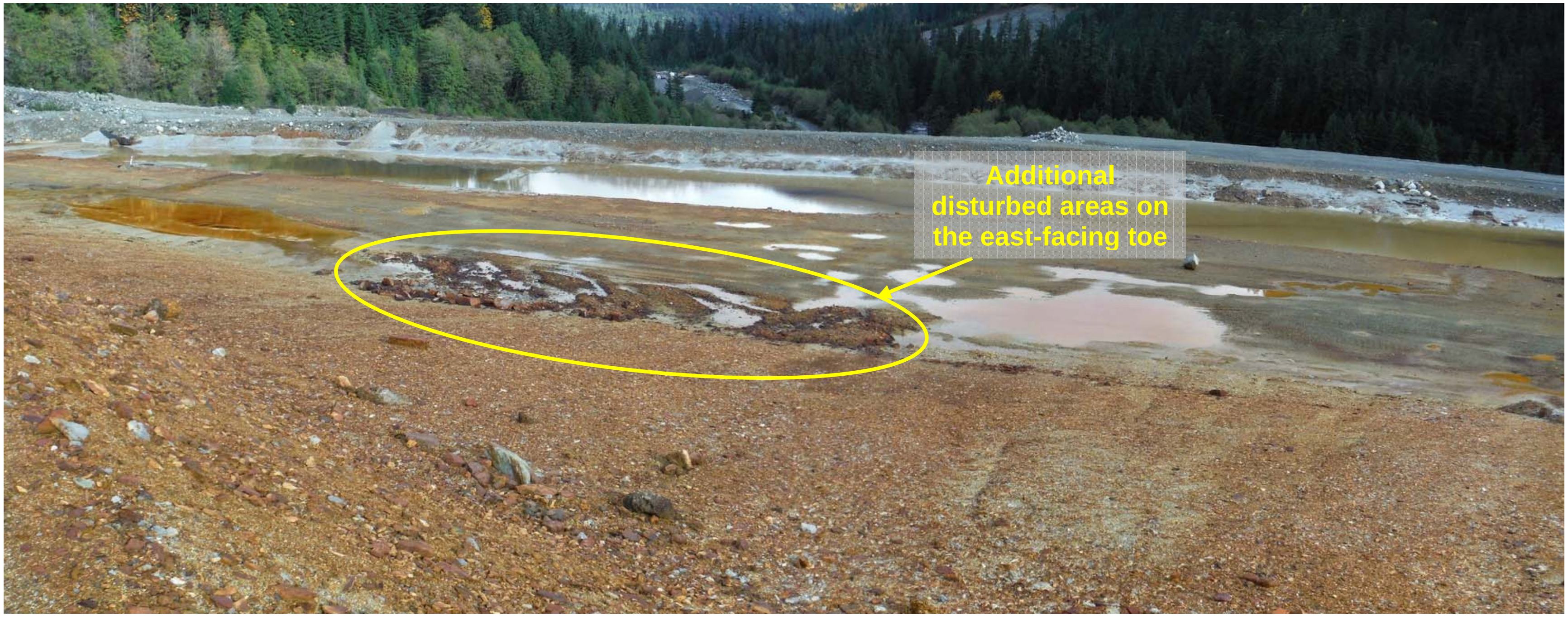


Photo 2 – View looking east, down from the crest of the Paste Berm from near the southeast corner. Additional previously disturbed areas visible.

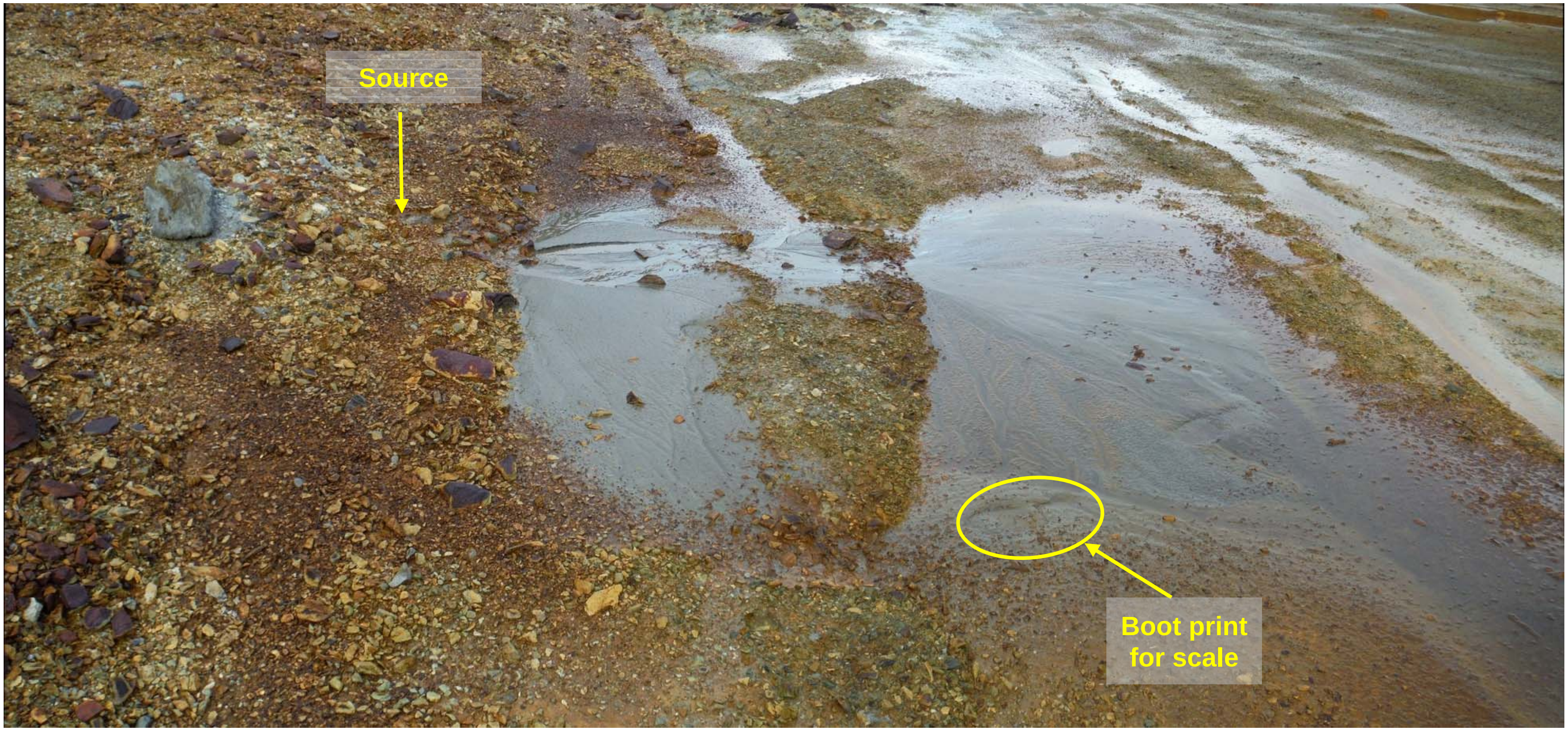


Photo 3 – Side view of piping area looking northwest along the toe of the Paste Berm.

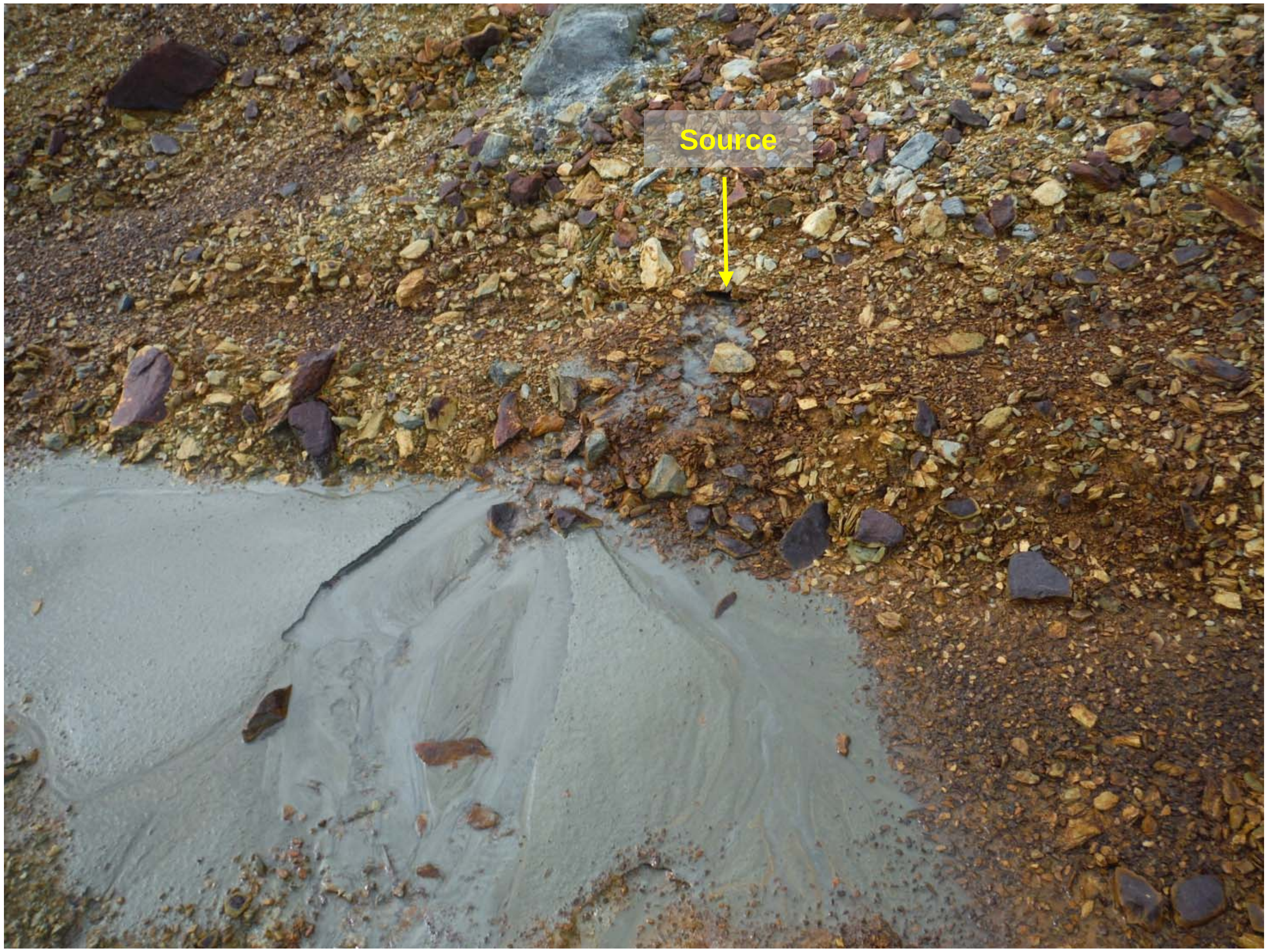


Photo 4 – Close-up of source area. Sand deposited along surface flow path and accumulated on level area at toe. Seepage water observed at the time of inspection was clear and free of sediment.

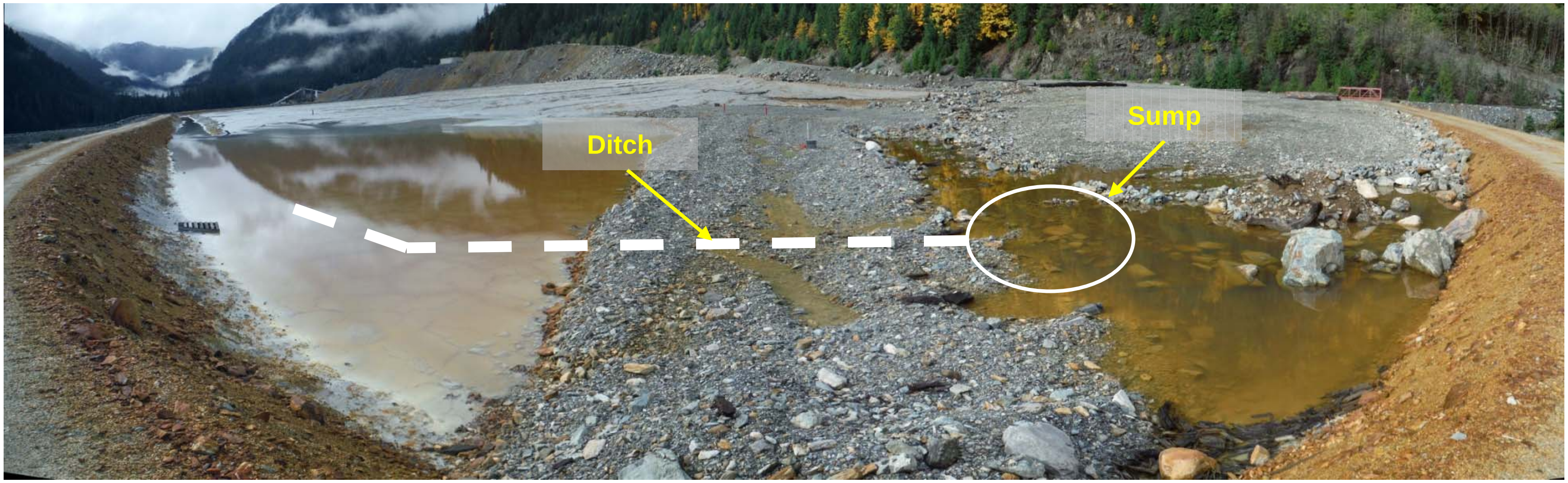


Photo 5 – panorama showing area of ponding water in APA. Recommended sump and ditch areas are indicated in white.

From:	Hughes-Games, Dan
Sent:	2014-10-25 11:49 AM
To:	Nick.Lewallen@nyrstar.com; McWilliams, Ivor; Paul Ferguson
Cc:	Patten, Tyler W; Campbell, Peter
Subject:	Paste Berm seepage erosion Oct 23
Attachments:	2014-10-25 Paste Berm Piping Letter.pdf
Importance:	High

Hi Nick/Ivor,

In my inspection on Thursday we noted a small area of piping erosion below the east corner of the APA. This is an important matter, I've had Tyler Patten watching it and the situation appears stable; however, mitigation measures in the attached letter should be implemented as soon as practical. I wasn't able to get a hold of Ivor on Friday to discuss this. I'll provide a signed/sealed copy of the letter on Monday.

An additional consideration is that the weather forecast currently includes heavy rainfall warnings and a special weather advisory. Apparently Hurricane Anna is projected to cross Mexico, downgrade to a tropical depression, and hit the BC coastal areas sometime early to mid next week. Projected rainfall totals are up to 100 mm per day. In order to avoid further degradation of the Paste Berm, the repairs should be implemented early next week at the latest, pumping capacity must be installed in the east corner of the APA in order to prevent water levels from rising.

With the current configuration of Lynx Dam it is also imperative that water levels be kept low. Pumping capacity needs to be in place and the water levels need to be monitored frequently during any period of heavy precipitation. My concern is the construction zone is separated from the tailings pond only by a berm of Zone J material. Ultimately this material will be buttressed by the drain infill, but currently there is an area of the drain that is not yet fully backfilled.

I suggest we have a conference call on Monday to go over these issues. I will be on site in person on Tuesday to kick off the Dam Inundation Study with Peter Campbell.

Dan Hughes-Games, P.Eng.
Senior Geotechnical Engineer
AMEC
Environment & Infrastructure
4385 Boban Drive, Nanaimo, BC, V9T 5V9, Canada
Tel +1(250)758-1887, fax +1(250)758-1899
dan.hughes-games@amec.com
amec.com

19 August 2015

NX14001E

Nyrstar Myra Falls Ltd.
PO Box 8000
Campbell River BC V9W 5E2
Attn: Nicole Pesonen

Dear Nicole:

Re: Alder Reach Ditch Deactivation Prescription

1.0 INTRODUCTION

Alder Reach ditch is a roughly 300 m length of surface water diversion that was constructed mine operations personnel above the Lower Lynx Diversion Ditch (LLDD) in August 2011. . The ditch was built in an attempt to intercept water that was thought to be bypassing the LLDD and causing the “Main Spring” at the APA East Abutment. The ditch was built on an ad-hoc basis without a documented design or geotechnical input. A site plan showing the current topography, the ditch alignment as originally constructed, and the approximate area proposed for deactivation work is on Figure 1, attached. Stationing has been applied to the ditch alignment for reference purposes. Selected site photographs are appended following the figures.

The ditch was cut across an existing hillside that is standing at about 35°, close to the natural angle of repose for the surficial materials. The cut and fill slopes are locally oversteepened, with typical angles of up to about 50°. Amec Foster Wheeler subsequently recommended fully deactivating the ditch and access trail in order to reduce long-term stability risks to the LLDD, which is located a short distance downslope. Deactivation of the ditch needs to consider the discharge and routing of the water that was intercepted by ditch construction. The photographs depict typical water flows during the fall-winter rainy season.

Partial deactivation was undertaken in 2012. The deactivation consisted of the following:

- Full re-sloping of the ditch cross section to the approximate shape of the pre-existing topography between Station 0+00 and 0+90, where the ditch was cut in angular talus and did not intercept groundwater.
- Partial pullback of the ditch fill slopes between Station 0+90 and 2+40, where the ditch intercepted water-bearing talus and colluvium overlying basal till.
- Full re-sloping of the ditch cross section to the approximate shape of the pre-existing topography between Station 2+40 and 3+12, where the ditch was cut in sand and gravel colluvium and did not intercept significant groundwater.

The partial pullback in the section between Station 0+90 and 2+40 was focussed on removing wood-supported and oversteepened fill slopes and resulted in a very narrow access trail, nominally less than 2 m wide. The cut slopes are standing between about 50° and 60° in basal till, within indications of the onset of ravelling in the granular surficial materials (primarily talus) near the original surface. The cut slopes in the main water bearing colluvium zone near 0+105 are not as steep, about 45° and have periodically retrogressed since the ditch was cut. The recontoured fill slope is typically about 40-42°.

Amec Foster Wheeler has recommended complete deactivation of the remaining section between Station 0+90 and 2+40 because the cut and fill slopes are too steep for landform that is stable in the long term. Because of the impacts of the intercepted groundwater on stability, the deactivation should be in accordance with an engineered prescription in order to reduce the potential for future terrain stability impacts to the infrastructure at the toe of the slope. This letter provides that prescription.

2.0 DESIGN INTENT

The design intent of the deactivation prescription is to restore the site to a relatively uniform slope near angle of repose at about 35°. For the upper and lower reaches noted above, this has already been achieved. For the middle reach this is complicated somewhat by the interception of shallow groundwater that was achieved by the ditch. Simple pullback and recontouring of the existing fill slope will not be successful as the materials are rich in sand and fines and would likely remain unstable if subjected to groundwater seepage forces.

In general terms the recommended deactivation prescription for the middle reach consists of the following components:

1. Filling of the original ditch excavation to re-establish pre-construction natural grade. This will need to be done using clean, angular, free-draining, coarse granular fill (i.e. rockfill).
2. Creation of armoured swales to allow drainage from the granular fill to descend the slope without creating erosion channels.
3. Removal of all remaining sidecast fill from below the ditch invert.

Free draining coarse granular material will be separated from the underlying natural subgrade materials using medium-weight, non-woven geotextile.

3.0 IMPLEMENTATION

It is envisioned that the prescription will be primarily “field fit” under full time construction review by a geotechnical engineer. The deactivation project will need to consist of the following general work steps:

1. Construct a temporary crossing of the LLDD near Station 2+30 of the Alder Reach. Historically this has been done by placing large logs in the LLDD during a period of low flow, then simply trafficking over the logs.

2. Re-advance an access trail along the Alder Reach ditch from about Station 2+30 up the slope to Station 0+90.
3. Starting at the top end of the existing ditch (Station 0+90):
    a) Create and/or improve a bench at the invert of the current ditch.
    b) Key in the base of the buttress into the exposed natural ground, nominally to a depth of about 0.3 m.
    c) Line the key trench and existing ditch cut slope with geotextile.
    d) Cover the geotextile with free-draining rockfill, sloping to create a rockfill buttress with a final angle no steeper than 35°. Intent is that the rockfill should be founded fully on undisturbed ground.
    e) Remove all side cast fill from the slope below the rockfill buttress.
4. In addition to the general sequence above, at selected intervals:
    f) Daylight the key trench and create a shallow swale running downhill from the Alder Reach ditch to the LLDD or the crest of the rockslope above the LLDD.
    g) Line the swale with geotextile.
    h) Fill the swale with free-draining rockfill, sloping the profile of the swale to an angle to match the surrounding topography.
5. Remove temporary machine access from the LLDD and rehabilitate the disturbed footprint by seeding/planting appropriate species as soon as practical.

4.0 MATERIAL

4.1 Granular Fill

Granular fill for the rockfill buttress and armoured drainage swales should consist of crushed quarry rock sourced from the local rock quarry at the east end of the site. The existing stockpile of underground ramp construction material appears to be suitable. The material shall be angular, well graded, 150 mm minus material and contain less than 5% fines within the fraction passing 25 mm. Specific fill sources should be approved by the geotechnical engineer prior to use.

Rough quantities were determined by measuring the slope geometry of four key sections (appended to this letter as Figures 2 through 5) and calculating the approximate cross sectional area. This was multiplied by the effective length (the sections were skewed to match the natural slope) of each corresponding ditch deactivation section to determine an overall volume. The approximate estimated volume required to construct the buttress is 2,000 m^3. An allowance of an additional 200 m^3 should be made to account for armouring the drainage swales below the buttress.

4.2 Non-woven Geotextile

The geotextile separator should consist of a medium-weight, non-woven geotextile having a grab tensile strength of at least 700 N, a Mullen-Burst strength of at least 1900 kPa, and an apparent opening size (AOS) no smaller than 0.2 mm. An example of a compatible product would be Nilex 4551. The geotextile should be rolled out parallel to the fall of the slope, and adjacent strips should be overlapped by approximately 0.5 m.

Rough quantities were determined by measuring the approximate cross sectional slope distance under the rockfill buttress at each of the key typical sections. This was multiplied by the effective length along each corresponding ditch deactivation section to obtain an approximate overall area. The area for geotextile application needed below the buttress is approximately 2,900 m². Assuming a 4.5 m roll width (4 m effective width accounting for overlap), approximately 725 lineal metres would be required. An allowance of an additional 200 m should be made for the armoured drainage swales.

5.0 CLOSURE

This letter has been prepared for the exclusive use of Nyrstar for specific application to the areas described within. Any use which a third party makes of this letter, or any reliance on or decisions made based on it, are the responsibility of such third parties. Amec Foster Wheeler Environment & Infrastructure accepts no responsibility for damages suffered by any third party as a result of decisions made or actions based on this letter.

If you have any questions or comments, please do not hesitate to contact the undersigned at 250-758-1887.

Yours truly,

Amec Foster Wheeler Environment & Infrastructure,
a Division of Amec Foster Wheeler Americas Limited

Reviewed by:

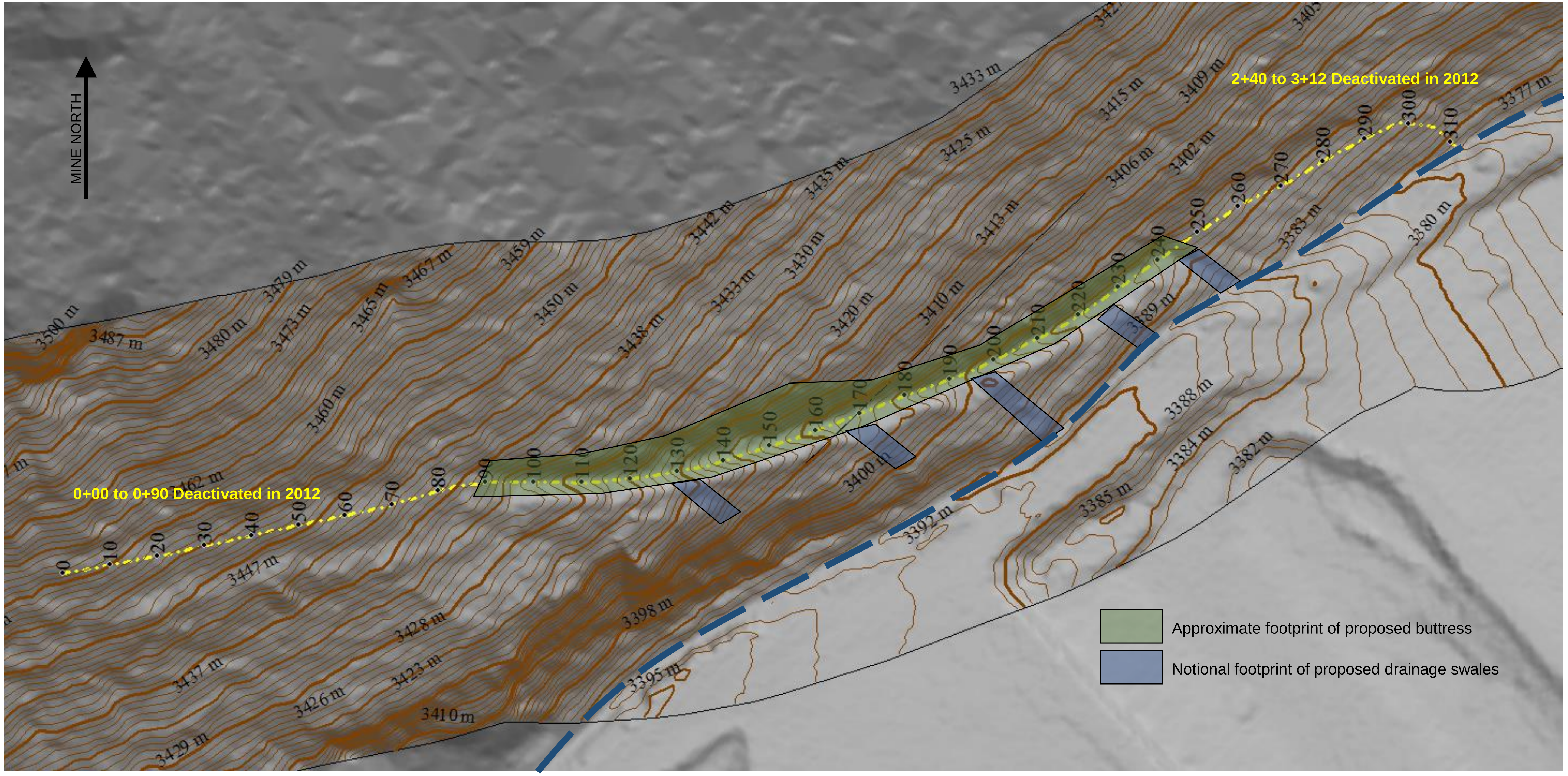
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. A. HUGHES-GAMES
32144
Aug 19/2015

Dan Hughes-Games, P.Eng.
Senior Geotechnical Engineer

Nick Polysou, P.Eng.
Manager, BC Region

Attachments:
Figure 1: Site Plan
Figures 2-5: Typical Sections
Selected Site Photographs

Figure 1: Site Plan:



Plan showing approximate extent of proposed buttressing and notional locations of proposed drainage swales (to be field fit).

Figure 2: Typical Section at 1+00

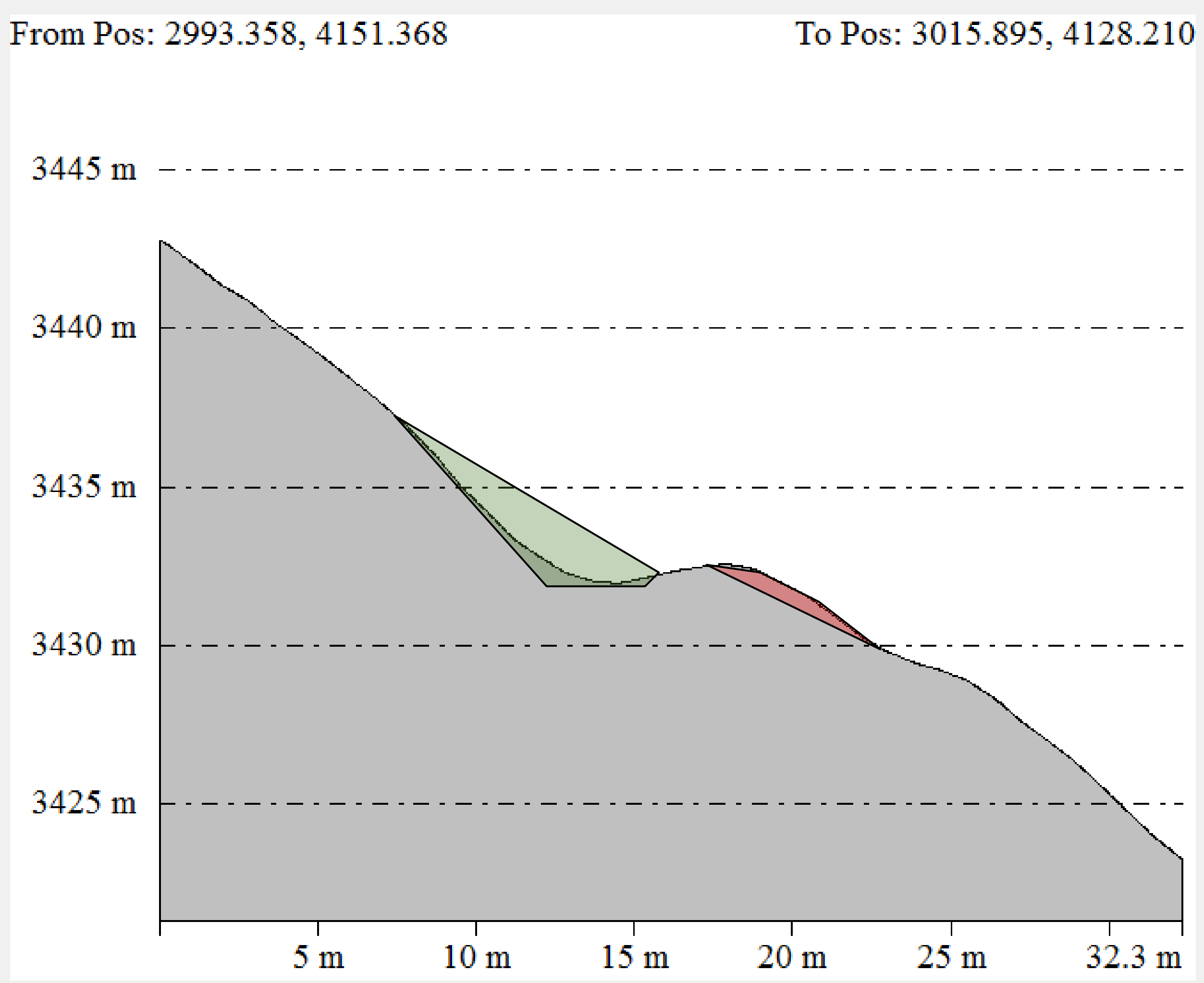


Figure 3: Typical Section at 1+30

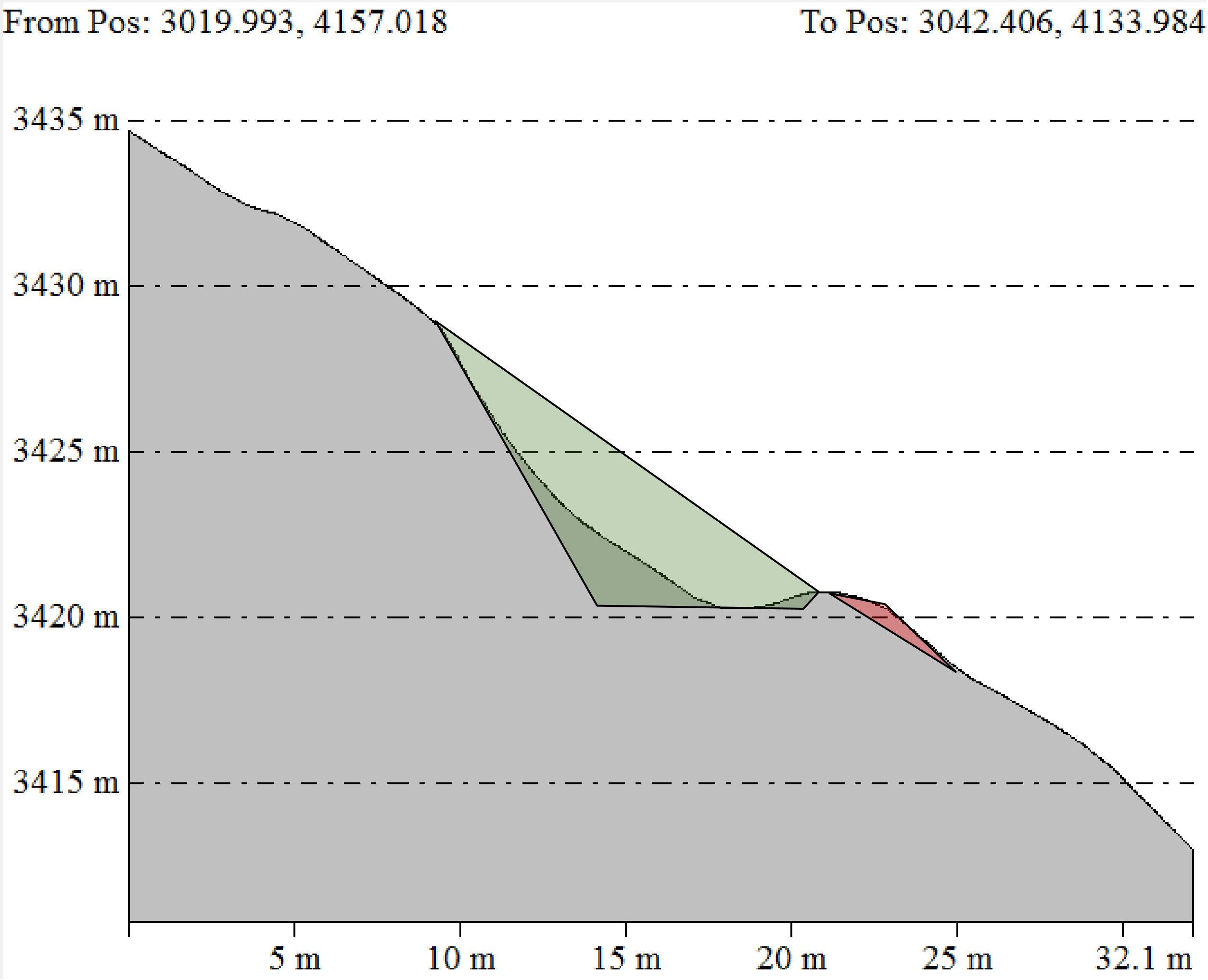


Figure 4: Typical Section at 1+60

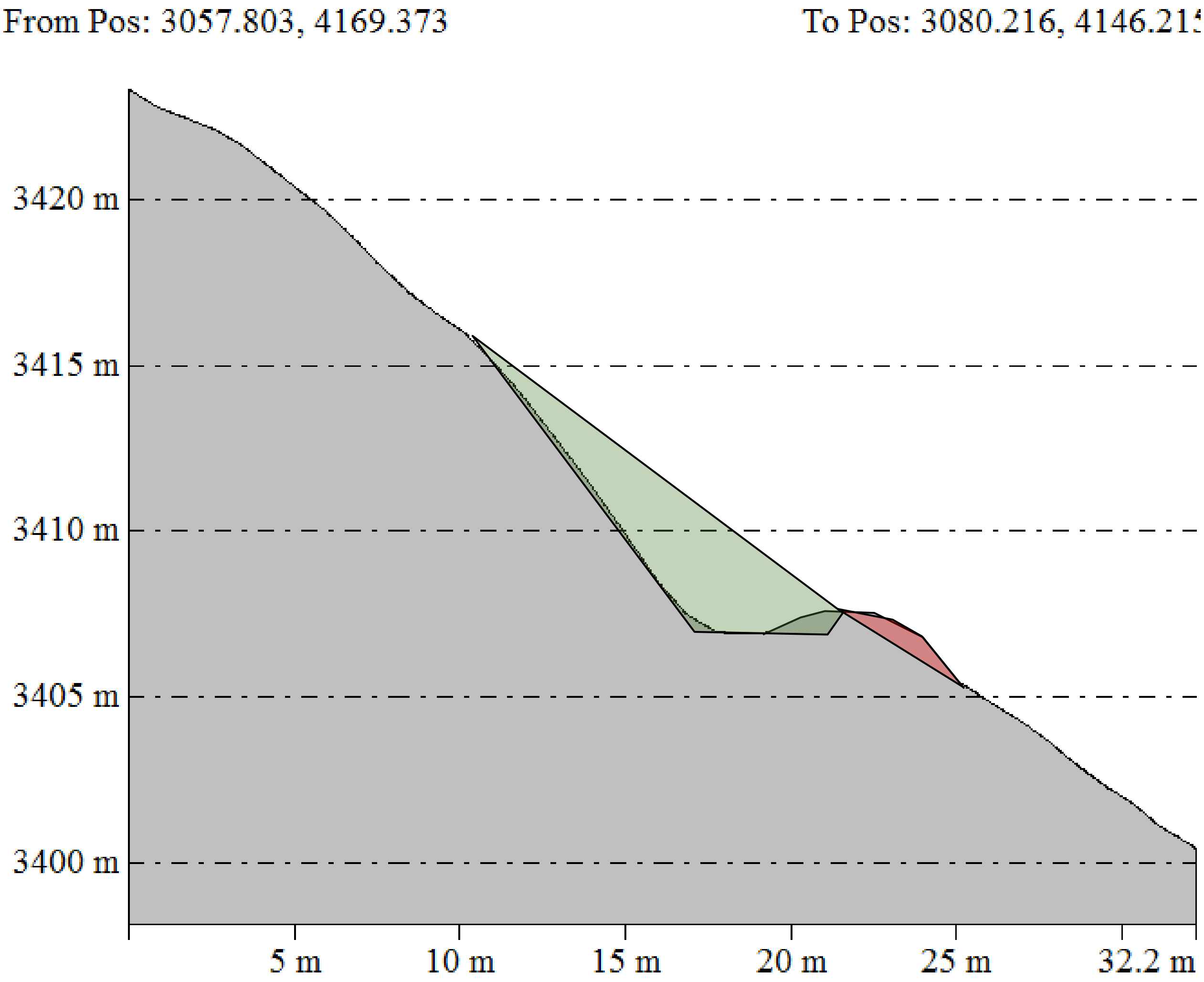
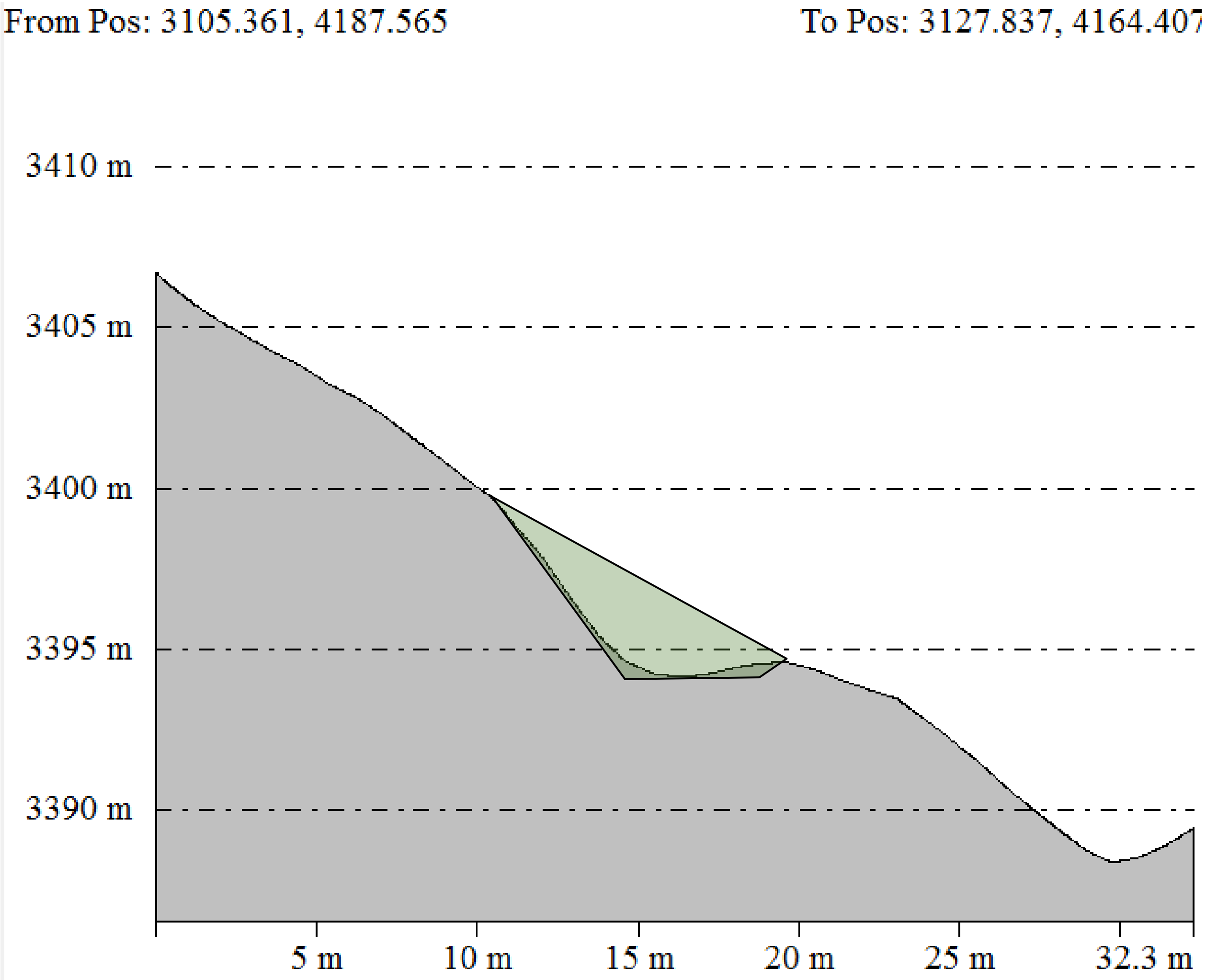


Figure 5: Typical Section at 2+20



View looking up the Alder Reach from about 2+00, in October 2014.

View looking up the Alder Reach from about 1+60 in October 2014.

Main source of water at about 1+05, in coarse colluvium, October 2014.
A drainage swale will be required at this location or slightly below.

Water discharge at 2+40, at the Lower Lynx Diversion Ditch, October 2014.

Previously deactivated section looking downslope from about 0+40, October 2014.

1 October 2015

NX14001H

Nyrstar Myra Falls Ltd.
PO Box 8000
Campbell River BC V9W 5E2
Attn: Nicole Pesonen

Dear Ms. Pesonen:

Re: Rainy Season Construction, Lower Lynx Diversion Ditch, Alder Reach Ditch, and Old TDF Decants and Spillways, Myra Falls Mine, BC

1.0 INTRODUCTION

The British Columbia Ministry of Energy and Mines (MEM) requested that Nyrstar Myra Falls Ltd. (NMF) provide verification from their engineering consultant (Amec Foster Wheeler) that select construction scopes are considered too high a dam safety risk to proceed during the rainy season. This letter serves to provide some information and recommendations on risks to construction during the rainy season at Nyrstar Myra Falls Mine for the following scopes of work:

- Lower Lynx Diversion Ditch (LLDD);
- Alder Reach deactivation; and
- Old Tailings Disposal Facility (TDF) decants and spillways.

The risks and recommendations were previously provided to NMF by separate email for each scope. This letter serves to formalize and compile the risks in one document. Section 2 provides some background information on rainfall and LLDD peak flows. Subsequent sections discuss background, risks and recommendations for the construction scopes of work.

Detailed design information for each scope can be found in the following documents:

LLDD

- Nystar Myra Falls Mine, Upper Reach, Cascade Reach, and Lower Reach Diversion Ditches, Hydrology Update (Amec 2015a).
- Nyrstar Myra Falls Mine Lower Lynx Diversion Ditch Detailed Design Report, July 2015 (Amec 2015b).

Alder Reach Deactivation

- Alder Reach Ditch Deactivation Prescription, 19 August 2015 (Amec 2015e).

Old TDF Decants and Spillways

- Myra Falls Mine Site, Myra Falls Tailings Disposal Facility Decants, Surge Pond and Spillway Technical Specification, 28 July 2015 (Amec 2015c).
- Myra Falls Mine Site Old Tailings Disposal Facility Decants and Spillways Detailed Design, 7 August 2015 (Amec 2015d).

2.0 RAINFALL AND PEAK FLOWS

This section provides some context for the rainfall and corresponding LLDD peak flows. The Nyrstar Myra Falls Mine receives large rain events during the rainy season period from October to April. Construction was initially expected to start in July and finish in October. The LLDD Detailed Design Report (draft, July 2015) included the following table outlining the probability of exceeding peak flows for various rain events. The values were based on the assumption that construction would commence in August and be concluded before the end of October.

Table 2.1: Probability of Peak Flow Exceedance for Construction July to October

Return Period (years)	Rainfall (mm)	Peak Flow (m^3/s)	Probability of Exceedance During July to October Period
2	65.9	2.2	50%
5	92.0	5.9	20%
10	109.3	8.8	10%
20	125.9	12	5%
50	147.4	16	2%
100	163.4	19	1%
200	179.5	23	0.5%

A second presentation of rainfall probabilities was prepared using daily data from 1975 to 2015. A table and chart of the cumulative probability of selected flow rates (representing the diversion scenarios presented below) versus days after the start of a water year (August 1) is attached at the end of this letter. The plot can be used to roughly determine the probability of overtopping of each diversion scenario as the rainy season progresses.

Given that construction would now extend into November and December, and possibly later, the peak flows used to plan construction water diversion should be taken as the full annual peak flows as presented in Table 2.2. Note that November through January are historically the months with the greatest overall precipitation and also the most intense storm systems. Storm events during rainy season months can also result in a snowmelt component to runoff. Snow melt is anticipated to add up to the equivalent of about 17 mm of precipitation to the runoff.

Table 2.2: Probability of Peak Flow Exceedance for a Full Year

Return Period (years)	Rainfall (mm)	Peak Flow (m^3/s)	Exceedance Probability (%)
2 year	128	12	50%
5 year	158	18	20%
10 year	175	21	10%
20 year	189	23	5%
50 year	202	23	2%
100 year	212	30	1%
200 year + snowmelt	236	34	0.5%

The peak flow hydrology numbers are based on HEC-RAS modeling and regional calibration to determine suitable input parameters. It should be noted that while the runoff hydrology predicts flows up to about 34 m³/s for a 1:200 AEP event, these are conservative values, which assume reasonable worst case antecedent conditions. Generally it is assumed in the model that the storm events follow periods of wet weather, and the capacity for attenuation in the contributing watersheds is limited. Actual flows may be less than those predicted for real weather events.

3.0 LOWER LYNX DIVERSION DITCH

3.1 Background

The Lower Lynx Diversion Ditch (LLDD) requires a significant geometric upgrade in order to allow it to pass the Inflow Design Flood (IDF) from Cascade Reach and the hillside above the Old TDF. The IDF is defined for Operations and Active Closure as 1/3 between the 1:1000 annual exceedance probability (AEP) and the Probable Maximum Flood. Analysis undertaken in spring 2015 indicates the IDF for the LLDD is 67 m³/s (Amec 2015a).

The proposed upgrade of the LLDD involves substantially reconstructing the diversion between Station 0+216 and 0+975 within the same footprint as the existing diversion. The same footprint must be used due to topographic constraints between the tailings facility and the adjacent steep hillside. This necessitates the implementation of a water diversion during construction.

3.2 Reliability of Existing Diversion

The existing LLDD was designed for 1:200 year flow using older weather and hydrological information (AMEC 2008). Recent analysis indicates that the critical sections of the existing ditch are capable of conveying approximately 22 m³/s without overtopping (Amec 2008). This correlates to approximately a 175 mm, 24-hour storm event, which is roughly a 1:10 AEP event (Amec 2015a). However, it should be noted that the existing LLDD has sustained flows from precipitation events up to approximately a 1:200 AEP rainfall without overtopping at the critical sections. The probability of overtopping the existing diversion during a single water year is therefore somewhere between 0.5% and 10%.

3.3 Proposed Construction Water Management Plan

The proposed water management plan is appropriate for anticipated mid to late summer flow conditions for the LLDD, and includes four potential flow pathways:

1. A 24" diameter HDPE pipe situated upstream of a temporary check dam in the LLDD near Station 0+075, flowing down the Paste Plant Hill road to Myra Creek immediately upstream of the Old TDF. The estimated maximum capacity of this pipe is 0.5 m^3/s. It was installed the week ending September 18.

2. A 48" diameter HDPE pipe to be installed alongside the 24" pipe. The maximum capacity of this pipe is estimated at about 2 m^3/s. It was to be borrowed from the Decants and Spillways project but due to delays in procurement, the pipe will likely need to be installed in its design location as soon as it's available and therefore may no longer be available for use as a temporary diversion without compromising the schedule for the Decants and Spillways project.

3. Overflow of a weir above the two pipes, resulting in water flow directly down the Paste Plant Hill road and roadside ditch to Superpond. The maximum allowable inflow to Superpond is approximately 2 m^3/s. If the flow exceeds 2 m^3/s, the main check dam in the LLDD will need to be at least partially removed to prevent overtopping of Superpond.

4. Overflow of the check dam in the LLDD, resulting in the remaining water flowing down the existing diversion ditch and potentially into the construction area.

Without the addition of the 48" pipe, the clean water diversion to Myra Creek is limited to approximately 0.5 m^3/s. This correlates to a 24-hour precipitation event of about 45 mm, which is lower than the 1:1 AEP, that is, it is expected to occur several times within any given rainy season.

Nyrstar implemented the 24" pipe diversion on a trial basis during the week of September 18, 2015, using a low check dam in the existing LLDD. The weather during the trial was not particularly unusual for the period (i.e. it did not represent a notable storm event). During the trial, the 24" pipe was overwhelmed and flow overtopped the check dam to continue down the existing LLDD.

The combination of the 24" pipe and weir overflow to Superpond is estimated at 2.5 m^3/s. This correlates to a 24-hour precipitation event of about 68 mm, which is also lower than the 1:1 AEP.

3.4 Risks Associated With Water Management

Overtopping the pipe control weir and having water flow down the Paste Plant Road and directly into Superpond has associated risks to the water treatment system. The inflow of water may disrupt primary sedimentation. In addition, it is anticipated that the flow will convey additional silt, sand, gravel, and potentially cobbles from erosion along the road and deposit these materials in Superpond. This will require post-event cleanout of the pond, and could also cause damage to the pond liner.

Flow of water down the LLDD in to the construction area carries several risks:

1. Flow of water through the LLDD construction area has a high potential to damage any works that have been constructed at the time of the event. This might include grading, check dams, under drains, or concrete cloth.

2. If the water cannot be effectively diverted along the LLDD alignment to continue to Myra Creek, it would spill into the Old TDF. Depending on the rate of flow and the flow location, this could cause issues with TDF water management including the potential for:

   - Flooding of the Pumphouse 4 area, potentially compromising water collection from the outer drain system.
   - High flows into the APA decant, including a high suspended tailings solids content. This could result in overwhelming of Superpond (particularly if it is already burdened by construction diversion overflow down Paste Plant Hill road) and may compromise water quality due to high suspended solids.
   - Flow into the TDF strip resulting in flooding in the proposed Decants and Spillways project and additional flow into the treatment system.
   - Overwhelming of the water storage and conveyance capability of the APA resulting in flow of water and tailings through the Operations Spillway and into Myra Creek. Under the current permit this is permissible for events with an AEP less than 1:200, but given the diversion plan above, could occur at an AEP of 1:1.
   - Overwhelming of the drainage capacity of the TDF Strip resulting in potential dam overtopping and flow of contaminated water into Myra Creek. In the worst case, dam overtopping could lead to dam failure and loss of containment.

In addition to the risks of overtopping due to high peak flows, operation of the diversion will require that the pipe inlets are maintained in a debris-free state. During higher flows, it is anticipated that Cascade Creek will produce organic matter and woody debris as well as sand and gravel sediment. These materials will need to be kept clear of the pipe inlets on a 24-hour per day basis.

3.5 Water Management Alternatives

It is our understanding that the target level of reliability for the water diversion during construction is to safely carry a 1:200 AEP. Given the consequences of failure, we agree that this is a suitable level of reliability.

Realistically there is no evident practical alternative to the existing shotcrete lined LLDD to safely convey the 1:200 AEP flow of 34 m^3/s from Cascade Reach to Myra Creek. Given the space constraints, the proposed upgraded LLDD must be constructed within the same footprint; therefore, there is no practical method to achieve safe water diversion during the rainy season.

3.6 Other Considerations

The construction activities proposed for the LLDD upgrade include a number of activities that are water or moisture sensitive, including:

- Construction of fills using locally available mine waste and glacial till materials;
- Construction of sand-bentonite trench blocks;
- Placement and welding of HDPE geomembrane; and
- Placement of concrete cloth.

Amec Foster Wheeler understands the current construction schedule includes approximately 8 weeks of work to complete the LLDD project. It is our experience working on site over the past seven years that construction of water-sensitive aspects during the rainy season should be anticipated to incur frequent rain delays, in some cases lasting more than 1 week per delay. An idealized 8 week schedule should be anticipated to realistically take on the order of twice as long during the months of October to April. Furthermore, the occurrence of rain during construction of some elements may require rejection and replacement of some portions (compacted fills, trench blocks). In addition to rainfall, snowfall often occurs at the site during the colder months, and would be expected to significantly delay or even halt construction. There are currently 13 weeks remaining in 2015, therefore even if commenced immediately, it may not actually be feasible to complete the project in 2015.

3.7 Recommendation for Deferral

Based on the information presented above, Amec Foster Wheeler’s opinion is that LLDD work involving removal or partial removal of the existing shotcrete-lined diversion ditch in the rainy season, given the current water diversion plans, has a high to very high risk of causing material water quality impacts and adverse risks to dam safety. Furthermore, there are no available alternative water management concepts that could handle the magnitude of flood flows anticipated during the rainy season. We therefore strongly recommend deferral of works which require removal of the existing shotcrete-lined diversion until the end of spring freshet flows in order to mitigate water management risks.

This recommendation for deferral is made solely on the basis of maintaining an optimal level of dam safety, and is made on the grounds of protecting the safety, health, and welfare of the public and the protection of the environment.

Some work on the project can proceed without undue risk to dam safety. This would include grading works required to place fill over the Old TDF tailings surface, where required, and other grading work that does not compromise the existing diversion ditch or access for maintenance activities.

4.0 ALDER REACH DEACTIVATION

Alder Reach is a 312 m long surface ditch that was constructed in 2011 across a marginally stable slope above the existing LLDD near the APA East Abutment. The mine management at the time of construction solicited AMEC's advice on its location and sizing. AMEC provided a strong recommendation against constructing a surface diversion at that location, as it would create potentially unstable cut and fill slopes. Our reasoning was that the slope is at natural angle of repose; therefore steeper cut or fill slopes are unlikely to be stable, particularly if there is seepage or surface runoff. The management at that time elected to construct the diversion, contrary to our advice. Since then, part of the diversion has been decommissioned, but approximately 100 m of ditch remains.

In its current configuration, the presence of the ditch presents two issues:

1. A potential for terrain instability and site disturbance due to gradual and continued erosion/slumping of the cut slope in the longer-term; and,

2. A potential for localized slumps or slides of material to deposit debris in the existing or proposed LLDD if the remaining oversteepened fill slopes were to fail.

Amec Foster Wheeler's recommendation is to fully deactivate the ditch and restore the pre-existing slope profile. This has been our position since the initial construction of the ditch.

From an engineering perspective, the timelines associated with deactivation of the Alder Reach diversion ditch are relatively flexible. Delay in deactivation has several implications that will need to be considered:

- Deactivating the Alder Reach diversion ditch during the winter season will be difficult due to the volumes of seepage currently discharged near the crest of the cut slopes. Amec Foster Wheeler's opinion is that the work will be more successful if carried out during dry summer conditions.
- If deactivating the Alder Reach is deferred until after completing the LLDD upgrades, then creating suitable machine access across the proposed concrete cloth-lined diversion is likely to require more extensive temporary access works than what would be required to access the site across the existing shotcrete lined ditch. Construction of access and execution of the deactivation work will involve some risk of local damage to the concrete cloth, and may require repair or replacement of the affected sections.
- The Alder Reach fill slopes have a potential for slope failure, which could result in debris deposition in the LLDD. The potential for such a failure is deemed low, but not unlikely. Debris could block the existing LLDD, but is unlikely to fully block the proposed LLDD geometry, due to the greatly increased width. Debris deposition into the diversion could also result in sediment delivery to Myra Creek, which might be considered deleterious or harmful, depending on the background level of turbidity at the time.

- The existing Alder Reach cut slopes are gradually ravelling at the crest, primarily due to surface runoff from upslope and groundwater discharge in select areas. Deferral of deactivation to a later date may increase the total disturbed area that needs to be deactivated. In the worst case it could develop into a large, shallow slope stability failure effecting several hectares of the slope above the area proposed for deactivation. The potential for development of a larger slope failure is considered relatively unlikely.
- Deactivation of the Alder Reach area may allow designation of the area as fully reclaimed. The disturbed area of the Alder Reach diversion is 0.5 Ha (over its full, original 312 m length).

Amec Foster Wheeler's opinion is that deactivation of the Alder Reach diversion may be deferred to a later date without undue risk of serious geotechnical or water management issues, or risks to dam safety.

5.0 DECANTS AND SPILLWAYS PROJECT

The Decants and Spillways project is intended to replace the existing water management structures within the Old TDF and is of paramount importance to dam safety. Construction during the rainy season will be difficult due to the need to work in tailings areas; however, with the exception of the replacement of culverts below the Operations Spillway, Amec Foster Wheeler recommends that this work proceed as soon as practical and as a high priority. This will help mitigate the risk of high water levels that could potentially lead to beach piping erosion (such as in December 2014) or dam overtopping in the TDF Strip.

Replacement of the culverts below the Operations Spillway must be deferred until after spring freshet. The spillway cannot be removed for culvert reconstruction during the wet portion of the year without reducing dam safety to critically unsafe levels. To do so would place the facility at very high risk of overtopping due to a potential breach of the LLDD or failure of the APA decant. Overtopping of the APA could result in a breach of the Paste Berm. Overtopping or breach of the paste berm could lead to subsequent overtopping or breach of the outer embankment.

Given that the culverts below the Operations Spillway should be deferred, drainage from the existing pumps or the proposed East APA decant must be managed to prevent overtaxing the existing culverts below the Operations Spillway. The east end of the APA is capable of overflowing to the west end in the case of high water levels, or through the Operations Spillway in the case of a flooding emergency.

6.0 SUMMARY OF RECOMMENDATIONS

This section summarizes the recommendations made in this letter:

1. Defer works involving removal of the existing shotcrete-lined LLDD structure until after the conclusion of 2016 freshet.

2. Construct preparatory earthworks for the LLDD where they do not compromise the shotcrete-lined LLDD or access for maintenance.

3. Deferral of Alder Reach deactivation is a management decision for NMF and deferral does not pose significant dam safety risks. However, because of the high volumes of seepage currently flowing over the Alder Reach cut slopes, deactivation should be carried out during the summer season.

4. The Decants and Spillways project should proceed as a priority, with the exception of the work to replace the culverts below the Operations Spillway.

7.0 CLOSING REMARKS

This letter has been prepared for the exclusive use of Nyrstar for specific application to the areas described within. Any use which a third party makes of this letter, or any reliance on or decisions made based on it, are the responsibility of such third parties. Amec Foster Wheeler Environment & Infrastructure accepts no responsibility for damages suffered by any third party as a result of decisions made or actions based on this letter.

If you have any questions or comments, please contact the undersigned at 250-758-1887.

Yours truly,

Amec Foster Wheeler Environment & Infrastructure,
a Division of Amec Foster Wheeler Americas Limited

`Original copies signed and sealed by`
`Dan Hughes-Games, P.Eng.`

Dan Hughes-Games, P.Eng.
Senior Geotechnical Engineer

Reviewed by:

`Original copies signed by`
`Ed McRoberts, Ph.D., P.Eng.`

Ed McRoberts, Ph.D., P.Eng.
Principal

`Original copies signed by`
`Christine Peters, M.Eng., P.Eng.`

Christine Peters, M.Eng., P.Eng.
Project Manager

Attachments: Rainfall probabilities 1978-2015

REFERENCES

AMEC Earth & Environmental, 2008. “Water Management Study – Progress Report #1”. Technical Report, February 2008.

AMEC Environment & Infrastructure, 2012. “Nyrstar Myra Falls 2012 Update of the Site Design Storms”. Technical Letter, July 12, 2012.

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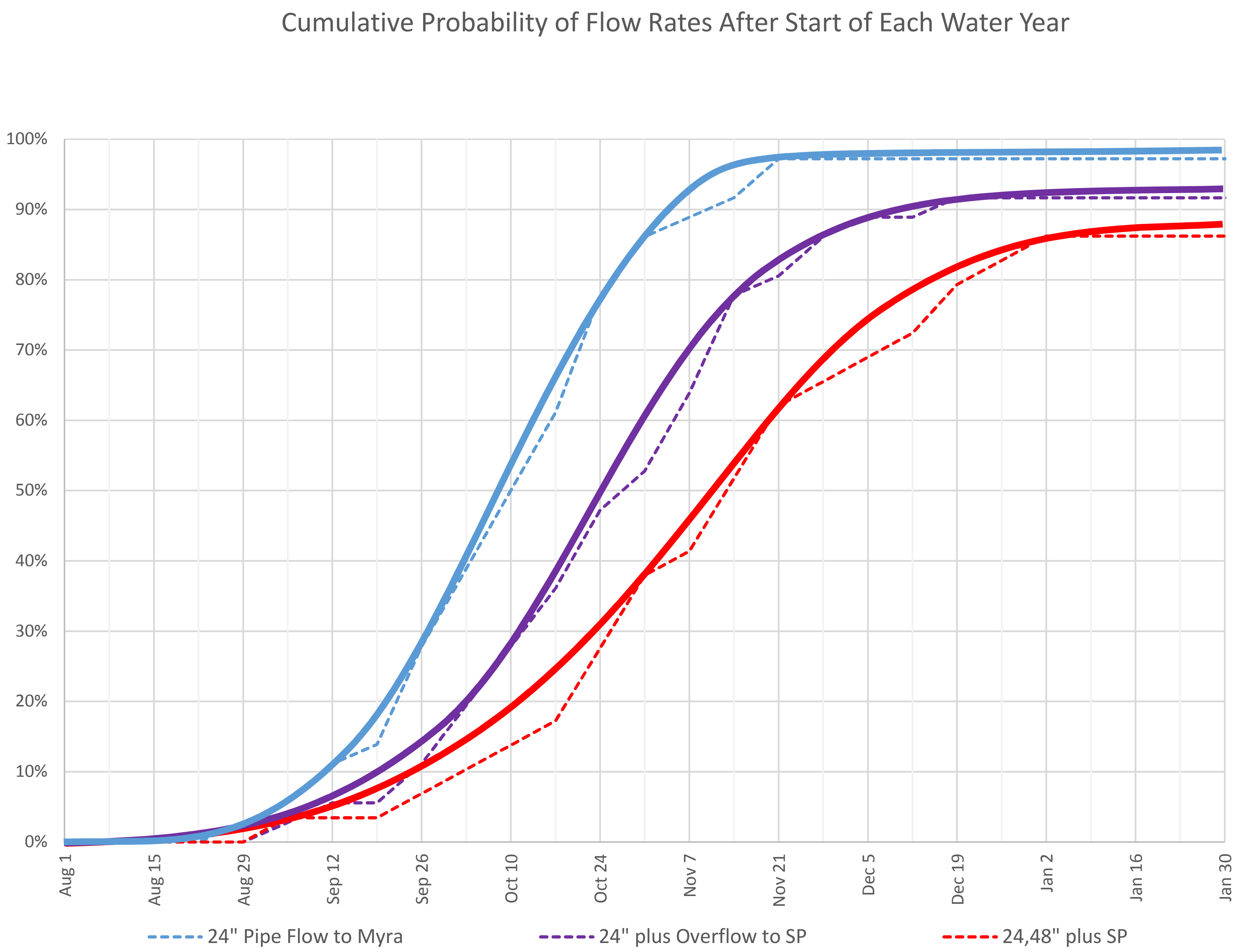
Amec Foster Wheeler Environment & Infrastructure 2015b. “Nyrstar Myra Falls Mine Lower Lynx Diversion Ditch Detailed Design Report”. Technical Report, July 2015.

Amec Foster Wheeler Environment & Infrastructure 2015c. “Myra Falls Mine Site, Myra Falls Tailings Disposal Facility Decants, Surge Pond and Spillway Technical Specification”, July 28 2015

Amec Foster Wheeler Environment & Infrastructure 2015d. “Myra Falls Mine Site Old Tailings Disposal Facility Decants and Spillways Detailed Design, August 7, 2015

Amec Foster Wheeler Environment & Infrastructure 2015e. “Alder Reach Ditch Deactivation Prescription”. Technical Letter, August 19, 2015.



Based on precipitation records 1978-2014, and peak flow versus precipitation model dated February 2015. Solid curves fit by hand.

Number of years meeting precipitation thresholds on or before a given date.

Plot Data:	Flow Rate			0.5 m^3/s		2.5 m^3/s		5.3 m^3/s
	Precipitation			45 mm		68 mm		88 mm
	Scenario Name		24" Pipe Flow to Myra		24" plus Overflow to SP		24,48" plus SP	
Week	Days from start of Water Year		Number of years		Number of years		Number of years	
	<=	date		%		%		%
0	0	August 1, 2015	0	0%	0	0%	0	0%
1	7	August 8, 2015	0	0%	0	0%	0	0%
2	14	August 15, 2015	0	0%	0	0%	0	0%
3	21	August 22, 2015	0	0%	0	0%	0	0%
4	28	August 29, 2015	1	3%	0	0%	0	0%
5	35	September 5, 2015	2	6%	1	3%	1	3%
6	42	September 12, 2015	4	11%	2	6%	1	3%
7	49	September 19, 2015	5	14%	2	6%	1	3%
8	56	September 26, 2015	10	28%	4	11%	2	7%
9	63	October 3, 2015	14	39%	7	19%	3	10%
10	70	October 10, 2015	18	50%	10	28%	4	14%
11	77	October 17, 2015	22	61%	13	36%	5	17%
12	84	October 24, 2015	28	78%	17	47%	8	28%
13	91	October 31, 2015	31	86%	19	53%	11	38%
14	98	November 7, 2015	32	89%	23	64%	12	41%
15	105	November 14, 2015	33	92%	28	78%	15	52%
16	112	November 21, 2015	35	97%	29	81%	18	62%
17	119	November 28, 2015	35	97%	31	86%	19	66%
18	126	December 5, 2015	35	97%	32	89%	20	69%
19	133	December 12, 2015	35	97%	32	89%	21	72%
20	140	December 19, 2015	35	97%	33	92%	23	79%
21	147	December 26, 2015	35	97%	33	92%	24	83%
22	154	January 2, 2016	35	97%	33	92%	25	86%
23	161	January 9, 2016	35	97%	33	92%	25	86%
24	168	January 16, 2016	35	97%	33	92%	25	86%
25	175	January 23, 2016	35	97%	33	92%	25	86%
26	182	January 30, 2016	35	97%	33	92%	25	86%
27	189	February 6, 2016	35	97%	33	92%	25	86%
28	196	February 13, 2016	35	97%	33	92%	25	86%

Water year start date		Target Maximum Flow	24" Pipe Flow to Myra	Scenario:	24" plus Overflow to SP	Scenario:	24,48" plus SP	Scenario:	Max Diversion +5 m^3/s
	August 1	Rainfall threshold (/day)	**0.5 m^3/s**	Target Maximum Flow	**2.5 m^3/s**	Target Maximum Flow	**5.3 m^3/s**	Target Maximum Flow	**10.3 m^3/s**
Water year			**45 mm**	Rainfall threshold (/day)	**68 mm**	Rainfall threshold (/day)	**88 mm**	Rainfall threshold (/day)	**118 mm**
Starting	%Missing Data	First day >= limit	Day of water year	First day >= limit	Day of water year	First day >= limit	Day of water year	First day >= limit	Day of water year
1979	0%	September 2, 1979	33	September 7, 1979	38	October 25, 1979	86	#N/A	#N/A
1980	2%	September 24, 1980	55	September 24, 1980	55	September 24, 1980	55	September 24, 1980	55
1981	1%	September 20, 1981	51	September 20, 1981	51	October 30, 1981	91	October 30, 1981	91
1982	0%	October 5, 1982	66	October 5, 1982	66	October 21, 1982	82	October 21, 1982	82
1983	11%	October 21, 1983	82	November 10, 1983	102	November 10, 1983	102	February 27, 1984	211
1984	0%	October 6, 1984	67	October 6, 1984	67	October 6, 1984	67	October 7, 1984	68
1985	56%	February 23, 1986	207	February 23, 1986	207	February 23, 1986	207	#N/A	#N/A
1986	23%	November 19, 1986	111	November 22, 1986	114	December 21, 1986	143	January 10, 1987	163
1987	1%	October 30, 1987	91	November 23, 1987	115	November 30, 1987	122	#N/A	#N/A
1988	3%	September 26, 1988	57	October 31, 1988	92	#N/A	#N/A	#N/A	#N/A
1989	0%	October 20, 1989	81	October 20, 1989	81	#N/A	#N/A	#N/A	#N/A
1990	1%	October 3, 1990	64	October 24, 1990	85	October 24, 1990	85	November 22, 1990	114
1991	1%	August 28, 1991	28	August 29, 1991	29	August 29, 1991	29	January 29, 1992	182
1992	1%	October 19, 1992	80	October 22, 1992	83	#N/A	#N/A	#N/A	#N/A
1993	11%	October 21, 1993	82	December 2, 1993	124	#N/A	#N/A	#N/A	#N/A
1994	2%	September 7, 1994	38	December 18, 1994	140	December 18, 1994	140	#N/A	#N/A
1995	21%	October 10, 1995	71	November 7, 1995	99	November 7, 1995	99	November 7, 1995	99
1996	29%	October 12, 1996	73	March 17, 1997	229	March 17, 1997	229	#N/A	#N/A
1997	9%	September 14, 1997	45	September 27, 1997	58	September 27, 1997	58	#N/A	#N/A
1998	16%	November 12, 1998	104	November 12, 1998	104	#N/A	#N/A	#N/A	#N/A
1999	11%	October 12, 1999	73	November 6, 1999	98	#N/A	#N/A	#N/A	#N/A
2000	19%	October 17, 2000	78	October 17, 2000	78	#N/A	#N/A	#N/A	#N/A
2001	20%	November 14, 2001	106	November 14, 2001	106	December 15, 2001	137	#N/A	#N/A
2002	15%	November 5, 2002	97	November 12, 2002	104	March 13, 2003	225	#N/A	#N/A
2003	5%	October 9, 2003	70	October 14, 2003	75	October 18, 2003	79	#N/A	#N/A
2004	3%	October 24, 2004	85	November 8, 2004	100	November 15, 2004	107	November 15, 2004	107
2005	7%	September 29, 2005	60	October 15, 2005	76	December 28, 2005	150	December 28, 2005	150
2006	0%	October 26, 2006	87	October 26, 2006	87	November 15, 2006	107	November 15, 2006	107
2007	0%	September 29, 2007	60	October 9, 2007	70	November 11, 2007	103	November 11, 2007	103
2008	0%	October 17, 2008	78	November 2, 2008	94	November 2, 2008	94	November 2, 2008	94
2009	0%	September 9, 2009	40	November 6, 2009	98	November 16, 2009	108	November 16, 2009	108
2010	0%	September 25, 2010	56	September 26, 2010	57	December 8, 2010	130	December 24, 2010	146
2011	0%	September 22, 2011	53	September 27, 2011	58	November 22, 2011	114	November 27, 2011	119
2012	5%	October 13, 2012	74	October 13, 2012	74	October 13, 2012	74	#N/A	#N/A
2013	4%	September 28, 2013	59	March 8, 2014	220	March 8, 2014	220	#N/A	#N/A
2014	0%	September 24, 2014	55	October 21, 2014	82	October 21, 2014	82	December 9, 2014	131
		min	28	min	29	min	29	min	55
		max	207	max	229	max	229	max	211
		average	73	average	95	average	115	average	118
		count	36	count	36	count	29	count	18

February 12, 2015

AMEC File: NX14001

Nyrstar Myra Falls Ltd.
PO Box 8000
Campbell River, BC

Attn: Mr. John Knapp

RE: Emergency Response to High Water Levels in Old TDF
December 10 and 11, 2014
Nyrstar Myra Falls Mine

1.0 INTRODUCTION

Nyrstar Myra Falls (NMF) requested emergency assistance from AMEC Environment & Infrastructure (AMEC) on December 10, 2014 in response to very high water levels in the TDF Strip and Reclaim Sand Area (RSA) of the Old Tailings Disposal Facility (TDF) at Nyrstar Myra Falls Mine. The request for assistance came during the second of three significant storm systems that moved through the region during the period of December 8-12, 2014.

Dan Hughes-Games, P.Eng. of AMEC mobilized to site, arriving at 13:35 on December 10, 2014. Heavy rain was falling at the time of arrival. In discussions with NMF staff, AMEC learned that the call for assistance was likely delayed as informed staff could not get to site on Tuesday December 9 due to a road washout along Buttle Lake.

The critical freeboard levels reached during this event constitute a “dangerous or unusual occurrence” under the Health, Safety, and Reclamation Code. AMEC understands that Nyrstar reported this event to the Ministry of Energy and Mines, as required by the code.

A site plan to accompany this letter is appended as Drawing 1.

2.0 INITIAL CONDITIONS

Water levels in the east and west portions of the TDF Strip and in the RSA were very high at the time of AMEC’s arrival. Surveys of high water marks were conducted by McElhanney Consulting Services Ltd. (McElhanney) on December 11. The results are indicated in Table 1:

Area	Minimum Crest Elevation	Morning of December 11	High-water mark	Minimum Freeboard
East Strip	3383.30 m	3382.76 m	3383.05 m	0.25 m
West Strip	3382.92 m*	3382.74 m	3382.83 m	0.09 m*
Reclaim Sands Area	Not available	3382.08 m	3382.24 m	Est. 0.1 m

* The elevation refers to an isolated notch in the embankment where valves for the backflow lines are situated. Most of the berm in the west strip area is at least 3383.7 m elevation, with additional cover over the Pumphouse #4 return line giving an apparent height of 3384.4 m.

Water was accumulating in the TDF Strip and RSA areas by the following means:

- A previously identified spring at the APA Paste Berm east abutment was discharging a very significant quantity of water. Flow rates were visually estimated at several hundred liters per second.
- Distributed runoff from the toe of the APA Paste Berm was entering the TDF Strip Area (as intended).
- Some surface runoff from the Paste Plant Road and Waste Dump 1 was reporting to the RSA (as intended).
- Precipitation was falling directly in the impoundment areas.

The water management activities in these areas underway at the time of AMEC's arrival on site consisted of pumping of water from the west TDF Strip into the RSA. Pumping was being done using two diesel pumps. All other drainage of these areas was by way of the normal water management structures, which consist of the following:

- Twin 450 mm diameter culverts below the Amalgamated Paste Area (APA) operational spillway allowing drainage from the east TDF Strip to the west TDF Strip. One of the two pipes is partly occluded by a 200 mm backfill line which is routed through it.
- A decant at the west end of the west TDF Strip, with a rated maximum capacity of 100 L/s (AMEC, 2008).
- A decant in the west end of the RSA, with a rated maximum capacity of 440 L/s (AMEC, 2008).

No visible surface indications of flow were evident at either of the decants throughout the event, nor was there any visible evidence of flow between the east and west halves of the TDF Strip. A rough assessment of the capacity of a single unobstructed pipe below the spillway was carried out and suggested that the 22 cm difference in head observed during the event would result in a flow rate of about 160 L/s (FHWA, 2005).

During this period, water levels in Lynx TDF were completely within normal levels and were not a cause for concern. Levels in Lynx TDF are managed by an assortment of pumps, typically with either 150 mm or 200 mm suction lines, and powered by diesel or electric motors.

3.0 EMERGENCY ACTIONS

After review of water and inflow conditions around the Old TDF and discussions with NMF Environmental department staff, it was concluded that there was potential that either or both of the Strip or RSA may overtop during the remainder of the storm and the safest plan of action was to construct controlled breaches to reduce water levels as follows:

3.1 Breach of the RSA

A breach of the RSA was constructed at the west end of the impoundment, with the runoff directed into a low, closed depression immediately north of Superpond (between Superpond, Waste Dump #1, and the Zone J Stockpile at the toe of Lynx Dam). It was thought that this water would accumulate until it backed up over the overflow sill into the sump that drains the Phillips Reach and waste dump waters near the toe of Lynx Dam, and that if the sump could not handle the inflow, the water would ultimately overflow directly into Superpond. This depression already had some water in it prior to RSA breaching from precipitation and groundwater sources at the toe of Waste Dump #1.

This breach was constructed during the evening of December 10. A channel was excavated through most of the width of the retaining berm. A 20 m long, 450 mm diameter HDPE pipe was laid in the channel, and about 5 m of the upstream end was covered. The remainder of the width of the retaining berm was then breached at approximately 8:00 pm. At maximum initial flow, the pipe flowed about half-full. After several hours the flow had subsided and water levels in the RSA receded by about 15 cm.

Following the drop in water levels in the RSA, water levels in the TDF strip were re-checked and were found to also be dropping. The rain had ceased and the weather was clearing, so at this point it was decided that further emergency action in the TDF strip area would be deferred until daylight the following morning. NMF Operations personnel monitored the breach overnight and were on hand ready to close it if issues developed.

Review of water levels the following morning suggested that despite the large volume of water routed into the closed depression near Superpond, water levels never rose by more than about 3 cm past the level at the time of breaching, and in fact had dropped by about 20 cm overnight. This suggests a very high rate of infiltration in the area. Water levels never reached the overflow lip of the sump, therefore all breach water was directed into the groundwater. AMEC understands that Robertson GeoConsultants has determined that the breach water had a lower concentration of metals than the pre-event groundwater in that area.

3.2 Survey of Water Levels

Survey of water levels, high water marks, and minimum freeboard was carried out on the morning of December 11, 2014. It was discovered that there was a significant difference in water levels between the east and west portions of the TDF Strip, both at high-water and at the time of survey. At the high water mark the difference was 0.22 m, yet no evidence of flow was apparent at either the inlet or outlet areas of the pipes (which were inundated by about 1 m of water and not visible). Notably the water in east and west areas was of slightly different colour and turbidity so flow of slightly less turbid water from the east strip should have been readily evident in the west strip.

Around this time it was also discovered that the evening’s high water levels in the east TDF Strip had caused a series of small sinkholes and infiltration areas to form at the crest of the tailings beach at the edge of the Outer Embankment Berm (OEB). These were above the water line at the time of discovery.

3.3 Reassignment of Pumps to Spillway Area

Near mid-day on December 11, AMEC recommended relocating at least 3 of the diesel pumps to the spillway area to lift water from east TDF Strip, over the spillway, to west TDF Strip. The pumps were installed and running by late afternoon and water levels in the east TDF Strip were dropping at a steady pace.

3.4 Breach of the West TDF Strip

Near mid-day on December 11, AMEC also recommended constructing a controlled breach overflow channel between the west TDF Strip and the RSA. This breach was recommended in order to reduce the reliance on pumps and personnel during upset conditions that might occur during the final storm pulse of the system, anticipated to arrive at site later in the evening. The breach was constructed in the evening of December 11 and consisted of an open channel. NMF Operations personnel were on shift overnight to monitor both breach channels overnight, and prepared to close them if issues such as down-cutting erosion occurred.

4.0 CAUSAL FACTORS

The very high water levels were caused by a period of heavy rainfall over approximately 3 days. NMF indicated that the 24-hour rainfall during the period was 199.9 mm, which is close to, but not quite, a 1:50 year return period event (AMEC 2012). High antecedent water levels after the first storm would have increased the severity of the second; however it should be noted that peak water routing engineering designs typically assume fully saturated antecedent conditions, so this should not be used as justification for the system not coping with the water inflows.

Water management designs for the TDF Strip area do not include the inflow of water from the spring at the APA Paste Berm east abutment. Previous flow from this spring caused a similar water level crisis in November 2009. That crisis was managed by NVI Mining Ltd. (NMF’s predecessor company) staff without direct AMEC involvement. The potential rate of inflow at the abutment is significant and may be more than the decant at the far end of the strip is capable of conveying.

Ultimately the cause of the backup in these areas is a near total dysfunction of the normal drainage structures in each of the three areas that nearly overtopped. This includes the culverts connecting the two TDF Strip areas, the TDF Strip decant, and the RSA decant. None of these structures were draining a significant amount of water as compared to either the inflows during the event or the design ratings of these structures. The actual rate of flow through these structures is not known; however, it was clear from site observations that it was much less than the rate that would be conveyed if the structures were in good condition.

5.0 CONCLUSIONS AND RECOMMENDED ACTIONS

The very low freeboard in each of these areas, and specifically the formation of sinkholes in the tailings beach in the east TDF Strip lead AMEC to conclude that this event constituted a very close call with respect to potential dam overtopping and damage to OEB. This should be treated as a very serious incident.

Sinkholes in the tailings beach are of particular concern. The sinkholes form due to a lack of filter compatibility between the tailings and the embankment fill. During the event, the sinkholes allow rapid infiltration of water into the embankment, which could lead to a rise in piezometric levels and a direct decrease in geotechnical stability. The drainage structures in these areas must be capable of maintaining water levels below the beach such that the infiltration is filtered and limited by the tailings.

The primary lesson to be learned from this event is that function of drainage structures is of paramount importance to dam safety, and drainage structures operating below design capacity constitute a high risk to dam integrity. Decreased flow through both the TDF Strip and RSA decants was noted well in advance of the event. Repair of both of these decants is on the formal list of recommendations from the Q3-2014 Dam Safety Inspection Report (AMEC 2014b). Repair of the TDF Strip Decant is on the list of recommendations in the 2013 Dam Status Report (AMEC 2014a).

Operational replacement of decant capacity with pumps introduces the issue of pump reliability and crew access as a step in keeping water levels below critical levels – for example, the first pulse of the storm system disrupted the ability for staff to reach the site. It is preferred in dam safety best management practices to have “fail-safe” measures, as in if all else fails, the facility is still safe.

5.1 Short-Term Actions

The objective in the TDF Strip should be to keep the water levels as low as practical to prevent further sinkhole formation in the beach. Rapid infiltration of water into the OEB could lead to greatly reduced stability conditions in the dam. Note that the OMS Manual and original design criteria by Klohn Crippen-Berger require a minimum 20 m wide beach be maintained above the water line (NMF 2014).

Water levels in the RSA should be maintained below the breach channel. The OMS Manual requires a *beach* elevation not higher than 3382.0 m and a minimum exposed beach width of 10 m. A *water* elevation no higher than 3381.0 m is suggested in order to establish suitable separation of the pond from the embankment.

The critical water management structures need to be replaced as an urgent priority. AMEC recommends updating the water management design of these three areas. The update should include confirmation of the required crest, beach, and pond elevations. The APA Paste Berm East Abutment “main spring” should be included as inflows in the design. The study should be based on IDF precipitation levels. Based on the results of this study, new decants or operational outlets should be installed in each of the areas, including a new separate outlet for the east TDF Strip.

Design of the outlets should take into account the dormant nature of the facilities, i.e. it may be preferable to use an overflow weir outlet and sump box as opposed to a decant structure. Trash racks or other means should be incorporated in order to reduce the potential for the outlet to be blocked by ingestion of floating debris. Alternately, open channels are easier to monitor and maintain relative to the potential for blockage by debris.

Review of dam crest heights is also required. It is apparent from survey data that one factor leading to low freeboard in both parts of the TDF Strip is that the crest height is not at the design elevation in all areas. Measures to correct the embankment height should be designed by AMEC. Fill added to raise the embankment to design height must be select fill that meets the construction specifications for the facility, and it must be placed and compacted accordingly. AMEC recommends direct supervision of the work by the geotechnical engineer of record or their designated representative.

The two controlled breaches should be left in place until such a time as the decant structures are repaired. AMEC should be notified immediately if it appears water levels might reach either breach channel. The breaches must be monitored on an ongoing basis during any period in which water is flowing in them, and crews and equipment must be on-hand and prepared to address any problems.

Likewise water should be pumped from east to west across the spillway as required to maintain water levels in the east TDF Strip until the drainage problems can be addressed.

5.2 Long-term Actions

Pending closure and recontouring of these areas, each area should have a spillway in addition to new operational outlets. This would create a “fail-safe” condition. Conceptually the west TDF Strip would spill to the RSA, and the RSA would either spill to the area used during this event, or directly to Myra Creek at the upstream end of the TDF Seismic Upgrade. Location of a spillway for the east TDF Strip is a more difficult issue given the configuration of the site and will require development and evaluation of potential solutions by Nyrstar and AMEC.

If the areas are decommissioned in such that they cannot retain surface water, then spillways would not be required.

6.0 CLOSURE

The recommendations herein are based on available information at the time of writing and are subject to revision upon the availability of new information.

This letter has been prepared for the exclusive use of Nyrstar Myra Falls for specific application to the area described within this letter. Any use which a third party makes of this letter or any reliance on or decisions made based on it are the responsibility of such third parties. AMEC accepts no responsibility for damages suffered by any third party as a result of decisions made or actions based on this letter. It has been prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

Respectfully submitted,

AMEC Environment & Infrastructure
a division of AMEC Americas Limited

Reviewed by:

[original signed/sealed copies on file]

Dan Hughes-Games, P.Eng.
Senior Geotechnical Engineer

Steve Rice, P.Eng.
Principal Civil Engineer

References:

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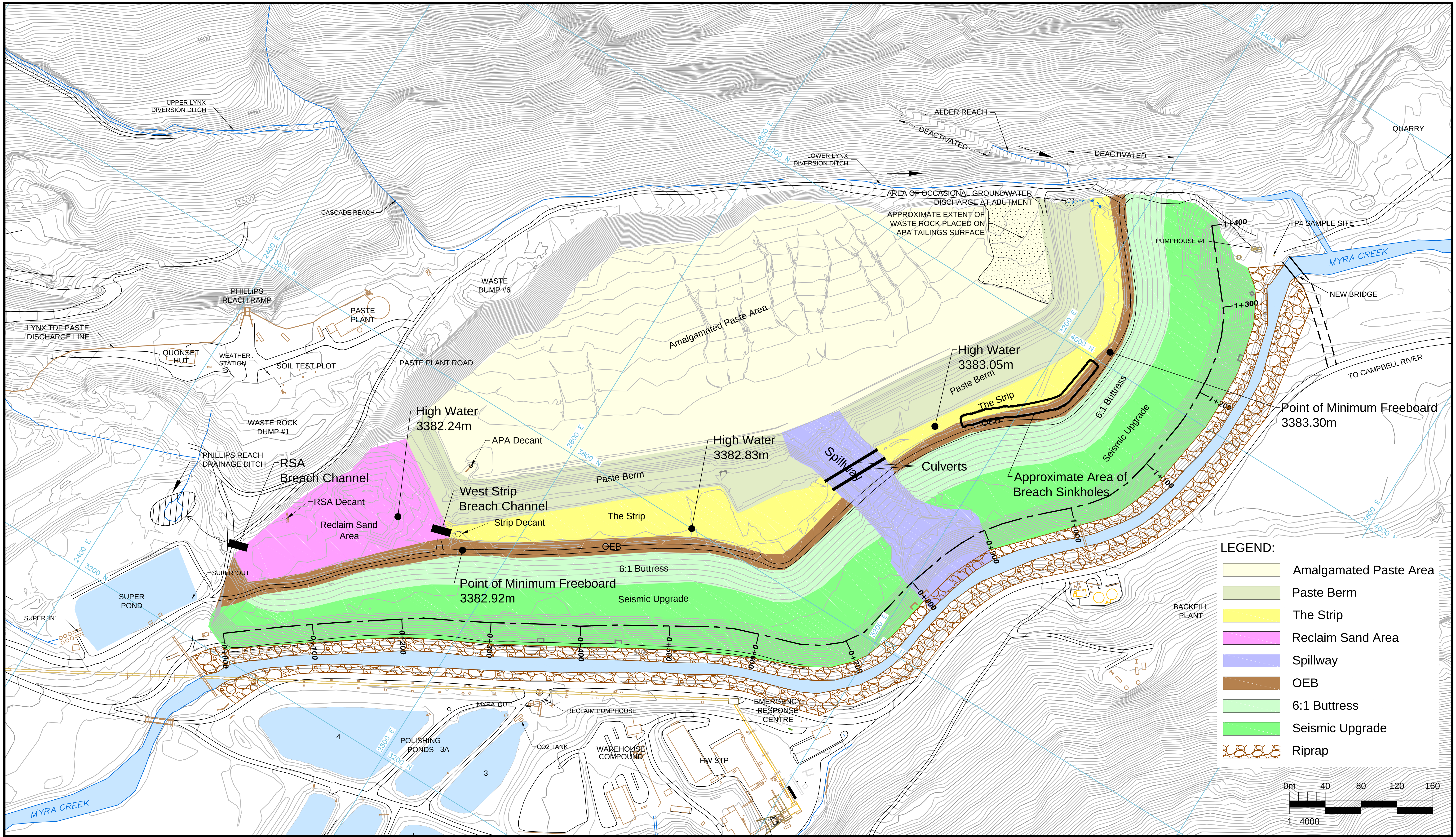
NMF 2014. Operation, Maintenance and Surveillance (OMS) Manual for the Tailings Disposal Facilities & Water Treatment System.



NOTES:

1. SURVEY SURFACE TOPOGRAPHY SUPPLIED BY CLIENT
2. THIS SURVEY IS REFERENCED TO MINE DATUM (MASL + 3048 m).

REV	D	M	Y	ISSUE / REVISION DESCRIPTION	ENG.	APPR.
G						
F						
E						
D						
C						
B						
A						

Client:

nyrstar

AMEC Environment & Infrastructure
4385 Boban Drive, Nanaimo, B.C., V9T 5V9
Tel. 250 758-1887 Fax 250 758-1899

amec

DATUM: MINE
PROJECTION: MINE
DRAWN BY: J. Ford
REVIEWED BY: D.Hughes-Games
ORIGINAL SCALE: 1:4000

PROJECT: MYRA FALLS TAILINGS DISPOSAL FACILITIES
DECEMBER 2014 EMERGENCY
RESPONSE SITE PLAN

TITLE:
TAILINGS DISPOSAL FACILITY
PLAN OVERVIEW

PROJECT NO.: NX14001
REVISION NO.:
DATE: JANUARY 2015
DRAWING NO.: DRAWING 1
SHEET NO.: 1 of 1

S:\PROJECTS_NX14\NX14001-Nyrstar-Myra Falls\0400-GeneralEng\Global_DWG\Misc Drawings\2014-12 Emergency Response Site Plan.dwg - 010306 - Jan. 23, 2015 3:41pm - jamie.ford

1 February 2016

NX14001H

Nicole Pesonen
Environmental Manager
Nyrstar Myra Falls Ltd.
PO Box 8000
Campbell River, BC V9W 5E2

Dear Ms. Pesonen:

Re: Lower Lynx Diversion Ditch Upgrade
Suspension of Work as of November 4, 2015
Myra Falls Mine, BC

1.0 INTRODUCTION

Nyrstar Myra Falls is undertaking work to upgrade the Lower Lynx Diversion Ditch (LLDD), which conveys clean water from the hillside above the north side of the Old TDF. The existing diversion does not meet the current Canadian Dam Association recommendations for sizing. The upgrade is being conducted under order by the Ministry of Energy and Mines. Amec Foster Wheeler provided geotechnical and hydrological design of the upgrade, and is providing quality assurance testing during the work.

Project construction did not start until October 13, 2015, which is outside the normal construction weather window at the site. Amec Foster Wheeler believed that certain aspects of the LLDD construction could be completed during the wet season while maintaining dam safety, and protection of the public and environment. The anticipated limitations were outlined in a letter to Nyrstar dated 1 October 2015. This current letter describes the geotechnical limitations encountered during wet season construction and outlines the reasons why, from a quality and performance perspective, the project could not be completed in 2015.

2.0 BACKGROUND

The original construction plan included measures to divert the relatively small summer flows from the existing diversion ditch away from the construction site in order to facilitate the work. The climate in which Myra Falls is situated results in wet season flows through the existing diversion ditch that are larger than what can practically be diverted given the topographical constraints of the site. For this reason, under guidance from Amec Foster Wheeler, Nyrstar decided that it was not in the best interests of dam safety to proceed with those aspects of the work that required removal of the existing diversion.

Amec Foster Wheeler Environment & Infrastructure,
a Division of Amec Foster Wheeler Americas Limited
4385 Boban Drive
Nanaimo, BC, Canada V9T 5V9
Tel +1 (250) 758-1887
Fax +1 (250) 758-1899
www.amecfw.com

It was recognized that some portions of the work could be completed while leaving the existing diversion ditch and an adjacent access road intact through the wet season. The general intent of the work is shown on the attached markup of construction Drawing 1105. Work that could be completed included cutting material to be removed from the east end of Waste Dump 6, and placing fill over the tailings surface along the north side of the Amalgamated Paste Area (APA) where the proposed new access road footprint extends over the tailings. This work was commenced on October 15, 2015.

In general, the work was to consist of:

- Construction of temporary diversion works
- Cutting of trees and brush from the project footprint
- Preparation of the area of tailings to be covered by embankment fill, including placement of at least 1 m of fill, where the design is in fill
- Removal of existing waste material from the proposed access road footprint, where the design is in cut and the material does not currently support the existing diversion or its access trail.

As designed, the project requires placement of approximately 13,400 m^3 of general backfill in those areas of the proposed access road where the new grade is higher than the existing topography. The design intent was to use a portion of the proposed 43,200 m^3 of cut material indicated in the design to fill these areas.

3.0 CONSTRUCTION PERFORMANCE

Temporary diversion works were partially constructed but not completed due to the decision to maintain the existing diversion ditch intact through the wet season.

Trees and brush were cut and removed from the project footprint as per the work plan in July, 2015.

Given the prevailing wet weather during the period through which construction work took place, the material sourced from the cut areas was far above the optimum moisture content for compaction, and therefore it was not possible to achieve a sufficiently dense fill state to meet geotechnical stability objectives. Given the frequent rainfall, generally low temperatures, and high ambient humidity in the valley, it was not possible to dry the cut material to a usable state.

Bulk excavation of those areas not supporting the existing diversion ditch and access trail was completed to within about 1 m of design subgrade, with the surplus cut material hauled to a temporary waste stockpile west of the construction site.

Other sources of fill on the mine site were considered to make up the lack of fill material from the project site. There were no sources of common mine waste identified that could be used in the prevailing wet weather conditions; the other potential borrow sources are effectively similar material to that rejected for use from the construction site, and had similarly over-optimum soil moisture. This is consistent with Amec Foster Wheeler’s experience on the site, and the reason for our general opinion that construction at the site is extremely difficult or even not practical during the wet season.

As of October 29, 2015, construction of the fill was effectively at a standstill as it was not possible to place any additional material. The final lifts as placed did not pass compaction quality control (by proof rolling), the reason being that the materials were overly wet due to a combination of rainfall and seepage infiltrating the fills from below. Until such time as this material can be dried and compacted, construction could not continue.

Between October 30 and November 4, 2015, work focussed on finishing grading of the cut areas and preparing the construction area for wet season water management. The contractor demobilized on November 4, 2015.

4.0 FUTURE WORK

Work remaining to be completed includes:

- Completion of temporary diversion works
- Final grading of the portion of the access road, where the road is in cut
- Additional fill placement on the portion of the access road, where the road is on fill
- Removal of the existing shotcrete ditch and regrading of the footprint to the proposed design grades
- Placement of the underdrainage layers, drain system, and concrete cloth liner.

It is anticipated that the stockpiled cut material will be usable as general backfill once the wet season conditions end and the material dries. Waste materials on the site typically start to become dry enough to start selectively handling near the end of June, and become generally dry enough to use by the middle of July.

It is anticipated that flows in the existing diversion ditch will become low enough to allow practical and safe temporary diversion sometime in July, depending on the amount and timing of spring snow melt.

5.0 CONCLUSION

Amec Foster Wheeler agrees with Nyrstar’s decision to defer the remaining work until after spring freshet due to the difficulties in placing and compacting mine waste fill and due to the need to safely divert runoff from Cascade Reach away from the construction site during the work.

To emphasize, Amec Foster Wheeler’s support of the decision not to continue with this work is based on the observed inability to meet quality requirements. It is our opinion that the remainder of the works to be constructed will be of substandard quality if construction is continued outside of dry summer conditions.

6.0 CLOSURE

This letter has been prepared for the exclusive use of Nyrstar Myra Falls Ltd. for specific application to the area described within this letter. Any use which a third party makes of this letter, or any reliance on or decisions made based on it, are the responsibility of such third parties. Amec Foster Wheeler accepts no responsibility for damages, if any, suffered by any third party as a result of decision made or actions based on this letter. It has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied is made.

Yours truly,

Amec Foster Wheeler Environment & Infrastructure,
a Division of Amec Foster Wheeler Americas Limited

[original signed and sealed by:]

Dan Hughes-Games, P.Eng.
Geotechnical Engineer

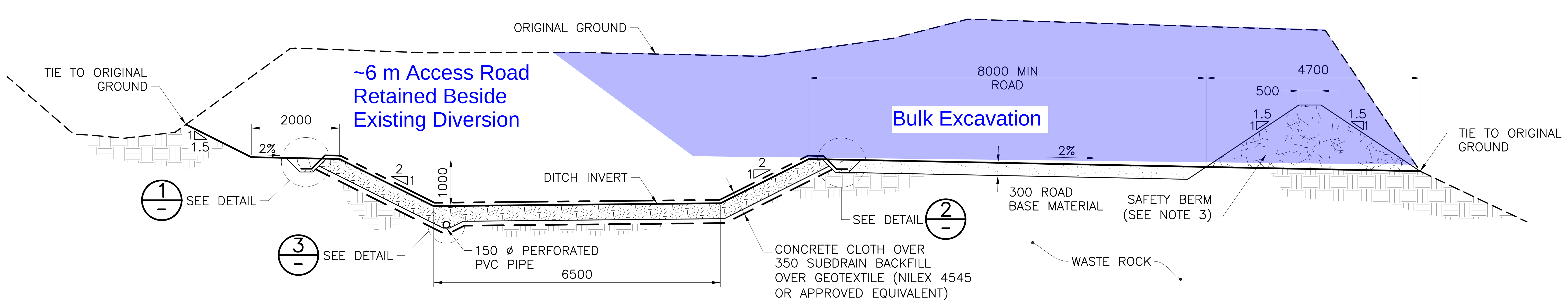
Reviewed by:

[original signed by:]

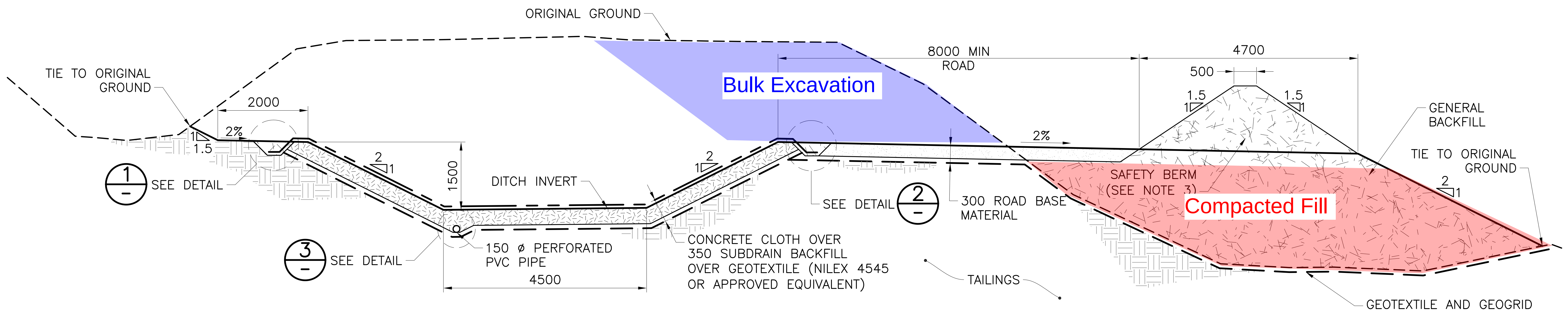
Ed McRoberts, Ph.D., P.Eng.
Principal

cc: Nicole Pesonen
Christine Peters

Attachment: Markup of construction Drawing 1105

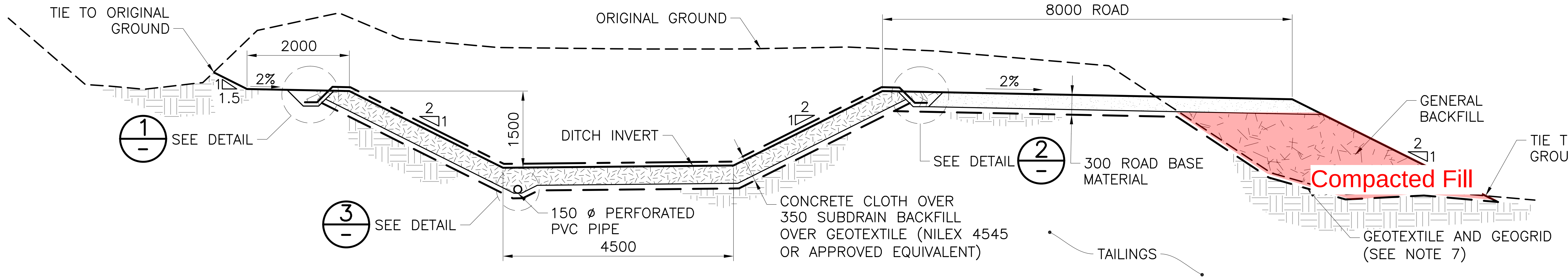


A SECTION
1102
LOWER LYNX DIVERSION DITCH
STA 0+216.80 TO STA 0+372.00 (SEE DETAIL 1/1106 FOR TRANSITION AT STA 0+372)
SCALE 1:75

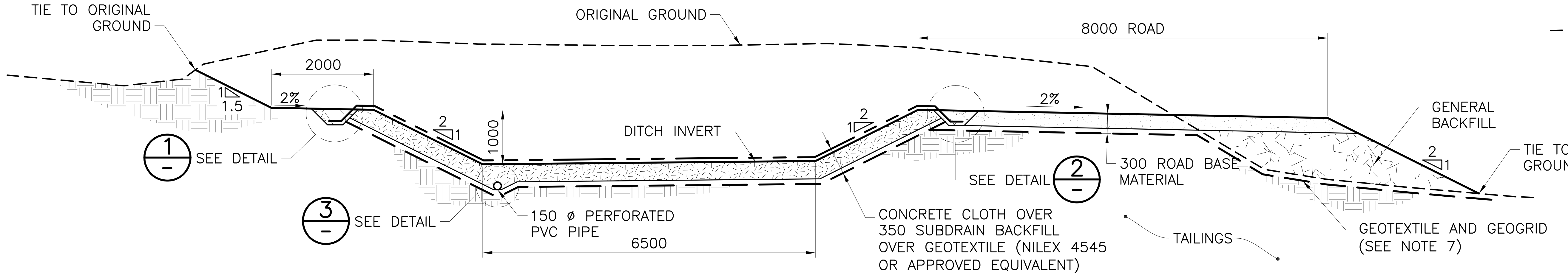


B SECTION
1102
LOWER LYNX DIVERSION DITCH
STA 0+372.00 TO STA 0+416.00 (SEE DETAIL 1/1106 FOR TRANSITION AT STA 0+372)

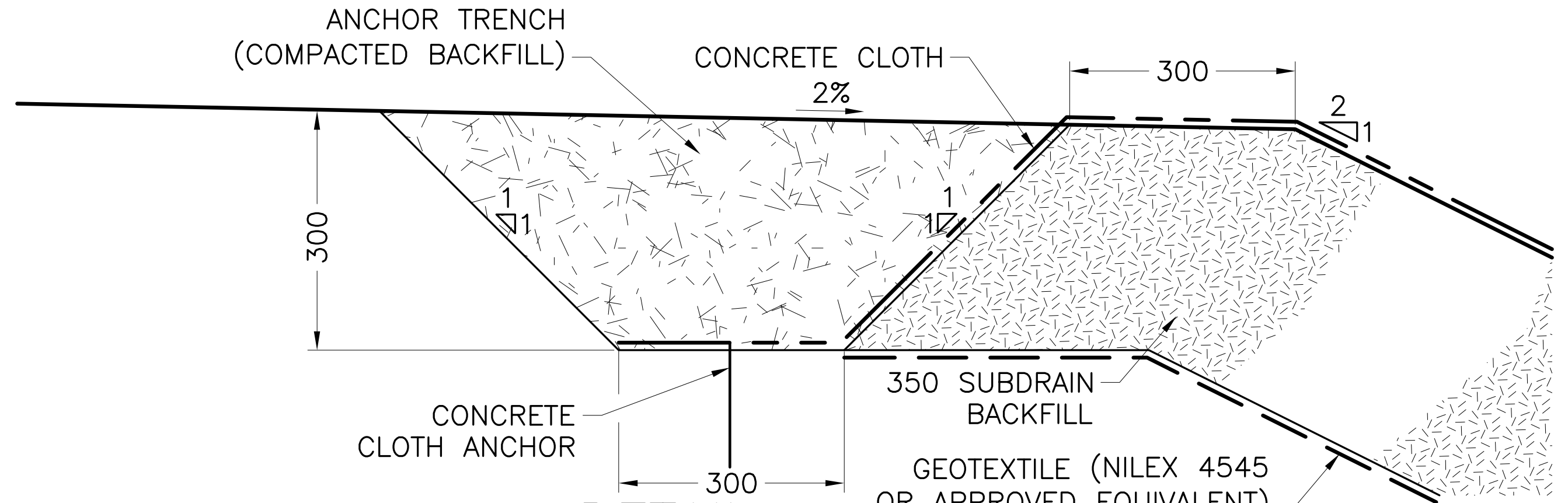
STA 0+711.00 TO STA 0+770.00 (SEE DETAIL 2/1106 FOR TRANSITION AT STA 0+770)
SCALE 1:75



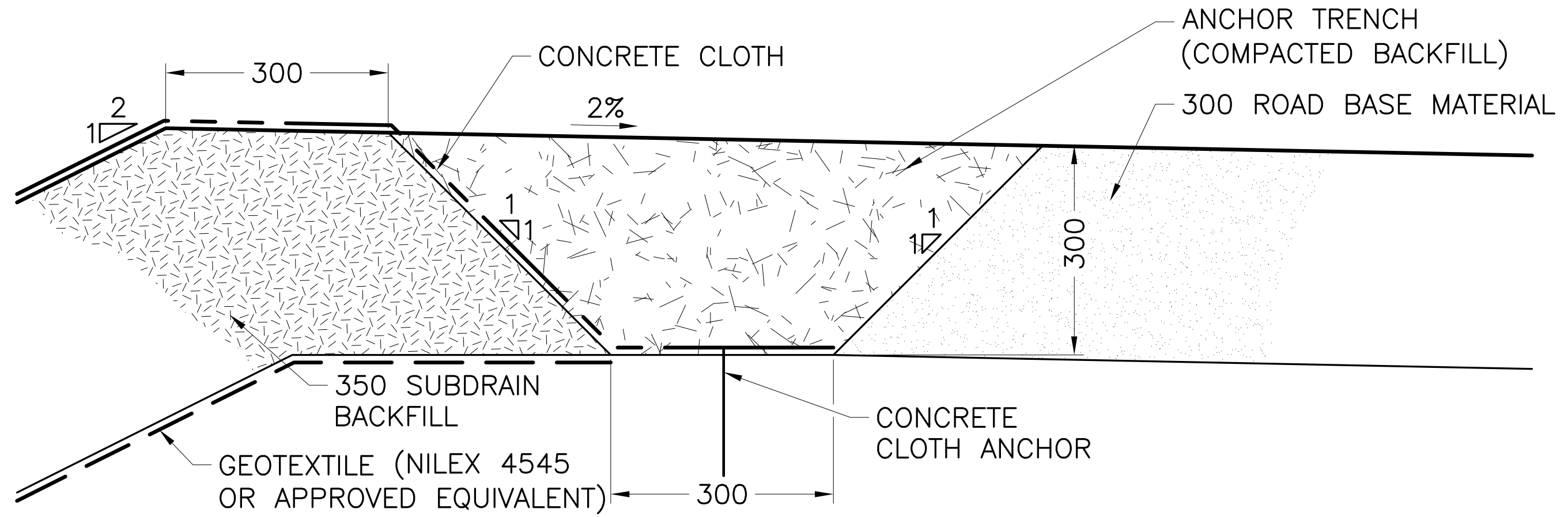
C C SECTION
1102 1103
LOWER LYNX DIVERSION DITCH
STA 0+416.00 TO STA 0+711.00
SCALE 1:75



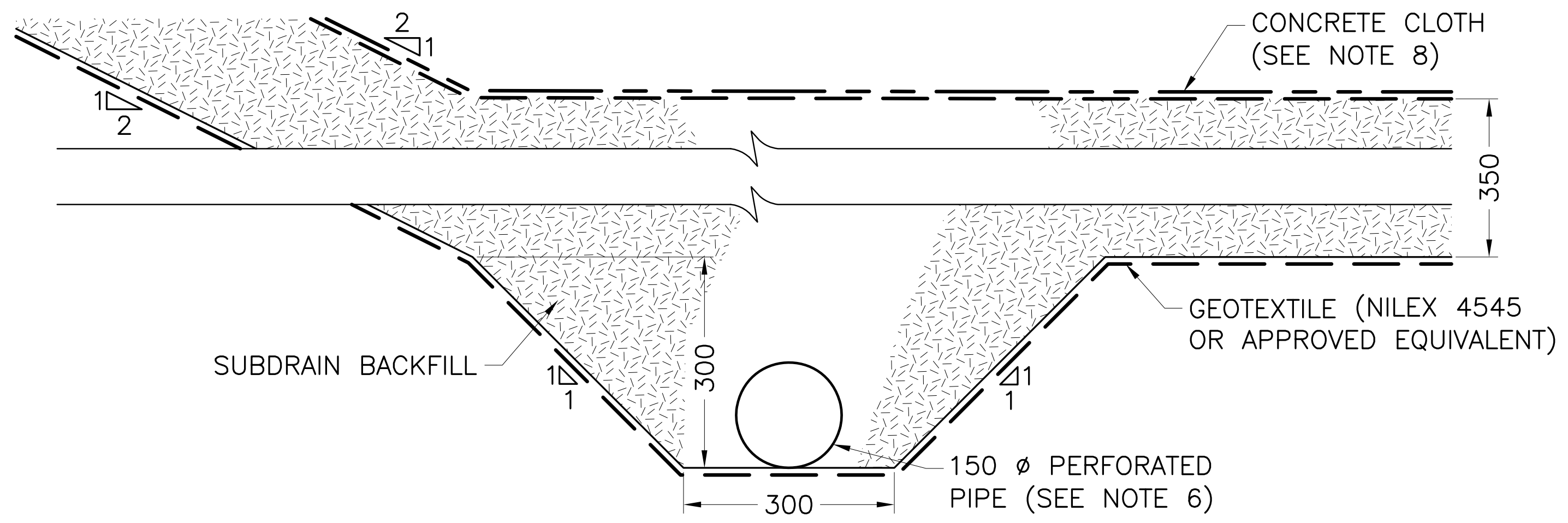
D D SECTION
1103 1104
LOWER LYNX DIVERSION DITCH
STA 0+770.00 TO STA 0+902.00 (SEE DETAILS 2/1106 AND 3/1106 FOR TRANSITION AT STA 0+770 AND 0+902)
SCALE 1:75



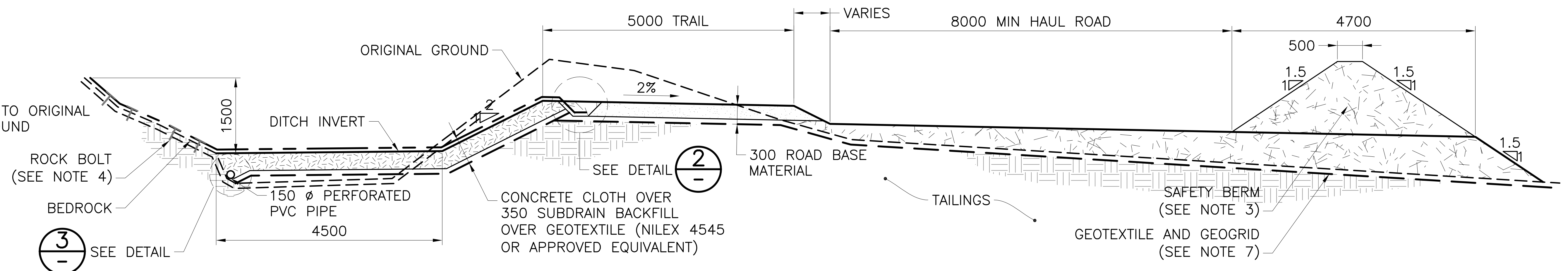
1 DETAIL
ANCHOR TRENCH – MOUNTAIN SIDE
SCALE 1:10



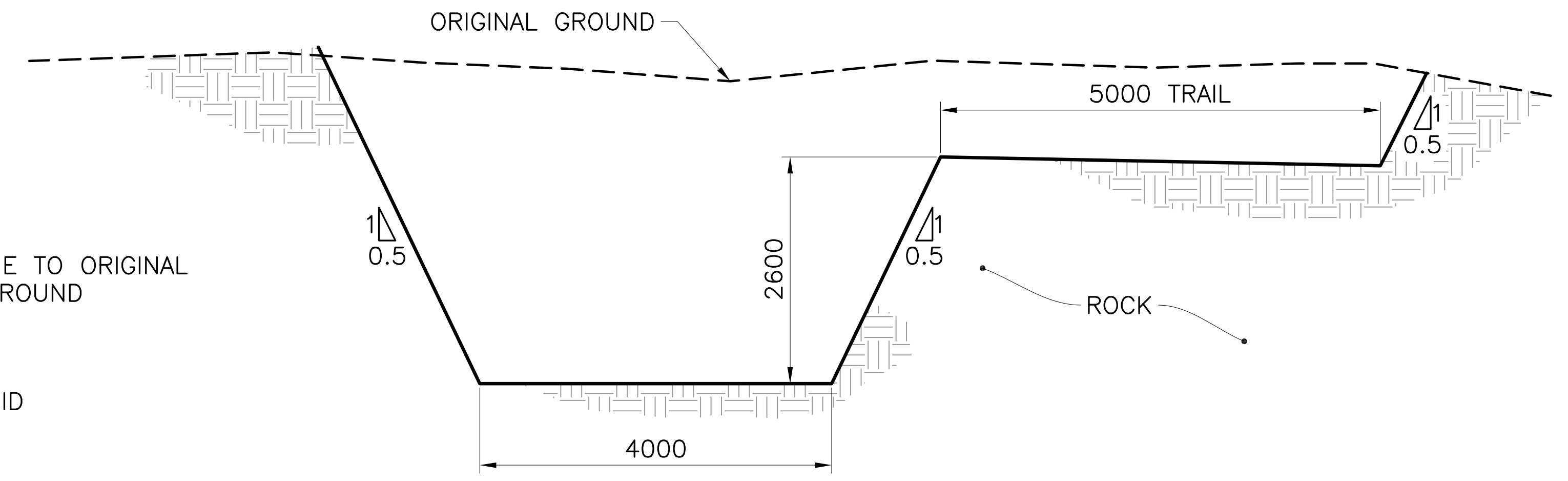
2 DETAIL
ANCHOR TRENCH – ROAD SIDE
SCALE 1:10



3 DETAIL
150 ø PERFORATED PIPE
SCALE 1:10



E SECTION
1104
LOWER LYNX DIVERSION DITCH
TRANSITION TO BEDROCK
STA 0+902.00 TO STA 0+942.00 (SEE DETAIL 3/1106 FOR TRANSITION AT STA 0+902)
SCALE 1:75



F SECTION
1104
LOWER LYNX DIVERSION DITCH
STA 0+942.00 TO STA 1+014.00
SCALE 1:75

NOTES:

1. FOR ALL COMMON LEGENDS AND NOTES, SEE DWG 1002.
2. ALL DIMENSIONS IN MILLIMETRES AND ELEVATIONS IN METRES UNLESS OTHERWISE NOTED. ELEVATIONS REPRESENT FINISHED GRADE ELEVATIONS UNLESS OTHERWISE NOTED.
3. LEAVE AN OPENING EVERY 20 m TO ALLOW FOR ROAD DRAINAGE.
4. CONCRETE CLOTH TO BE INSTALLED AND ANCHORED AS PER THE MANUFACTURER'S REQUIREMENTS. ROCK BOLTS SHALL BE USED TO ANCHOR THE CONCRETE CLOTH TO BEDROCK.
5. SECTION E MAY BE APPLIED TO REACH 6 FOR TRANSITION TO BEDROCK.
6. INSTALL PERFORATED PIPE WITH SOLID INVERT AND HOLES FACING UPWARDS.
7. GEOTEXTILE (NILEX 4510 OR APPROVED EQUIVALENT) AND GEOGRID (TENSAR BX1200 OR EQUIVALENT) SHALL BE PLACED IN THE AREAS WHERE ROAD IS CONSTRUCTED OVER TAILINGS, AS INSTRUCTED BY THE ENGINEER.
8. CONCRETE CLOTH ANCHORS NOT TO BE INSTALLED DIRECTLY ABOVE PERFORATED DRAIN PIPES TO AVOID DAMAGING THEM. CONCRETE CLOTH ANCHOR LOCATIONS SHALL BE REMARKED IN THE FIELD PRIOR TO CONCRETE CLOTH INSTALLATION.

SCALE
1:10
0 100 200 mm

SCALE
1:75
0 0.5 1 1.5 m

THIS DRAWING MAY HAVE BEEN REDUCED. ALL SCALE NOTATIONS INDICATED (i.e. 1:1000 etc.) ARE BASED ON 22" X 34" FORMAT DRAWINGS

FOR HYDROTECHNICAL ASPECTS ONLY
ORIGINAL SIGNED AND SEALED BY
Amr Fathalla, M.Sc, P. Eng

FOR GEOTECHNICAL ASPECTS ONLY
ORIGINAL SIGNED AND SEALED BY
Dan Hughes-Games, P. Eng

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	22	07	15	ISSUED FOR CONSTRUCTION	AF	JS

amec foster wheeler

Client:
nyrstar

Designed By: AF
Drawn By: DCH
Checked By: AF
Approved By: JS
Scale: AS SHOWN

Project:
MYRA FALLS MINE SITE
LOWER LYNX DIVERSION DITCH

Title:
LOWER LYNX DIVERSION DITCH
SECTIONS AND DETAILS
(SHEET 1 OF 3)

Project No.: NX14001E
CADD File: 14001-1105.dwg
Date: July 2015
Drawing No.: 1105
Sheet No.: 8 of 14

Besozzi, Frederic

From: Maxwell, Brad <Brad.Maxwell@nyrstar.com>
Sent: February-12-16 11:37 AM
To: Peters, Christine; Pesonen, Nicole
Cc: Hughes-Games, Dan; Besozzi, Frederic
Subject: RE: 2015 DSI Report Queries

Frederic,

The following events occurred at the bulkhead from Q4 2014 to end of Q4 2015.

Dec 1st 2014-Dec 6th 2014 – Bulkhead pressure rose above 20 PSI, mine was evacuated.
Dec 19th 2015-Dec 25th 2015 - Bulkhead pressure rose above 20 PSI, mine was evacuated.

Brad

From: Peters, Christine [mailto:christine.peters@amecfw.com]
Sent: February-12-16 10:32 AM
To: Pesonen, Nicole; Maxwell, Brad
Cc: Hughes-Games, Dan; Besozzi, Frederic
Subject: FW: 2015 DSI Report Queries

Hi Nicole and Brad,

Please see Frederic's table below of info requests that are necessary/helpful for the 2015 annual dam safety report. I believe the intent of the 2nd and 3rd items are to hear from you how you would like the mine status to be reported, knowing it is ultimately going to the public.

Thanks,
Christine

From: Besozzi, Frederic
Sent: February-12-16 10:07 AM
To: Peters, Christine <Christine.Peters@amec.com>
Cc: Hughes-Games, Dan <Dan.Hughes-Games@amec.com>
Subject: 2015 DSI Report Queries

Hi Christine,

I don't know if you had a chance to look at the task list I put together for the annual DSI report but maybe you can proceed with some info requests to Nyrstar. Here's what I was thinking:

Get references for NMF Annual Environmental Report 2014, 2015 for our list of references
Ask NMF about month/year at which milling operations are expected to resume, mine plan and mill throughput, mine backfill rates
Ask NMF about their general infrastructure upgrade plan (or intents) in the context of selling the mine that we can report on
Follow up with NMF about the Powerhouse weather data – in progress between Scott and Savanna
Confirm no "events" for Q4-2014 to end of 2015 at the underground bulkhead in Lynx mine
Request an update from Brad/Jaime on construction waste dumped in Lynx TDF during Q4-2015 (truck counts)

Let me know if you have any questions.

Thanks,

Frederic Besozzi PEng, MASc
Senior Geotechnical Engineer, Amec Foster Wheeler Environment & Infrastructure
4385 Boban Drive, Nanaimo, British Columbia V9T 5V9, Canada
T +1 250 758 1887 D +1 250 729 2433 M +1 250 616-6832 VOIP #7062433
frederic.besozzi@amecfw.com amecfw.com

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Please click http://amecfw.com/email-disclaimer for notices and company information in relation to emails originating in the UK, Italy or France.

Appendix E

Amec Foster Wheeler Dam Inspections
(included on digital copy)

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2014-10-23	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	~ 15°C, rain, heavy at times (preceding week with moderate to high daily rainfall totalizing ~ 80 mm)		

Summary

The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler. The new seepage and piping erosion feature at the toe of the Paste Berm needs immediate attention and the following actions:

1. Drain the ponded water from the corner in the east end of the APA. Excavate a sump in the rockfill blanket and pump water over into the TDF Strip. Keep the area of ponding to a minimum.
2. Install an interim buttress over the area of observed piping and areas of dam toe disturbance consisting in a geotextile filter fabric and free draining material, such as clean gravel.
3. Check the area for signs of continued seepage erosion, slumping, or deformation at a minimum of once per day until further notice, keep a written record of inspections and forward these records to Amec Foster Wheeler at least weekly.
4. Continue to observe the area periodically over the course of the winter and spring and determine the need for any additional actions. Wait until field conditions are drier before implementing a permanent fix.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- Two spots of ARD runoff near Strip access on the Seismic Upgrade Berm.
- Several large puddles on the seismic upgrade berm. A new ditch and let-down have been installed to attempt to drain the area.
- No seepage in abutment main seepage area (main spring).
- Water level in the east corner of the APA is about 300 mm above normal level (some puddles on the east surface fill by the Paste Investigation Road).
- Disturbed wet ground and a new discrete seepage source with signs of piping erosion observed at the corner of the Paste Berm near Instrument Plane C. New seepage source is from a single hole in the ground, approximately 8 cm across and 4 cm high, the area has built up tailings sand in a fan approximately 2 m wide and 3 m long. Total volume of sand discharged is ~ 0.1 m^3 or less. The flow rate is estimated visually to 10 L/min and the water is clear.
- Water levels in west strip near upper limit (freeboard near west end).

Lynx TDF:

- Very shallow water flowing to the back of the pit, limited ponding along the dam.
- Four diesel and two electric pumps at the back of the pit.
- Shallow water ponded at dam toe, between dam and Zone J stockpile.
- New spring on downstream side of east arm adjacent to springs drain construction site, above elevation of tailings pond. Monitor for future seepage.

Diversion Ditches:

- Alder Ditch inspected to its end. Lots of water in active portion. No rapid degradation but continued slow erosion of cut slope.
- Minor accumulations of alluvium in the Lower Lynx Diversion near the base of Cascade Reach.

The recommendations herein are based on Amec Foster Wheeler’s observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

This report has been prepared for the exclusive use of Nyrstar Myra Falls for specific application to the area described within this report. Any use which a third party makes of this report or any reliance on or decisions made based on it are the responsibility of such third parties. Amec Foster Wheeler accepts no responsibility for damages suffered by any third party as a result of decisions made or actions based on this report. It has been prepared in accordance with generally accepted engineering practices. No other warranty, express or implied, is made.

Photographs

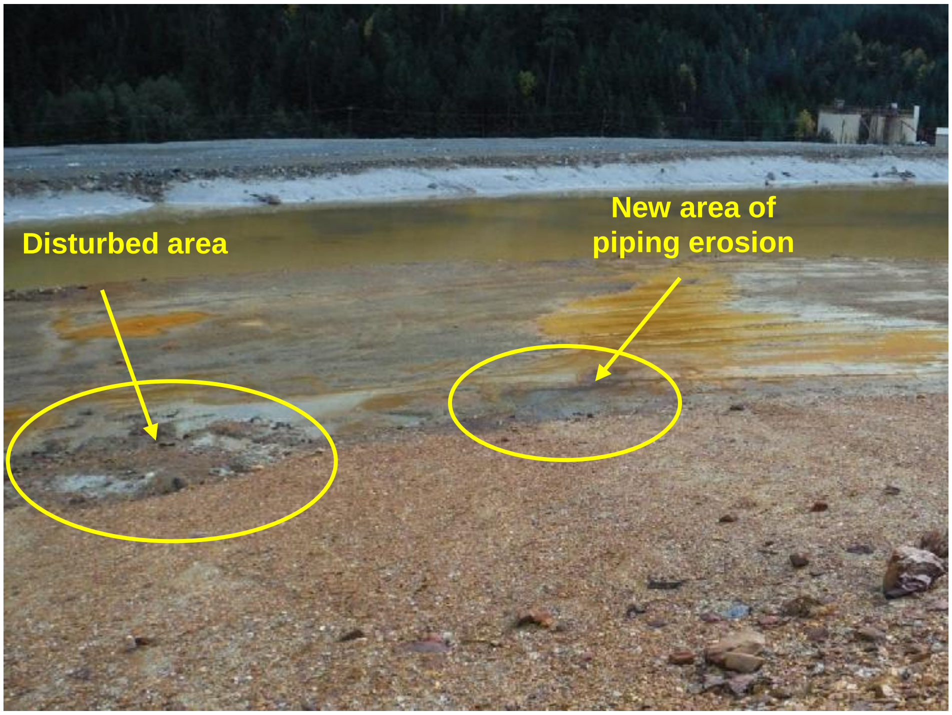

Photo 1 – View looking south, down from crest of Paste Berm near the southeast corner. New area of piping erosion and adjacent area of former disturbance to the east.

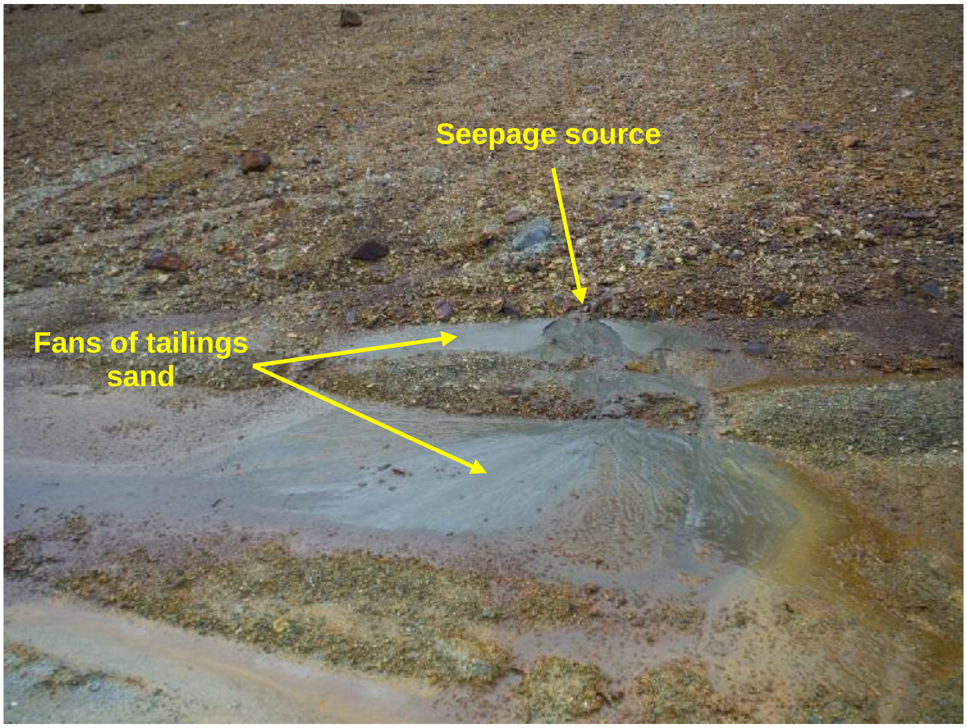

Photo 2 – Close-up of source area. Sand deposited along surface flow path and accumulated on level area at toe. Seepage water observed at the time of inspection was clear.

Photo 3 – Southeast corner of the APA, looking west.

Photo 4 – Southeast corner of the APA showing ponded water between the Paste Investigation Road and the northeast rock pad.

Photo 5 – APA Ditch along the Paste Berm, looking west from the Old TDF spillway.

Photo 6 – APA ditch near the decant, looking north/northeast.

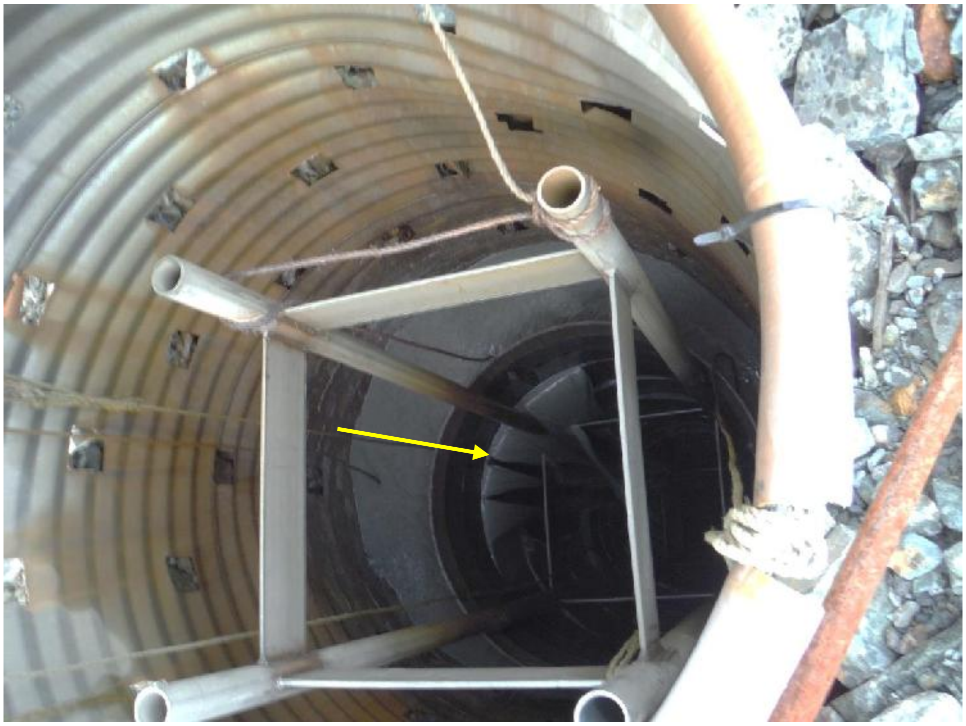

Photo 7 – APA decant, flow entering below the upper collar.

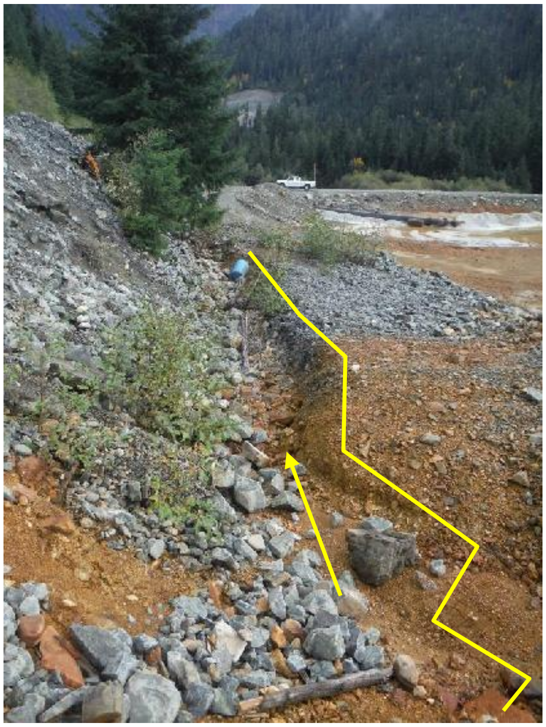

Photo 8 – Main spring at the toe of the Paste Berm east abutment, looking towards the north end of the East Strip.

Photo 9 – North end of the East Strip, looking south/southwest. A water boil area formed a cone of coarse sand around the "vent".

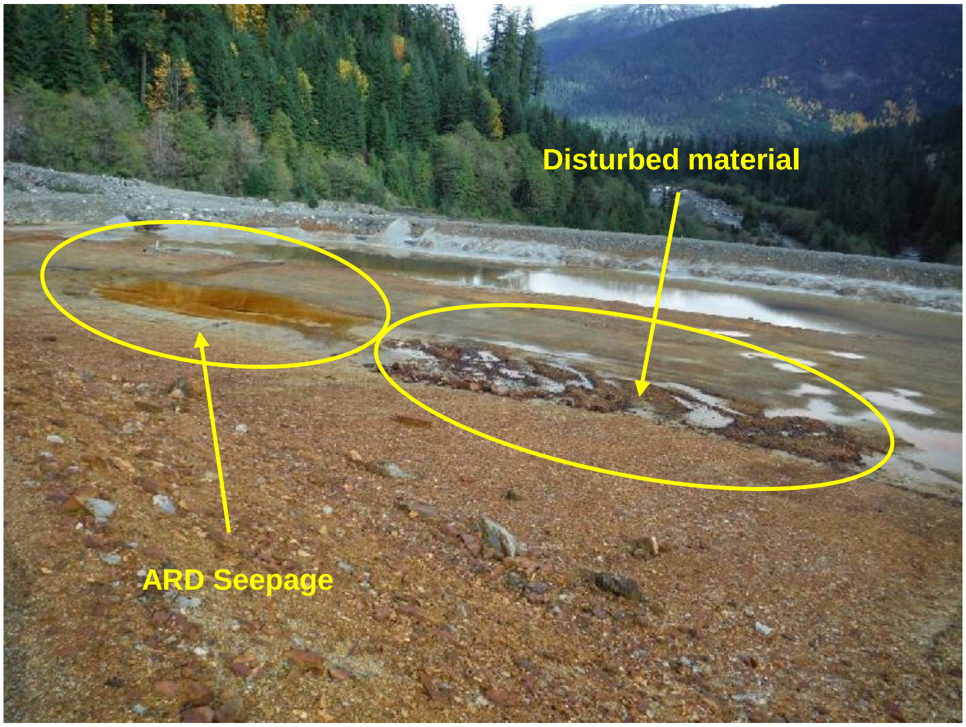

Photo 10 – View looking east, down from the Paste Berm crest, north of the southeast corner. ARD seepage and zone of disturbed material at the base of the berm are identified.

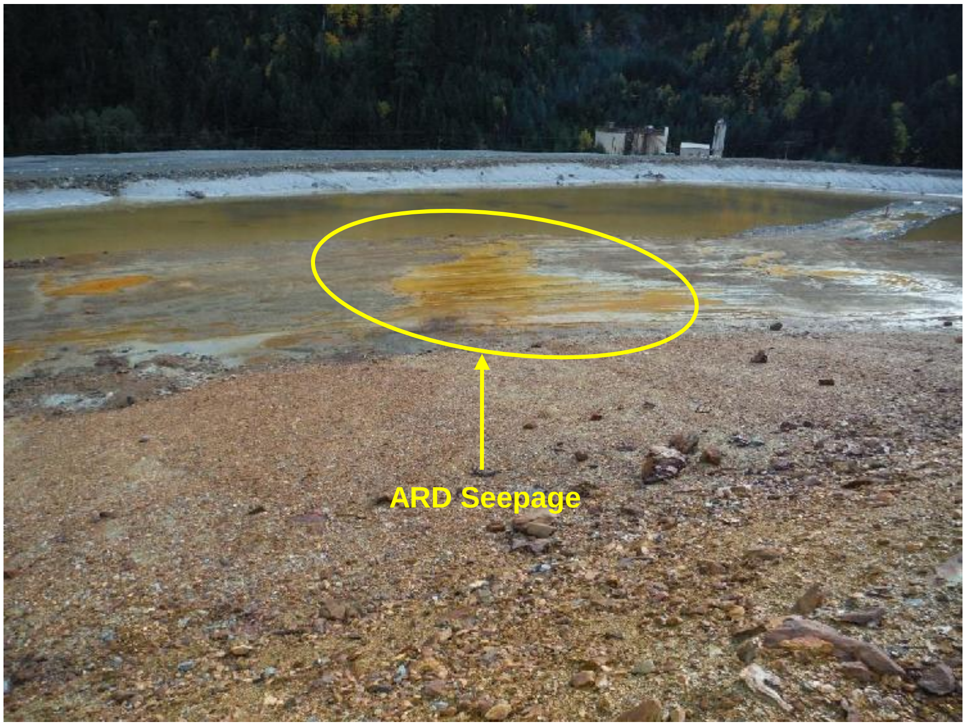

Photo 11 – Looking south down from the Paste Berm towards the Paste Backfill Plant. ARD seepage at the base of berm reporting to the East Strip.

Photo 12 – East Strip and beach, looking northeast.

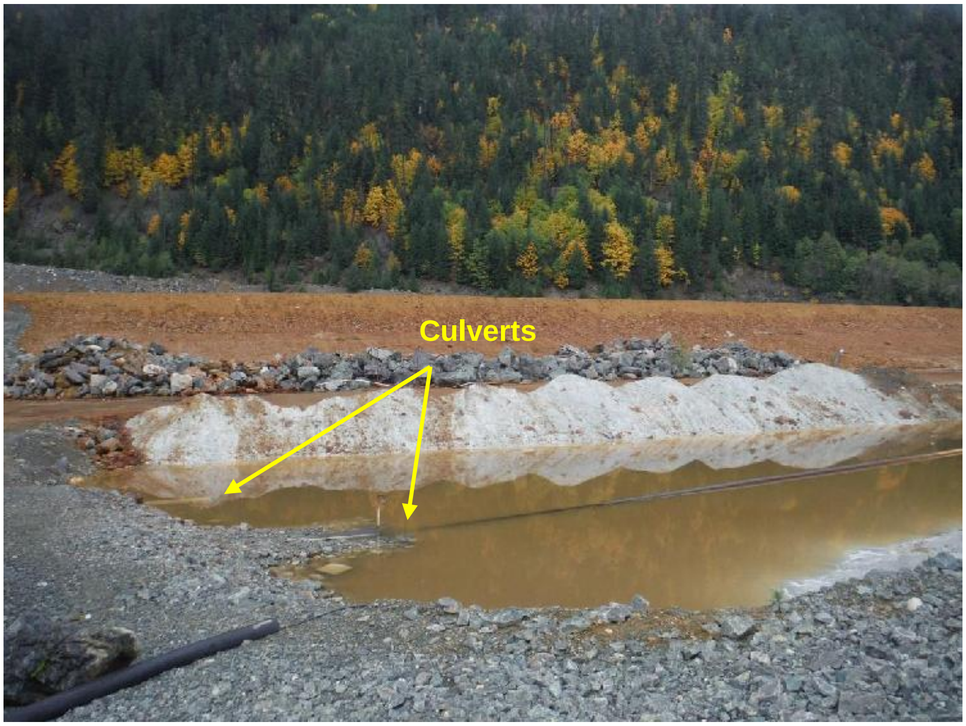

Photo 13 – Lime piles along the west end of the East Strip, looking north. Water level is above the intake of the two culverts passing under the Old TDF spillway.

Photo 14 – East end of the West Strip, looking east.

Photo 15 – West Strip, looking east from the decant area.

Photo 16 – West Strip decant structure and overflow pipe with four inch pump.

Photo 17 – Areas of ARD seepage on the Seismic Berm fed by runoff from the access road between the West Strip and the RSA, looking southwest.

Photo 18 – RSA, looking west.

Photo 19 – ARD runoff on the 6:1 Slope coming in from the RSA/West Strip access and ponding on the surface of the Seismic Berm, looking northwest.

Photo 20 – Puddles in ruts left by traffic on the Seismic Berm, looking west from the west side of the Old TDF spillway.

Photo 21 – Ditch and drainage pipe on top of the Seismic Berm downstream face, looking southeast near Instrument Plane A (Hut A and Myra Creek in background)

Photo 22 – Lower Lynx Diversion Ditch near Cascade Reach, looking east. Note the presence of gravel bars along the channel.

Photo 23 – Lined section of Lower Lynx Diversion Ditch near the Paste Berm east abutment.

Photo 24 – Alder Reach, view of an area where a ripple/step was dug out.

Photo 25 –Lynx TDF, looking east.

Photo 26 –Lynx TDF, looking south.

Photo 27 – Section of Lynx Springs Drain going through Lynx Dam east arm under construction, looking east/southeast.

Photo 28 – Section of Lynx Springs Drain going through Lynx Dam east arm under construction, looking west.

Photo 29 – Lynx Springs around the central portion of Lynx Pit back (to become the capture zone of Lynx Springs Drain).

Photo 30 – Phillips Reach drainage pipe flowing towards Phillips Reach sump, east of Lynx Dam.

Photo 31 – Easternmost lower bench and toe of Lynx Dam south arm, looking west. ARD ponding between the remains of “Zone J material” Superpile and the dam toe.

Photo 32 – Seepage and ponding on Lynx Dam “2011 Bench”, near Instrument Plane F, looking west.

Photo 33 – Seepage on Lynx Dam “2011 Bench”, near Instrument Plane E.

Photo 34 – Puddles between waste rock piles in Lynx Dam toe area, looking east.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2014-11-27&28	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	Overcast, -2 to 11°C (71 mm of rain on 2014-11-27, 213 mm over the preceding 7 days, no rain on 2014-11-28)		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler. The inspection extended over two days and focused on the Old TDF APA and the East Strip areas, where seepage and higher than usual water level occurred following a rainy period.
- Main spring was active at the time of the inspection, with moderate to high water levels in the east strip.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- Moderate water level in the APA, ponding mainly around the decant and on the west side of the spillway.
- High flow observed on 2014-11-27 at the main spring at the east abutment of the Paste Berm. Low flow following the end of the rainfall event observed on the following day (see photos).
- Discrete minor seepage sources observed along toe of the east arm of the Paste Berm. No indications of associated piping erosion
- Moderate to high water levels in the East Strip.

Lynx TDF:

- Significant water accumulation in Lynx TDF. Water levels were kept intentionally high to attempt installation of vibrating wire piezometers from a boat. The installation was not successful (not enough water at the target location for the boat), and the pond was drained the following day.
- Pumps are in place.
- High flow at the outlet of Lynx Springs Drain.

Diversion Ditches:

- High flow in the shotcrete-lined portion of Lower Lynx Diversion Ditch.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA, looking southeast from Waste Dump #6.

Photo 2 – APA, looking south from Waste Dump #6.

Photo 3 – Seepage from discrete source along the east arm of the Paste Berm (photo taken on 2014-11-27).

Photo 4 – Close-up view of the discrete seepage source along the east arm of the Paste Berm (photo taken on 2014-11-27).

Photo 5 – High flow at the main spring on 2014-11-27 (toe of Paste Berm east abutment).

Photo 6 – Close-up view of the Paste Berm east abutment main spring on 2014-11-27.

Photo 7 – Low flow at the Paste Berm east abutment main spring on 2014-11-28.

Photo 8 – Close-up view of the Paste Berm east abutment main spring on 2014-11-28.

Photo 9 – Downstream of the Paste Berm east abutment main spring at the north end of the East Strip on 2014-11-28.

Photo 10 – Saturated soil and water pooling in ruts at the base of the Paste Berm, looking northeast.

Photo 11 – Looking south at the eastern portion of the East Strip on 2014-11-28.

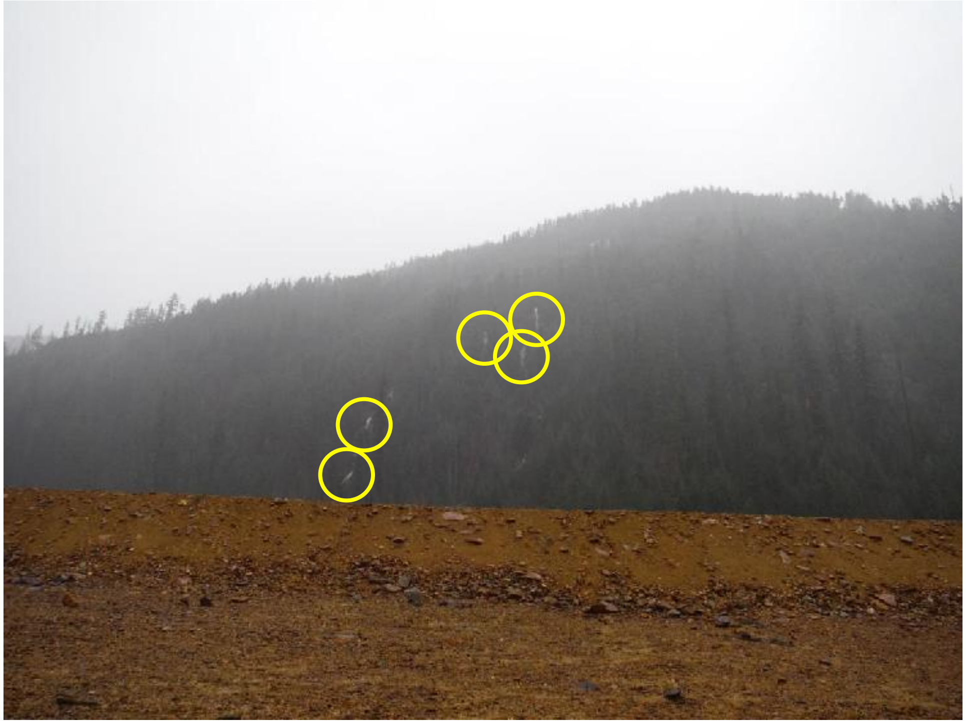

Photo 12 – Active springs and waterfalls up in the hill behind the APA, looking north from the East Strip (photo taken on 2014-11-27).

Photo 13 – Seepage areas at the base of the Paste Berm, Old TDF East Strip.

Photo 14 – Ponding water at the base of the Paste Berm and in the East Strip, looking southeast from the Old TDF spillway area.

Photo 15 – Looking south, moderate to high water level in the East Strip, the inlets of the two spillway culverts are slightly submerged.

Photo 16 – High velocity flow in the lined portion of the Lower Lynx Diversion Ditch.

Photo 17 – Significant ponding of water in Lynx TDF on 2014-11-27, two diesel pumps present at the west arm. Photo taken from boat near pit highwall.

Photo 18 – High flow at the outlet of Lynx Springs Drain on 2014-11-27.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2014-12-02	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:	Tyler W. Patten	Cc:	
Weather:	Cloudy, -4 to -1°C, light dusting of snow on site. (285 mm of rain over the two preceding weeks)		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items: None.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- No seepage at the east abutment of APA. Observed moisture but no seepage flow at the southeast corner of APA.
- Southeast corner of APA is drained and frozen.
- No flow at APA decant (dry).
- Strip decant functioning, low flow, no pond in TDF Strip.

Lynx TDF:

- Snow in Lynx TDF.
- Thickener underflow tailings discharged from springs drain, fine tailings discharged at the east arm of Lynx Dam. Reclaim sand discharged at the middle of the south arm.
- No issues at Lynx Springs Drain. Lynx Springs outlet normal.
- Evidence of recent flooding observed in trees around Phillips Reach sump, tailings/sediments from Phillips Reach inflow. Sump material bailed out beside inlet.
- Local bank stability noted issues where Phillips Reach water discharged below road.

- No new seepage source at Lynx Dam toe. Minor seepage on the lower bench of the dam.
- No issues at the west arm of Lynx Dam.

Diversion Ditches:

- Inspected the Upper Arnica Ditch up to the end.
- No indication of flow at falls in Lower Arnica Ditch.
- Inspected the portion of Upper Lynx Diversion Ditch in forested area above Lynx pit, no issues identified.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – Overview of the APA, looking east/southeast from Waste Dump #6.

Photo 2 – West portion of the APA, looking south from Waste Dump #6.

Photo 3 – APA southeast corner, looking south from Paste Investigation Road.

Photo 4 – APA Ditch along Paste Berm, looking east from the decant access ramp.

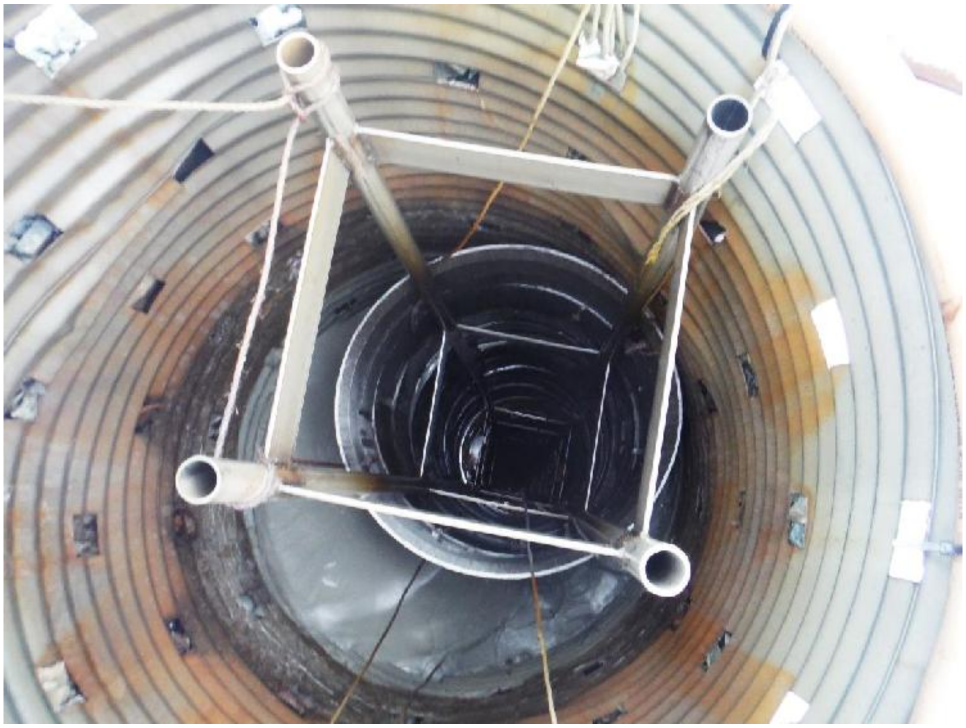

Photo 5 – APA decant (no flow entering decant).

Photo 6 – Central portion of the East Strip, looking west from Instrumentation Plane C.

Photo 7 – West Strip, looking east from decant location.

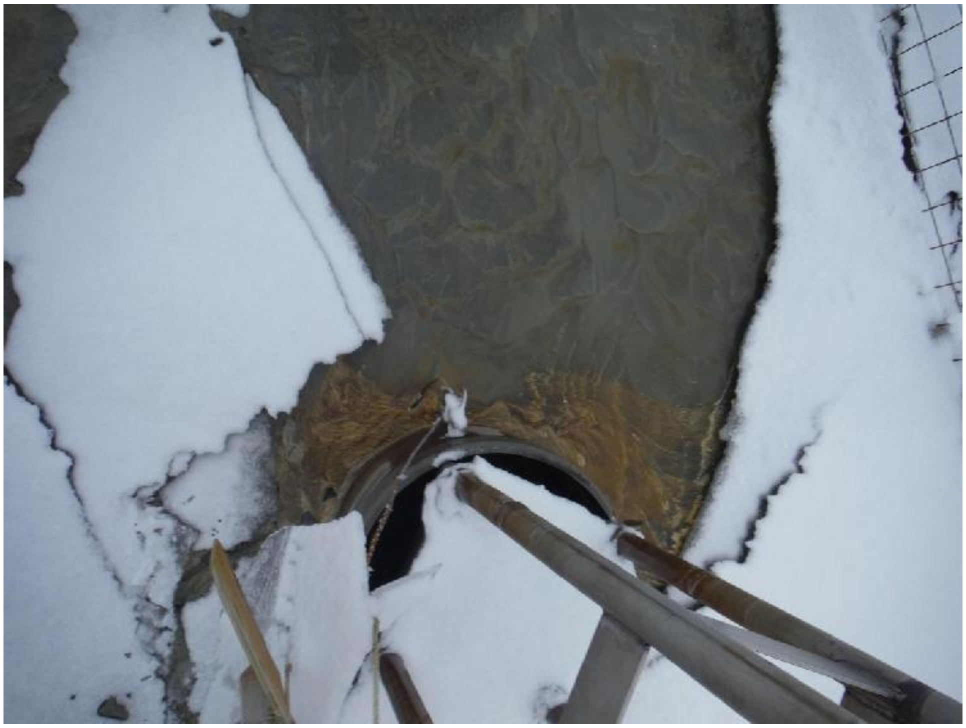

Photo 8 – Old TDF Strip decant.

Photo 9 – Overview of the RSA, looking west.

Photo 10 – Flow in Lower Lynx Diversion Ditch near Cascade Reach, looking east (downstream).

Photo 11 – Overview of Lynx TDF, looking east.

Photo 12 – Overview of Lynx TDF, looking southwest (recurrent depression in paste circled).

Photo 13 – East portion of Lynx TDF, looking south.

Photo 14 – Outlet of Lynx Springs Drain at the toe of the east arm.

Photo 15 – Phillips Reach drainage pipe and runoff flowing towards Phillips Reach sump area.

Photo 16 – East side of treed area around Phillips Reach sump, looking northwest.

Photo 17 – Ponded water on southeast side of the treed area around Phillips Reach sump, looking west.

Photo 18 – Normal water level in Phillips Reach sump.

Photo 19 – Ponded water in the eastern portion of Lynx Dam toe, looking east.

Photo 20 – Some seepage on the mid-level “2011 Bench” of Lynx Dam south arm.

Photo 21 – Water accumulation east of the access ramp leading to Lynx TDF west arm, looking northeast.

Photo 22 – Water flowing from Upper Arnica Ditch over the bedrock to Lower Arnica Ditch (at the Arnica – Upper Lynx Diversion Ditch junction), looking north.

Photo 23 – Moderate flow in the main reach of the Upper Lynx Diversion Ditch.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-01-09	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	~ 1°C, high, light overcast, light fog in patches (~ 5 cm of old snow on the ground)		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items:
  1. Alluvium in Lower Lynx Diversion at the base of Cascade Creek needs to be cleared.
  2. Divert runoff away from the crest of the December slide in Lynx pit (above the Back Road). Expand exclusion zone to include the garbage dump, and defer remedial work until the site has dried out.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- West side of Paste Berm generally lacks seepage but has some slushy ice at toe.
- Paste Berm east abutment is dry, covered in snow at main spring. The Strip is essentially drained, minor ponded water and ice remains on east arm of Paste Berm. Trickle of seepage at toe of Paste Berm below the easternmost two rock pads.
- Some melted snow at crest of 4:1 slope below and just west of second movement hub from southeast corner. General accumulation of ice at toe of buttress suggests slight seepage.
- Noted ARD seep along edge of the Old TDF spillway in Strip on east side. This might be runoff from buttress area to the east (indicates pile of PAG boulders) ponding along the Old TDF spillway.

- Strip decant draining effectively at approximately ~ 0.2 L/s. Clear water, no pond despite decant ring. Overflow pipe added on December 10 is approximately 1.5 m above decant inlet, and is partly clogged in by rocks.
- At the RSA, water levels are about 1.5 m below overflow. A new overflow structure was recently added. No safety concerns. Water at decant is turbid.
- 6:1 slope has no melted patches to suggest seepage. Spring from December 10 has slushy ice but not melted patches. Noticed spring is very close to backfill lines.
- Someone drove on 6:1 and down Seismic Upgrade at east abutment.
- No seeps at toe of 6:1 Slope.
- Pumphouse Spring is dry.

Lynx TDF:

- Discontinuous ice on tailings, mostly to the rear of the pit.
- Thickener underflow tailings deposition from usual location (Springs Drain Road), coarse tailings deposition from southeast corner of pond.
- No visible sinkhole at the usual location.
- No cracks or sags downstream. Consistent crack ~ 0.7-1 m from upstream crest, as expected due to settlement of upstream buttress.
- On intermediate benches of Lynx Dam, generally minor seeps all along the rear of each bench especially in the central to east portions. No significant fines deposited, trace fines in a few isolated instances.
- Lower bench on east end is relatively wet with a few spongy areas at surface.
- Easternmost, lowest bench is extremely spongy where snow has melted (mossy areas).
- Obvious seepage generally absent from toe but difficult to tell for sure due to pooling of water. Water is iced over. No advection melting.
- No seepage or slope deformation observed below the downstream side of Superpond.
- Surface water was redirected towards the crest of the December 2014 slide area above the Back Road in Lynx Pit, The water likely caused the slide, and needs to be directed away, towards Waste Dump 2. The areas adjacent to the slide remain overhanging and the safety exclusion zone should be expanded to cover the garbage dump at the toe of the slide area until remedial work is completed; however, remedial work should not be attempted until drier conditions prevail.

Diversion Ditches:

- Lower diversion ditch at Cascade Reach: need to finish bailing sediments from 10 December 2014 flood. Channel has gravel in its past partial flume remains, side banks still high near base of falls.
- Alder Reach was inaccessible but no obvious issues visible from south side of Lynx Diversion Ditch.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – Overview of the APA from Waste Dump #6, looking east.

Photo 2 – Southeast corner of the APA, diesel pump on Paste Investigation Road fill.

Photo 3 – Northeast portion of the East Strip, looking south.

Photo 4 – West portion of the East Strip, looking east.

Photo 5 – West Strip showing Old TDF spillway culverts, looking west.

Photo 6 – Strip decant structure.

Photo 7 – Top view of Strip decant structure with ice around it.

Photo 8 – Overview of the RSA looking south.

Photo 9 – Intake of new overflow structure at the RSA.

Photo 10 – Outlet of the new overflow structure at the RSA.

Photo 11 – New erosion gully into the Seismic Berm downstream face, just east of the Old TDF spillway.

Photo 12 – New erosion gully into the Seismic Berm downstream face, just east of the Old TDF spillway.

Photo 13 – Overview of Lynx TDF looking east.

Photo 14 – Overview of Lynx TDF, looking southwest.

Photo 15 – East portion of Lynx TDF, looking south.

Photo 16 – Lynx TDF west arm, looking west.

Photo 17 – Close-up view of Lynx Springs Drain discharge.

Photo 18 – Upstream Face of Lynx Dam south arm, looking west.

Photo 19 – Lynx Dam south arm downstream face, lower benches and toe area, looking southeast.

Photo 20 – Seepage flow on Lynx Dam lower bench near east end.

Photo 21 – Phillips Reach sump.

Photo 22 – Phillips Reach discharge below Waste Dump #1. Note seepage at the right side of photo.

Photo 23 – Torn drainage pipe along water diversion just above Lynx Pit Slide area.

Photo 24 – Ditch flowing towards the top of Lynx Pit Slide area.

Photo 25 – Ditch directed towards the top of east side of Lynx Pit Slide area, looking west.

Photo 26 – Top of Lynx Pit slide area, looking east.

Photo 27 – Cascade Reach discharge below Waste Dump #1.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-02-09	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	PM: ~ 12°C, Low overcast, fog, rain. Very wet past two weeks		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items:
  1. Continue monitoring upstream crest of Lynx Dam, particularly erosion near Sta. 5+20.
  2. Move the sand line into the southwest corner of Lynx TDF to continue building the beach.
  3. Install loggers at Lynx TDF as soon as possible.
  4. Set pump at the East Strip in conformance with letter re December 2014 flood event.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- No pond in APA. Southeast corner of APA is well drained (pumped).
- Erosion of the paste tailings surface continues. Below Waste Dump #6, erosion seems to be due to surface runoff at dump toe. One ~ 0.7 m deep x 1.5 m wide hole, approximately 125 m from the west abutment indicates tailings erosion into the dump toe (there is no surface flow off tailings into the hole and water flow at the base of hole was from the dump only).
- Near the APA decant, rockfill is surrounded by very fluid tailings sediment but there is no pond, turbid runoff is entering the decant.
- No spring flow at APA Paste Berm East Abutment (main spring).

- Some tailings washed out at the base of the Paste Berm, which appear to be from leaking hoses from the pump in the east APA.
- The East Strip is draining through the south culvert. The backflow line also passes through this culvert, and a breather at the culvert inlet is leaking tailings and water vigorously.
- The south culvert under the spillway is barely flowing. The TDF Strip beach (a.k.a. OEB beach) is drained to about 1.5 m below 10 December 2014 maximum level (Elev. 3383.05 m). No pump is present which does not meet the recommendations made in Amec Foster Wheeler's letter on the *Emergency Response to Water Levels in Old TDF – December 10 and 11, 2014* (draft letter dated January 23 and final version dated February 12, 2015).
- No visible sinkholes below high water elevation at the East Strip. Some marks are consistent with rapid drawdown, i.e. minor sloughing and rill erosion towards the Strip. Currently no concerns based on observations. Total freeboard is estimated to about 1.8 m. The Strip beach extends up to about 0.6 m above current water level and has a thin coating of slimes, likely from pumping the APA.
- Water level in the West Strip is near the top of the ditch along the APA Buttress toe, well below the overflow spillway pipe installed in December 2014.
- Relatively clear water from the Strip is being pumped to the RSA.
- Two ponds of turbid water are present in the RSA, one located in the center and the other to the west near the decant. The paste backfill plant overflow is very turbid and slimy, and is flowing intermittently. The first pond is full of slimes and water is very turbid at the decant. The second pond shows consistent flow but very shallow water. Water level is well below the December 2014 emergency level, around 20 m of beach is exposed by the outlet.
- Turbid, moderate flow is entering Superpond 'In', both from the APA and the RSA/Strip.

Lynx TDF:

- Tailings discharged as thickener underflow with no evidence of paste tailings placed in last month.
- Slight pond present along rear and northwest pit walls, with very little ponding around the west abutment, some red staining along the pit walls.
- One 8-inch diesel pump running, one in standby (electric pump not installed).
- The sinkhole in the tailings pond is barely apparent but is present.
- Well-developed beach on the south and east arms.
- Slight sloughing on the upstream side of Lynx Dam west arm within ~ 50 m of Pump Road but no stability concerns. Few spots with seepage at the toe of the west arm above the level of the tailings pond. Water infiltrating the dam fill and reporting further down in the toe area.
- Settlement and cracking on the upstream side of the South Arm within 1-1.5 m of crest, the outer crest has dropped by 0.1 m relative to top of Zone J (prisms outside of zone of cracking), no apparent deformation on the downstream side. There are no stability concerns.
- West benches shows minor seepage in usual places but no boils or sediment discharge.

- East lower and toe benches are wet, spongy with ARD staining at the east end (surface runoff in this area is less than ~ 0.5 L/s).
- Total surface runoff in toe area is at least ~ 1 L/s, reporting as net infiltration.
- Clear blue water in Phillips Reach sump beyond sump inlet. The largest spring is clear but the higher spring runoff is milky. Some fines have been deposited by surface runoff uphill along haul road.
- No change on Lynx Pit slide area. The access is still barred. Seepage is coming out of bedrock shear zone above the highwall overlook road.

Diversion Ditches:

- Moderate flow in Lower Lynx Diversion Ditch. Channel cleaned out to liner but side bench and invert still covered in sediments.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA from Waste Dump #6, looking southeast.

Photo 2 – APA from Waste Dump #6, looking south towards the APA decant and RSA.

Photo 3 – Erosion holes and rills in the APA paste tailings at the Waste Dump #6 west side toe.

Photo 4 – Southeast corner of the APA with diesel pump on the Paste Investigation Road fill.

Photo 5 – APA ditch along the Paste Berm, looking east from the Old TDF spillway area.

Photo 6 – Tailings slurry flowing through rocks at the APA decant, looking southwest (ramp leading to the decant structure immediately to the right of the photo)

Photo 7 – Falls at the end of Cascade Reach and merge point with Lower Lynx Diversion Ditch, looking west.

Photo 8 – Lower Lynx Diversion Ditch near Cascade Reach, looking east.

Photo 9 – Shotcrete lined section of Lower Lynx Diversion Ditch, about 50 m upstream of Alder Reach.

Photo 10 – Location of main spring at the toe of the Paste Berm east abutment.

Photo 11 – View of the East Strip showing ARD seepage areas at the downstream toe of the Paste Berm and “anti-piping” pads (circled), looking south from the east abutment.

Photo 12 – East Strip, looking west from central area
(yellow circle showing sinkhole into the OEB sand beach).

Photo 13 – Southeast corner of the Paste Berm, looking north. The base of the Paste Berm is soft and saturated due to poor drainage and distributed seepage.

Photo 14 – Slight ponding on the Seismic Berm below the West Strip, looking southeast.

Photo 15 – View of the East Strip showing minor ravines (erosional features) along the OEB upstream beach, looking east from the Old TDF spillway area.

Photo 16 – Culverts under the Old TDF spillway at the west end of the East Strip.

Photo 17 – West Strip decant structure, looking east.

Photo 18 – Mine paste backfill overflow at the RSA.

Photo 19 – General view of the RSA, looking east.

Photo 20 – Turbid water flowing into the RSA decant structure.

Photo 21 – General view of Lynx TDF, looking east.

Photo 22 – Southwest view of Lynx TDF with sinkhole barely visible (circled area).

Photo 23 – Lynx Springs Drain outlet.

Photo 24 – Southwest corner of Lynx dam, looking northwest.

Photo 25 – South arm of Lynx Dam near the east end of the facility showing minor sloughing on upstream face, looking west.

Photo 26 – Tension crack on the south arm downstream crest of Lynx Dam, approx. Sta. 3+50.

Photo 27 – Lynx Dam south arm lower benches and toe area, looking southeast.

Photo 28 – Seepage on the “2011 Bench” of Lynx Dam, looking west.

Photo 29 – Runoff on the side of A-Ramp embankment carrying sediments down to dam toe in Phillips Sump area.

Photo 30 – Phillips Reach sump.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-03-05	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	Dry		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items:
  1. Move sand line to Lynx TDF southwest corner.
  2. Move main tailings line to end of springs drain road.
  3. Use a CAT to grade Zone J Stockpile to drain (no humps). Push up from access/drainage cut along dam toe, grade to ~ 5%.
  4. Repair Arnica ditch at end of Upper Lynx Diversion Ditch.
  5. Finish removing debris and repair over-excavation at base of Cascade Reach.
  6. Patch shotcrete in Lower Lynx Diversion Ditch.
  7. Grade junction of OEB Road and Strip access (by Strip decant) to prevent ARD runoff onto Seismic Upgrade Berm.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- Nothing unusual at APA noted from top of Waste Dump #6.
- No ponds in APA. Some water in ditch along APA Paste berm end at sump pit in southeast corner.
- Minimal water in East Strip. Slight pond near Old TDF spillway culverts.
- Water leaving the RSA is dirty, sediment in RSA is turbid, water levels are well below limits.
- Some ponding on Seismic Upgrade Berm, need to cut off surface drainage from access between RSA and Strip from flowing down onto Seismic Upgrade Berm.

Lynx TDF:

- Noted large piles of core and waste near 10L Portal, within the construction footprint for the next dam raise.
- Underflow deposition from mid-point of Lynx Springs drain.
- Minimal water in pit at northwest wall, some orange staining of water.
- Two diesel pumps installed but no pumping required.
- Most recent sand deposition near Sta. 4+80.
- Well-developed beach across full length of Lynx Dam south arm. Fine tailings against the west arm and high beach on the east arm.
- Sinkhole barely visible but seems to be present.
- No active runoff or seepage in the Lynx Slide area (good conditions to start remediation).
- Minor sloughing of dam surface continues with crack ~ 1 m from the upstream crest. Start of second crack ~ 1 m from first crack.
- No mud wave, some settlement cracking on tailings surface near toe (suggests upstream dam slope deformation is primarily settlement, as opposed to sliding)
- Small pond near east piezo ~ Sta. 4+80, south of deposition point, skim of water reaches the dam.
- 4:1 side looks normal, no issues.
- Springs drain modest to low flow.
- Springs at Phillips Reach sump show similar volume as Lynx Springs Drain, clear water, no surface flow from haul roads.
- Minimal water at dam toe, no springs on lower level. All water appears to be from Zone J stockpile, which still requires regrading to improve drainage.

Diversion Ditches:

- Upper Arnica Ditch has built a fan at the top end of the Upper Lynx Diversion ditch. alluvium needs to be cleared to re-establish Arnica Ditch.
- Debris is still present at the base of falls at the bottom of Cascade Reach. The berm near the access point at the top of the Lower Lynx Diversion Ditch has been over-excavated and must be rebuilt.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA from Waste Dump #6, looking east.

Photo 2 – West side of APA from Waste Dump #6, looking southwest.

Photo 3 – Southeast corner of APA, looking west/northwest.

Photo 4 – APA ditch near the Old TDF spillway, looking east.

Photo 5 – Paste Berm East Abutment and east end of the East Strip, looking north/northeast.

Photo 6 – East Strip, looking west.

Photo 7 – West Strip, looking east.

Photo 8 – TDF Strip decant.

Photo 9 – ARD runoff/seepage at toe of 6:1 Slope and on the Seismic Berm near the access road between the RSA and the Strip.

Photo 10 – RSA looking west.

Photo 11 – RSA looking east.

Photo 12 – RSA decant.

Photo 13 – Lower Lynx Diversion Ditch near Cascade Reach, looking west.

Photo 14 –Lynx TDF, looking east.

Photo 15 – Overview of Lynx TDF, looking southwest.

Photo 16 – Upstream face of Lynx Dam south arm, looking east.

Photo 17 – Crack along the upstream crest of Lynx Dam south arm, looking east.

Photo 18 – Minor sloughing of Lynx Dam upstream face of south arm, looking west.

Photo 19 – Lynx Dam south arm east lower benches and toe area, looking west, showing ponding at the toe of the ‘Zone J material’ stockpile.

Photo 20 – Lynx Dam south arm east lower benches and toe area, looking south.

Photo 21 – West view of Lynx TDF.

Photo 22 – Lynx Springs Drain outlet.

Photo 23 – East portion of Lynx TDF, looking south.

Photo 24 – Lynx Dam east lower benches and Phillips Reach sump area, looking east.

Photo 25 – Base of Lynx Pit Slide area, looking east.

Photo 26 – Lynx Pit Slide area, looking west.

Photo 27 – Upper Lynx Diversion Ditch, looking east.

Photo 28 – Junction of Arnica and Upper Lynx Diversion Ditches.

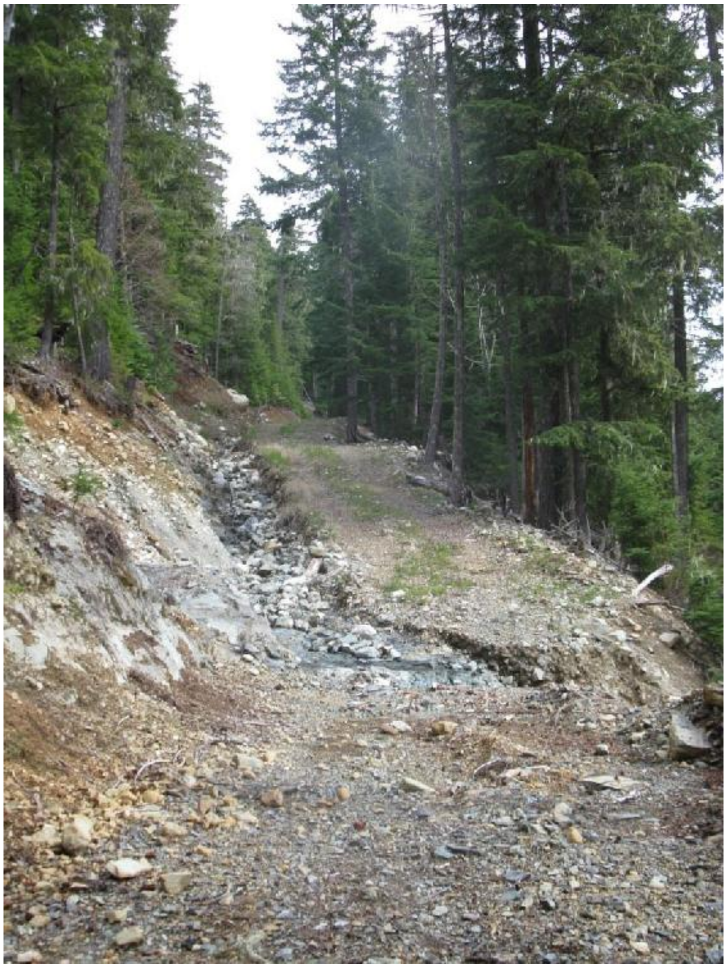

Photo 29 – Arnica Diversion Ditch looking east from Arnica – Upper Lynx Diversion Ditch junction.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-04-08	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:			

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items: None.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- APA is dry except for a skim of water at the southeast corner.
- Paste erosion continues.
- The Seismic Upgrade Berm is very wet and soft at the very toe of 6:1 slope along Plane C, with signs of widely distributed trace seepage (walking leaves deep footprints). The rest of the 6:1 at this section is firm.
- The Paste Berm is still wet along Plane C with traces of seepage around filter pads but no signs of piping.
- Nothing unusual along the downstream face of the Seismic Upgrade Berm.
- The RSA was at a low level with slight flow through the area.
- Trickle of water in the Strip.

Lynx TDF:

- Paste deposition at end of Lynx Springs Drain. Switched from thickener underflow to paste tailings this morning.
- Sand deposition in southwest corner.
- Lots of brown dredge liquid in pit.
- No pumping active at time of inspection. Surface flow of water and dredging material observed flowing past pump area, and infiltrating into the pit wall (flowing underground).
- Sinkhole not visible from view location, normal place covered with water/dredge.
- Clear water at back of pit. Can see underflow/dredge deposition patterns.
- Zone J stockpile at the toe of Lynx Dam still not graded to drain, resulting in continued seepage from stockpile material.
- Puddles at dam toe from stockpile seepage but no seepage from the dam. No surface outflow from toe area (implies infiltration).
- Normal discharge at springs by Phillips Reach sump. Ponded water below the sump.
- Usual perched seepage on “2011 Bench”.

Diversion Ditches:

- Lower Lynx Diversion Ditch cleaned out at Cascade Reach. Few holes in the shotcrete liner along the APA.

The recommendations herein are based on Amec Foster Wheeler’s observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA, looking east/southeast from Waste Dump #6.

Photo 2 – APA, looking south from Waste Dump #6.

Photo 3 – APA Ditch along Paste Berm from decant access fill, looking east.

Photo 4 – APA decant and access fill.

Photo 5 – ARD seepage at the base of the Paste Berm near Instrument Plane C, showing one of the clean rock pads built to prevent piping erosion.

Photo 6 – East Strip, looking west.

Photo 7 – East end of the West Strip, looking east towards the Old TDF spillway.

Photo 8 – West Strip, looking east.

Photo 9 – Strip decant and overflow spillway pipe.

Photo 10 – RSA, looking west.

Photo 11 – ARD puddle at toe of 6:1 Slope near Instrument Plane C, looking south.

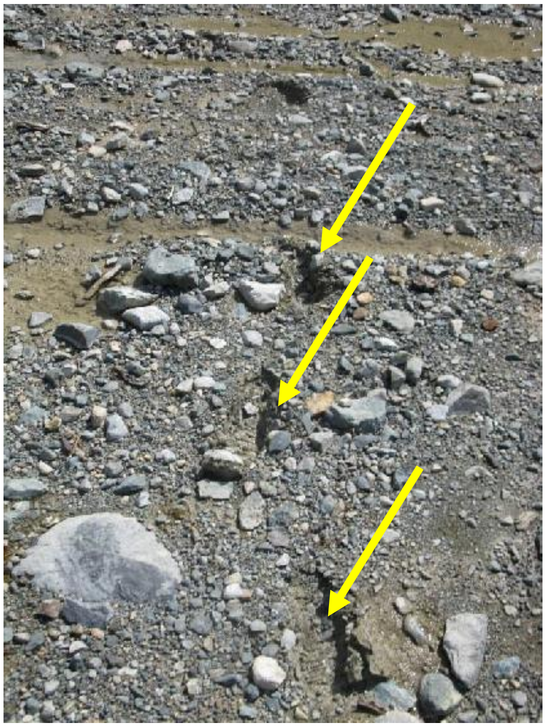

Photo 12 – Footprints left on the wet surface of the Seismic Berm in the area shown in Photo 11.

Photo 13 – Puddles and rutting on Seismic Berm ~ Sta. 0+700, looking south.

Photo 14 – Lower Lynx Diversion Ditch near Cascade Reach, looking west.

Photo 15 – Lower Lynx Diversion Ditch near Cascade Reach, looking east.

Photo 16 – Hole in Lower Lynx Diversion Ditch shotcrete liner.

Photo 17 – Patches, exposed rebar and holes in Lower Lynx Diversion Ditch shotcrete liner.

Photo 18 – Hole in Lower Lynx Diversion Ditch shotcrete liner.

Photo 19 – Lynx TDF, looking east.

Photo 20 – West arm of Lynx Dam, looking south.

Photo 21 – Overview of Lynx TDF, looking south.

Photo 22 – Paste line on Lynx Springs Drain Road, looking west.

Photo 23 – Lynx Dam south arm lower benches and toe area, looking southeast.

Photo 24 – East portion of Lynx dam south arm toe area with ARD water accumulation (most seepage coming from the “Zone J” material stockpile), looking west.

Photo 25 – Seepage and mossy area on the surface of Lynx Dam lower “2011 Bench” ~ Sta. 4+00, looking east/northeast.

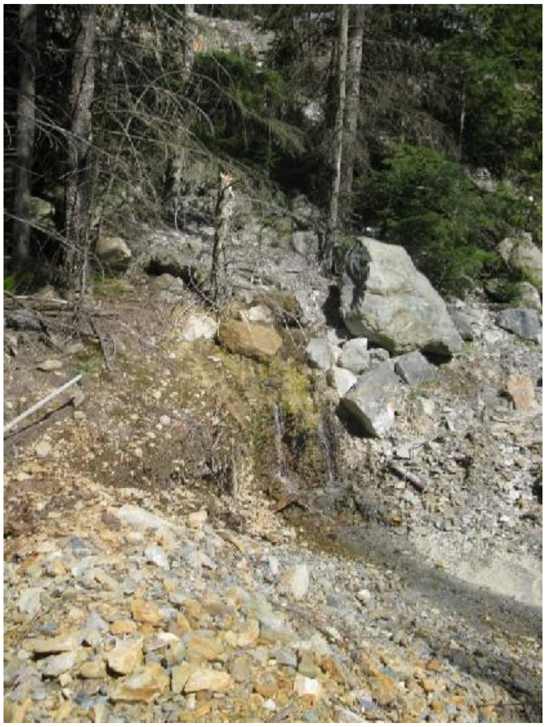

Photo 26 – One of Phillips Reach sump springs.

Photo 27 – Another one of Phillips Reach sump springs entering the pond.

Photo 28 – Phillips Reach sump overflow sill.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-05-22	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	Sunny, ~ 18°C, light breeze. (dry conditions)		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items:
  1. Move the instrument enclosure that is in the OEB haul route about 2 m off the road onto the 6:1 buttress.
  2. Monitor Lynx TDF for additional sinkhole formation.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- Along the toe of the Old TDF, no new issues, rilling/erosion in usual spots, inactive, all dry.
- Instrument enclosure for Section 5 of the APA drill program is on the OEB haul route and needs to be relocated. Several other instrument enclosures are also in the way of access routes including the paste berm.
- Puddles on Paste Berm and along Paste Berm toe. A few puddles in trench along Paste Berm near east end and water in sump. Otherwise, all is dry.
- Moderate flow in diversion ditch for the spring freshet.
- New ditch along drill access road at top edge of APA.
- RSA is operating in flow-through mode. Back surging observed at the RSA decant.

Lynx TDF:

- Lynx Springs Drain discharge is flowing at approximately a few L/s, springs at Phillips Reach sump show a similar flow rate.
- Lynx dam and toe are all dry.
- Zone J stockpile has been regraded to drain, some fresh dumping.
- 80-Foot building underground service removal is in progress.
- Sand tailings deposition, deposited from dam near Instrument Plane E. Thickener underflow tailings deposition from Lynx Springs Drain platform.
- Relatively flat pond, minimal surface water. Clear water observed against northeast pit wall. Froth is accumulating at the extreme north end against waste. Dirty water flows along waste on northwest side and disappears below froth.
- No pumps installed or on standby.
- The recurrent depression is visible from 10L Portal overlook. It is filled with water to the point of overflowing but is not at the lowest point in the pond (i.e. not acting as a drain).
- Slight variations in surface textures suggest the possible presence of other sinkholes – one of them could be at the end of the paste deposition fan.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA looking southeast from Waste Dump #6.

Photo 2 – Southeast corner of the APA, looking north/northwest.

Photo 3 – APA Ditch along the Paste Berm, section between the Old TDF spillway and the east arm of the Berm, looking east.

Photo 4 – APA Ditch along the Paste Berm, section between the decant and the Old TDF spillway, looking east (decant access ramp in foreground).

Photo 5 – Southeast corner of Paste Berm and base, as well as East Strip, looking north.

Photo 6 – Piezometer datalogger enclosure on the OEB road, looking south/southwest. This enclosure needs to be moved to the left of the road, down the 6:1 slope.

Photo 7 – ARD seepage at the toe of the Paste Berm near Instrument Plane 4, looking south. East Strip in the background.

Photo 8 – Culverts going under the Old TDF spillway at the west end of the East Strip, looking west/northwest.

Photo 9 – West strip looking west from the Old TDF spillway location.

Photo 10 – ARD seepage at the toe of the Paste Berm near the Strip decant location (Strip decant is to the right).

Photo 11 – West Strip looking east from decant location.

Photo 12 – Strip decant (overflow pipe in the foreground).

Photo 13 – West arm of the Paste Berm and east end of the RSA, looking south (note the variety of backfill materials onto the Paste Berm surface).

Photo 14 – Overview of the RSA, looking south from Waste Dump #6.

Photo 15 – RSA decant, looking north.

Photo 16 – Series of erosion rills on the Seismic Berm downstream face.

Photo 17 – New drainage pipe on the Seismic Berm downstream face.

Photo 18 – Low flow into Lower Lynx Diversion Channel, looking east.

Photo 19 – Alder Reach with some rock debris along invert, looking west.

Photo 20 – Pump Road at Lynx Dam west arm, looking south. Froth floating on the water.

Photo 21 – Overview of eastern portion of Lynx TDF, looking south/southeast. Recurrent sinkhole marked with circle.

Photo 22 – Sand tailings deposition from center of Lynx Dam south arm, looking north/northeast.

Photo 23 – Upstream portion of Lynx Dam crest, looking east.

Photo 24 – Dismantling pipes around the 80-Foot building, looking south.

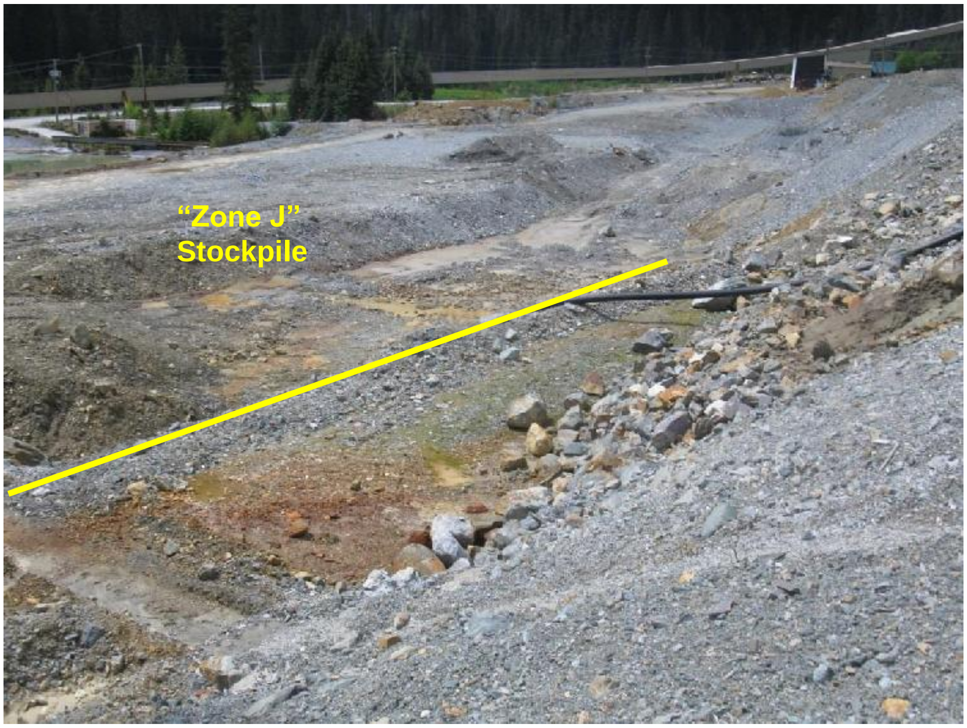

Photo 25 – East portion of Lynx Dam lower benches and toe area, looking southwest

Photo 26 – Outlet of Lynx Springs Drain.

Photo 27 – One of Phillips Reach sump springs entering the pond.

Photo 28 – Phillips Reach drainage pipe flowing towards Phillips Reach sump area.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-06-16&17	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:	Savanna Herman, EIT	Cc:	
Weather:	Partly cloudy, ~11-25°C (mostly dry weather since last inspection on 2015-05-22)		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler. The inspection included Lynx TDF upper water diversions.
- Action Items:
  1. Remove the piles of mine waste that have been dumped on the east end of the Seismic Upgrade Berm.
  2. Brush/remove debris in the lower and upper reaches of Arnica Ditch. Repair any breaches and re-establish adequate freeboard.
  3. Remove debris in the Upper Lynx Diversion Ditch. Cut trees as needed and trim and stabilize slopes to stop the erosion and re-establish the channel.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- Groundwater well access road and ditch along the north edge of the APA has been completed. Some holes/cavities have developed in the paste along the ditch invert, the largest is approximately 30 x 10 cm.
- The APA surface is dry (no ponded water). No flow into the APA decant.
- No flow at the main spring at the toe of Paste Berm east abutment.
- No seepage at the base of the Paste Berm.
- The Strip is dry. No flow into the Strip decant.

- The RSA is dry. No flow into the RSA decant. Access roads have been built into the RSA for sand removal.
- Mine waste material has been dumped on the Seismic Upgrade Berm main bench near the east abutment. This material appears to be PAG and must be removed.

Lynx TDF:

- Tailings sand beach along the south arm and in the southwest corner.
- Paste tailings fan near Lynx Springs Drain platform.
- Tailings deposition has ceased with the mine in shutdown mode.
- Ponded water in few spots in the northwest and east portions of Lynx TDF. Some desiccation cracking of the tailings surface.
- Recurrent depression is apparent, in its usual location and size.
- Minor sloughing and few small erosion gullies along the upstream shell of the west arm and south arm.
- No pumps at the west abutment. Pumps and generators have been removed.
- Small amount of refuse on upstream dam slope in the southwest corner of the facility.
- Lynx Dam south arm mid-level benches and toe are free of seepage.
- 80-Foot Building demolition is in progress, clearing of Zone J stockpile material to expose foundation at the toe has commenced.
- Clear water and low level in Phillips Reach sump. No surface inflows from haul road or drainage pipe. Water trickling from Phillips Reach springs.

Diversion Ditches:

- Clear water, low flow into the Lower Lynx Diversion Ditch.
- No flow in lower and upper reaches of the Arnica Ditch. Brush is starting to colonize the lower reach of the ditch and should be scheduled for removal before it becomes too large.
- Cobble and sediment aggradation in few locations along the lower Arnica reach with breach observed near the lower end. Breach must be repaired.
- Low flow in the Upper Lynx Diversion Ditch. Erosion damage observed near stream at base of culvert section.
- Brush is starting to colonize the Upper Lynx Diversion and should be scheduled for removal.
- Road switchback at the lower end of the Upper Lynx Diversion has failed due to redirection of water onto the road by a small debris jam at the end of the ditch. This likely occurred in the December 2014 flood. The diversion has been rerouted over bedrock in the slide scarp. Slide crest should be pulled back for safety and to limit additional instability. The diversion can be left in its new route.

The recommendations herein are based on Amec Foster Wheeler’s observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA looking southeast from Waste Dump #6.

Photo 2 – APA, looking south/southwest from Waste Dump #6.

Photo 3 – Access road and ditch for groundwater wells along the north edge of the APA.

Photo 4 – Hole in the invert of the access road ditch. Shovel inserted into hole for scale.

Photo 5 – APA Ditch along the Paste Berm, looking east from the Old TDF spillway.

Photo 6 – Western portion of the East Strip and downstream slope of the Paste Berm south arm, looking west towards the Old TDF spillway.

Photo 7 – West Strip looking west from a drill access near Hut B.

Photo 8 – Various temporary access roads within the RSA, looking southwest.

Photo 9 – East abutment of the Seismic Upgrade Berm, looking east towards the on-site Quarry. Piles of PAG mine waste are circled.

Photo 10 – Low flow in the Lower Lynx Diversion Ditch near Cascade Reach, looking west (on 2015-06-17).

Photo 11 – Looking up-slope at Alder Reach Ditch from the Lower Lynx Diversion Ditch (on 2015-06-17).

Photo 12 – Lynx TDF, looking east.

Photo 13 – Lynx TDF, looking southwest. No pumps at the bottom of the ramp (circle shows the location of the recurrent depression).

Photo 14 – Lynx TDF west arm, looking south (on 2015-06-17).

Photo 15 – Toe of Lynx Pit slide area behind Lynx TDF, looking west.

Photo 16 – Southwest corner of Lynx TDF and upstream face of Lynx Dam, looking west (on 2015-06-16).

Photo 17 – Mine refuse on the upstream face of Lynx Dam west arm (southwest corner of the facility) (on 2015-06-16).

Photo 18 – Upstream face of Lynx Dam south arm, looking west.

Photo 19 – Desiccation cracking on the paste surface at the east end of Lynx TDF, looking north.

Photo 20 – 80-Foot building at Lynx Dam toe undergoing demolition, looking south.

Photo 21 – Toe of Lynx Dam south arm, looking east (on 2015-06-16).

Photo 22 – Upper Arnica Reach Ditch, looking upstream (on 2015-06-17).

Photo 23 – Upper Arnica Reach Ditch, looking upstream (on 2015-06-17).

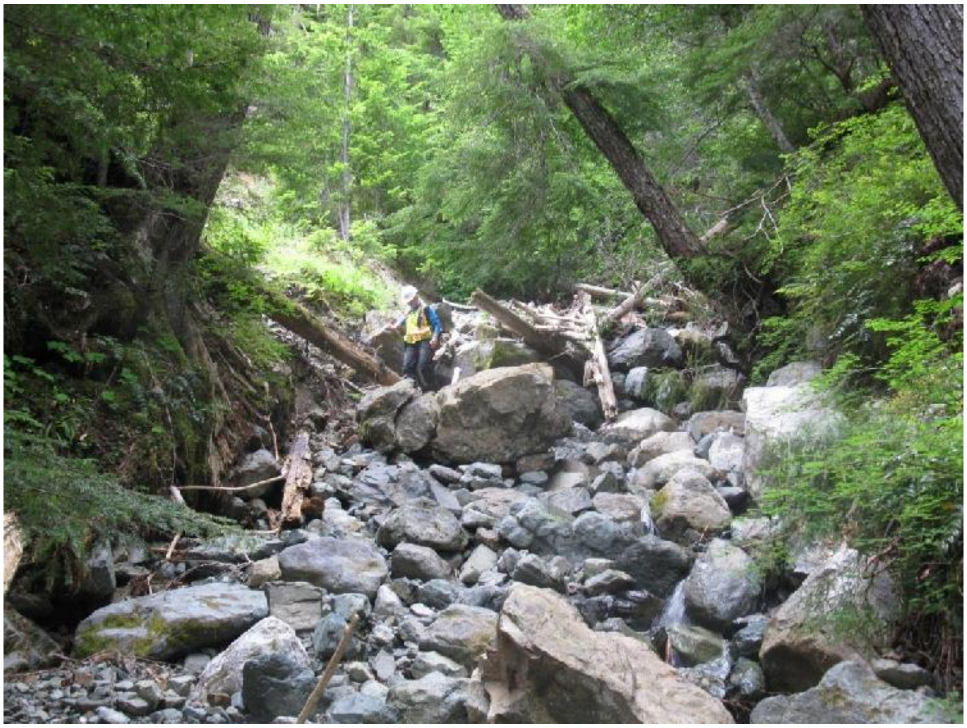

Photo 24 – Torrented creek above the head of Upper Arnica Ditch. (Creek reports to the Upper Lynx Diversion, just below the culvert section).

Photo 25 – Wood logs caught in the creek located at the head of Upper Arnica Ditch.

Photo 26 – Debris and fallen tree in breach along the lower reach of Arnica Ditch.

Photo 27 – Breach of lower Arnica diversion ditch near the lower end.

Photo 28 – Debris in the Upper Lynx Diversion Ditch just below the culvert section, .looking downstream. Debris and erosion of the ditch is from the torrented stream in Photo 36 & 37.

Photo 29 – Brush in Lynx Upper Diversion Ditch, looking upstream.

Photo 30 – Headscarp of failure at switchback at lower end of Upper Lynx Diversion. Diversion formerly flowed left to right to the edge of the photo, now captured by the headscarp.

Photo 45 – Headscarp of failure area looking south from the diversion channel.

Photo 46 – Small to medium sized wood debris in former channel, which diverted the flow onto the switchback area. Debris was arrested by small trees in the invert at the end of the channel.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-07-23	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	Overcast, 12 to 23°C Mostly dry weather since the last inspection on 2015-06-17		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action items: None.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- The APA surface is dry (no ponded water). No flow into the APA decant.
- No flow at the main spring at the toe of Paste Berm east abutment.
- No seepage at the base of the Paste Berm.
- The Strip is dry. No flow into the Strip decant.
- Some water pooling in the east portion of the RSA. No flow into the RSA decant.
- No water accumulations on the Seismic Berm main bench.

Lynx TDF:

- Ponded water in a few spots in the northwest portion of Lynx TDF.
- Desiccation cracking of the tailings surface is well developed at the back of the pit and near the paste deposition point along Lynx Springs Drain.
- Recurrent depression is apparent, in its usual location and size.
- No pumps at the west abutment. Pumps and generators have been removed.
- Trace seepage entering Lynx Pit at the rock wall above the springs drain.

- The 80-Foot Building concrete foundation has been removed from Lynx Dam toe area.
- No seepage or water accumulation on Lynx Dam south arm mid-level benches or toe.
- Phillips Reach sump area has been logged and cleared. Some seepage in areas around former Phillips Reach springs.
- Excavation of foundation area along south toe continues.

Diversion Ditches:

- Trees and brush were cut from the Lower Lynx Diversion Ditch footprint.
- Low flow in Myra Creek.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA, looking southeast from Waste Dump #6.

Photo 2 – APA, looking south/southwest from Waste Dump #6.

Photo 3 – APA Ditch, looking west from the decant access ramp.

Photo 4 – Eastern portion of the East Strip, looking northeast.

Photo 5 – West Strip and Strip decant, looking east.

Photo 6 – RSA, looking west.

Photo 7 – ARD staining on the Seismic Upgrade 6:1 Slope and main bench below the access road at the west end of the Strip, looking north.

Photo 8 – Tree clearing along the Lower Lynx Diversion Ditch near Cascade Reach, looking west.

Photo 9 – Low level in Myra Creek near Pumphouse #4.

Photo 10 – Lynx TDF with desiccation cracking in fine tailings on exposed beach, looking east.

Photo 11 – Lynx TDF, looking southwest at the pump ramp area (no pumps, circled area showing the recurrent depression).

Photo 12 – Eastern portion of Lynx TDF, looking southeast.

Photo 13 – Tailings surface and deposition point along the Springs Drain road, looking east.

Photo 14 – Trace seepage entering Lynx Pit at rock wall above the springs drain, looking north.

Photo 15 – Former 80-Foot building area at the toe of Lynx Dam, looking south.

Photo 16 – Lynx Dam south arm toe looking east from the mid-level bench (note the foundation preparation work in the 3410 m elevation toe area).

Photo 17 – Grassy area on mid-level “2011 Bench” where seepage is commonly observed, looking west. Seepage area is dry.

Photo 18 – General view of the southeast corner of Lynx Dam toe, looking southeast. The treed area around Phillips Reach sump was cleared and organics were removed.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-08-24	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	Sunny, some clouds, ~10-22°C Mostly dry weather since the last inspection on 2015-07-23		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items:
  1. Remove tailings from the two Strip culverts passing under the Old TDF spillway.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- The APA surface is dry (no ponded water). No flow into the APA decant.
- No flow at the main spring at the toe of Paste Berm east abutment.
- No seepage at the base of the Paste Berm.
- Excavations have been dug on either side of the APA operations spillway in preparation for clearing of the existing culverts. The culverts are plugged with tailings solids.
- No ponding in the RSA. The tailings surface is still wet around the RSA decant and the old backfill plant overflow line. No flow into the RSA decant.

Lynx TDF:

- Ponded water in a few spots of the northwest portion of Lynx TDF.
- Desiccation cracking of the tailings surface is well developed at the back of the pit and in the east portion of the TDF.
- Recurrent depression is apparent, in its usual location and size.

- No pumps at the west abutment. Generators have been moved back to the west abutment. One pump line is present.
- Upstream shell of Lynx Dam near the pump ramp showing minor sloughing and erosion gullies. Sloughing of the upstream shell also observed near ~Sta. 2+60.
- No seepage or water accumulation on Lynx Dam south arm mid-level benches or toe.
- The foundation preparation and fill placement has been completed to pre-existing ground levels alongside the toe of Lynx Dam south arm. No surface runoff or spring flow entering the area.
- Berm has been constructed below the slide in the Lynx waste dumps (above Lynx TDF) and road access has been restored through the pit.

Diversion Ditches:

- Very low flow in the Lower Lynx Diversion Ditch. A temporary water diversion has been constructed for the ditch upgrade project, which starts near Cascade Reach and runs down along the existing haul roads. Very low flow in the temporary water diversion ditch.
- Extremely low flow in Myra Creek.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA looking southeast from Waste Dump #6.

Photo 2 – APA, looking south from Waste Dump #6.

Photo 3 – 4:1 Slope and base of the Paste Berm and East Strip near Instrument Plane C, looking southeast (no water accumulation or trace of seepage).

Photo 4 – Paste Berm and East Strip looking east from the Old TDF spillway. Excavation is in preparation for culvert cleaning.

Photo 5 – West Strip looking west from the Old TDF spillway. Ditching to relieve water from excavation is in preparation for culvert clearing.

Photo 6 – Interior of one of the culverts under the Old TDF spillway. Culvert is completely plugged with tailings solids.

Photo 7 – View of West Strip, looking east from the decant.

Photo 8 – RSA, looking northwest.

Photo 9 – Extremely low flow conditions in Myra Creek under ore conveyor bridge, looking west (upstream), just south of Superpond.

Photo 10 – Slope and rockfill toe of the Seismic Upgrade Berm, ~ Sta. 1+100.

Photo 11 – Lower Lynx Diversion Ditch looking west towards Cascade Reach, upstream of the temporary water diversion.

Photo 12 – Culverts across the access road at the head of the temporary water diversion for Lower Lynx Diversion Ditch upgrade works, looking south towards Waste Dump #6.

Photo 13 – Construction diversion along the access road for Lower Lynx Diversion Ditch, looking west towards Paste Plant. Seepage appears to be draining from the waste dump.

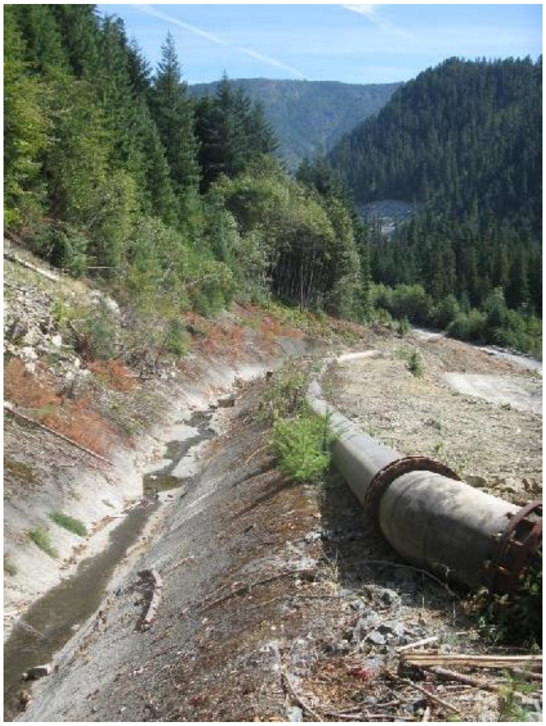

Photo 14 – Shotcrete-lined portion of Lower Lynx Diversion Ditch near Alder Reach Ditch, looking east.

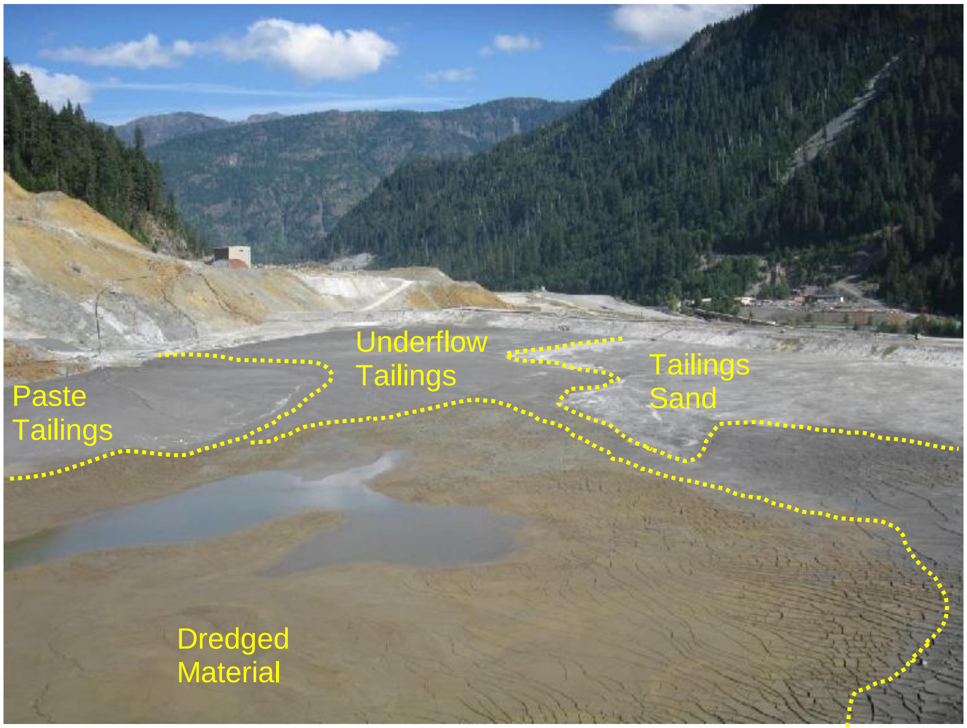

Photo 15 – Overview of Lynx TDF, looking east, with approximate outline of the various materials disposed in the facility.

Photo 16 – Overview of Lynx TDF, looking southwest
(recurrent depression in paste surface clearly visible, marked by dotted circle).

Photo 17 – Close-up view of the recurrent depression in Lynx TDF paste surface (see previous photo for location).

Photo 18 – West Arm of Lynx Dam, looking south.

Photo 19 – Close-up view at the sloughing zone in the upstream shell of Lynx Dam west arm, looking south.

Photo 20 – Lynx Pit slide area, looking west. Berm has been constructed and road access has been restored through the top of the waste dump area.

Photo 21 – Overview of Lynx TDF east arm, looking west.

Photo 22 – Easternmost portion of Lynx Dam foundation panels area, looking towards the east/southeast.

Photo 23 – Eastern portion of Lynx Dam south arm toe, looking west.

Photo 24 – Lynx Dam toe area, looking south at the former location of the 80-Foot building.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-09-24	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:	Savanna Herman, EIT	Cc:	
Weather:	Overcast with rain, heavy at times, 8-13°C (40 mm of rain on the day of the inspection, 120 mm in the five preceding days)		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items:
  1. Re-install pumps at Lynx TDF.
  2. Improve drainage in Lynx Dam Foundation Panels 14/15 or pump water out.
  3. Pull back side-cast/wood-supported fill and increase freeboard in the repaired area of lower Arnica Reach.
  4. Carry out additional crest pullback in slide area at the lower end of the Upper Lynx Diversion.
  5. Clean out the ditch along the drill access trail at the top edge of the APA. Monitor the areas where it loses water and the area of springs below the access trail.
  6. Lower water levels in the east APA.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- APA has flow of water to decant and at southeast corner, including flow from the east APA.
- Main spring not active.
- The ditch along the drill access trail at the top of the APA is blocked by minor sloughing. It loses water near the former area of springs but gullies are relatively dry.
- Ponded water in the east end of the APA.

- Ponded water in the east and west Strip.
- Standing water on the TDF Seismic Upgrade berm main bench.

Lynx TDF:

- Standing water across central areas, pond in southeast corner.
- Sand beach, paste fan and RSA reject material above water.
- Mud wave around RSA reject material deposition.
- Recurrent depression is either flooded or has been filled by the mudwave.
- No active water management present: no pumps, discharge pipes not prepared.
- Some seepage/runoff at pit highwall adjacent to slide area. Surface flow into crest of slide area.
- Flow down A-Ramp and from Waste Dump #1 into Panel 15. Flow off benches into Panel 9-13.
- No major springs on dam.
- Significant seepage below 4:1 east arm and at old Phillips Reach pipe.
- Water accumulation in Panels 14/15 about 150 mm deep along Super Pond side.
- Cracks on upstream side of dam enlarged and deformation about 0-15 cm vertical and 0-5 cm horizontal. No cracks on downstream side.

Diversion Ditches:

- Repairs made in the lower Arnica Reach have resulted in fill side-cast over wood on the downslope side. The ditch freeboard is still minimal. Recommend pullback of fill and additional ditching to improve freeboard.
- Significant leakage of the diversion system near the end of the Upper Lynx Diversion, resulting in a small waterfall in the open pit.
- Pull back of the crest of the slide at the switchback at the lower end of the Upper Lynx Diversion only extends to about half the height of the scarp. Additional pullback should be carried out to flatten the overall slope of the scarp.
- Lower Lynx Diversion Ditch is flowing at an estimated ~2 m^3/s with no obstructions.
- Uncontrolled runoff from A-ramp is washing granular material into the Superpond outlet sump.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA looking southeast from Waste Dump #6.

Photo 2 – APA, looking south from Waste Dump #6.

Photo 3 – Ponded water and pump on the waste rock pad in the southeast corner of the APA, looking northwest.

Photo 4 – Ponded water in the southeast corner of the APA up against the Paste Berm, looking west.

Photo 5 – APA Ditch along the Paste Berm, looking west from the Old TDF spillway.

Photo 6 – APA Ditch along the Paste Berm, looking east from decant access fill.

Photo 7 – APA decant and access fill, looking northeast.

Photo 8 – Ponded water at the base of the Paste Berm between two rock pads (in foreground), ponded water in the East Strip (in background), looking near Instrument Plane C.

Photo 9 – Wet areas at the base of the Paste Berm and ponded water in the East Strip, looking west from the Paste Berm crest near Instrument Plane C.

Commented [HS1]: Plane 5? Or Plane C as in instruments that go to Hut C?

Photo 10 – Red ARD staining at the base of the Paste Berm and ponded water in the East Strip on the east side of the Old TDF spillway, looking southwest.

Photo 11 – Ponded water in the East Strip, looking east from the Old TDF spillway (the inlet of one of the culverts passing under the spillway located in the foreground).

Photo 12 – Gangway leading to the Strip decant (under water).

Photo 13 – Ponded water on the access road at the toe of the Paste Berm (in foreground) and diesel pump at the west end of the West Strip (in background), looking south/southwest.

Photo 14 – East portion of the RSA, looking northwest.

Photo 15 – West portion of the RSA and decant, looking north.

Photo 16 – Puddles at the toe of the 6:1 Slope along the Seismic Upgrade Berm main bench, east of the Old TDF spillway, looking towards the Backfill Plant.

Photo 17 – Wet areas and puddles on the Seismic Upgrade Berm main bench near the access road between the RSA and the Strip, looing southwest.

Photo 18 – Temporary water diversion upstream of the Lower Lynx Diversion Ditch (near Cascade Reach), looking west.

Photo 19 – Moderate flow in the shotcrete-lined section of the Lower Lynx Diversion Ditch, looking east (downstream).

Photo 20 – Puddles downstream of the main spring area at the Old TDF east abutment, looking east/southeast (Pumphouse #4 pipeline can be seen in the background).

Photo 21 – Myra Creek looking upstream from the lower car bridge.

Photo 22 – Eastern half of Lynx TDF, looking southwest. Dumped material at the west abutment has created a mud wave (dashed line). Ponded water at the back of pit exhibiting ARD staining.

Photo 23 – Lynx TDF, looking south. Cracked area in the foreground is a paste tailings fan. The dashed line is delineating the sand beach above water. The recurrent depression in the paste surface is not visible.

Photo 24 – Surface runoff at the top of Lynx Pit Slide area, looking northwest.

Photo 25 – Seepage at the toe of Lynx Pit slide area, looking west.

Photo 26 – Cracking of the upstream shell of Lynx Dam south arm (looking east).

Photo 27 (left) – Trench in upstream half of Lynx Dam crest to route piezometer wires.
Photo 28 (right) – Cracking at the contact of the Zone J core and the upstream dam shell.

Photo 29 – Springs and surface runoff coming from the rock wall at the back Lynx Pit, looking northeast. Water reporting on the top of Lynx Springs platform.

Photo 30 – Several puddles on top of Lynx Springs Drain platform, looking east.

Photo 31 – View of the east arm of Lynx Dam, looking west.

Photo 32 – Uncontrolled surface runoff coming from haul roads into Superpond outlet area.

Photo 33 – South/east area of Lynx Dam foundation panels flooded.

Photo 34 – Eastern area of Lynx Dam foundation panels flooded, looking north (seeps circled).

Photo 35 – Surface runoff flowing down the slope of the mid-level bench of Lynx Dam, looking north/northwest.

Photo 36 – Seepage and surface runoff on Lynx Dam mid-level bench (in foreground) and Lynx Dam foundation panels area, Zone J stockpile and Super Pond (in background), looking southeast.

Photo 37 – Seepage and surface runoff on Lynx Dam mid-level bench, looking west.

Photo 38 – Moderate flow in the Lower Arnica Ditch, looking upstream.

Photo 39 – Significant flow over the bedrock at the Arnica – Upper Lynx Diversion junction, infiltrating into ground and continuing into Lynx pit.

Photo 40 – Fill side-cast over wood and against trees during lower Arnica Reach repairs – side-cast material should be pulled back and used to increase freeboard by raising the road.

Photo 41 – Re-graded slope and remaining steep slope (above/below dashed line) at the slide area at the east end of the Upper Lynx Diversion Ditch. Additional pullback is recommended.

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-10-30&31	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	Cloudy with showers, 6 to 14°C (about 30 mm of rain on both days and 190 mm in the three preceding weeks)		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action items: None.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- Moderate water level in the APA on 2015-10-30. Ponded water in the southwest (around the decant structure) and southeast corners of the APA and along the Paste Berm. Water level below the upstream toe of the berm. Pump active in the southeast corner.
- Minor flow at the main spring of Old TDF east abutment. Some seepage on the downstream slope and at the toe of the APA Paste Berm. ARD pooling at the base of the berm.
- Moderate water level in the Strip on 2015-10-30 (ditch is flooded). Pumps active near the Strip decant. Lower water level on the next day.
- Wet area and some runoff on the main bench of the Seismic Upgrade Berm, immediately west of the Old TDF spillway.
- Minor erosion rills near the shoulder of the Seismic Upgrade Berm 2:1 slope at approximately Sta. 0+200.
- Sediment-laden water coming out of the APA and RSA decant pipes. Water is turbid at the Superpond outlet.

Lynx TDF:

- Shallow water in the west, north and east portions of the TDF.
- Excavated materials being disposed of in Lynx TDF near the west abutment. A mud wave has formed around the disposal area.
- The recurrent depression is visible in the edge of the mud wave.
- No active pumps. One pump is located on the west arm and another one near Springs Drain platform.
- Water pooling in the southeast corner of Panel 15 (the easternmost foundation panel of Lynx dam). Some site runoff is entering in the northeast corner of Panel 15.
- Slight seepage at the usual location of the mid-level bench of Lynx dam downstream shell. Some water pooling at the bench surface.
- Seepage from the toe of Waste Dump 2 (near the Quonset Hut) is diverted east to the Paste Plant and piped to treatment.

Diversion Ditches:

- Clear/moderate flow in Lynx Upper Diversion Ditch.
- Moderate flow in Lower Lynx Diversion Ditch. Several holes in the ditch shotcrete lining close to the Old TDF east abutment. Water observed flowing in and out of the damaged shotcrete.
- Moderate flow in Myra Creek.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – APA from Waste Dump #6, looking southeast.

Photo 2 – Ponding in the southeastern corner of the APA, looking northwest (pumps running on 2015-10-30).

Photo 3 – APA ditch near the Old TDF spillway, looking east.

Photo 4 – Ponding in the APA near the decant, looking east.

Photo 5 – East abutment of the Old TDF and seepage areas along the toe of the APA Paste Berm, looking south.

Photo 6 – East Strip and Paste Berm, looking west from the southeastern corner of the Paste Berm.

Photo 7 – East end of the West Strip and some ARD ponding at the base of the APA Paste Berm, looking southwest.

Photo 8 – West Strip, looking east from the west end of the West Strip.

Photo 9 – Lower Lynx Diversion Ditch, looking upstream.

Photo 10 – Lower Lynx Diversion Ditch, looking east (downstream).

Photo 11 – Damaged shotcrete lining in the Lower Lynx Diversion Ditch.

Photo 12 – East Strip, looking east from the Old TDF spillway.

Photo 13 – West Strip and Strip decant, looking east.

Photo 14 – Turbid water coming out of the APA (large diameter) and the RSA (small diameter) decant lines.

Photo 15 – Turbid water entering the Super Pond outlet.

Photo 16 – Minor erosion rills on the 2:1 slope of the Seismic Upgrade Berm at approximately Station 0+200, looking north..

Photo 17 – Overview of Lynx TDF, looking east, with excavated materials from the RSA disposed near the west abutment in foreground.

Photo 18 – Overview of the west part of Lynx TDF, looking southwest. The circled area corresponds to the location of the recurrent depression on the tailings surface.

Photo 19 – Overview of Lynx TDF, looking west.

Photo 20 – Electric pump and pump line at the Lynx TDF west arm.

Photo 21 – South arm of Lynx Dam, looking east.

Photo 22 – South arm of Lynx Dam, looking west.

Photo 23 – Overview of the easternmost portion Lynx Dam south arm outer slope, mid-level benches, toe and eastern panels area, looking east/southeast.

Photo 24 – Overview of the outer slope, mid-level bench and toe area of Lynx Dam south arm, looking west.

Photo 25 – Close-up view on a seepage location source on the mid-level bench of Lynx Dam south arm.

Photo 26 – Seepage and surface runoff collection along the access road at the back of Lynx TDF, looking east. Flow is collected near the Paste Plant (in the background).

MYRA FALLS MINE
TAILINGS FACILITY FIELD REVIEW REPORT

Date of Field Review:	2015-12-22	Date of Report:	2016-03-31
File No.:	NX14001B	Client:	Nyrstar Myra Falls Ltd.
Engineer:	Dan Hughes-Games, P.Eng.	To:	Nicole Pesonen
With:		Cc:	
Weather:	~ 20 cm of snow on site Slightly below 0°C		

Summary

- The Old TDF and Lynx TDF facilities were inspected by Amec Foster Wheeler.
- Action Items:
  1. Better snow clearing and access.
  2. Monitor the Lower Lynx Diversion near the Old TDF east abutment for continued degradation of the shotcrete liner.

End of Summary

The Old TDF and Lynx TDF are inspected by Amec Foster Wheeler on a monthly basis as part of the work done to satisfy the Dam Safety Regulation. During the inspection, Amec Foster Wheeler notes conditions in and around the facilities, with emphasis on water management, dam stability, and seepage conditions.

Old TDF:

- Limited road access. The only accesses are the back and upgrade roads around the north edge of the APA, the road along the Paste Berm toe between the APA operations spillway and the Surge Pond, and the OEB road across and to the east side of the spillway.
- APA covered in snow with minimal ponding.
- No access to the crest of the Paste Berm.
- Minimal water levels in TDF Strip.
- Traces of seepage near Plane C at the toe of the 6:1 Slope on the Seismic Upgrade Berm, as evidenced from melted snow the near middle of the bench.

Lynx TDF:

- Lynx TDF receiving dredging material at west abutment, flowing down towards the rear of the open pit.
- The pond is iced over and most of Lynx TDF is covered in snow. The pond water level is appropriate.
- The sinkhole is visible within the mud wave. It has the usual size and is at the usual location.
- Difficult access on the dam crest because of snow.
- Seepage at the east arm 4H:1V slope area has melted snow in usual places.

Diversion Ditches:

- Snow prevented access to Lynx waste dumps and upper diversion areas.
- Clear, low to moderate flow in Lower Lynx Diversion Ditch, free of debris.
- Damage to the shotcrete liner of the Lower Lynx Diversion near the Old TDF east abutment has worsened. Two holes are now the full width of the invert, approximately 3 m long the ditch, and scour is at least 1.5 m deep below the invert.

The recommendations herein are based on Amec Foster Wheeler's observation of surface conditions at the time of the field review and are subject to revision upon the availability of new information.

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Photographs

Photo 1 – Lynx TDF, looking east.

Photo 2 – Lynx TDF, looking southwest. The recurrent depression is visible in the edge of the mud wave, at the arrow.

Photo 3 – East part of the toe area of Lynx dam south arm, looking southeast.

Photo 4 – Central part of the toe area of Lynx dam south arm, looking south.

Photo 5 – West arm of Lynx dam, looking south.

Photo 6 – West portion of the APA, looking south.

Photo 7 – Access ramp to the APA decant, looking east.

Photo 8 – Looking down the APA decant structure.

Photo 9 – APA Paste Berm near the APA operations spillway, looking west.

Photo 10 – Diesel pump present at the west end of the East Strip, on the east side of the APA operations spillway, looking north.

Photo 11 – East Strip, looking northeast from the APA operations spillway (snow windrow preventing access to the OEB on the east side of the spillway).

Photo 12 – Diesel pump at the west end of the West Strip, looking east.

Photo 13 – Inlet of the temporary West Strip overflow channel near the decant structure.

Photo 14 – Temporary West Strip overflow channel, looking west towards the RSA.

Photo 15 – Outlet of the temporary West Strip overflow channel and RSA, looking west.

Photo 16 – Myra Creek and toe of the Seismic Upgrade Berm, looking upstream (Backfill Plant on the upper left corner).

Photo 17 – Pumphouse #4 at the east abutment of the Seismic Upgrade Berm, looking north/northeast from Quarry Bridge. Alder Reach in the background.

Photo 18 – Lower Lynx Diversion Ditch near Cascade Reach, looking upstream (west).

Photo 19 – Damaged section of the Lower Lynx Diversion Ditch shotcrete lining.

Photo 20 – Close-up view of a hole in the shotcrete lining of the Lower Lynx Diversion Ditch (see the circled area on the previous photo).