Appendix 62

Meadowbank 2018 Annual Review of Portage and Goose Pit Slope Performance

AGNICO EAGLE
MEADOWBANK

REPORT FOR

2018 Annual Pit Slope Performance Review

Meadowbank Mine, Nunavut

DECEMBER 21, 2018

TETRA TECH

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EXECUTIVE SUMMARY

An annual site visit to inspect the performance of the pit walls of the open pits at Agnico Eagle Mines Ltd.'s (AEM) Meadowbank Mine was carried out by Tetra Tech Canada Inc. (Tetra Tech) during the period 10 September 2018 to 13 September 2018. New data for review in 2018 included the re-installed inclinometer in Pit E5. Phaser Pit and BB Phaser pit are included in the site inspection.

GEOTECHNICAL REPORTING

During the 2017 site visit AEM have indicated a move towards more regular reporting of instrumentation data combined with geotechnical inspections to better synthesize and summarize the useful data that are being collected. AEM have implemented this initiative which includes weekly pit wall inspections and Quarterly Geotechnical Inspection Reports. This is considered best industry practice for regular technical review of instrumentation and wall performance to allow effective proactive measures to be taken for risk management and mitigation of geotechnical hazards.

DISCUSSION OF MINING SEQUENCE TO COMPLETE PIT E3/E5

Mining of Pit E is scheduled to be completed in Q3 2019, with a final floor elevation of 4976 mRL. The final geometry of the slot that will be mined at the south end of Pit E will result in a very narrow configuration with steep east, west, and south walls. The south wall is currently being monitored by radar. Several bench-scale rock falls have occurred on the south wall during 2018.

During the site inspection, a strategy for additional risk management and mitigation was discussed with AEM. From experience, the performance of the ultramafic rock and other rock types improves significantly during winter. Based on the historical record of rock fall events at site since 2015, approximately 98% of the rock falls recorded have occurred between May and September, with only one rock fall event recorded in January. The lowest rock fall risk is during the period October to April. During the site visit, it was discussed with AEM that an additional risk management strategy could be to schedule the final mining of the Portage Pit E if the mining areas with a higher relative rock fall risk in the slot adjacent to the south wall could be mined during the winter period. This could conceivably allow mining of areas with lower relative rock fall risk in the central part of the pit during the period of May through September. The combination of winter mining and active monitoring using radar could be effective in managing risk during mining of the slot. In addition to the benefit that winter mining will provide for stability of the final slopes for the slot, the stability of geotechnical hazards that have been identified along the west ramp haul would also be improved during this period.

Under this scenario, once winter mining of the slot is complete, mining of the lower risk central area of Pit E3 could be completed during spring and summer of Q3 2019. AEM could consider moving the radar from its current location at the crest of the west wall to a new location at the crest of the east wall. Since the southeast wall instrumentation is currently monitored, risk is being effectively managed. The radar could be moved to the east pit crest to monitor the south through southwest walls of the pit, as well as the west wall above the ramp area. This would provide additional risk management to the west ramp haul during final mining of the pit and hauling along the west wall ramp. AEM are committed to the use of radar in the most critical areas for monitoring and managing risk as part of their overall risk management strategy and ground control management plan. It is understood that mine planning is somewhat fluid, and that areas to be mined are often based on short range planning in response to changing conditions. Therefore, the decision for relocation or placement of the radar for monitoring of critical areas should be based on site requirements at the time, and the direction of the Meadowbank geotechnical team.

PORTAGE PIT

The Portage Pit is subdivided into 5 pits, labelled A through E from north to south.

PIT A

Mining of Pit A was completed in mid-March 2018. Mining is complete but water management will continue. Mining of Pit B is finished and it continues to be backfilled as a waste rock dump (B Dump). No significant accumulations of material was noted since the 2017 inspection.

PIT B (B DUMP)

The general Pit B (B Dump) geometry remains unchanged from the 2017 site inspection, however some tension cracks and crest sag were noted during dump use in 2018. This relates to dumping of ultramafic rock inadvertently in a local area of the dump. Since the ultramafic rock is weak, of generally poor quality, and often with associated talc mineralization, sagging and slumping of a local area of the dump face has occurred. Tension cracks were noted and AEM established a simple wireline extensometer to monitor. Measured displacements did not exceed trigger response levels and the movement is limited in extent.

PITS C AND D (C AND D DUMPS)

There has been no substantive change in the geometry of C Dump since the 2017 site inspection.

An area of tension cracks that was observed on the D Dump platforms during the 2016 and 2017 inspections has increased, and this may be a result of the advancement of the 5126 platform southward over the 5088 platform. Both radial (perpendicular to dump crest) and transverse (parallel to dump crest) were observed. Recommendations include continued visual monitoring of the dump, and prior to mining the final Pit E below the dump area, a dump inspection and review should be completed. Other recommendations include surveying the current platforms, including locations of tension crack, proper management of water in the crest areas, and the installation of simple extensometers prior to freshet to establish a baseline for any movement.

PIT E

At the time of the 2018 site visit much of Pit E was obscured by snowfall. Weather was generally overcast, with periods of heavy snow fall. The final floor elevation is planned to be 4976 mRL. The target completion of mining of Pit E is Q3 2019. Mining is currently underway within the slot at the south end of the pit, with ore and waste being hauled out along the west ramp of the Portage Pit. The south ramp is no longer in use for hauling.

The east wall of Pit E continues to perform well, and there is little year-to-year accumulation of material on the benches. The area is underlain by permafrost.

A monitoring program has been in place since the reopening of E5. The monitoring includes visual monitoring through regular geotechnical inspections, the use of a GroundProbe radar monitoring system, piezometers and thermistor cables, TDR cables, and a slope inclinometer, all connected to an automated data acquisition system (ADAS). The slope inclinometer, which was not working previously, was repaired and reinstalled on June 13 2018.

A review of the available data show no sign of large-scale (full slope) deformation in the slope. Several of the piezometers installed behind the crest continue to show a response to drilling and blasting at the toe, which is consistent with the conceptual hydrogeological and engineering geological model understanding. In addition to the instrumentation, the slope is continually monitored using a GroundProbe radar.

The southeast through south wall of the pit experienced several rock falls during 2018. This is a result of oblique shear planes trending in to the slope with additional contributing factors being the planarity of these features, their

mineralogy, and the presence of water. In addition to the weak rock mass strength of the ultramafic rock, exposure to air and water contributes to significant degradation.

PIT E WEST WALL RAMP

Seven areas of potential instability observed immediately adjacent to the West Wall Ramp continue to be monitored. In addition to these known areas, an unexpected rock fall occurred along the west wall ramp, identified as Zone E35. The material fell on to the safety berm and spilled on to the ramp. A review of the area noted an apparent reduction in the height of the rockfall containment berm along the inside ramp. It is possible the berm height has decreased over time by natural settlement. It was recommended that the containment berm be re-established, and the height be increased to the maximum possible height while still respecting the single lane requirement width. AEM have installed a crack meter in Zone E31 which coincides Tetra Tech's Area 4 geotechnical hazard area. The crack meter does not show any movement at this time.

Additional possible areas of instability noted on the upper west wall above the ramp were noted, generally in association with steeply west dipping sheer planes and associated poor rock quality. These should continue to be monitored.

PIT E SLOT SOUTH AND EAST WALL

The slot at the south end of Pit E that had been has been partially filled at the time of the 2017 site inspection is currently actively mined. The slot area is defined by the transition of the south wall to the west wall of the pit, and so is exposed to the east-west trending shear planes which strike obliquely into the south and east walls leading to many of the rock falls recorded during 2018. It is planned to mine two more triple-benches. During mining of the final two benches the GroundProbe radar will continue to monitor the south wall of the pit, and specifically areas of the south wall above the slot which have demonstrated linear velocity trends, but not acceleration.

PIT E INSTRUMENTATION

The TDR, thermistor, piezometer and inclinometer data from instrumentation installed behind the south wall of Pit E were reviewed. The instrumentation is connected to an Automated Data Acquisition System. The inclinometer was re-installed in June 2018 after repair. The data appear to be more meaningful than prior to repair, however it is too early to establish any data trends. The inclinometer data were compared with the TDR cables which show no displacement. The two thermistors confirm the presence of a talik behind the wall. There are no noticeable changes in the ground thermal profile. Nested piezometers were installed in 5 locations. The near-surface piezometers are now frozen. Some of the piezometers show a step-wise increase in piezometric elevation of several metres. This may be the result of freeze-back of the pit walls preventing drainage. This should continue to be monitored.

GOOSE PIT

The north, south, east, and west walls of the inactive Goose Pit continue to perform adequately. There is no observable year-to-year accumulation of new material on the catch benches. The pit lake elevation at the time of the site visit was 5070 mRL, compared with 5065 mRL during the 2017 inspection.

End dumping of waste rock to the northwest corner of the pit near the access ramp entry point (North Dump) was carried out in 2016, finishing in June of that year. Dumping recommenced in 2017 creating a second but contiguous dump south of the first (South Dump). Tension cracks on the North waste rock dump platform were first noted during the 2015 inspection, and these have been monitored regularly since. During the 2017 inspection, tension cracks were also noted on the South Dump platform. During the 2018 inspection additional shallow slumping of the South Dump face was noted, along with significant crest sag. If the dump or the pit are to be reactivated it is

recommended that a dump inspection be carried out and plans and procedures for inspections and monitoring be developed, which might include re-establishing wireline extensometers to measure movement.

During the 2018 inspection, a fault was identified at the contact between the ultramafic and quartzite, and it was noted that the fault gouge associated with the fault is being eroded, resulting in a widening gap. The risk of failure is very low. It is recommended that the faulted contact be added to the geotechnical risk register developed as part of the assessment to store tailings in Goose Pit.

During the inspection, it was noted that water was being discharged on to the ring road and thermal cap at the north pit crest in an uncontrolled manner. The water was being pumped from a sump at the crest of Pit E. This was a temporary occurrence; however uncontrolled water discharge should be avoided. This was discussed with AEM during the site visit. It was also noted that an existing water discharge line over the edge of the pit at the north end is underlain by kinematically unstable rock blocks in the bench face. When the discharge line is to be moved, equipment and personnel should stay back from the crest in this area.

GOOSE PIT INSTRUMENTATION

As part of the site inspection, the instrumentation data from Time Domain Reflectometry (TDR) cables, thermistors, and piezometers installed in the east pit wall were reviewed. AEM have added functionality to the instrumentation system through the addition of GeoExplorer software for easier access and visualization of data. A gap in the piezometer data from March 2018 to May 2018 reflects removal of the data logger for use elsewhere. This is acceptable as there has been no indication of any instability of the east wall since monitoring began in 2013.

The review of the instrumentation data showed no significant changes from 2017.

VAULT PIT

The slope design criteria currently implemented at the Vault Pit are consistent with the design criteria recommended in the slope optimization study (Golder, 2013b). Catch benches originally excavated slightly wider than recommended by Golder (2013b) resulting in slightly shallower inter-ramp and overall slope angles than presented for design have now been reduced to the original design of 10 m for the highwall and end walls of the pit. This is considered appropriate given the good performance of the pit walls which is consistent with the original design criteria.

The pit walls of the Vault Pit continue to perform well. Pre-shearing of the final bench faces has been effective at reducing wall damage and break back of crest areas.

One area of concern remains at the southeast wall where an ice wall forms annually. This area presents the greatest concern during spring freshet when the ice begins to thaw. It us understood that mining of Vault Pit is planned to be complete in January 2019, and so the next freshet period will be avoided. There is no significant change to the ground temperatures in the portion of the wall where seepage originates. During winter mining, Agnico carry out weekly inspections of the ice wall, noting any significant changes and communicating this information to operators as part of their standard ground control management procedures. It is understood that mining of Vault pit will be complete in January 2019, and so the risk associated with the freshet period will be avoided.

Mining of the north end of the Vault Pit has been completed, and it is currently being backfilled with waste rock. At the time of the site visit the waste rock platform in the north end of the pit was at approximately 5080 mRL. Backfilling of the north end of the Vault Pit has eliminated many of the geotechnical hazards identified during previous annual site inspections.

The west wall is being mined on single benches and parallel to the dip of the stratigraphy as a footwall slope. The overall slope angle follows the inclination of the ore which is inclined to the east, parallel with foliation and stratigraphy. The design criteria for the wall was specified as single bench to accommodate the expected loss of some benches, and minimize the volume of failed material. There are no significant geotechnical concerns noted, and no evidence of large scale (overall slope) instability for the footwall slope.

VAULT PIT INSTRUMENTATION

Following the 2016 field thermal exploration study, AEM selected three areas for instrumentation with piezometers and thermistors. The areas selected were areas where the thermal exploration study indicated talik conditions. The piezometers and thermistors are attached to data loggers, and the loggers are regularly downloaded and reviewed.

There are no significant changes to the instrumentation data since the 2017 site inspection.

No additional prisms have been installed on the highwall of the pit.

PHASER AND BB PHASER PITS

The Phaser Pit and BB Phaser Pit are southward extensions of the existing Vault Pit. The slope design criteria in use for the development of the Phaser and BB Phaser Pits are based on the current slope design criteria in use for the Vault Pit, and this approach is appropriate as the main kinematic and structural elements governing the slope stability for the pits are the same.

PHASER PIT

The planned depth of the Phaser Pit is 40 to 50 m (2 to 3 benches), not including the overburden at the crest of the pit. The west wall (footwall) of the pit will be in permafrost; a portion of the east wall of the pit may be within talik beneath the former Phaser Lake, which reached a maximum depth of about 3 m. Water is being managed appropriately using sumps and pumps. The pit will be mined over a period of approximately 1 year, from Q3 2017 to Q3 2018.

The transition slot cut connecting the south end of Vault Pit to Phaser Pit was reviewed. The highwall of the cut is performing well with half-barrels from pre-shear blastholes visible. Some wedge-forming jointing was noted in the wall, and this was discussed with AEM. It was recommended that as a temporary measure a row of candles be placed to prevent personnel or equipment from accessing this area.

The east-northeast highwall and west-northwest footwall slopes were reviewed. The highwall is performing well. The upper bench exposed during the site visit is well cleaned. The excavation practices are appropriately following the design criteria for the Vault Pit, and the performance of the highwall is similar to that of the Vault Pit. The performance of the footwall slope is similar to the main Vault Pit as it follows the same design approach, which consists of single benching to steep bench face angles undercutting the bedding.

BB PHASER PIT

BB Phaser Pit is south of the Phaser Pit. The pit is excavated entirely within the lakeshore outline of the dewatered Phaser Lake. Lake bathymetry indicates the depth of the former Phaser Lake to be approximately 1 to 2 m. The base of the pit was observed to be dry. A small sump had been excavated at the south corner of the pit, and the water elevation in the sump appeared to be approximately 2 m below grade.

The BB Phaser pit is relatively small. The pit shape is generally square, consisting of an east-southeast highwall, a south-southwest endwall, a west-northwest footwall and a north-northeast endwall. The planned depth of mining

of the BB Phaser Pit will be in the range of 30 to 40 m, not including overburden at the crest of the pit. The pit will be mined over a period of approximately 1 year, from Q1 2018 to Q1 2019.

At the time of the site visit the pit walls available for inspection had not been scaled. Consequently, it was difficult to effectively assess the quality of blasting and adherence to pit slope design criteria. In addition to this, only one bench had been excavated, and the quality of wall performance that was observed may reflect the effects of near-surface weathering. In many areas the set back of the thermal cap toe from the crest of the pit was narrow. It appeared that the thermal cap was placed predominantly during winter, without proper snow and ice removal before placement, resulting in the development of hummocky ground, sinkholes, and tension cracks. Re-grading of the ring road/thermal cap may assist in promoting positive drainage away from crest areas.

The lack of sufficient catchment at the toe of thermal cap, and above the pit, may result in spill over on to the ramp and benches. Placing a windrow at the toe of the uppermost benches will assist in retaining any spill.

An area of the south and west wall of the pit was noted to display significant blast damage to the rock that may be difficult to effectively scale. Over excavation could result in undercutting of the thermal cap. It may be more effective to leave this specific area unscaled so as to avoid overdigging of the rock mass and undercutting of the overlying materials. A windrow of material could be placed at the toe of the slope to assist in retaining any spill from the thermal cap. An alternative might be to construct a low buttress against the face if the current platform elevation is the final platform for this area. This was discussed with AEM during the site visit, and it was recommended that as a minimum candles should be placed to restrict entry to the area until appropriately cleaned.

The east through north highwall of the BB Phaser pit was inspected. The wall had not been cleaned (scaled) yet, and showed only a moderately good response to pre-shear blasting. The rock along this wall is breaking to a near-vertical orthogonal joint set which is clearly defined, and relatively continuous and planar.

ROCK FALL DATABASE

AEM continue to update the Meadowbank site rock fall database as part of their Ground Control Management Plan (GCMP). The rock fall database includes rock fall observations from all the pits at the Meadowbank Project site. The location, time and date and coordinates, rock type, estimated tonnage, whether the event was reported to the Mines Inspector, and whether the event was predicted by the radar system are recorded. The database was reviewed and is up to date.

ICE MONITORING PLAN

AEM continue to document their ice wall inspection program for the Vault Pit. This is undertaken in combination with regular geotechnical inspections. This is a simple one-page form for carrying out ice inspections, and the ice inspection program provides some direction on characterizing and classifying ice.

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APPENDICES

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Agnico Eagle Mines Limited and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Agnico Eagle Mines Limited, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in Appendix G or Contractual Terms and Conditions executed by both parties.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Agnico Eagle Mines Ltd (AEM) to complete an annual inspection of the pit slope performance at the Meadowbank Mine, as a requirement under the water licensing agreement for the project. The first annual inspection was completed for the Portage Pit in 2010. In 2012, the Goose Pit was added to the annual inspections, followed by the addition of the Vault Pit in 2014. In 2017, excavation of Phaser Pit (a southward extension of Vault Pit) commenced, but there was very little rock exposure at that time. The progress was inspected as part of the 2017 site visit and included with the 2018 inspection. In 2018, BB Phaser Pit, adjacent to Phaser Pit, was also added to the inspection.

The site visit was completed during the period 10 September 2018 to 13 September 2018, and included the inspection of general bench and wall performance of Portage Pits A and E, the Goose Pit, and the Vault Pit. Pits B, C, and D have been backfilled with waste rock, and the crest areas of the dumping platforms were inspected.

This document summarizes the inspection carried out for the pits and describes the performance of the various pit slopes through observations made during the site visit. Where possible the observations are related to the engineering geological model for the project. The observations also reference recommendations made during previous annual pit slope inspections.

As part of the site visit, the available instrumentation data for the Pit E, Goose Pit, and Vault Pit were reviewed. These data sets are presented in Appendices A, B, and C, respectively. A detailed analysis and assessment of the data is not part of the scope of work, however where unusual or anomalous results were noted, these were discussed with AEM and are reported herein.

Since the last site inspection, the AEM geotechnical team have implemented additional systematic reporting procedures which are reviewed quarterly, in a Quarterly Inspection report. These reports, and the associated work that has gone into them, represents best industry practices for the implementation of the Ground Control Management Plan (GCMP) for the project. The Quarterly Inspection Reports are presented in Appendix D, and are a summary of the weekly and bi-weekly wall inspection reports, instrumentation data and trends, and actionable items. An example of the weekly and bi-weekly reports is presented in Appendix E, along with a listing of the reports reviewed. AEM maintain an up-to-date rock fall log on site. Rock falls are reported to the Mines Inspector. The rock fall log was reviewed, and is presented in Appendix F.

2.0 CURRENT MINE STATUS

2.1 Portage Pits

The Portage Pit consists of five pits, identified as Pits A through E, from north to south. The general pit plan is shown on Figure 2-1.

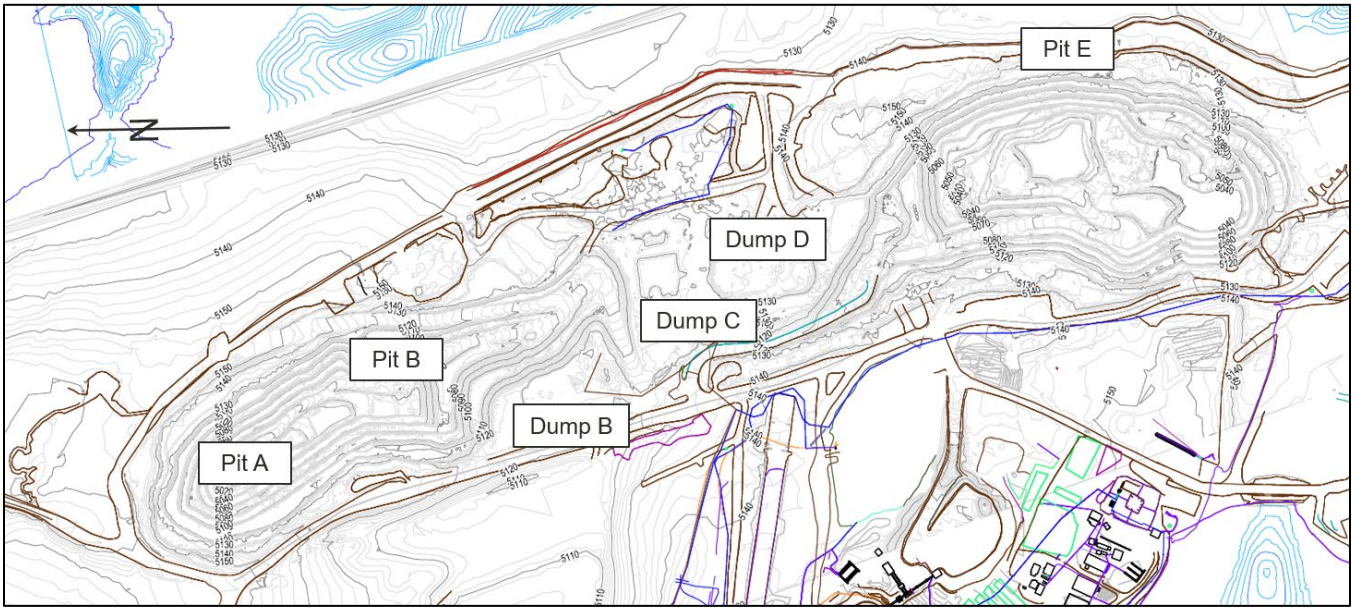


Figure 2-1: Portage Pit at the time of 2018 site visit

Pit E is the only active pit being mined in the Portage Pit and the E5 pushback area was active at the time of the site visit. Mining at Pit A was completed early in 2018. The geometry of the waste dumps in Pits B, and C have not changed substantially since the 2017 site visit. The 5126 platform of the waste dump in Pit D has been advanced further southward since 2017. The current and planned dump crest elevations are shown in the following table.

Table 2-1: Pit dump platform elevations (Ref. AEM, September 2018)

Pit Dump	Platform Elevation During Inspection (mRL)	Planned Final Platform Elevation (mRL)
B	5145	5129*
C	5145	5129*
D	5127	5129*

*Reflects planned elevation at closure.

2.2 Goose Pit

The extent of the Goose Pit at the time of the site visit is shown in the following Figure 2-2.

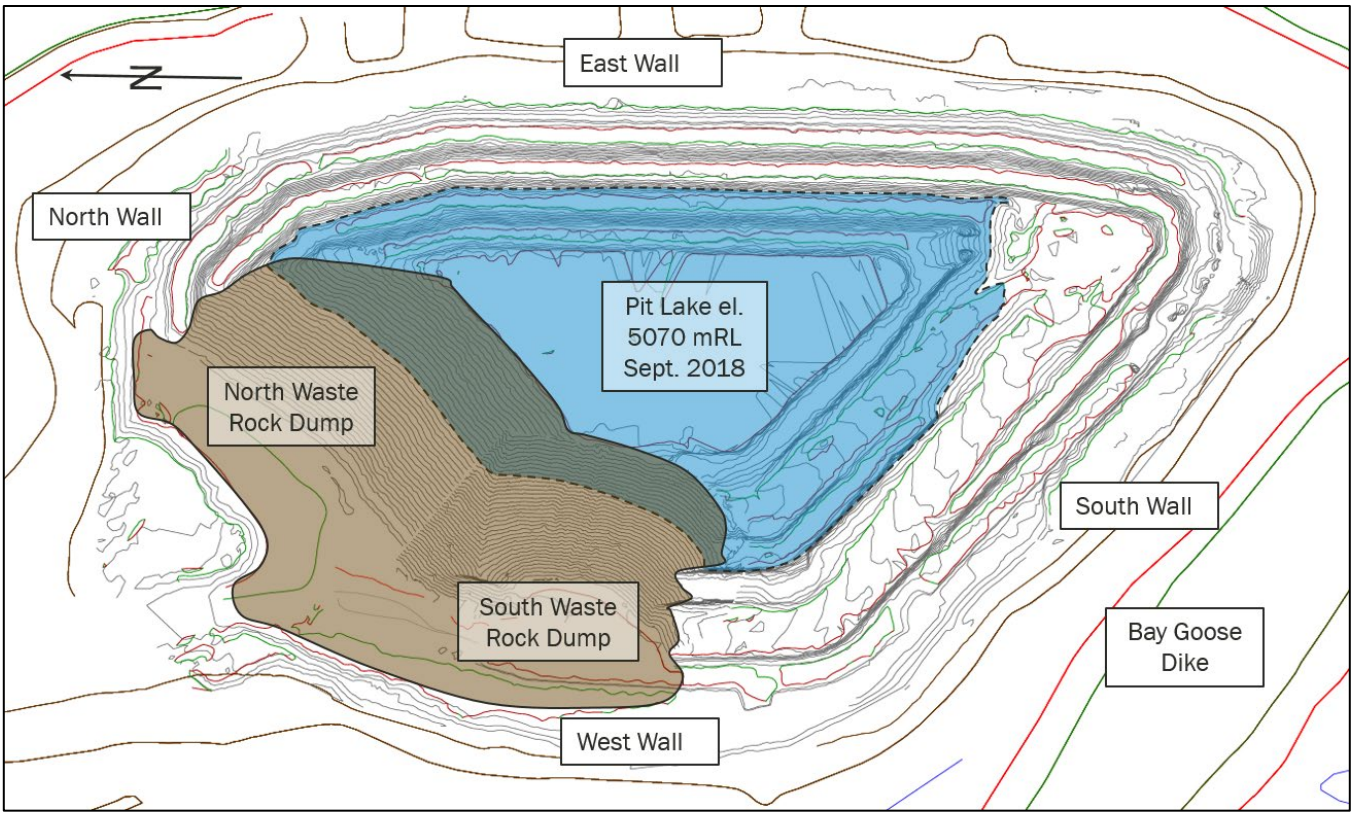


Figure 2-2: Goose Pit at time of the 2018 site visit

The Goose Pit dumps are not active. However, there are areas of significant crest sag and tension cracks which have developed further since noted in previous inspections. A full review of the dumps is beyond the scope of work for this report. The pit lake elevation has increased by approximately 3 metres from the 2017 elevation and is currently at approximately 5070 mRL.

Table 2-2: Goose Pit dump platform elevations (Ref. AEM)

Pit Dump	Platform Elevation During Inspection (mRL)	Planned Final Platform Elevation (mRL)
North	5129	5129
South	5129	5129

*Reflects planned elevation at closure.

2.3 Vault Pit, Phaser Pit, and BB Phaser Pit

At the time of the site visit the Vault Pit floor was excavated to approximately 4976 mRL. The extent of the Vault Pit at the time of the site visit is shown in the following Figure 2.3.

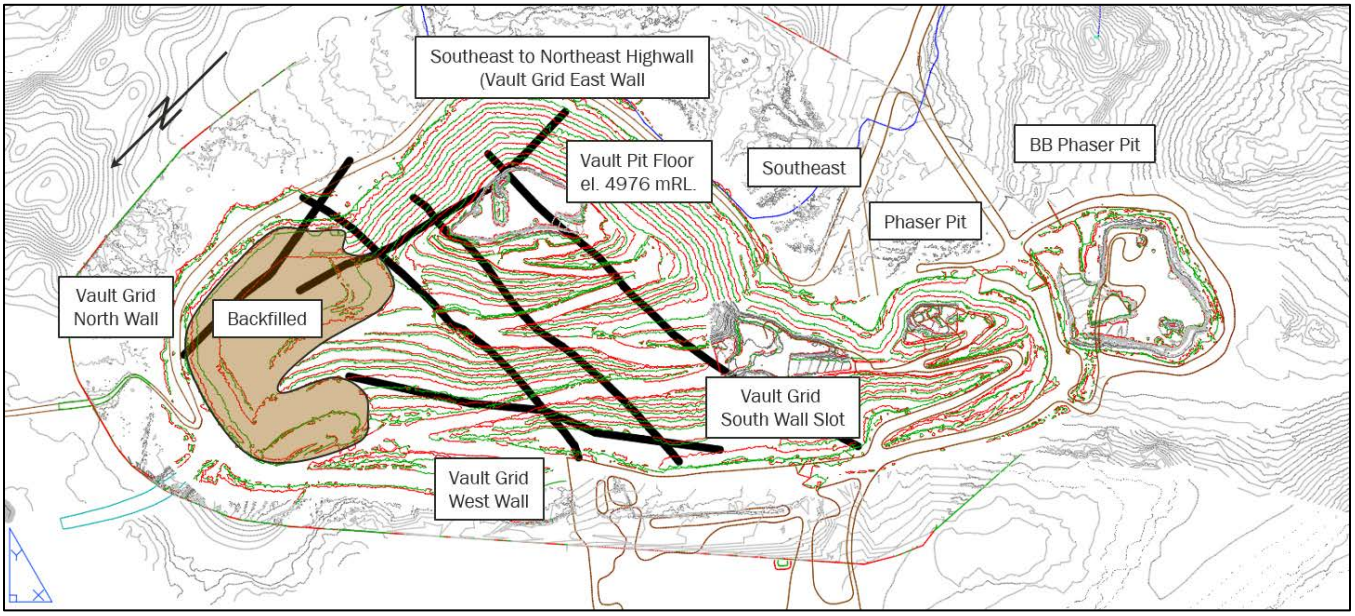


Figure 2-3: Vault Pit at time of 2018 site visit

2.4 Life of Mine Schedule

The current Life of Mine schedule for the various pits is summarized in the following table.

Table 2-3: Life of Mine Schedule for Meadowbank Mine (as of September 2018)

Pit	Current Floor Elevation (mRL)	Planned Final Floor Elevation (mRL)	Approximate Benches Remaining	Planned Mining Completion Date
A Ultimate	Complete			Complete
B	Backfilling			Complete
C	Backfilling			Complete
D	Backfilling			Complete
E Ultimate	5004 (E3) – 5025 (E5)	4976	2 (triple)	Q3 2019
Goose				
Vault Pit	4976	4955	1 (triple)	Q1 2019
Phaser Pit	5088	5081 (Phaser North – 5074)	1	Q4 2018
BB Phaser Pit	5123	5088	2 (triple)	Q2 2019

2.5 Geotechnical Inspections and Reviews

Bi-weekly pit wall inspections are being undertaken by the Meadowbank Wall Inspection Group. The inspections are documented in a running register, documenting the locations and status of hazards, observations made, recommendations, and actionable items including due dates. This is industry best practice, and should be continued.

Quarterly reports summarizing instrumentation monitoring and field observations are prepared. These documents and summarize key observations made during the bi-weekly inspections, and document the operational status and locations of instrumentation in each of the pits. The reports also include the presentation of monitoring data from the instrumentation installed in the various pits, and an interpretation of any data trends. The first and second quarter summary reports were reviewed as part of the site inspection. The internal geotechnical review and reporting by the Meadowbank geotechnical team is industry best practice.

3.0 MINE SITE ENGINEERING GEOLOGY MODELS

The supracrustal stratigraphy of the mine area consists of ultramafic volcanic, felsic to intermediate volcaniclastic, and/or greywacke, interbedded magnetite-chert iron formations and associated pelitic schists, and quartzite. The bulk of the gold mineralization in the deposit is contained within the iron formations, except for the Vault Deposit where gold is associated with sericite schist.

3.1 Portage Deposit

The Portage Deposit area has undergone a series of regional deformation events resulting in typical ‘dome and basin’ fold structures. The dominant structural feature of the Portage Deposit is a gently to steeply inclined tightly folded north/south trending anticline which has resulted in the iron formation, interbedded volcaniclastic and metasedimentary rocks being folded around a core of ultramafic volcanic rock. Bedding-parallel foliation associated with the east-west deformational events is pervasive throughout the deposit area. This structural fabric has formed the basis for much of the pit slope design criteria, which avoids undercutting of this fabric. Foliation surfaces tend to be slightly altered with occasional coatings and can be associated with slickensiding and shearing. In general, the foliation and stratigraphy dip to the west at variable inclinations from horizontal to sub-vertical. Locally the foliation orientations can vary considerably, particularly adjacent to major fault zones.

AEM geologists report that up to four deformational events have been interpreted in the project area, resulting in very complex fold patterns and rock structure. This is particularly evident at the south end of the Portage Pit, in Pit E, where superposition of fold events has imparted a complexity to the rock mass that has led to single and multi-bench scale instability.

3.2 Goose Deposit

The Goose Deposit is a steeply dipping, stratiform gold bearing iron formation that is part of a sequence of Archaean ultramafic and mafic flow sequences, volcaniclastic sediments, felsic to intermediate flows and tuffs, and sediments. The ultramafic rocks are variably altered and contain serpentine, chlorite, actinolite, and talc. Through the central core of the deposit, the stratigraphy trends northward and southward from Goose Island and dips at steep angles, generally greater than about 55 to 60 degrees to the west. Axial planar and bedding-parallel foliation, which is pervasive throughout the rock mass, occurs commonly as healed fractures rather than open fractures within the

rock. Axial plane bedding-parallel ductile shearing are common due to intense regional deformation events. This shearing is most commonly associated with weaker lithologic units, such as the ultramafic rock.

3.3 Vault Deposit Area (including Phaser and BB Phaser Pits)

The Vault Deposit area is underlain by a sequence of intermediate volcanic rock that has been altered by sericite, chlorite, and silica. The stratigraphy is consistently inclined south-southeast between approximately 20 and 30 degrees.

The pit area is generally underlain by permafrost, with the exceptions of the east pit wall where it is pushed back into the former Vault Lake, and sections of the north pit wall which also intersects an arm of Vault Lake. The Vault Pit footprint area included a smaller lake which was drained. Vault Lake and the smaller lake were underlain by talik (unfrozen ground) and water inflows occur where the pit wall intersects the talik. This has resulted in the formation of ice walls during winter on the east/southeast wall of Vault Pit.

The stratigraphy and foliation are the most significant structural characteristic at the Vault Deposit area. The foliation is continuous and closely spaced, whereas joint sets are generally discontinuous and terminate within the rock mass or at other intersecting joint sets.

3.4 Tectonic and Structural Features

3.4.1 Portage Pit

Historically, the main tectonic features within the Portage and Goose Pit areas are the Second Portage Lake Fault and the Bay Fault. More recent wall instability associated with the south wall of Pit E has been observed and appears to be related to folding of the weaker foliated ultramafic rock into adverse orientations relative to the wall.

The Second Portage Lake Fault trends northwest-southeast, parallel to the axis of Second Portage Lake, dipping at approximately 70 degrees to the southwest. The fault intersects the east and west walls of the Portage Pit.

The Bay Fault trends south through the Portage Pit, and is exposed in the west wall. The fault splits into two or more faults approximately where the west wall ramp enters the pit and one splay may trend through the southeast wall of Pit E5. Intense polyphase deformation at the south end of Pit E has resulted in folding and re-folding of sheared ultramafic rock, leading to instability of the south-southeast wall.

3.4.2 Goose Pit

The Bay Fault extends south to intersect the Goose Pit, and is visible in the north and south walls of the pit. The fault trends south from the pit to intersect the Bay-Goose Dike approximately at Chainage 31+625 along the centreline. Water in-flows to the pit along the Bay Fault in the south wall have been noted during previous site visits.

A shallow west dipping sheared stratigraphic contact intersects the upper west wall of the Goose Pit, and was the source of significant water inflows to the pit during mining. The contact is inclined at a shallow angle between about 20 and 30 degrees to the west, striking in a north-south direction. The contact extends south from the pit, passing beneath the dewatering dike approximately at Chainage 31+925. Water flows along this contact, and the feature is hydraulically connected to Third Portage Lake. At the downstream toe of the dewatering dike, along the projection of the contact trace, seepage has previously been observed. In the pit, the contact is intersected by east-west

steeply to vertically dipping faults and joints which provide a mechanism for east-west flow of water behind the south and west pit walls and into the pit. During winter an ice curtain forms on the west wall.

3.4.3 Vault Pit, Phaser Pit and BB Phaser Pit

Faulting in the Vault area generally consists of moderate to high angle, east and south dipping discrete fault structures. In general, the east dipping faults are inclined at approximately 70 degrees, while the south dipping faults are inclined at approximately 55 degrees. These faults either intersect the pit walls at high angles, or dip into the pit walls. Potential wedges formed by the intersection of these through-going continuous features will plunge into the south and southeast pit wall at angles of about 50 degrees. Planar failures will be a factor for south and southwest facing walls where the south dipping faults intersect the wall. Major fault structures in the area are considered continuous, and may therefore influence pit slope stability at both an overall slope and bench scale. However, these faults are very widely spaced, about 30 m to 100 m based on observation.

3.5 Permafrost

The Meadowbank Mine project area is located within the Low Arctic ecoclimatic zone (Golder 2007). The topography of the surrounding area is of generally low relief with an elevation range of about 70 m. The ground ice in the region is estimated between 0% and 10% (dry permafrost) based on regional scale compilation data.

Continuous permafrost to depths between 450 m and 550 m underlies most of the Meadowbank project area. The depth of the active layer ranges from about 1.3 m in areas of shallow overburden, and up to 4 m adjacent to lakes (Golder 2007). Taliks are present beneath the lakes and water courses; small lakes will have closed taliks beneath them while larger lakes will have taliks extending through the permafrost to the underlying deep groundwater regime. The shallow groundwater flow regime has little to no hydraulic connection with the deep groundwater regime below the permafrost.

4.0 PORTAGE PITS A AND B INSPECTION

4.1 Pits A and B Overview

Mining of Pit A was completed in mid-March 2018 to a final floor elevation of 4997 mRL. Mining is complete but water management will continue. Mining of Pit B is finished and it continues to be backfilled as a waste rock dump (Dump B). A pit lake has developed in Pit A and was at an approximate elevation of 5028 mRL at the time of the site visit. Access is by ramps on the east wall and from the south through a slot in B Dump.

The inspection consisted primarily of observations made from the crest areas, and from the base of the pit, comparing the current conditions with those previously observed.

A view of Pits A and B at the time of the site visit is shown in the following photographs. The bench height in the photographs is 21 m.

Photograph 4-1: Pits A and B looking west to north, from east crest (2018)

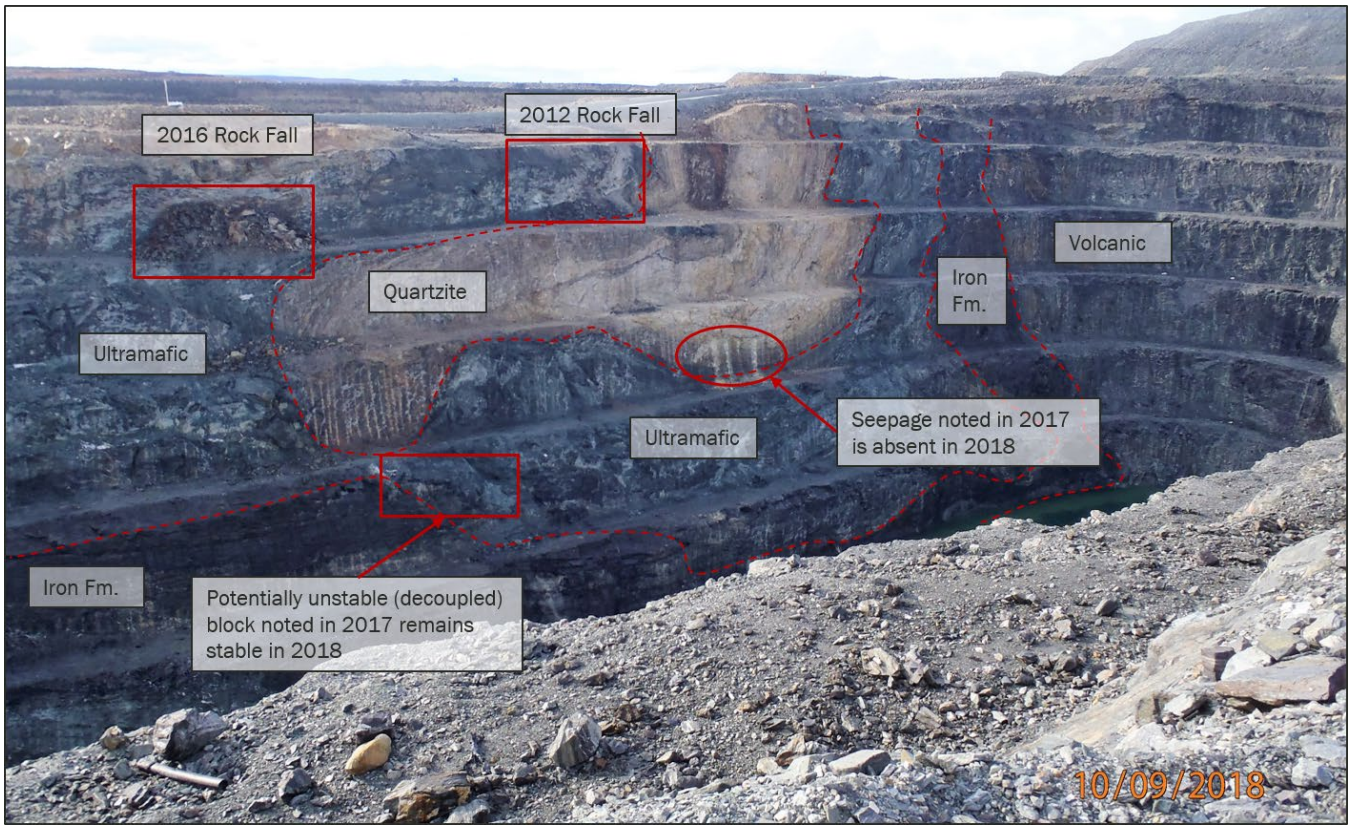
Photograph 4-2: Pits A and B looking north from west crest (2018)

4.2 Pit A Inspection

Pit A is at the north end of the Portage Pit, and includes the northwest through northeast end walls of the pit. At the time of the site visit mining was completed to the final floor elevation of 4997 mRL. A pit lake has formed in the floor of the pit, to an elevation of approximately 5028 mRL.

4.2.1 Pit A West Wall

The following Photograph 4-3 shows the west and north wall of Pit A at the time of the inspection.

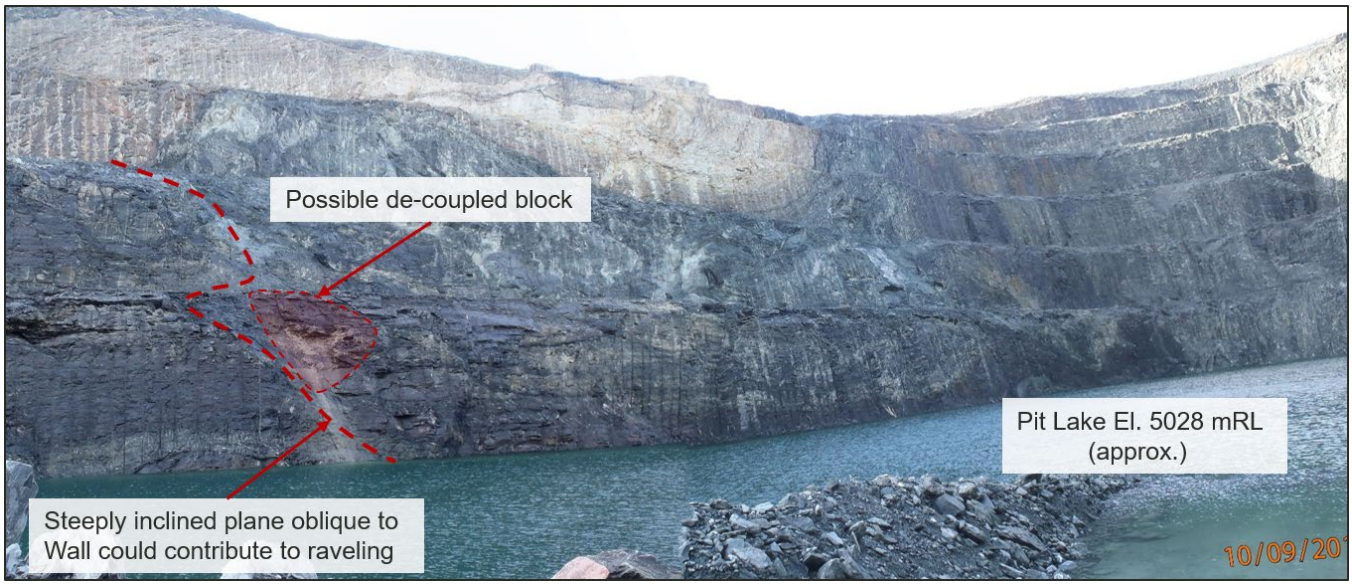


Photograph 4-3: Pit A west wall (2018)

Local areas of instability identified during previous annual inspections continued to be monitored until completion of mining of Pit A. No significant accumulation of material downslope of the 2012 and 2016 rock fall events has developed. As noted in previous reports the 2012 and 2016 rock fall events were caused by poor quality ultramafic rock in combination with toppling failure along the steep fault zone at the crest.

Groundwater seepage noted during 2017 along the axes of the synform structure within the quartzite was not observed during the 2018 inspection, suggesting the water table has been drawn down during mining.

Since the completion of mining in Pit A, the lower benches continue to performing well as shown in Photograph 4-4 below. The de-coupled rock block identified during the 2017 inspection is currently stable.



Photograph 4-4: Pit A lower west wall bench performance (2018)

The following actions are recommended:

- Continue visual monitoring and recording observations as part of regular site geotechnical inspections.

4.2.1.1 5109 Bench Instability and September 2016 Rock Fall Event

Areas of rock fall events occurring in 2012 and 2016 on the 5109 bench continue to be monitored. As described above, no significant increase in accumulation of material on the benches below these areas was noted during the 2018 site inspection.

Photograph 4-5: Pit A West Wall 2016 rock fall and tension cracks (2018)

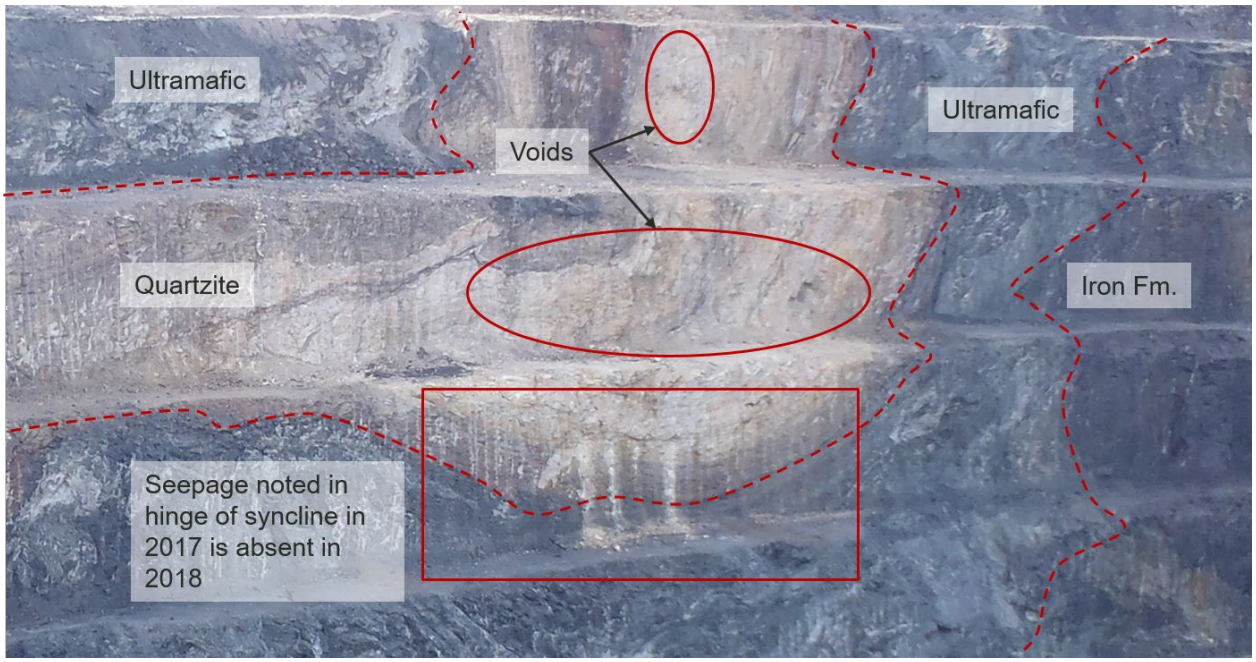
The tension crack located at the pit crest and related to the 2016 and 2012 rockfall events continues to be visually monitored and is currently stable. These observations are documented in AEM's Quarterly Ground Control Instrumentation reports.

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections, and especially during high rainfall events or at freshet.

4.2.2 Pit A West Wall Voids

The quartzite stratigraphy observed in the Pit A west wall contains several large voids identified during previous inspections. There has been no significant accumulation of material on the benches since the 2017 inspection. Seepage that was noted along the synform axis of the quartzite in 2017 is absent in 2018.



Photograph 4-6: Voids in quartzite above Pit A west ramp (2018)

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

4.2.3 Pit A North to Northeast Wall

The north through northeast walls of Pit A continue to perform adequately. There are no noticeable changes from 2017 to 2018. Very little accumulation of loose or raveling material on the catch benches was noted during the site visit.

Photograph 4-8: Pit A north to northeast wall (2018)

Photograph 4-7: Pit A looking north from pit lake level (2018)

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

4.2.4 Pit A East Wall

The benches of the Pit A East Wall continue to perform satisfactorily, as shown in Photographs 4-9 and 4-10.

Photograph 4-9: Pit A East wall upper benches (2018)

Photograph 4-10: Pit A east wall, north end additional wedges (2018)

No further wedge instability like that encountered during 2017 mining of the lowermost benches of the east wall of the pit was encountered, and the lower benches appear stable.

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

4.2.5 Pit B West Wall

The remaining portion of west wall of Pit B that has not been backfilled with waste rock continues to perform adequately. Quartzite is exposed in the upper benches overlying ultramafic rock, and iron formation. There is no access to the west wall of the pit, and access to the base of the pit is gained by the east ramp which also provides access to Pit A. The B Dump face has been advanced north and northeast by an estimated 20 m to 30 m.

The general performance of the west pit wall is shown in the following photograph. There is no evidence of large-scale instability for the west pit wall of Pit B.

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

Photograph 4-11: Pit B west wall

4.2.6 Pit B West Ramp Wedge

The west wall of Pit B is no longer accessible; consequently, the west ramp wedge identified during the 2014 inspection no longer presents a risk as there is no longer any traffic below this feature. No further actions are required at this time.

4.2.7 Pit B East Wall

The east wall of Pit B was inspected from several viewpoints as well as from within the pit. The wall continues to perform satisfactorily. Benches are generally clean with little accumulation of material.

Photograph 4-12: Pit B east wall, looking south (2018)

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

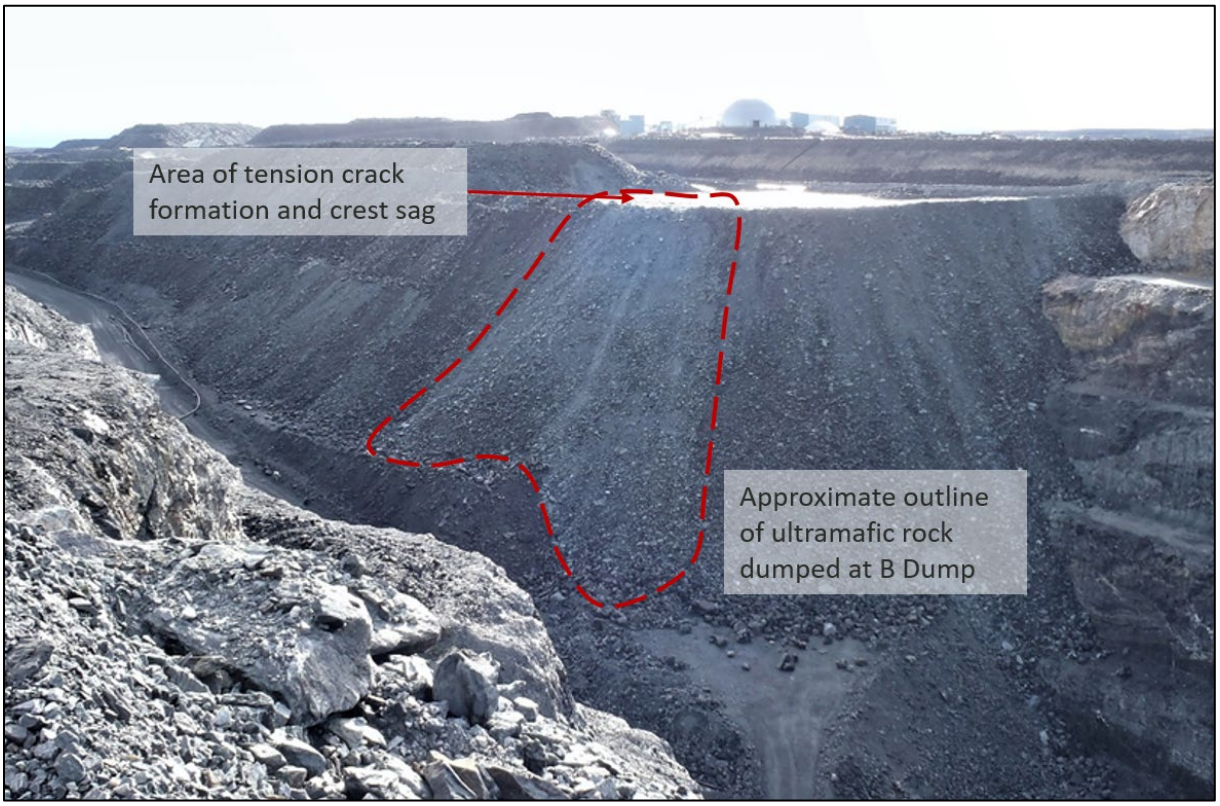
4.2.8 Portage Pit B Inspection (B Dump)

Pit B extends south from Pit A. Mining of Pit B is complete, and it is being backfilled as a waste rock dump. There have been no changes to the platform elevations of the Pit B and Pit C Dumps since the 2015 site visit.

The crest elevation of the Pit B Dump has not changed since the 2016 site visit, and was at 5126.5 mRL. The planned final crest elevation will be 5145 mRL. The dump is being constructed as a dump and doze operation. The following photographs show the performance of the dump platform and dump face.

The material disposed in B Dump is predominantly of volcanic rock, quartzite, and iron formation. During dumping in 2018 some ultramafic rock was inadvertently directed to this dump. This has resulted in the development of some crest sag and formation of tension cracks on the dump platform, although the affected area appears constrained to the area that the ultramafic rock was dumped. A simple wireline extensometer was set up to monitor dump movement.

The tension cracks and associated sagging of the platform at the dump crest is shown in Photographs 4-13 and 4-14.



Photograph 4-13: B Dump looking southwest and outline of approximate ultramafic rock

Photograph 4-14: B Dump platform showing sag, tension cracks, and simple wireline extensometer

The measured displacements do not exceed the trigger response levels outlined in the GCMP for the mine.

The protocol established for monitoring of the dumps is presented below.

Table 4-1: Waste dump monitoring protocol (AEM)

Status	Daily rate of movement		Interval between readings	Action required
	from	to		
1	0	170	4 hours	Normal
2	170	250	2 hours	Caution advised
3	250	330	1 hour	Caution advised, visual observation important
4	330	500	1 hour	Short dump only. Alternative dump location if possible.
5	500		1 hour	STOP DUMPING in this area and close the dump. Use alternative dump locations.
* Do not modify this table				

A row of candles was placed in the crest area to prevent access to the area in which the ultramafic rock was dumped. The crest subsidence may be related to breakdown (mechanical breakdown and weathering) of the ultramafic rock material.

The following actions are recommended:

- Maintain no-entry to the area of the dump platform where the ultramafic rock has been dumped.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- If tension cracks appear to be extending further beyond the ultramafic waste rock, re-install the wireline extensometer and continue monitoring in accordance with the GCMP.

5.0 PORTAGE PITS C AND D INSPECTION

Pits C and D extend south from Pit B to form the central dump of the Portage Pit. Mining is complete at both pits and they continue to be used as waste rock dumps. At the time of the site visit the Pit C main platform elevation remained the same as for the 2017 inspection, at 5145 mRL, with a planned final elevation of 5129 mRL at closure. The Pit D main platform elevation also remained at 5127 mRL, with a planned final platform elevation of 5129 mRL.

5.1 Pit C Dump

A photograph looking south at the waste rock dump in Pit C is shown below.

Photograph 5-1: Pit C Dump, viewed looking south (2018)

The west and east pit walls of Pit C are buttressed by waste rock and no longer present any geotechnical hazard.

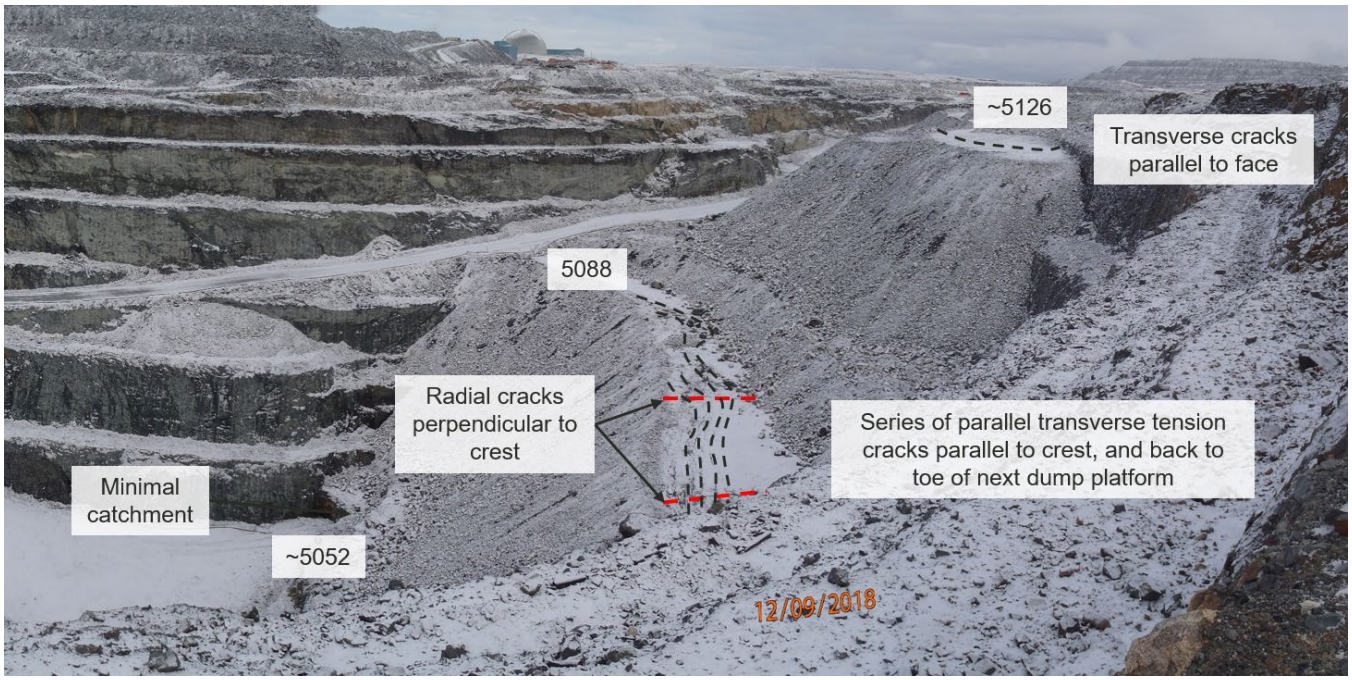
The main dump platform for Pit C is used for storing stockpiles of stemming material. The C Dump platform was visited only briefly and was noted to be performing satisfactorily.

5.2 Pit D Dump

The D Dump continues to be actively used. The highest platform (5126 mRL) has been advanced southward along the east wall. Photograph 5-2 shows approximately the location of the dump face in 2018 relative to its location in 2017.

An area of tension cracks that was observed on the D Dump platforms during the 2016 and 2017 inspections has increased, and this may be a result of the advancement of the 5126 platform southward over the 5088 platform. Both radial (perpendicular to dump crest) and transverse (parallel to dump crest) were observed. These are shown in the following photograph.

Photograph 5-2: Pit D dump showing 2017 dump face and approximate advance 2018 dump face location



Photograph 5-3: Pit D dump viewed from east pit crest showing area of transverse and radial cracks on the 5088 mRL platform

Photograph 5-4: D Dump radial tension cracks

Photograph 5-5: D Dump transverse tension cracks

The following actions are recommended:

- Continue visual monitoring of waste rock dumps and recording of observations as part of regular site geotechnical inspections.
- Prior to mining final Pit E3 area below the dump, complete a dump inspection and review. Although the dump is not active now, and there is no mining below it, plan for the time when there will be mining.
- Survey the platform areas, including locations of tension cracks, to establish a baseline before snow covers the area.
- Manage water in the crest areas and don't allow it to build up during freshet.
- Coincident with the start of freshet, install some simple extensometers to establish a baseline for any movement, and compare this with the current GCMP trigger values. Although no movement is expected during winter it may occur in spring. Capturing initial movement rate and magnitude prior to, and through freshet will assist in better defining acceptable targets during mining of the last phase of the pit.
- Collect sufficient data to inform the planned safe mining below the dump area.

6.0 PORTAGE PIT E INSPECTION

At the time of the 2018 site visit much of Pit E was obscured by snowfall. Weather was generally overcast, with periods of heavy snow fall.

A monitoring program has been in place since the reopening of E5. The monitoring includes visual monitoring through regular geotechnical inspections, the use of a GroundProbe radar monitoring system, piezometers and thermistor cables, TDR cables, and a slope inclinometer, all connected to an automated data acquisition system (ADAS). The slope inclinometer, which was not working previously, was repaired and reinstalled on June 13 2018.

The Pit E5 pushback on the 5088 mRL platform of the south wall of Pit E is the current active mining area in Pit E. A ramp (the South Ramp) enters the Portage Pit E area at the crest on the southwest corner of the pit. The ramp is currently closed, but is planned to be reactivated in 2019. No mining activity is being carried out in the base of the pit below the pushback area. A pit lake covers the Pit E floor with an elevation of approximately 5018 mRL.

Photograph 6-1: Pit E viewing north (2018)

The final floor elevation is planned to be 4976 mRL. The target completion of mining of Pit E is Q3 2019.

The Pit E east wall continues to perform well. Much of the wall was developed in permafrost beneath the former Third Portage Peninsula, and remains frozen. There are no on-going stability issues of significance with the east wall.

The west wall has localized bench-scale instability associated with the weaker ultramafic rock exposed at the base of the wall, and adverse structure (shearing in the ultramafic rock) inclined into the walls and resulting in overhangs.

The Pit E south wall experienced a significant multi-bench failure of the ultramafic rock in September 2015. The wall is currently being mined as a pushback of the existing wall into more favourable structural and rock mass conditions for overall slope stability. Recommended slope monitoring instrumentation has been installed and an appropriate GCMP has been implemented.

Photograph 6-2: Pit E viewing south (2017)

Several bench scale instabilities have occurred during mining of the push-back as a result of undercutting of local structures. These have typically been identified during geotechnical inspections and are being managed accordingly by scaling, and using berms and candles to limit access in these areas.

6.1 Pit E East Wall

The Pit E east wall is excavated in good quality intermediate volcanic rock. The main structural control for the east wall is the steeply west dipping stratigraphy and sub-parallel foliation. Bench face angles have been excavated generally parallel to the dominant structural orientation, and the bench and overall wall performance continues to be satisfactory. Final benches have been cleaned and scaled appropriately. There is no noticeable accumulation of additional debris on the benches or deterioration in wall performance since the 2017 inspection.

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

Photograph 6-3: Pit E east wall performance (2018)

6.2 Pit E South Wall

Pit E south wall exposes primarily ultramafic rock, with iron formation and volcanic rock on its eastern edge. The ultramafic rock is poor quality. From approximately June to September of 2015 several single and multi-bench failures within the ultramafic rock exposed in the south wall occurred. The ultramafic rock to the east and west of the failure area is in permafrost, is absent of groundwater, and is performing adequately. Additional stability analyses were carried out in 2016 to evaluate the stability of the south wall. The stability analyses concluded that there is a 'core' of potentially unstable ground through the middle of the south wall associated with increased structural complexity including folding, faulting, and hydraulic connection to the Third Portage Lake. Following the assessment AEM evaluated other options for mining of the ore, which resulted in a wall redesign to push the wall back into more favourable ground conditions and structure. The Pit E5 pushback expansion area is shown in Figure 6-1 below.

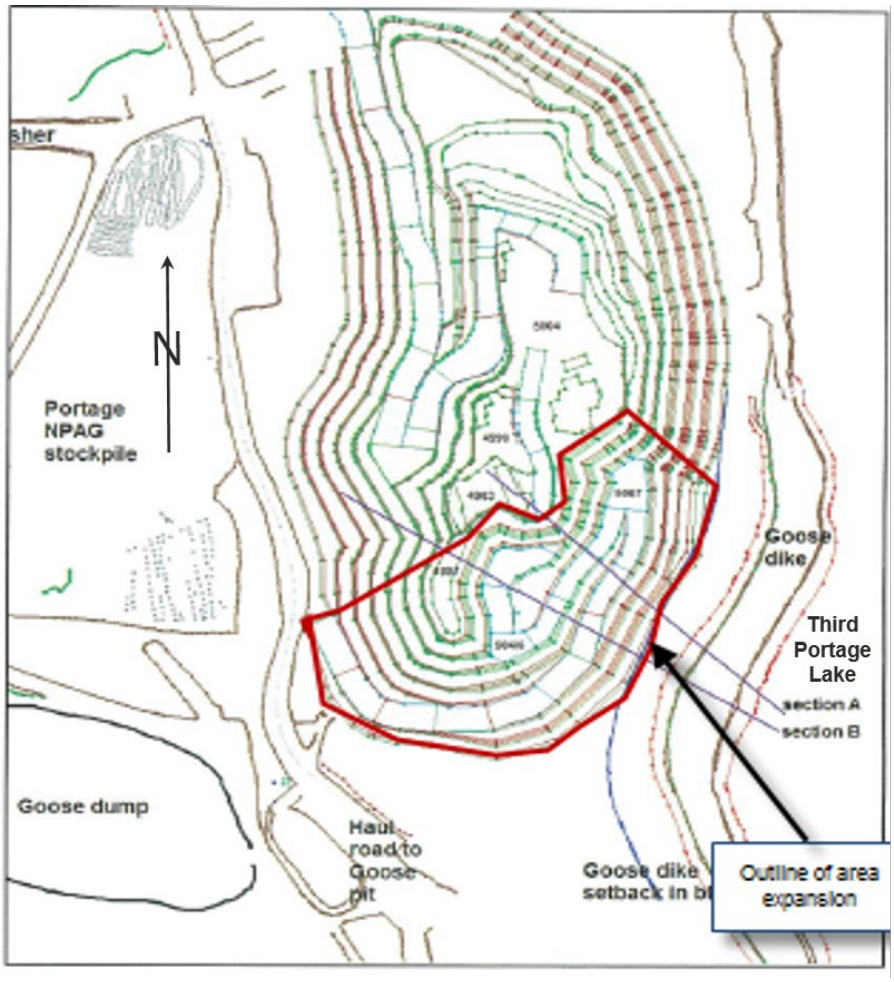


Figure 6-1: Pit E5 pushback expansion area

The study recommended the installation of specific instrumentation behind the wall to monitor the slope stability as the wall is pushed back and mined down. With the exception of prisms, the recommended instrumentation was installed, and includes time domain reflectometry (TDR) cables, thermistor and vibrating wire piezometers, and a slope inclinometer. These data have been reviewed as part of this site inspection, and are summarized later in this document.

The following photograph shows the south wall at the time of the site visit. The wall has been mined down from the 5088 mRL platform in 2017, to approximately the 5025 mRL platform.

Photograph 6-4: Pit E south wall (2017)

6.3 Pit E Rock Fall Events

A total of 8 rockfall events in June 2018, 6 rockfall events in July 2018, and 3 rockfall events in August 2018 were recorded in Pit E. All rock falls were recorded in the rock fall log, and reported to the Mines Inspector as per Sections 16.01 and 16.02 of the Mine Health and Safety Act and Regulations for NWT and NU. No personnel were injured and no equipment was damaged. Many of the events were predicted by radar.

The following table summarizes the events.

Table 6-1: Rock fall event log for Pit E during 2018

Date of Rock fall	Location	Rock type	Estimated or calculated tonnage	Predicted by radar	Comment
6/10/2018	South Wall	Ultramafic	215	No	
6/10/2018	South Wall	Ultramafic	75	No	
6/10/2018	South Wall	Ultramafic	160	No	
6/11/2018	South Wall	Ultramafic	250	No	
6/20/2018	South Wall	Ultramafic	79	Yes	Other rock falls predicted in the area (remainder of the wedge).
6/25/2018	South Wall	Ultramafic	250	No	First high wall of the pit (5123) investigated 3 weeks later when visual inspection. Rock fall took 3 days to completely stop (radar signature).
6/29/2018	Ramp	Ultramafic	110	No	
6/30/2018	South Wall	Ultramafic	350	No	

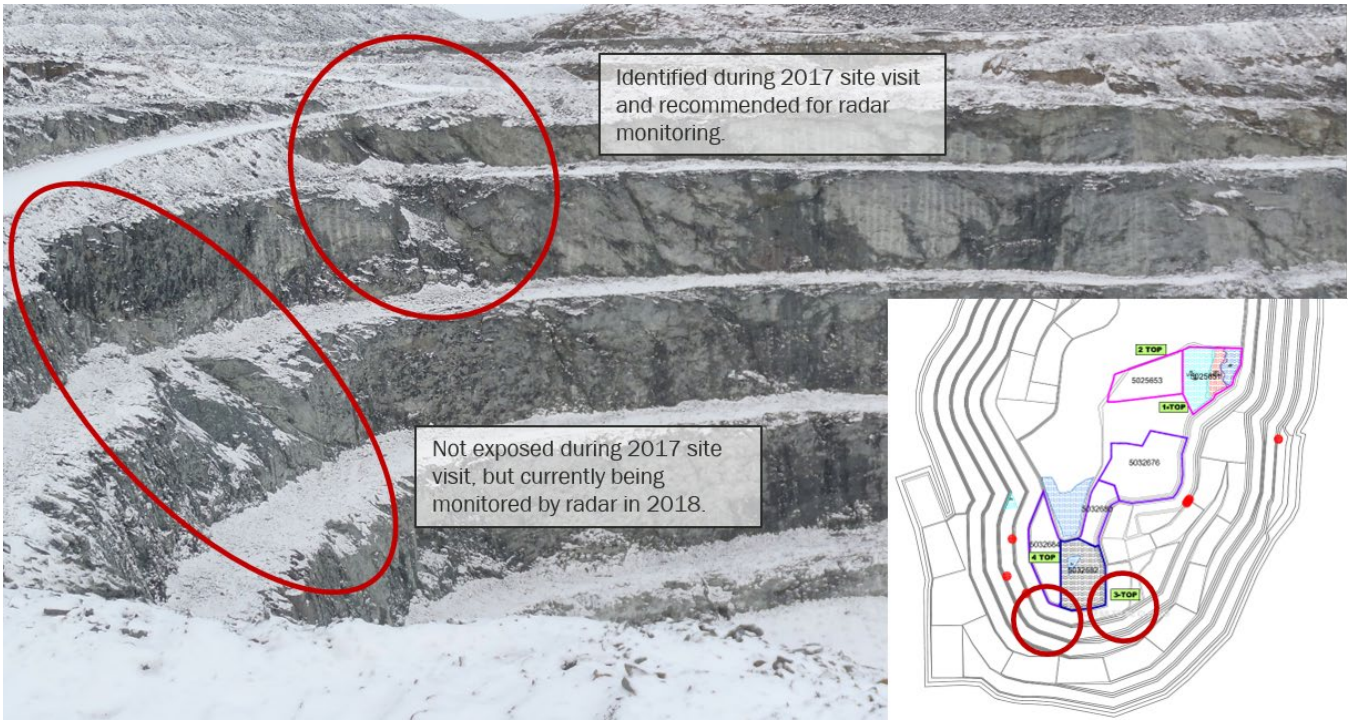
Table 6-1: Rock fall event log for Pit E during 2018

Date of Rock fall	Location	Rock type	Estimated or calculated tonnage	Predicted by radar	Comment
7/5/2018	South Wall (west)	Ultramafic	2700	Yes	
7/4/2018	South Wall (east)	Ultramafic	310	Yes	
7/8/2018	South Wall (west)	Ultramafic	100	Yes	Continuation of the July 5th rock fall.
7/9/2018	South Wall (east)	Ultramafic	226	Yes	Continuation of June 20th rock fall and mine was cleared prior as it was anticipated.
7/11/2018	South Wall (west)	Ultramafic	314	Yes	
7/30/2018	West Wall	Ultramafic	258		

Reference: Agnico Eagle Rock Fall Log 2018

The dominant failure mechanism resulting in the rock fall events is generally planar failure along outward dipping foliation surfaces or a combination of planar and wedge mechanisms. AEM manage local bench scale instability adjacent to working areas and high-traffic areas by regular geotechnical inspections, appropriate scaling of instabilities when noted, and access restrictions in areas when required.

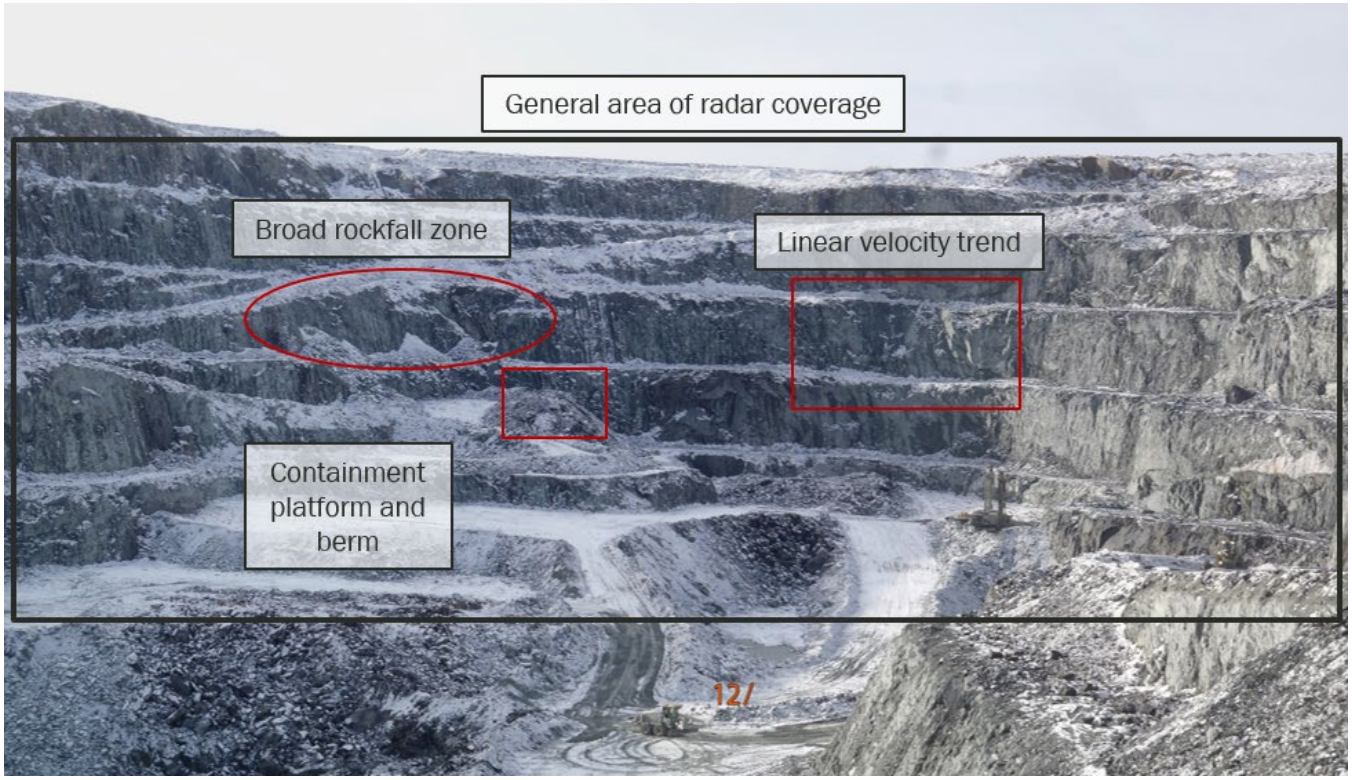
Many of the rock fall events that occurred along the south wall of Pit E5 beginning in June are associated with wedge and planar instability along relatively smooth, discrete, and continuous, but widely spaced shear planes that strike obliquely to the south wall, and are inclined to the north to northwest.



Photograph 6-5: North to northwest dipping shear planes contributing to wedge and planar instability in south wall

These were noted during the 2017 site inspections at the south ramp entry to the pit and prompted a recommendation for ongoing monitoring of the south wall. As the curvature of the south wall changes from north facing to east facing, these features strike into the wall and become kinematically stable. However, where these strike obliquely to the south wall, planar and wedge instability is kinematically possible. Contributing factors to instability include the planarity of these features, the mineralogy of the ultramafic rock (talcose), and the presence of water, all of which reduce the shear strength of the discontinuities. In addition to the reduced shear strength along the planes, the weak rock mass strength of the ultramafic rock and its propensity to degrade in quality when exposed to air and water also contributes to instability.

The south wall of the pit is currently monitored using radar in addition to instrumentation. The following photograph shows the approximate coverage by radar of the south wall of Pit E5. The wedge and planar instability that have occurred have in many cases been predicted by the radar. AEM have taken proactive steps to buttress areas of instability, to restrict access to others, and to develop a containment platform and berm beneath the broader rockfall zone below the south wall ramp. An area of linear velocity trend on the western side of the south wall has been identified on the radar, and is monitored using radar.



Photograph 6-6: General radar coverage of south wall Pit E5

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- Continue to monitor ADAS as per GCMP.
- Inspect outside edge of ramp for tension crack formation.

- Continue to monitor with radar.

6.3.1 General Observations

The following additional general observations were made during the inspection of the south wall area of Pit E5.

6.3.1.1 Water Management at Crest

During inspection of the crest area of the south wall of Pit E it was noted that a sump was located near the crest area above the ramp. The sump was filled with water, and directly above an area of the wall above the ramp which experienced instability. Water should not be allowed to collect at the crest area, and sumps should be pumped down regularly to prevent water from contributing to instability.

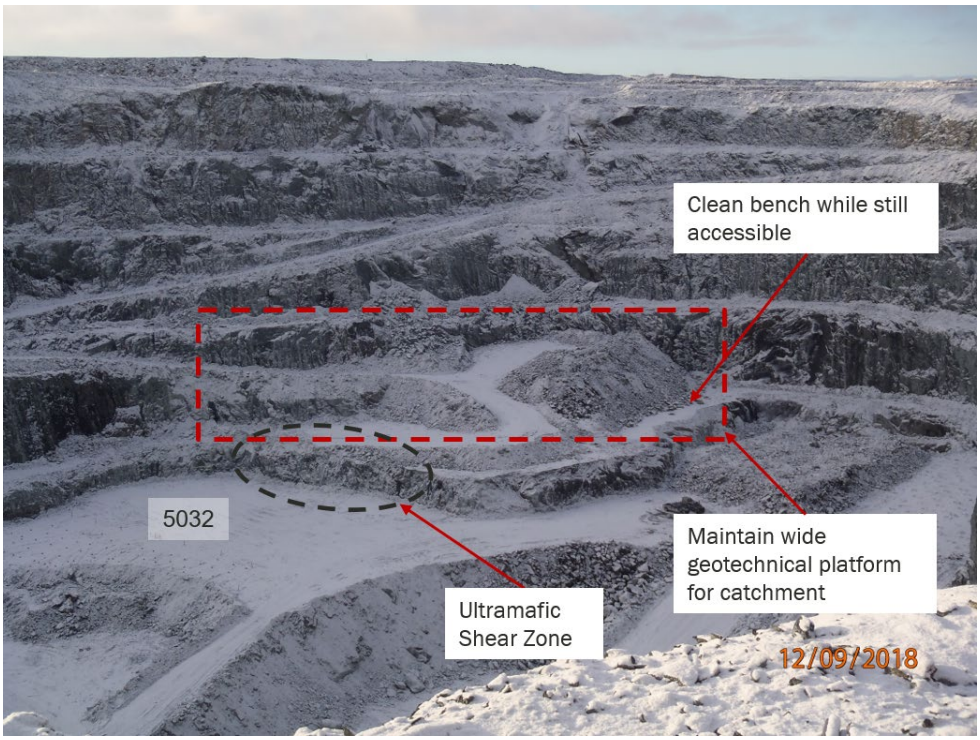
Photograph 6-7: Sump at crest of Pit E south wall

The following actions are recommended:

- Prevent water from accumulating in the crest area.
- Pump down sumps and keep crest area dry.

6.3.2 Shear Zone in Ultramafic Rock

The platform at approximately 5032 mRL was visited during the inspection. Of note is the presence of a zone of strongly sheared ultramafic rock exposed along the bench face directly above the platform. The rock is very poor quality, weak, serpentinized, and wet suggesting a hydraulic conductivity up-slope. The shear zone exposed on 5032 Bench within the ultramafic rock is generally consistent in location, orientation and character with the interpreted shear zone assumed for the stability assessment during design of the pushback wall. The location of the shear zone as exposed on the 5032 mRL platform is shown on Figure 6-8 and Figure 6-9.



Photograph 6-9: Pit E5 5032 mRL platform and ultramafic shear zone

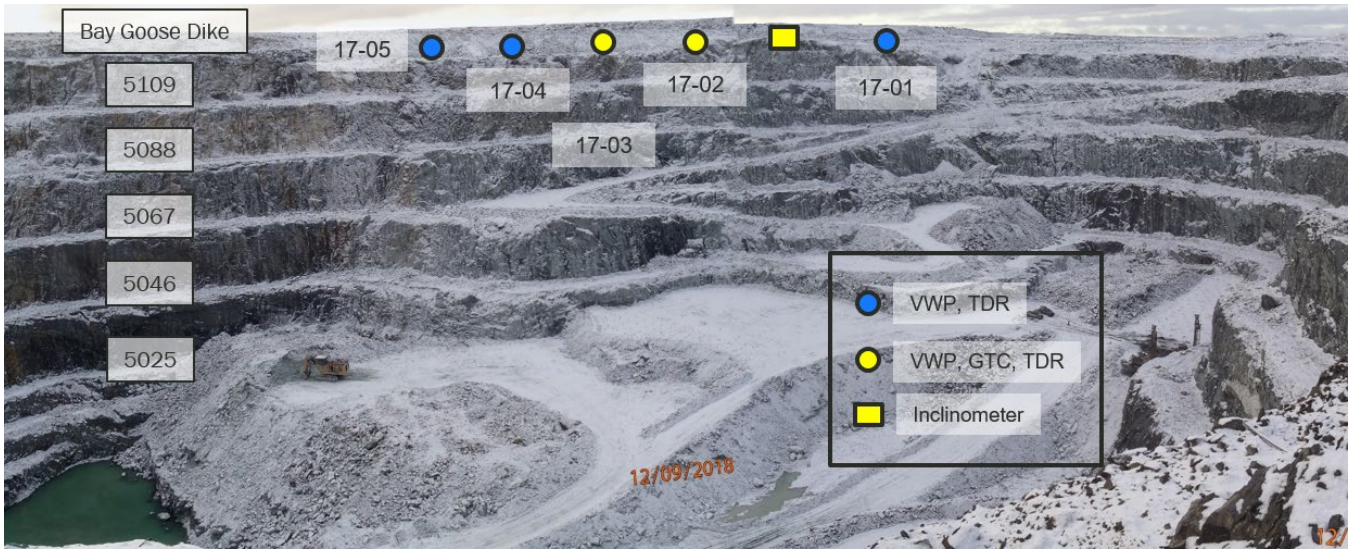
Photograph 6-8: Shear zone in ultramafic rock exposed on the 5032 mRL platform (2018)

6.3.3 Pit E5 Instrumentation

The instrumentation data are contained in Appendix A and some observations are summarized below.

A recommendation from the Tetra Tech analysis report for the wall pushback (Tetra Tech 2017) was to install specific instrumentation in and behind the pushback area for slope monitoring purposes while the area was mined. AEM have installed instrumentation which is generally consistent with the recommendations by Tetra Tech, with the exception of prisms for monitoring surface movement. Since the GroundProbe radar is constantly monitoring the wall for movement, the current instrumentation installed is adequate in the absence of prism data. The instrumentation consists of vibrating wire piezometers, time-domain reflectometry (TDR) cables, thermistors, and an In Place (IP) inclinometer.

The following photograph shows approximately where the instrumentation has been installed.



Photograph 6-10: Pit E south wall instrumentation locations (estimated)

The following table summarizes the instrumentation installed in 2018.

Table 6-2: Pit E5 list of instrumentation

Borehole	Inclination	Comments	Vibrating Wire Piezometer depth (in hole)	Thermistor	TDR Cable
E4-01 (E5-17-01)	-60	From pit crest, toward pit, sub-parallel to wall dip	150m (A)/75m (B)/37.5m (C)	No	Yes
E4-02 (E5-17-02)	-90	From in-field between crest and dike, vertical.	100m (A)/32.5m (B)	Yes	Yes
E4-03 (E5-17-03)	-60	From pit crest, toward pit, sub-parallel to wall dip	150m (A)/75m (B)/37.5m (C)	Yes	Yes
E4-04 (E5-17-04)	-90	From in-field between crest and dike, vertical.	100m (A)/32.5m (B)	No	Yes
E4-05 (E5-17-05)	-60	From pit crest, toward pit, sub-parallel to wall dip	150m (A)/75m (B)/37.5m (C)	No	Yes
Inclinometer (E5-17-06)	-90	Vertical	No	No	No
Surface Prisms	N/A	N/A	N/A	N/A	No

6.3.3.1 TDR Cables

Five TDR cables were installed in boreholes drilled behind the south wall of the Pit E in 2017 to monitor slope movement. Since the 2017 site inspection, the TDR instrumentation has been connected to the site Automated Data Acquisition System (ADAS).

A review of the data indicates no slope displacement.

6.3.3.2 Thermistors

The data from the two thermistors installed in PE5-17-02 (vertical) and PE5-17-03 (inclined) indicate steady-state conditions have been reached. There are no notable changes in the ground thermal profiles since the 2017 site inspection.

The data from 17-02 indicate frozen ground conditions from 5125 mRL down to approximately 5108 mRL. Below this depth the ground is not frozen, with temperatures reaching almost 2.5 degrees C. The data from 17-03 also indicate negative ground temperatures to approximately 5119 mRL, after which ground temperatures increase to between 1 and 2 degrees C. The data are consistent with the permafrost and hydrogeological conceptual models that this area of the wall is not frozen.

The data from 17-03 indicate a decrease in temperature beginning around 5080 mRL and becoming negative around 5045 mRL. Following this temperature increases and becomes positive again. While it is possible this could be the result of a malfunctioning thermistor bead, this is thought to be unlikely as 3 of the preceding beads on the thermistor string support the overall trend. A detailed assessment of the significance of this is beyond the current scope of work.

6.3.3.3 Piezometers

Nested piezometers were installed in PE5-17-01 (3 VW), 17-02 (2 VW), 17-03 (3 VW), 17-04 (2V VW), and 17-05 (3 VW). The piezometers are connected to the ADAS monitoring as part of the GCMP.

The review of the 2018 data indicate that the near-surface piezometers installed in 17-01, 17-02, 17-03, and 17-04 are at or below freezing, while the deeper piezometers remain within non-frozen ground. Instrument 17-05 shows all piezometers installed are at negative ground temperatures. The data from the frozen piezometers are unreliable. Except for PE5-17-01 and PE5-17-05, the piezometers show a step-wise increase in piezometric elevation in mid-March 2018. It is unclear what the cause of this sudden increase is, however a review of the data show that temperatures may be approaching freezing, and this increase may be associated with freezeback of the pit walls preventing drainage.

A detailed review of the piezometer data is not part of the current scope. It is understood that AEM frequently monitor the instrumentation and investigate all events. Some of the piezometers appear to be on an upward trend, and so the instrumentation data should be reviewed more frequently to understand if this trend is real. AEM have indicated the upward trend in the piezometer data is most likely related to the advancement of permafrost into the wall, as indicated by other instrumentation both in the wall, and in the dewatering dike.

6.3.4 Inclinometer

One inclinometer was installed in a dedicated borehole behind the wall. AEM noted that the data are questionable after May 1 2017. The instrument was manufactured by Geokon. The instrument was removed by AEM in Q1 of 2018 and sent for repair. It was re-installed on June 13, 2018. A technical memorandum describing the details of the installation was prepared on July 17 2018 and is included in Appendix A. The installation details are tabulated below.

Instrument	Baseline Reading	Top of Casing Elevation (metres above sea level)	Easting, m (Mine Grid)	Northing, m (Mine Grid)	Elevation, m (mRL)	A-Axis orientation (+'ve direction)	B-Axis orientation (+'ve direction)
In-Place Inclinometer (IPI)	2018-06-14 9h30am	130.660	2080.803	5516.495	130.113	West-northwest, towards Portage Pit	North-northeast, parallel to pit wall

While it is too early to establish any clear trends within the data following installation, some general observations are possible. Based on the thermal profile provided by the instrument, the upper segment of the instrument was installed in permafrost, with the base of permafrost at elevation of approximately 96 m above sea level (5096 mRL). Below this elevation the inclinometer is within non-frozen ground. The cumulative displacements shown by the inclinometer A and B axes are millimeter-scale, and at the time of the site visit are in response to equilibration of the instrumentation with the ground thermal profile. The displacements shown were compared with adjacent TDR cables which show no indications of ground deformations. The displacements are primarily in the B+ direction (parallel to pit wall strike).

- The inclinometer should continue to be monitored and the data evaluated in the context of the overall GCMP for the project.

6.4 Pit E West Wall

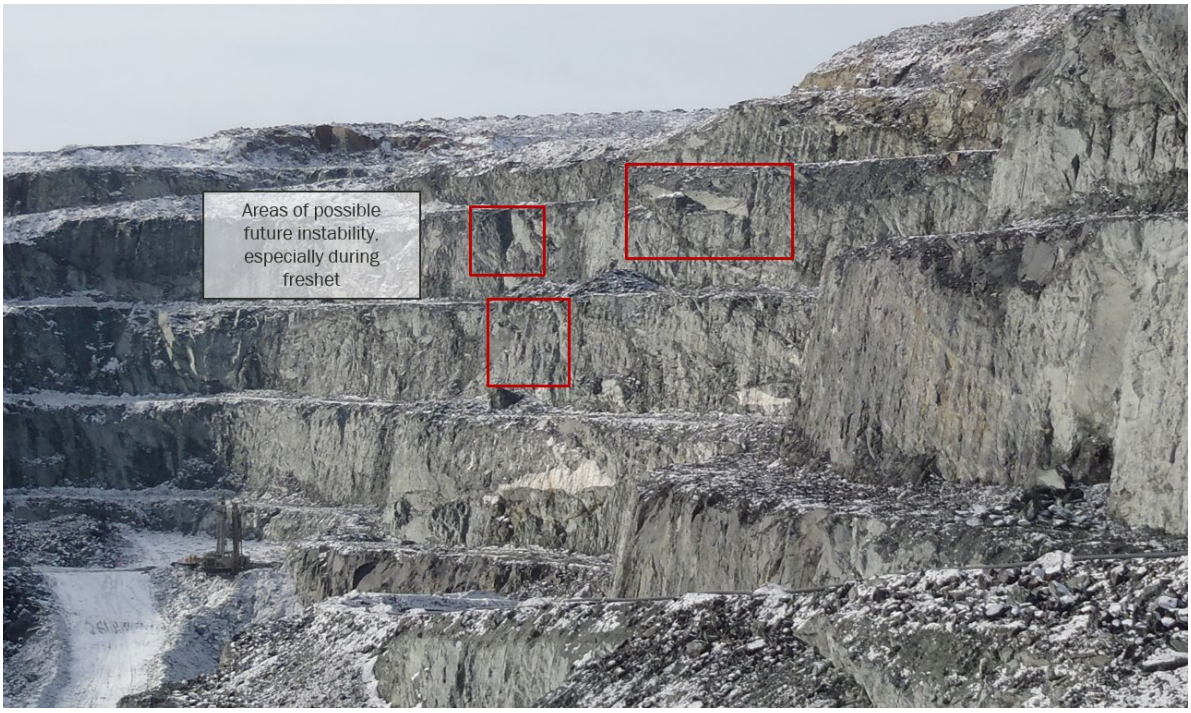
The Pit E west wall exposes predominantly quartzite, iron formation and intermediate volcanic rock in the upper benches of the wall, overlying ultramafic rock in the lower benches. Ultramafic rock is exposed along a substantial portion of the West Wall Ramp as it descends into the pit. Mining of the current pit is accessed by the West Wall Ramp.

Seepage is observed along fracture planes exposed in the bench faces, particularly near the south end of the west wall as this area was originally in talik, beneath the previously existing Third Portage Lake. Seepage faces can be expected to contribute to instability of the ultramafic and other rock types during cyclic freeze-thaw which can degrade the rock mass quality and strength. While stable through the winter, these areas may be prone to increased raveling and bench scale failure during the spring thaw. Additional care should be taken during spring thaw to identify potentially unstable areas of the pit wall and address these if required.

At the south end of the west wall, the contact of the ultramafic rock and overlying intermediate volcanic rock is inclined into the wall, which is beneficial for overall slope stability, but results in bench-scale instability of the underlying ultramafic rock. Local rock falls creating small overhangs have occurred as the ultramafic rock separates from the overlying volcanic contact, followed by sliding along a steeply east dipping orthogonal joint set. This potential instability is contributed to by the presence of the Bay Fault and parallel shear planes within the ultramafic rock, which are also inclined steeply into the west wall. Photograph 6-11 shows the west wall at the time of the 2018 site visit. An area of rockfall events on July 5, 7, and 11 2018, directly above seepage faces and associated with the steeply west dipping Bay Fault and associated shear planes.

Photograph 6-11: Pit E west wall showing seepage and Bay Fault (2018)

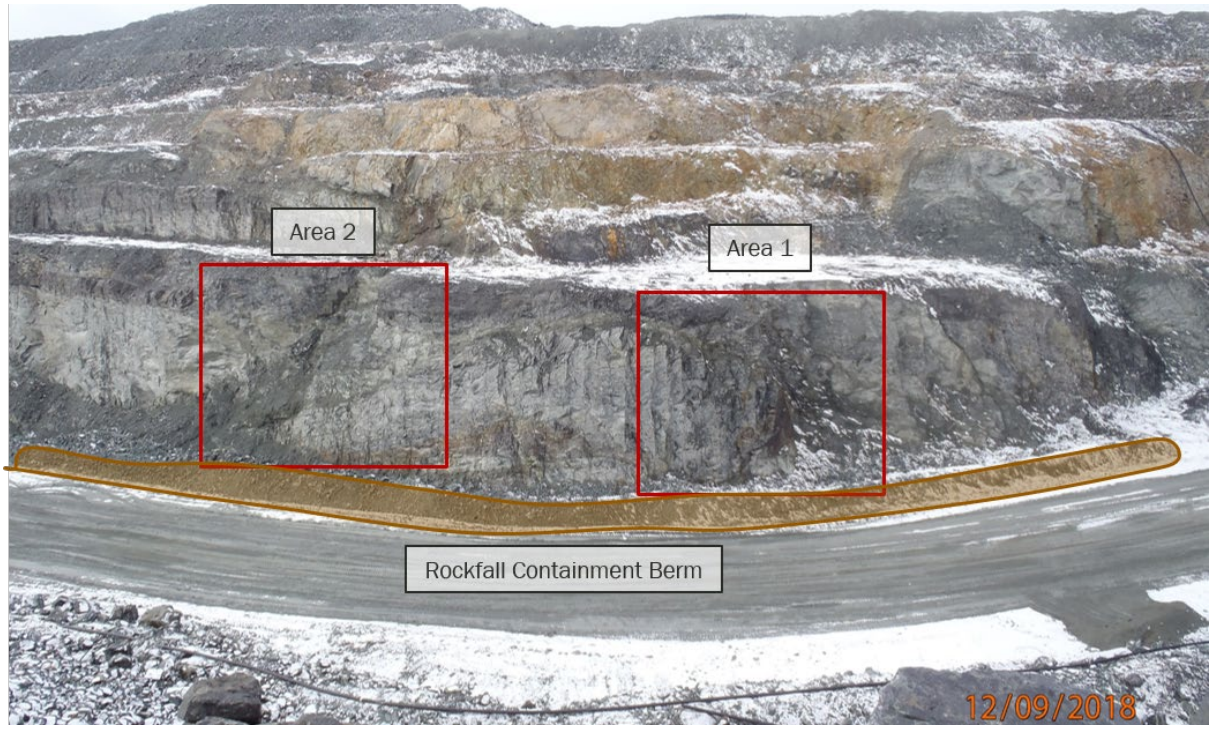
Photograph 6-12: Pit E west wall south end upper benches (2018)



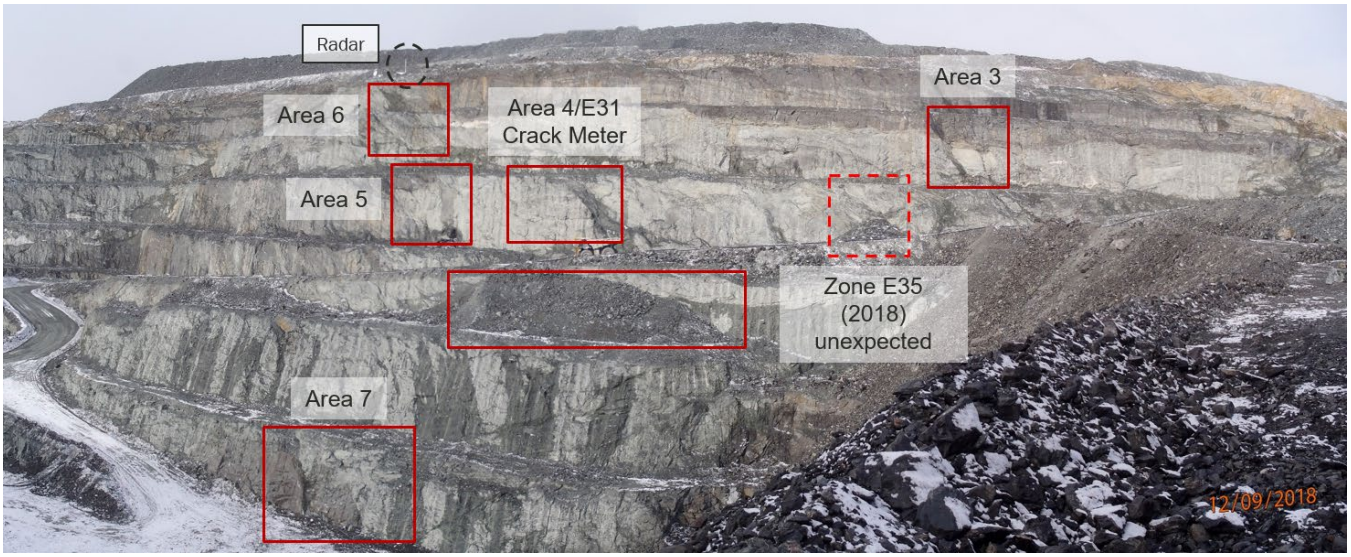
Photograph 6-13: Areas of potential instability along steep west dipping structure

6.5 Pit E3 West Wall Ramp

The Pit E ramp descends southward into the pit along the west wall. Seven areas of geotechnical hazards identified during previous inspections continue to be monitored, and are discussed below.



Photograph 6-14: Pit E west wall ramp hazard identification (2018)

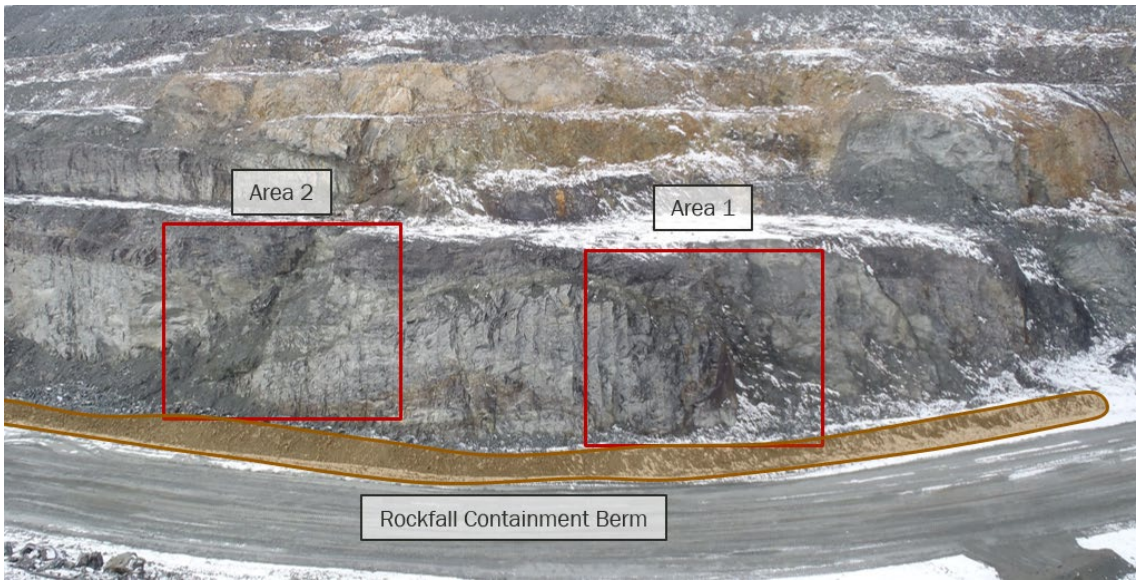


Photograph 6-15: Pit E west wall ramp hazard identification (2018)

6.5.1 Ramp Areas 1 and 2

The West Wall Ramp enters the Portage Pit along the west side of the pit, and ramps down to the south towards Pit E3/E5. The ramp passes beneath an area of wall that was experienced several rock falls in 2014 (Area 1 and Area 2). The area of wall is associated with a fault zone – the Bay Fault or a splay off that fault trend - trending along the west wall of the pit. This fault, or shear, is several metres wide, and steeply inclined to the west. No changes to the performance of the wall above the ramp in this area were noted.

Photograph 6-16: Pit E Ramp Area 1 above ramp - Bay Fault or splay (2018)



Photograph 6-17: Pit E Ramp Areas 1 and 2 - Bay Fault or splay (2018)

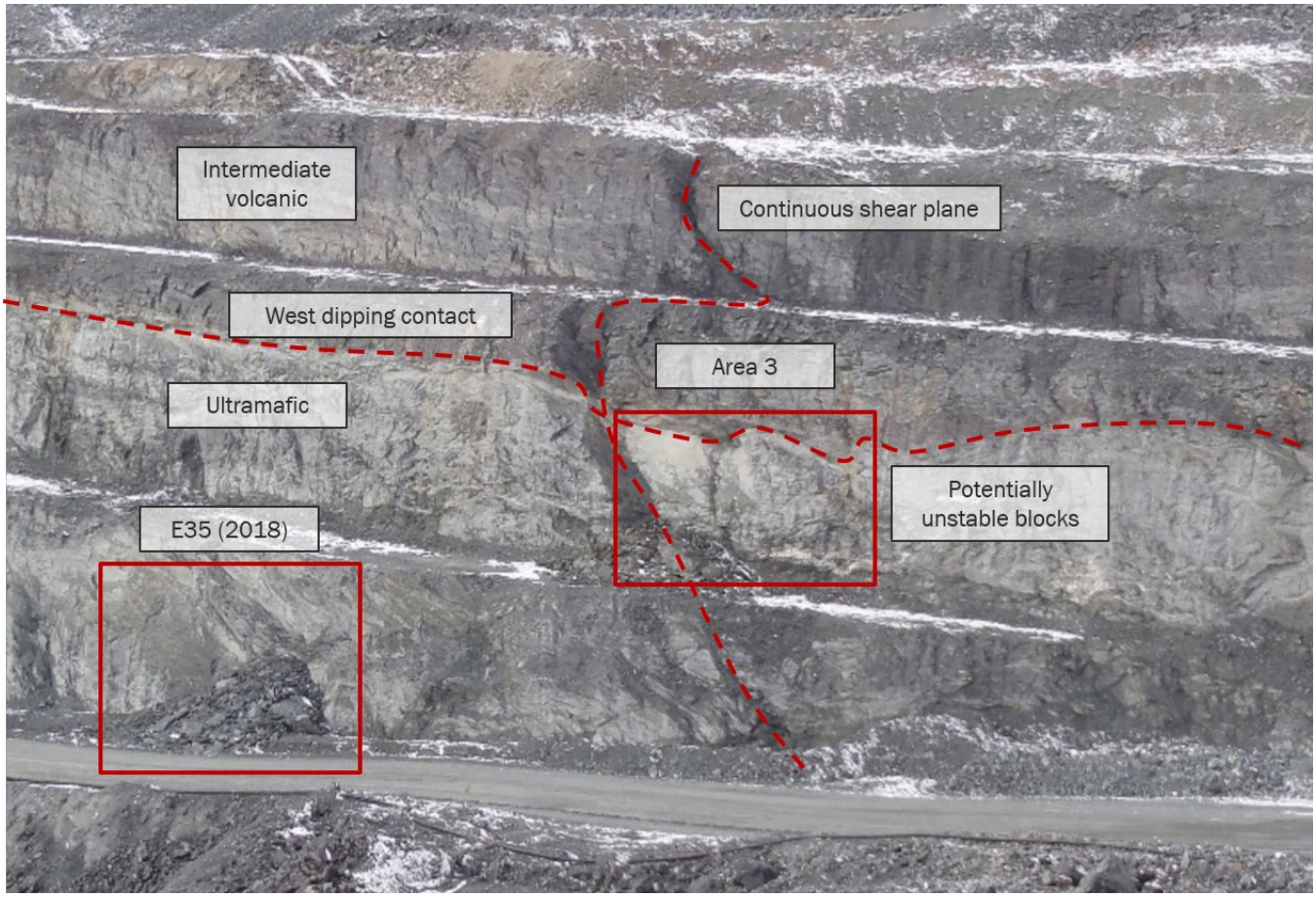
The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

6.5.2 Ramp Area 3

Area 3 occurs at the contact between ultramafic rock and overlying volcanic rock inclined to the west and into the slope. The contact forms a top release surface for a wedge formed within the ultramafic rock.

No increase in the material accumulating at the toe of Area 3 was noted during the 2018 inspection.



Photograph 6-18: Pit E Ramp Area 3 (2018)

During 2018, an unexpected rockfall occurred from an area referred to as Zone E35, shown below, between previously identified geotechnical hazards at Area 3 and Area 4. The rockfall was estimated at 258 tons and occurred on July 30 2018. The material fell on to the safety berm along the inside edge of the ramp, and spilled over onto the ramp. The rockfall was reported to the Mines Inspector.

A review of the area during the site inspection noted an apparent reduction in the height of the rockfall containment berm along the inside ramp. This might result from long term natural settlement of the tabular rockfill material used to construct the berm. This is shown in Photograph 6-19.

Photograph 6-19: Zone E35 rock fall

The following recommendations were made:

- Review the established rockfall containment berm as it may have settled with time (appears to be lower than originally constructed and may have settled over time), and re-establish height after cleaning E35 debris
- Increase height of berm to maximum possible respecting single lane requirement width.
- Maintain the rock fall containment berm on the ramp.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections

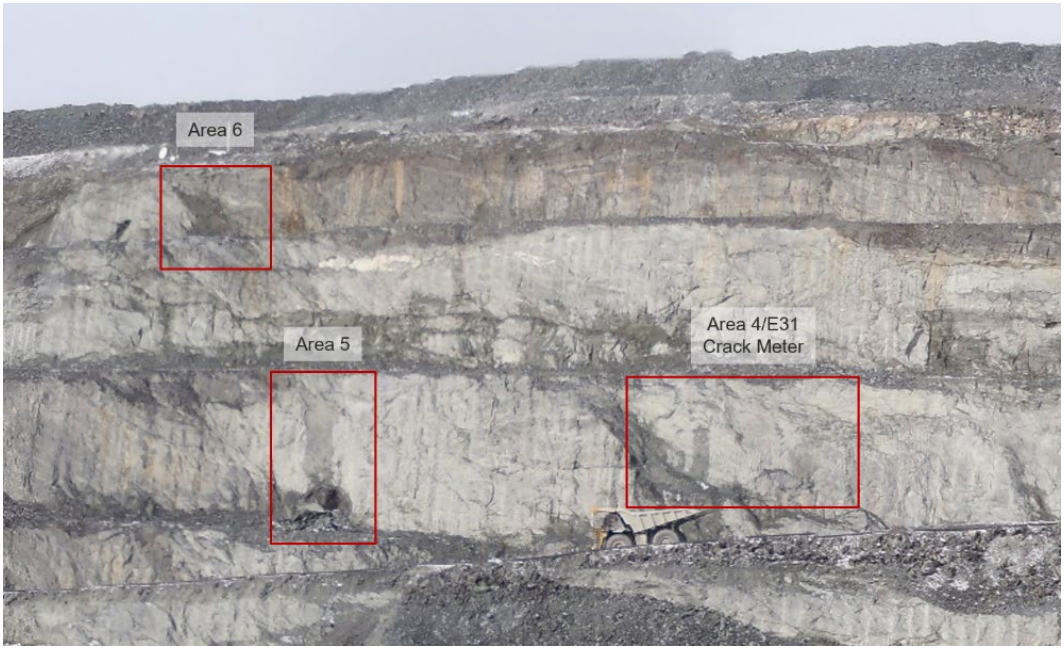
6.5.3 Ramp Areas 4, 5 and 6

Area 4 is a potential planar failure formed by a steep east dipping sliding plane undercut by the bench face. The sliding plane is exposed adjacent to Area 4 on a portion of wall that was removed through scaling. The plane extends behind the Area 4 block, and daylights in the bench face. AEM have taken proactive steps to monitor Area 4, identified in AEM's records as Zone E31. A simple extensometer has been installed into the rock and is continuously monitored.

Area 5 is defined by a series of closely spaced bench-scale joints trending into the wall, and forming steeply plunging wedges.

Area 6 is located above the 5088 mRL bench, and is a vertical extension of the closely spaced jointing of Area 5. These are steeply north dipping shear joints, which intersect the volcanic rock. The close spacing and continuous nature of these joints may result in increased raveling of material particularly during freshet and spring thaw.

No new material was observed to have accumulated beneath each of these areas since the 2017 inspection.



Photograph 6-20: Pit E Ramp Areas 4, 5, and 6 (2017)

Photograph 6-21: Area 4/Zone E31 crack meter monitoring

The following actions are recommended:

- Continue monitoring the crack meter installed across Area 4/Zone E31.
- Re-establish and maintain the rock fall containment berm on the ramp.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

6.5.4 Ramp Area 7

Area 7 is at the base of the ramp, at the north end of the pit, and near the contact between iron formation and ultramafic rock.

Photograph 6-22: Pit E Ramp Area 7 at bottom of ramp (2018)

The potential instability is characterized by strongly sheared ultramafic rock in contact with iron formation, with associated shear planes dipping out of the bench face. Some of the sheared planes are open and appear to form potential wedge and planar mechanisms.

No additional accumulation of material at the toe of this area was noted since the 2017 inspection. Nevertheless, a bumper berm should be constructed along this section of ramp to prevent personnel and equipment from stopping beneath this area. The area should continue to be monitored as part of regular site geotechnical inspections.

The following actions are recommended:

- Construct a bumper berm along the bench toe of Area 7.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

6.5.5 West Wall Ramp –Ramp Buttress

A ramp instability identified in 2015 by AEM and associated with the weak ultramafic rock in the lower wall benches below the ramp was mitigated with the construction of a counter-balancing rock fill berm. This was documented during the 2015 inspection. The berm continues to be effective at stabilizing the ramp. There is no indication of deformation or displacements within the buttress or the ramp surface. No tension cracks were noted along the ramp crest.

The following actions are recommended:

- Continue visual monitoring and recording of observations of the ramp buttress as part of regular site geotechnical inspections.

Photograph 6-23: Pit E west wall ramp buttress and step-in (2018)

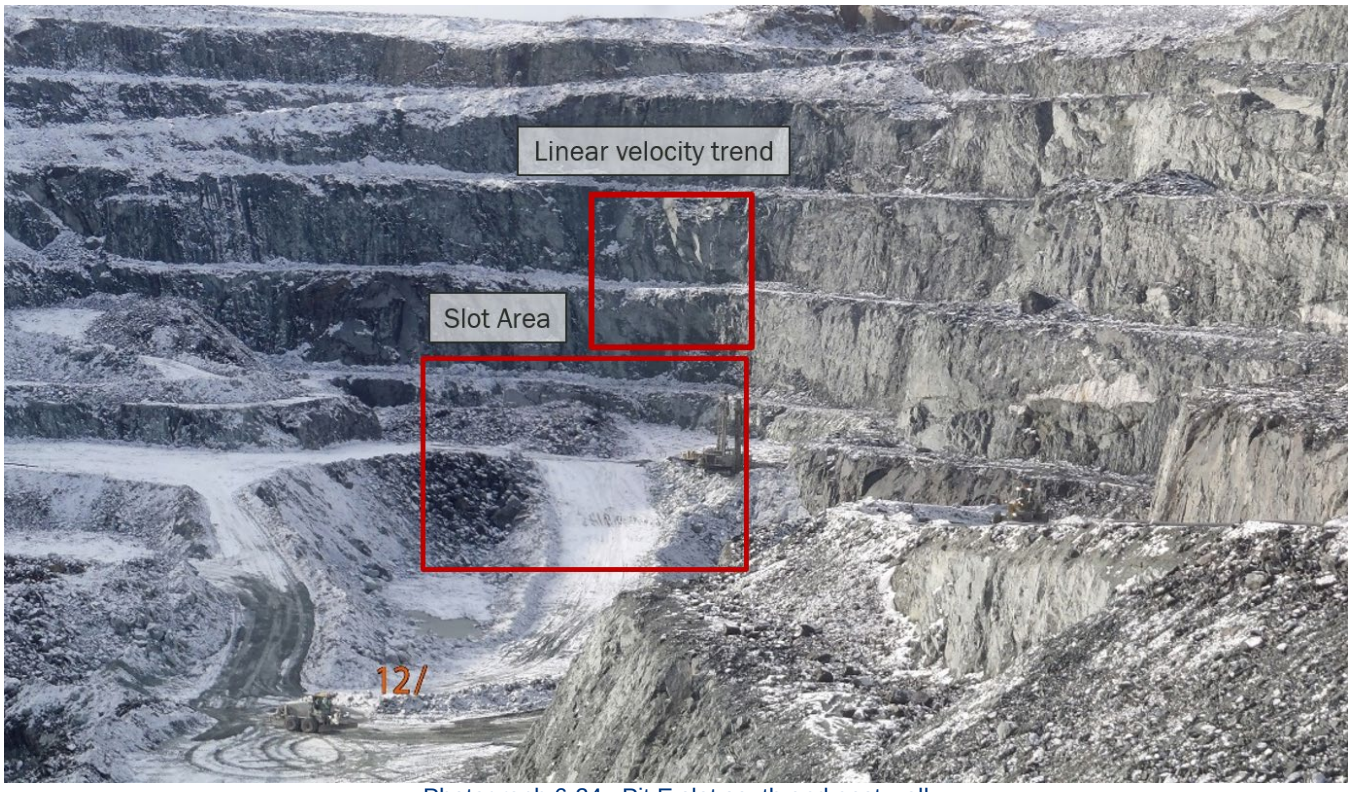
6.5.6 Pit E Slot South and East Wall

The slot at the south end of Pit E that had been has been partially filled at the time of the 2017 site inspection is currently actively mined. The slot area is defined by the transition of the south wall to the west wall of the pit, and so is exposed to the east-west trending shear planes described under Section 6.3 above which strike obliquely into the south and east walls leading to many of the rock falls recorded during 2018.

At the time of the 2018 site visit the slot floor was at an elevation of approximately 5025 mRL. It is planned to mine two more triple-benches. During mining of the final two benches the GroundProbe radar will continue to monitor the south wall of the pit, and specifically areas of the south wall above the slot which have demonstrated linear velocity trends, but not acceleration.

The following actions are recommended:

- Mine this area during winter months while ground is frozen.
- Continue monitoring the south wall with the GroundProbe radar, and specifically areas of the south wall above the slot which have demonstrated linear velocity trends, but not acceleration.
- Continue the use of controlled pre-shear blasting methods to minimize damage to the final walls.
- Remind equipment operators to remain within dig-lines, and not to over-excavate or undercut benches.
- Continue careful scaling and bench cleaning as the pushback is deepened.
- Continue visual monitoring and recording observations as part of regular site geotechnical inspections.



Photograph 6-24: Pit E slot south and east wall

6.6 Discussion of Mining Sequence to Complete Pit E3/E5

Mining of Pit E is scheduled to be completed in Q3 2019, with a final floor elevation of 4976 mRL. The final geometry of the slot that will be mined at the south end of Pit E will result in a very narrow configuration with steep east, west, and south walls. The south wall is currently being monitored by the GroundProbe radar. Several bench-scale rock falls have occurred on the south wall during 2018, as recorded in the rock fall log and reported. To mitigate risk during final mining of Pit E, AEM have developed a runout platform and deflection berm to the east of the slot area which will be effective in retaining any additional bench-scale material which may ravel in this area. The south wall includes an area that has been identified from the radar as demonstrating a linear velocity trend (but no acceleration) and this area will continue to be monitored closely in addition to a broad area of the south through west walls. The west wall includes bench-scale failures reported in 2018 resulting from toppling-type failure along steeply west dipping shear planes, most commonly associated with weak, poor quality ultramafic rock, and the contribution of groundwater. Areas of potential additional instability over time on the west wall were discussed in Section 6.4, and many of these are included in the current radar coverage.

During the site inspection, a strategy for additional risk management and mitigation was discussed with AEM. From experience. Based on site experience the performance of the ultramafic rock and other rock types improves significantly during winter. Based on the historical record of rock fall events at site since 2015, approximately 98% of the rock falls recorded have occurred between May and September, with only one rock fall recorded in January. The corollary is that the lowest rock fall risk is during the period October to April. During the site visit, it was discussed with AEM that an additional risk management strategy could be to schedule the final mining of the Portage Pit E if the mining areas with a higher relative rock fall risk could be mined during the winter period. This would allow the mining areas with lower relative rock fall risk to be mined during the period of May through September.

Under this scenario, the slot area at the south of Pit E would be mined during winter, before mining the more central Pit E3 area where the current pit lake is located. The combination of winter mining and active monitoring using radar could be effective in managing risk during mining of the slot. In addition to the benefit that winter mining will provide for stability of the final slopes for the slot, the stability of geotechnical hazards that have been identified along the west ramp haul would also be improved during this period.

Once winter mining of the slot is complete, then this area could be retreated from, and mining of the lower risk central area of Pit E3 would be completed during spring and summer of Q3 2019. During this period, there may be an increased risk associated with the geotechnical hazards identified along the west ramp haul. AEM could consider moving the radar from its current location at the crest of the west wall to a new location at the crest of the east wall. Since the southeast wall is currently monitored by an ADAS which includes piezometer, thermistor, TDR, and inclinometer monitoring combined with a GCMP and appropriate trigger levels, risk associated with the wall is being effectively managed. Consequently, the radar could be moved to the east pit crest to monitor the south through southwest walls of the pit, as well as the west wall above the ramp area. This would provide additional risk management to the west ramp haul during final mining of the pit and hauling along the west wall ramp.

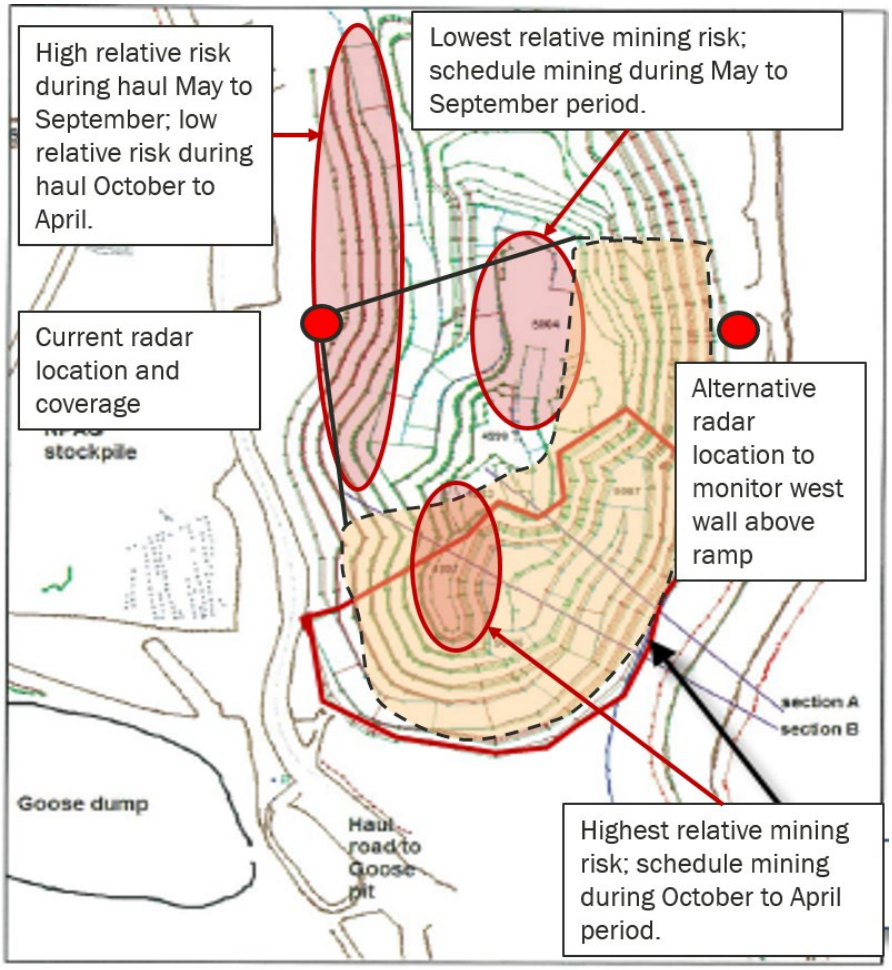


Figure 6-2: Possible mining sequence to complete Plt E3/E5 mining

AEM are committed to the use of radar in the most critical areas for monitoring and managing risk as part of their overall risk management strategy and ground control management plan. It is understood that mine planning is somewhat fluid, and that areas to be mined are often based on short range planning in response to changing conditions. Therefore, the decision for relocation or placement of the radar for monitoring of critical areas should be based on site requirements at the time, and the direction of the Meadowbank geotechnical team.

7.0 GOOSE PIT INSPECTION

Mining of the Goose Pit to a final floor elevation of 4997 mRL was completed in 2015. End dumping of waste rock to the northwest corner of the pit near the access ramp entry point (North Dump) was carried out in 2016, finishing in June of that year. Dumping recommenced in 2017 creating a second but contiguous dump south of the first (South Dump).

On the day of the Goose Pit site inspection (September 9 2018), the elevation of the pit lake was approximately 5070 mRL. The inspection of the Goose Pit comprised a series of stops around the crest of the pit for an overview of the current conditions. The pit is closed, but light vehicle access can be gained by the ramp on a small road crossing the south dump. Slope monitoring instrumentation is installed along the east crest of the pit, in the in-field between the pit crest and the Bay Goose Dike toe. In addition to the observations made during the site visit, the data from thermistors, TDR cables, and piezometers were reviewed.

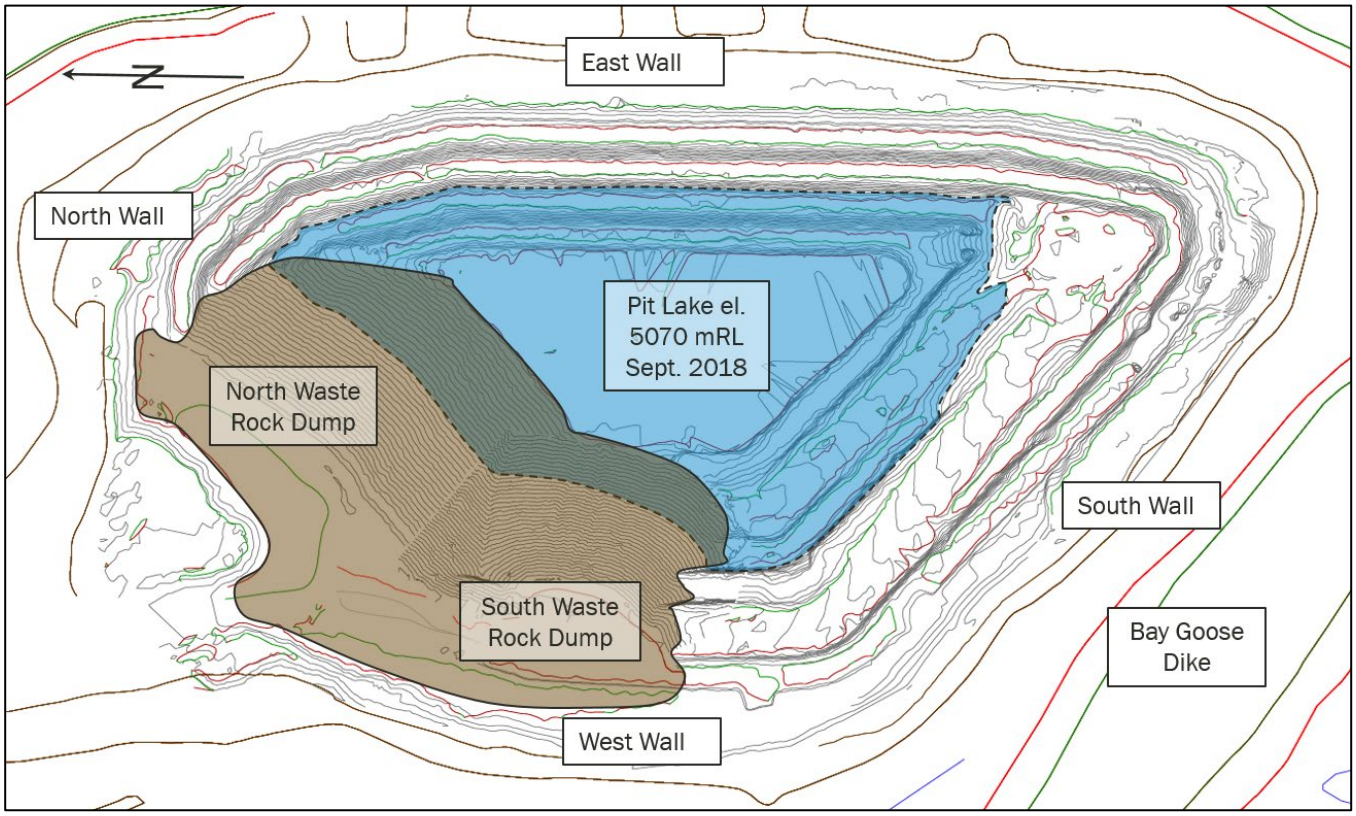


Figure 7-1: Goose Pit general configuration, September 2018

7.1 Goose Pit East Wall

The east wall of the Goose Pit is predominantly intermediate volcanic rock and iron formation. The stratigraphy is inclined steeply at a consistent angle to the west. Steep bench faces were achieved with the use of careful pre-shear blasting. There has been very little loss of catchment, and very little accumulation of material on the benches.

The following photograph shows the east pit wall looking north.

Photograph 7-1: Goose Pit east wall looking north (2018)

The east wall continues to perform satisfactorily and there are no immediate geotechnical concerns.

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- Continue collecting and reviewing data from instrumentation.

7.1.1 Goose Pit Instrumentation

As part of the site inspection, the instrumentation data from Time Domain Reflectometry (TDR) cables, thermistors, and piezometers installed in the east pit wall were reviewed. AEM have added functionality to the instrumentation system through the addition of GeoExplorer software for easier access and visualization of data. A gap in the

piezometer data from March 2018 to May 2018 reflects removal of the data logger for use elsewhere. This is acceptable as there has been no indication of any instability of the east wall since monitoring began in 2013.

A location plan for the instrumentation is shown in the following figure, and the data are presented in Appendix B.

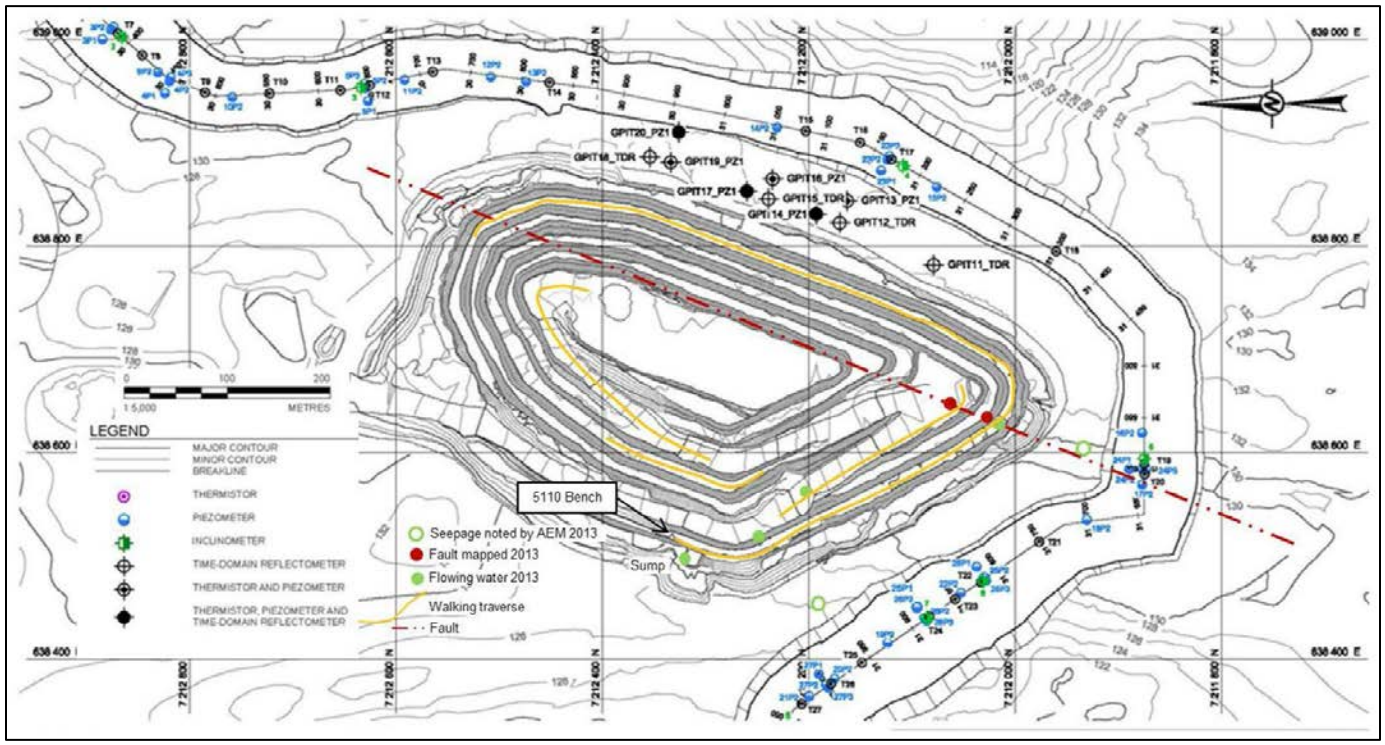


Figure 7-2: Goose Pit instrumentation plan

7.1.1.1 TDR Cables

Seven TDR cables were installed in geotechnical boreholes drilled behind the east wall of the Goose pit in 2013 to monitor slope movement. A review of the data indicates no shear displacements.

7.1.1.2 Thermistors

Thermistors were installed in 6 geotechnical boreholes drilled behind the east wall in 2013. A review of the data indicates no significant change from 2015. The data indicate generally steady-state conditions. Data from GPIT-14 continues to show a cooling trend between approximately 5090 and 5000 mRL. This trend was first visible in the August 2014 data, and has been consistent in 2015, 2016, 2017, and 2018.

The thermistor data were reviewed to observe if any significant warming trends could be noted resulting from the increase in the pit lake elevation. Despite the current pit lake elevation of 5070 there does not appear to be any change in the ground thermal regime in the east wall as a result of this, based on the thermistor data.

7.1.1.3 Piezometers

Piezometers were installed in 6 geotechnical boreholes drilled behind the east wall in 2013. A review of the piezometer data comparing 2017 with 2018 has included a review of the ground temperature at each piezometer tip. While there are some fluctuations in pressure head for certain piezometer tips from year-to-year, many of the

tips are at 0 degrees C or slightly below. Consequently, the reliability of these pressure readings is questionable. It should be recognized that unfrozen water can exist at sub-zero temperatures due to freezing point depression (from water salinity and overburden pressures), however this possibility cannot be evaluated further with the existing data. The review of the temperature data showed reasonable year-to-year consistency; temperatures in GPIT-17 show a slight cooling trend.

Brief descriptions of observations made for each installation are provided below:

GPIT-13 shows no significant change in pressure head from 2017 to 2018. PZ-3, -4, and -5 show relatively constant temperatures. PZ-2 shows a decreasing temperature trend, and is approaching 0 degrees C. With the exception of PZ-1, all piezometer tips show temperatures above 0 degrees C.

GPIT-14 PZ-4 continues to record erratic pressure heads. During 2016, the piezometer recorded a constant decrease in pressure, while in 2017 the piezometer showed a constant increase in pressure. This trend has continued through 2018, from approximately 4085 m in January 2017 to approximately 5003 m in August 2018. The temperature of the PZ-4 tip is slightly above 0 degrees C. It is likely this piezometer tip is damaged. There is no significant change in ground temperatures at the piezometer tips. PZ-4 and PZ-5 show positive temperatures, while the remainder are negative so the reliability of pressure data is questionable.

GPIT-16 shows a sudden but small drop in pressure head for PZ-1, PZ-2, and PZ-3 mid-way through July 2018. The drop is about 0.5 m, and is not considered significant. The ground temperature for these piezometer tips is negative (less than 0 degrees C); consequently, the data may not be reliable. The remaining piezometer tips (PZ-7, -8, and -9) record positive ground temperature, and no fluctuation in pressure head.

GPIT-17, tip PZ-5C continues to show an increase in pressure head from 2017 to 2018 of 22 m to 5048 mRL. Since all piezometer tips are at negative temperatures the reliability of the pressure data for the installation is questionable.

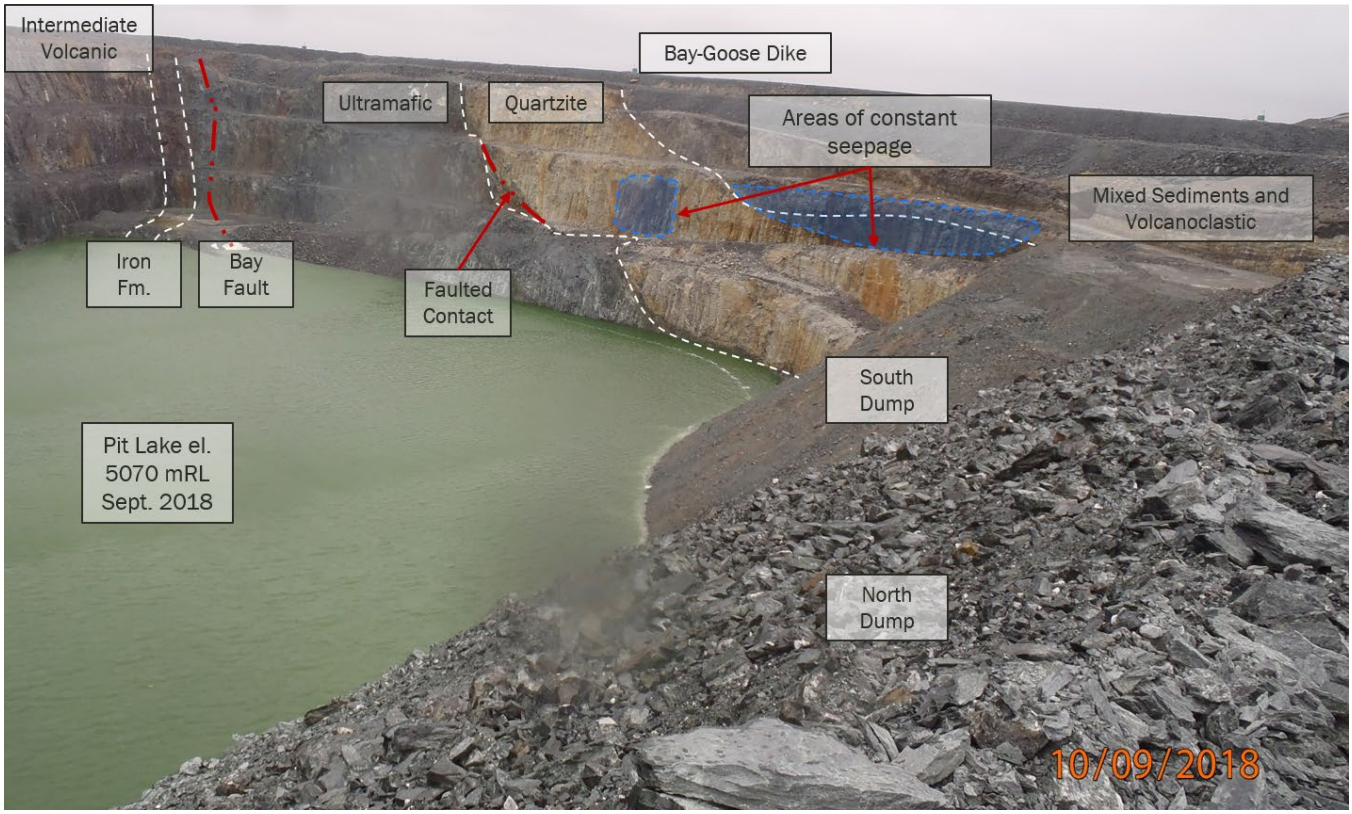
GT-19 shows no notable change in pressure head, or in ground temperatures from 2017. Except for PZ-5, all piezometer tips show negative temperatures and so the reliability of the data is questionable.

GT-20 shows relatively constant pressure head for 3 of the 5 installed piezometer tips. PZ-3C and PZ-4C show and increase of about 8 m pressure between 2017 and 2018. There is no notable change in ground temperature at the tips. Since all piezometer tips are at negative temperatures the reliability of the pressure data is questionable.

7.2 Goose Pit South Wall

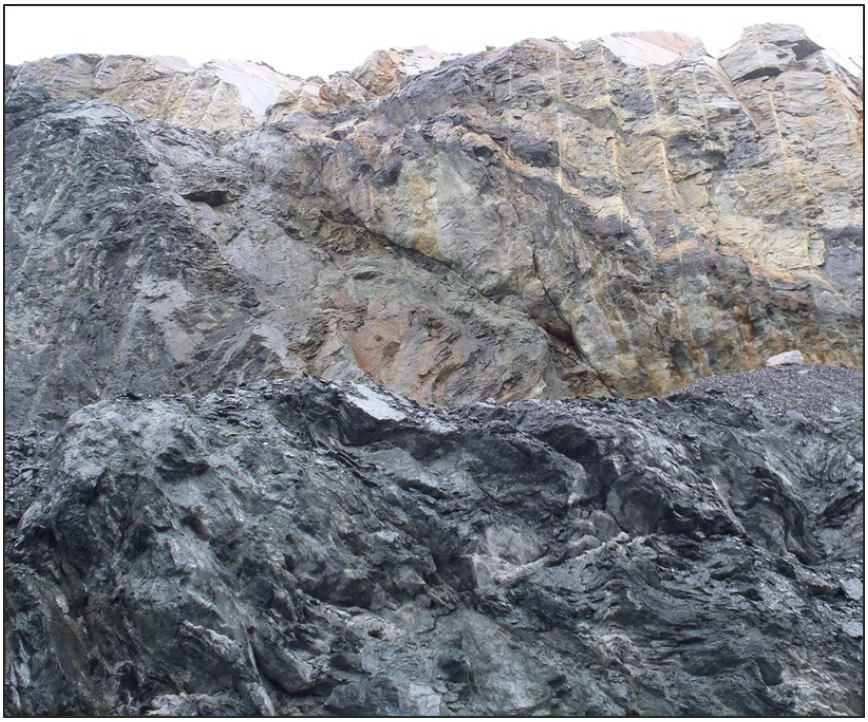
The south wall of the Goose pit comprises iron formation and intermediate volcanic rock in the east, transitioning through a sequence of iron formation, ultramafic rock, quartzite, and mixed volcaniclastic sediments in the west. The most prominent structural feature is the Bay Fault which intersects the south wall of the pit, within the ultramafic rock. The various lithological units are shown in the following photograph. Two areas of constant seepage within the quartzite, and along the contact of the quartzite and overlying mixed sediments and volcaniclastic rocks, continue to flow, and have done so since the start of mining. There is no additional accumulations of material on the benches since 2015 were observed. The performance of the overall south wall continues to be satisfactory.

During the 2018 inspection, a fault was identified at the contact between the ultramafic and quartzite, and it was noted that the fault gouge associated with the fault was being eroded, resulting in a widening gap.



Photograph 7-2: Goose Pit south wall (2018)

Photograph 7-3: Erosion of faulted contact Goose Pit south wall (2018)



Photograph 7-4: Erosion of material along faulted contact Goose Pit south wall (2018)

While the risk of failure is very low due to the oblique orientation of the fault to the slope face, the potential does exist especially if erosion of the fault material continues. If the Goose Pit remains closed then the consequences of a possible bench scale instability are negligible; however, if the ramp is reactivated for use during tailings deposition, then this should be assessed further. If necessary a buttress could be placed, or the ramp could be bermed off below the fault.

The following actions are recommended:

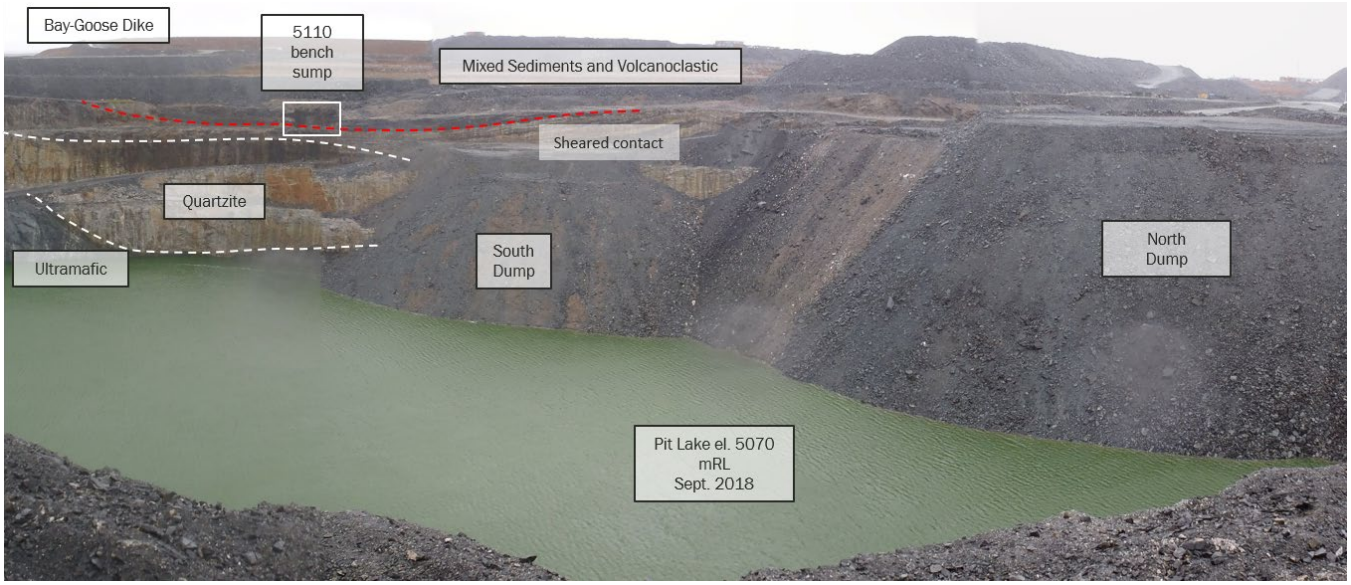
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- If pit ramp is reactivated, the area below the faulted contact between quartzite and ultramafic rock should be assessed further, and if necessary buttressed or bermed off below the fault. This area should be indicated on a geotechnical hazard map.
- Include the faulted contact between the quartzite and ultramafic rock in the risk register developed as part of the assessment to store tailings in Goose Pit.

7.3 Goose Pit West Wall

Much of the west wall of the pit is now covered and buttressed by a waste rock dump (South Dump) which conceals or partially conceals many of the instabilities noted during previous inspections.

The upper west wall of the Goose Pit is comprised of mixed sedimentary and volcaniclastic rocks, overlying quartzite. Poor quality ultramafic rock is exposed in the lower west wall. The stratigraphic contacts dip at moderate angles into the pit wall to the west. The ultramafic rock is characterized by relatively closely spaced sheared joints or foliation, dipping at steep angles to the east. Localized failures occur where these are undercut by bench face angles. The quality of the ultramafic rock degrades over time with exposure to air and water.

There are no observable changes to the hydrogeological regime. The volcaniclastic and quartzite rock immediately below the sheared contact remains saturated, and water continues to seep from the face above the ramp, as well as from the bench faces below the ramp.



Photograph 7-5: Goose Pit west wall (2018)

There are no significant geotechnical concerns observed with the performance of the west pit wall of the Goose Pit, and no evidence of large scale (overall slope) instability was noted.

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

7.3.1 Goose Pit Waste Rock Dumps

Waste rock dumping into the Goose Pit stopped in July of 2016 at the North Dump, and recommenced in 2017 with dumping at the South Dump. Dumping from the South Dump stopped in September 2017, and currently, there is no active dumping at Goose Pit. A line of candles establishes a no-entry boundary to the dump platforms. The toe of the dumps extends out into the Goose Pit Lake.

Tension cracks on the North Dump platform were first noted during the 2015 inspection, and these have been monitored regularly since. During the 2017 inspection, tension cracks were also noted on the South Dump platform. During the 2018 inspection additional shallow slumping of the South Dump face was noted, along with significant crest sag. AEM has been monitoring by observation as part of the regular geotechnical inspections. AEM monitoring the dump platform previously using simple wireline extensometers installed across the tension cracks, and established a set of procedures to implement based on relative movement magnitude.

Photograph 7-6: Goose Pit waste rock dumps (2018)

Prior to commencing of active dumping a dump inspection should be carried out, and an action plan developed that might include frequent inspections of the crest area, and the installation of additional instrumentation as required.

Photograph 7-7: Tension cracks at crest of Goose South Dump

Photograph 7-8: Tension cracks at crest of Goose North Dump

The following actions are recommended:

- If the dump or the pit are to be reactivated, carry out a dump inspection and develop an action plan for inspections and monitoring. Install wireline extensometers to measure future movement. Continue to limit access to the dump platform areas.
- Mark the position and extents of the existing tension cracks on a dump plan for on-going monitoring purposes.
- Measure the vertical displacement across the tension cracks as a record of settlement.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

7.4 Goose Pit Northwest through Northeast Walls (North End-Wall)

The northwest through northeast (north end-wall) walls of the Goose Pit exposes the stratigraphic sequence of the deposit, from ultramafic rock in the west, through iron formation, and then intermediate volcanic in the east. The stratigraphy and major structural features (faults and dominant foliation) strike approximately perpendicular to the wall. The wall also exposes the Bay Fault, and associated splays.

Photograph 7-9: Goose Pit northwest through northeast wall (north end wall 2018)

During the site inspection, it was noted that water was being discharged on to the ring road and thermal cap at the north pit crest, and flowing through the rockfill before spilling on to the rock face. Water was also flowing along the ring road to spill over the edge of the pit. The water was being pumped from a sump at the crest of Pit E. It is understood this was only a temporary discharge; however this could still affect the integrity of the ring road and should be avoided. Any water discharge should be directed on to the pit wall face, and not through the rockfill materials at the crest. During the site visit this process was stopped. The location of the water release is shown on the following figure.

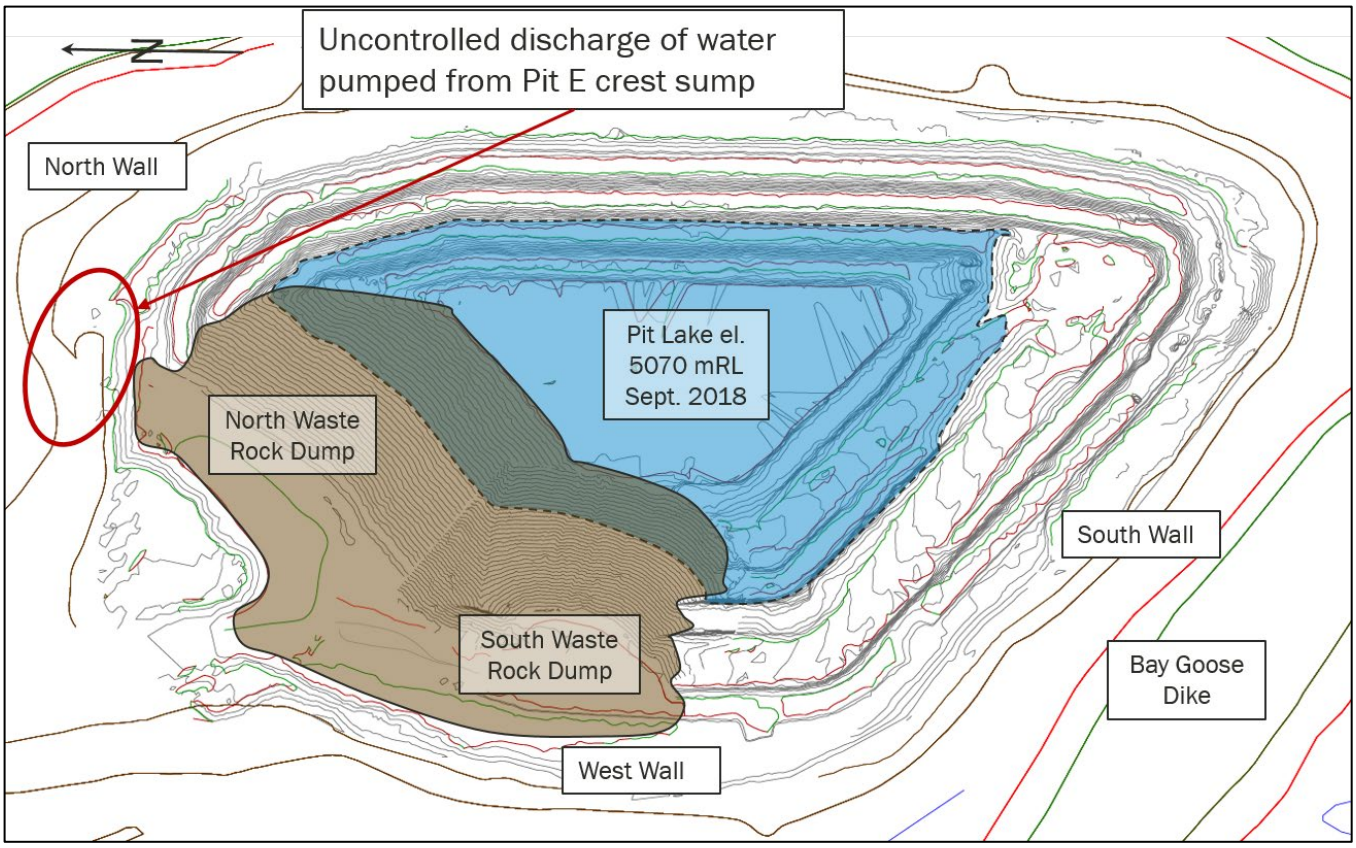
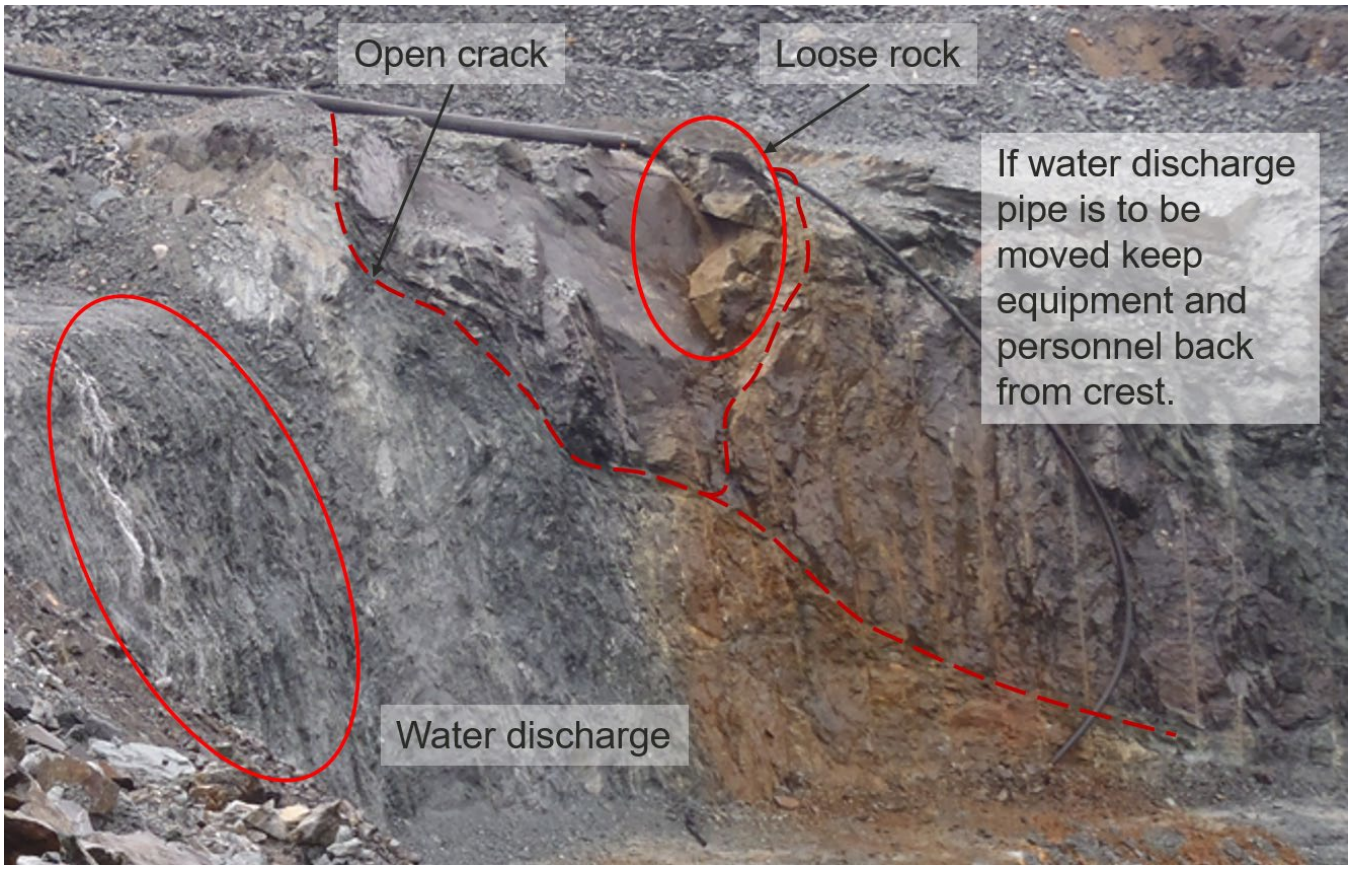


Figure 7-3: Location of uncontrolled water discharge at north pit crest of Goose Pit

Photograph 7-10: Goose Pit uncontrolled water discharge along north crest

Photograph 7-11: Goose Pit uncontrolled water discharge on north pit wall

During the review of this area it was also noted that an existing water discharge line to the east is situated on some loose rock material at the pit crest. This was noted to AEM so that if and when this water line is moved, care be taken to keep equipment and personnel back from the crest in this area.



Photograph 7-12: Unstable rock beneath water discharge pipe at north end of Goose Pit

The following actions are recommended:

- Do not allow uncontrolled discharge of water through fill materials at crest as this may cause unnecessary erosion of the fill materials. Direct water discharges over side on to rock face.
- When moving water discharge line at north end, do not place equipment or personnel near the crest due to potential geotechnical hazard (wedge) in rock bench below.

8.0 VAULT PIT INSPECTION

Although good access to all areas of the pit was possible during the site visit, the visibility at the Vault Pit on the day of the inspection was fair, with low cloud, and rain.

8.1 General Observations

The slope design criteria currently implemented at the Vault Pit are consistent with the design criteria recommended in the slope optimization study (Golder, 2013b). Catch benches were initially excavated to 10.5 m which is slightly wider than recommended by Golder (2013b) resulting in slightly shallower inter-ramp and overall slope angles than presented for design. This width has now been reduced to the originally recommended design width of 10.0m based on the good performance of the highwall slopes (mine grid north, south, and east walls) and this is considered appropriate based on the review of slope performance.

The pit walls of the Vault Pit continue to perform well. Pre-shearing of the final bench faces has been effective at reducing wall damage and break back of crest areas. One area of concern remains at the southeast wall where an ice wall forms annually. This area presents the greatest concern during spring freshet when the ice begins to thaw. It us understood that mining of Vault Pit is planned to be complete in January 2019, and so the next freshet period will be avoided.

Mining of the north end of the Vault Pit has been completed, and it is currently being backfilled with waste rock. At the time of the site visit the waste rock platform in the north end of the pit was at approximately 5080 mRL. The pit bottom at the south end was at approximately 4976 mRL. Pit water is managed with small sumps.

Figure 8-1 shows the extents of the Vault Pit at the time of the site visit.

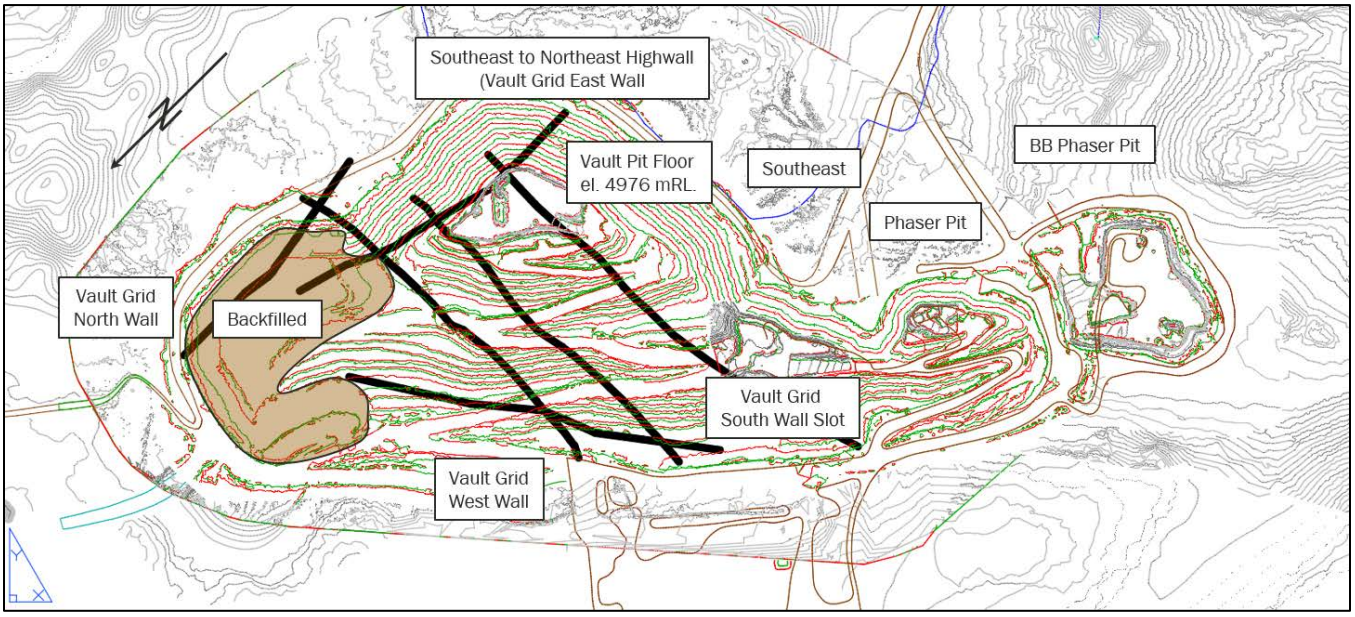


Figure 8-1: Vault Pit at time of 2018 inspection

8.1.1 Water Inflows and Seepage

The locations for water inflows and seepage noted during the 2018 inspection remain the same as for previous inspections. Two of the three main areas of the pit where water inflow or seepage have been noted during previous site visits were either dry at the time of the site visit, or were covered by waste rock backfilling of the pit. These are the west wall seepage area (dry during the 2018 site visit), and the north transition wall seepage, which has been covered by backfilling of the north end of the pit. The southeast wall seepage continues to produce water.

These are shown on the figure below and discussed in relevant sections. These are generally related to the release of water stored in the talik beneath the former lakes.

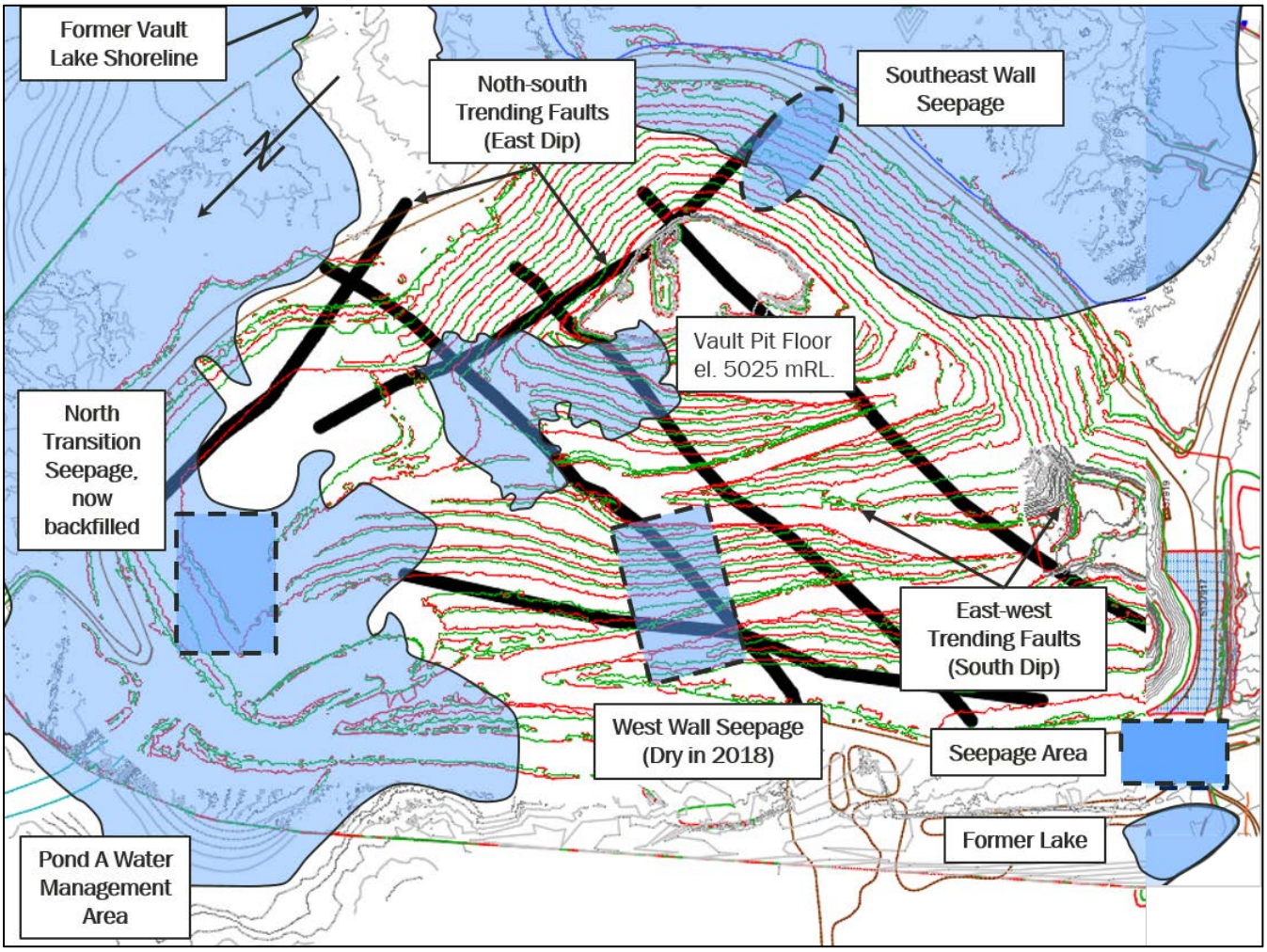


Figure 8-2: Vault Pit water inflow and seepage (2018)

8.2 Footwall Slope (Vault Grid West Wall)

The west wall (grid west) of the Vault is mined as a series of single-benches (7m high) to create a footwall slope. The deposit dips at relatively shallow angles to the east (grid east), parallel to the foliation and stratigraphy. The average inclination is 22 degrees, but ranges from as shallow as 10 degrees to as steep as 40 degrees. Bench faces are not pre-sheared but are bulk blasted at steep angles, and generally break back, or are scaled back, to the orientation of the foliation. Consequently, there are some benches with considerable loss of catchment as was anticipated during the design process. To account for the expected performance, the bench design heights were restricted to single-height to minimize failure volumes. Since the inter-ramp slope angle is shallow at 33 degrees, the likelihood of larger scale multiple bench or overall slope failures of significant volume is low.

Photograph 8-1: Vault Pit west wall looking north (2018)

Photograph 8-2: Vault Pit west wall looking south (2018) showing dump advance

There are no significant geotechnical concerns noted, and no evidence of large scale (overall slope) instability for the footwall slope.

- Continue to clean benches as mining deepens the pit.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

8.2.1 Footwall (West Wall) Seepage Area

An area of seepage centrally located along the west wall appeared dry at the time of the 2018 site visit. The pit below this area has been deepened by approximately 7 single benches since 2017. Routine maintenance of the drainage ditch should continue, and monitoring of this area as part of regular geotechnical inspections should continue.

Photograph 8-3: Vault Pit west wall seepage (dry in 2018)

The following actions are recommended:

- Maintain drainage ditch along inside of ramp.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

8.3 Southwest Wall (Vault Grid South Wall)

The southwest wall (grid south) intersects the stratigraphy and foliation perpendicular to their trend. The gently east dipping structure can be seen clearly in the wall. The overall wall continues to perform well, with little accumulation of material noted on the benches. The half barrel traces from pre-shear blasting are clearly visible on the wall, even from a distance. There is very little deviation noted for the blast holes.

Photograph 8-4: Vault Pit grid south wall (2018) and slot cut to Phaser Pit

A small sump is in the southwest corner of the pit and manages water in this area. During the 2017 site visit, two outward dipping planes were noted above the sump area, forming shallow slivers of potentially unstable rock. The planes strike slightly obliquely to the wall orientation, and while they are kinematically free on their north extension, they do not appear to have any additional side release planes required for failure to occur. The area was visited again in 2018, and no observable instability associated with these planes was noted. These should continue to be monitored as recommended previously, including reminding personnel of safe work procedures relating to safe distance from rock faces, and for safety should remain to the pit-side of the equipment container.

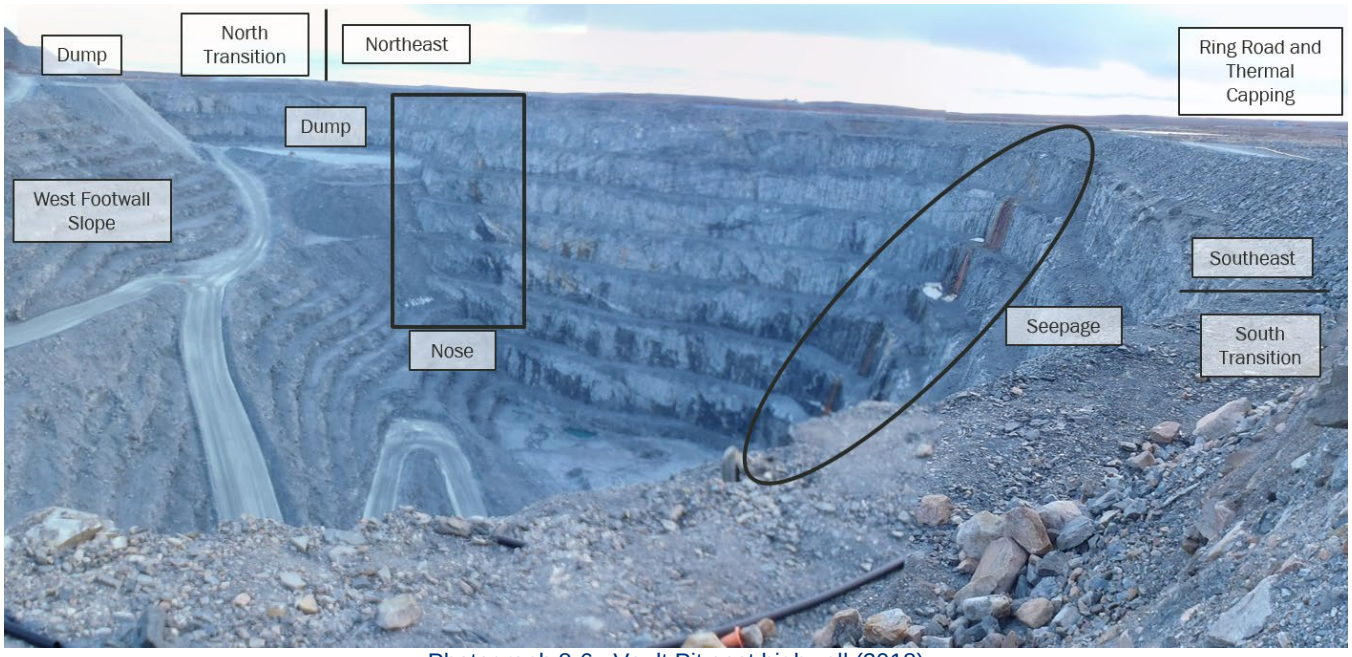
Photograph 8-5: Vault Pit south ramp sump and out dipping planes

The following actions are recommended:

- Communicate the hazards in the sump area to personnel and remain on the pit-side of the equipment container for safety.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

8.4 Southeast to Northeast Highwall (Vault Grid East Wall)

The southeast to northeast highwall (grid east wall) is being mined down to its final height. The catch benches developed for the highwall continue to perform very well. The pit floor has been deepened by approximately two triple-benches, or approximately 42 metres, to an elevation of 4976 mRL. The final benches are being mined using pre-shear blasting methods, and are being excavated to 75-degree bench face angles. Half barrels from the blast holes are clearly visible in the walls and there is very little deviation in the borehole traces.



Photograph 8-6: Vault Pit east highwall (2018)

The benches are cleaned well, and there is no indication of significant raveling and no significant accumulation of material on the benches. There is some over break of bench crests due to blasting but this is not significant. In general, the toe of the thermal capping material is greater than 2 m back from the pit crest.

Photograph 8-7: Vault Pit east highwall bench performance, southeast end looking north (2018)

Photograph 8-8: Vault Pit east wall northeast end looking south (2018)

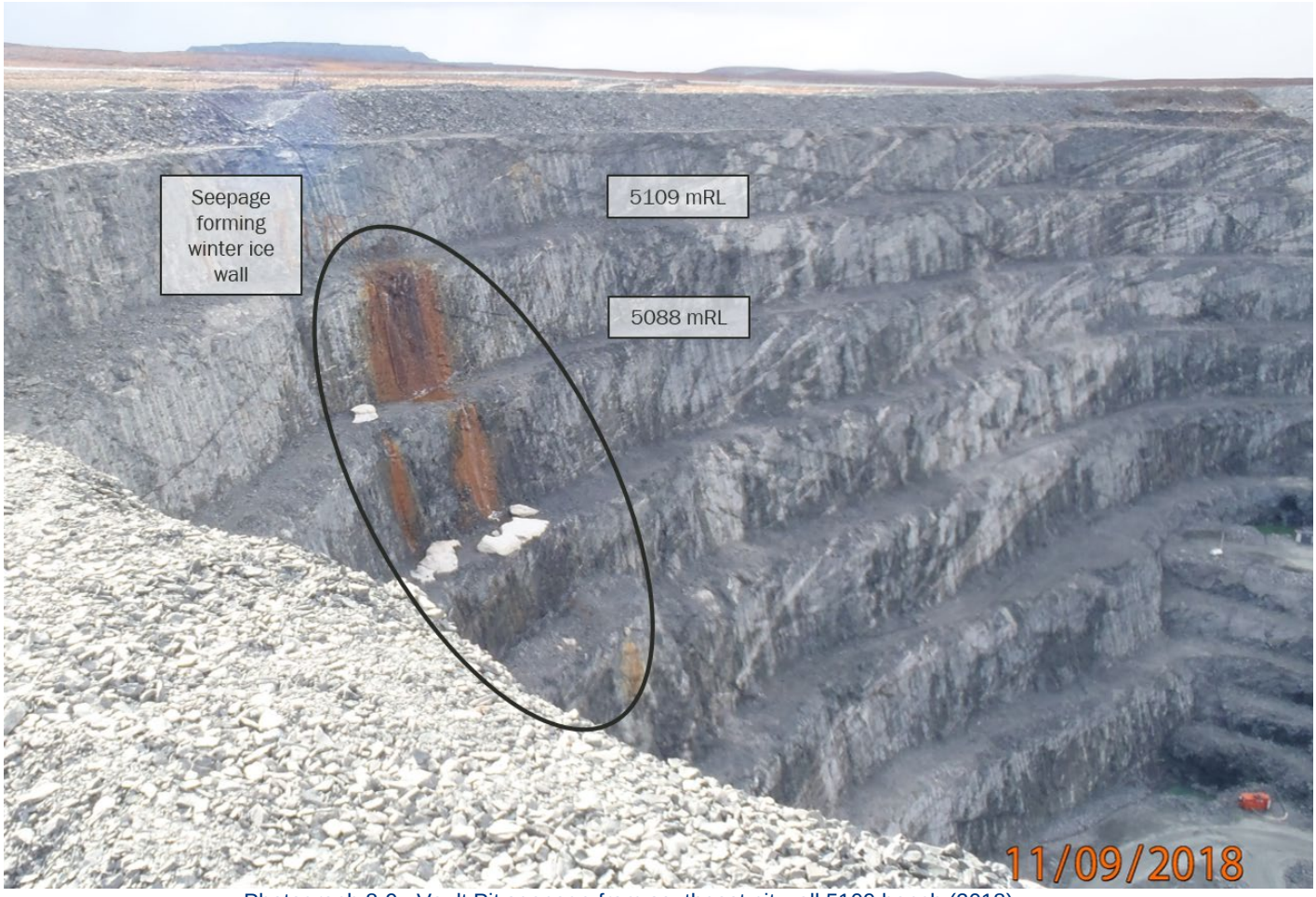
The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

8.4.1 Southeast Wall Seepage

The one area of concern continues to be the south wall where seepage continues to flow from just above the 5109 mRL bench. Thermistor data suggest the area is freezing back but slowly, and there is no significant change to the non-frozen portion of the wall from which seepage flows. The formation of an ice wall can be expected for the remainder of mining in the pit. During winter mining, Agnico carry out bi-weekly inspections of the ice wall, noting any significant changes and communicating this information to operators as part of their standard management procedures. The movement and potential failure of ice is difficult to predict, but the greatest risk associated with mining adjacent to the ice wall occurs during spring freshet when ambient air temperatures are increasing. It is understood that mining of Vault Pit will be complete in January 2019, and so the risk associated with the freshet period will be avoided.

AEM manage the water elevation in Pond D (former Vault Lake) at a low level to assist in lowering water levels behind the wall. Tetra Tech reviewed the Pond D surface survey data in 2017 and compared it to piezometer data from instrumentation at VP-4. No additional data were collected since the 2017 review.



Photograph 8-9: Vault Pit seepage from southeast pit wall 5109 bench (2018)

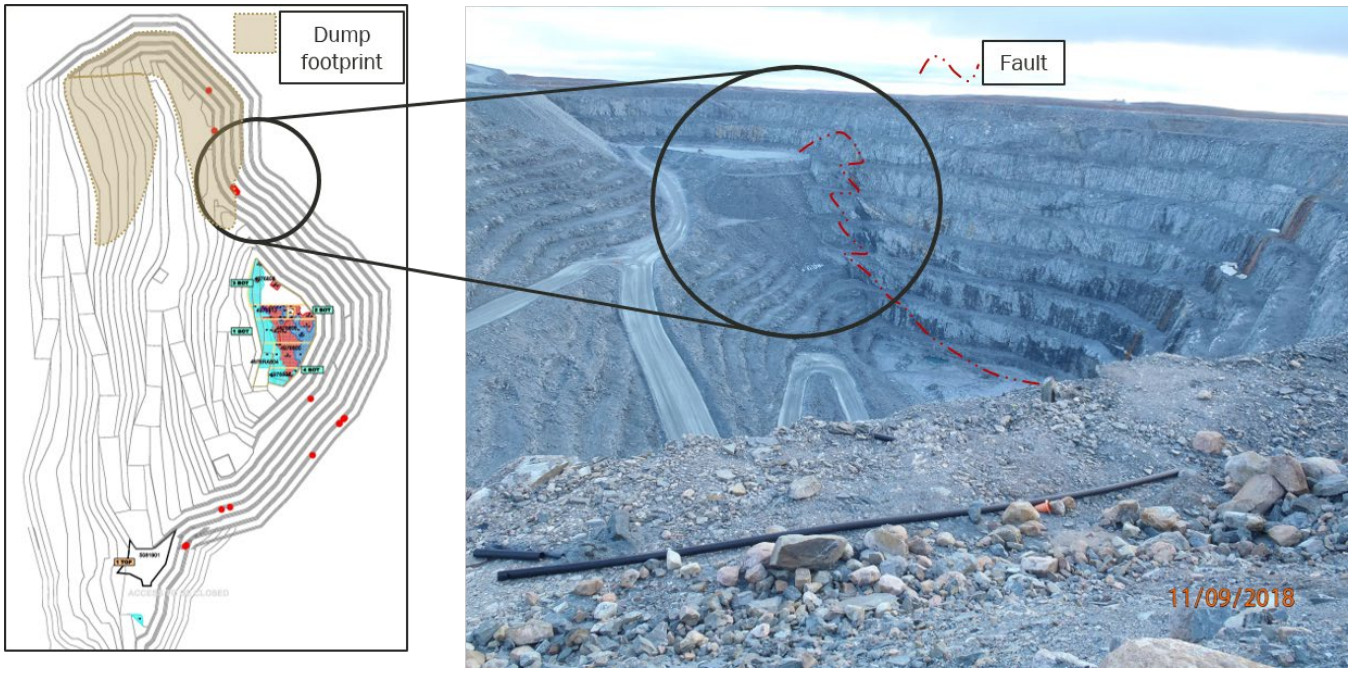
The following actions should continue to be implemented until mining of Vault Pit is finished in January 2019.

- Continue to monitor the piezometer and thermistor data from VP4 to build an understanding of the rate at which freeze back is occurring.
- Continue to manage the level of Vault Lake below the bedrock/till contact elevation to limit flow through the ring road or overburden materials, and to reduce the groundwater levels in the bedrock behind the seepage area.
- Continue to include bi-weekly ice wall inspection procedures and protocols as standard procedure until mining of the pit is completed in January 2019.
- Continue visual monitoring of the inflows on the pit wall as part of regular site geotechnical inspections.
- Monitor potential local raveling of material from the wall during spring freshet.

8.4.2 Highwall Nose Area

A minor change in wall orientation results in the formation of a ‘nose’ in the highwall near the northeast end of the wall. This sector of the wall has been developed within permafrost, and there are no apparent seepage faces on the wall.

A series of widely spaced faults and open continuous joints dip into the nose area at steep angles. This area continued to be monitored during mining, but now is being backfilled as a waste rock dump, effectively buttressing this area and eliminating the risk.



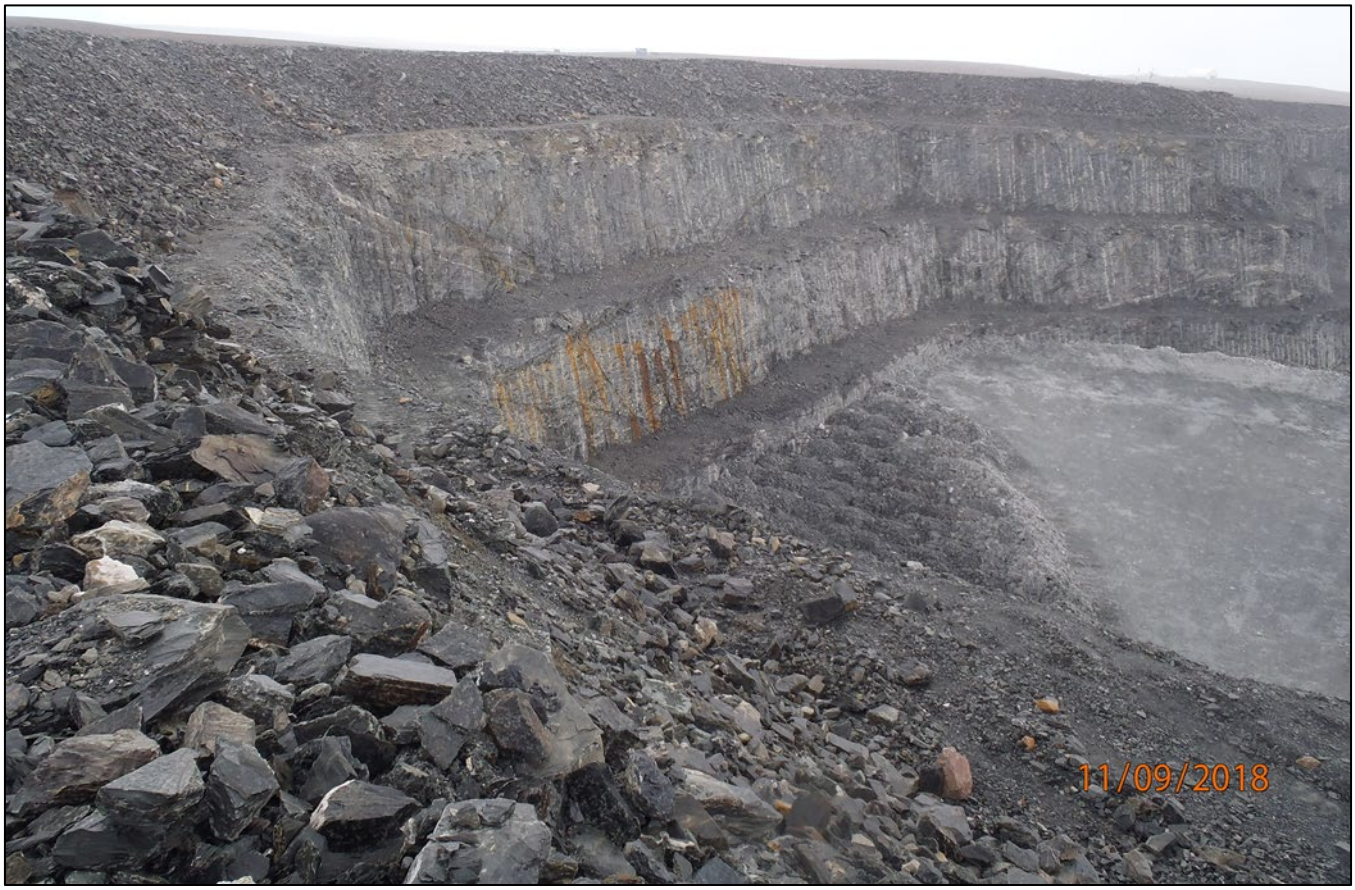
Photograph 8-10: Vault Pit east highwall nose and fault (2018)

The following actions should continue to be implemented.

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections until backfilling with waste rock is complete.

8.4.3 Northeast and North Transition Walls – Vault Dumps

The north through northeast area of the Vault Pit is being backfilled with waste rock material. Waste rock has been backfilled to approximately the 5088 mRL elevation through the north and northeast, and near to ground surface through the northwest. Consequently, many of the geotechnical hazards identified during previous inspections no longer exist.



Photograph 8-11: Vault Pit northeast wall bench performance (2018) and dump platform

Specifically, the following geotechnical hazards have been eliminated:

- A series of shear planes, parallel to stratigraphy, in the lower north transition wall. Overhangs identified in the lower northeast wall.
- A potential bench scale wedge was noted at the north end of the east wall, where it intersects the north wall at a right angle.

Photograph 8-12: Northeast through north transition wall (2018) and dump platforms at 5088 mRL and 5130 mRL

The following actions are recommended:

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

8.5 Vault Instrumentation

Following the 2016 field thermal exploration study, AEM installed piezometer and thermistor instrumentation to monitor the thermal and hydrogeological conditions in specific areas of the Vault Pit. The areas selected were areas where the thermal exploration study indicated talik conditions. The piezometers and thermistors are attached to data loggers, and the loggers are regularly downloaded and reviewed.

In addition to monitoring thermal and hydrogeological conditions in specific areas, AEM installed prisms on the highwall of the pit. The approximate locations for the instrumentation at the Vault Pit at the time of the site visit is shown in Figure 8-6. The available instrumentation data are presented in Appendix C. The prism data have been unreliable, and the monitoring interval is such that any trend in slope movement would not be predictable. The reading of prisms during winter can be difficult due to the ambient atmospheric conditions within the pit, and often prisms will be covered with snow or ice and cannot be read.

8.5.1 Thermistors

The thermistor cables are attached to data loggers, and the data reviewed regularly. VP1 and VP2 are installed in what formerly was a shallow drained bay of Vault Lake. VP1 is currently located adjacent to water management.

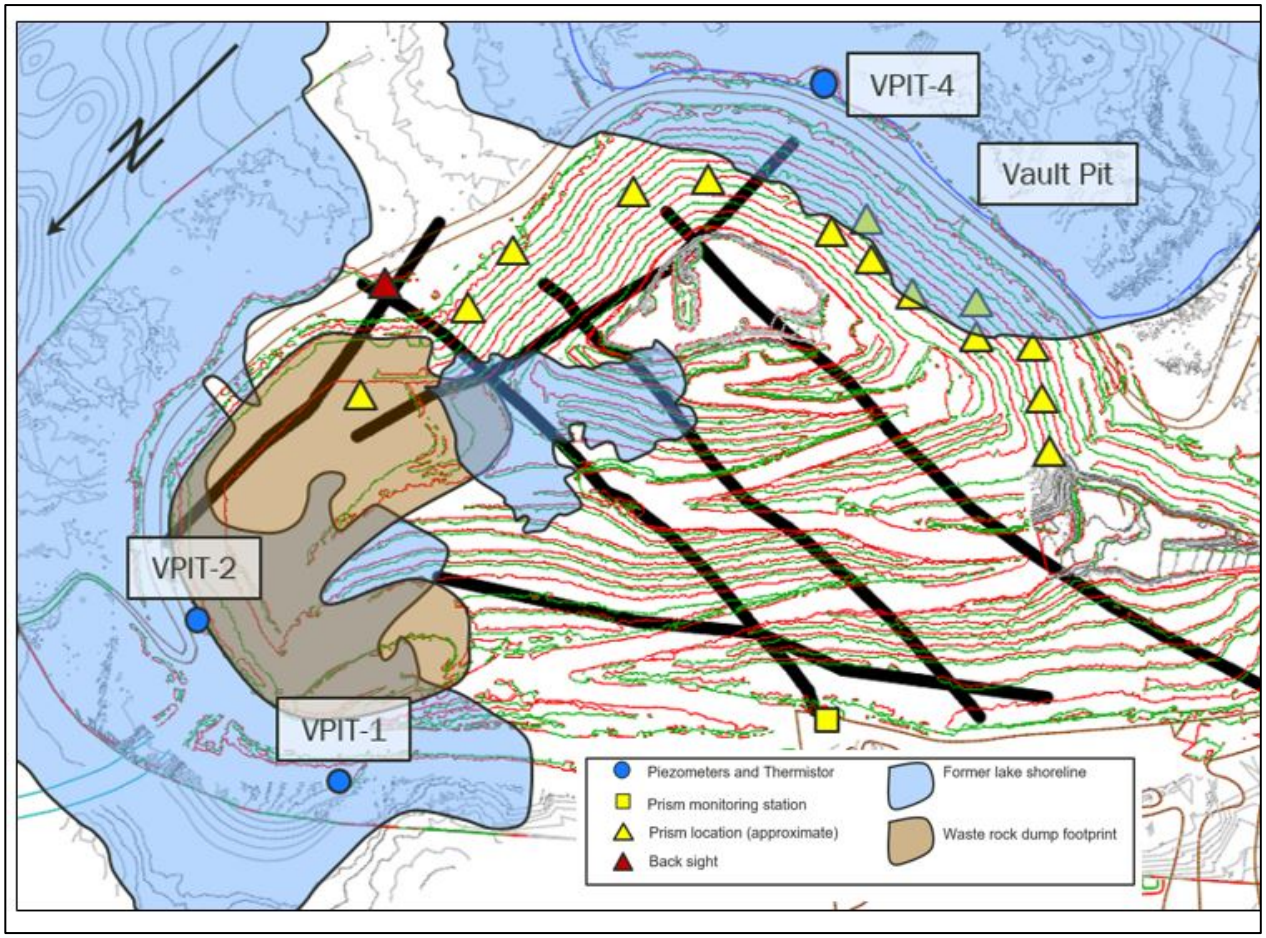


Figure 8-3: Vault Pit instrumentation plan (2018 Vault Plt)

Pond C, and VP2 is adjacent to the north end of the pit. Since the former lake in this bay was shallow, the talik was not well developed and this is seen in the thermal profile of the thermistors.

VP1 continue to show fluctuating ground temperatures, between 0 degrees C and -1 degree C. The location of the depth of zero annual amplitude is not well defined, nor is the active layer depth. There is no noticeable change from 2017.

VP2 shows a typical permafrost 'trumpet' curve. When compared with the 2017 thermal profile, there is a cooling trend developed, and the entire thermal profile is now permafrost. In 2017 the temperature profile indicated sub-zero temperatures down to an elevation of approximately 5105 mRL and between approximately 5105 mRL and 5090 mRL temperatures were at or marginally above 0 degrees C, before trending negative again. The profile for 2018 shows that all of the thermistor beads remain below 0 degrees C indicating the it wall in this area has become permafrost.

VP4 is installed behind the area of the ice wall on the southeast side of the pit. As with VP2, VP3 displays a typical permafrost 'trumpet' curve. The curve shows that the upper portion of the wall, to an elevation of approximately 5109 mRL, is within permafrost. Between 5109 mRL and 5090 mRL, ground temperatures are approximately 1 degree C in the region that seepage is noted from the wall and where the winter ice wall takes form. There is no noticeable change in the thermal profile in VP4 from 2017.

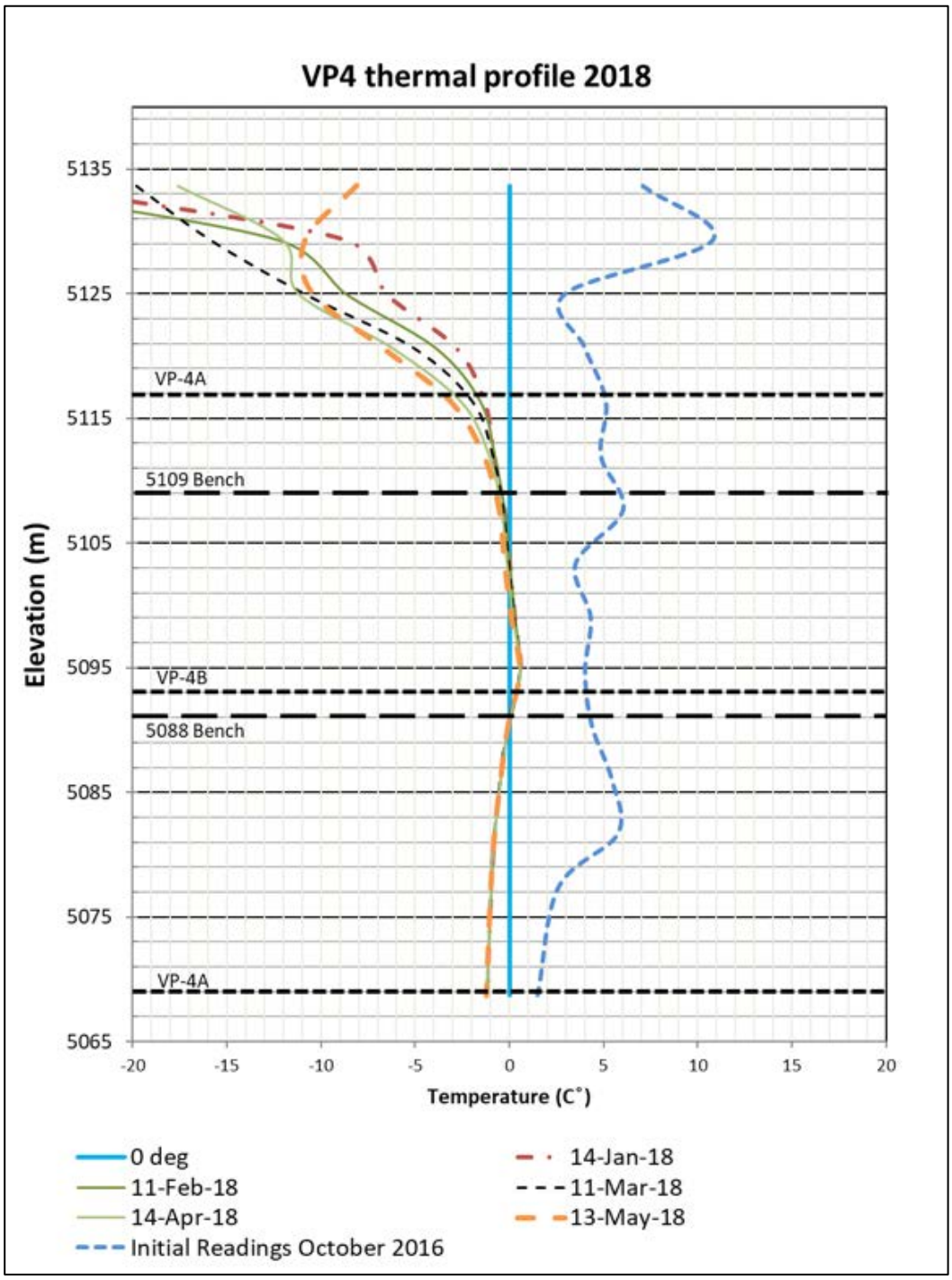


Figure 8-4: Vault Pit VP4 thermal profile

8.5.2 Piezometers

The piezometer data from the three installations was reviewed. Since VP-1 and VP-2 are installed in ground temperatures marginally below 0 degrees C, the data from these may be unreliable, and this is suggested by the piezometric response curves which are erratic in areas. A sudden and unexplained decrease in pressure head of approximately 63 m in VP1-A (deepest) piezometer occurred on September 30 2018, associated with a sudden change in the 'B' readings. This decrease was not noted in VP-1B. Both piezometer tips are installed in ground having temperatures below -1.5 degrees C and the data are unreliable.

VP-2A and VP-2B piezometers are displaying erratic but seemingly cyclical fluctuations in pressure head. However, because the piezometer tips are installed in ground having temperatures below about -1.0 degrees C, these data are also considered unreliable.

The deepest piezometer installed at VP-4 (VP-4A, 5068.7 mRL) is installed in frozen ground, with a ground temperature near -2 degrees C. The data are considered unreliable.

VP-4B (5094.7 mRL) was installed in non-frozen ground, and is at approximately the elevation that seepage is seen in the southeast wall of the pit. There is no significant change in the ground temperature at this depth since 2017, although subtle fluctuations in ground temperature coincide with seasonal changes. This is also true of the piezometric response from VP-4B which shows seasonal fluctuations in pressure, increasing in spring from about 5108 mRL to about 5111 mRL, and decreasing from October to December from approximately 5111 mRL to 5108 mRL again. This suggests both thermistor and piezometer are providing reliable information.

VP-4C (5116.4 mRL) is the shallowest installation, and while initially showing a positive thermal response following installation in 2016, the ground temperature at the piezometer tip continued to fall through 2017 and 2018. This also appears to correspond to increasingly erratic behaviour from the piezometer. The ground temperature at the piezometer tip is currently at about -1.6 degrees C, and the piezometric data are considered unreliable.

8.5.3 Prisms

No additional prisms were installed at Vault since 2017 due to difficulties in collecting data regularly for monitoring purposes.

8.6 Phaser and BB Phaser Pits

The Phaser Pit and BB Phaser Pit are southward extensions of the existing Vault Pit. Initial stripping of Phaser Pit began in September 2017, with stripping at BB Phaser Pit pending. The slope design criteria in use for the development of the Phaser and BB Phaser Pits are based on the current slope design criteria in use for the Vault Pit, and this approach is appropriate as the main kinematic and structural elements governing the slope stability for the pits are the same.

During the 2018 site visit, the Phaser Pit had been excavated to elevation 5088 mRL, and BB Phaser Pit to elevation 5116 mRL. The general layout of the two pits at the time of the site visit is shown in Figure 8-5.

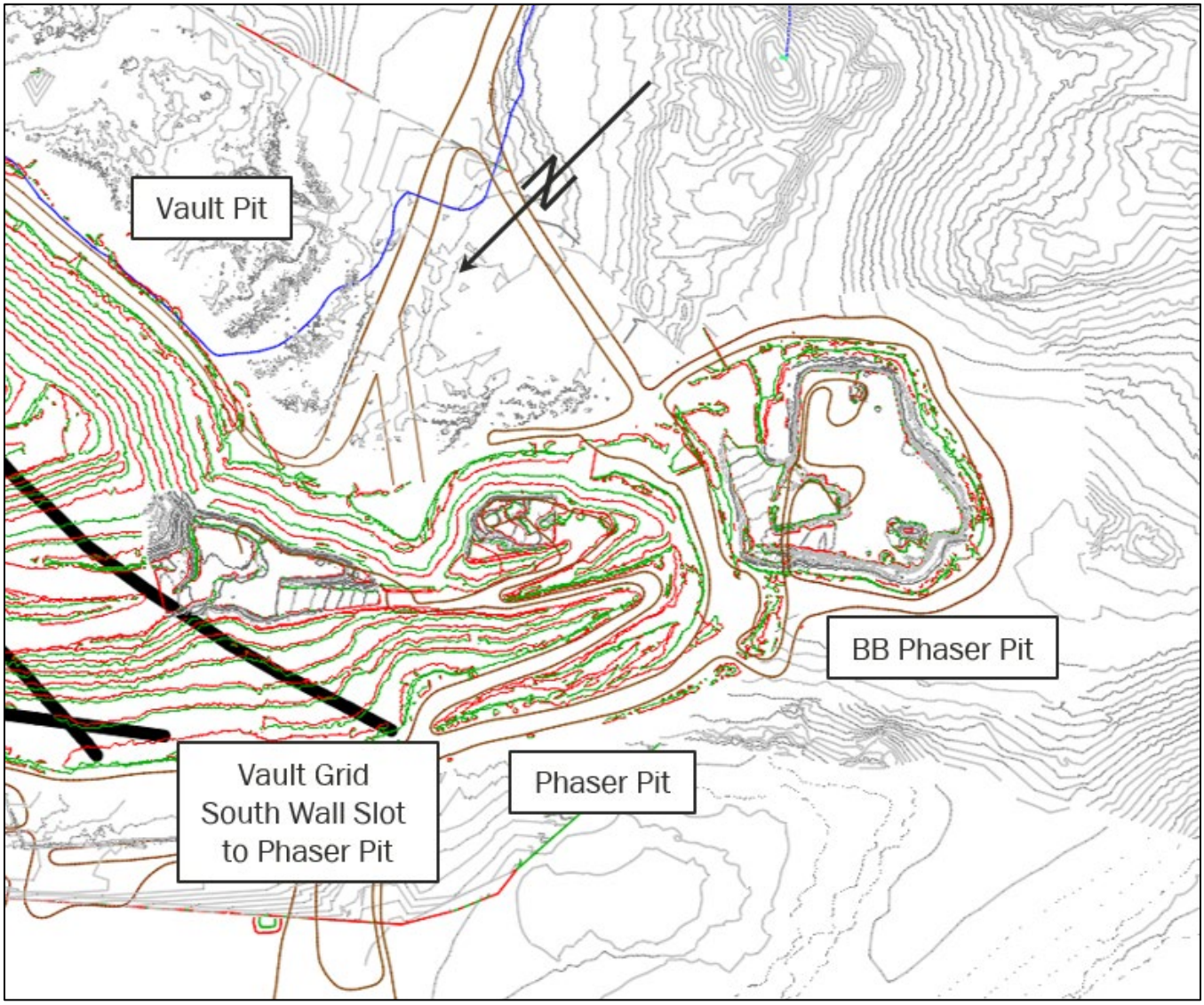


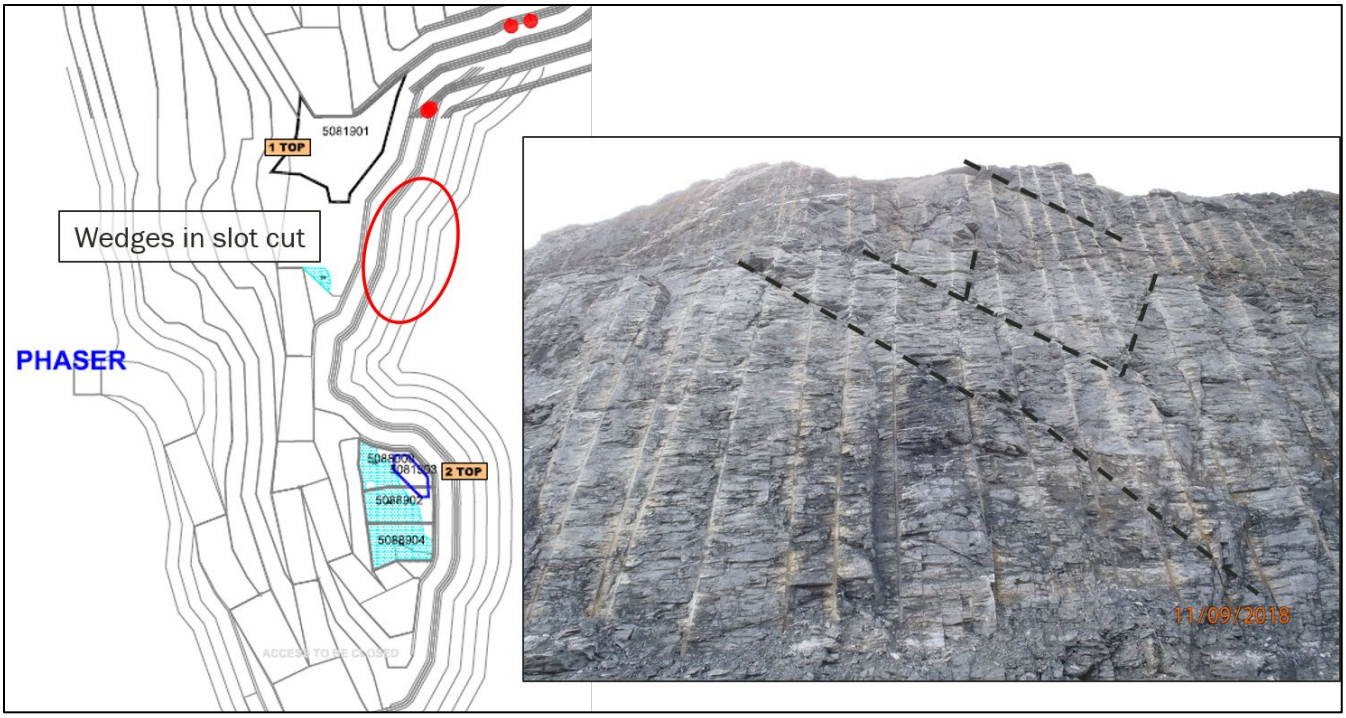
Figure 8-5: Pushback of Vault South Pit Wall to Phaser and BB Phaser Pits

8.6.1 Phaser Pit

The planned depth of the Phaser Pit is 40 to 50 m (2 to 3 benches), not including the overburden at the crest of the pit. The west wall (footwall) of the pit will be in permafrost; a portion of the east wall of the pit may be within talik beneath the former Phaser Lake, which reached a maximum depth of about 3 m. Consequently, the talik beneath the lake is not expected to be significant. Water is being managed appropriately using sumps and pumps. The pit will be mined over a period of approximately 1 year, from Q3 2017 to Q3 2018. Ice build-up on the walls may occur during winter and may result in increased raveling. However, the pit is anticipated to be closed by Q4 of 2018.

The pit is ovoid in shape with three walls: an east-southeast highwall, a south-southwest endwall, and a west-northwest footwall. There is no north-northeast endwall as this is the transition slot cut to the Vault Pit.

The transition slot cut was reviewed during the inspection. The highwall of the cut is performing well with half-barrels from pre-shear blastholes visible. Some wedge-forming jointing was noted in the wall, and this was discussed with AEM. Since this area will subsequently be bermed off, it was recommended that as a temporary measure a row of candles be placed to prevent personnel or equipment from accessing this area.



Photograph 8-13: Wedges in east-southeast bench face of slot cut to Phaser Pit

The east-southeast highwall of the pit was reviewed, and is performing well. Half-barrels from pre-shear blast holes are clearly visible, and show little deviation. The upper bench exposed during the site visit is well cleaned and allowed safe access to assess the bench-scale performance. The excavation practices are appropriately following the design criteria for the Vault Pit, and the performance of the highwall is similar to that of the Vault Pit.

Photograph 8-14: Phaser Pit east-southeast highwall performance (2018)

Photograph 8-15: Phaser Pit west-northwest footwall performance (2018)

The west-northwest footwall slope was also reviewed. The excavation of the footwall slope follows similar design to the Vault Pit footwall slope, and experiences similar performance related issues. These relate predominantly to undercutting of the bedding by steep bench faces, and subsequently slabbing along bedding planes resulting in the accumulation of material on the benches. This manner of performance was expected as part of the design of the benches, and the single bench heights of 7 m is to minimize the volume of material that accumulates.

During the inspection it was noted that the pit was relatively dry as expected, with a small sump managing water inflows.

Photograph 8-16: Phaser Pit sump

8.6.2 BB Phaser Pit

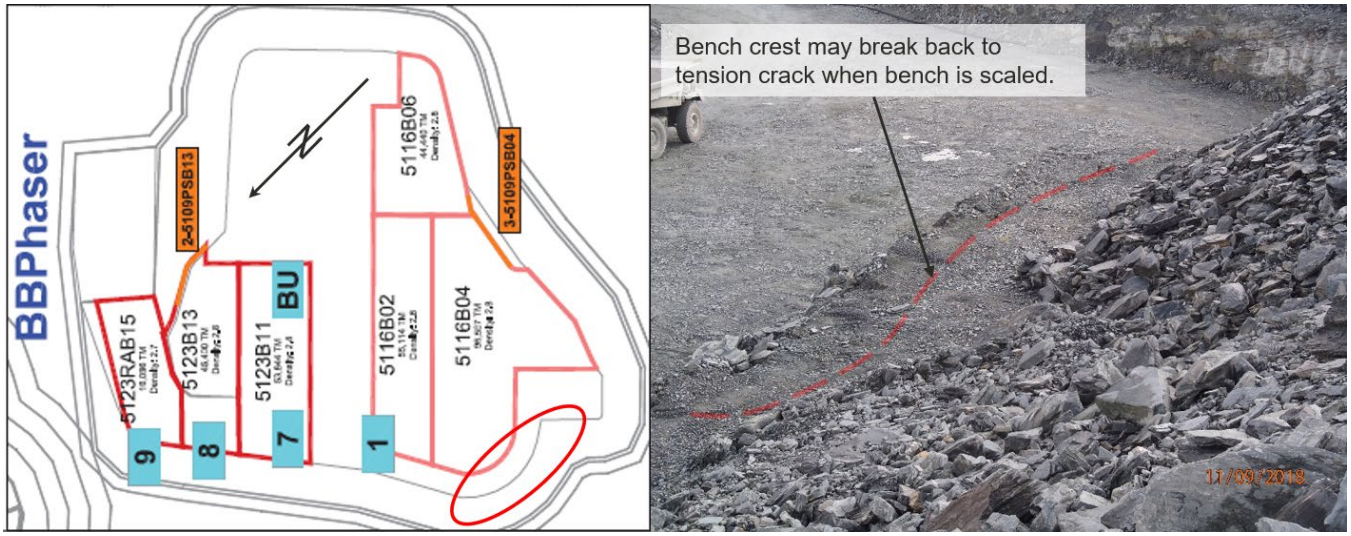
BB Phaser Pit is approximately 40 to 50 m south of the Phaser Pit. The pit is excavated entirely within the lakeshore outline of the dewatered Phaser Lake. Lake bathymetry indicates the depth of the former Phaser Lake to be approximately 1 to 2 m. Consequently, this portion of the lake will have frozen to lake bottom annually, and so the development of a deep talik beneath the lake is not expected. On the day of the 2018 site visit the base of the pit was observed to be dry. A small sump had been excavated at the south corner of the pit, and the water elevation in the sump appeared to be approximately 2 m below grade.

The planned depth of mining of the BB Phaser Pit will be in the range of 30 to 40 m, not including overburden at the crest of the pit. The pit will be mined over a period of approximately 1 year, from Q1 2018 to Q1 2019.

The BB Phaser pit is relatively small, measuring about 250 m along each wall. The pit shape is generally square, consisting of an east-southeast highwall, a south-southwest endwall, a west-northwest footwall and a north-northeast endwall.

It should be noted that at the time of the site visit the pit walls available for inspection had not been scaled. Consequently, it was difficult to effectively assess the quality of blasting and adherence to pit slope design criteria. In addition to this, only one bench had been excavated, and the quality of wall performance that was observed may reflect the effects of near-surface weathering.

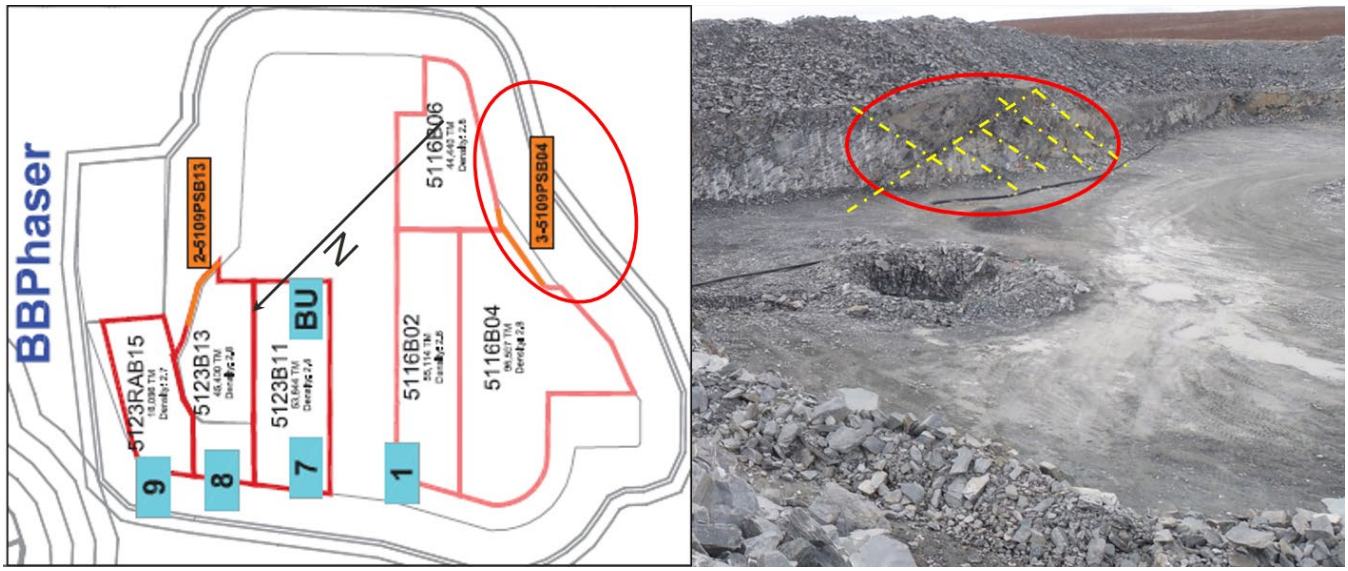
It was noted that in many areas the set back of the thermal cap toe from the crest of the pit was narrow, and less than adequate in some areas that had not yet been scaled. Furthermore, it appeared that the thermal cap was placed predominantly during winter, without proper snow and ice removal before placement. This has resulted in substantial thaw settlement and differential displacement of the thermal capping material and the development of hummocky ground, sinkholes, and tension cracks. The presence of voids may allow for water infiltration into the thermal cap, which could result in erosion. The lack of sufficient catchment at the toe of thermal cap, and above the pit, may result in spill over on to the ramp and benches.



Photograph 8-17: Tension crack at crest of first bench below thermal capping toe

Photograph 8-18: Thermal cap showing hummocky ground, differential settlement, and voids

An area of the south and west wall of the pit was noted to display significant blast damage to the rock. This blast damage, combined with local faulting and continuous open jointing, has resulted in a rock mass that may be difficult to effectively scale. Over excavation during scaling could result in undercutting of the thermal cap. Consequently, it may be more effective to leave this specific area unscaled to avoid over digging of the rock mass and undercutting of the overlying materials. An alternative might be to construct a low buttress against the face if the current platform elevation is the final platform for this area. This was discussed with AEM during the site visit, and it was recommended that as a minimum, candles should be placed to restrict entry to the area until appropriately cleaned.



Photograph 8-19: BB Phaser Pit south wall blast damaged rock

The south through east highwall of the BB Phaser Pit was inspected. This area of the pit has responded well to pre-shear blasting with half-barrels visible in the wall, and good wall performance.

Photograph 8-20: BB Phaser Pit south through east highwall showing good performance

The east through north highwall of the BB Phaser pit was inspected. The wall had not been cleaned (scaled) yet, and showed only a moderate response to pre-shear blasting. Although many half-barrels were visible, many incomplete blastholes were noted to be confined behind unblasted material. The rock along this wall is breaking to a near-vertical orthogonal joint set which is clearly defined, relatively continuous and planar.

Photograph 8-21: BB Phaser Pit east to north end wall showing continuous orthogonal joint surfaces

The following actions are recommended:

- Improve bench cleaning and wall scaling practices in BB Phaser Pit.
- Monitor ring road in BB Phaser Pit, and manage water accordingly. The current differential settlement is most likely due to the time of year the fill was placed, and so is not unexpected. However, the proximity of the ring road and thermal cap to the pit crests presents some potentially unsafe conditions because of this.
- Consider re-grading of the ring road/thermal cap to remove hummocky ground and promote drainage away from the crest areas.
- Consider developing a small windrow of material at the toe of the first bench to catch any material that may spill over from the thermal cap above.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- Continue mapping to confirm the orientation of stratigraphy and other important structures.

9.0 SUMMARY OF KEY OBSERVATIONS AND RECOMMENDATIONS

An annual site visit to inspect the performance of the pit walls of the open pits at Agnico Eagle Mines Ltd.'s (AEM) Meadowbank Mine was carried out by Tetra Tech Canada Inc. (Tetra Tech) during the period 10 September 2018 to 13 September 2018. New data for review in 2018 included the re-installed inclinometer in Pit E5. Phaser Pit and BB Phaser pit are included in the site inspection.

9.1 Geotechnical Reporting and Monitoring Procedures

During the 2017 site visit AEM have indicated a move towards more regular reporting of instrumentation data combined with geotechnical inspections to better synthesize and summarize the useful data that are being collected. AEM have implemented this initiative with the development of the Meadowbank Wall Inspection Group. The activities include active monitoring of the automated data acquisition system, bi-weekly pit wall inspections and Quarterly Geotechnical Inspection Reports. This is considered best industry practice for regular technical review and communication of instrumentation and wall performance to allow effective proactive measures to be taken for risk management and mitigation of geotechnical hazards. This is beneficial to operations, as well as providing clear documentation of events, trends, and general monitoring activities for project risk management.

9.2 Portage Pit

The Portage Pit is subdivided into 5 pits, labelled A through E from north to south.

9.2.1 Pit A and Pit B (B Dump)

Mining of Pit A was completed in mid-March 2018. A pit lake has developed in Pit A. Mining of Pit B is finished and it continues to be backfilled as a waste rock dump (B Dump). Geotechnical hazards identified during previous inspections continue to be monitored and are currently stable. No significant accumulation of material on benches was noted since the 2017 inspection.

The general Pit B (B Dump) geometry remains unchanged from the 2017 site inspection, however some tension cracks and crest sag were noted during dump use in 2018, and relate to dumping of ultramafic rock inadvertently in a local area of the dump. AEM established a simple wireline extensometer to monitor. Measured displacements did not exceed trigger response levels and the movement is limited in extent. Ultramafic rock is no longer being dumped in this area.

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- Maintain no-entry to the area of the dump platform where the ultramafic rock has been dumped.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- If tension cracks appear to be extending further beyond the ultramafic waste rock, re-install the wireline extensometer and continue monitoring in accordance with the GCMP.

9.2.2 Pits C and D (C AND D Dumps)

There has been no substantive change in the geometry of C Dump since the 2017 site inspection.

The Pit D Dump continues to be actively used. The highest platform (5125 mRL). An area of tension cracks that was first observed on the D Dump platforms during the 2016 inspection has increased in extent, and this may be a result of the advancement of the 5126 platform southward over the 5088 platform. Both radial (perpendicular to dump crest) and transverse (parallel to dump crest) were observed.

- Continue visual monitoring of waste rock dumps and recording of observations as part of regular site geotechnical inspections.
- Prior to mining final Pit E3 area below the dump, complete a dump inspection and review. Although the dump is not active now, and there is no mining below it, plan for the time when there will be mining.
- Survey the platform areas, including locations of tension cracks, to establish a baseline before snow covers the area.
- Manage water in the crest areas and don't allow it to build up during freshet.
- Coincident with the start of freshet, install some simple extensometers to establish a baseline for any movement, and compare this with the current GCMP trigger values. Although no movement is expected during winter it may occur in spring.
- Collect sufficient data to inform the planned safe mining below the dump area.

9.2.3 Pit E East Wall

The east wall of Pit E continues to perform well, and there is little year-to-year accumulation of material on the benches. The area is underlain by permafrost.

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

9.2.4 Pit E South Wall

Mining is currently underway within the slot at the south end of the pit, with ore and waste being hauled out along the west ramp of the Portage Pit. The south wall ramp is no longer in use for hauling.

A monitoring program has been in place since the reopening of Pit E5. The monitoring includes visual monitoring through regular geotechnical inspections, the use of a GroundProbe radar monitoring system, piezometers and thermistor cables, TDR cables, and a slope inclinometer, all connected to an automated data acquisition system (ADAS). The slope inclinometer, which was not working previously, was repaired and reinstalled on June 13 2018.

A total of 8 bench scale rockfall events in June 2018, 6 bench scale rockfall events in July 2018, and 3 bench scale rockfall events in August 2018 were recorded in Pit E. All rock falls were recorded in the rock fall log. No personnel were injured and no equipment was damaged. Many of the events were predicted by radar.

A review of the available data show no indication of large-scale (full slope) deformation in the south and southeast slope. Several of the piezometers installed behind the crest continue to show a response to drilling and blasting at the toe, which is consistent with the conceptual hydrogeological and engineering geological model. In addition to the instrumentation, the slope is continually monitored using a GroundProbe radar. An area of the south wall shows a linear velocity trend, but no acceleration. This continues to be monitored.

Water was noted to be accumulated in a sump at the crest of the south wall. This sump should be kept pumped down and water in the crest area should be managed.

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- Continue to monitor ADAS as per GCMP.
- Inspect outside edge of ramp for tension crack formation.
- Continue to monitor with radar.
- Prevent water from accumulating in the crest area.
- Pump down sumps and keep crest area dry.

9.2.5 Pit E West Wall Ramp

Seven areas of potential instability observed immediately adjacent to the West Wall Ramp continue to be monitored. In addition to these known areas, an unexpected rock fall occurred along the west wall ramp, identified as Zone E35. The material fell on to the safety berm and spilled on to the ramp. It is possible the rock fall containment berm along the inside of the ramp has settled over time, resulting in a lower height in the area of E35.

AEM have installed a crack meter in Zone E31 which coincides with Tetra Tech's Area 4 geotechnical hazard area. The crack meter does not show any movement at this time.

Additional possible areas of instability on the upper west wall above the ramp were noted, generally in association with steeply west dipping sheer planes and associated poor rock quality. These should continue to be monitored.

- Review and re-establish the rockfall containment berm along inside shoulder of West Wall Ramp after cleaning E35 debris.
- Increase berm height to maximum possible respecting single lane requirement width.
- Maintain the rock fall containment berm on the ramp.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections
- Continue monitoring the crack meter installed across Area 4/Zone E31.
- Construct a bumper berm along the bench toe of Area 7.
- Continue visual monitoring and recording of observations of the ramp buttress as part of regular site geotechnical inspections.

9.2.6 Pit E Slot South and East Wall

The slot at the south end of Pit E that had been partially filled at the time of the 2017 site inspection is currently being mined. The slot area is at the transition of the south wall to the west wall of the pit, and so is exposed to the east-west trending shear planes which strike obliquely into the south and east walls leading to many of the rock falls recorded during 2018. It is planned to mine two more triple-benches.

- Mine this area during winter months while ground is frozen.
- Continue monitoring the south wall with the GroundProbe radar, and specifically areas of the south wall above the slot which have demonstrated linear velocity trends, but not acceleration.
- Continue the use of controlled pre-shear blasting methods to minimize damage to the final walls.
- Remind equipment operators to remain within dig-lines, and not to over-excavate or undercut benches.
- Continue careful scaling and bench cleaning as the pushback is deepened.

Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

9.2.7 Pit E Instrumentation

The TDR, thermistor, piezometer and inclinometer data from instrumentation installed behind the south wall of Pit E were reviewed. The instrumentation is connected to an Automated Data Acquisition System. The inclinometer was re-installed in June 2018 after repair. The inclinometer data appear to be more meaningful than prior to repair, however it is too early to establish any data trends. The inclinometer data were compared with the TDR cables which show no displacement. The two thermistors confirm the presence of a talik behind the wall. There are no noticeable changes in the ground thermal profile. Nested piezometers were installed in 5 locations. The near-surface piezometers are now frozen. Some of the piezometers show a step-wise increase in piezometric elevation of several metres. This may be the result of freeze-back of the pit walls preventing drainage or potentially responsiveness to blasting and mining operations.

9.2.8 Discussion of Mining Sequence to Complete Pit E3/E5

Mining of Pit E is scheduled to be completed in Q3 2019, with a final floor elevation of 4976 mRL. The final geometry of the slot that will be mined at the south end of Pit E will result in a very narrow configuration with steep east, west, and south walls. The south wall is currently being monitored by the GroundProbe radar.

During the site visit, it was discussed with AEM that an additional risk management strategy could be to schedule the final mining of the Portage Pit E if the mining areas with a higher relative rock fall risk could be mined during the winter period. This would allow the mining areas with lower relative rock fall risk to be mined during the period of May through September. Once winter mining of the slot is complete, then this area could be retreated from, and mining of the lower risk central area of Pit E3 would be completed during spring and summer of Q3 2019. During this period, there may be an increased risk associated with the geotechnical hazards identified along the west ramp haul. The radar could be moved from its current location at the crest of the west wall to a new location at the crest of the east wall to monitor the south through west wall during final mining of the pit and hauling along the West Wall Ramp. AEM are committed to the use of radar in the most critical areas for monitoring and managing risk as part of their overall risk management strategy and ground control management plan. It is understood that mine planning is somewhat fluid, and that areas to be mined are often based on short range planning in response to changing conditions. Therefore, the decision for placement of the radar for monitoring of critical areas should be based on site requirements at the time, and the direction of the Meadowbank geotechnical team.

The combination of winter mining and active monitoring using radar will be effective in managing risk during mining of the slot. In addition to the benefit that winter mining will provide for stability of the final slopes for the slot, the stability of geotechnical hazards that have been identified along the west ramp haul will also be improved during this period.

- Mine the higher relative rock fall risk of the south slot area during October to April period when rock fall risk is lowest. It is understood that mining rate is dependent upon vertical advance rate, and the equipment available to mine, and mining during this time period may not be possible in full.
- Mine the lower relative rock fall risk of the floor of Pit E3 during May to September.
- Locate the radar to monitor areas where risk is highest, based on the site conditions at the time.
- Prior to mining out the floor of Pit E3, carry out a dump inspection of D Dump.

9.3 Goose Pit

The north, south, east, and west walls of the inactive Goose Pit continue to perform well. There is no observable year-to-year accumulation of new material on the catch benches. The pit lake elevation at the time of the site visit was 5070 mRL, compared with 5065 mRL during the 2017 inspection.

The Goose Pit Dumps are not currently active. During the 2018 inspection additional shallow slumping of the South Dump face was noted, along with crest sag. If the dump or the pit are to be reactivated it is recommended that a dump inspection be carried out and plans and procedures for inspections and monitoring be developed, which might include re-establishing wireline extensometers to measure movement.

During the 2018 inspection, a fault was identified at the contact between the ultramafic and quartzite along the south wall of the pit, and it was noted that the fault gouge associated with the fault is being eroded. The risk of failure is very low. It is recommended that the faulted contact be added to the geotechnical risk register developed as part of the assessment to store tailings in Goose Pit.

Water that was being pumped from a sump at the crest of Pit E was noted being discharged on to the ring road and thermal cap at the north pit crest in an uncontrolled manner. Uncontrolled water discharge should be avoided. This was discussed with AEM during the site visit.

It was also noted that an existing water discharge line over the edge of the pit at the north end is underlain by kinematically unstable rock blocks in the bench face. When the discharge line is to be moved, equipment and personnel should stay back from the crest in this area.

- If the Goose Pit dumps are to be reactivated, carry out a dump inspection and develop an action plan for inspections and monitoring.
- Limit access to the dump crest as currently done.
- If pit ramp is reactivated, the area below the faulted contact between quartzite and ultramafic rock should be assessed further, and if necessary buttressed or bermed off below the fault. This area should be indicated on a geotechnical hazard map.
- Include the faulted contact between the quartzite and ultramafic rock in the risk register developed as part of the assessment to store tailings in Goose Pit.
- Do not allow uncontrolled discharge of water through fill materials at crest as this may cause unnecessary erosion of the fill materials. Direct water discharges over side on to rock face.
- When moving water discharge line at north end, do not place equipment or personnel near the crest due to potential geotechnical hazard (wedge) in rock bench below.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

- Continue collecting and reviewing data from instrumentation.

9.3.1 Goose Pit Instrumentation

As part of the site inspection, the instrumentation data from Time Domain Reflectometry (TDR) cables, thermistors, and piezometers installed in the east pit wall were reviewed. AEM have added functionality to the instrumentation system through the addition of GeoExplorer software for easier access and visualization of data.

The review of the instrumentation data showed no significant changes from 2017.

9.4 Vault Pit

The pit walls of the Vault Pit continue to perform well. Pre-shearing of the final bench faces has been effective at reducing wall damage and break back of crest areas.

9.4.1 Footwall (Vault Grid West Wall)

The west wall is being mined on single benches and parallel to the dip of the stratigraphy. The wall is being mined as a series of single benches (7m high) to create a footwall slope. The slope follows the inclination of the ore which is inclined to the east, parallel with foliation and stratigraphy. There are areas of notable bench crest and catchment loss, as expected in the design of this wall. The design criteria for the wall was specified as single bench to accommodate the expected loss of some benches, and minimize the volume of failed material. Seepage noted on the footwall during previous inspections appears generally absent in 2018.

There are currently no significant geotechnical concerns noted, and no evidence of large scale (overall slope) instability for the footwall slope.

- Continue to clean benches as mining deepens the pit.
- Maintain drainage ditch along inside of ramp.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

9.4.2 Southwest Wall (Vault Grid South Wall)

The southwest wall (grid south) intersects the stratigraphy and foliation perpendicular to their trend. The gently east dipping structure can be seen clearly in the wall. The overall wall continues to perform well, with little accumulation of material noted on the benches. The western portion of the wall has been mined down in a slot that provides access to the Phaser Pit.

A small sump manages water at the south end. Outward dipping planes noted during the 2017 inspection which presented a hazard remain stable.

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

9.4.3 Southeast to Northeast Highwall (Vault Grid East Wall)

The southeast to northeast highwall (grid east wall) catch benches continue to perform very well. The pit floor has been deepened by approximately two triple-benches, or approximately 42 metres, to an elevation of 4976 mRL. The final benches are being mined using pre-shear blasting methods, and are being excavated to 75-degree bench

face angles. Half barrels from the blast holes are clearly visible in the walls and there is very little deviation in the borehole traces,

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

9.4.4 Southeast Wall Seepage

An area of concern continues to be the south wall where seepage continues to flow from just above the 5109 mRL bench. Thermistor data suggest the area is freezing back but slowly, and there is no significant change to the non-frozen portion of the wall from which seepage flows. During winter mining, Agnico carry out weekly inspections of the ice wall that forms in this area. It is understood that mining of Vault Pit will be complete in January 2019, and so the risk associated with the freshet period will be avoided.

AEM manage the water elevation in Pond D (former Vault Lake) at a low level to assist in lowering water levels behind the wall. Tetra Tech reviewed the Pond D surface survey data in 2017 and compared it to piezometer data from instrumentation at VP-4. No additional data were collected since the 2017 review.

- Continue to monitor the piezometer and thermistor data from VP4 to build an understanding of the rate at which freeze back is occurring.
- Continue to manage the level of Vault Lake below the bedrock/till contact elevation to limit flow through the ring road or overburden materials, and to reduce the groundwater levels in the bedrock behind the seepage area.
- Continue to include bi-weekly ice wall inspection procedures and protocols as standard procedure until mining of the pit is completed in January 2019.
- Continue visual monitoring of the inflows on the pit wall as part of regular site geotechnical inspections.
- Monitor potential local raveling of material from the wall during spring freshet.

9.4.5 Highwall Nose Area

A series of widely spaced faults and open continuous joints dip into the nose area at steep angles. This area continued to be monitored during mining, but now is being backfilled as a waste rock dump, effectively buttressing this area and eliminating the risk.

The following actions should continue to be implemented.

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections until backfilling with waste rock is complete.

9.4.6 Vault Northeast and North Transition Walls – Vault Dumps

The north through northeast area of the Vault Pit is being backfilled with waste rock material. Waste rock has been backfilled to approximately the 5088 mRL elevation through the north and northeast, and near to ground surface through the northwest. Consequently, the following geotechnical hazards have been eliminated:

- A series of shear planes, parallel to stratigraphy, in the lower north transition wall. Overhangs identified in the lower northeast wall.
- A potential bench scale wedge was noted at the north end of the east wall (northeast wedge), where it intersects the north wall at a right angle.

Only two bench faces remain exposed.

- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.

9.4.7 Vault Pit Instrumentation

Following the 2016 field thermal exploration study, AEM selected three areas for instrumentation with piezometers and thermistors. The areas selected were areas where the thermal exploration study indicated talik conditions. The piezometers and thermistors are attached to data loggers, and the loggers are regularly downloaded and reviewed.

There are no significant changes to the instrumentation data since the 2017 site inspection. Some of the piezometer tips that were non-frozen in 2017 are now frozen, indicating aggradation of permafrost.

No additional prisms have been installed on the highwall of the pit.

- Continue monitoring the instrumentation data until mining is complete.

9.5 Phaser and BB Phaser Pits

The Phaser Pit and BB Phaser Pit are southward extensions of the existing Vault Pit. A slot cut from the south end of Vault Pit joins it to Phaser Pit. The main access to Phaser Pit is a ramp on the west wall. The slope design criteria in use for the development of the Phaser and BB Phaser Pits are based on the current slope design criteria in use for the Vault Pit, and this approach is appropriate as the main kinematic and structural elements governing the slope stability for the pits are the same.

9.5.1 Phaser Pit

The planned depth of the Phaser Pit is 40 to 50 m (2 to 3 benches), not including the overburden at the crest of the pit. The west wall (footwall) of the pit will be in permafrost; a portion of the east wall of the pit may be within talik beneath the former Phaser Lake, which reached a maximum depth of about 3 m. Water is being managed appropriately using sumps and pumps although the floor of the pit is dry. The pit will be mined over a period of approximately 1 year, from Q4 2017 to Q3 2018. The highwall is performing well. The upper bench exposed during the site visit is well cleaned. The performance of the footwall slope is similar to the main Vault Pit as it follows the same design approach, which consists of single benching to steep bench face angles undercutting the bedding.

Wedges were noted in the wall of the slot joining Vault Pit with Phaser Pit. These were discussed with AEM. It was recommended that as a temporary measure a row of candles be placed to prevent personnel or equipment from accessing this area.

- A row of candles should be placed below wedges noted in the east wall slot cut joining Vault Pit to Phaser Pit. It is understood that this area will be accessible only temporarily.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections until mining is complete.

9.5.2 BB Phaser Pit

BB Phaser Pit is south of the Phaser Pit. The pit shape is generally square, consisting of an east-southeast highwall, a south-southwest endwall, a west-northwest footwall and a north-northeast endwall. The planned depth of mining

of the BB Phaser Pit will be in the range of 30 to 40 m, not including overburden at the crest of the pit. The pit will be mined over a period of approximately 1 year, from Q1 2018 to Q1 2019.

The base of the pit was observed to be dry. At the time of the site visit the pit walls available for inspection had not been scaled. Consequently, it was difficult to effectively assess the quality of blasting and adherence to pit slope design criteria. In addition to this, only one bench had been excavated, and the quality of wall performance that was observed may reflect the effects of near-surface weathering.

In many areas the set back of the thermal cap toe from the crest of the pit was narrow. The lack of sufficient catchment at the toe of thermal cap, and above the pit, may result in spill over on to the ramp and benches. Placing a windrow at the toe of the uppermost benches may assist in retaining any spill.

The thermal cap was placed predominantly during winter, without proper snow and ice removal before placement, resulting in the development of hummocky ground, sinkholes, and tension cracks. Re-grading of the ring road/thermal cap may assist in promoting positive drainage away from crest areas to improve performance of the thermal cap.

An area of the south and west wall of the pit was noted to display significant blast damage to the rock. Over excavation could result in undercutting of the thermal cap. An alternative might be to construct a low buttress against the face if the current platform elevation is the final platform for this area. This was discussed with AEM during the site visit, and it was recommended that as a minimum, candles should be placed to restrict entry to the area until appropriately cleaned.

The east through north highwall of the BB Phaser pit was inspected. The wall had not been cleaned (scaled) yet, and showed only a moderately good response to pre-shear blasting. The rock along this wall is breaking to a near-vertical orthogonal joint set which is relatively continuous and planar.

- Improve bench cleaning and wall scaling practices in BB Phaser Pit.
- Do not over excavate or undercut bench faces.
- Monitor ring road in BB Phaser Pit to manage water away from the rest areas. Consider re-grading of the ring road/thermal cap to remove hummocky ground.
- The lack of crest catchment at the toe of the thermal cap may result in spill over to the benches below. A small windrow at the toe of the first bench should be developed in areas where the crest catchment is less than 2 m to catch any material that may spill over from the thermal cap above.
- Continue visual monitoring and recording of observations as part of regular site geotechnical inspections.
- Continue mapping to confirm the orientation of stratigraphy and other important structures.

9.6 Rock Fall Database

AEM continue to update the Meadowbank site rock fall database as part of their Ground Control Management Plan (GCMP). The rock fall database includes rock fall observations from all the pits at the Meadowbank Project site. The database was reviewed and is up to date.

10.0 CLOSURE

The reader is referred to the Study Limitations which precede the text and forms an integral part of this report.

We trust this report meets your requirements. Should you have any questions or concerns, please do not hesitate to contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

REGISTERED PROFESSIONAL ENGINEER
C. J. CLAYTON
LICENSEE
NT/NU

21 Dec 2018.

Prepared by:
Cameron Clayton, M.Eng., P.Eng., P.Geo.
Principal Specialist - Rock Mechanics
Engineering Practice
Direct Line: 604.608.8619
Cameron.Clayton@tetratech.com

Reviewed by:
Charles Hunt, P.Eng., MSc., ACSM
Manager - Rock Engineering
Engineering Practice
Direct Line: 778.945.5775
Charles.Hunt@tetratech.com

CC/CH/tak

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
Signature
Date Dec 21, 2018
PERMIT NUMBER: P 018
NT/NU Association of Professional Engineers and Geoscientists

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APPENDIX A

PORTAGE PIT INSTRUMENTATION DATA

- IPI Re-Installation Memo 2018-07-17

LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

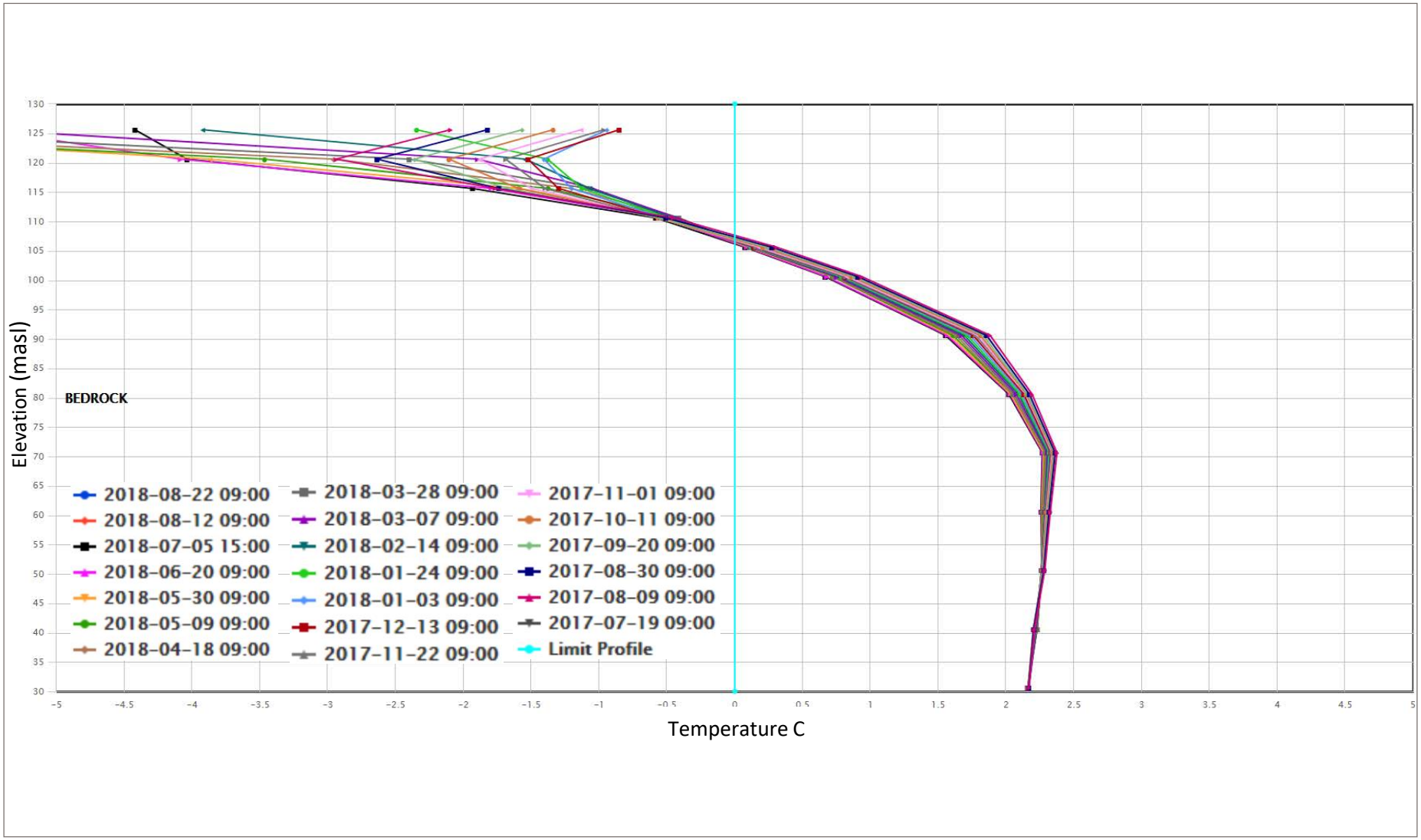
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E5
Instrumentation Location

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-1



LEGEND

Vertical installation

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

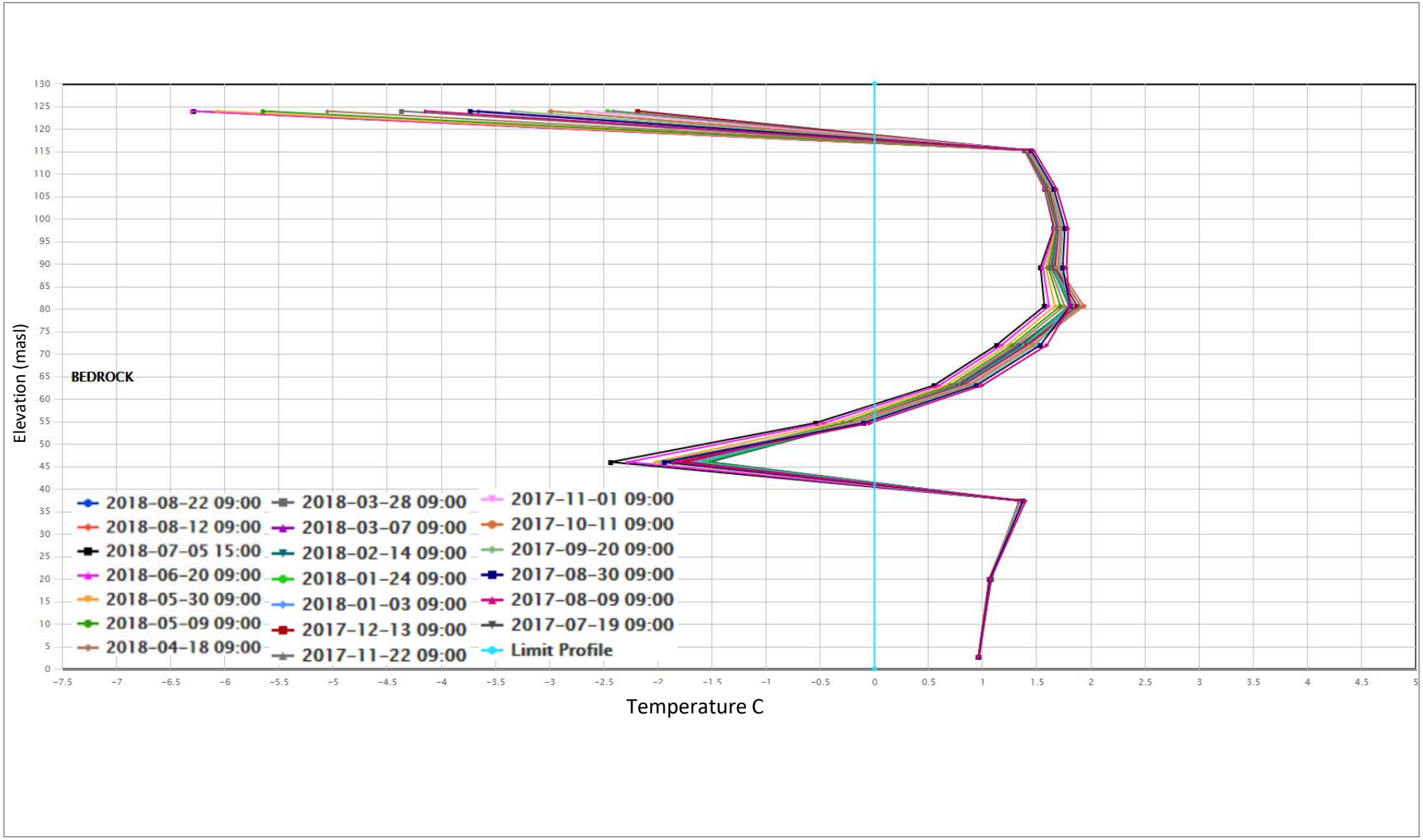
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E5
Thermistor Cable PE5-17-02 TH

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCKC03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-2



LEGEND

Inclined installation

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

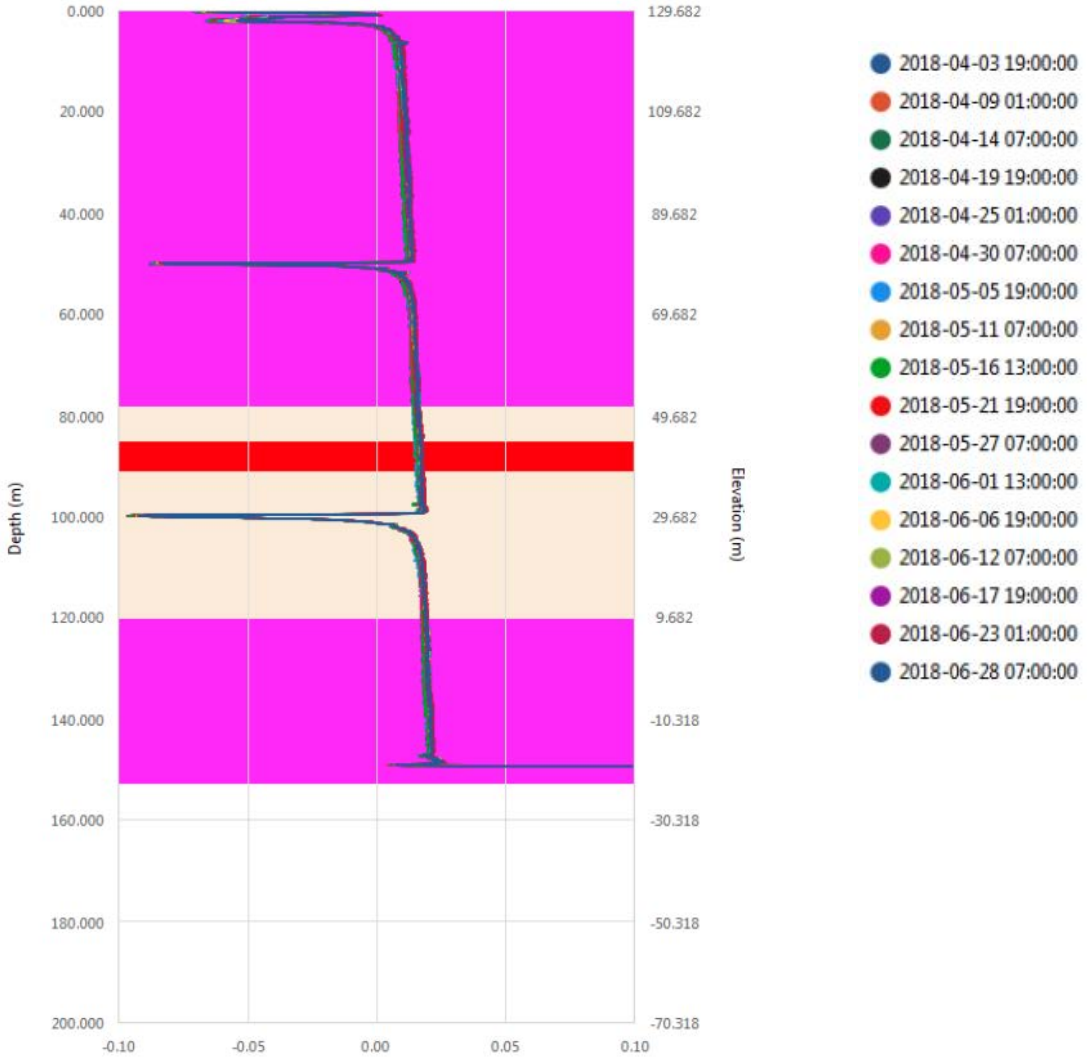
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E5
Thermistor Cable PE5-17-03 TH

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-3



LEGEND

- Ultramafic - V4A
  Bottom Depth: 78.3
- Int. Volcanic V91
  Bottom Depth: 85.1
- Iron Formation (IF)
  Bottom Depth: 91

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE
MEADOWBANK

TETRA TECH

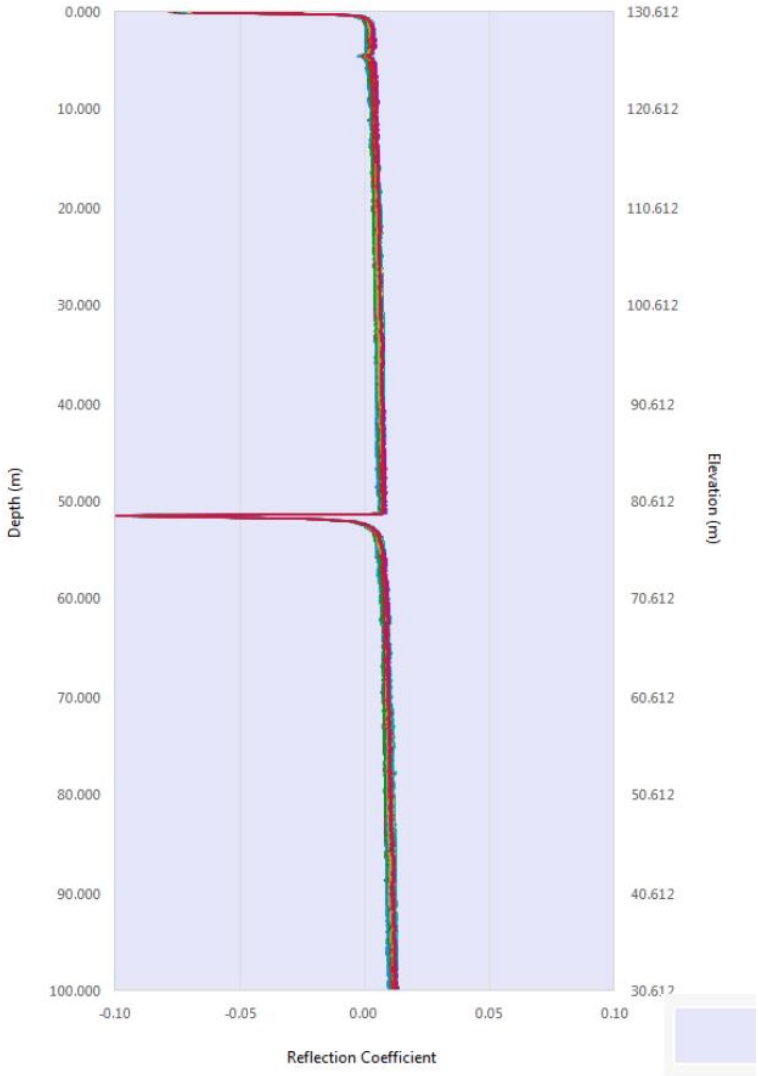
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E5
TDR Data TDR-01

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-4



LEGEND

DATE RANGE: JUNE 2017 TO OCTOBER 2017

Unknown (Destructive dr...
Bottom Depth: 100

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE
MEADOWBANK

TETRA TECH

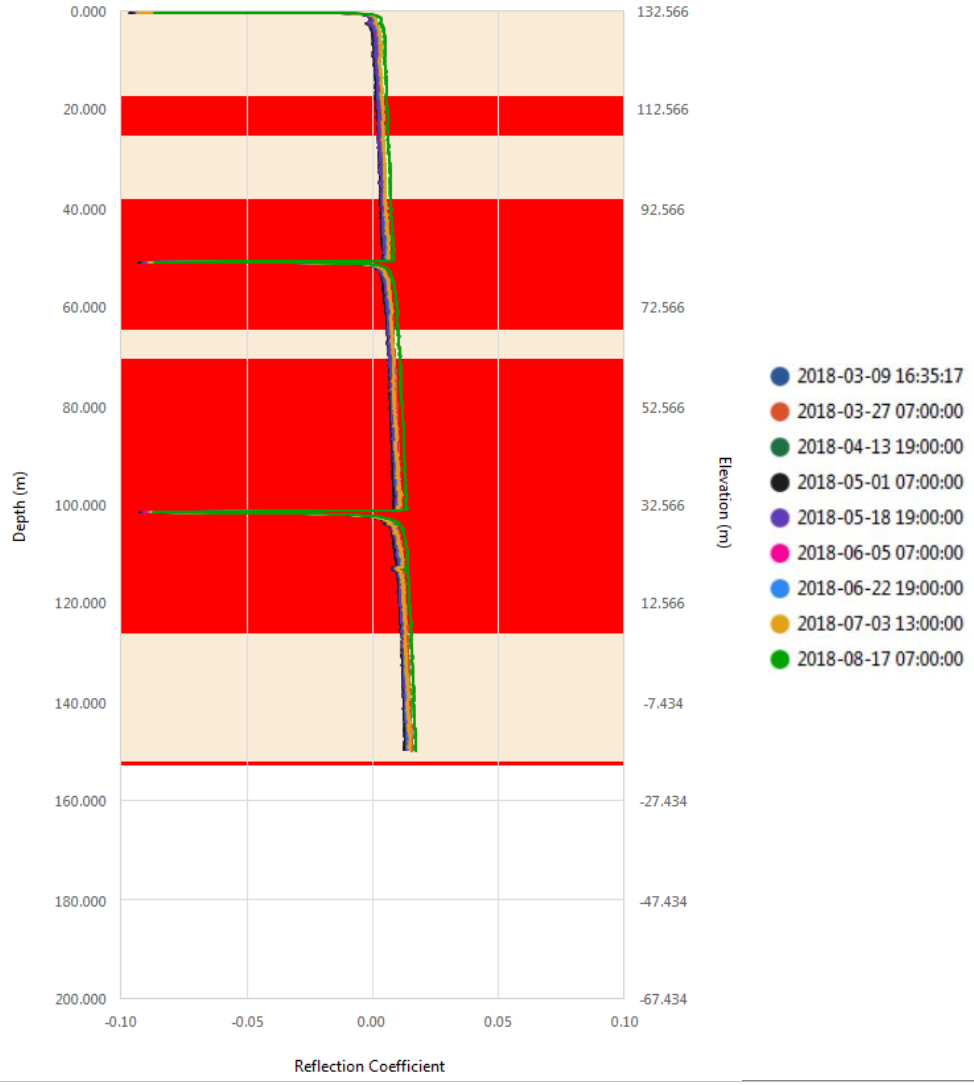
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit Hole E5-17-2
TDR Data TDR-02

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-5



LEGEND

- Ultramafic - V4A
  Bottom Depth: 78.3
- Int. Volcanic V91
  Bottom Depth: 85.1
- Iron Formation (IF)
  Bottom Depth: 91

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

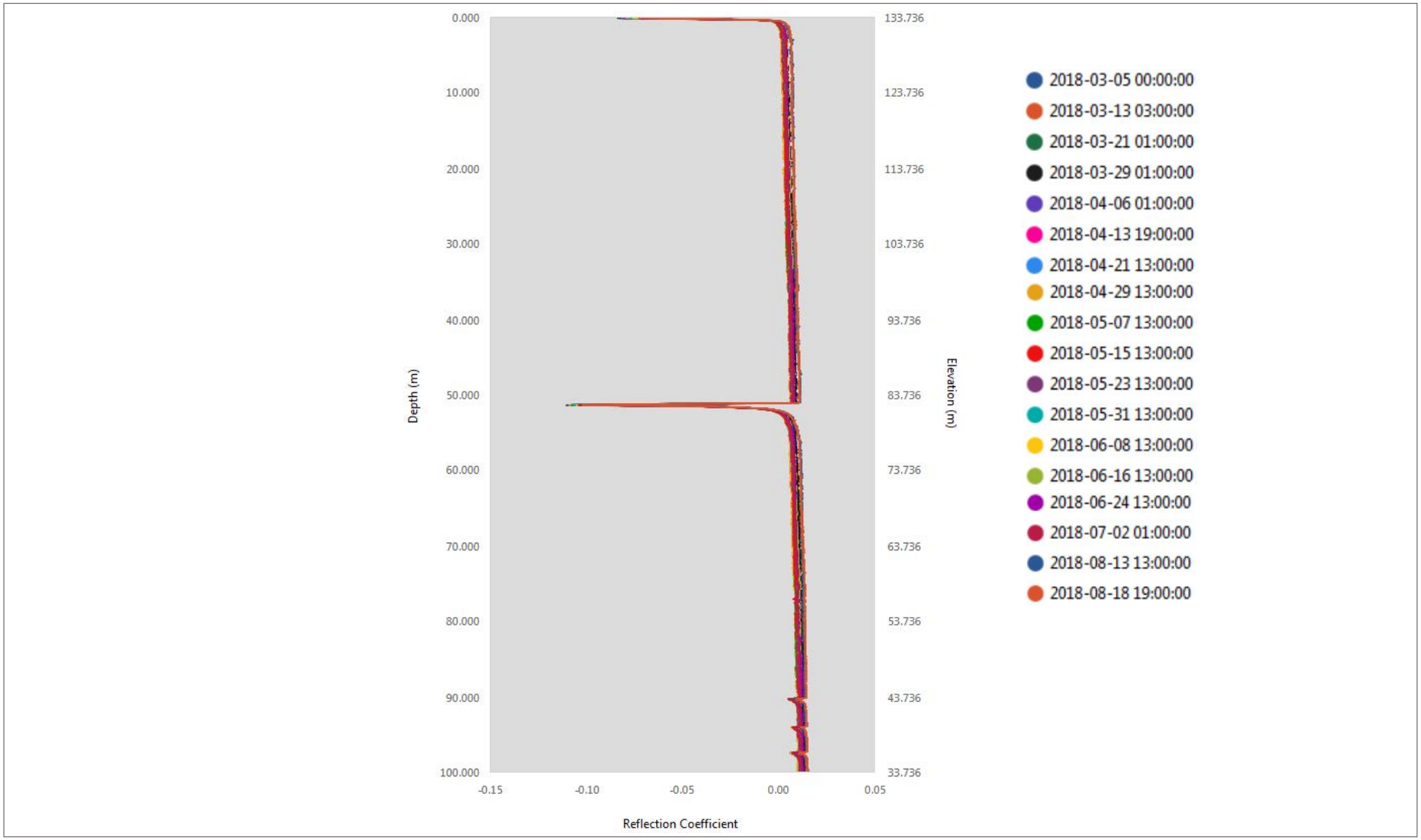
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E5
TDR Data TDR-03

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-6



LEGEND

Unknown (Destructive dr...
Bottom Depth: 100

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE
MEADOWBANK

TETRA TECH

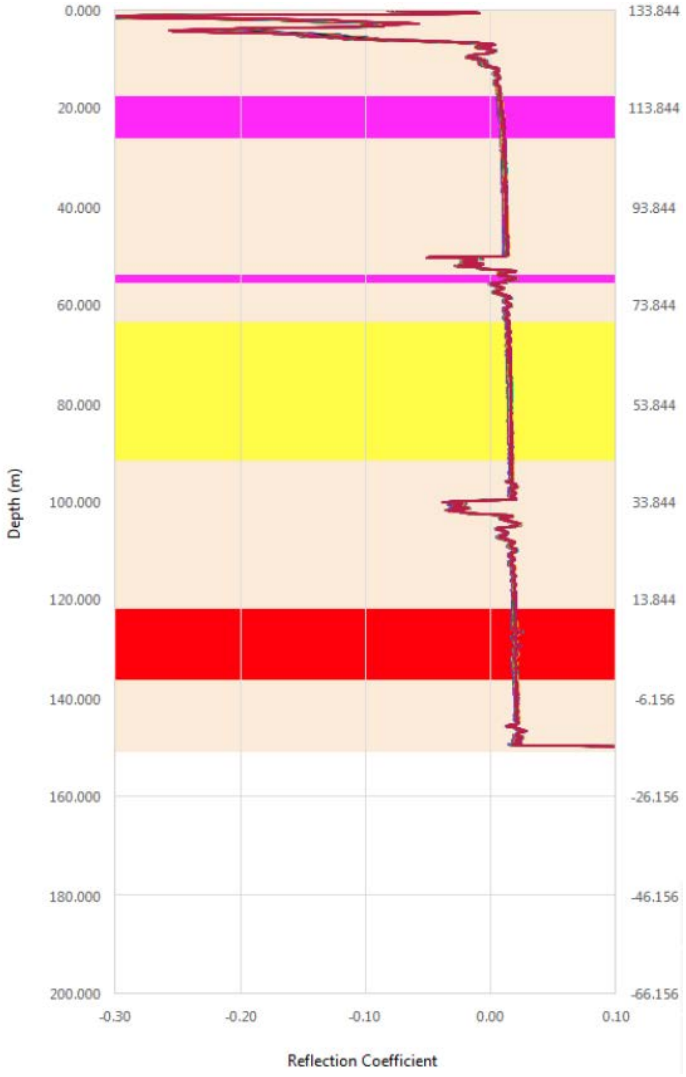
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E5
TDR Data TDR-04

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-7



LEGEND

- Ultramafic - V4A
  Bottom Depth: 78.3
- Int. Volcanic V91
  Bottom Depth: 85.1
- Iron Formation (IF)
  Bottom Depth: 91

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

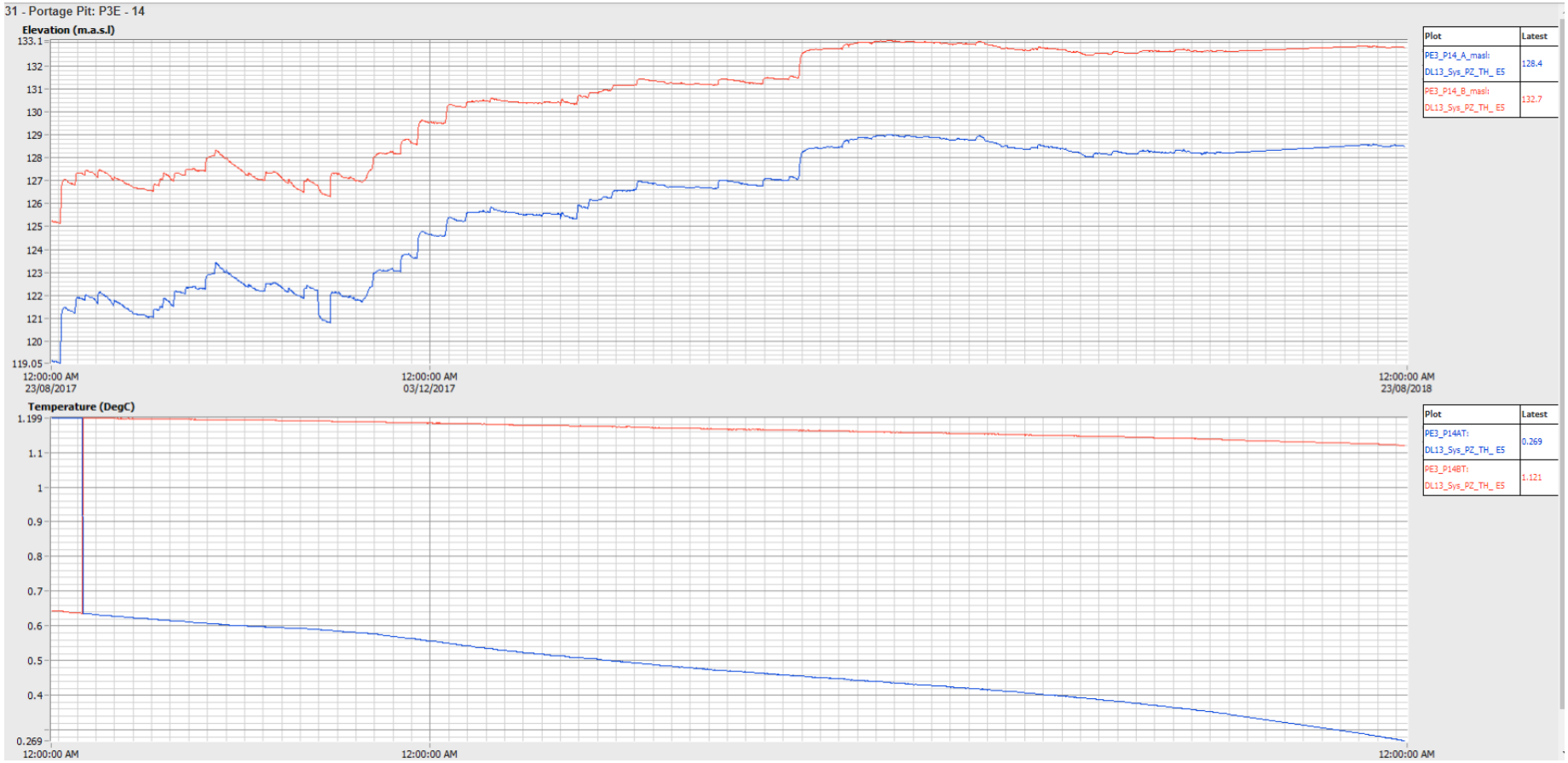
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit
TDR Data TDR-05

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-8



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

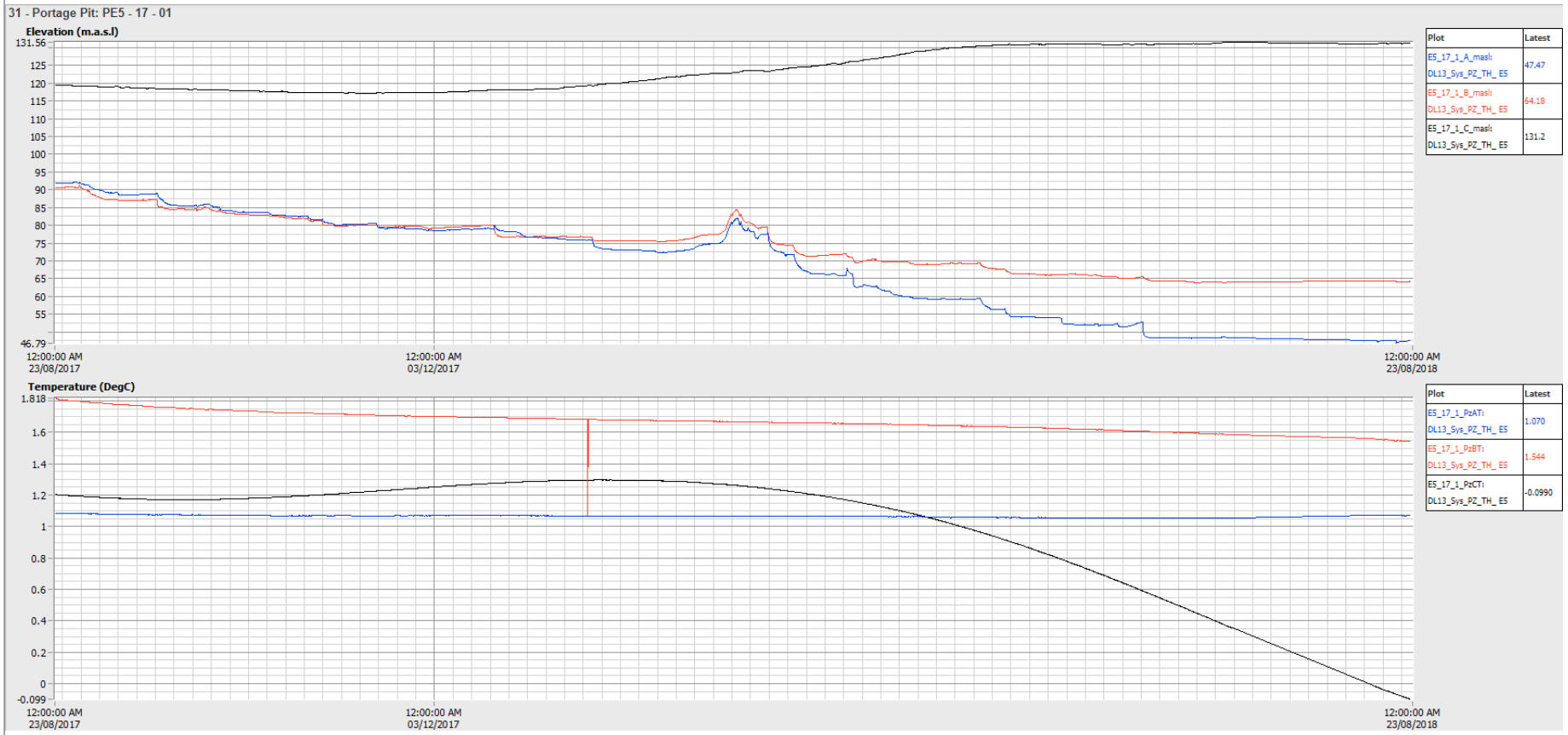
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E5
Piezometer Data P3E-14

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-9



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

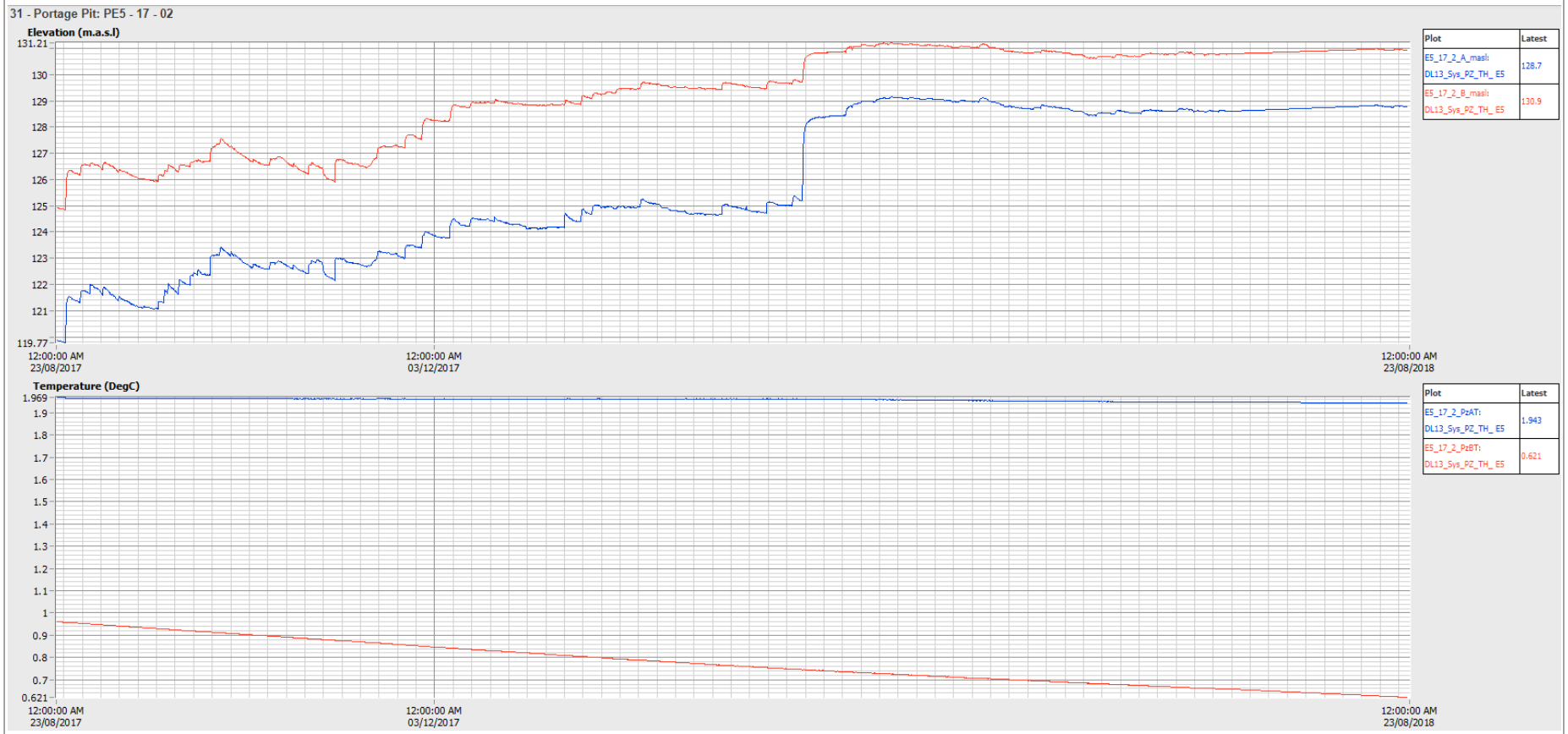
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E 5
Piezometer Data PE5-17-01

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-10



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

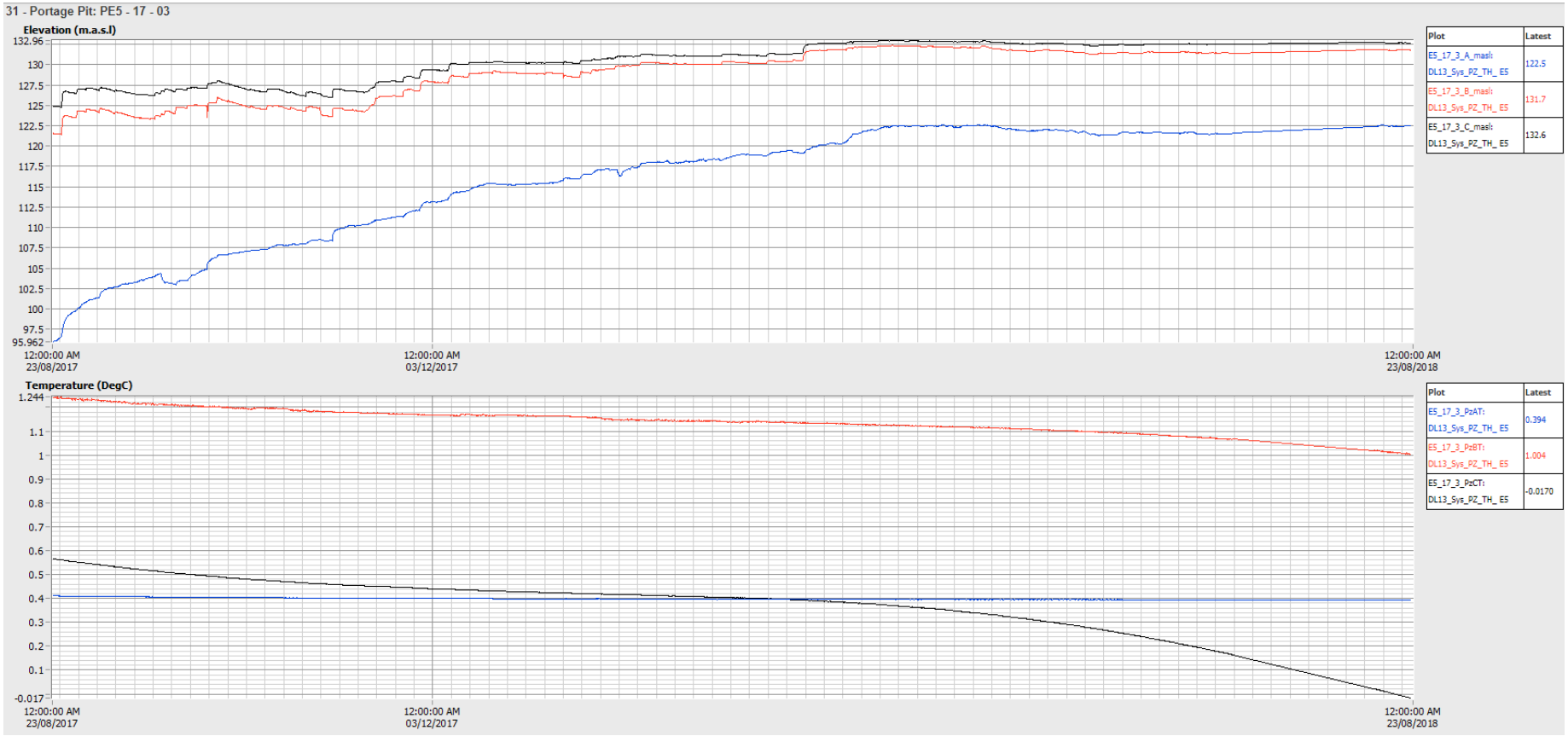
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E 5
Piezometer Data PE5-17-02

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-11



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

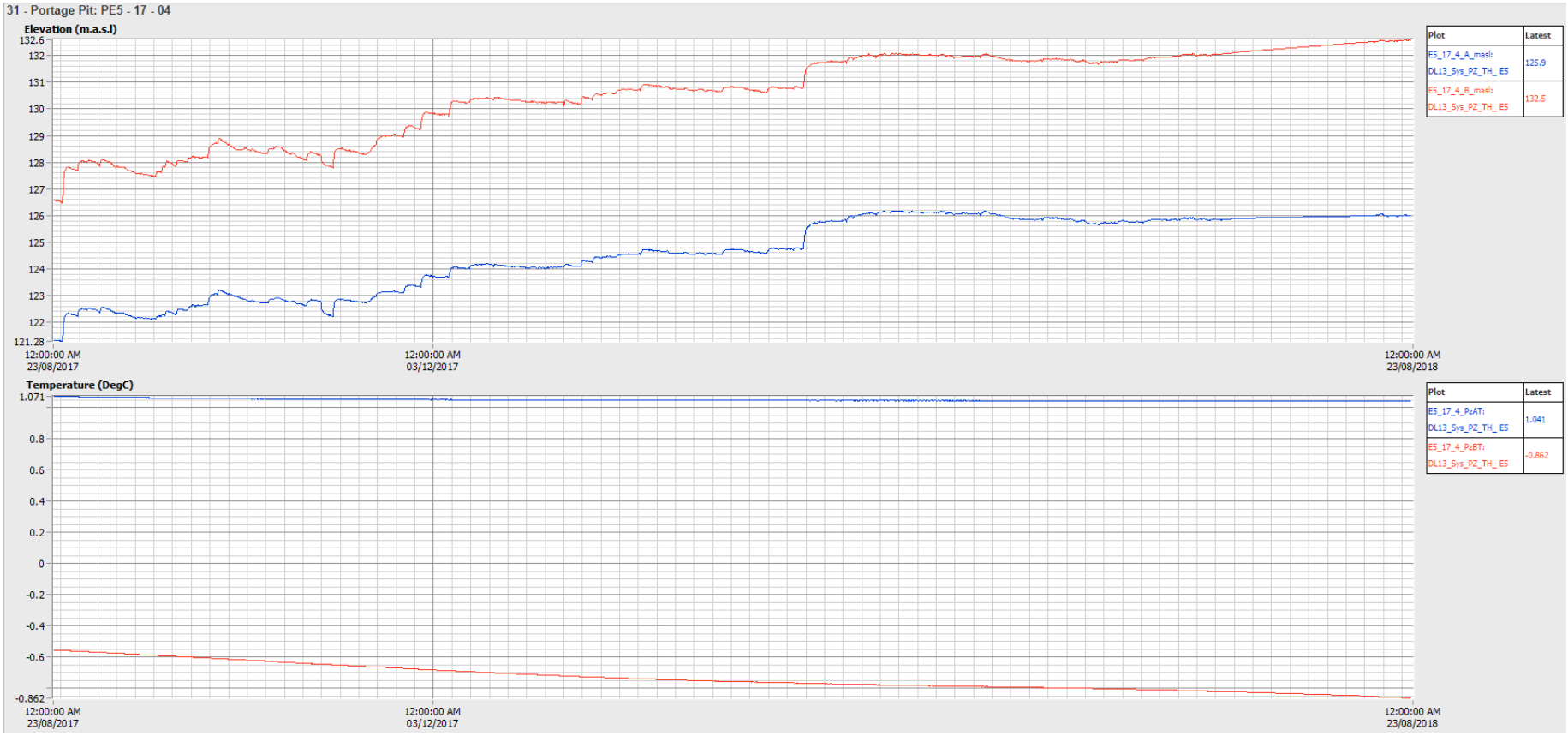
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E 5
Piezometer Data PE5-17-03

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-12



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

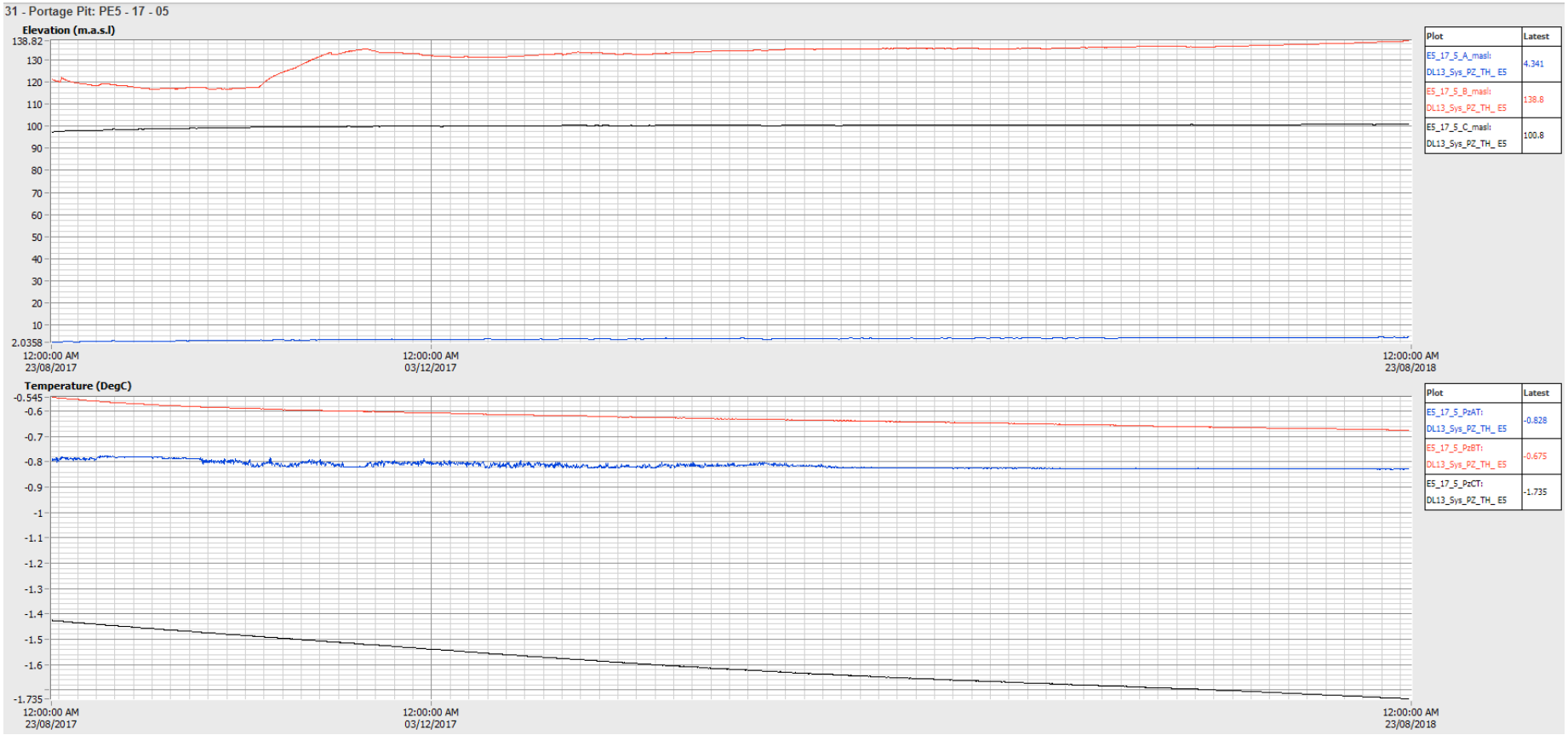
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E 5
Piezometer Data PE5-17-04

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-13



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

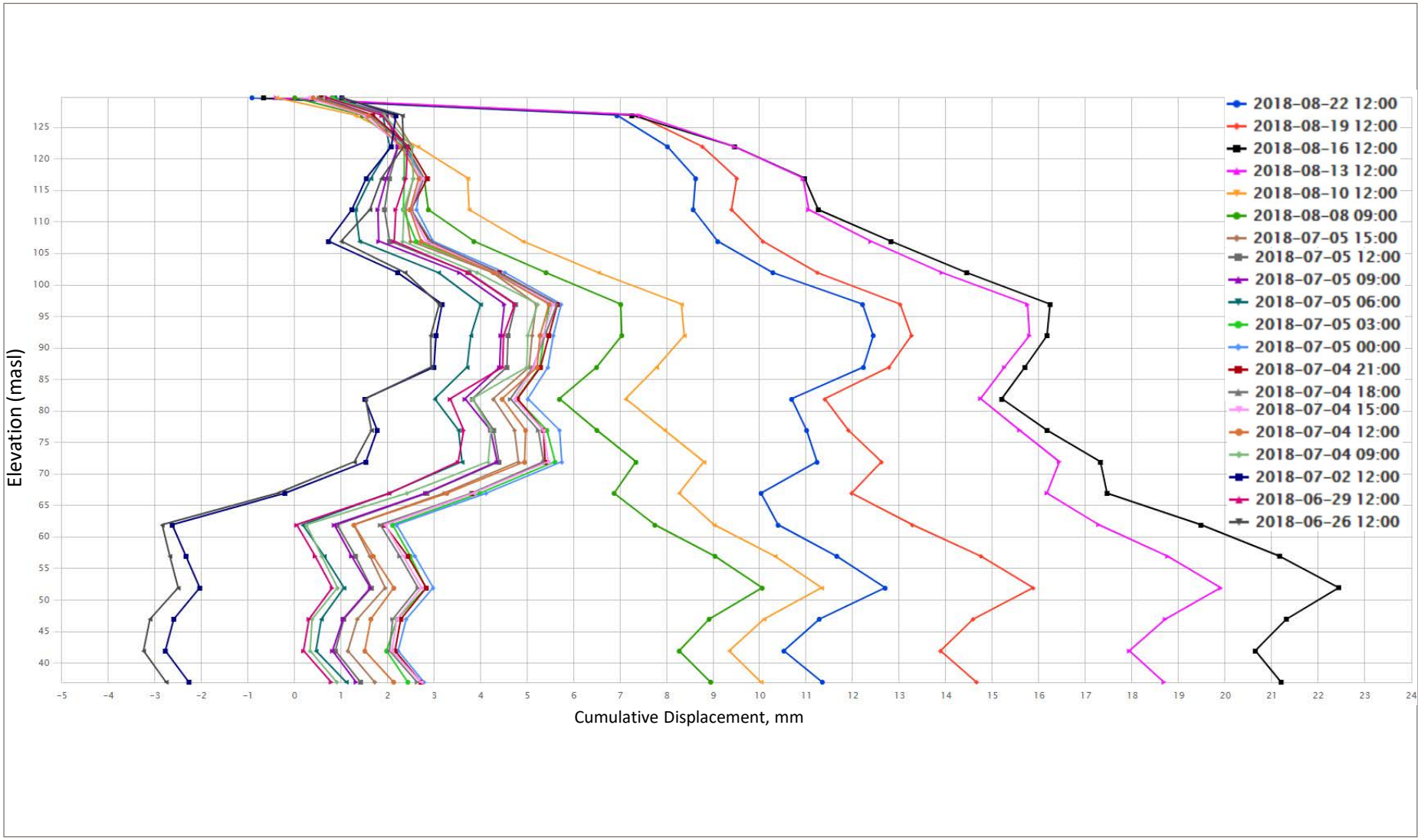
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E 5
Piezometer Data PE5-17-05

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-14



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

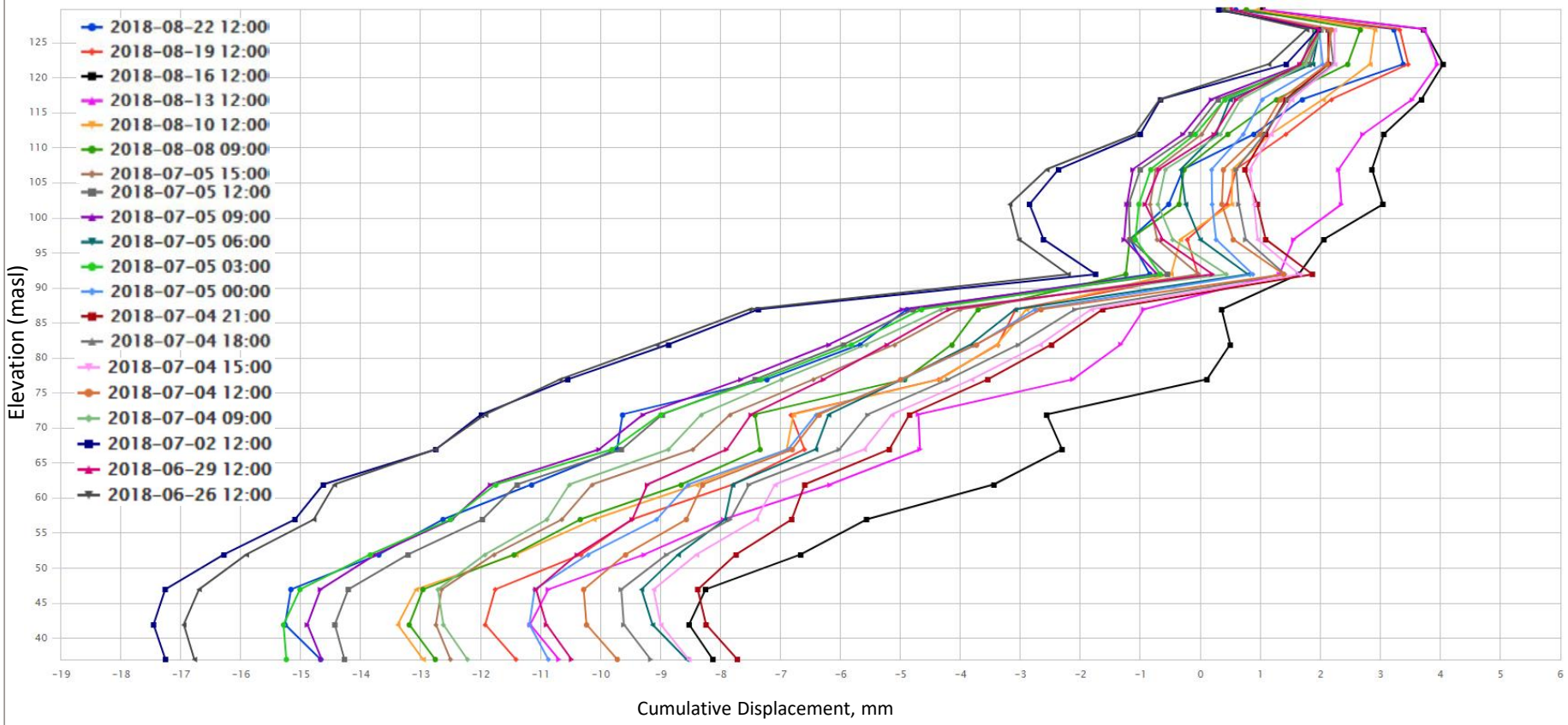
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E5
Inclinometer Data PE5 A-Axis

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-15



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

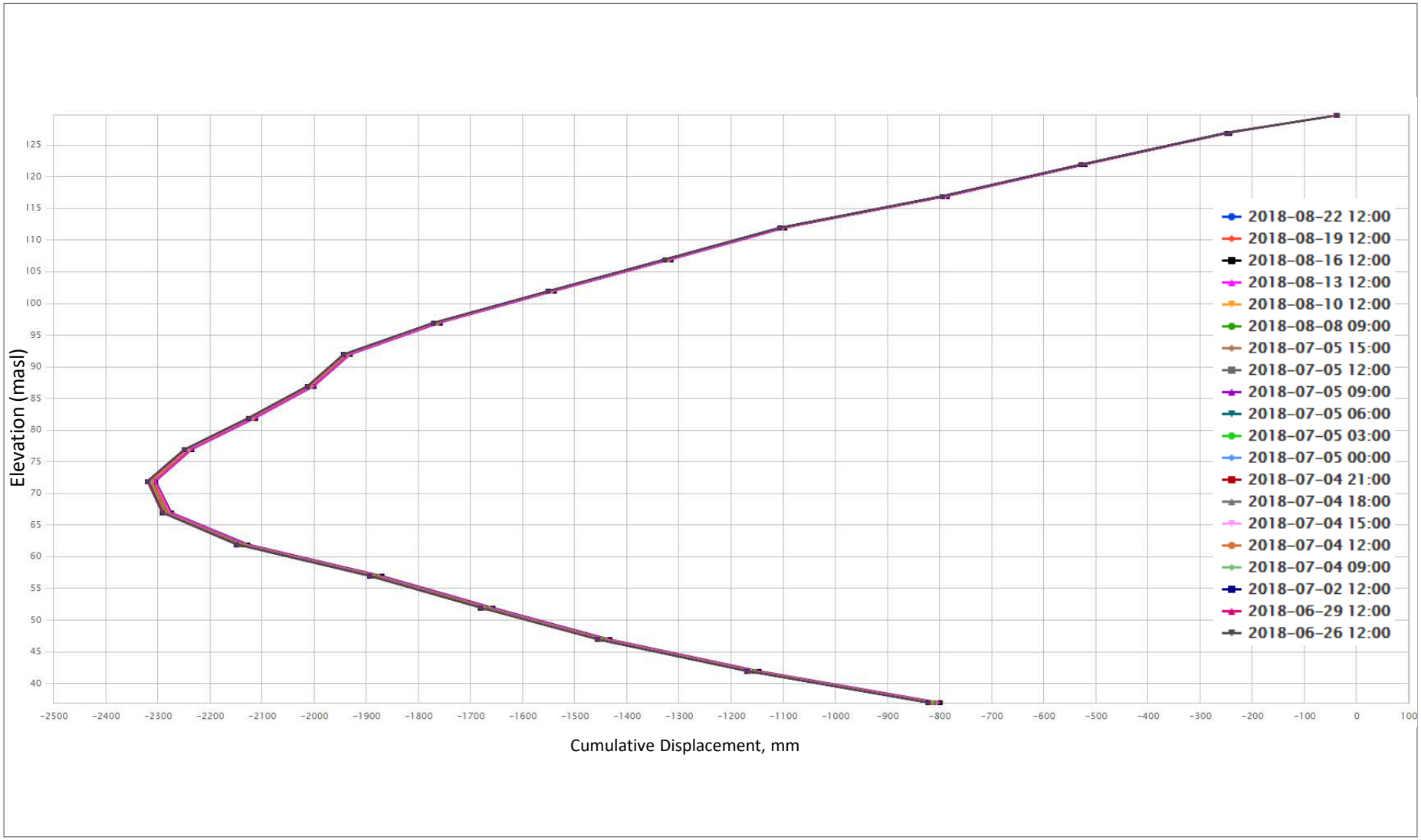
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E 5
Inclinometer Data PE5 B-Axis

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-16



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

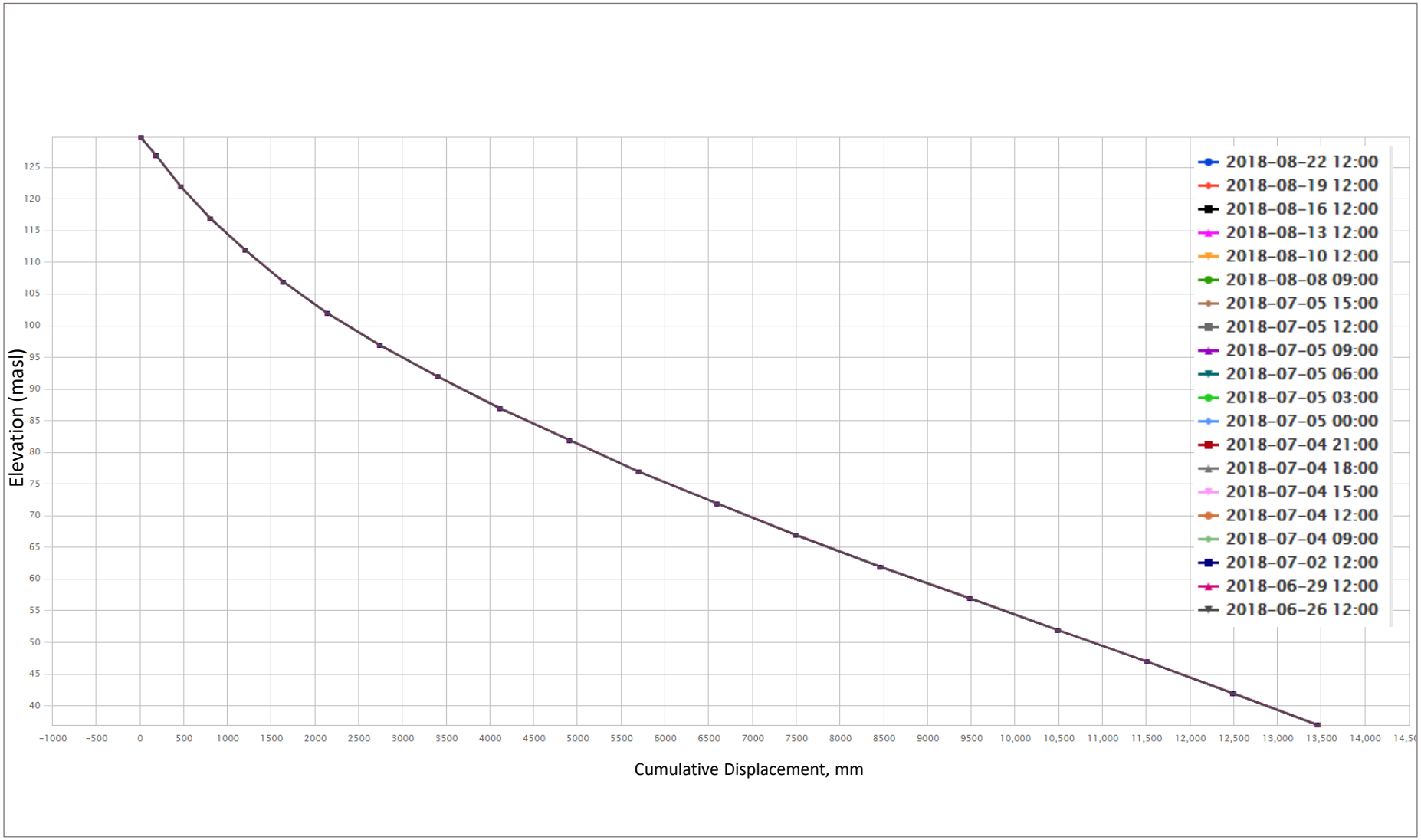
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E 5
Cumulative Deviation PE5 A-Axis

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-17



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Portage Pit E 5
Cumulative Deviation PE5 B-Axis

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure A-18

IPI RE-INSTALLATION MEMO 2018-07-17

AGNICO EAGLE

TECHNICAL MEMORANDUM

To: Meadowbank Engineering

From: Bruno Lessard, Nicholas Blackburn

Date: Tuesday, July 17, 2018

Subject: Re-Installation of the In-Place Inclinometer - June 12th to June 13th (2018)

Installation Period: June 12th and 13th, 2018

Temperature monitored during installation: From 6°C to 11°C

Installed By: Bruno Lessard (Project Technician) and Nicholas Blackburn (Intern)

Contractor: Sana (TCG Drill) and GKM (Instrument Manufacturer)

The In-Place Inclinometer was re-installed at the E5 Instrumentation Pad to monitor the changes in the rock mass inclination between the Goose Dike and the Portage Pit E5.

The inclinometer was first installed in January 2017 and removed one year later due to the failure of the instrument. Prior the initial installation in 2017, the deepest instrument cable was damaged at top of the instrument #20. The cable was repaired with epoxy glue according to the recommendation of manufacturer in 2017. Glycol used to prevent freezing of the instrument entered through the cable due to this cable failure and was causing erroneous readings. The IPI was then sent back to the manufacturer (GKM) for repair. The string was rebuilt and the cables between the sensors were replaced. In addition, three (3) sensors were replaced from the original string. New sensors were also added at end of the string (deepest sensors).

The re-installation of the IPI was carried out on the afternoon of June 12th and the morning of June 13th 2018 at the same location and depth as the first installation

(borehole E5-17-6). The inclinometer parts (bottom wheel assembly, connecting tube, biaxial addressable sensor attached, intermediate wheel assembly etc.) were installed and assembled in the casing as shown in figure 2.1. The wheels have all been positioned to align with the inclination axis. Axis A+ is oriented toward Portage Pit. The In-place Inclinometer is suspended by the suspension bracket that sits on the casing.

The instrument electrical cable was spliced onto the old cable already buried and routed in the PVC pipe. Grout was placed around the top of the casing to stabilize it. Finally, tires were placed around the instrumentation to protect it.

Information related to the installation:

- Base line reading: *2018-06-14 9h30am.*
- Top casing elevation (inclinometer casing): 130.660
- Instrument coordinates Eastern 2080.803, Northern 5516.495, Elevation 5130.113
- Cumulative Deviation graphs and temperature profile were added in VDV.
- Main Program (DL-13) and calibration program have been updated Rev_04 and Rev_02.

1. Location of the In-Place Inclinometer

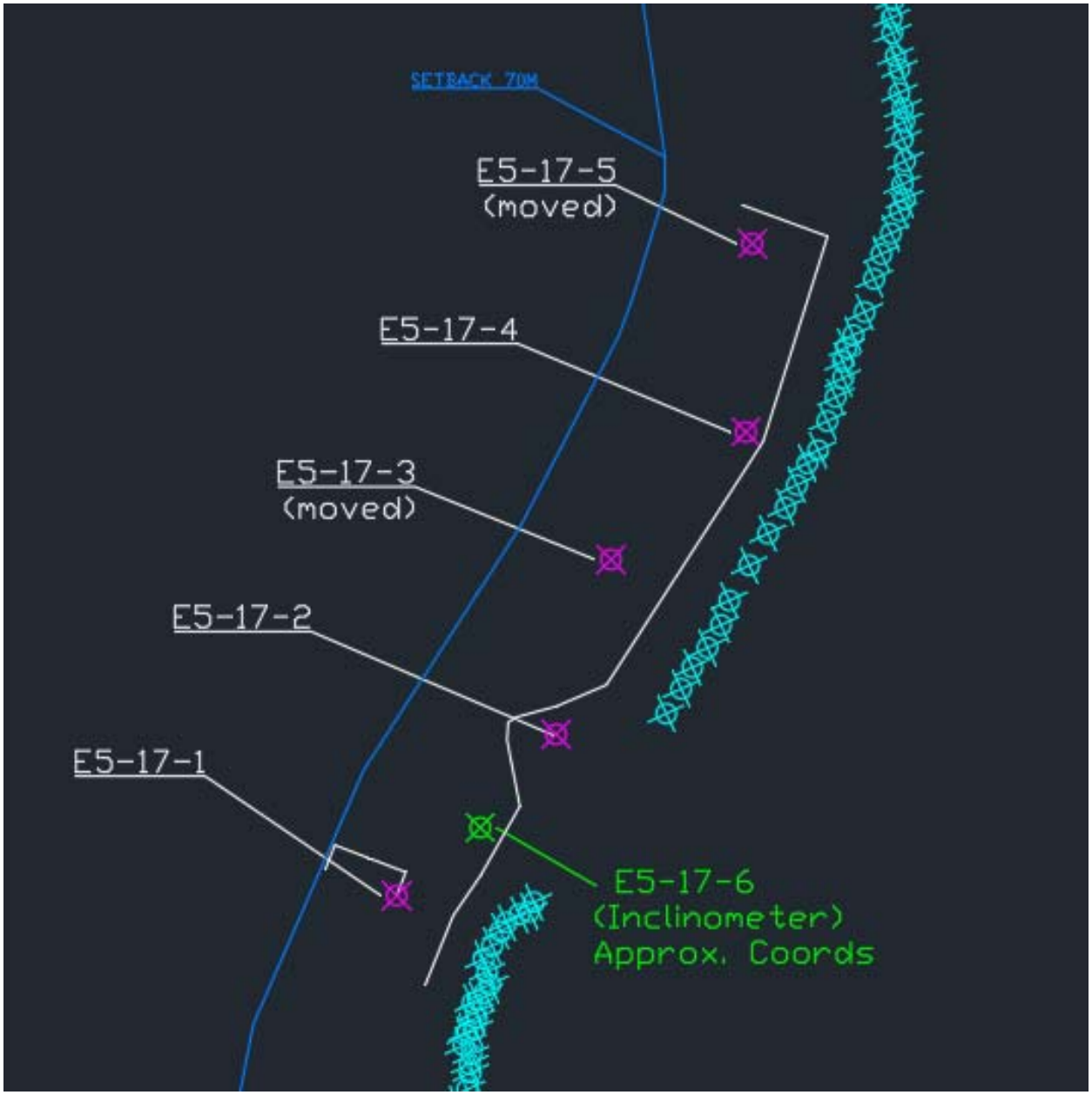


Figure 1.1: Location of the IPI at Portage E5 Pit (E5-17-6).

2. Manufacturer Drawing and Report

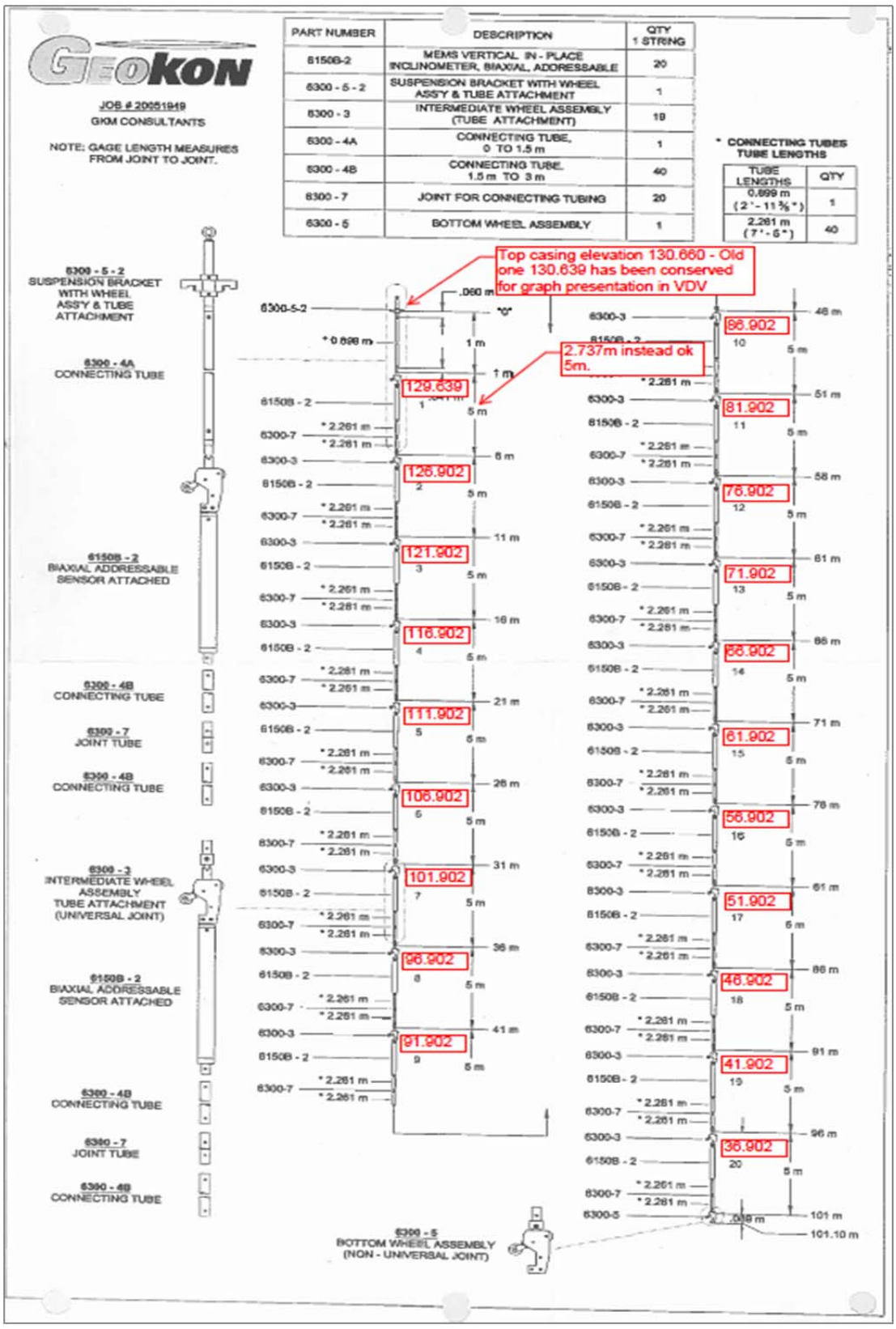
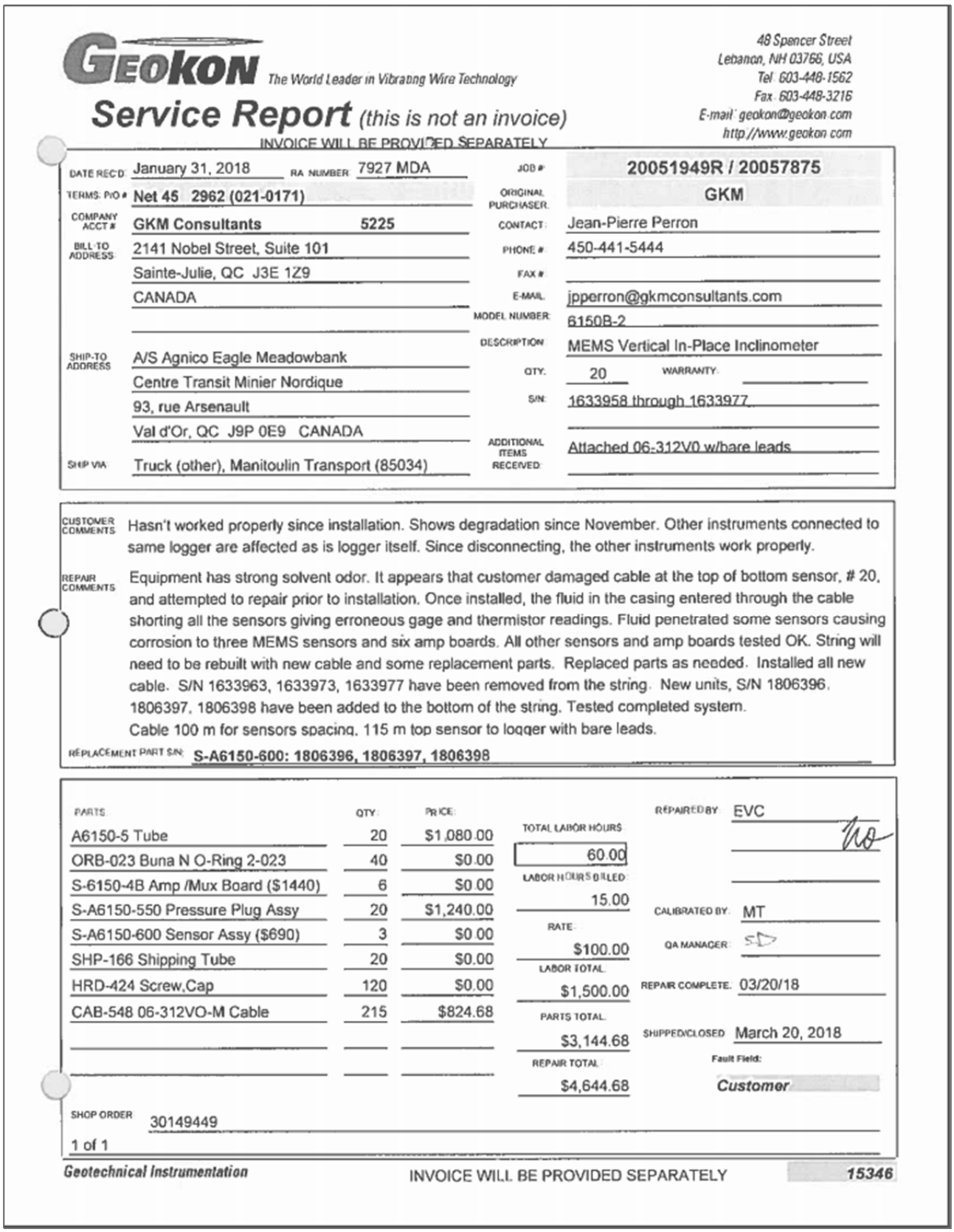


Figure 2.1: IPI Sketch of Installation



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Lebanon, NH 03766, USA
Tel: 603-448-1562
Fax: 603-448-3216
E-mail: geokon@geokon.com
http://www.geokon.com

Service Report (this is not an invoice)

INVOICE WILL BE PROVIDED SEPARATELY

DATE REC'D: January 31, 2018 RA NUMBER: 7927 MDA
TERMS: P/O #: Net 45 2962 (021-0171)
COMPANY ACCT #: GKM Consultants 5225
BILL-TO ADDRESS: 2141 Nobel Street, Suite 101
Sainte-Julie, QC J3E 1Z9
CANADA

SHIP-TO ADDRESS: A/S Agnico Eagle Meadowbank
Centre Transit Minier Nordique
93, rue Arsenault
Val d'Or, QC J9P 0E9 CANADA
SHIP VIA: Truck (other), Manitoulin Transport (85034)

JOB #: 20051949R / 20057875
ORIGINAL PURCHASER: GKM
CONTACT: Jean-Pierre Perron
PHONE #: 450-441-5444
FAX #:
E-MAIL: jpperron@gkmconsultants.com
MODEL NUMBER: 6150B-2
DESCRIPTION: MEMS Vertical In-Place Inclinometer
QTY: 20 WARRANTY:
S/N: 1633958 through 1633977
ADDITIONAL ITEMS RECEIVED: Attached 06-312V0 w/bare leads

CUSTOMER COMMENTS: Hasn't worked properly since installation. Shows degradation since November. Other instruments connected to same logger are affected as is logger itself. Since disconnecting, the other instruments work properly.

REPAIR COMMENTS: Equipment has strong solvent odor. It appears that customer damaged cable at the top of bottom sensor, # 20, and attempted to repair prior to installation. Once installed, the fluid in the casing entered through the cable shorting all the sensors giving erroneous gage and thermistor readings. Fluid penetrated some sensors causing corrosion to three MEMS sensors and six amp boards. All other sensors and amp boards tested OK. String will need to be rebuilt with new cable and some replacement parts. Replaced parts as needed. Installed all new cable. S/N 1633963, 1633973, 1633977 have been removed from the string. New units, S/N 1806396, 1806397, 1806398 have been added to the bottom of the string. Tested completed system.
Cable 100 m for sensors spacing, 115 m top sensor to logger with bare leads.

REPLACEMENT PART S/N: S-A6150-600: 1806396, 1806397, 1806398

PARTS	QTY	PRICE
A6150-5 Tube	20	$1,080.00
ORB-023 Buna N O-Ring 2-023	40	$0.00
S-6150-4B Amp /Mux Board ($1440)	6	$0.00
S-A6150-550 Pressure Plug Assy	20	$1,240.00
S-A6150-600 Sensor Assy ($690)	3	$0.00
SHP-166 Shipping Tube	20	$0.00
HRD-424 Screw,Cap	120	$0.00
CAB-548 06-312VO-M Cable	215	$824.68

TOTAL LABOR HOURS: 60.00
LABOR HOURS BILLED: 15.00
RATE: $100.00
LABOR TOTAL: $1,500.00
PARTS TOTAL: $3,144.68
REPAIR TOTAL: $4,644.68

REPAIRED BY: EVC
CALIBRATED BY: MT
QA MANAGER:
REPAIR COMPLETE: 03/20/18
SHIPPED/CLOSED: March 20, 2018
Fault Field: Customer

SHOP ORDER: 30149449
1 of 1

Geotechnical Instrumentation INVOICE WILL BE PROVIDED SEPARATELY 15346

Figure 2.1: GKM Service Report

3. Photos of the Installation

Photo 3.1 : Casing and PVC pipe before the re-installation of the IPI

Photo 3.2 : Temperature monitored during installation

Photo 3.3: Preparation for the installation of the instrument and equipment

Photo 3.4 : Sensors, cables and Connecting Tube before being assembled

Photo 3.4 : Sensors, cables and Connecting Tube before being assembled

Photo 3.5: Cleaning the connecting tubes before assembly by a professional.

Photo 3.6: Connecting tube gently slid down the casing.

Photo 3.6: Connecting tube gently slid down the casing.

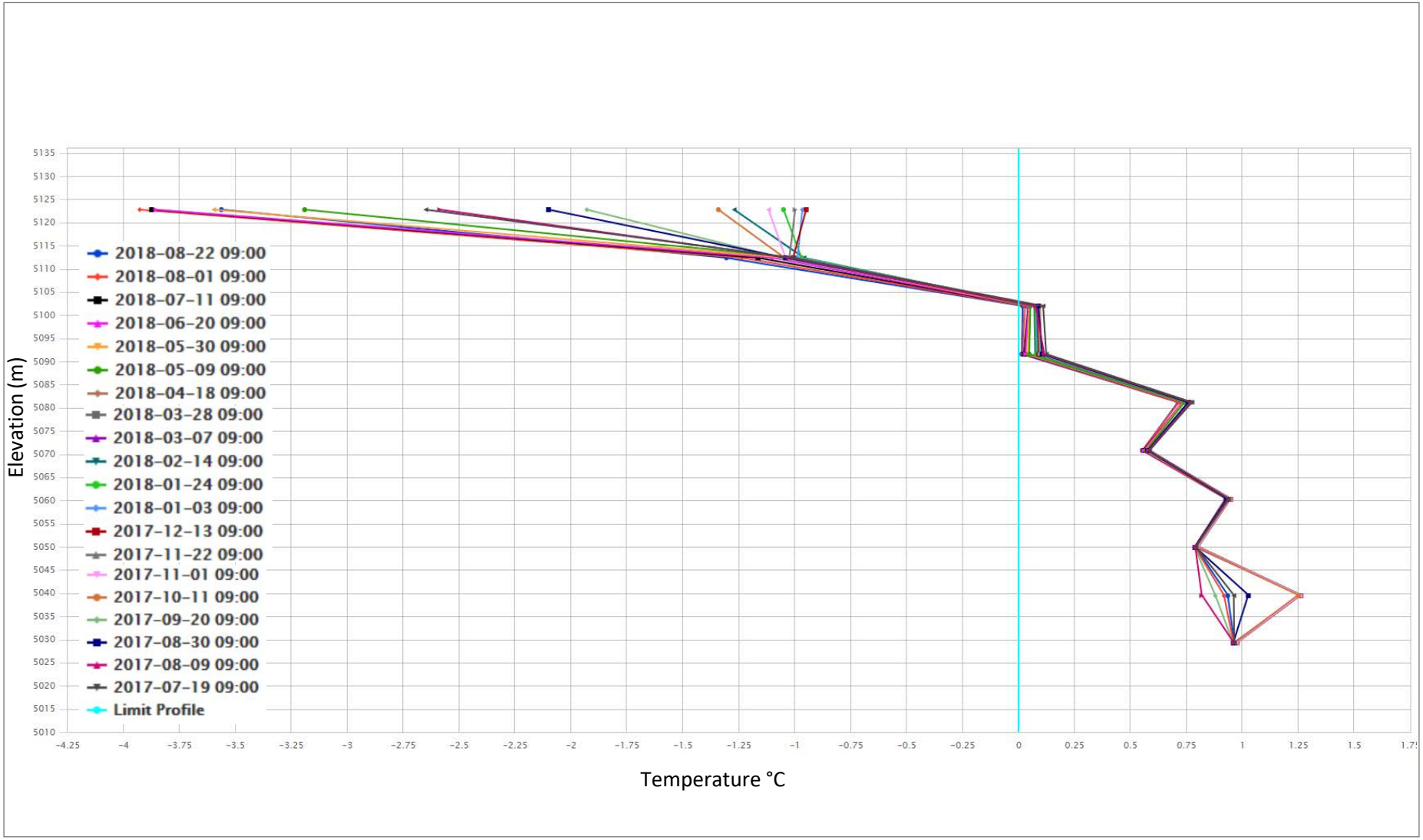
Photo 3.8: Preparation and set-up for the cable splicing

Photo 3.9: Grout added around the top of the casing to stabilize it

Photo 3.10: Tires placed around the IPI to protect the instrument.

APPENDIX B

GOOSE PIT INSTRUMENTATION DATA



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

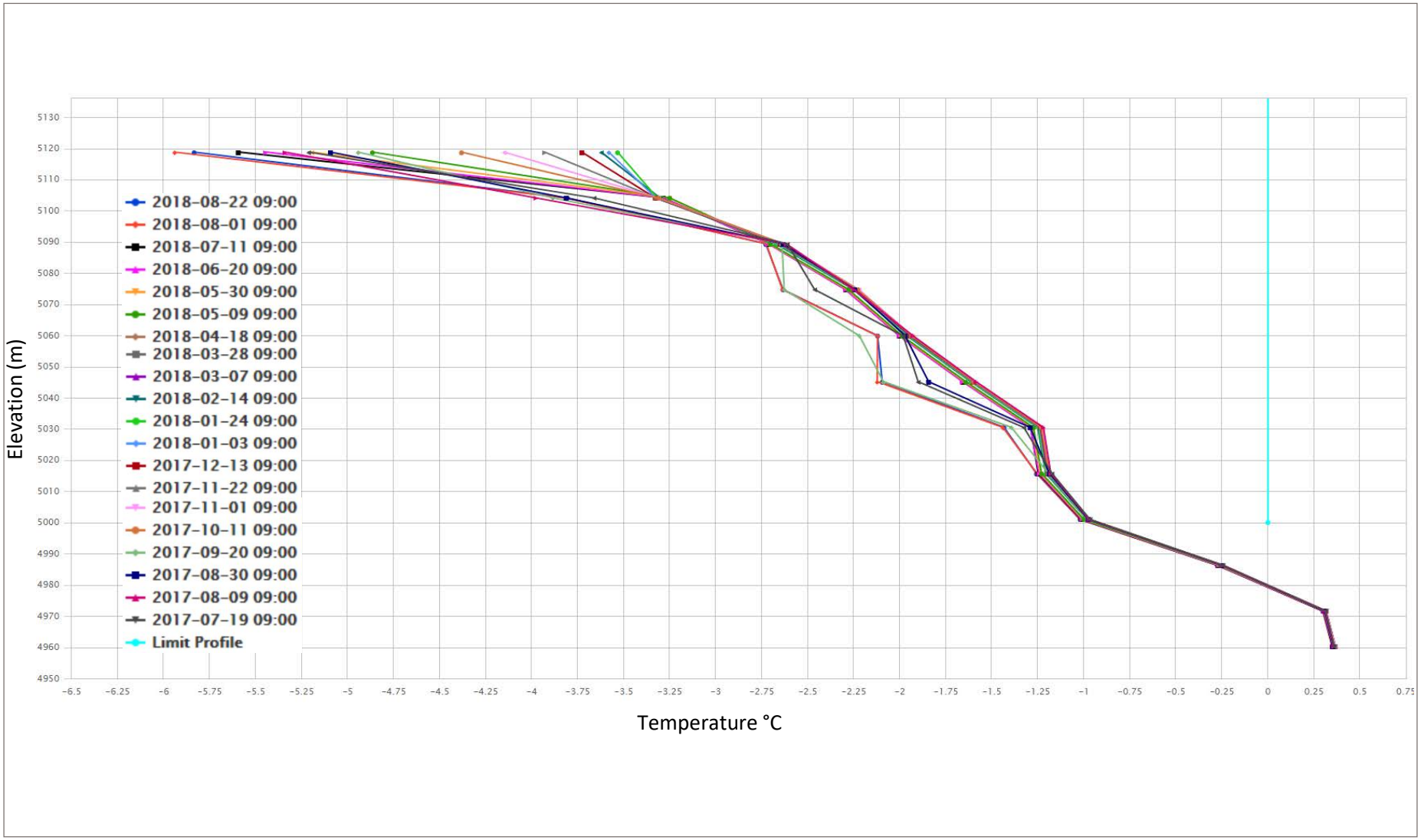
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Thermistor Cable GPIT-13

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-1



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

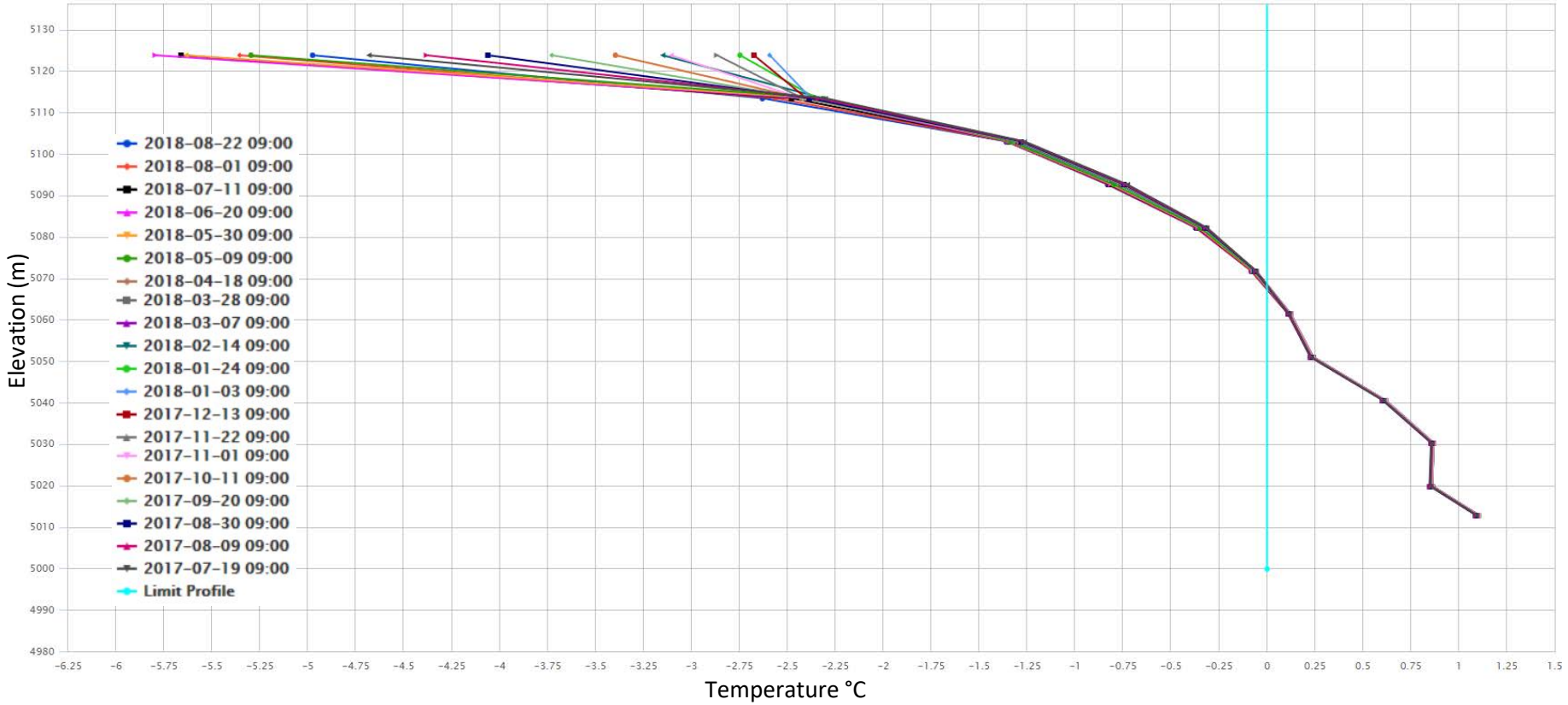
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Thermistor Cable GPIT-14

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-2



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

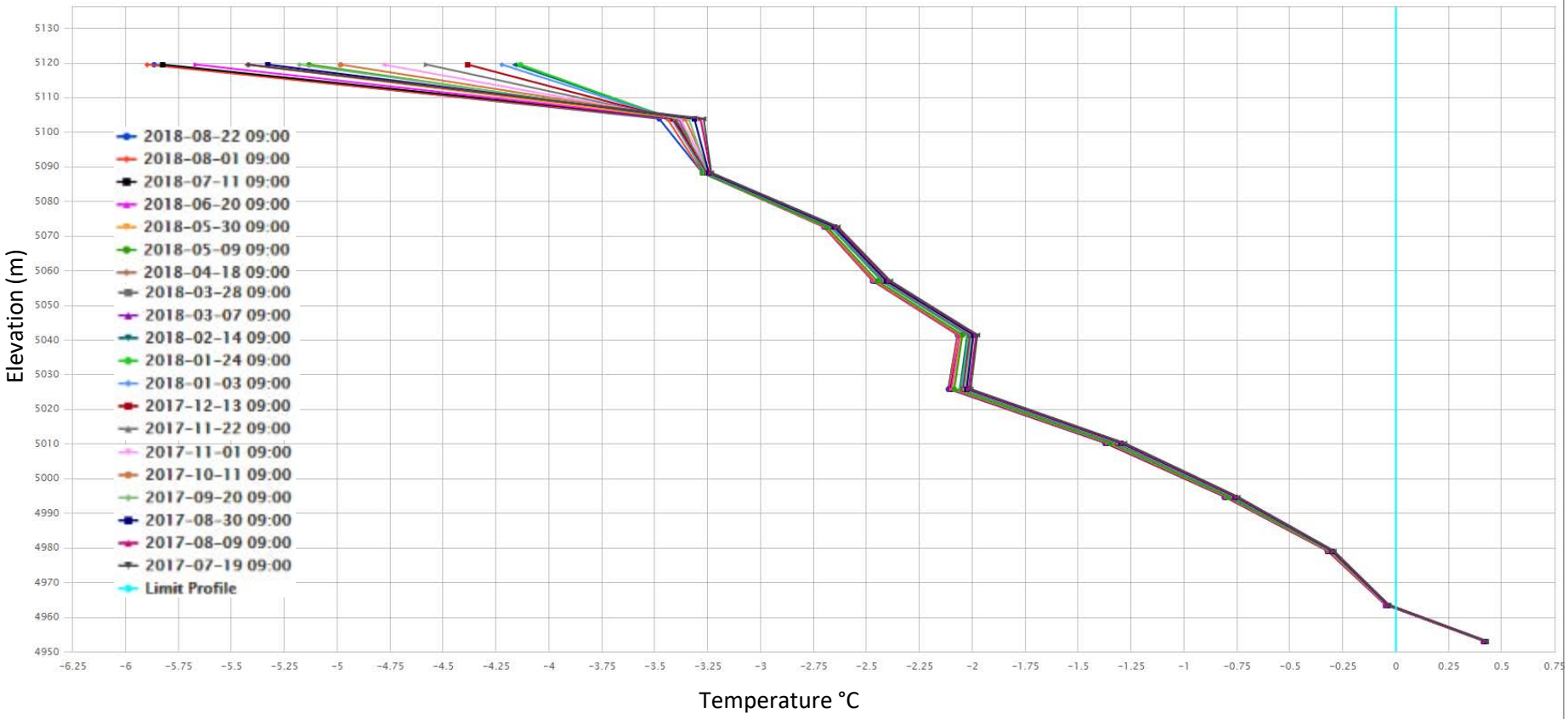
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Thermistor Cable GPIT-16

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-3



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

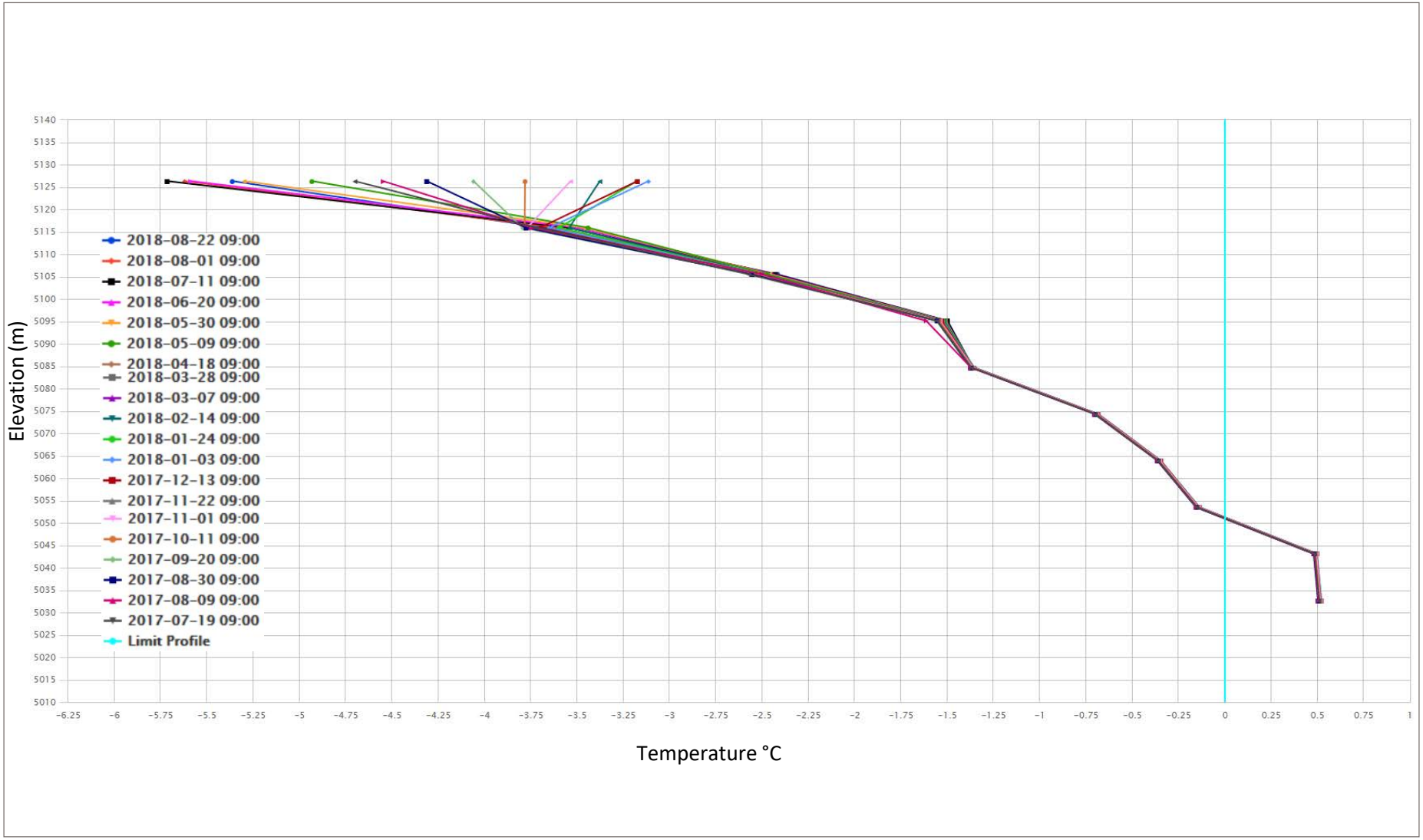
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Thermistor Cable GPIT-17

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-4



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

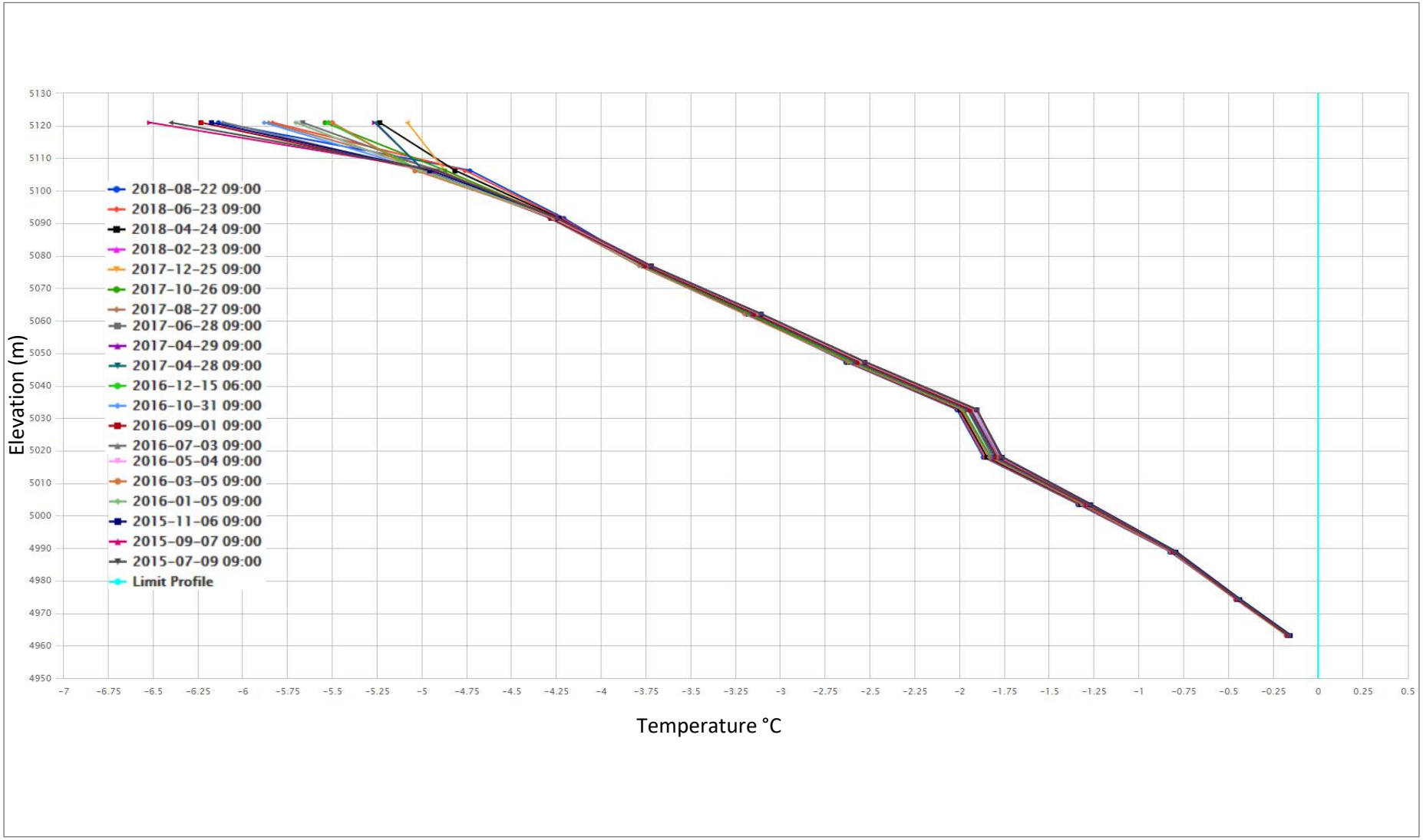
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Thermistor Cable GPIT-19

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-5



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

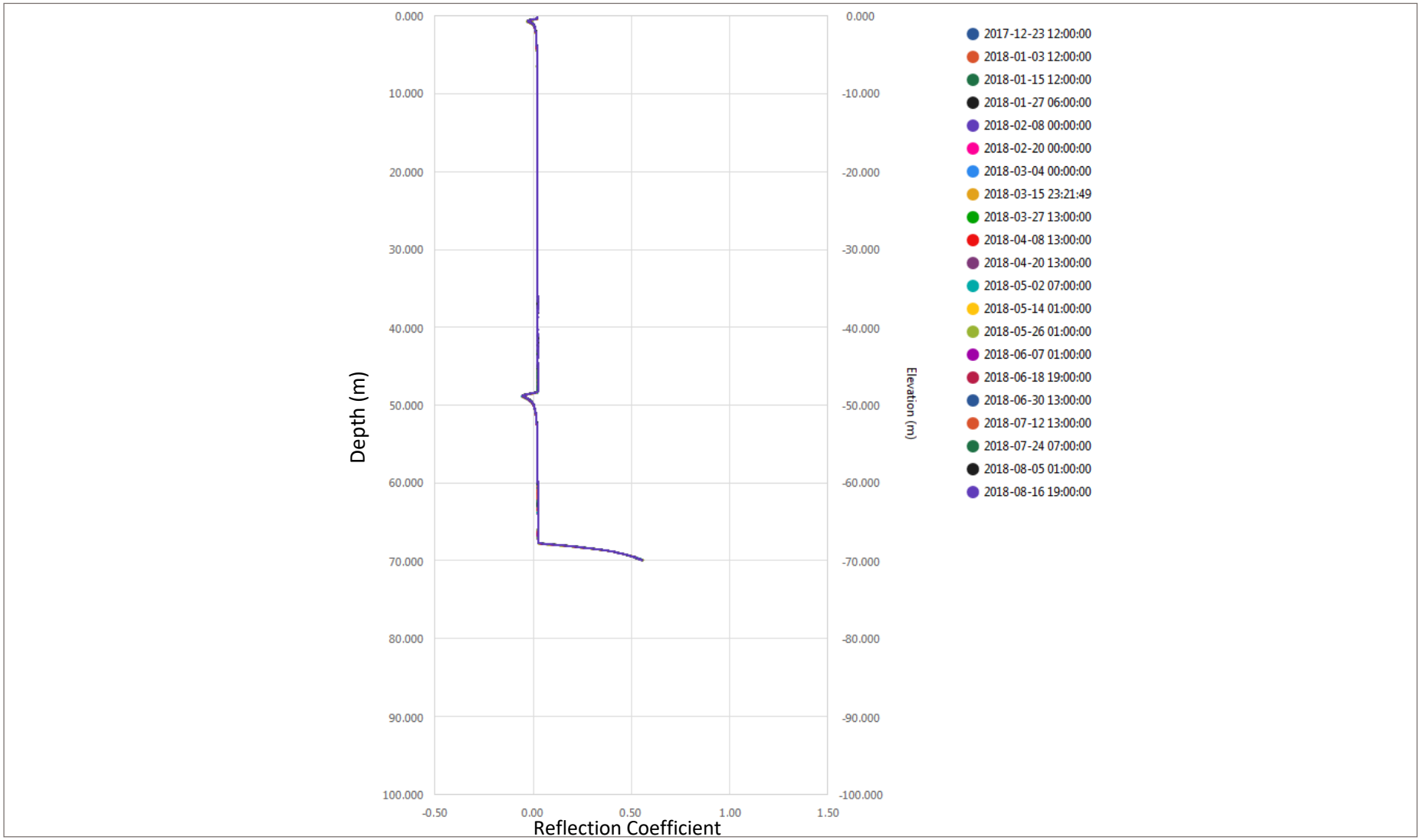
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Thermistor Cable GPIT-20

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-6



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

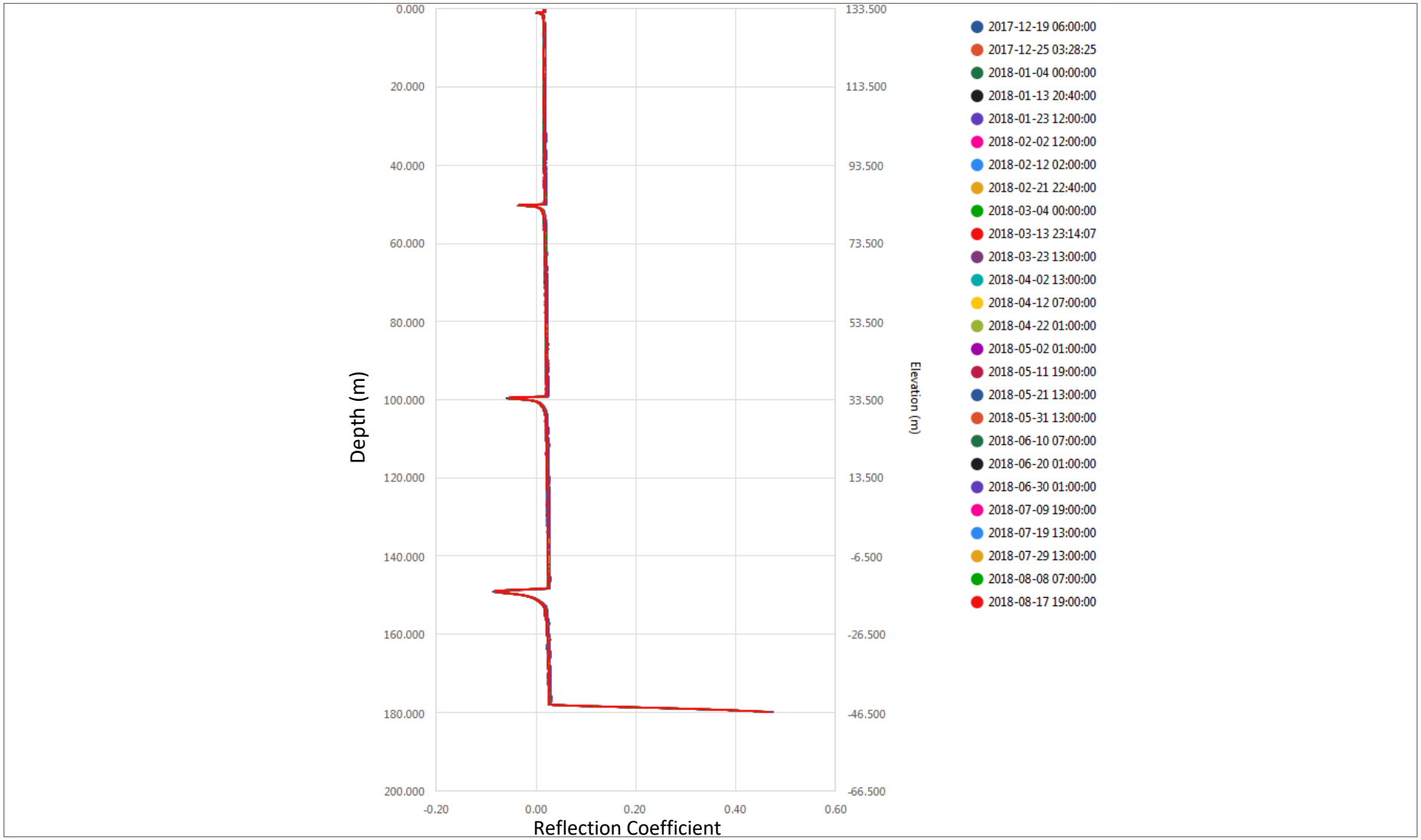
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
TDR Data TDR-11

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-7



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

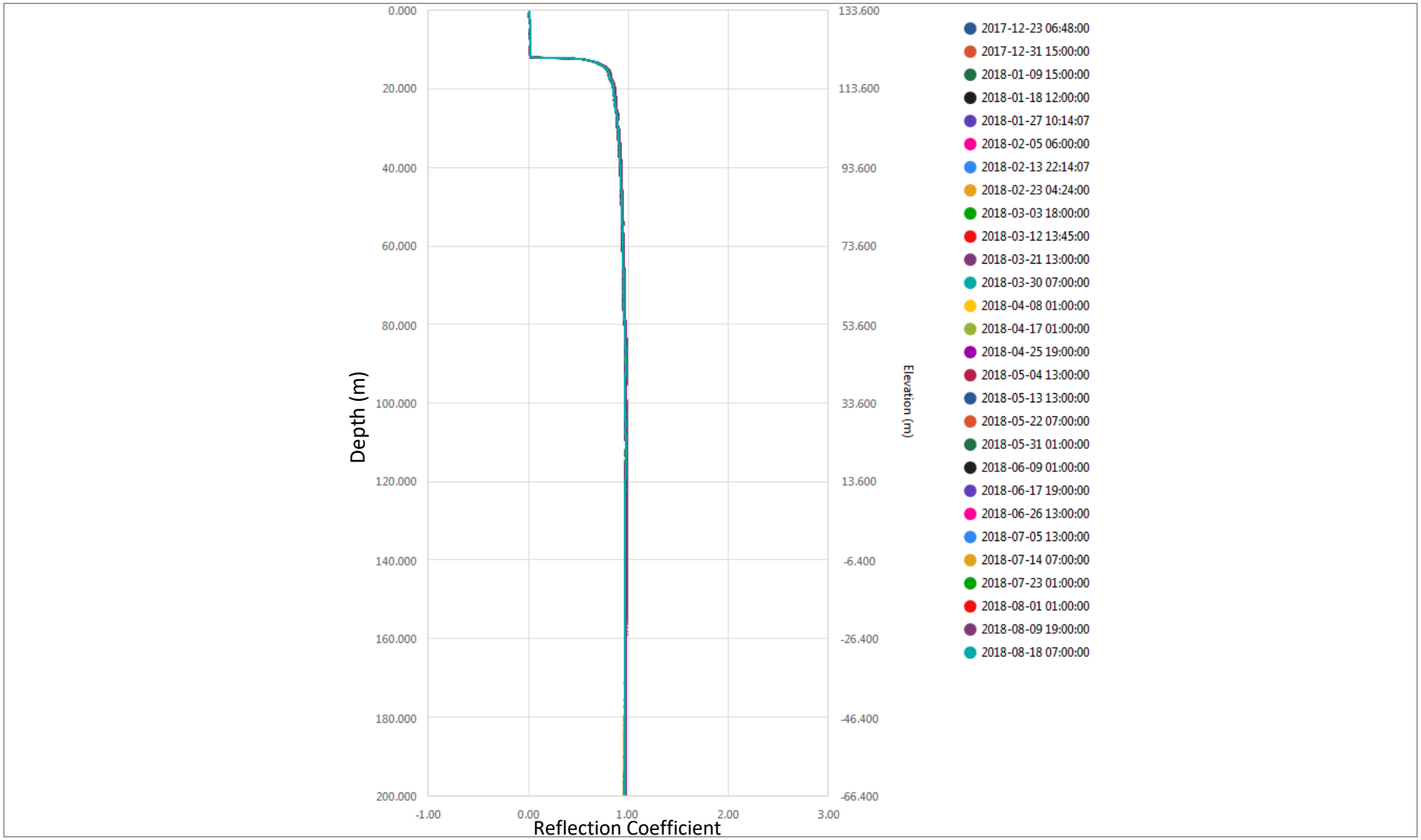
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
TDR Data TDR-12

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-8



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

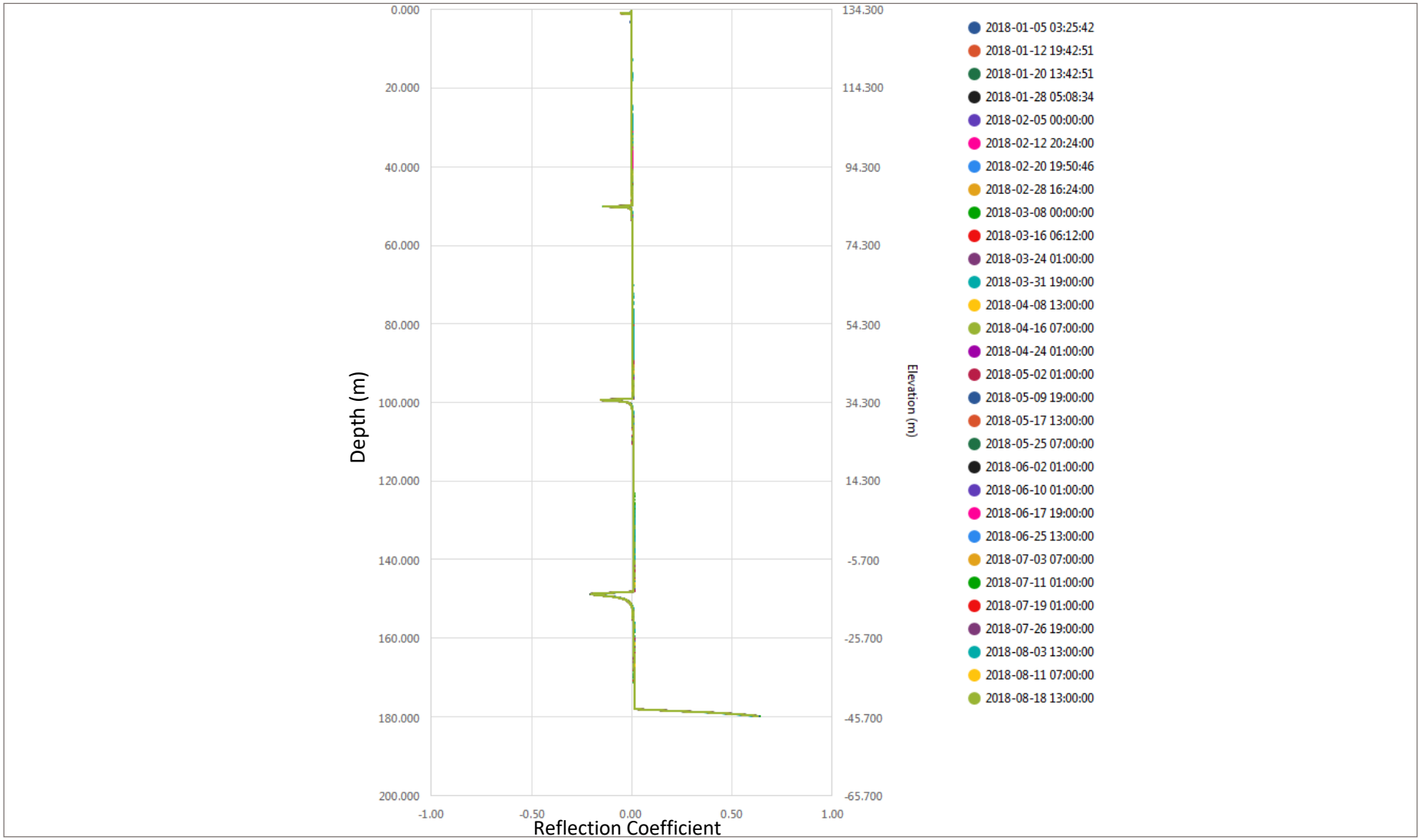
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
TDR Data TDR-14

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-9



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

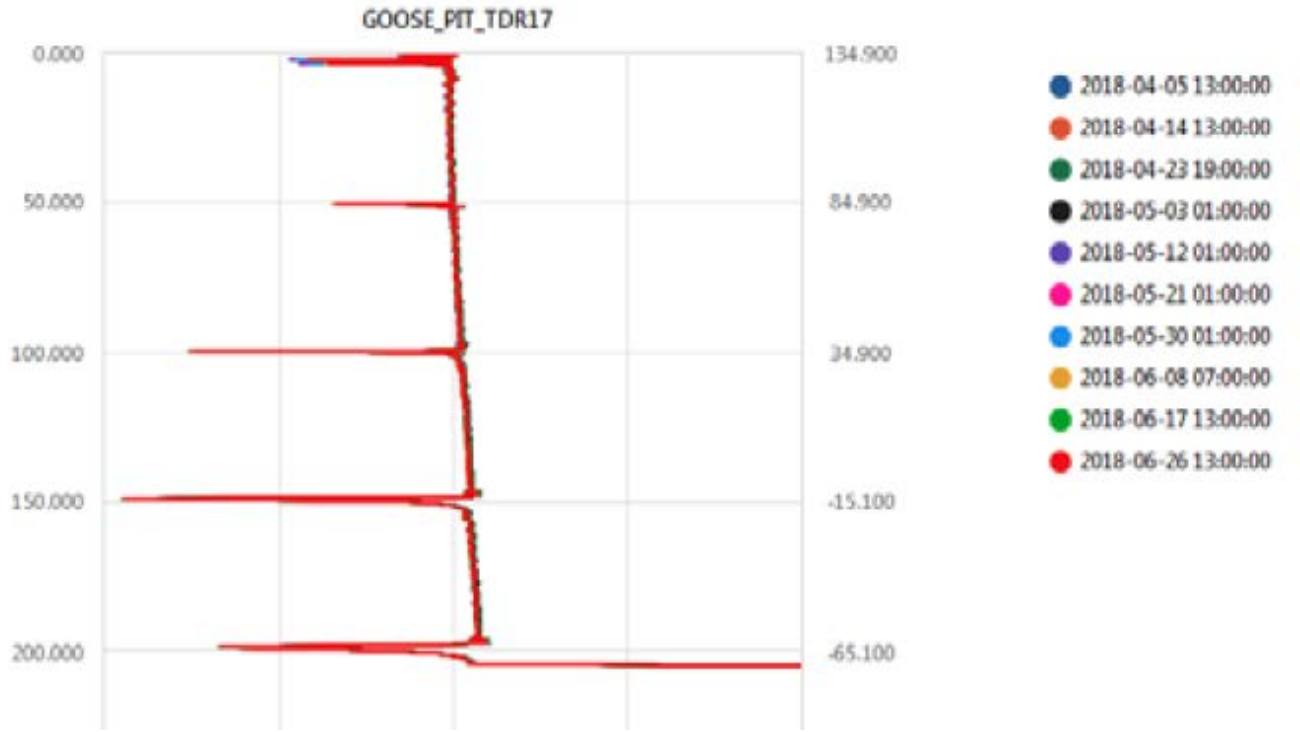
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
TDR Data TDR-15

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-10



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

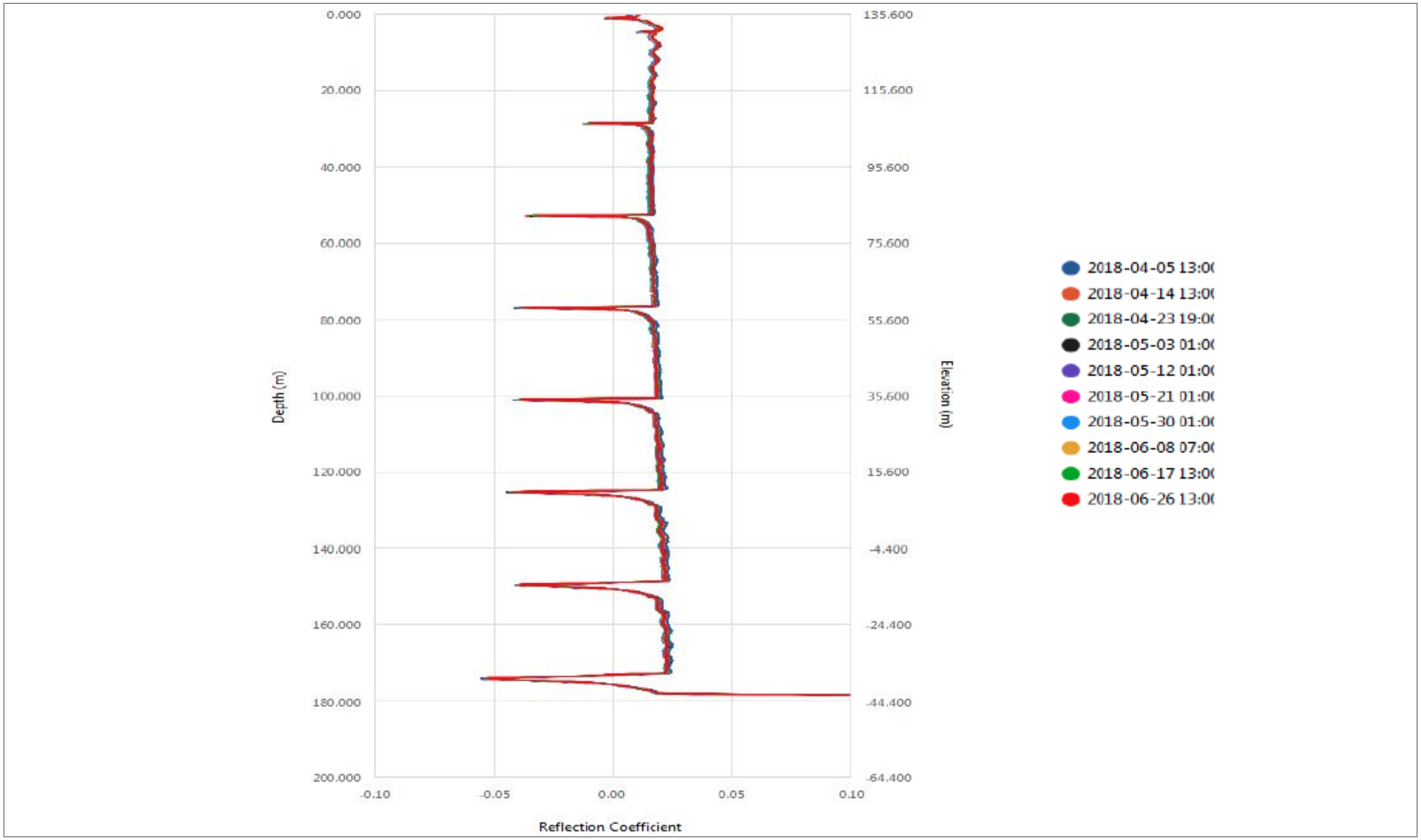
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
TDR Data TDR-17

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-11



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE
MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

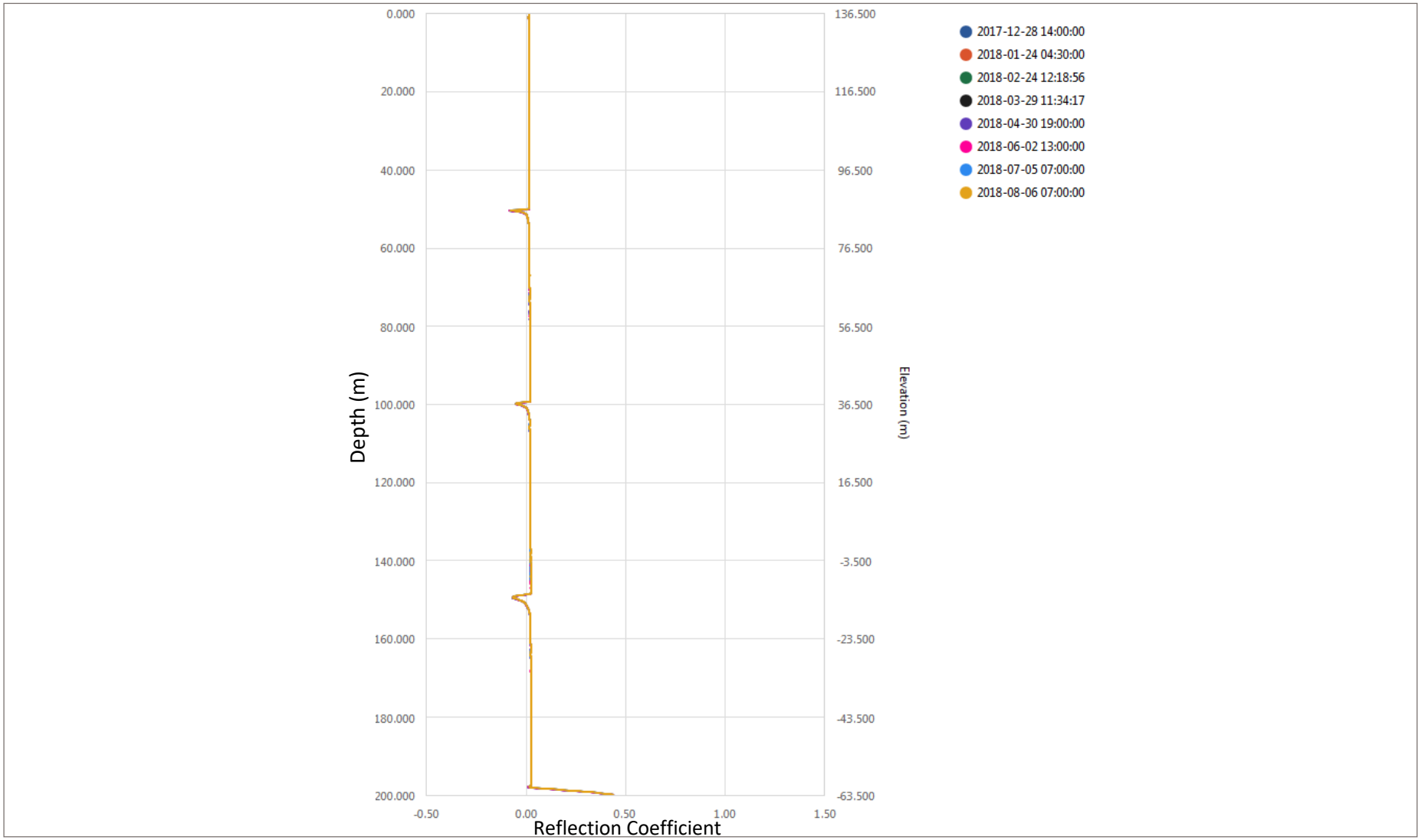
Goose Pit
TDR Data TDR-18

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE
VANCOUVER

DATE
DECEMBER 2018

Figure B-12



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

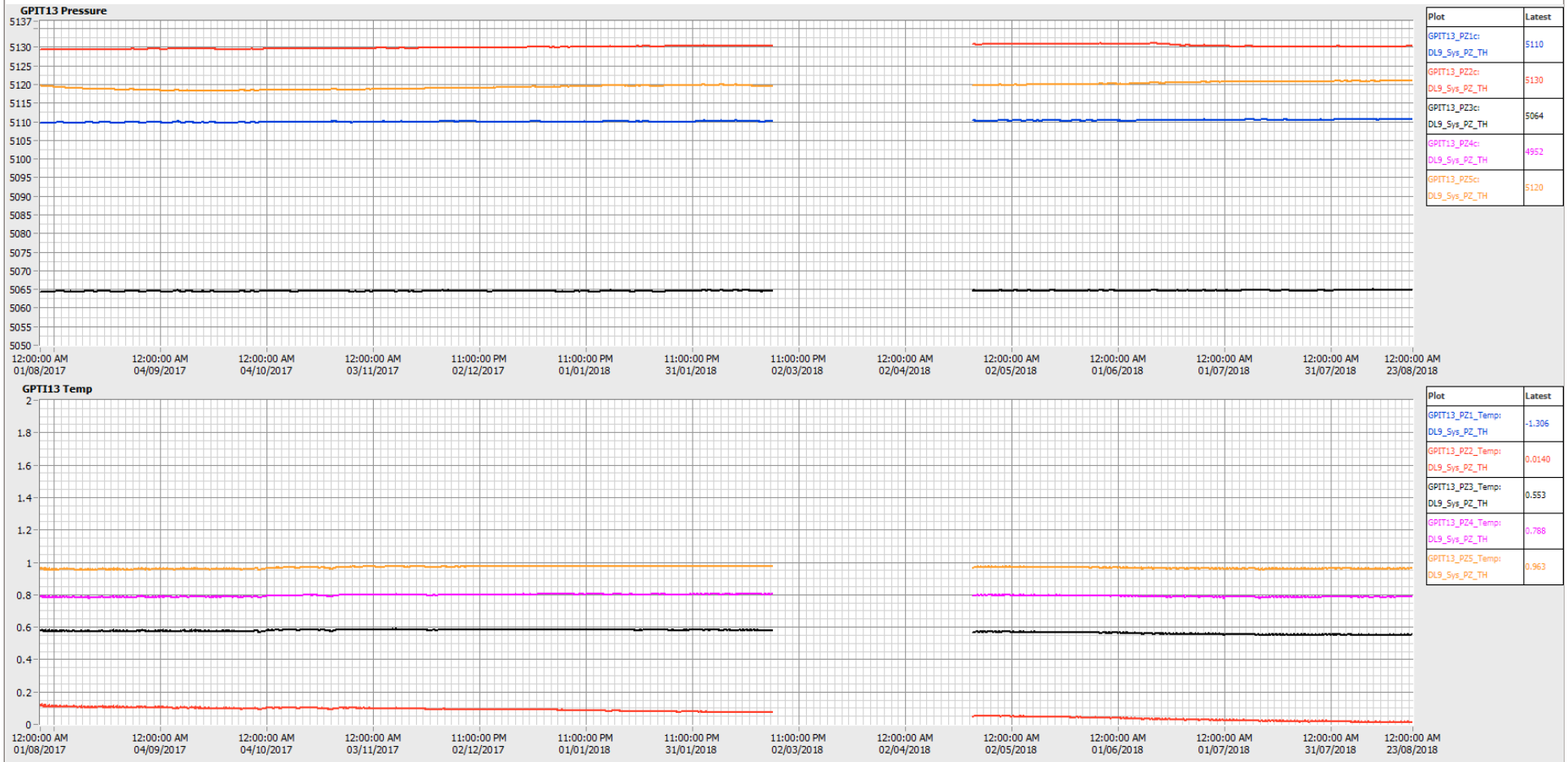
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
TDR Data TDR-20

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-13



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

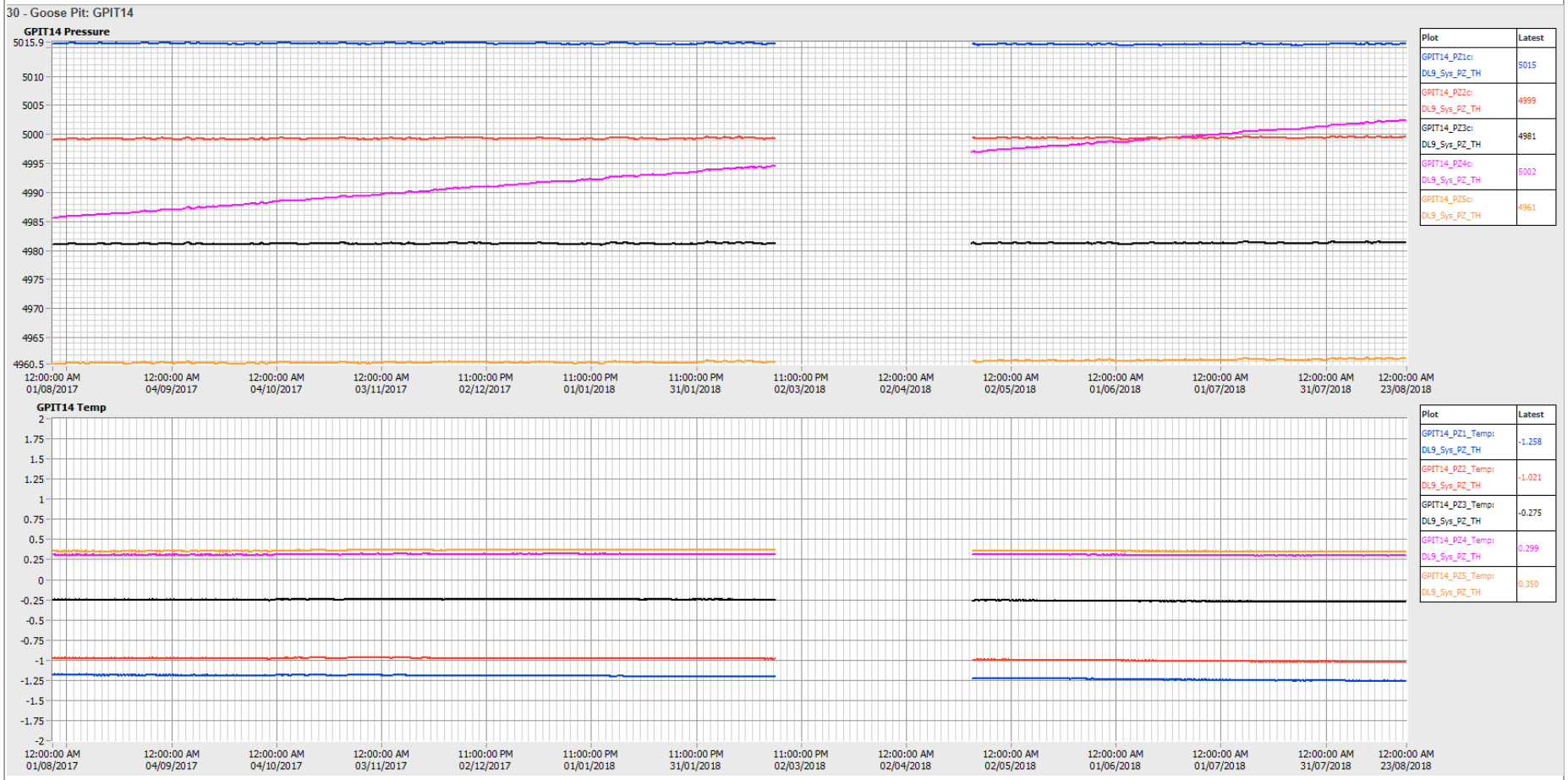
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Piezometer Data GPIT-13

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-14



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

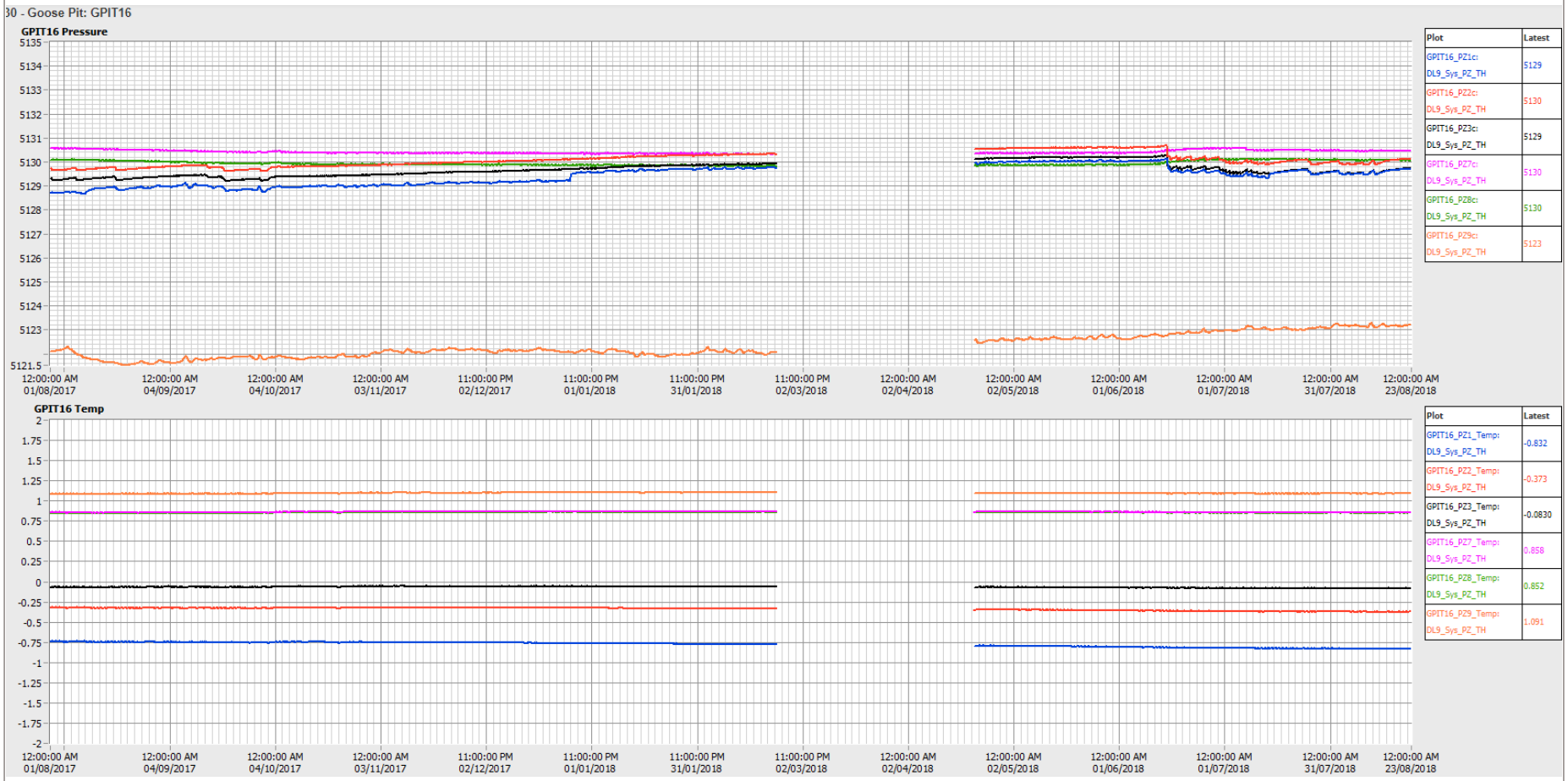
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Piezometer Data GPIT-14

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-15



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Piezometer Data GPIT-16

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-16

LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Piezometer Data GPIT-17

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-17

LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Piezometer Data GPIT-19

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-18

LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Goose Pit
Piezometer Data GPIT-20

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

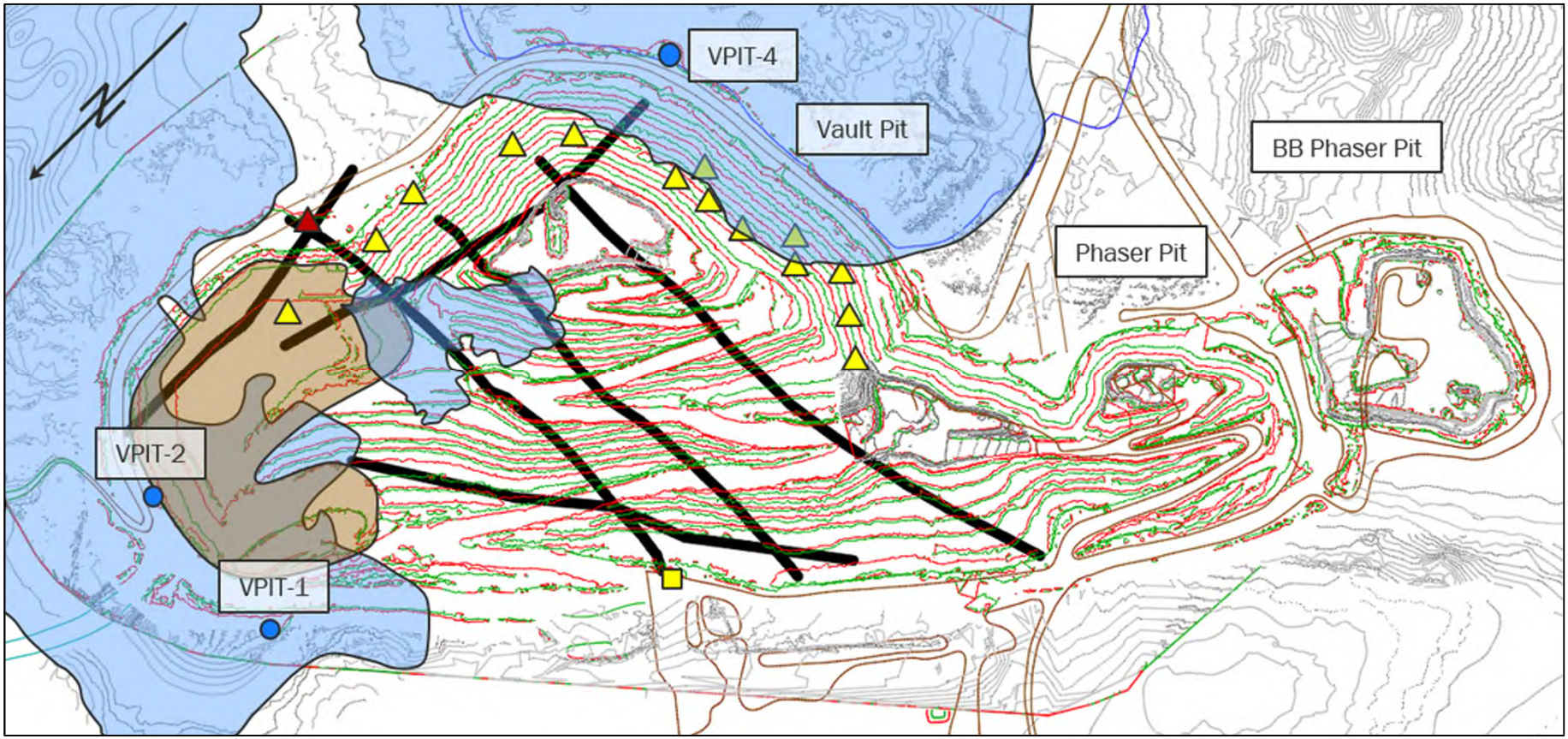
OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure B-19

APPENDIX C

VAULT PIT INSTRUMENTATION DATA

- Example Ice Wall Inspection – January 1, 2018



LEGEND

- Piezometers and Thermistor
- Prism monitoring station
- Prism location (approximate)
- Back sight
- Former lake shoreline
- Waste rock dump footprint

NOTES

Data provided by Agnico Eagle Mines Ltd. Locations are approximate.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

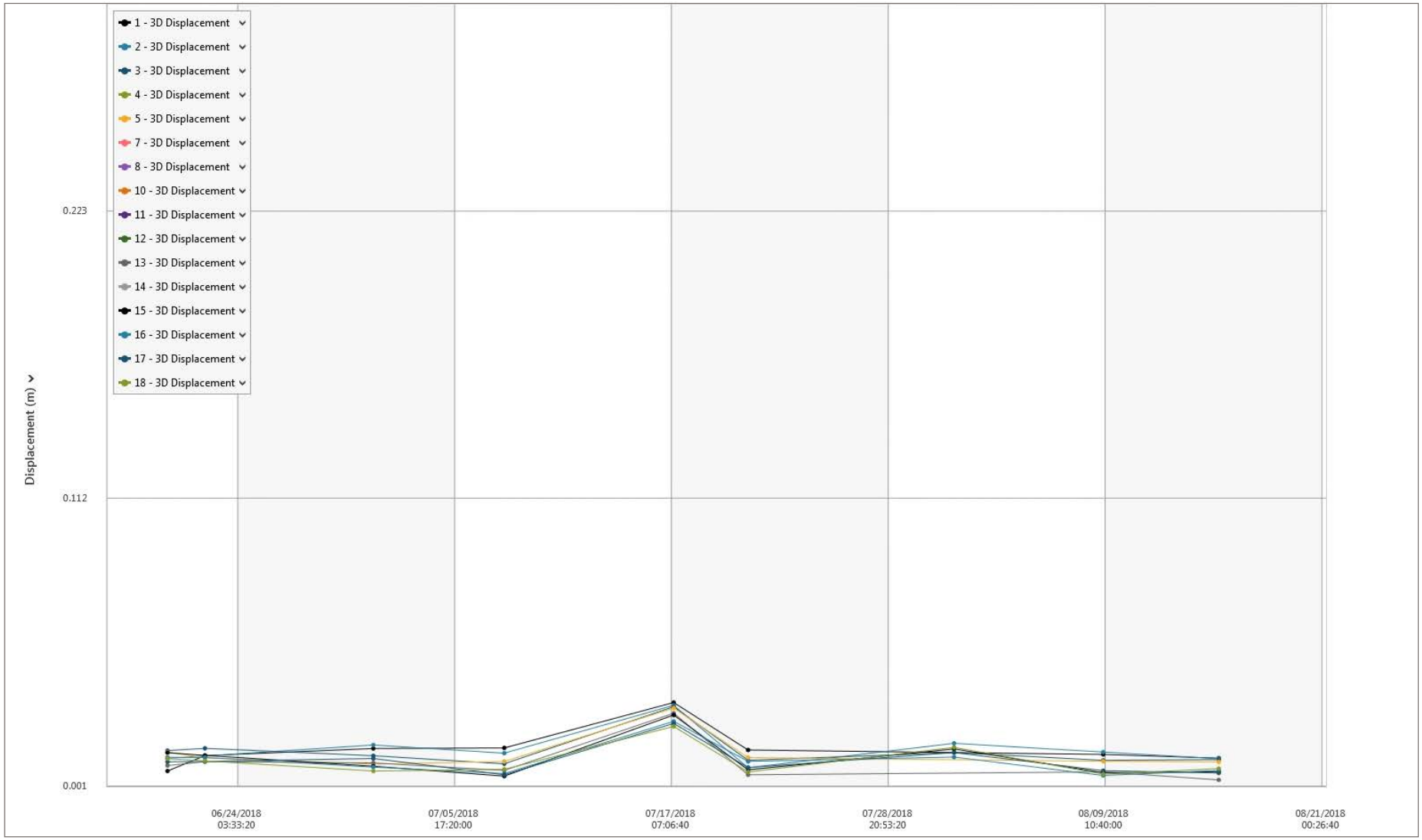
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Prism and Instrumentation Plan

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	CJC	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-1



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

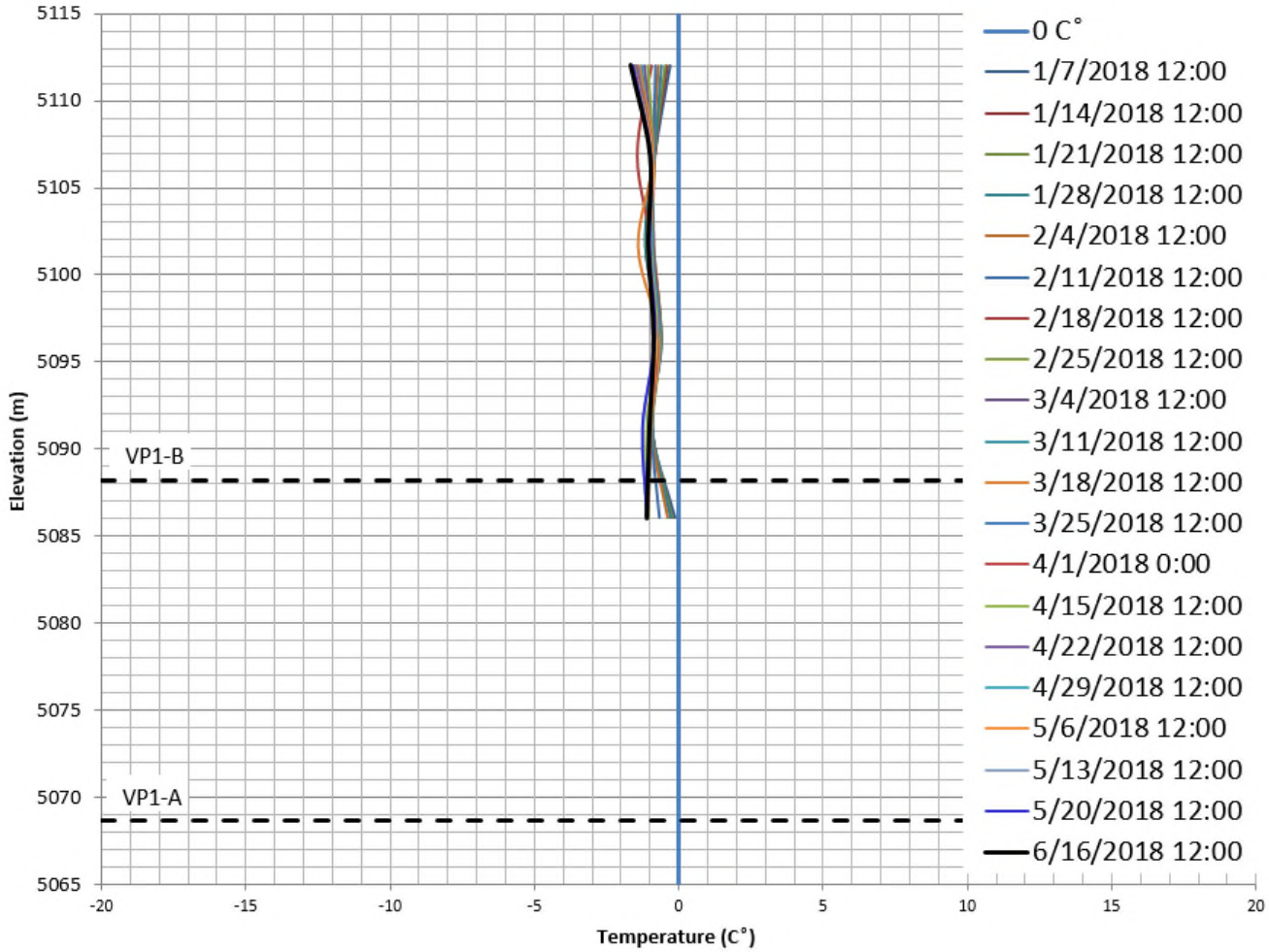
Vault Pit
Prism Data Plot

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-2

VP1-TH1 Bead temperature VS elevation 2018



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE
MEADOWBANK

TETRA TECH

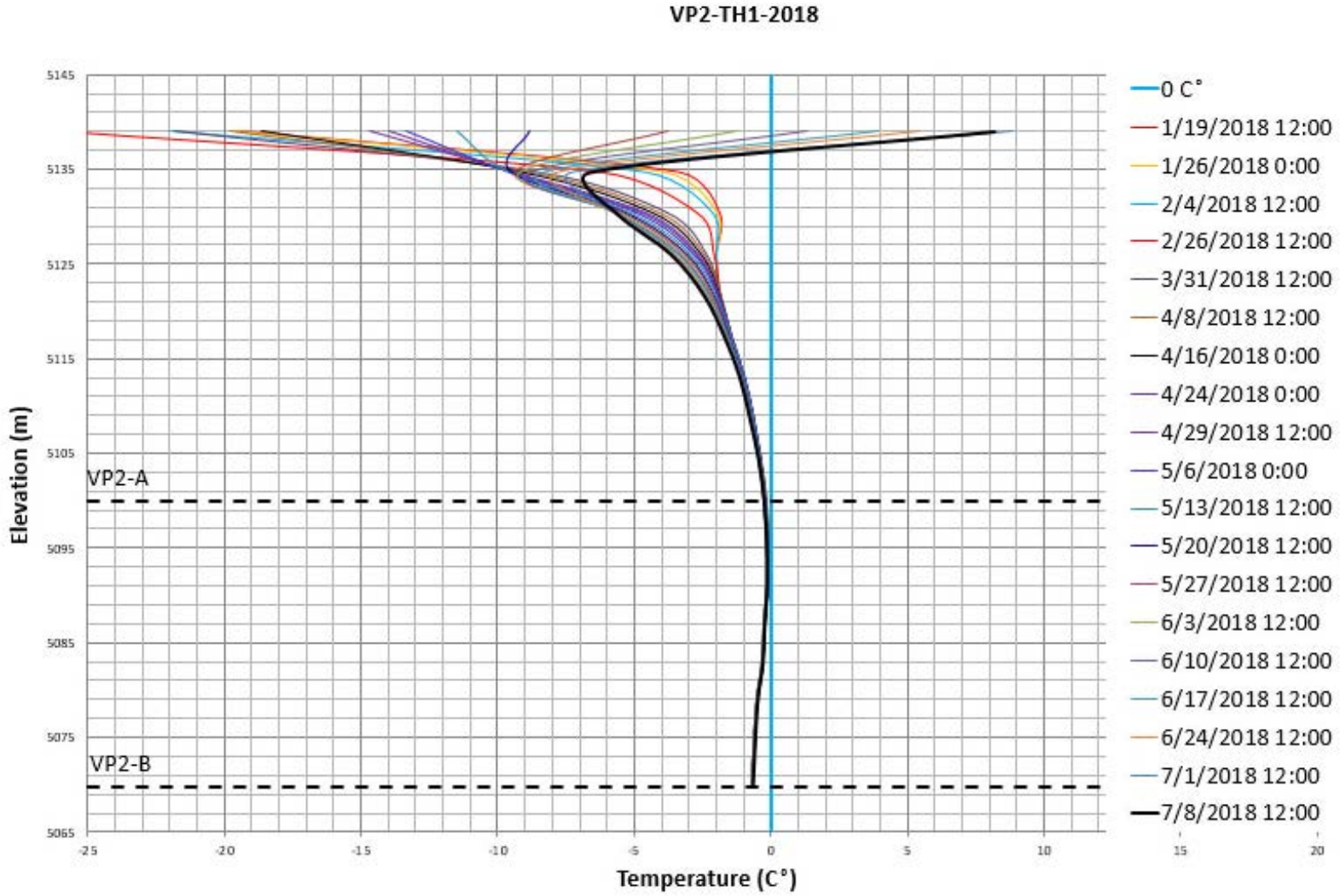
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Thermistor Cable VP1 – TH1

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-3



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE
MEADOWBANK

TETRA TECH

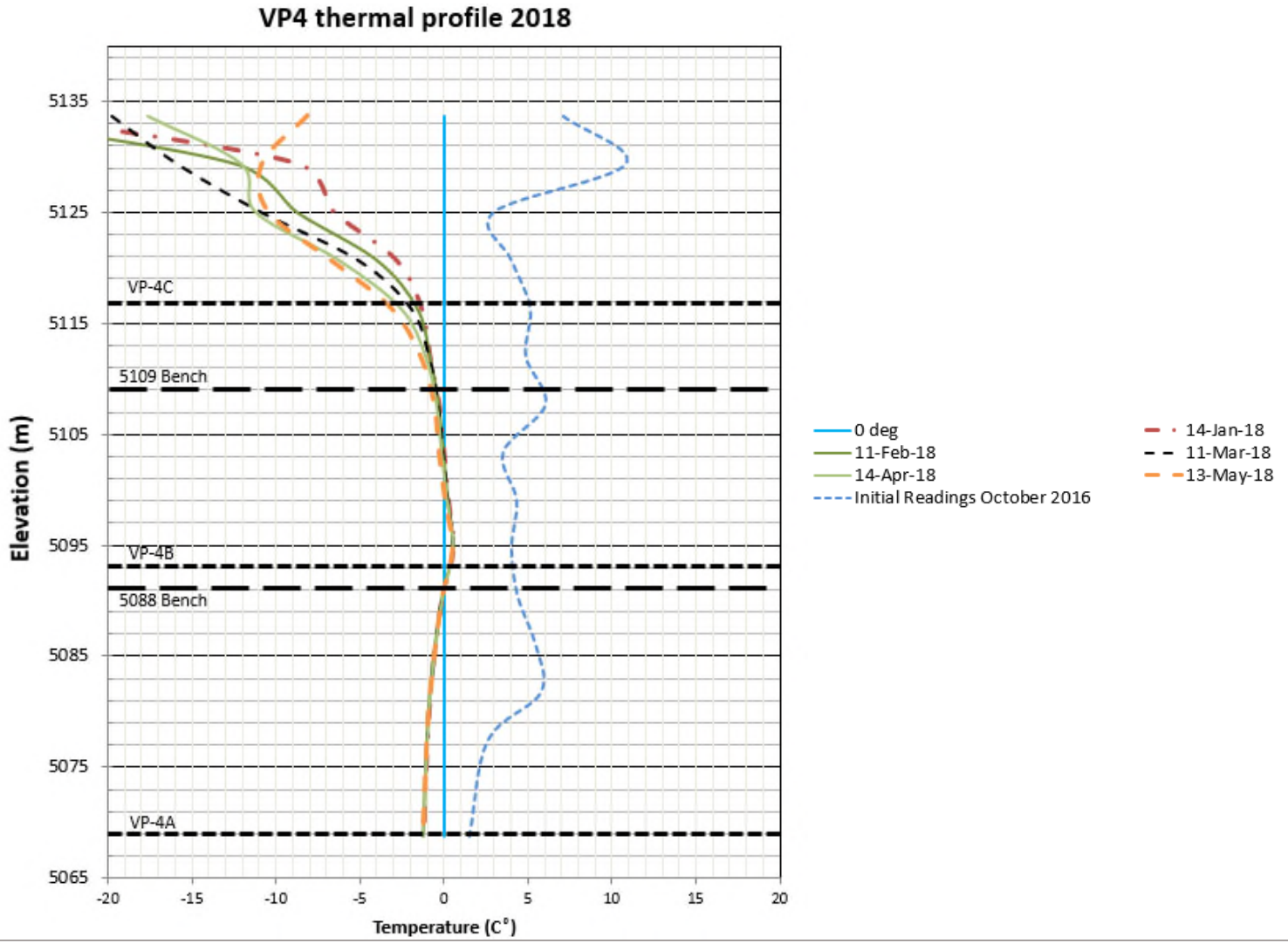
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Thermistor Cable VP2 – TH1

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-4



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE MEADOWBANK

TETRA TECH

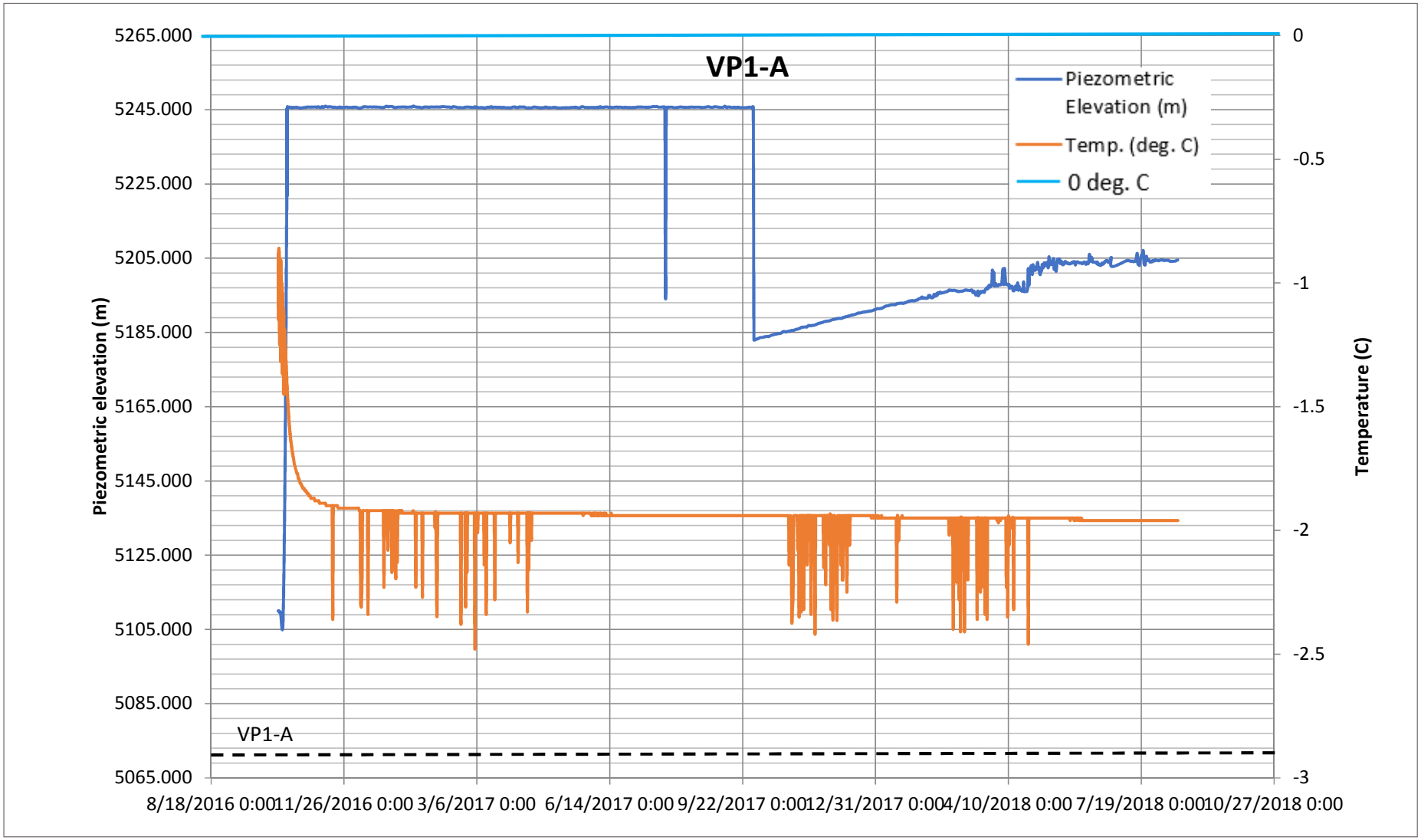
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Thermistor Cable VP4 – TH1

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-5



LEGEND

Piezometer frozen

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

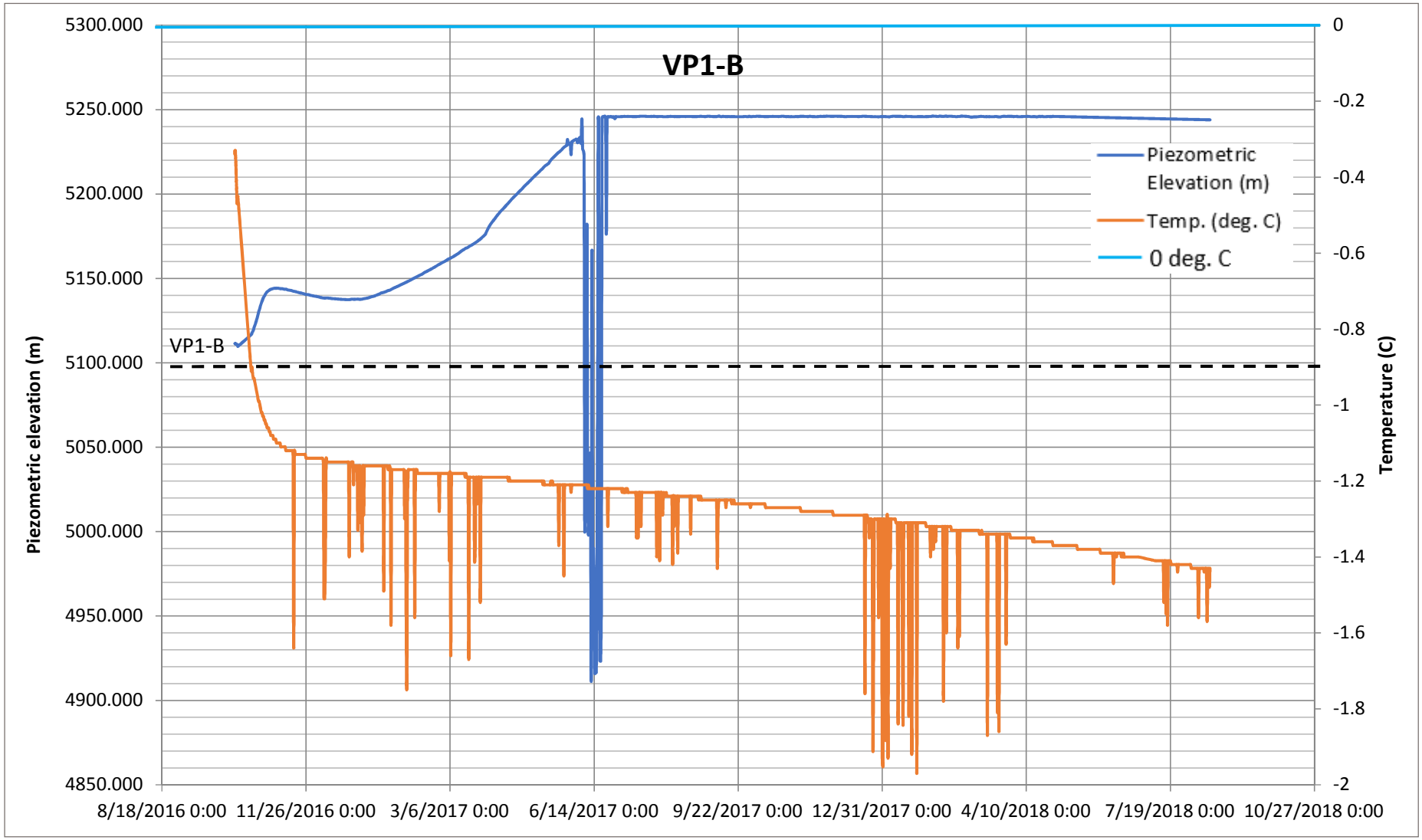
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Piezometer Data VP1-A

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-6



LEGEND

Piezometer frozen

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

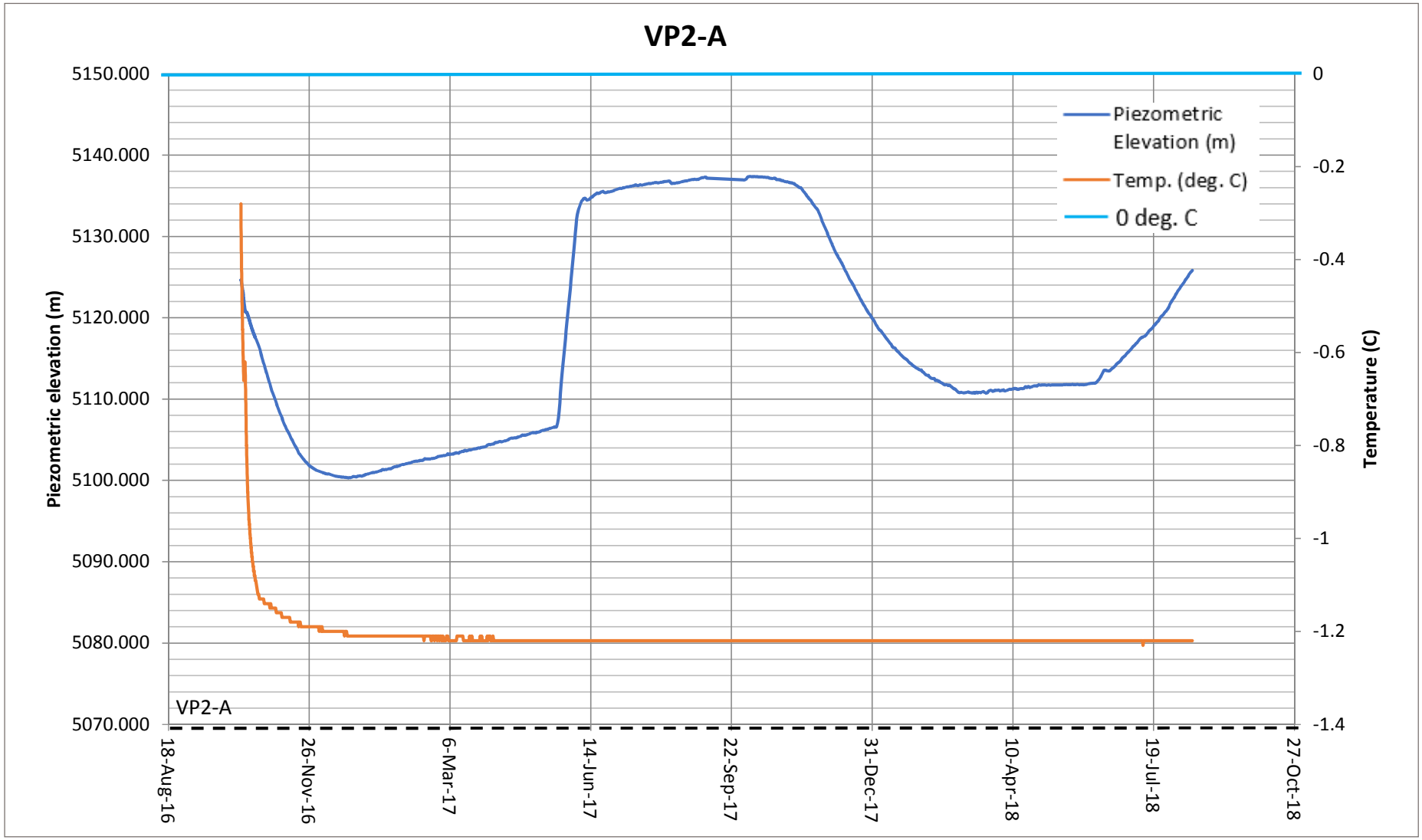
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Piezometer Data VP1-B

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-7



LEGEND

Piezometer frozen

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

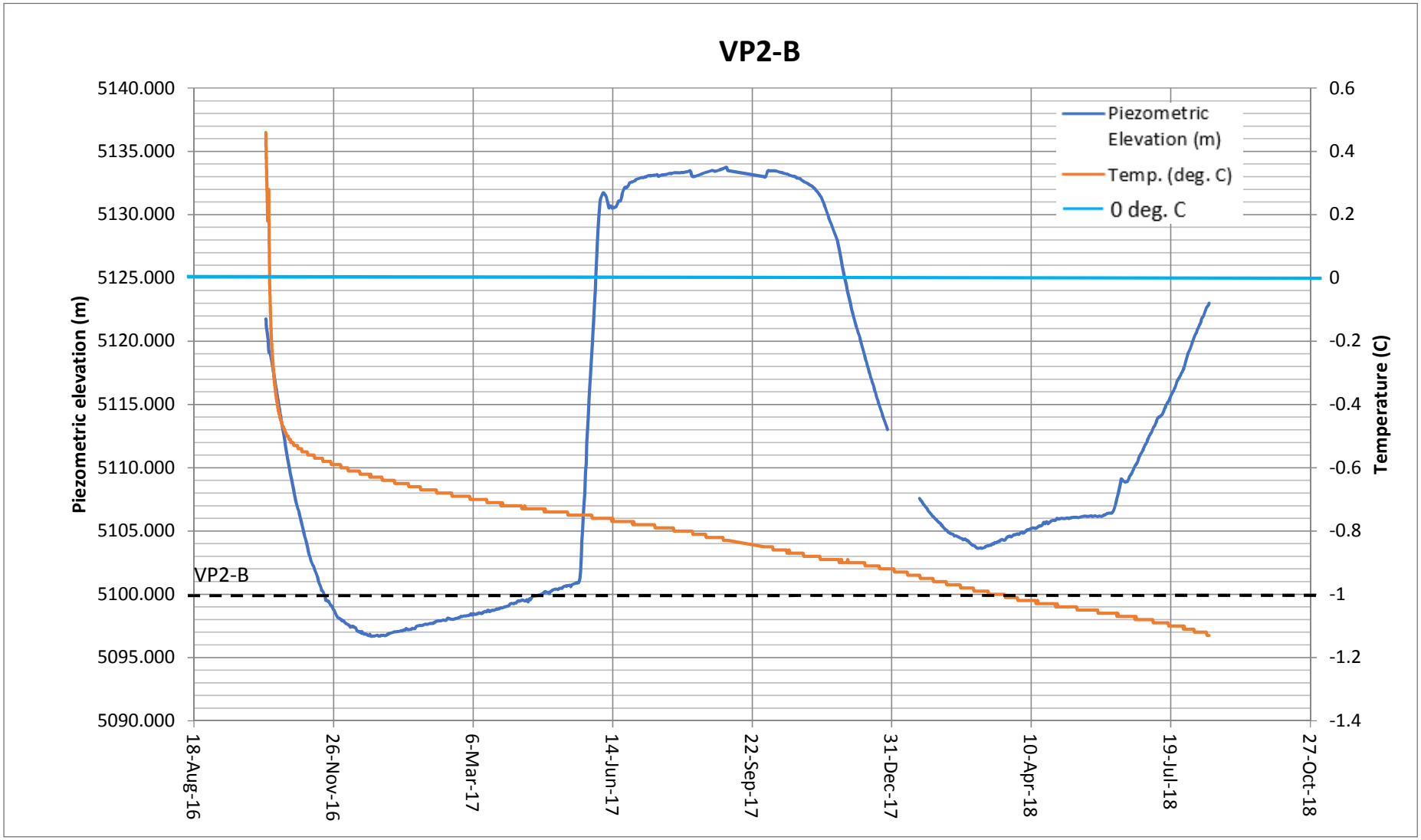
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Piezometer Data VP2-A

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-8



LEGEND

Piezometer frozen

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

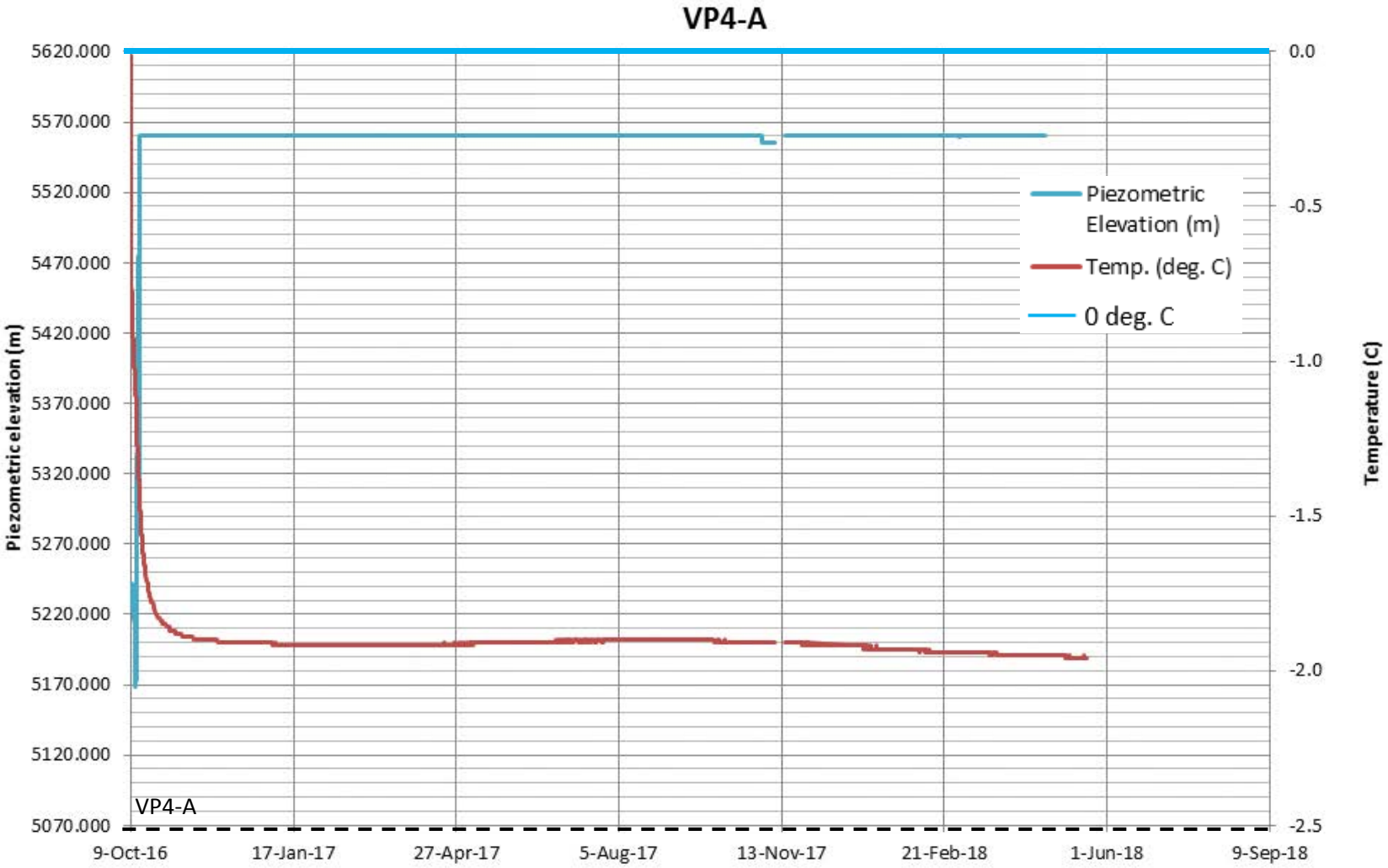
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Piezometer Data VP2-B

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-9



LEGEND

Piezometer frozen

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

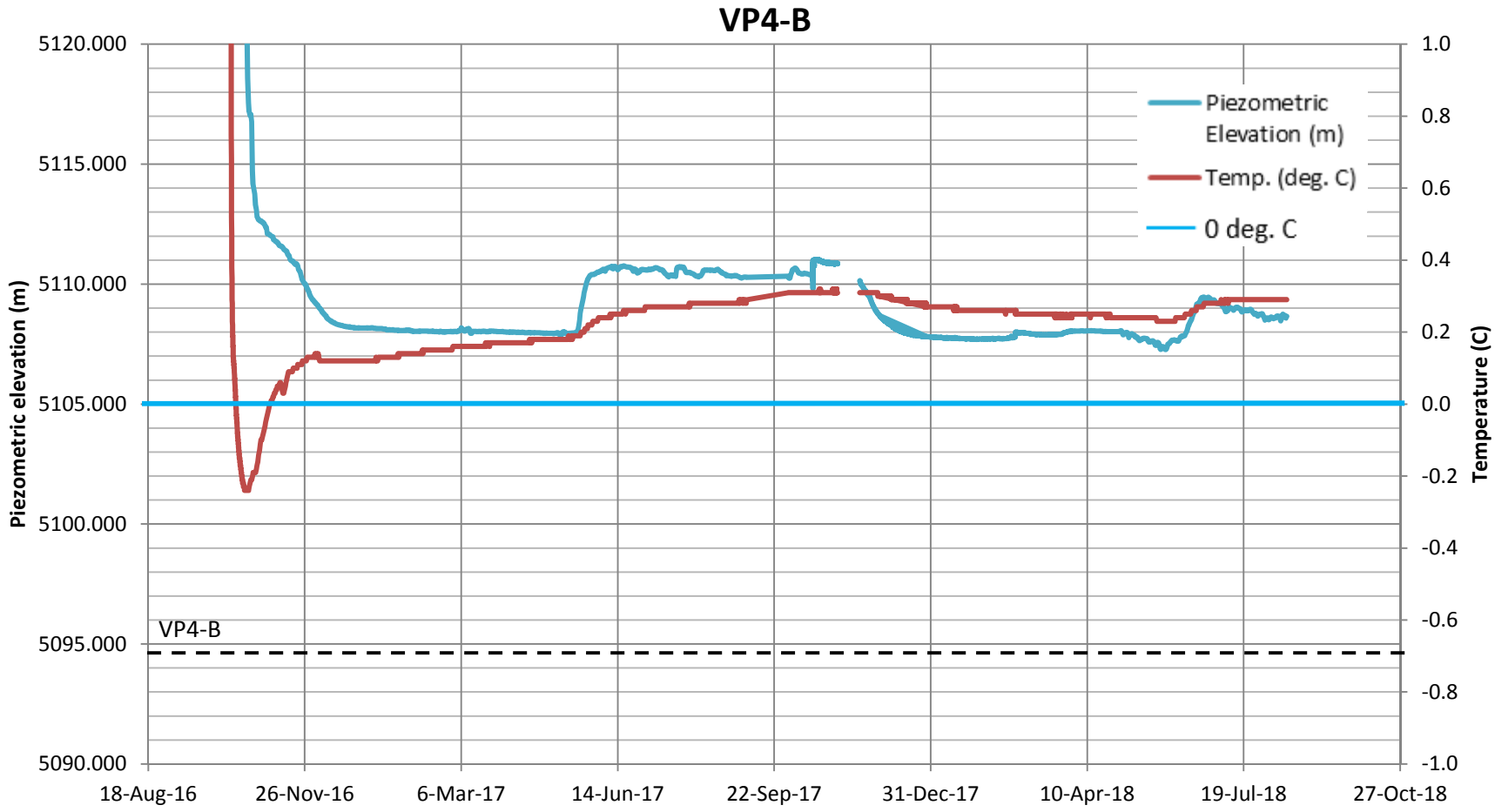
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Piezometer Data VP4-A

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-10



LEGEND

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE
MEADOWBANK

TETRA TECH

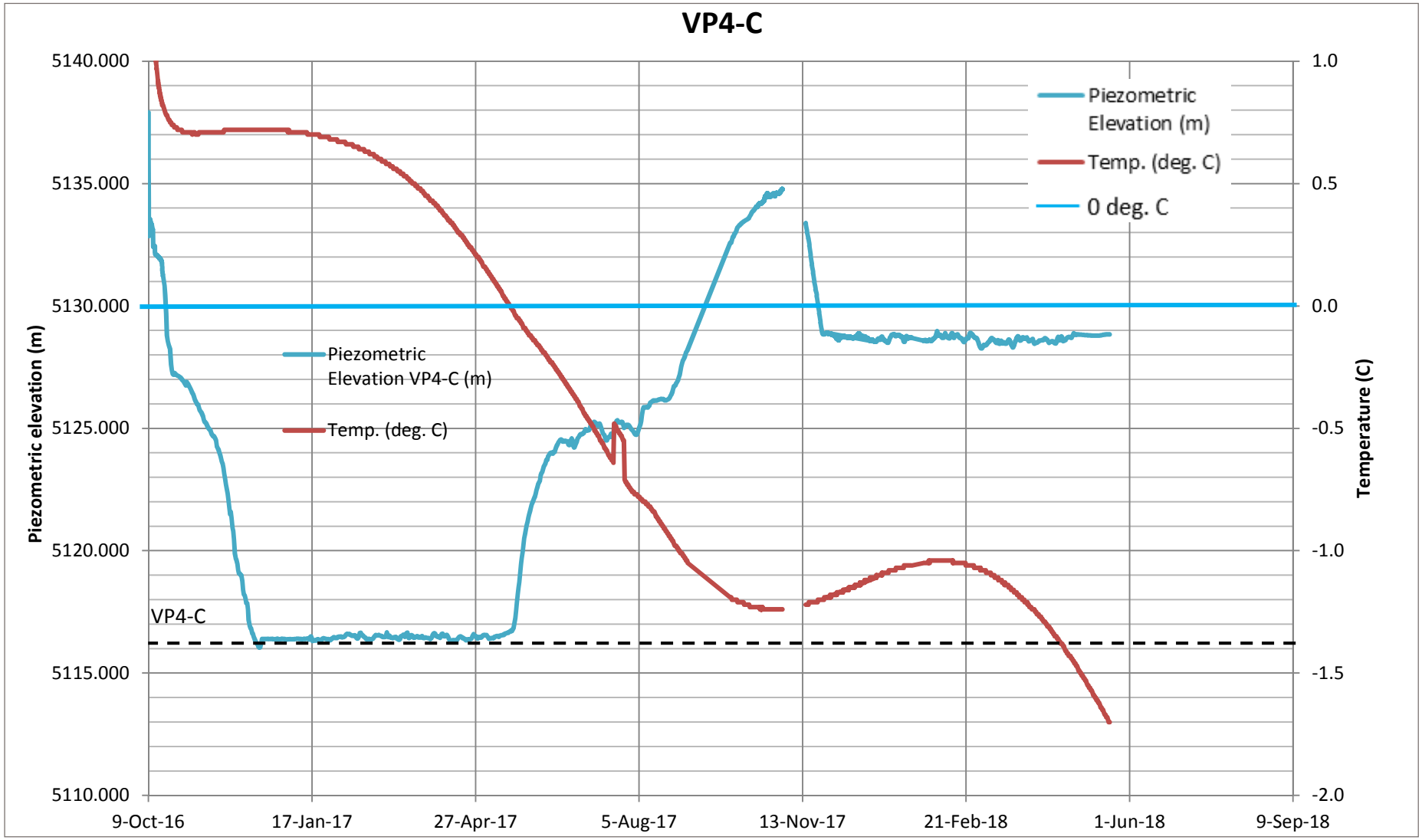
MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Piezometer Data VP4-B

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-11



LEGEND

Piezometer moves from unfrozen to frozen state

NOTES

Data provided by Agnico Eagle Mines Ltd.

STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Vault Pit
Piezometer Data VP4-C

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	LT	CJC	CJC	00

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure C-12

EXAMPLE ICE WALL INSPECTION – JANUARY 1, 2018

AGNICO EAGLE
MEADOWBANK

Date of inspection	January 7th 2018
Inspector	Vincent Duranleau
Air temperature	-29°C
Rain/ snow fall during inspection	Sunny

Access for inspection	Good	(Limited)

Comments The access to the bottom of the ice wall was limited, therefore the inspection was realized from the bench above.

Ice wall orientation (sun radiation exposure)

Comments The wall was not exposed to the sun at the moment of the inspection.

Apparent ice or rock fall on the ground	Yes	(No)

Comments The ice wall appeared to be solid.

Water Source type	Resurgence	Surface and hypodermic	Above the surface of ice	Between rock wall and ice	Mist	(Concentrated flow)

Comments The water flow is concentrated at the bottom of the first high wall bench as identified last year. Steam is visible from the water source.

Water flow rate compare to previous inspection	More	(Same)	Less	Absent

Comments This is the first inspection of the winter but the flow appeared to be the same.

Geometry of ice wall				
	Height	95	m	use number of bench (21m)
	Width	120	m	
	Thickness	1-2	m	catchbench are 10m wide
	Angle	75-90		wall are 75 degrees
	Shape	Wall		wall, pillar, candle, cauliflower, mushroom

Comments The center of the wall is much more thicker than the side.

Ice texture	Translucide / Opaque	Fragile /Ductile	Dry (Wet)	Grainy	Dusty and impurities

Comments the middle of the wall is wet from its source.

Ice color

Comments The wall is yellowish along its source and whiter toward the contour.

Ice wall defect	Tension crack	Space between ice and rock wall	Free-standing pillar	Loose rock	Loose ice block

Comments No defect was found so far as the wall is forming.

01.01.2018

APPENDIX D

QUARTERLY GEOTECHNICAL INSPECTION REPORTS

- Period: Q1 - January 1st to March 31st 2018
- Period: Q2 - April 1st to June 30th 2018

PERIOD: Q1 - JANUARY 1ST TO MARCH 31ST 2018

Open Pits - Quarterly Report
Instrumentation Monitoring and Field Observation Summary
Agnico Eagle Mines Limited
Meadowbank Project

Written: Vincent Duranleau
Reviewed: Alexandre Lavallee

Period: Q1 - January 1st to March 31st 2018

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INTRODUCTION

This quarterly report present and provide interpretation on all instrumentation data associated to ground control of active and inactive open pits at Meadowbank. Key observations made during the previous biweekly pit wall inspections are also integrated in the data analyses.

The frequencies of the inspection and instrumentation data acquisition/review is provided in the latest Ground Control Management Plan (GCMP).

MEADOWBANK OPEN PITS

Open pits from the Meadowbank mine are presented in the map below. The mine consists of 4 active and 4 inactive open pits as presented below.

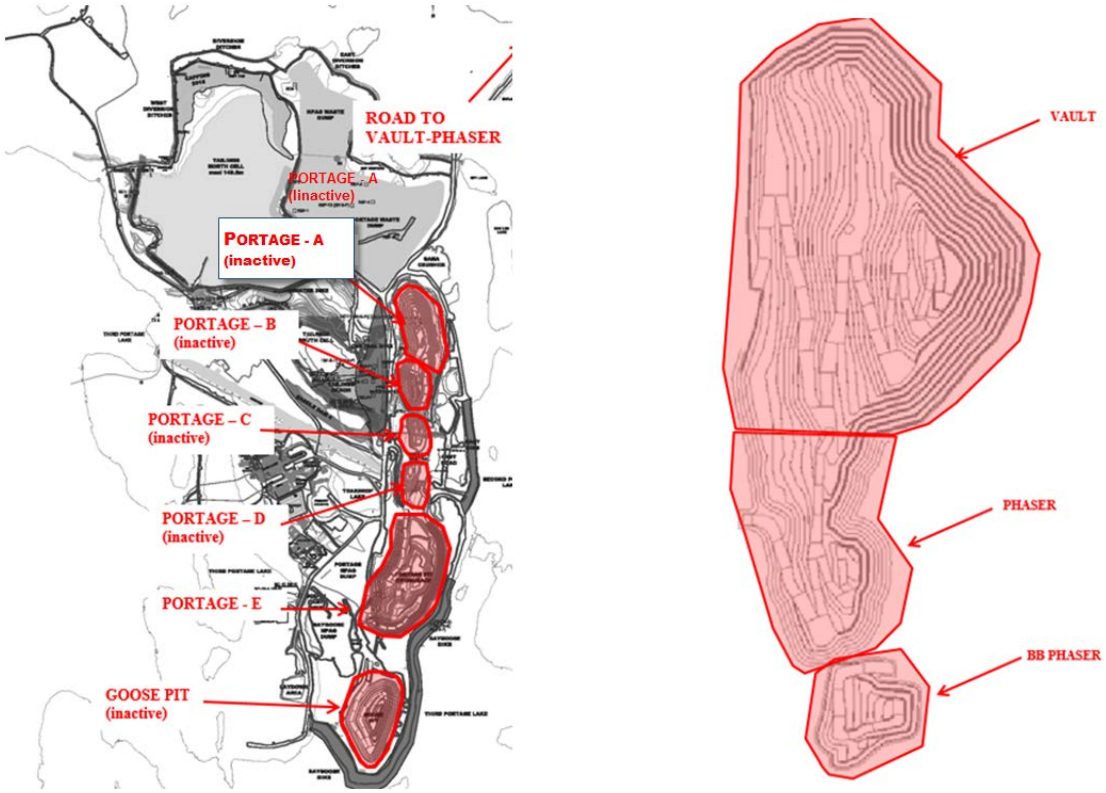


Figure 1 : Meadowbank open pits location

INSTRUMENTATION AND INSPECTION HIGHLIGHTS

ACTIVE OPEN PITS

Portage Pit E

- In general, radar shows stable wall in the Pit E5 area. There is a sustained linear deformation occurring in the south wall just above the ramp. This is suspected to be caused by ice development within joints behind the wall. Specific alarm was designed for this area in the event of an acceleration of the movement. The instrument TDR1 is located in the same area and no sign of deformation was observed.
- No movement recorded on most of the TDRs.
- In-Place inclinometer data were unreliable. The instrument was removed and sent to the supplier for repair. It will be re-installed in early summer.
- The bottom of the pit (sector Pit E3) is fully flooded and will be pumped back in spring before mining in Pit E5 will reach the same elevation.
- Piezometers within the setback distance from the dike are showing normal response to mining activities and suggest freeze back of the pit walls (gradual increase in pressure of up to 5m).
- During the bi-weekly Wall Inspection, it has been noted that the junction between the actual Push Back and the old pit limit were subject of having poor wall quality. This is cause by the challenge of blasting in narrow spaces. This situation is especially affecting the West Wall.

Vault Pit

- Prism monitoring was postponed until spring due to limited data available during the winter period.
- Thermistor in VP4 hole suggests a layer of talik between elevations 5100 and 5095 which is reduction of 10m of the previous talik layer data set (from 15m to 5m). This layer is considered the cause of the ice wall.

Phaser Pit

- No instrumentation installed in this pit at the moment.

BB PhaserPit

- No instrumentation installed in this pit at the moment.

INACTIVE OPEN PITS

Goose Pit

- The North and west parts of the pit has been partially backfilled with waste rock
- Tension cracks observed in the in-pit dump are stable. No active dumping ongoing.
- No movement recorded on the TDRs.
- No anomaly detected in the piezometers and thermistors.
- A part of the data logger (DL9) was used on DL13 and no records were taken in between Feb. 23, 2018 to the end of the quarter. That situation affected the instruments (piezometers and thermistors) in GPIT holes #13, 14,16,17,19 &20.

Portage Pits B, C, D

- These pits are now almost fully back filled with waste rock.
- No sign of instability reported for the in-pit waste rock pile.

Portage Pit A

- No instrumentation installed in this pit at the moment.
- Tension cracks observed on the upper west wall are considered stable. No visual inspection of this area has been carried out during winter.
- The mining was completed around mid-March 2018. Mining activities are completed for this pit but water management will still be carried on.

INSTRUMENTATION LIST AND LOCATION

PORTAGE PIT A

No instrument installed in this pit.

PORTAGE PIT E

Radar

Table 1: Radar location and status

Unit	Radar location	Monitoring	Status	Reliability
			Operational (✓)/Not operational (✗)	Operational Days
GP SSR253XT	West wall (crest) of Pit E	Southern and eastern portion of pit E	✓	83/90

- The Radar was off line a total of 7 days during the Q1, 2018. Two consecutive days for MTM maintenance and two periods of high wind/blizzard (5 days) were the cause of the downtime.

Figure 2: Radar location and coverage

Downhole instruments

Table 2: List of downhole instruments

Hole	Instrument ID	Type	Status	Readings
			Operational (✓)/Not operational (×)	Manual/ Automatic
PE3-14	PE3-P14A	Piezo	✓	Automatic
	PE3-P14B	Piezo	✓	Automatic
PE5-17-01	PE5-17-01-A	Piezo	✓	Automatic
	PE5-17-01-B	Piezo	✓	Automatic
	PE5-17-01-C	Piezo	✓	Automatic
	PE5-17-01-TH	Thermistor	✓	Automatic
	PE5-TDR1	TDR	✓	Automatic
PE5-17-02	PE5-17-02-A	Piezo	✓	Automatic
	PE5-17-02-B	Piezo	✓	Automatic
	PE5-TDR2	TDR	✓	Automatic
PE5-17-03	PE5-17-03-A	Piezo	✓	Automatic
	PE5-17-03-B	Piezo	✓	Automatic
	PE5-17-03-C	Piezo	✓	Automatic
	PE5-17-03-TH	Thermistor	✓	Automatic
	PE5-TDR3	TDR	✓	Automatic
PE5-17-04	PE5-17-04-A	Piezo	✓	Automatic
	PE5-17-04-B	Piezo	× (frozen)	Automatic
	PE5-TDR4	TDR	✓	Automatic
PE5-17-05	PE5-17-05-A	Piezo	× (frozen)	Automatic
	PE5-17-05-B	Piezo	× (frozen)	Automatic
	PE5-17-05-C	Piezo	× (frozen)	Automatic
	PE5-TDR5	TDR	✓	Automatic
PE5-17-06	PE5-IPI	In-Place Inclinometer	×	Automatic

Figure 3: Location of Pit E instrumented holes collars

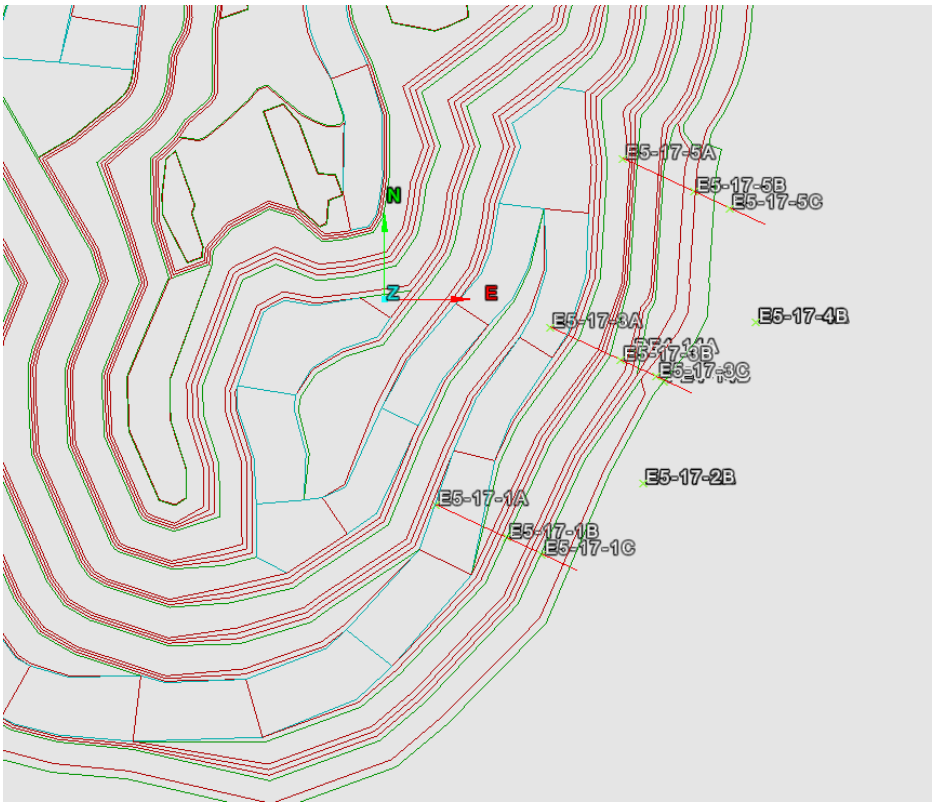


Figure 4: Location of Pit E piezometers

VAULT PIT

Downhole instruments

Table 3: List of downhole instruments

Hole	Instrument ID	Type	Status	Readings
			Operational (✓)/Not operational (×)	Manual/ Automatic
VP1	VP1-A	Piezo	× (frozen)	Semi – Manual
	VP1-B	Piezo	× (frozen)	Semi – Manual
	VP1-TH1	Thermistor	✓	Semi – Manual
VP2	VP2-A	Piezo	× (frozen)	Semi – Manual
	VP2-B	Piezo	× (frozen)	Semi – Manual
	VP2-TH1	Thermistor	✓	Semi – Manual
VP4	VP4-A	Piezo	× (frozen)	Semi – Manual
	VP4-B	Piezo	✓	Semi – Manual
	VP4-C	Piezo	✓	Semi – Manual
	VP4-TH1	Thermistor	✓	Semi – Manual

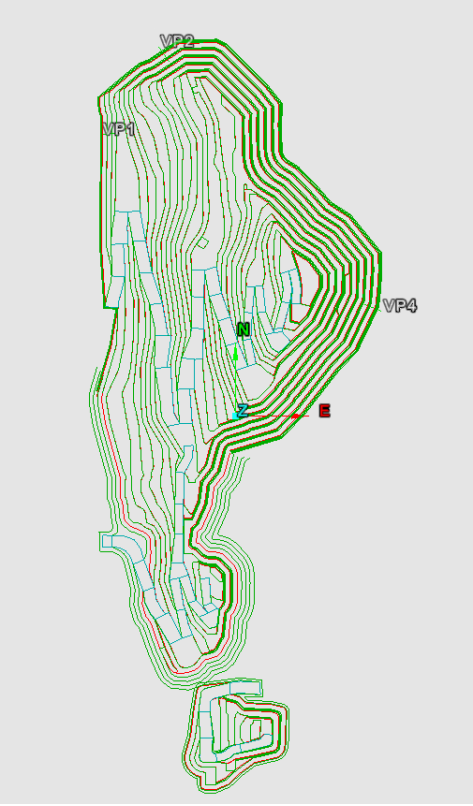


Figure 5: Vault downhole instrumentation location

Prims monitoring

Prism ID	Type	Status	Readings
		Operational (✓)/Not operational (×)	Manual/ Automatic
1	Prism	✓	Manual
2	Prism	×under snow or ice	Manual
3	Prism	✓	Manual
4	Prism	× under snow or ice	Manual
5	Prism	× under snow or ice	Manual
7	Prism	× under snow or ice	Manual
8	Prism	× under snow or ice	Manual
10	Prism	× under snow or ice	Manual
11	Prism	× under snow or ice	Manual
12	Prism	× under snow or ice	Manual
13	Prism	× under snow or ice	Manual
14	Prism	× under snow or ice	Manual
15	Prism	× under snow or ice	Manual
16	Prism	× under snow or ice	Manual
17	Prism	✓	Manual
18	Prism	✓	Manual

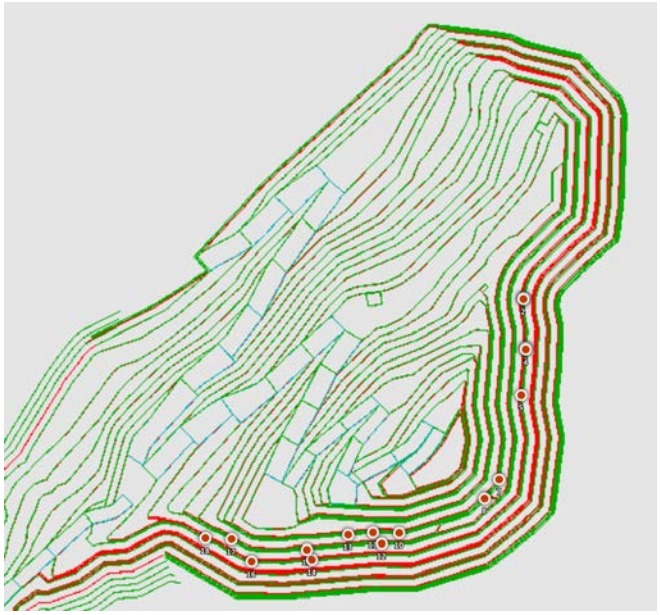


Figure 6: Prisms location

PHASER PIT

No permanent instrument installed in this pit.

GOOSE PIT

Downhole instruments

Hole	Instrument ID	Type	Status	Readings
			Operational (✓)/Not operational (×)	Manual/ Automatic
GPIT-11	GPIT-TDR11	TDR	✓	Automatic
GPIT-12	GPIT-TDR12	TDR	✓	Automatic
GPIT-13	GPIT13-PZ1	Piezo	✓	Automatic
	GPIT13-PZ2	Piezo	✓	Automatic
	GPIT13-PZ3	Piezo	✓	Automatic
	GPIT13-PZ4	Piezo	✓	Automatic
	GPIT13-PZ5	Piezo	✓	Automatic
	GPIT-TH13	Thermistor	✓	Automatic
GPIT-14	GPIT14-PZ1	Piezo	× (frozen)	Automatic
	GPIT14-PZ2	Piezo	× (frozen)	Automatic
	GPIT14-PZ3	Piezo	× (frozen)	Automatic
	GPIT14-PZ4	Piezo	✓	Automatic
	GPIT14-PZ5	Piezo	✓	Automatic
	GPIT-TH14	Thermistor	✓	Automatic
	GPIT-TDR14	TDR	✓	Automatic
GPIT-15	GPIT-TDR15	TDR	✓	Automatic
GPIT-16	GPIT16-PZ1	Piezo	× (frozen)	Automatic
	GPIT16-PZ2	Piezo	× (frozen)	Automatic
	GPIT16-PZ3	Piezo	× (frozen)	Automatic
	GPIT16-PZ4	Piezo	✓	Automatic
	GPIT16-PZ5	Piezo	✓	Automatic
	GPIT16-PZ6	Piezo	✓	Automatic
	GPIT16-PZ7	Piezo	✓	Automatic
	GPIT16-PZ8	Piezo	✓	Automatic
	GPIT16-PZ9	Piezo	✓	Automatic
	GPIT-TH16	Thermistor	✓	Automatic
GPIT-17	GPIT17-PZ1	Piezo	× (frozen)	Automatic
	GPIT17-PZ2	Piezo	× (frozen)	Automatic
	GPIT17-PZ3	Piezo	× (frozen)	Automatic
	GPIT17-PZ4	Piezo	× (frozen)	Automatic
	GPIT17-PZ5	Piezo	✓	Automatic
	GPIT17-PZ6	Piezo	✓	Automatic
	GPIT-TH17	Thermistor	✓	Automatic
	GPIT-TDR17	TDR	✓	Automatic
GPIT-18	GPIT-TDR18	TDR	✓	Automatic
GPIT-19	GPIT19-PZ1	Piezo	× (frozen)	Automatic
	GPIT19-PZ2	Piezo	× (frozen)	Automatic
	GPIT19-PZ3	Piezo	× (frozen)	Automatic
	GPIT19-PZ4	Piezo	× (frozen)	Automatic
	GPIT19-PZ5	Piezo	✓	Automatic
	GPIT19-PZ6	Piezo	✓	Automatic
	GPIT-TH19	Thermistor	✓	Automatic
GPIT-20	GPIT20-PZ1	Piezo	× (frozen)	Automatic
	GPIT20-PZ2	Piezo	× (frozen)	Automatic
	GPIT20-PZ3	Piezo	× (frozen)	Automatic
	GPIT20-PZ4	Piezo	× (frozen)	Automatic
	GPIT20-PZ5	Piezo	× (frozen)	Automatic
	GPIT-TH20	Thermistor	✓	Automatic
	GPIT-TDR20	TDR	✓	Automatic

Figure 7: Location of downhole instruments at Goose pit

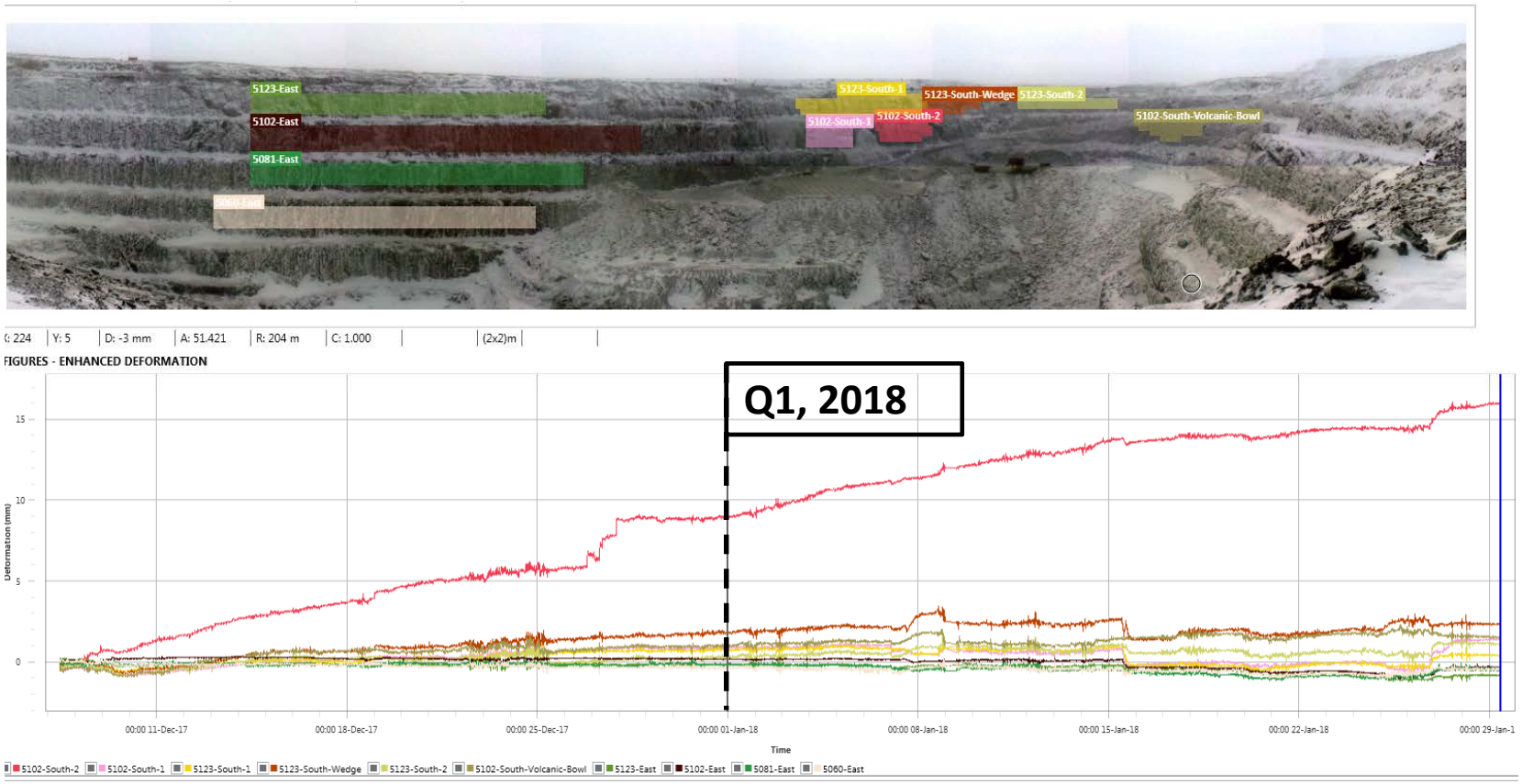
PORTAGE PIT B, C & D

- No instrument installed in these pits.

INSTRUMENTATION RESULTS

PORTAGE PIT E

RADAR

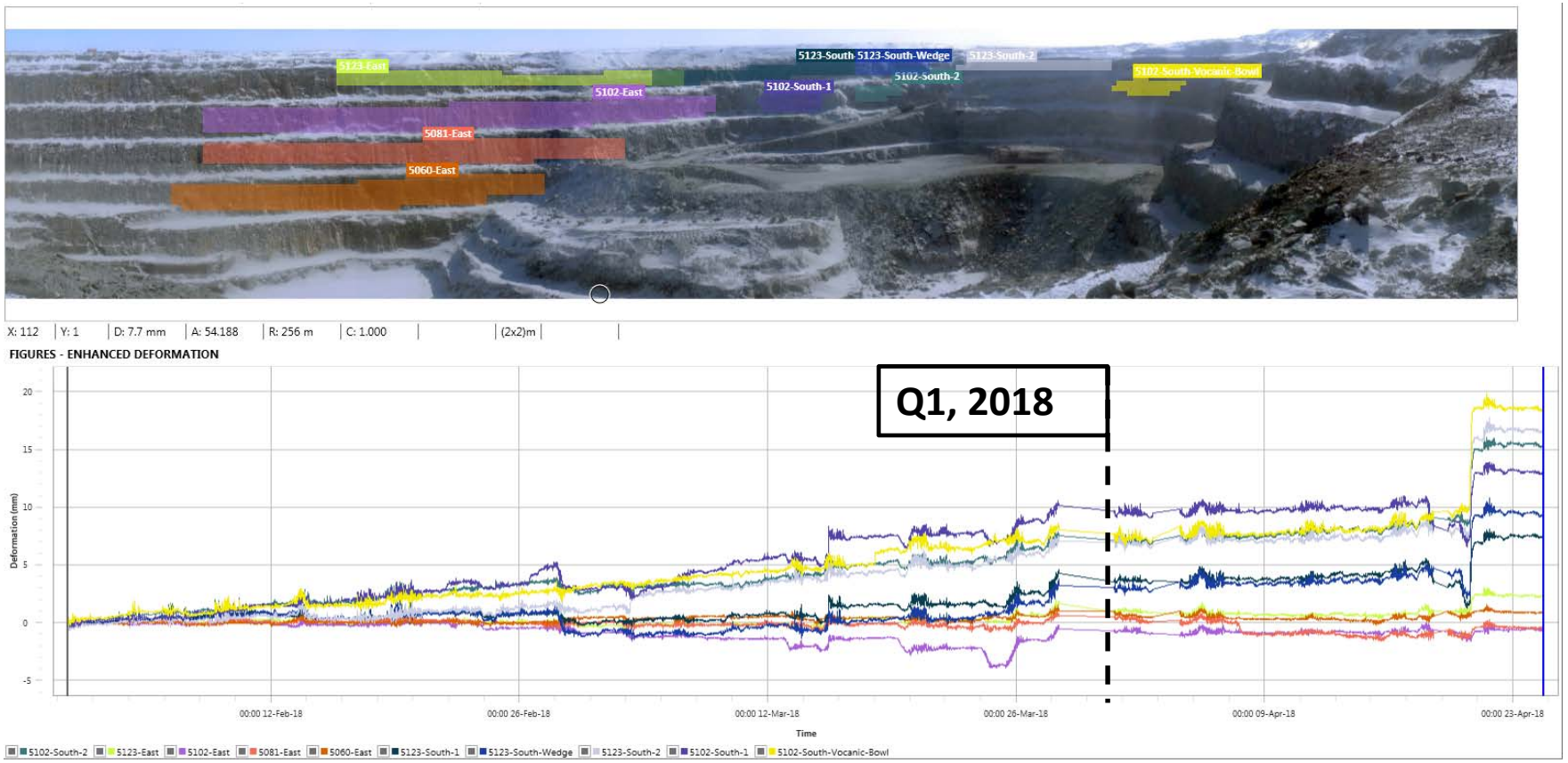


Enhanced deformation per sector (January 1st to January29th) – Wall folder: SSR253_171207_Meadowbank_E5_SouthWall**).**

Comments: Most of the sectors were showing stable wall condition. The sector identify as 5102-South-2 presents a linear progression in deformation during that period(+7mm during January). The primary interpretation of this linear trend is the build-up of ice within joints behind the wall. It is assumed that this ice formation could (or not) lead to a detachment of a large block. A specific alarm setup has been implemented for this area to quickly catch any acceleration of the deformation. Usual TARP is applicable with the dispatch office for the night shift.

PORTAGE PIT E

RADAR



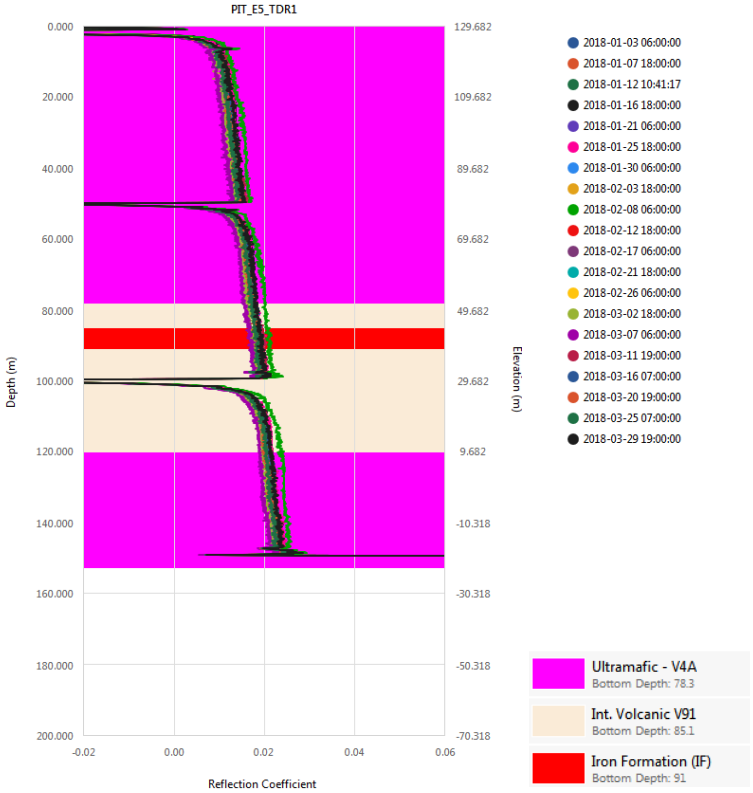
Enhanced deformation per sector (January 31st to March 31st) – Wall folder: SSR253_180131_Meadowbank_E5_South_Wall**).**

Comments: During the second monitoring period, the section mentioned previously (5102-South-2) gained 10mm over a 2 months period. On this second monitoring period, it is interesting to point out that out that the section does not stand out from the others like before, and it is now his close neighbour (5102-South-1) that has the strongest deformation trend. The probable cause of the small fluctuation (spikes) recorded on all the trend is the monitoring condition the Radar has to performed in.

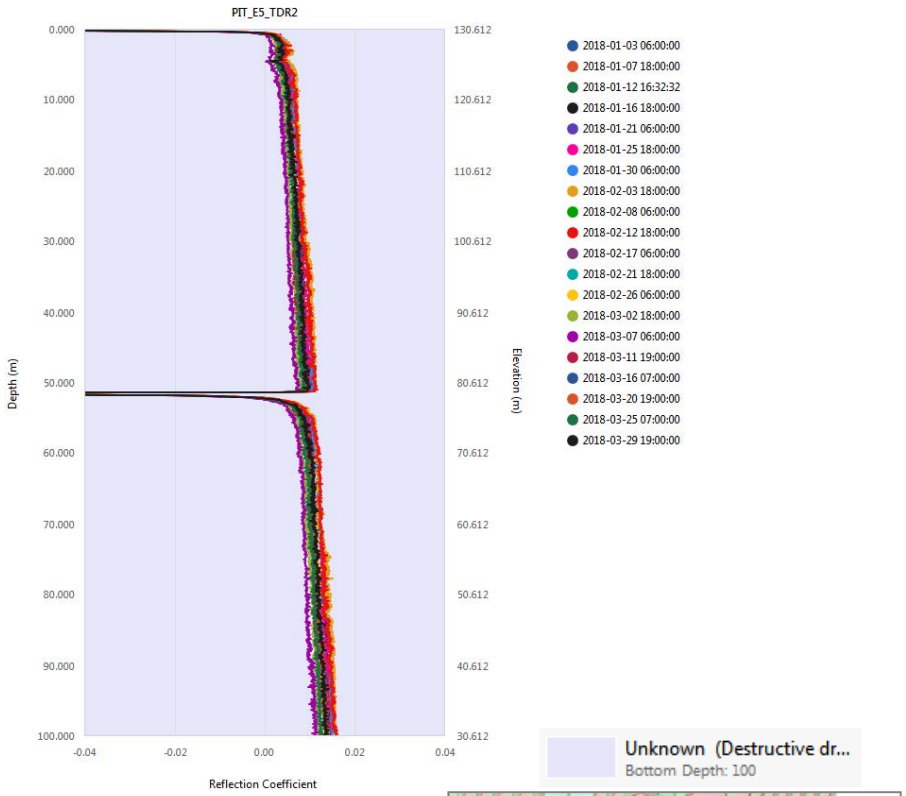
PORTAGE PIT E

TDR

TDR1



TDR2



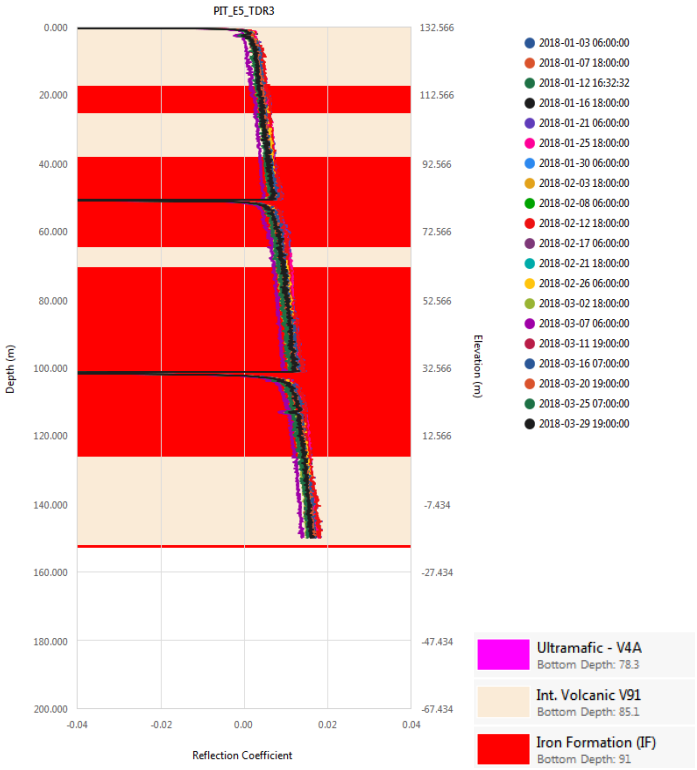
Comments:

- No sign of deformation observed in TDR1 & TDR2.
- Anomalies from the TDR logger are still presents and were disregarded in the presented graphs.

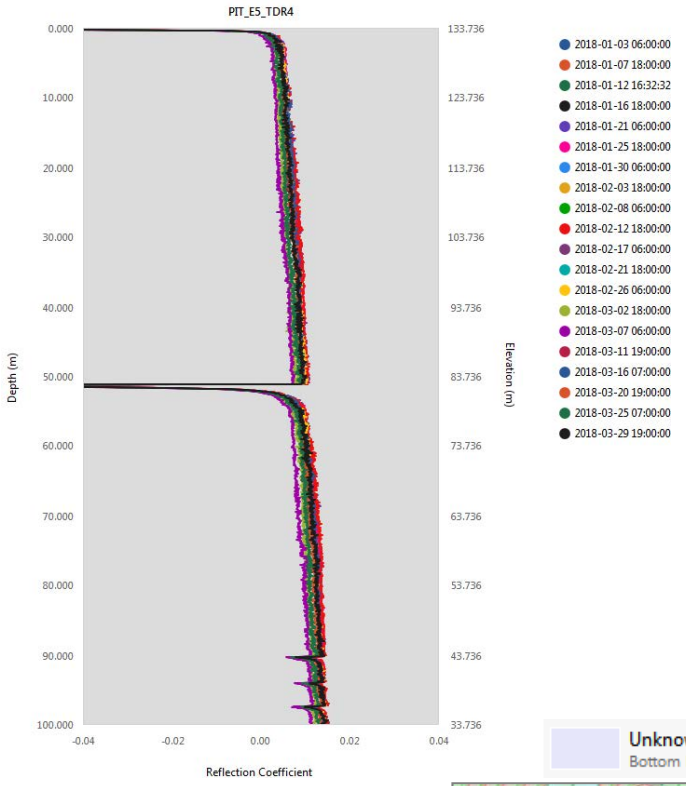
PORTAGE PIT E

TDR

TDR3



TDR4



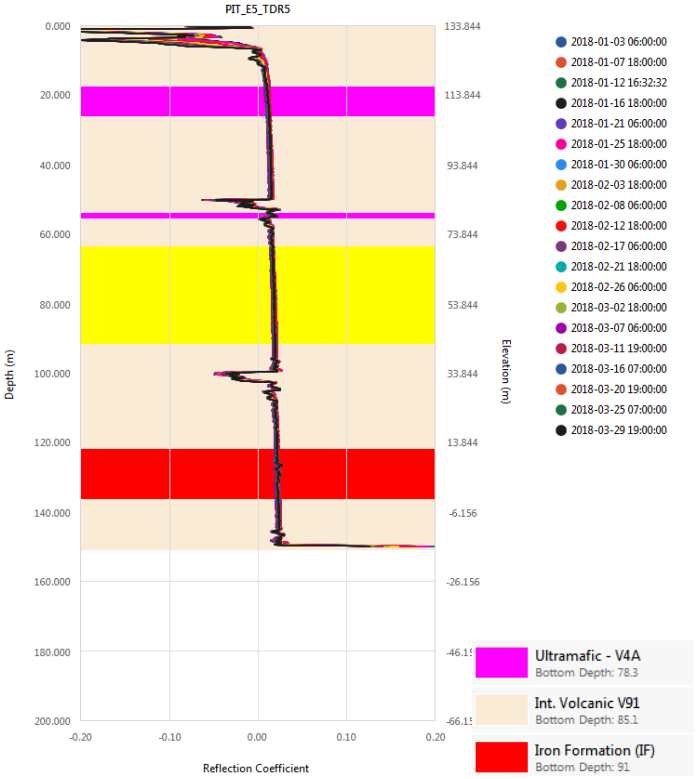
Comments:

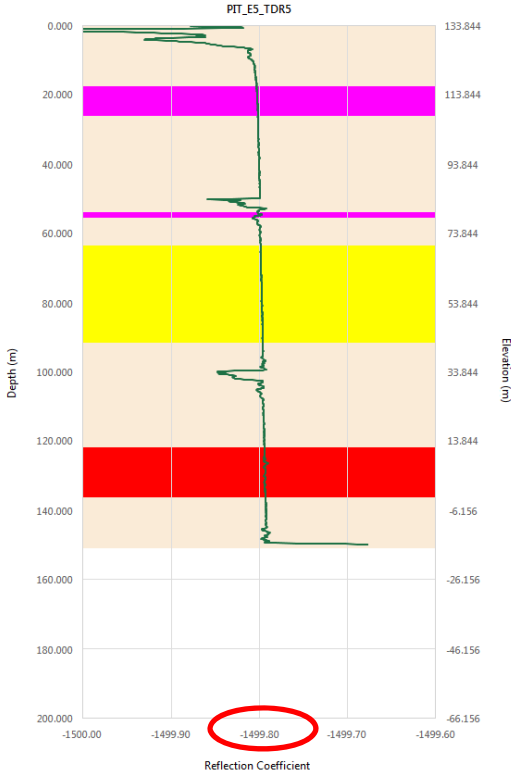
- No sign of deformation observed in TDR3.
- The small reflection coefficient spikes in between elevation 44 and 34 MASL on TDR4 are present since installation.
- Anomalies from the TDR logger are still presents and were disregarded in the presented graphs.

PORTAGE PIT E

TDR

TDR5

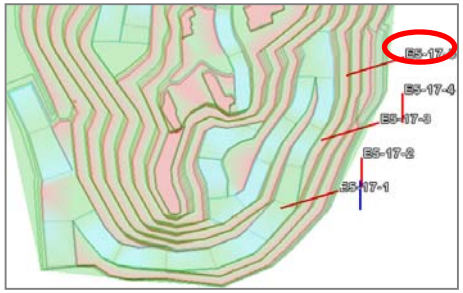




The anomalies quoted in the previous TDR results are under investigation. Basically, the defect causes the data set to be translated into the graph (x ≈ -1,500) in the example. Even though the general aspect of the graph seems to be preserved, the Reflection Coefficient is well below the expectations.

Comments:

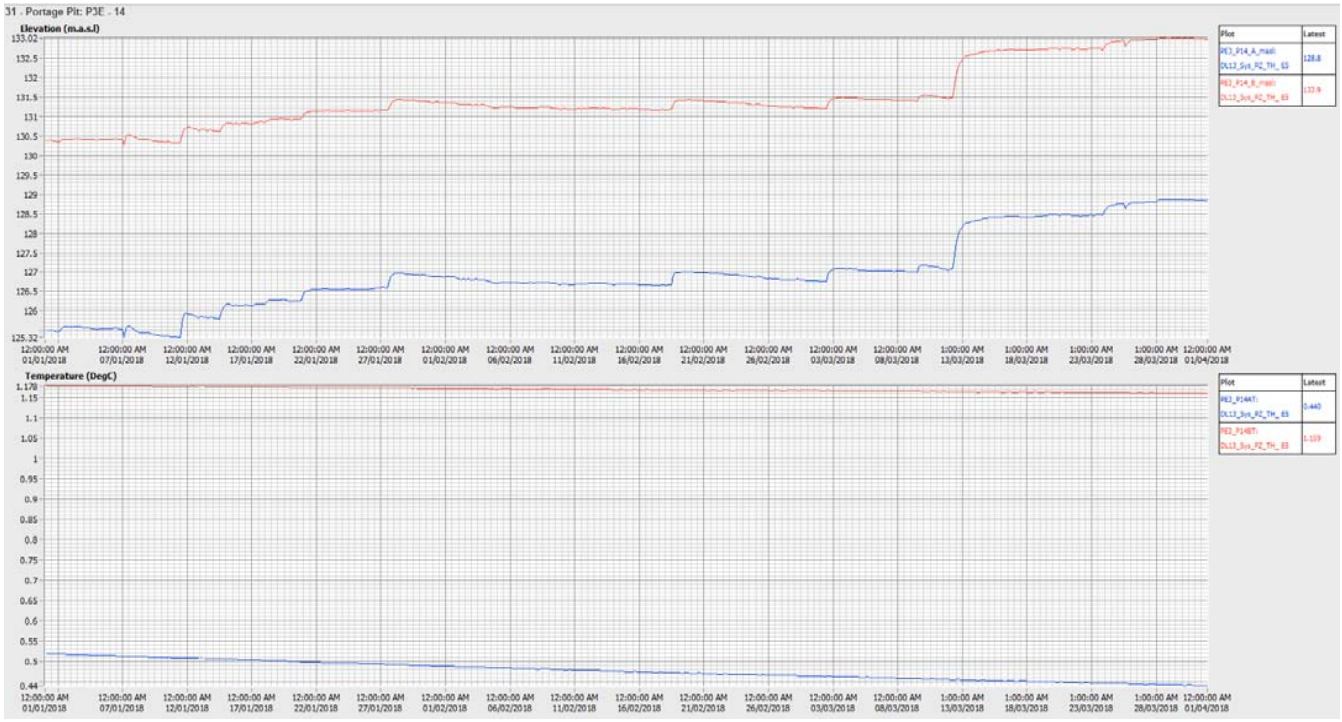
- No sign of deformation observed in TDR5.
- The small reflection coefficient spikes in between elevation 14 and -6 MASL on TDR5 are present since the installation.
- Anomalies from the TDR logger are still presents and were disregarded in the presented graphs.

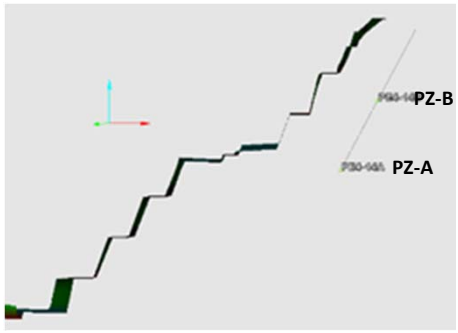


PORTAGE PIT E

PIEZOMETERS

PE3-14 PZ-A,B





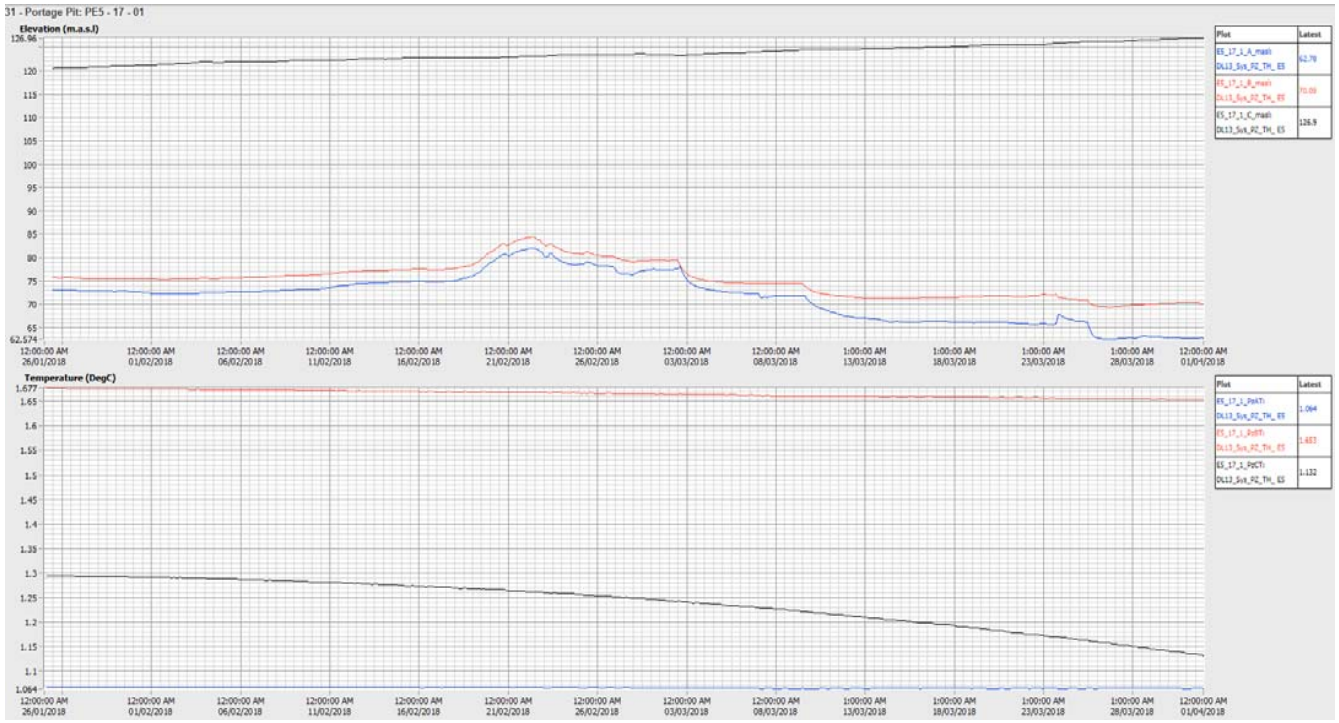
Comments:

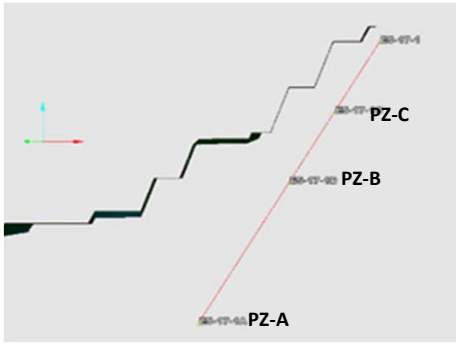
- Overall increase in pressure of +2.6m in the Q1, 2018. This is assumed to be related to freeze back of seepage faces.
- Smaller increase and decrease in pressure are related to mining activities (drilling/blasting).
- Overall downward trend for piezometer's temperature.

PORTAGE PIT E

PIEZOMETERS

PE5-17-01 PZ-A,B,C





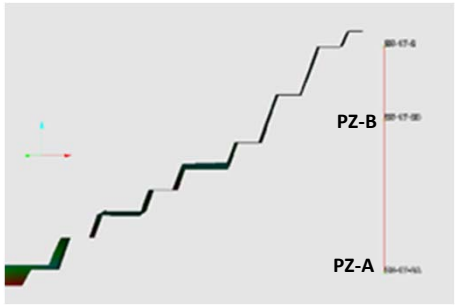
Comments:

- PZ-A&B sharply rose 7m PWP before dropping 15m PWP from the end of February to the end of the Q1. The increasing section could be attributed to freeze back of the seepage faces while the decreasing trend could be the result of a pressure release due to the mining activities close by the hole. PZ-C has a consistent pressure increase and gained 8.7 m PWP during the Q1, 2018.
- Smaller increase and decrease in pressure are related to mining activities (drilling/blasting).
- None of the piezometers are under the freezing point.

PORTAGE PIT E

PIEZOMETERS

PE5-17-02 PZ-A,B



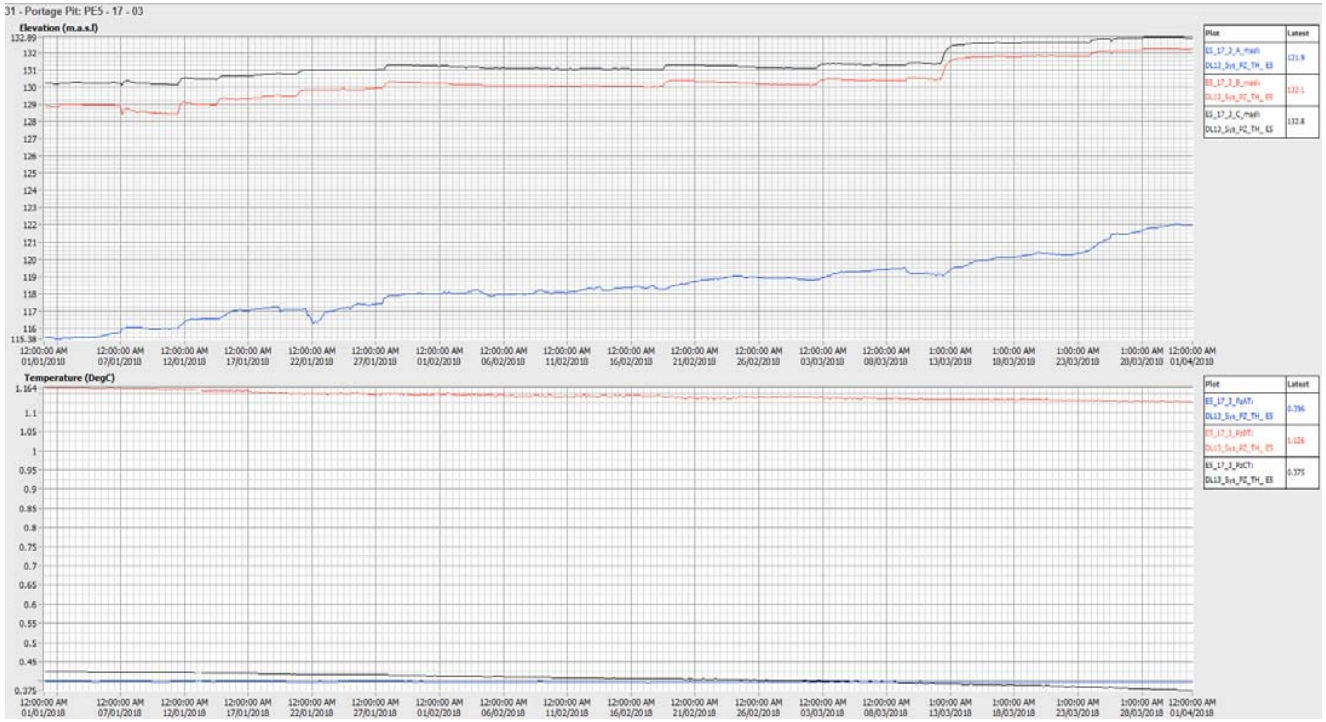
Comments:

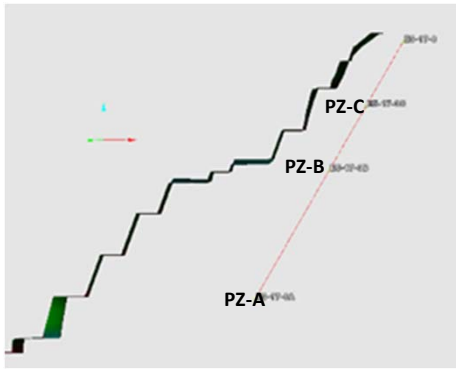
- PZ-A sharply rose 3m PWP around mid-February, while PZ-B acted the same way but on a smaller scale. This could be attributed to freeze back of the seepage faces. Indeed, PZ-A appeared to be more sensitive than PZ-B and that may be attributed to its proximity with the talik.
- None of the piezometers are under the freezing point. There is slight downward trend in PZ-B temperature's.

PORTAGE PIT E

PIEZOMETERS

PE5-17-03 PZ-A,B,C





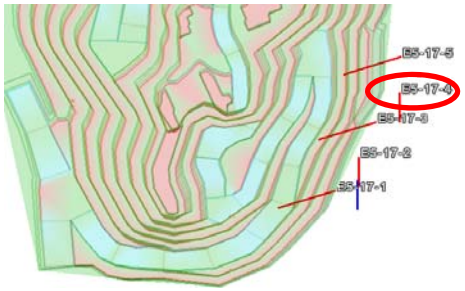
Comments:

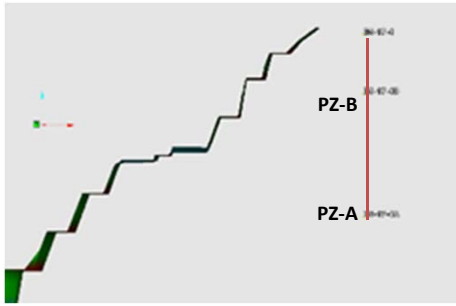
- PZ-A rose steadily during the Quarter Period totalizing 9 m of pore water pressure.
- PZ-B & C rose 5.3 m PWP and were subject to small sudden variations cause by the mining activities.
- All the PZs are above the freezing point and PZ-B (0.8˚C) is warmer than the others.
- PZ-C is on a cooling trend and might become frozen and unreliable in the upcoming months.

PORTAGE PIT E

PIEZOMETERS

PE5-17-04 PZ-A,B





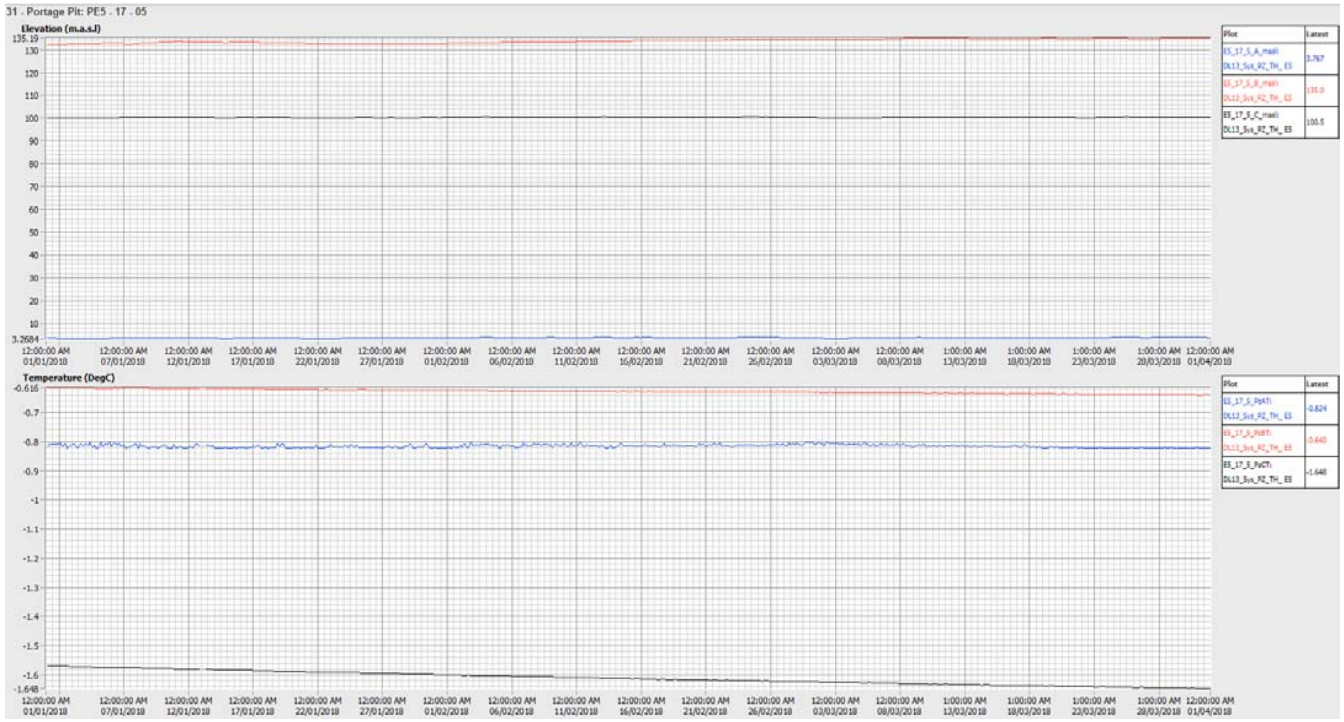
Comments:

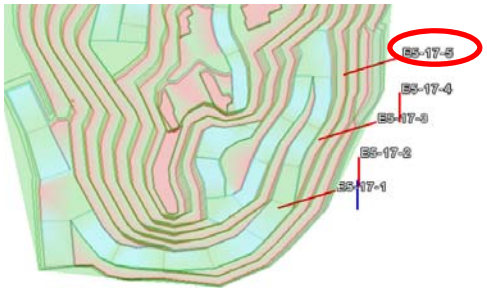
- PZ-A is on a slow increasing trend.
- PZ-B is frozen while PZ-A is at around 1˚C.
- Smaller increase and decrease in pressure are related to mining activities (drilling/blasting).

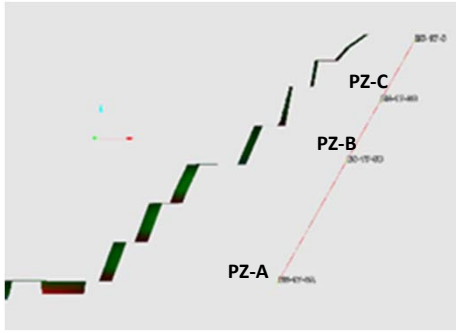
PORTAGE PIT E

PIEZOMETERS

PE5-17-05 PZ-A,B,C







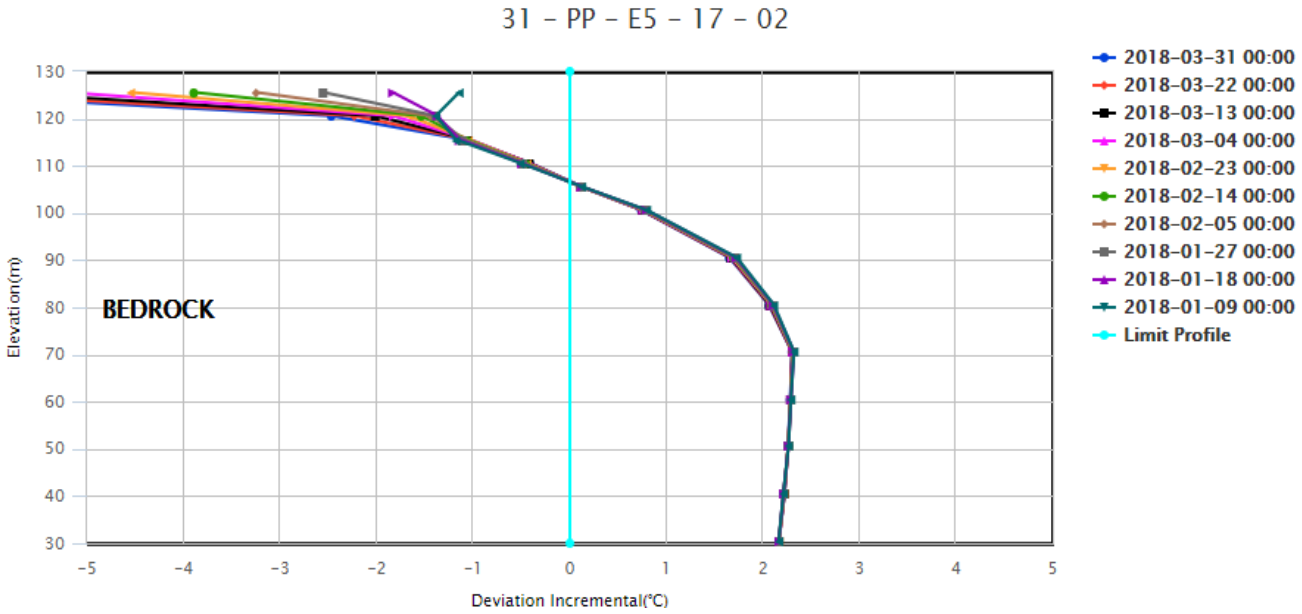
Comments:

- PZ-A,B and C are frozen. The pressure measurements are considered unreliable.
- Temperature of PZ-C is still on a downward trend.

PORTAGE PIT E

THERMISTORS

PP-E5-17-02



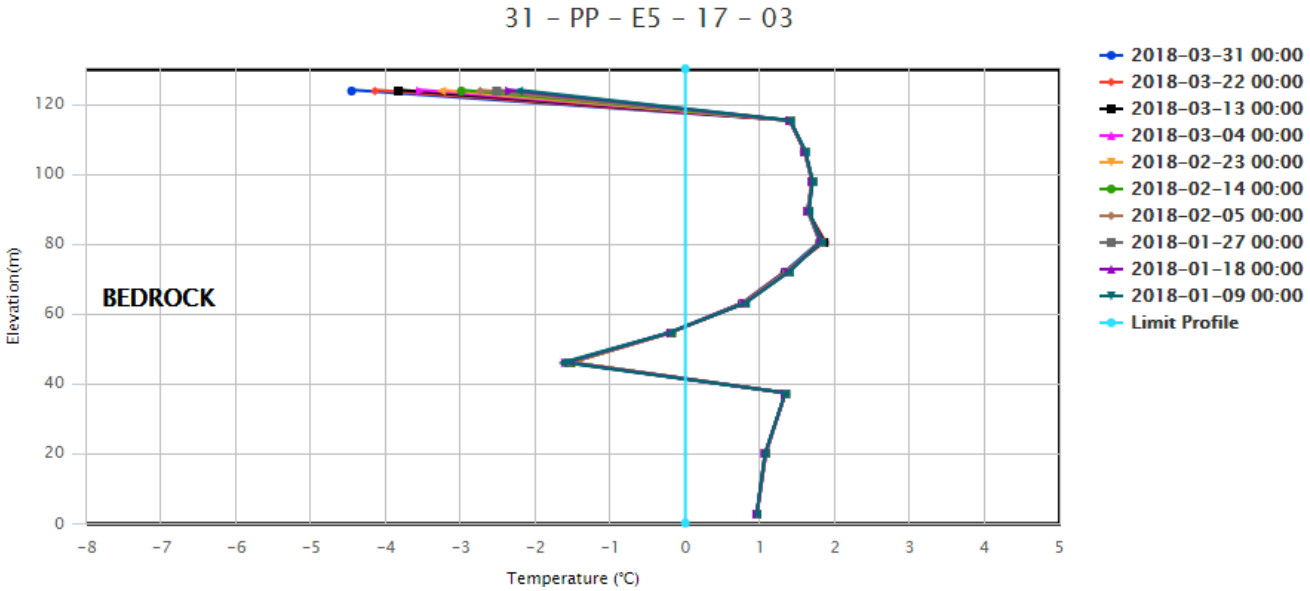
Comments:

- There is a permafrost layer form the top of the hole at elev.125 to the elev. 105 MASL. It suggests an aggradation of the permafrost from the surface since the dewatering of the lake in 2011.
- Apart form the 2 first beads, only minimal variations were recorded during the period.

PORTAGE PIT E

THERMISTORS

PP-E5-17-03

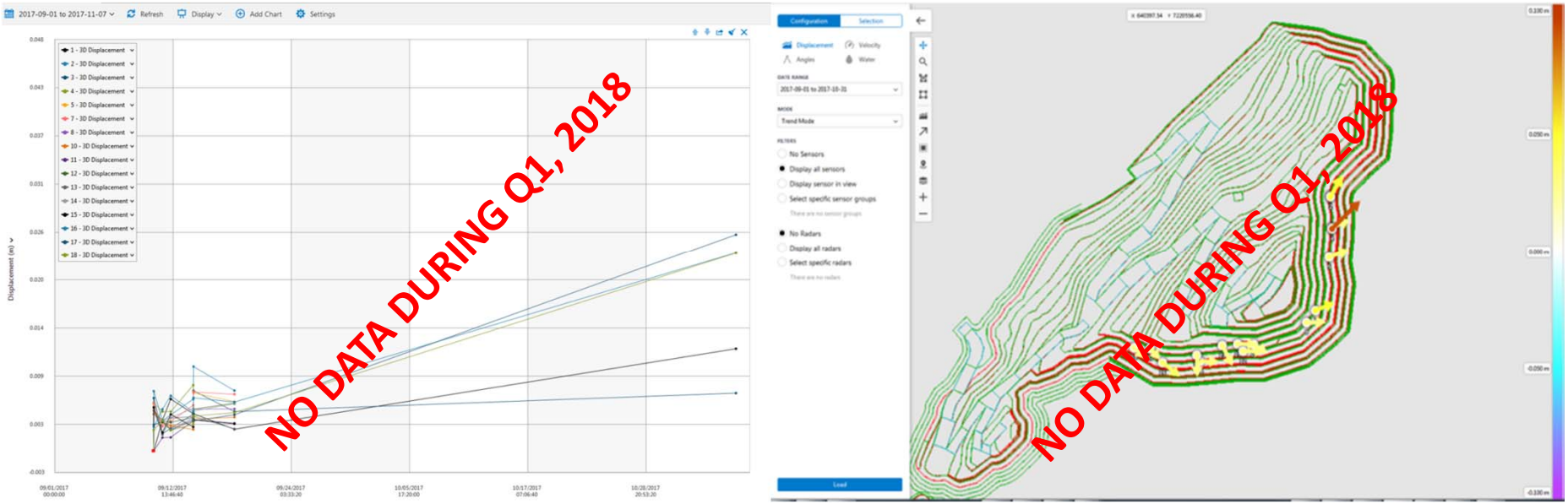


Comments:

- Small variations occurred only on the first bead during the Q1, 2018. The rest of the thermistor remained consistent with previous data sets.
- There is a permafrost layer between elevation 40 and 55 MASL.

VAULT PIT

PRISMS



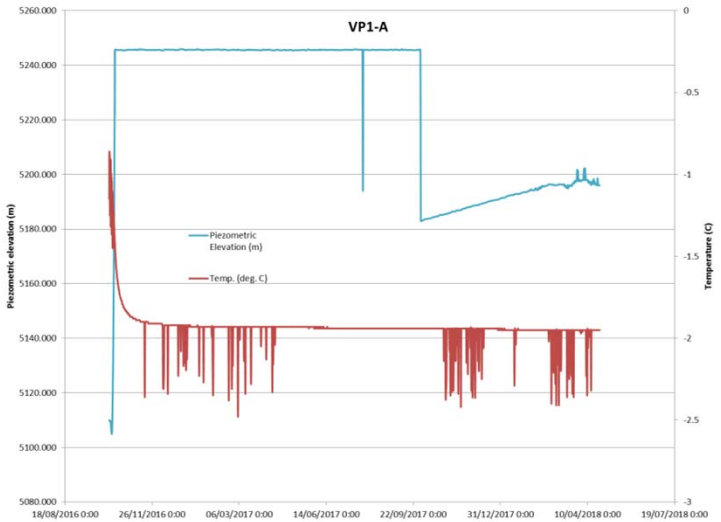
Comments:

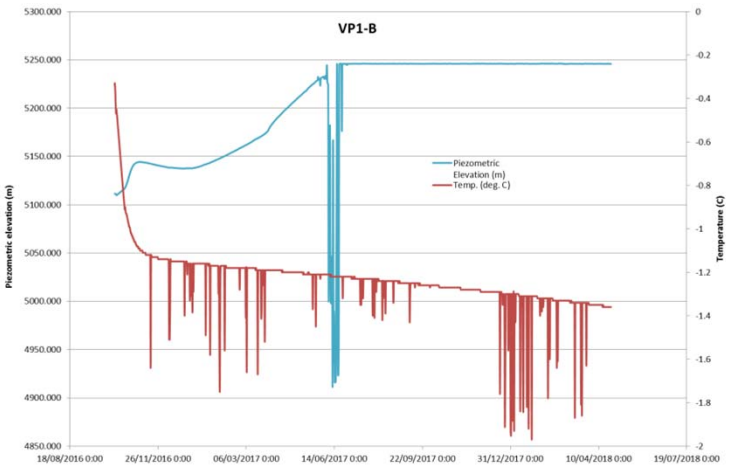
- The latest reading was taken in November.
- During the latest survey of the prisms, only few were successfully surveyed due to cold weather (frost in the lens, snow, ice wall etc.).
- The monitoring will be restarted when weather conditions will allow it (May).

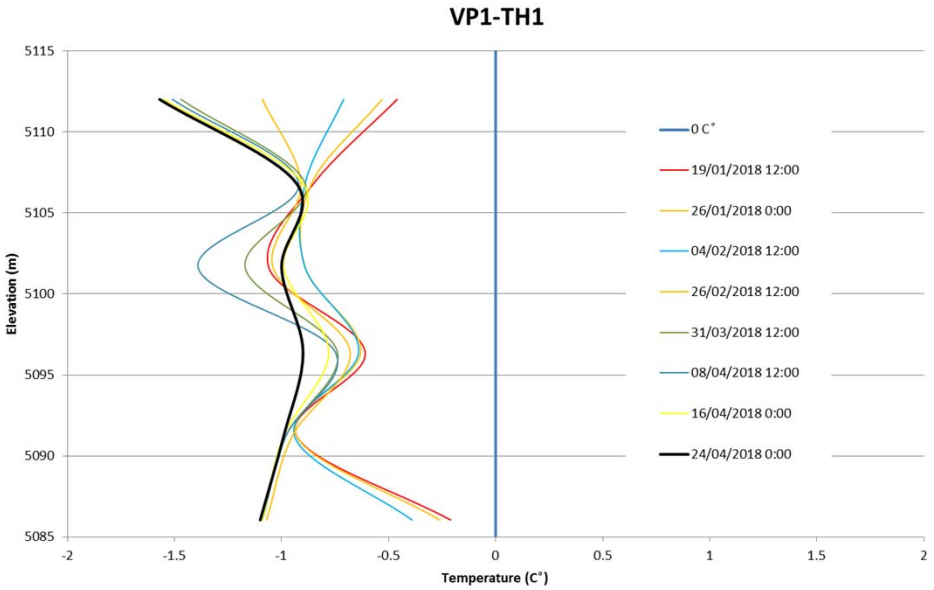
VAULT PIT

PIEZOMETERS & THERMISTORS

VP1-A, VP1-B, VP1-TH1

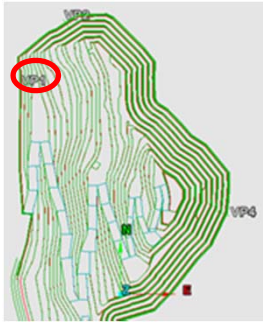






Comments:

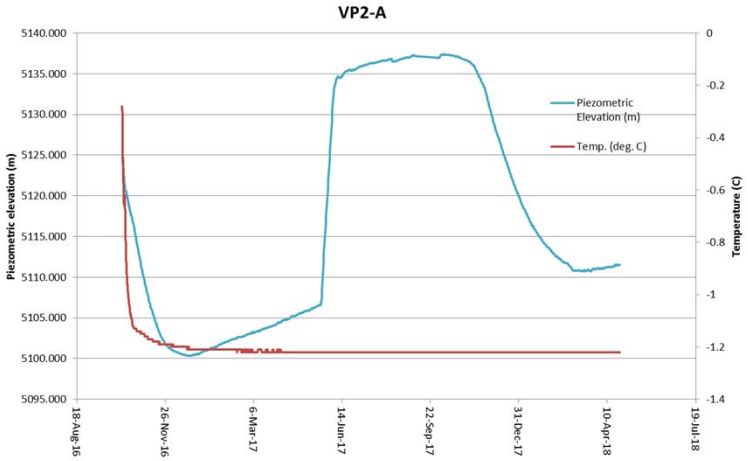
- PZ-A&B are below the freezing point. Pressure measurements are therefore considered unreliable and will not be discussed here.
- The thermistor remained frozen during Q1, 2018.

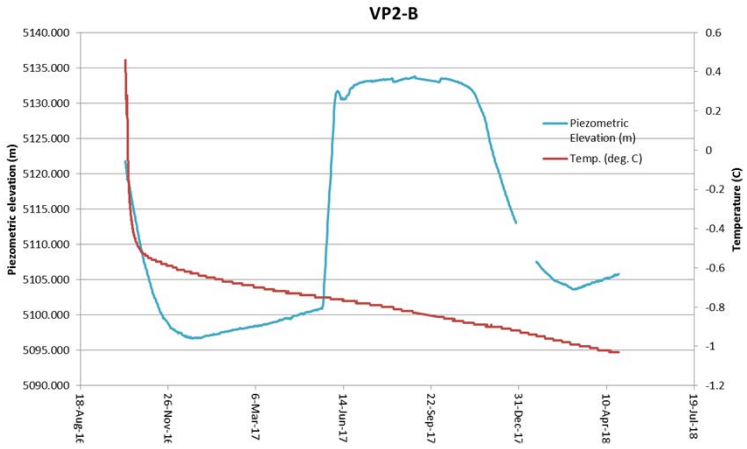


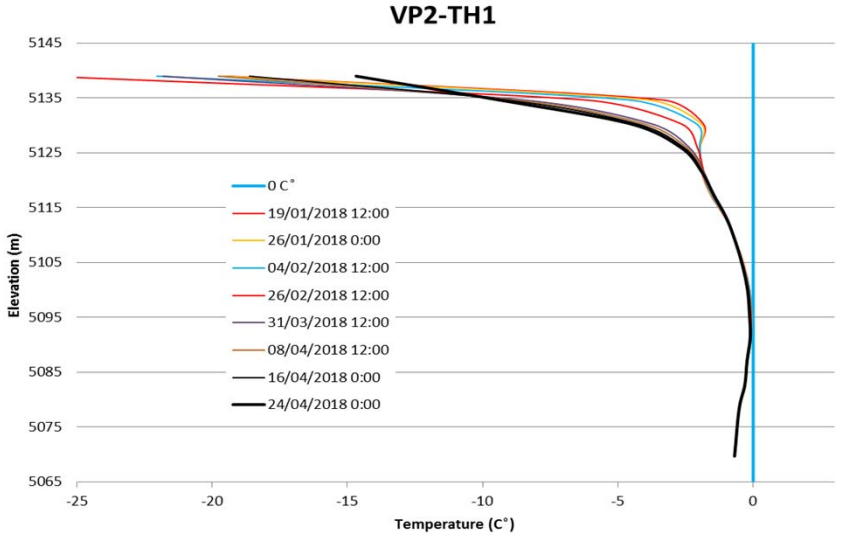
VAULT PIT

PIEZOMETERS & THERMISTORS

VP2-A, VP2-B, VP2-TH1







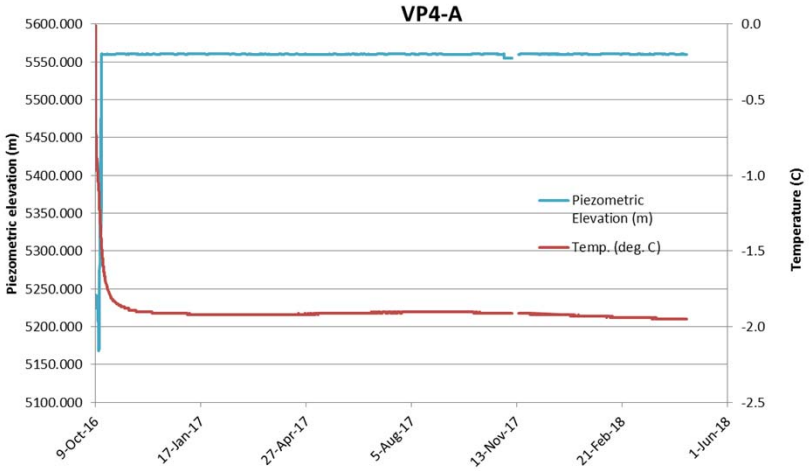
Comments:

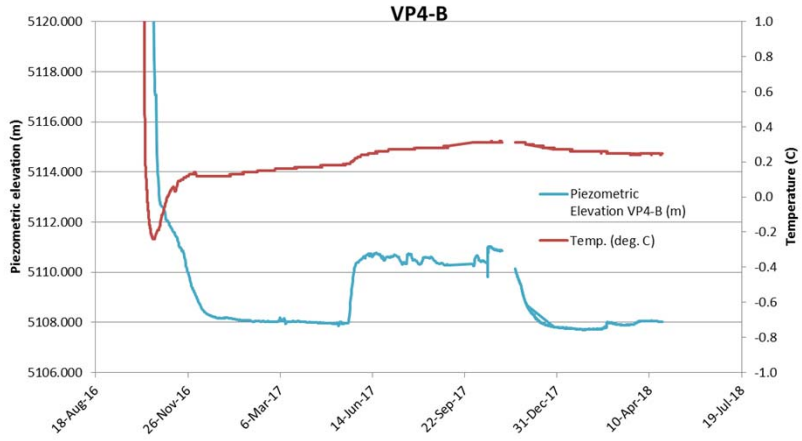
- PZ-A&B are below the freezing point since their installation and their data are considered unreliable.
- The section between 5105 and 5085 is close to the freezing but still below. Apart the top beads, minimal variations were recorded for the rest of the hole.

VAULT PIT

PIEZOMETERS & THERMISTORS

VP4-A, VP4-B





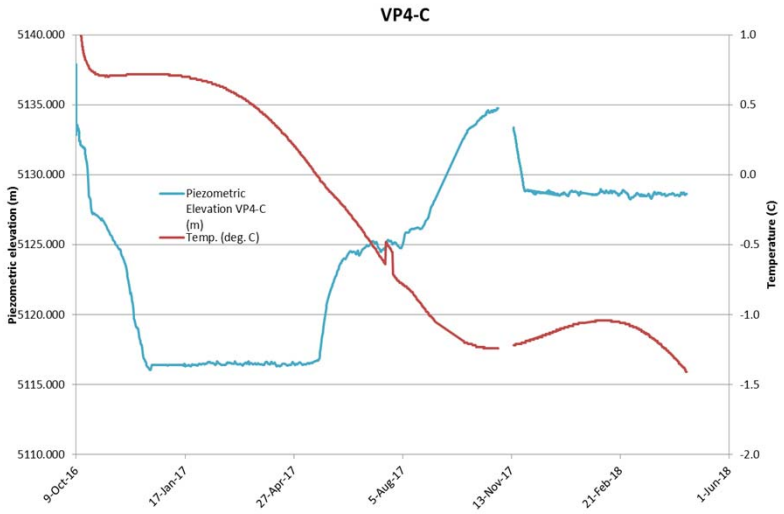
Comments:

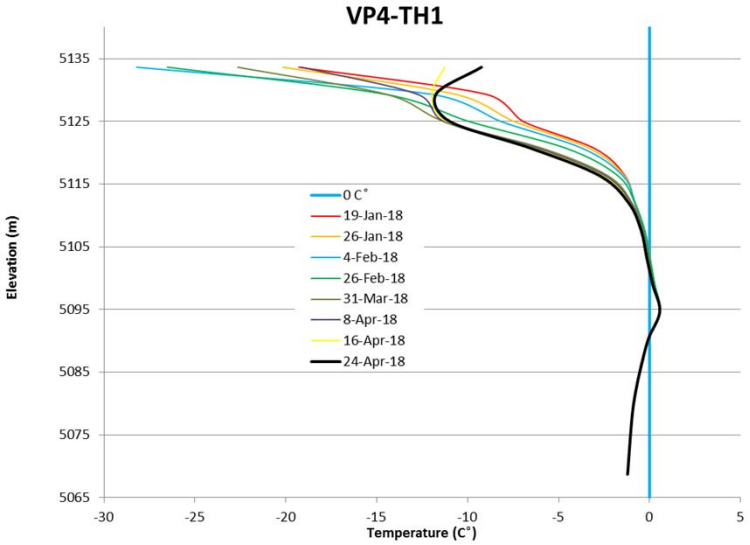
- PZ-A is under the freezing point and considered unreliable.
- PZ-B is unfrozen and since is significant pressure drop, it remained stable during Q1 ,2018. The instrument is installed in the confined layer of talik in between 5105 and 5095 at the source of the seepage causing the major ice wall in the area.
- The temperature of PZ-B is on a very slight downward trend suggesting a freeze back of the slope and aggradation of permafrost.

VAULT PIT

PIEZOMETERS & THERMISTORS

VP4-C, VP4-TH1



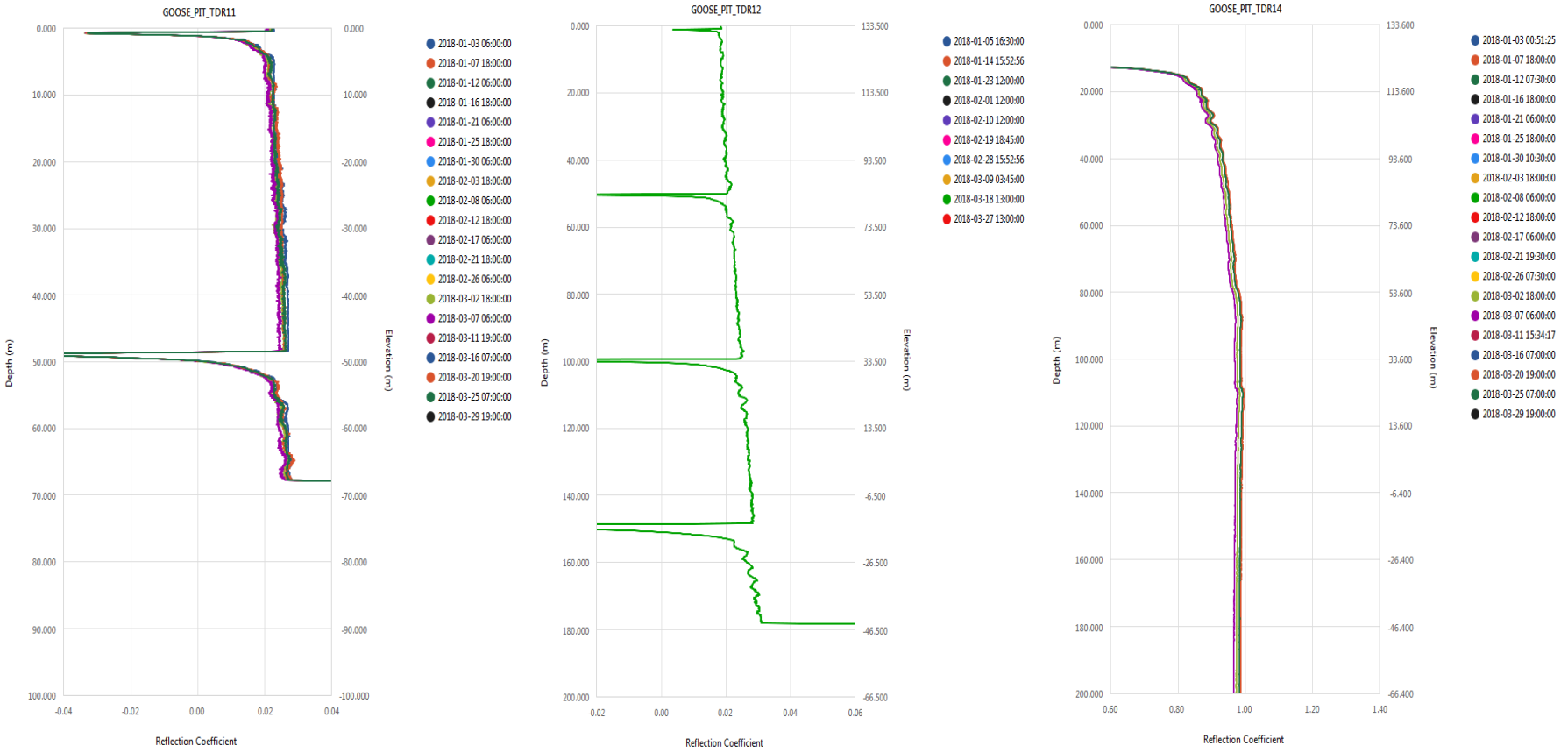


Comments:

- PZ-C is frozen and data is considered unreliable.
- The thermistor show that the hole is mainly in the permafrost at the exception of the section in between 5100 and 5095 (0.56˚C). This zone causes the seepage and therefore the ice wall.

GOOSE PIT

TDR

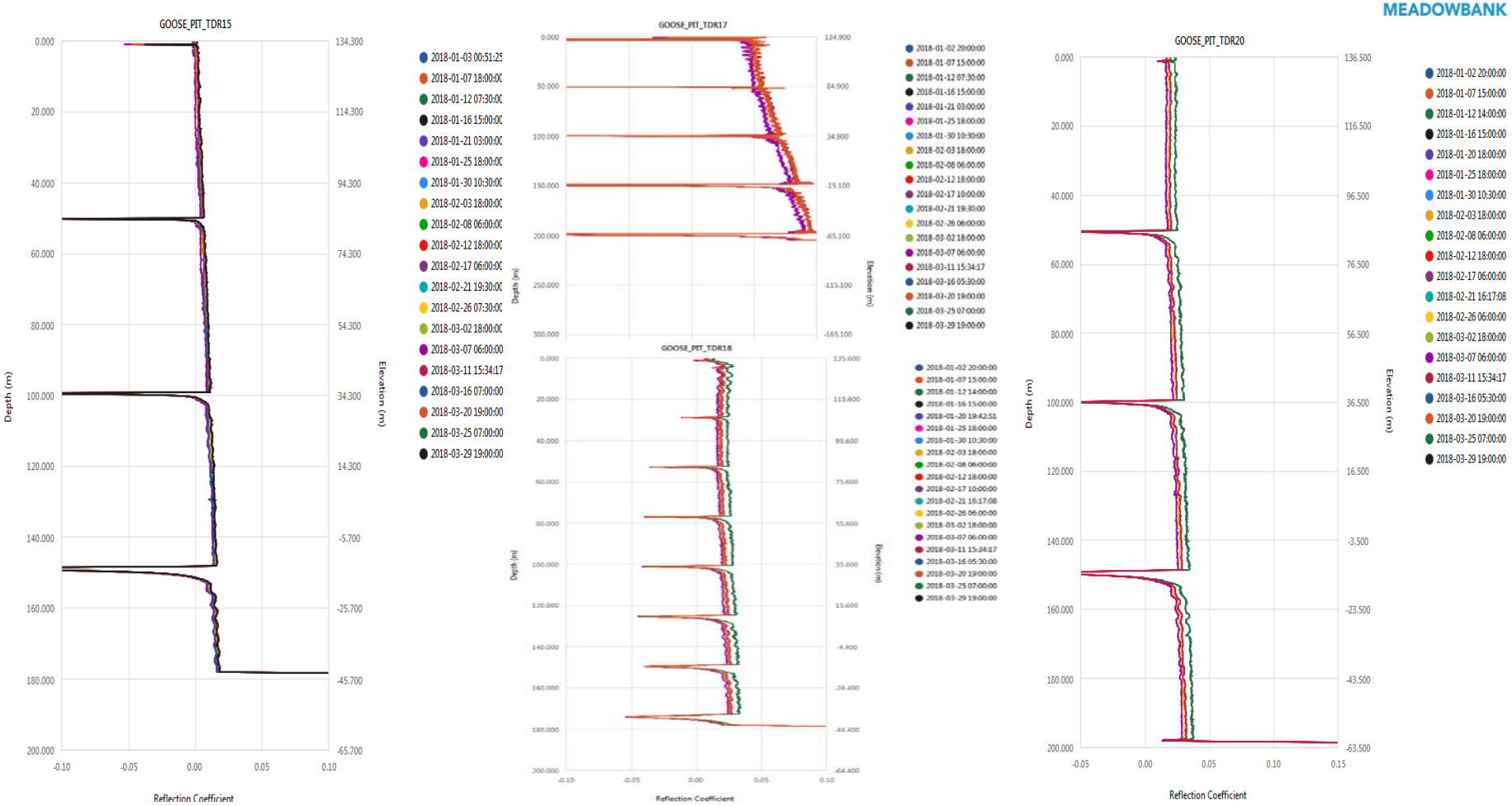


Comments:

- No sign of deformation was observed in these TDRs.
- Anomalies from the TDR logger are still presents and were disregarded in the presented graphs. The issue will be addressed shortly by reprogramming the logger.

GOOSE PIT

TDR

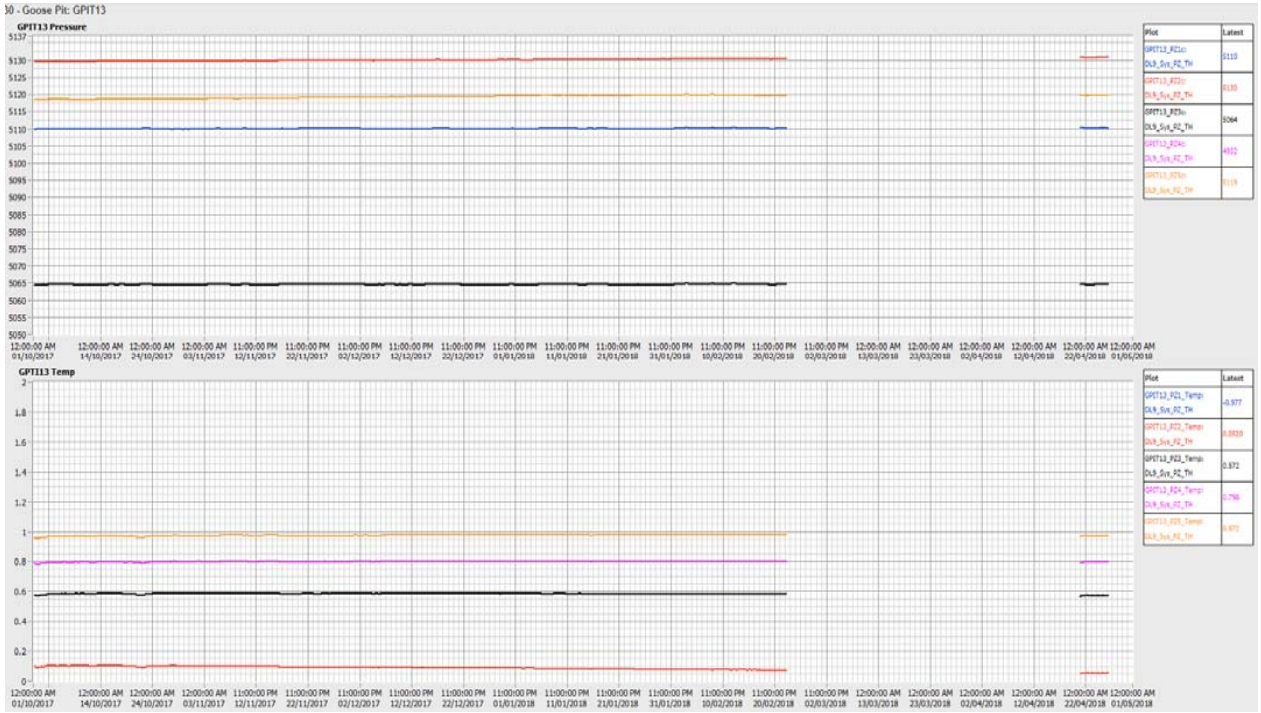


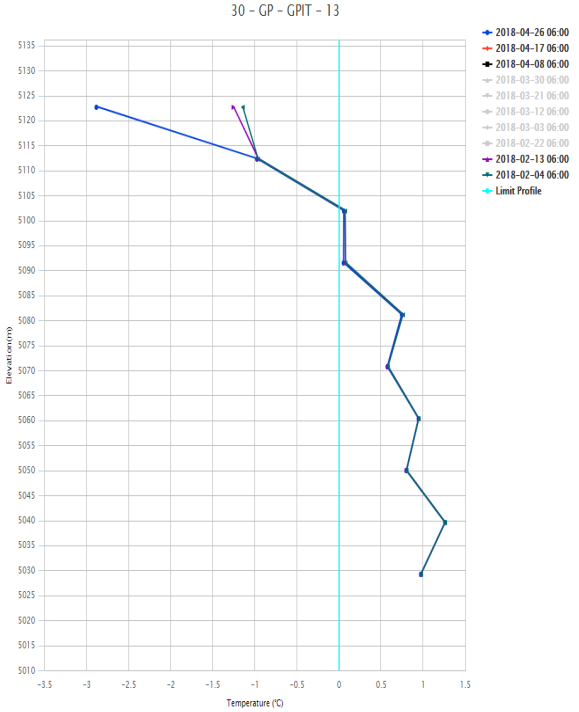
- No sign of deformation was observed in these TDRs.
- Anomalies from the TDR logger are still presents and were disregarded in the presented graphs. The issue will be addressed shortly by reprogramming the logger.

GOOSE PIT

PIEZOMETERS & THERMISTORS

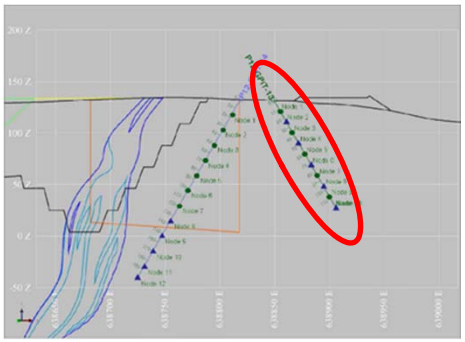
GPIT-13-PZ-1-2-3-4-5, GPIT-13-TH





Comments:

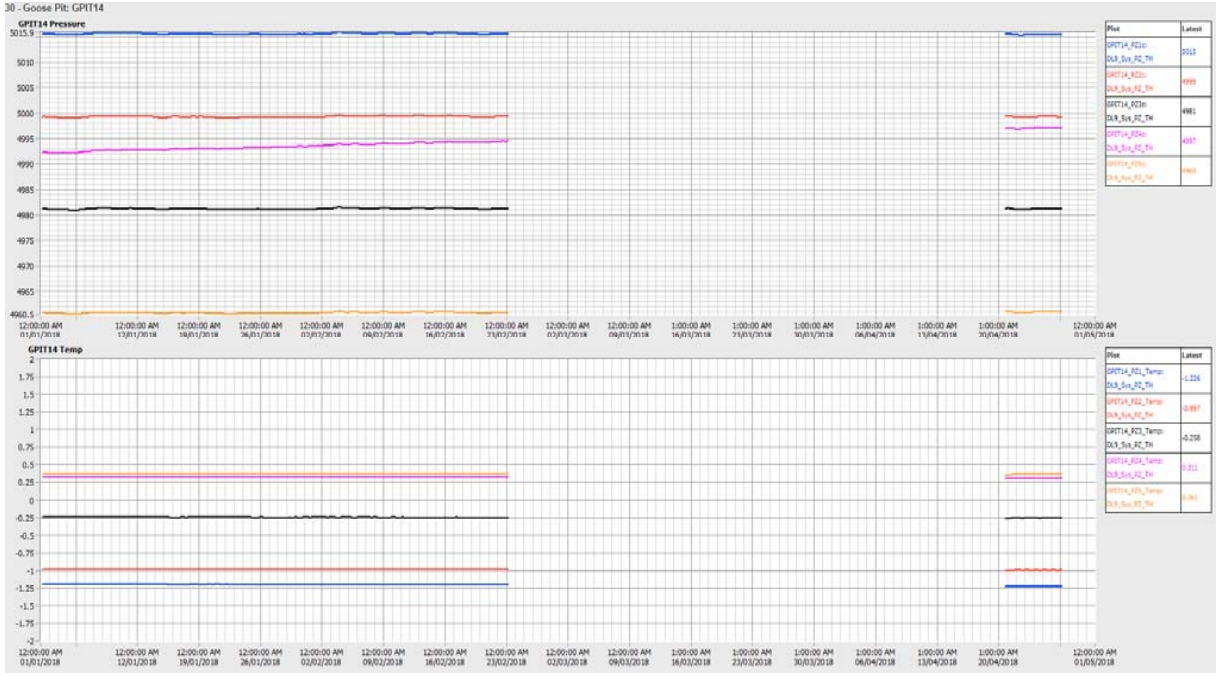
- All piezometers presents little or no variation during the Q1, 2018. All of them are above freezing point.
- A part of the data logger (DL9) was used on DL13 and no record were taken in between Feb. 23, 2018 to the end of the Quarter.
- TH-GPIT-13 was stable during Q1 compared to previous data sets. It is in the permafrost from top to elev. 5102.

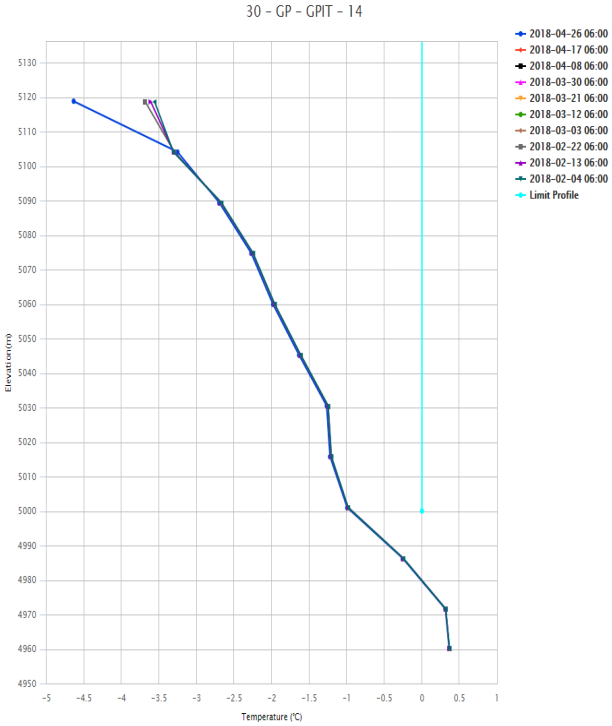


GOOSE PIT

PIEZOMETERS & THERMISTORS

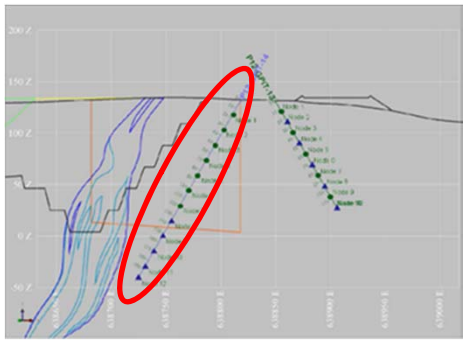
GPIT-14-PZ-1-2-3-4-5, GPIT-14-TH





Comments:

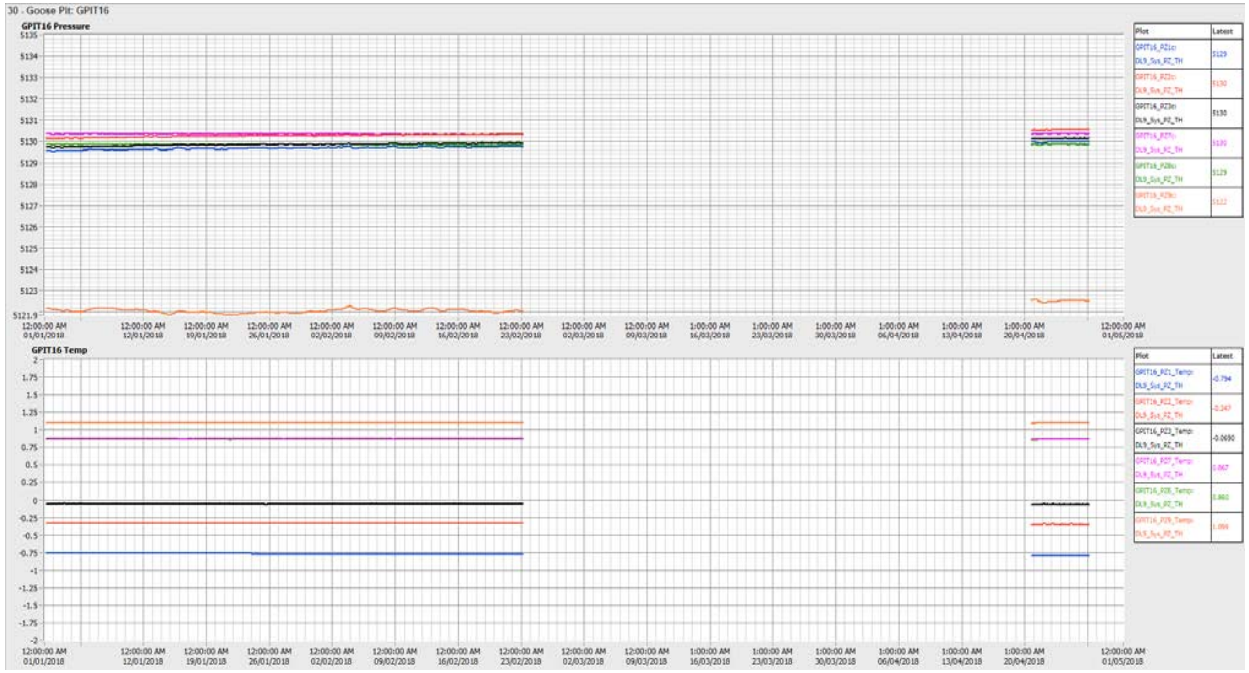
- PZ-4 is on a slow rising trend. It rose 1 m pore water pressure during the first quarter and that could be related to the water level within the Goose pit that is raising (natural flooding).
- PZ-1,2,3 are below the freezing point.
- TH-GPIT-14 is in the permafrost from top at elevation 5120 to 4980. The last 20m of the hole is above the freezing line.

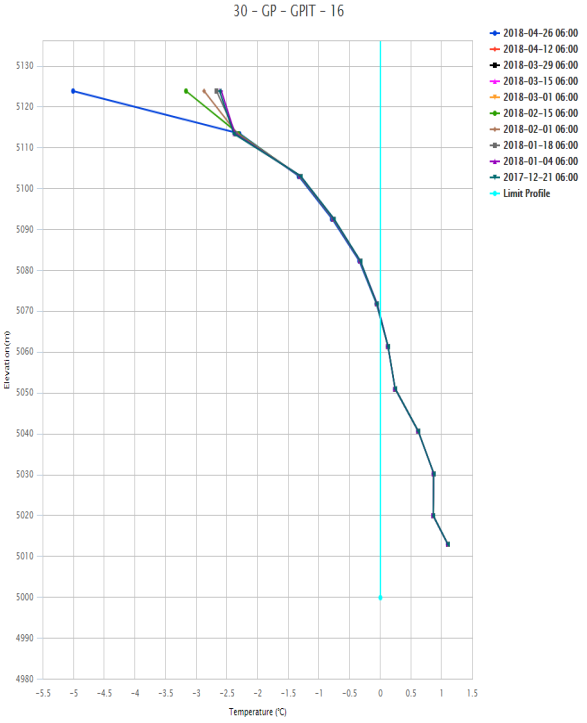


GOOSE PIT

PIEZOMETERS & THERMISTORS

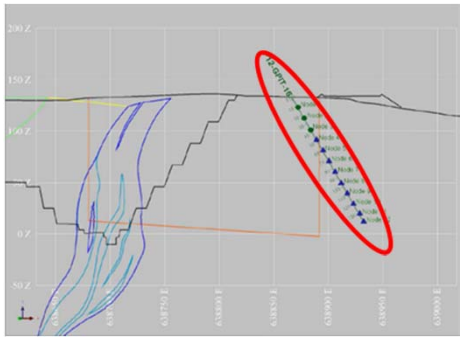
GPIT-16-PZ-1-2-3-7-8-9, GPIT-16-TH





Comments:

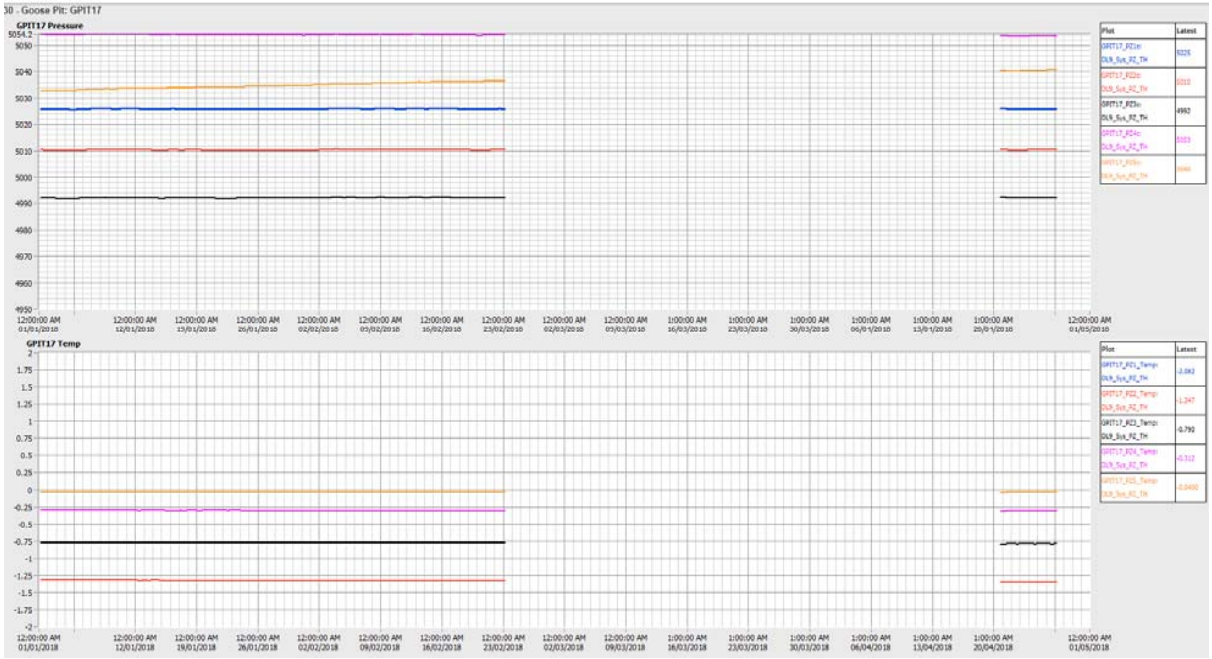
- All of the piezometers are on a very slow rising trend. However PZ-1,2,3 are under the freezing line and can not be considered as reliable.
- PZ-1,2,3 are below the freezing point.
- TH-GPIT-16 is in the permafrost from top at elevation 5124 to 5070. The last 57m of the hole is above the freezing line.



GOOSE PIT

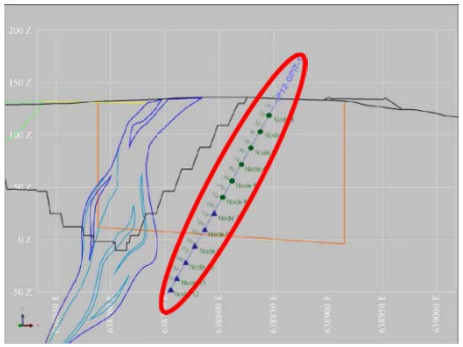
PIEZOMETERS & THERMISTORS

GPIT-17-PZ-1-2-3-4-5, GPIT-17-TH



Comments:

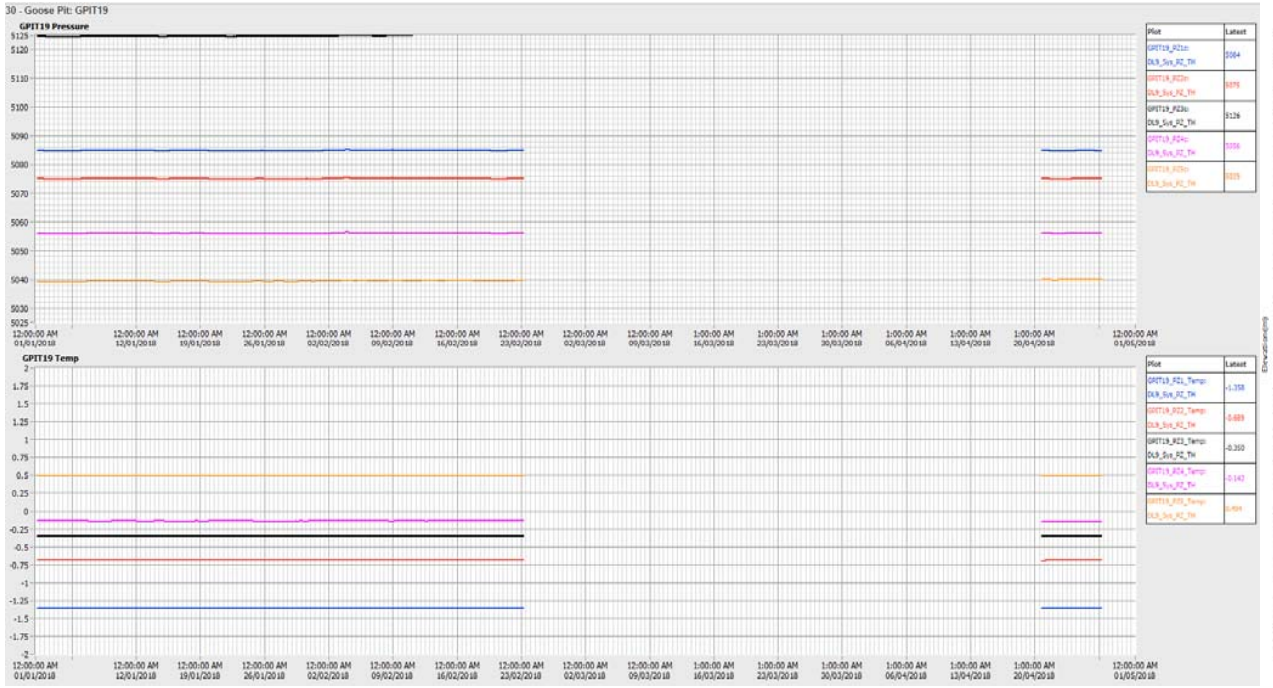
- PZ-5 has risen 6 m of pore water pressure. However, this PZ is just under the freezing line.
- PZ-1,2,3,4 are below the freezing point and can't be considered reliable.
- TH-GPIT-17 is in the permafrost from top at elevation 5119 to 4963. The last 10m of the hole is above the freezing line.

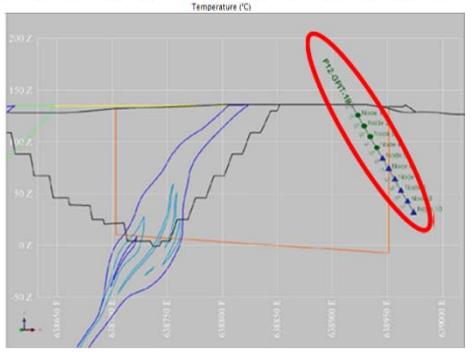


GOOSE PIT

PIEZOMETERS & THERMISTORS

GPIT-19-PZ-1-2-3-4-5, GPIT-19-TH





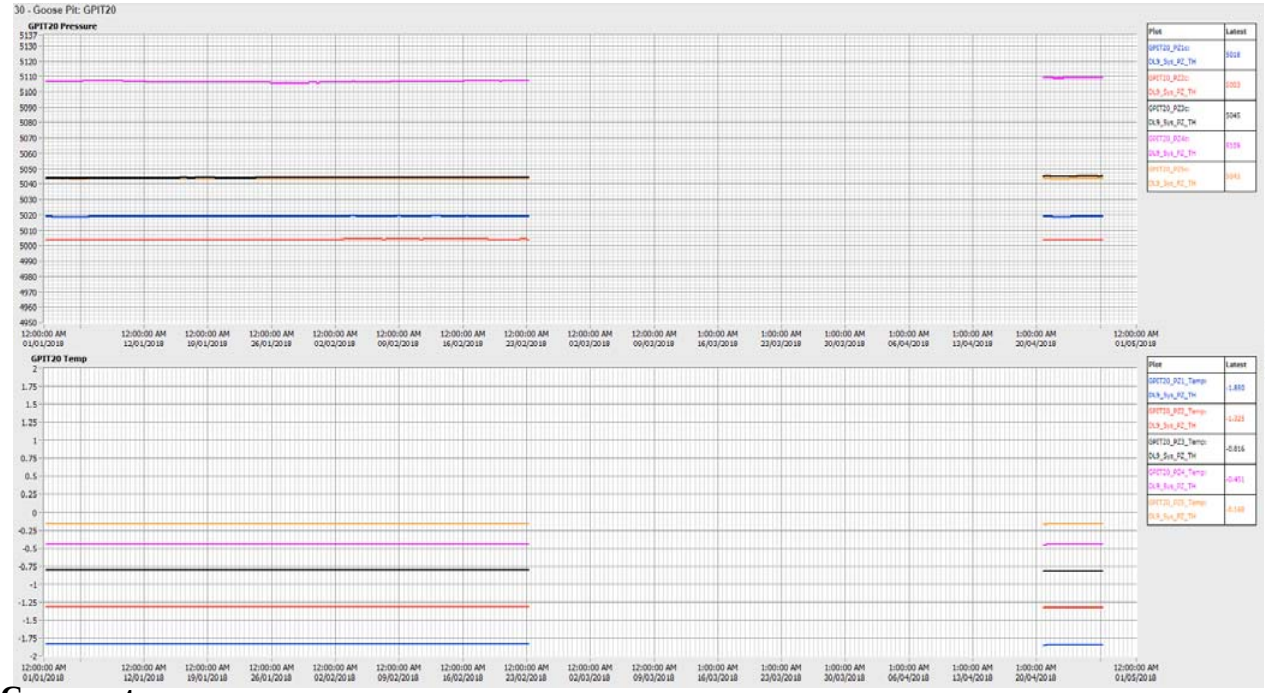
Comments:

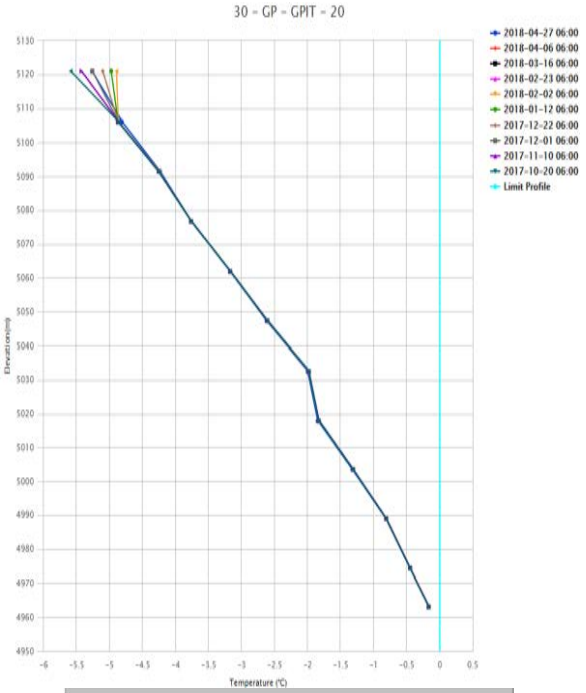
- PZ-5 is above the freezing line and it shows little or no pore water pressure variations during the quarter 1, 2018.
- PZ-1,2,3,4 are below the freezing point and can't be considered reliable.
- TH-GPIT-19 is in the permafrost from top at elevation 5126 to 5051. The first couple beads varied decimals of a degree. The last 19m of the hole is above the freezing line.

GOOSE PIT

PIEZOMETERS & THERMISTORS

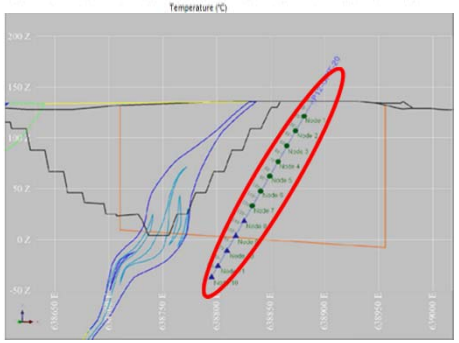
GPIT-20-PZ-1-2-3-4-5, GPIT-20-TH





Comments:

- PZ-1,2,3,4,5 are below the freezing point and can't be considered reliable.
- TH-GPIT-20 is in the permafrost on its entire length from is top at elevation 5121 to the bottom at4963.



PERIOD: Q2 - APRIL 1ST TO JUNE 30TH 2018

Open Pits - Quarterly Report
Instrumentation Monitoring and Field Observation Summary
Agnico Eagle Mines Limited
Meadowbank Project

Written: Vincent Duranleau
Reviewed: Alexandre Lavallee

Period: Q2 - April 1st to June 30th 2018

TABLE OF CONTENTS

INTRODUCTION

This quarterly report present and provide interpretation on all instrumentation data associated to ground control of active and inactive open pits at Meadowbank. Key observations made during the previous biweekly pit wall inspections are also integrated in the data analyses.

The frequencies of the inspection and instrumentation data acquisition/review is provided in the latest Ground Control Management Plan (GCMP).

MEADOWBANK OPEN PITS

Open pits from the Meadowbank mine are presented in the map below. The mine consists of 4 active and 4 inactive open pits as presented below.

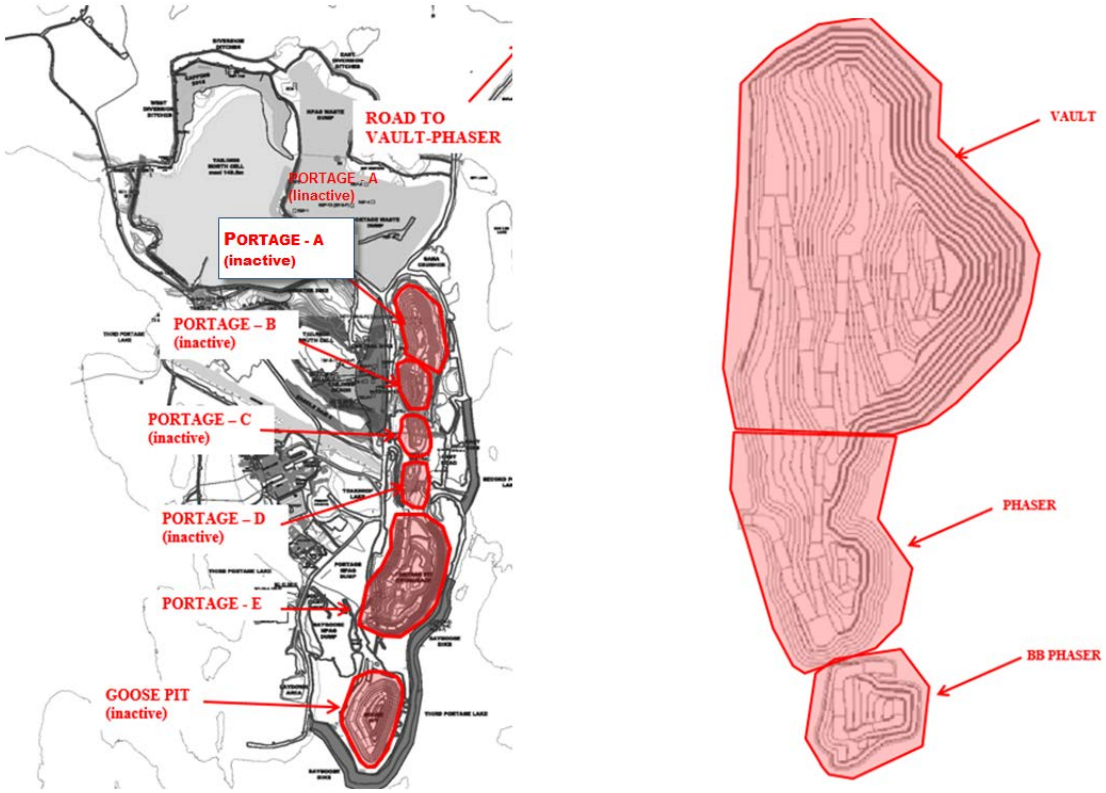


Figure 1 : Meadowbank open pits location

INSTRUMENTATION AND INSPECTION HIGHLIGHTS

ACTIVE OPEN PITS

Portage Pit E

- A disturbance occurred on the radar around April 20 during an unknown event (wind, ice etc.), creating noise in the data. Another noise event occurred on May 27-28 and the thawing of the ground underneath the radar is the most probable reason. On June 24-25 there was an episode of rain recorded by the radar. It correlates with a spike of 5-6mm on all the monitored sections in the ultramafic formation.
- 7 Rock Falls event were reported during the Q2 from June 9 to June 30, 2018. Those reported Rock Falls are totalizing 1,239T. They are all located in the south wall of Pit E5, mainly on the elevation 5081of the pit. Another Rock Fall occurred over a period of 3 three days from June 25 to June 28 on the bench elevation 5123 (first high wall). It was notice after the fact. According the visual inspection, it is estimated to be around 250T. All of these Rock Falls occurred in the south wall of pit E5 in the ultramafic formation.
- No movement recorded on all of the TDRs.
- In-Place inclinometer was removed and sent to the supplier for repair during Q1 and most of Q2. It was re-installed on June 13, 2018. The available results are showing that it will become a reliable asset (toward stabilization). It is a too early to establish a trend with the available data.
- The bottom of the Pit E (sector Pit E3) is flooded and it is currently pumped to Pit A.
- Piezometers within the setback distance from the dike are showing normal response to mining activities (PE3-14, PE5-17-01, and PE5-17-02), spikes and gradual decrease in pressure are displayed.

Vault Pit

- The Vault Pit most concerning aspect is the Ice Wall. The Ice Wall was scanned and 3D modelling indicates a volume of 42,000 m^3. During the end of Q2 it started to melt, creating situation where free standing pillars were forcing Operation to stand back from the wall in order to operate safely. Inspection frequencies were increased, bumpers and trenches were built and pumping was ongoing until it was no longer possible. There is no instrument to monitor the Ice Wall, only visual and sporadic scans.
- Prism monitoring has restarted and only 2sets of data are available in the present report.
- Thermistor in VP4 hole suggests a layer of talik at 5095, which is reduction of another 5m of the previous talik layer data set (from 10m to 5m). This layer is considered the cause of the ice wall.

Phaser Pit

- No instrumentation installed in this pit at the moment.

BB PhaserPit

- No instrumentation installed in this pit at the moment.

INACTIVE OPEN PITS

Goose Pit

- The North and west parts of the pit has been partially backfilled with waste rock
- Tension cracks observed in the in-pit dump are stable. No active dumping ongoing.
- No movement recorded on the TDRs.
- No anomaly detected in the piezometers and thermistors.
- A part of the data logger (DL9) was used on DL13 and no records were taken in between Feb. 23, 2018 to April 20, 2018. That situation affected the instruments (piezometers and thermistors) in GPIT holes #13, 14,16,17,19 &20.

Portage Pits B, C, D

- These pits are now almost fully back filled with waste rock.
- No sign of instability reported for the in-pit waste rock pile.

Portage Pit A

- No instrumentation installed in this pit at the moment.
- Tension cracks observed on the upper west wall are considered stable. visual inspection were performed of this area and no progression has been noted.

- The mining was completed around mid-March 2018. Mining activities are completed for this pit but water management will still be carried on.

INSTRUMENTATION LIST AND LOCATION

PORTAGE PIT A

No instrument installed in this pit.

PORTAGE PIT E

Radar

Table 1: Radar location and status

Unit	Radar location	Monitoring	Status	Reliability
			Operational (✓)/Not operational (×)	Operational Days
GP SSR253XT	West wall (crest) of Pit E	Southern and eastern portion of pit E	✓	88/91

- The Radar was off line a total of 3 days during the Q2, 2018. Two consecutive days for MTM maintenance and one period of high wind/blizzard (1 day).

Figure 2: Radar location and coverage

Downhole instruments

Table 2: List of downhole instruments

Hole	Instrument ID	Type	Status	Readings
			Operational (✓)/Not operational (×)	Manual/ Automatic
PE3-14	PE3-P14A	Piezo	✓	Automatic
	PE3-P14B	Piezo	✓	Automatic
PE5-17-01	PE5-17-01-A	Piezo	✓	Automatic
	PE5-17-01-B	Piezo	✓	Automatic
	PE5-17-01-C	Piezo	✓	Automatic
	PE5-17-01-TH	Thermistor	✓	Automatic
	PE5-TDR1	TDR	✓	Automatic
PE5-17-02	PE5-17-02-A	Piezo	✓	Automatic
	PE5-17-02-B	Piezo	✓	Automatic
	PE5-TDR2	TDR	✓	Automatic
PE5-17-03	PE5-17-03-A	Piezo	✓	Automatic
	PE5-17-03-B	Piezo	✓	Automatic
	PE5-17-03-C	Piezo	✓	Automatic
	PE5-17-03-TH	Thermistor	✓	Automatic
	PE5-TDR3	TDR	✓	Automatic
PE5-17-04	PE5-17-04-A	Piezo	✓	Automatic
	PE5-17-04-B	Piezo	× (frozen)	Automatic
	PE5-TDR4	TDR	✓	Automatic
PE5-17-05	PE5-17-05-A	Piezo	× (frozen)	Automatic
	PE5-17-05-B	Piezo	× (frozen)	Automatic
	PE5-17-05-C	Piezo	× (frozen)	Automatic
	PE5-TDR5	TDR	✓	Automatic
PE5-17-06	PE5-IPI	In-Place Inclinometer	✓	Automatic

Figure 3: Location of Pit E instrumented holes collars

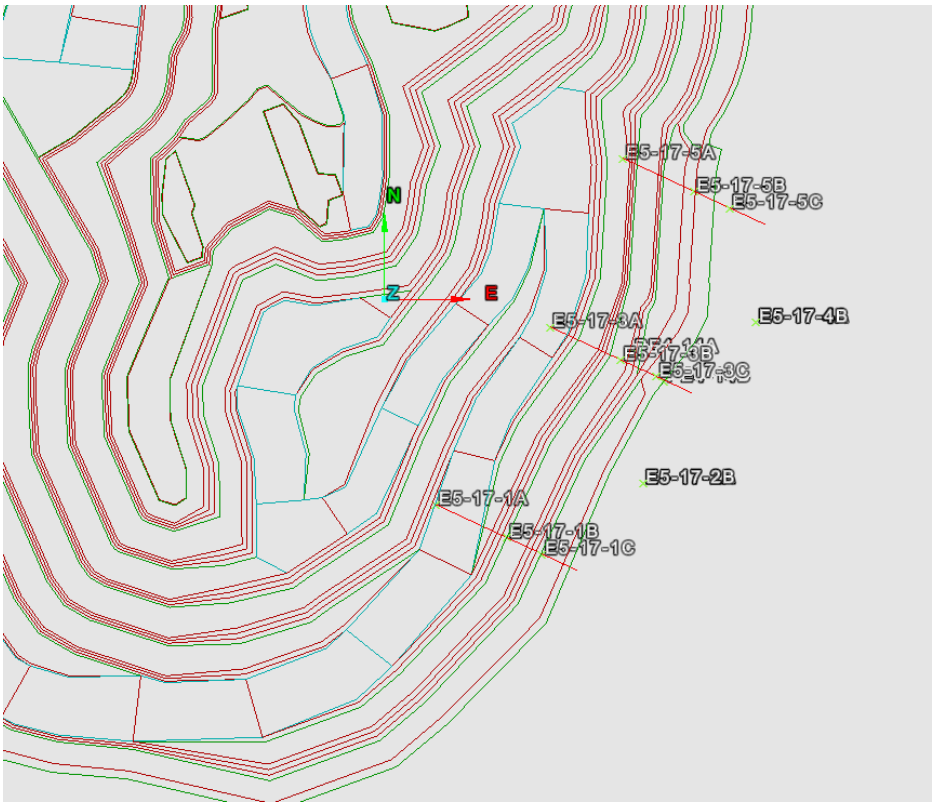


Figure 4: Location of Pit E piezometers

VAULT PIT

Downhole instruments

Table 3: List of downhole instruments

Hole	Instrument ID	Type	Status	Readings
			Operational (✓)/Not operational (×)	Manual/ Automatic
VP1	VP1-A	Piezo	× (frozen)	Semi – Manual
	VP1-B	Piezo	× (frozen)	Semi – Manual
	VP1-TH1	Thermistor	✓	Semi – Manual
VP2	VP2-A	Piezo	× (frozen)	Semi – Manual
	VP2-B	Piezo	× (frozen)	Semi – Manual
	VP2-TH1	Thermistor	✓	Semi – Manual
VP4	VP4-A	Piezo	× (frozen)	Semi – Manual
	VP4-B	Piezo	✓	Semi – Manual
	VP4-C	Piezo	✓	Semi – Manual
	VP4-TH1	Thermistor	✓	Semi – Manual

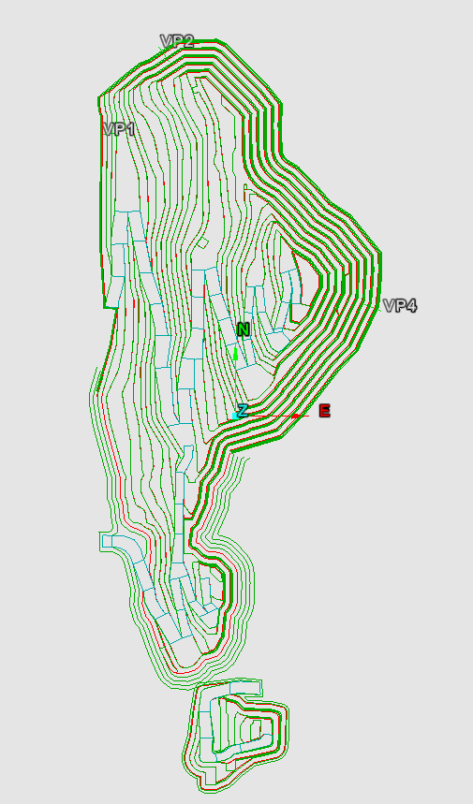


Figure 5: Vault downhole instrumentation location

Prims monitoring

Prism ID	Type	Status	Readings
		Operational (✓)/Not operational (×)	Manual/ Automatic
1	Prism	✓	Manual
2	Prism	×under snow or ice	Manual
3	Prism	✓	Manual
4	Prism	× under snow or ice	Manual
5	Prism	✓	Manual
7	Prism	× under snow or ice	Manual
8	Prism	× under snow or ice	Manual
10	Prism	× under snow or ice	Manual
11	Prism	× under snow or ice	Manual
12	Prism	× under snow or ice	Manual
13	Prism	✓	Manual
14	Prism		Manual
15	Prism	✓	Manual
16	Prism	✓	Manual
17	Prism	✓	Manual
18	Prism	✓	Manual

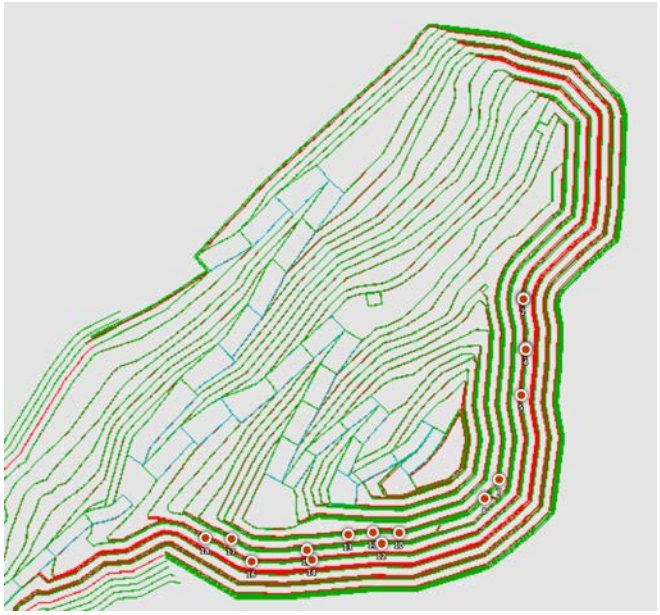


Figure 6: Prisms location

PHASER PIT

No permanent instrument installed in this pit.

GOOSE PIT

Downhole instruments

Hole	Instrument ID	Type	Status	Readings
			Operational (✓)/Not operational (×)	Manual/ Automatic
GPIT-11	GPIT-TDR11	TDR	✓	Automatic
GPIT-12	GPIT-TDR12	TDR	✓	Automatic
GPIT-13	GPIT13-PZ1	Piezo	✓	Automatic
	GPIT13-PZ2	Piezo	✓	Automatic
	GPIT13-PZ3	Piezo	✓	Automatic
	GPIT13-PZ4	Piezo	✓	Automatic
	GPIT13-PZ5	Piezo	✓	Automatic
	GPIT-TH13	Thermistor	✓	Automatic
GPIT-14	GPIT14-PZ1	Piezo	× (frozen)	Automatic
	GPIT14-PZ2	Piezo	× (frozen)	Automatic
	GPIT14-PZ3	Piezo	× (frozen)	Automatic
	GPIT14-PZ4	Piezo	✓	Automatic
	GPIT14-PZ5	Piezo	✓	Automatic
	GPIT-TH14	Thermistor	✓	Automatic
	GPIT-TDR14	TDR	✓	Automatic
GPIT-15	GPIT-TDR15	TDR	✓	Automatic
GPIT-16	GPIT16-PZ1	Piezo	× (frozen)	Automatic
	GPIT16-PZ2	Piezo	× (frozen)	Automatic
	GPIT16-PZ3	Piezo	× (frozen)	Automatic
	GPIT16-PZ4	Piezo	✓	Automatic
	GPIT16-PZ5	Piezo	✓	Automatic
	GPIT16-PZ6	Piezo	✓	Automatic
	GPIT16-PZ7	Piezo	✓	Automatic
	GPIT16-PZ8	Piezo	✓	Automatic
	GPIT16-PZ9	Piezo	✓	Automatic
	GPIT-TH16	Thermistor	✓	Automatic
GPIT-17	GPIT17-PZ1	Piezo	× (frozen)	Automatic
	GPIT17-PZ2	Piezo	× (frozen)	Automatic
	GPIT17-PZ3	Piezo	× (frozen)	Automatic
	GPIT17-PZ4	Piezo	× (frozen)	Automatic
	GPIT17-PZ5	Piezo	× (frozen)	Automatic
	GPIT17-PZ6	Piezo	✓	Automatic
	GPIT-TH17	Thermistor	✓	Automatic
	GPIT-TDR17	TDR	✓	Automatic
GPIT-18	GPIT-TDR18	TDR	✓	Automatic
GPIT-19	GPIT19-PZ1	Piezo	× (frozen)	Automatic
	GPIT19-PZ2	Piezo	× (frozen)	Automatic
	GPIT19-PZ3	Piezo	× (frozen)	Automatic
	GPIT19-PZ4	Piezo	× (frozen)	Automatic
	GPIT19-PZ5	Piezo	✓	Automatic
	GPIT19-PZ6	Piezo	✓	Automatic
	GPIT-TH19	Thermistor	✓	Automatic
GPIT-20	GPIT20-PZ1	Piezo	× (frozen)	Automatic
	GPIT20-PZ2	Piezo	× (frozen)	Automatic
	GPIT20-PZ3	Piezo	× (frozen)	Automatic
	GPIT20-PZ4	Piezo	× (frozen)	Automatic
	GPIT20-PZ5	Piezo	× (frozen)	Automatic
	GPIT-TH20	Thermistor	✓	Automatic
	GPIT-TDR20	TDR	✓	Automatic

Figure 7: Location of downhole instruments at Goose pit

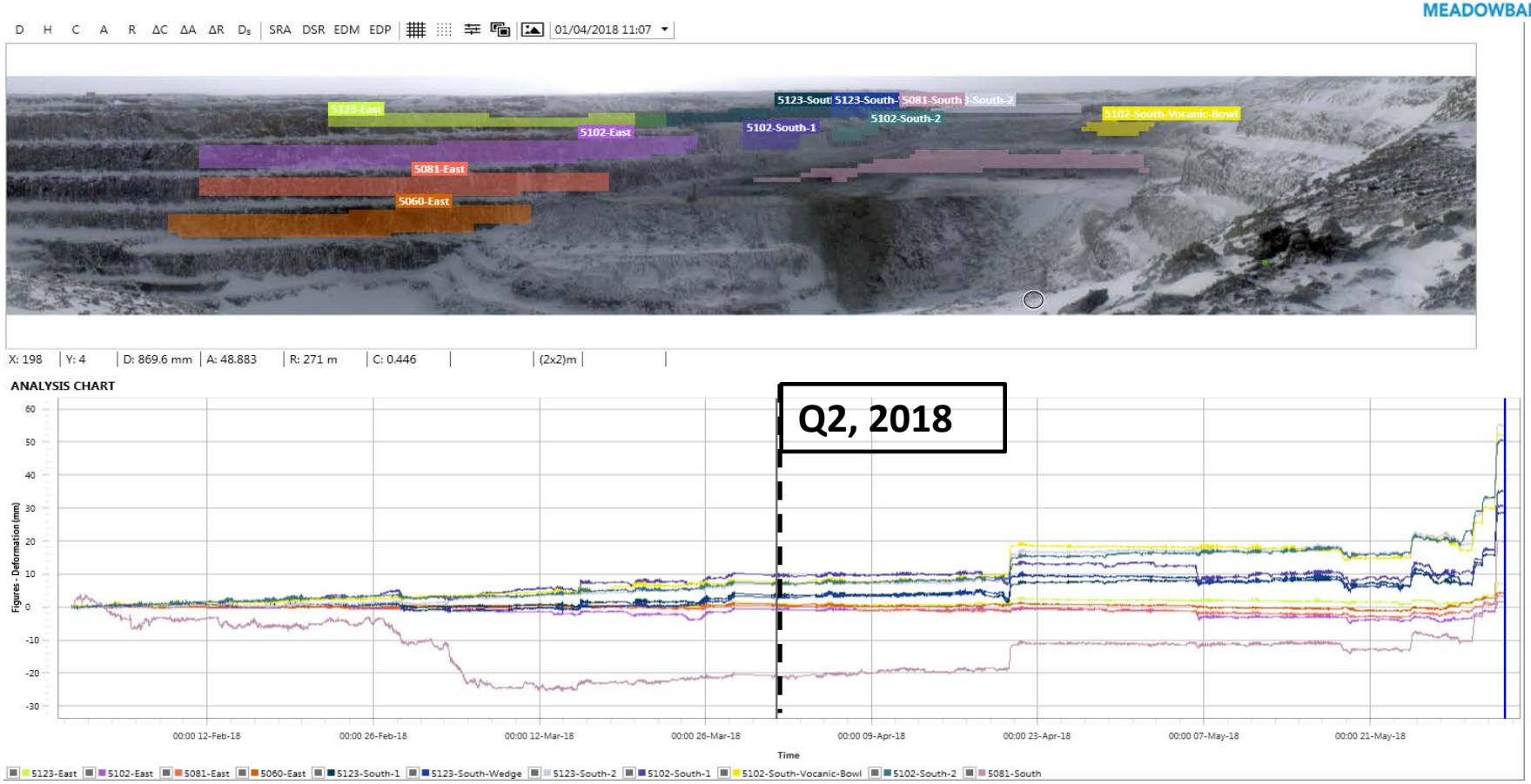
PORTAGE PIT B, C & D

- No instrument installed in these pits.

INSTRUMENTATION RESULTS

PORTAGE PIT E

RADAR

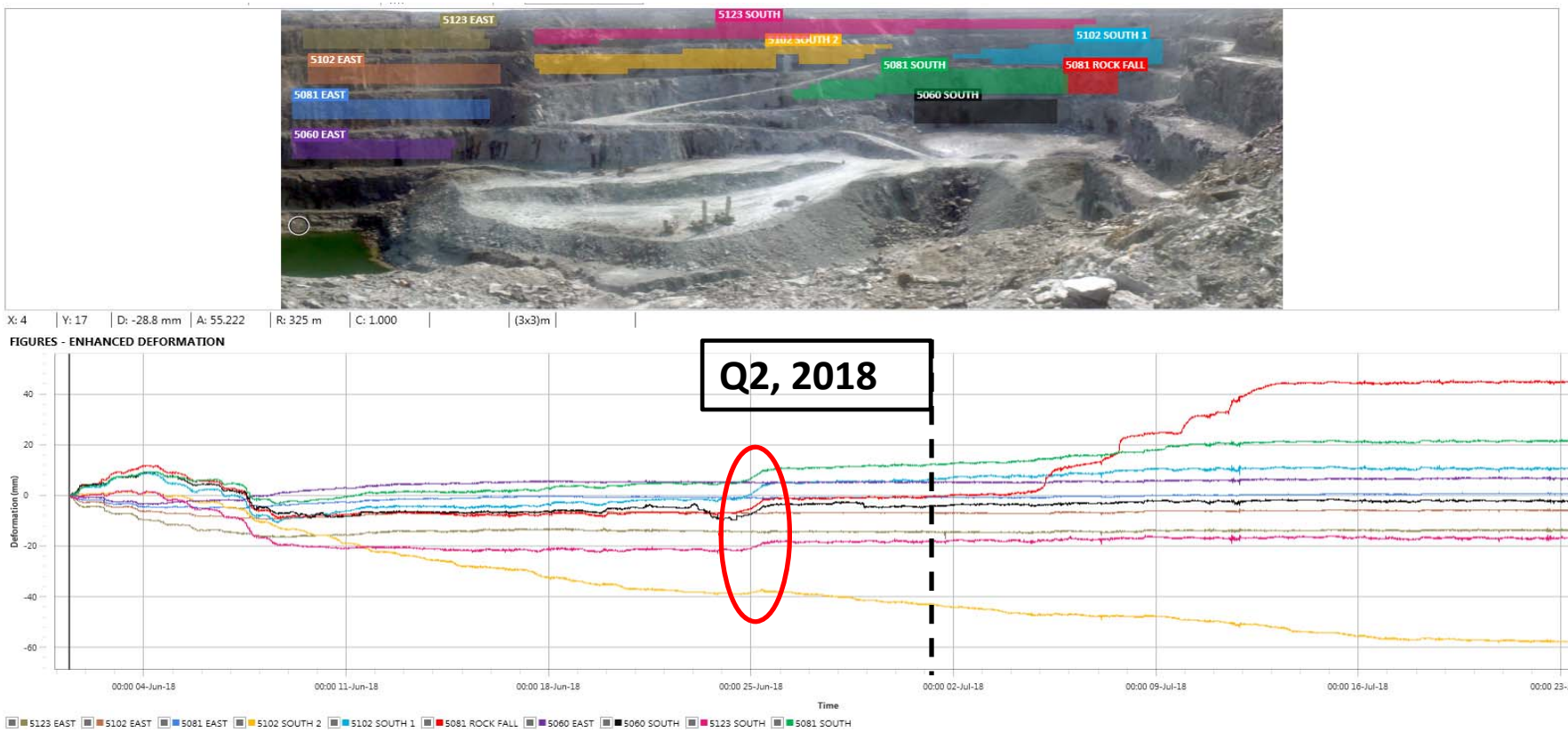


Enhanced deformation per sector (April 1st to June 1st) – Wall folder: SSR253_18031_Meadowbank_E5_SouthWall_Archive**).**

Comments: Most of the sectors were showing stable wall condition. A disturbance occurred on the radar around April 20 during an unknown event (wind, ice etc.), creating noise in the data. It is reflecting on every section of the wall monitored. Prior to that period the section identify as 5081 South as a small rising trend and gained 2 millimetres. Another rising trend is showed on every sections starting on May 27. This major rising trend correlates with the temperature augmentation and the possible melting at the base of the radar.

PORTAGE PIT E

RADAR



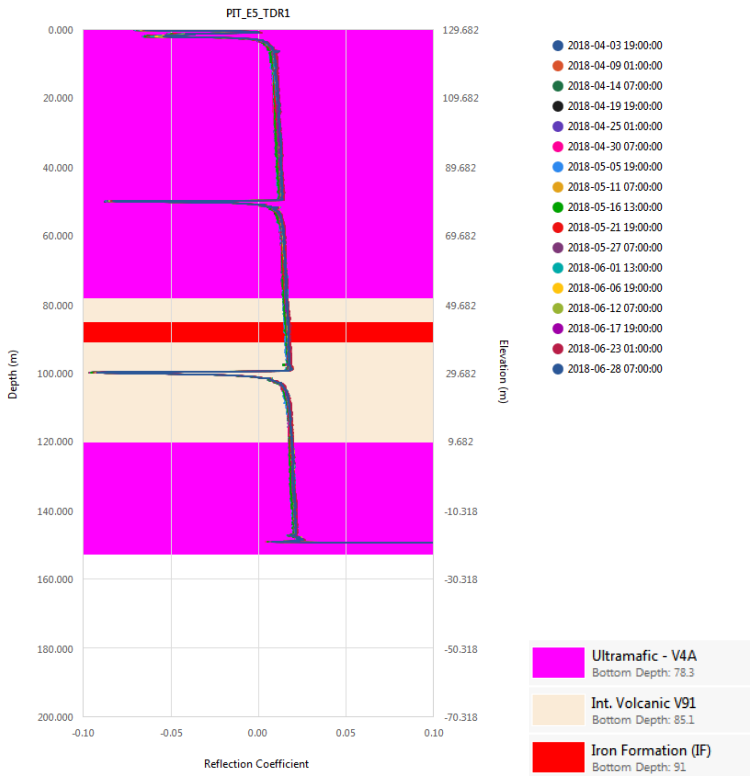
Enhanced deformation per sector (June 1st to June 30) – Wall folder: SSR253_180601_Meadowbank_E5_South_Wall**).**

Comments: During the second monitoring period, the section identified as 5102-SOUTH 2 lost 45mm on average over the month. The melting of the snow and ice accumulation could be an hypothesis for this downward trend. It is also interesting to point out that on June 24 and 25 it was raining. This situation was reflected on the graph on all the sections of the south west wall, by a raise of 5-6 mm. Those sections are mostly in the ultramafic formation and rain really does affect the wall performance .

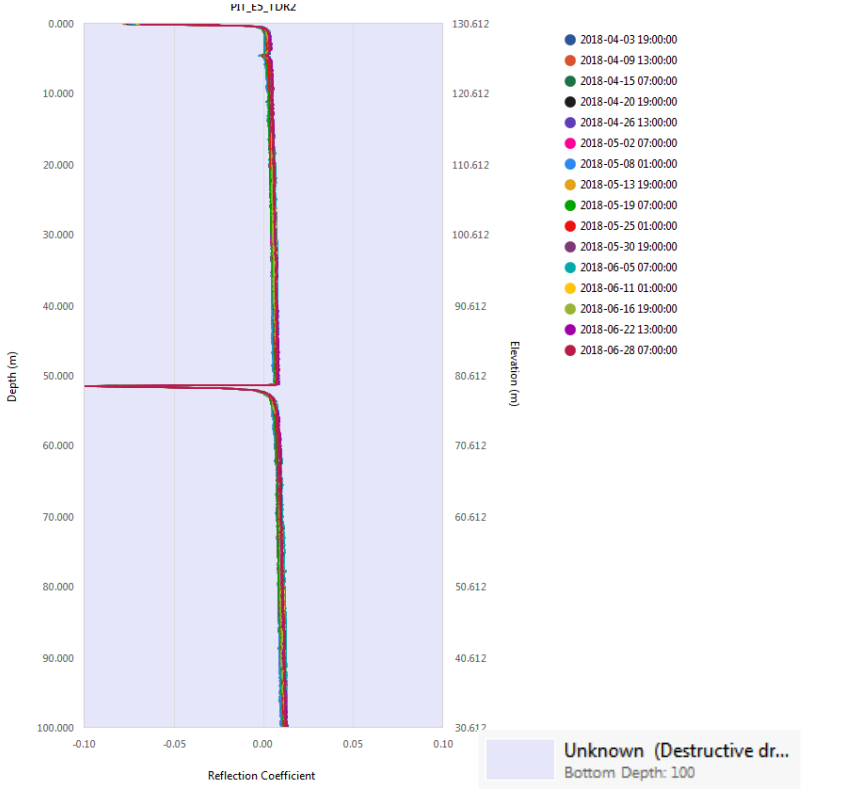
PORTAGE PIT E

TDR

TDR1



TDR2



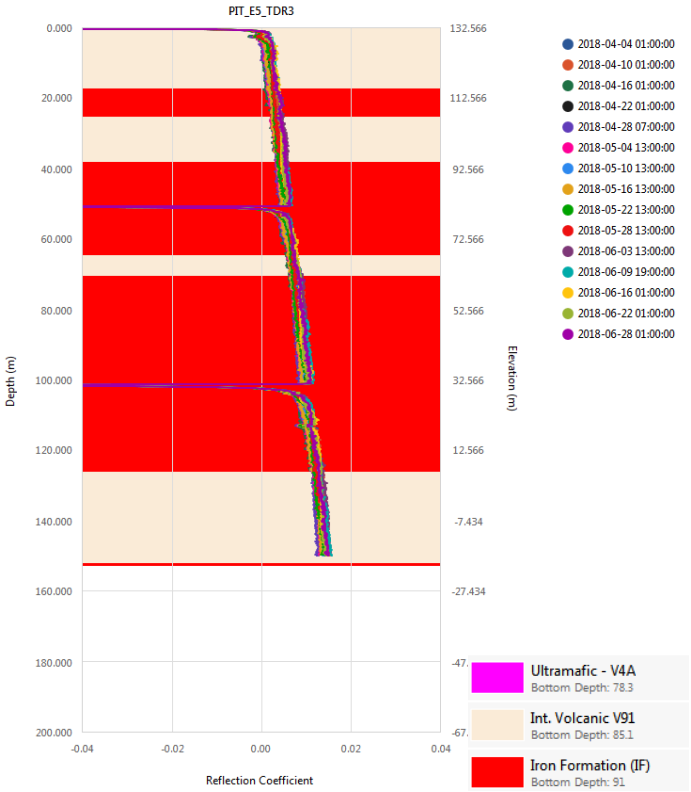
Comments:

- No sign of deformation observed in TDR1 & TDR2.
- Unlike the previous period, no anomalies from the TDR logger were found in the present graphs.

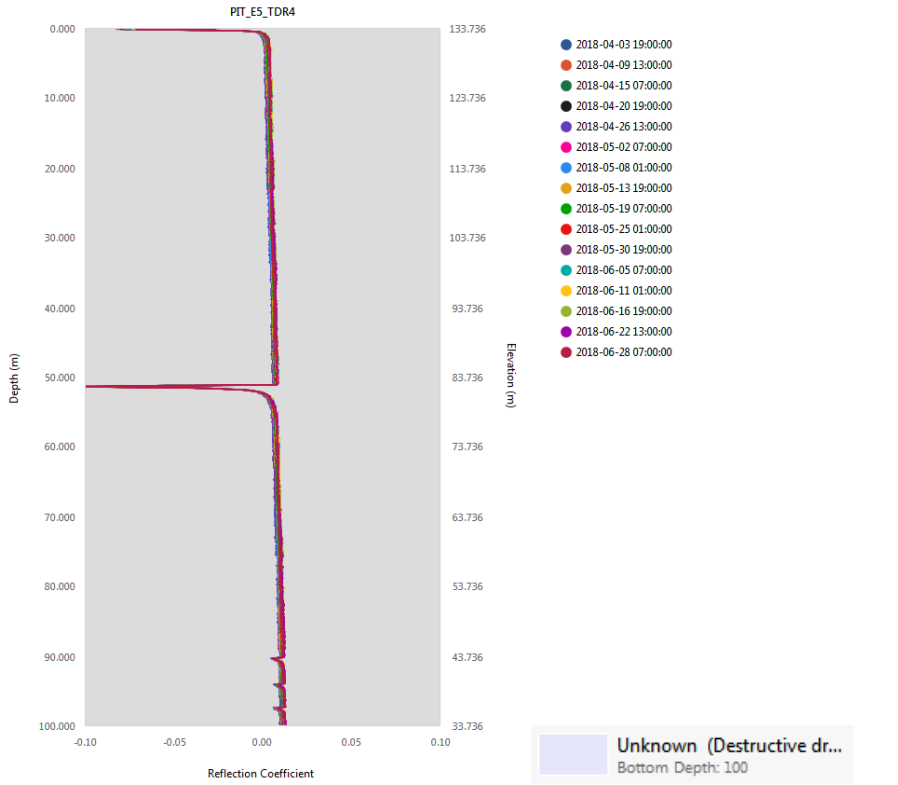
PORTAGE PIT E

TDR

TDR3



TDR4



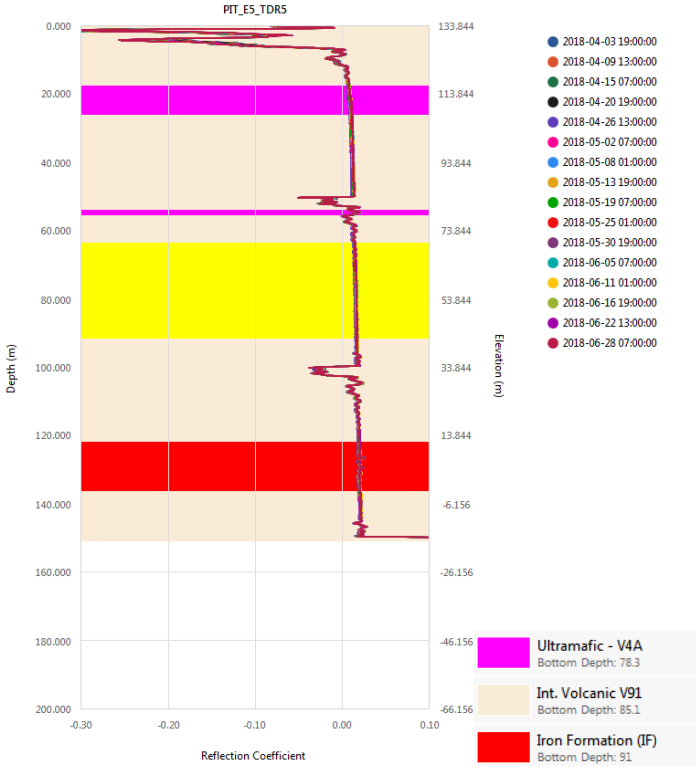
Comments:

- No sign of deformation observed in TDR3.
- The small reflection coefficient spikes in between elevation 44 and 34 MASL on TDR4 are present since installation.
- No anomalies from the TDR logger were found in the presented graphs unlike the previous covered period (Q1).

PORTAGE PIT E

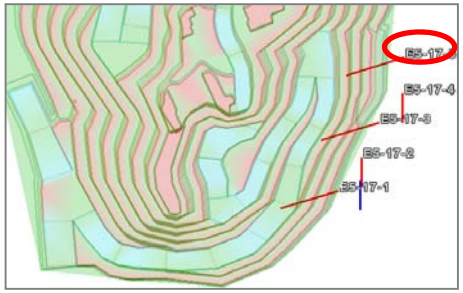
TDR

TDR5



Comments:

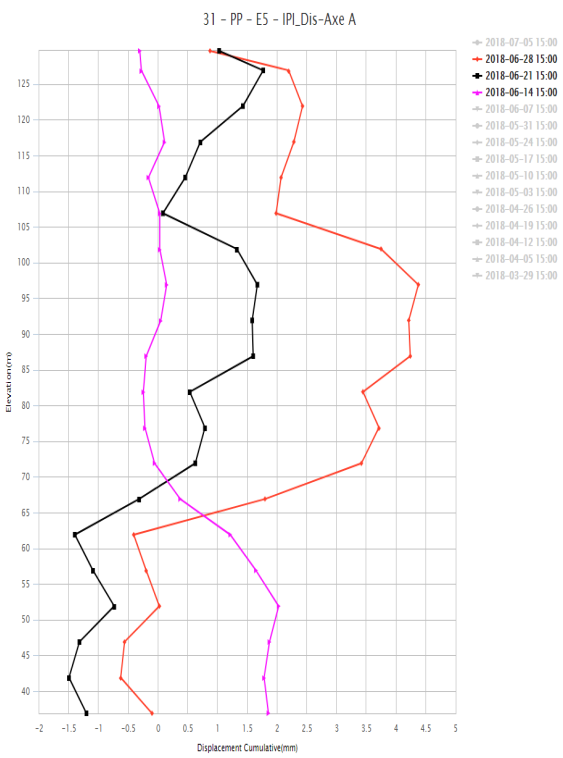
- No sign of deformation observed in TDR5.
- The small reflection coefficient spikes in between elevation 14 and -6 MASL on TDR5 are present since the installation.
- No anomalies from the TDR logger were found in the presented graphs unlike the previous covered period (Q1).

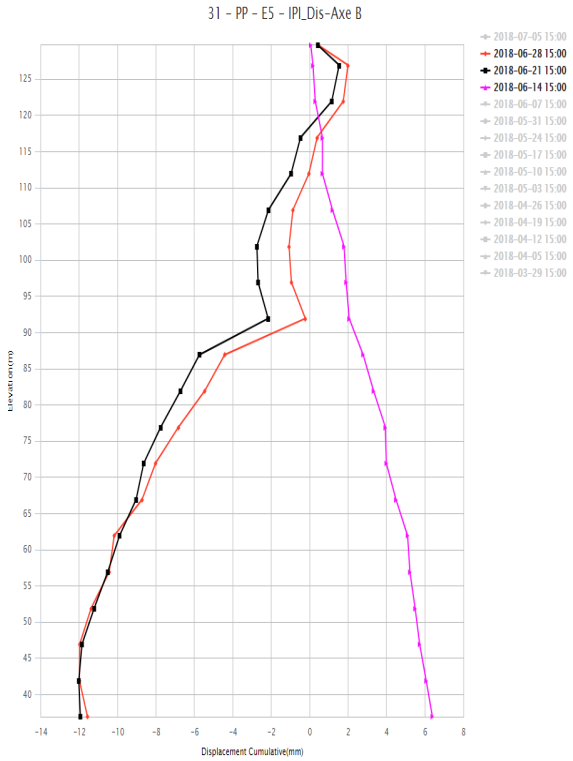


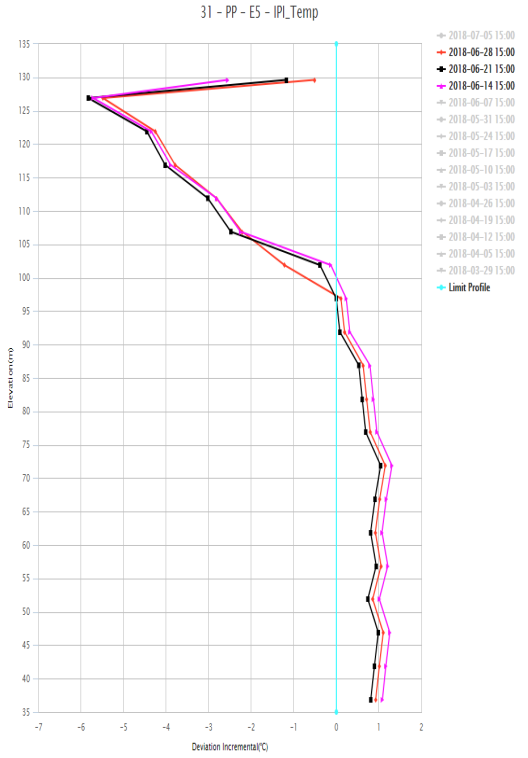
PORTAGE PIT E

INCLINOMETER

PP-E5-IPI







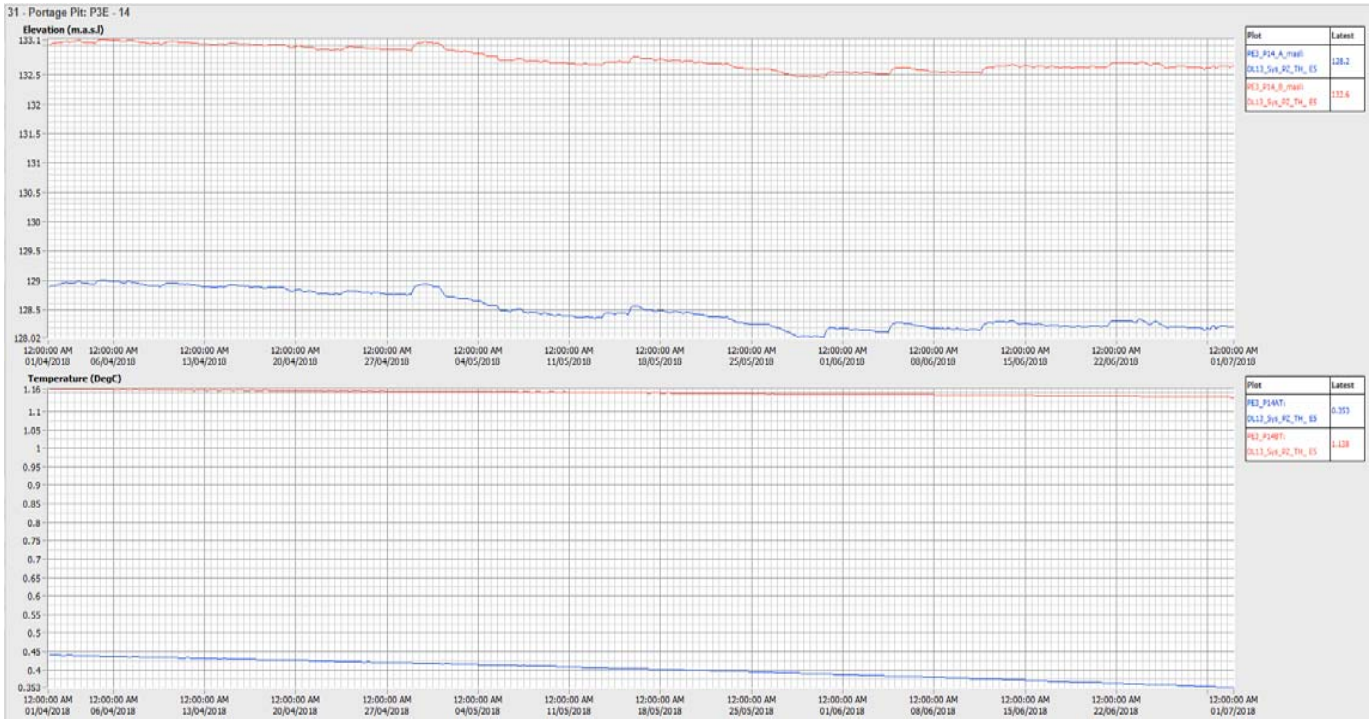
Comments:

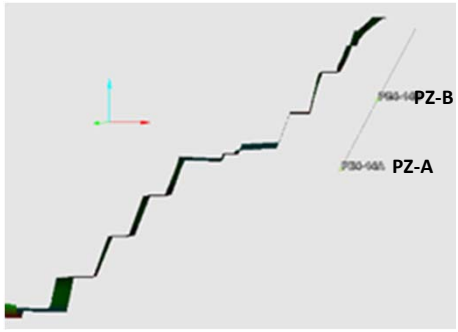
- The inclinometer was reinstalled on June 13, 2018.
- The two data sets after June 14, 2018 are more consistent. A cumulative displacement of -12mm is observe on the B axis.
- It is unfroze from elevation 96 MASL to 36 MASL.

PORTAGE PIT E

PIEZOMETERS

PE3-14 PZ-A,B





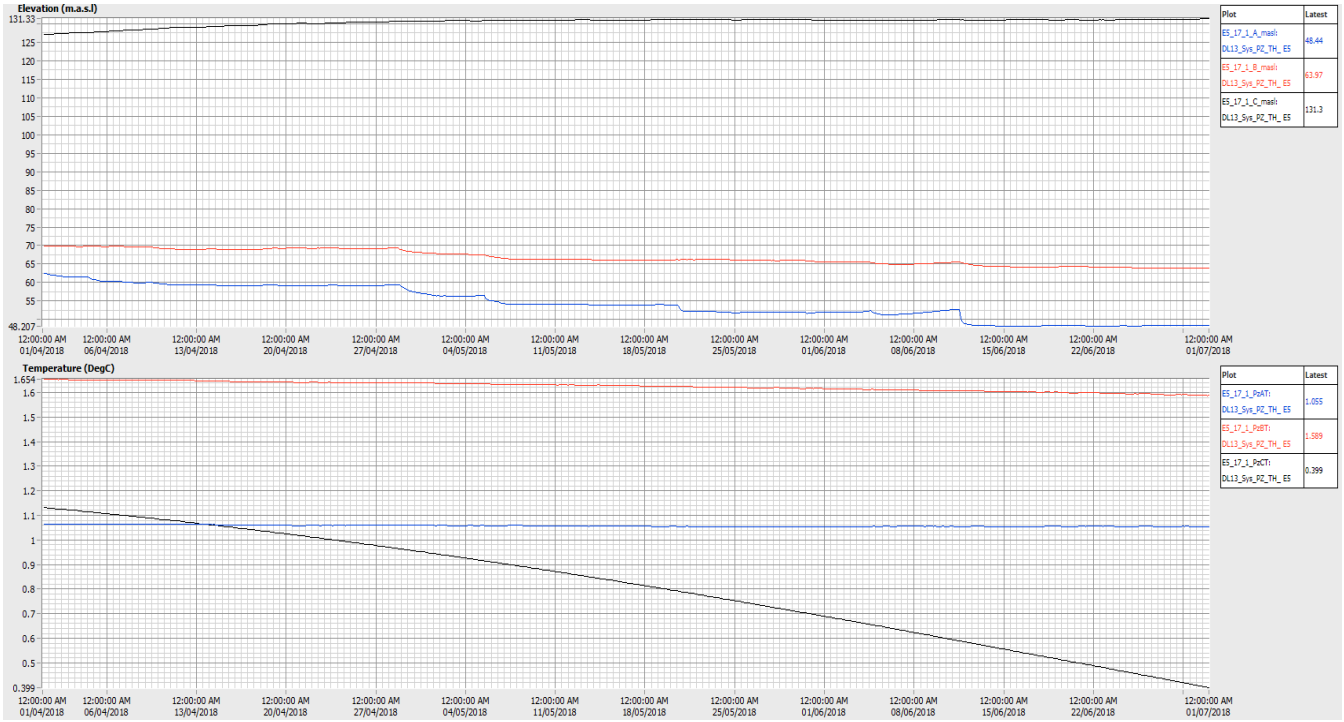
Comments:

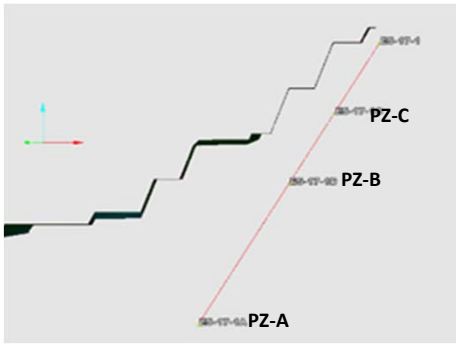
- Overall decrease in pressure of -0.7m during the Q2, 2018 after the rapid increase in the middle of March 2108.
- Smaller increase and decrease in pressure are related to mining activities (drilling/blasting).
- Overall downward trend for piezometer's temperature.

PORTAGE PIT E

PIEZOMETERS

PE5-17-01 PZ-A,B,C





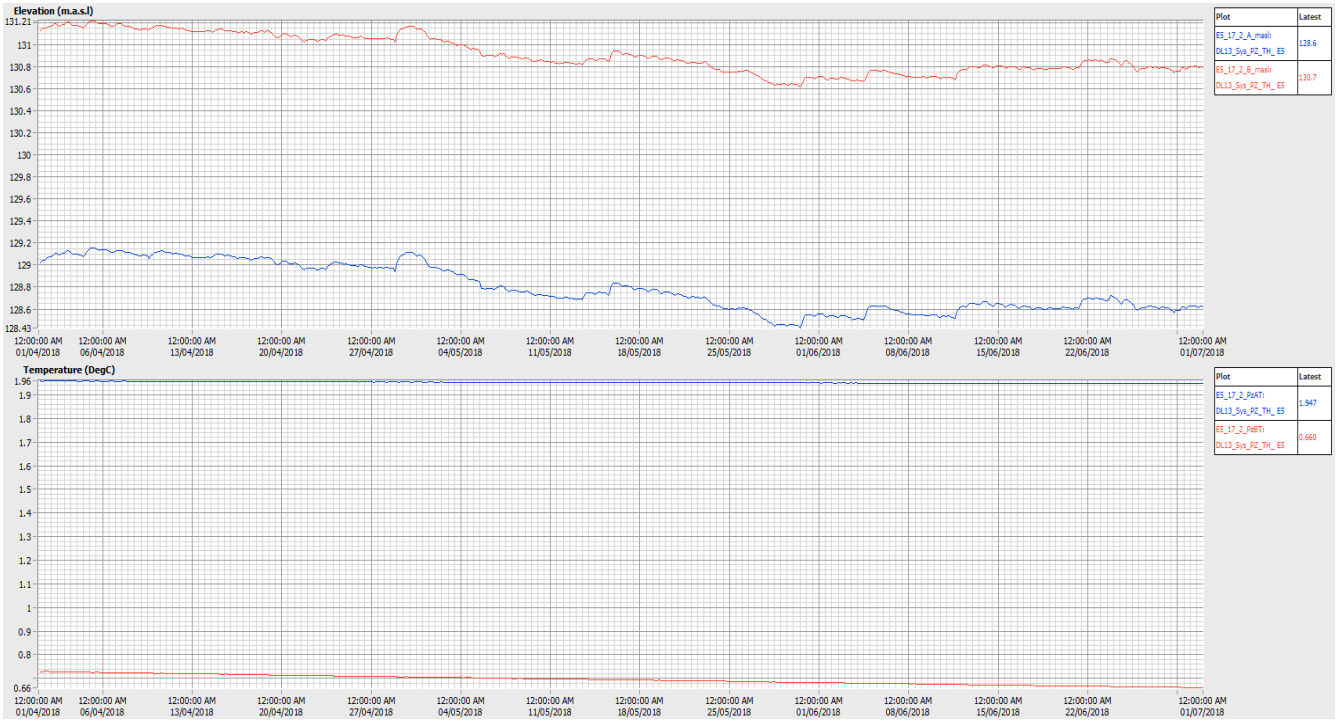
Comments:

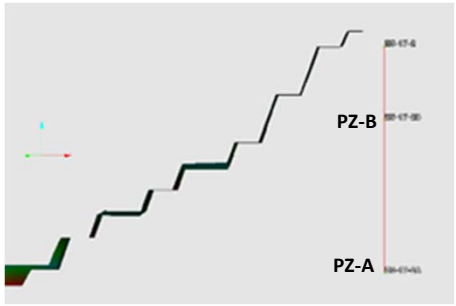
- PZ-A continued is downward trend during Q2, dropping another 15m PWP during the period. As for PZ-B, it dropped 6m PWP during the period. PZ-C has a consistent pressure increase and gained 8.7 m PWP during the Q1, while in Q2, it increase of 6m PWP. Instruments in this hole are very responsive and will be closely monitored.
- Smaller increase and decrease in pressure are related to mining activities (drilling/blasting).
- None of the piezometers are under the freezing point.

PORTAGE PIT E

PIEZOMETERS

PE5-17-02 PZ-A,B





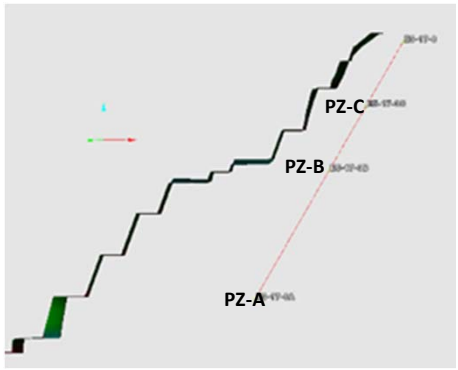
Comments:

- Both piezometers are following the same kind of downward trend. A slight decrease of around 1m PWP until what appear to be a slight increase concordant with the beginning of the freshet season.
- None of the piezometers are under the freezing point. There is slight downward trend in PZ-B temperature's.

PORTAGE PIT E

PIEZOMETERS

PE5-17-03 PZ-A,B,C



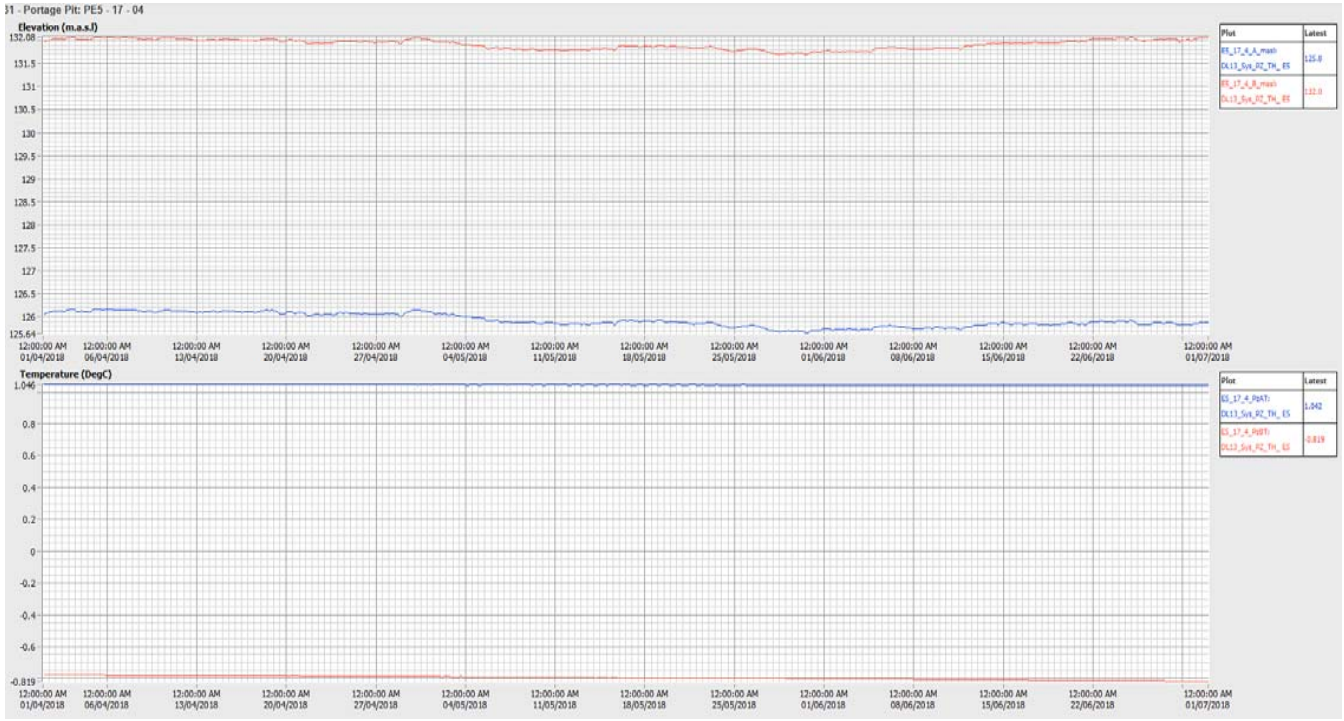
Comments:

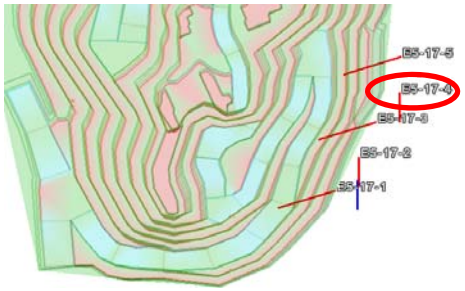
- PZ-A remain stable during the Q2 period with fluctuations around +- 0 .5m PWP, unlike the previous Quarter Period (Q1), where it's water pressure rose of 9m.
- PZ-B & C experienced a small decrease of -0.5m PWP and were subject to small sudden variations cause by the mining activities. Both piezometers are following the same trend with 1m PWP difference.
- All the PZs are above the freezing point and PZ-B is 0.6˚C warmer than PZ-A.
- PZ-C is on a cooling trend and might become frozen and unreliable in the upcoming months (0.2˚C).

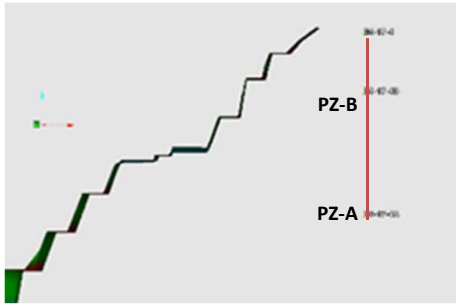
PORTAGE PIT E

PIEZOMETERS

PE5-17-04 PZ-A,B







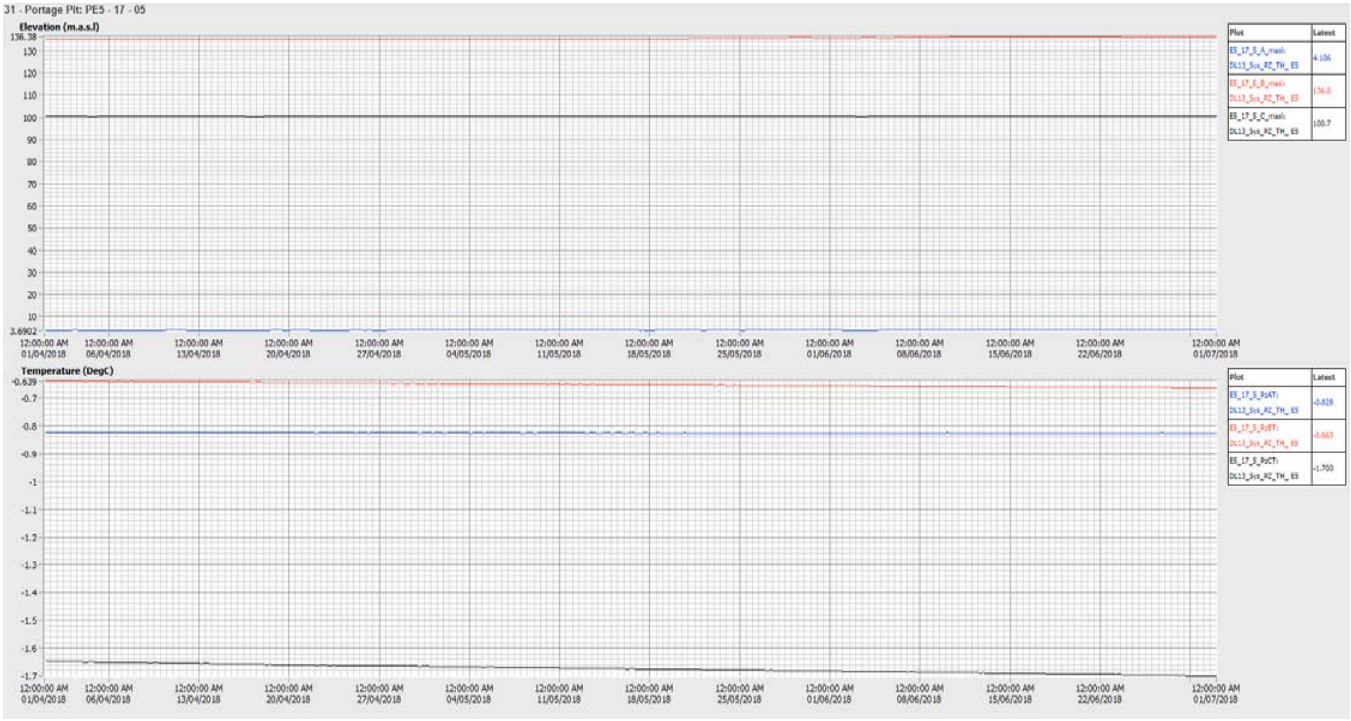
Comments:

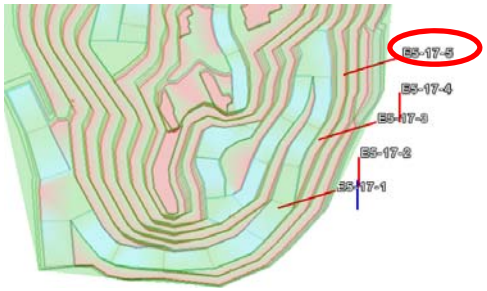
- Both piezometers remained stable during Q2 and experienced the same kind of fluctuations.
- PZ-B is frozen while PZ-A is at around 1˚C.
- Smaller increase and decrease in pressure are related to mining activities (drilling/blasting).

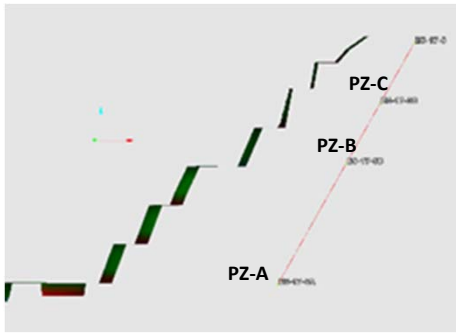
PORTAGE PIT E

PIEZOMETERS

PE5-17-05 PZ-A,B,C







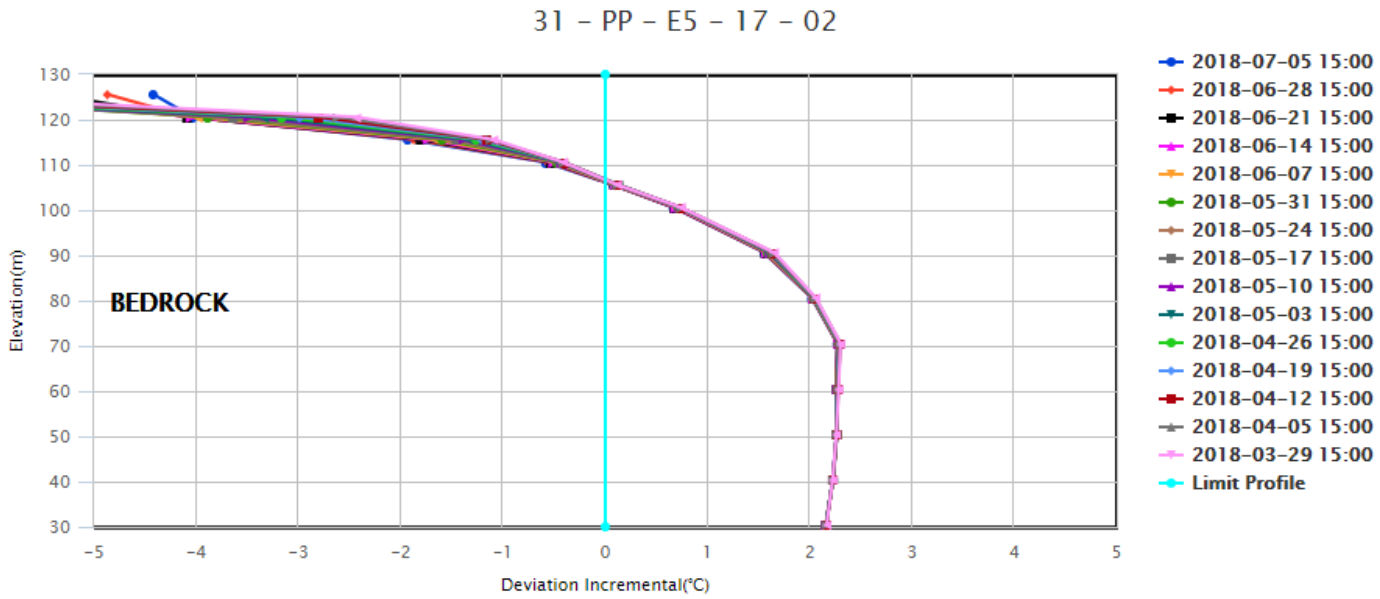
Comments:

- PZ-A,B and C are frozen. The pressure measurements are considered unreliable.

PORTAGE PIT E

THERMISTORS

PP-E5-17-02



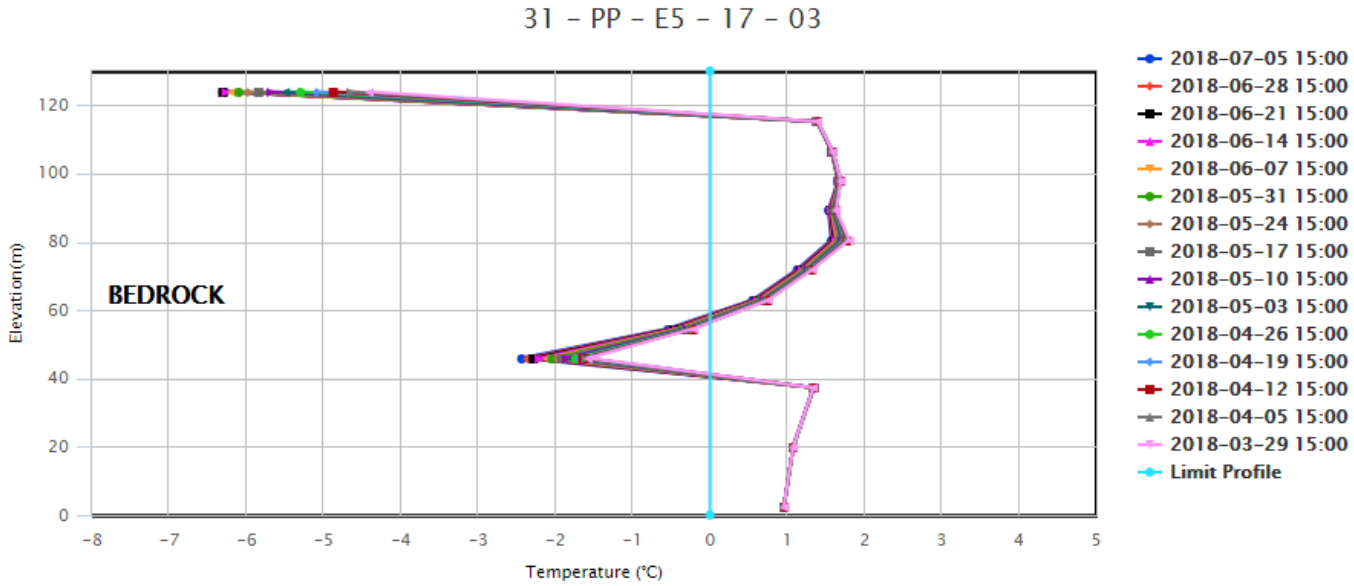
Comments:

- There is a permafrost layer form the top of the hole at elev. 125 to the elev. 105 MASL. It suggests an aggradation of the permafrost from the surface since the dewatering of the lake in 2011.
- Apart form the 2 first beads, only minimal variations were recorded during the period.

PORTAGE PIT E

THERMISTORS

PP-E5-17-03

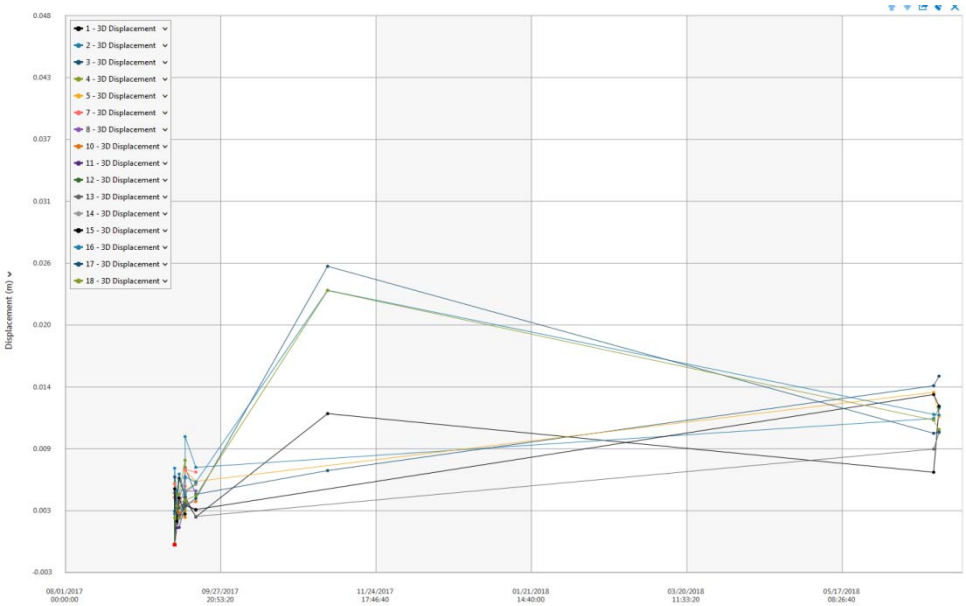


Comments:

- Small variations occurred only on the first bead during the Q2, 2018. The rest of the thermistor remained consistent with previous data sets.
- There is a permafrost layer between elevation 40 and 55 MASL.

VAULT PIT

PRISMS



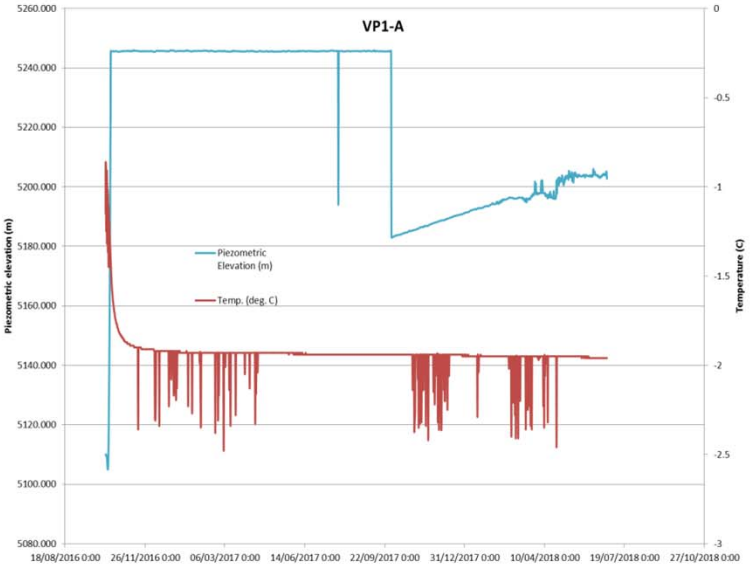
Comments:

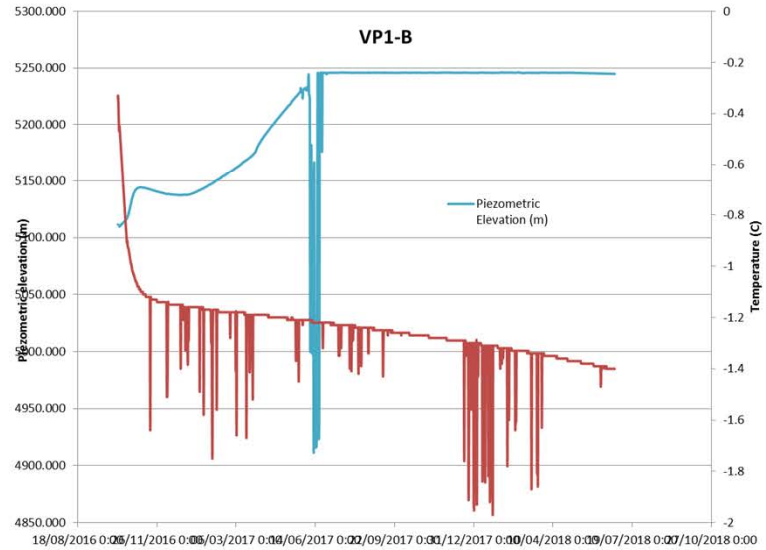
- Two sets of reading were taken in June for the Q2 Period. Prior to this period, the inside of the survey shack was not accessible due to ice accumulation.
- During the latest survey of the prisms, only 9 were successfully surveyed, the others are either gone or damage.
- More data needs to be collected to extract a trend.

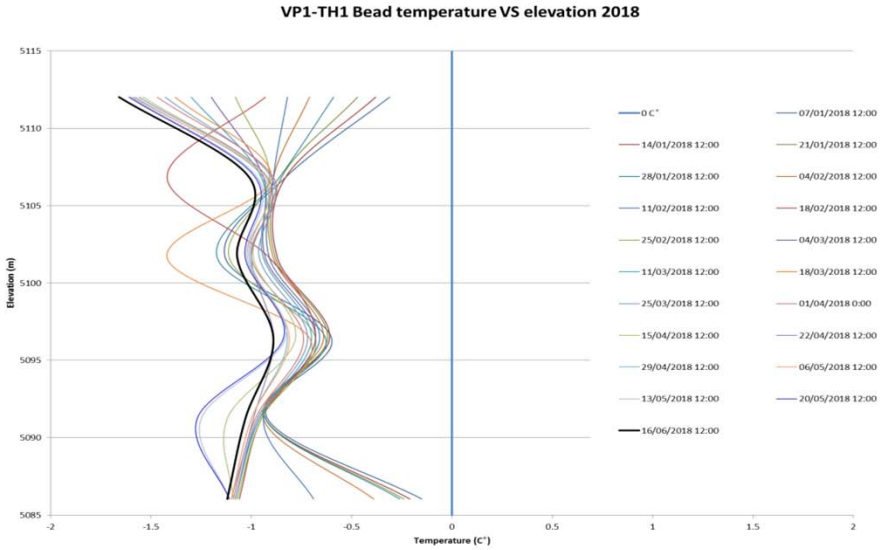
VAULT PIT

PIEZOMETERS & THERMISTORS

VP1-A, VP1-B, VP1-TH1







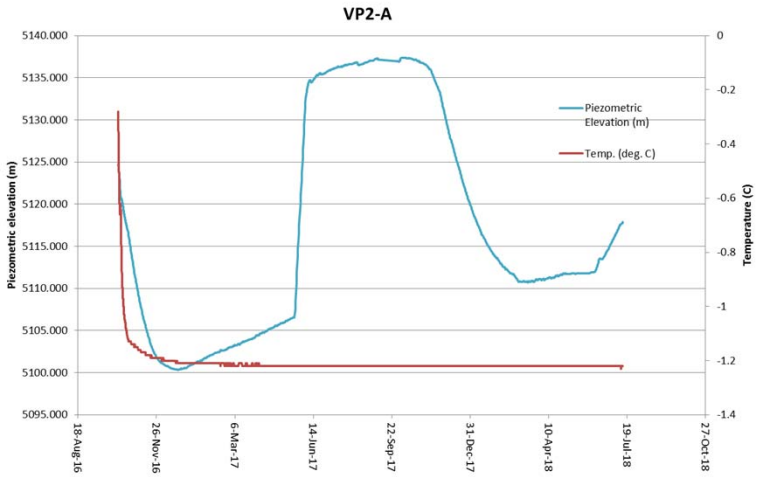
Comments:

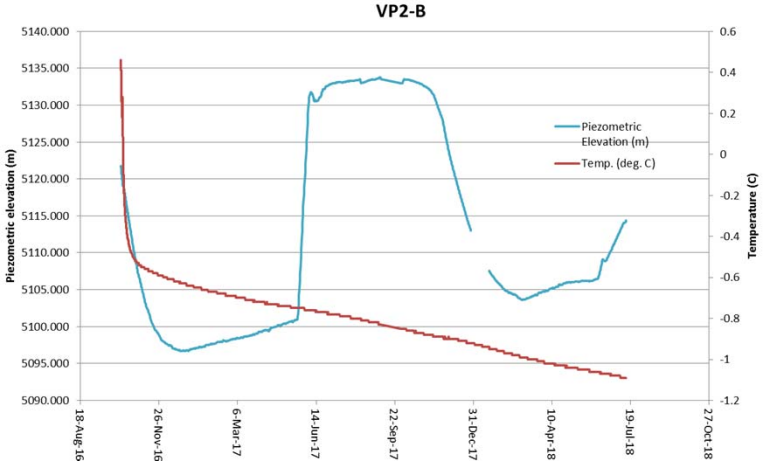
- PZ-A&B are below the freezing point. Pressure measurements are therefore considered unreliable and will not be discussed here.
- The thermistor remained frozen during Q2, 2018.

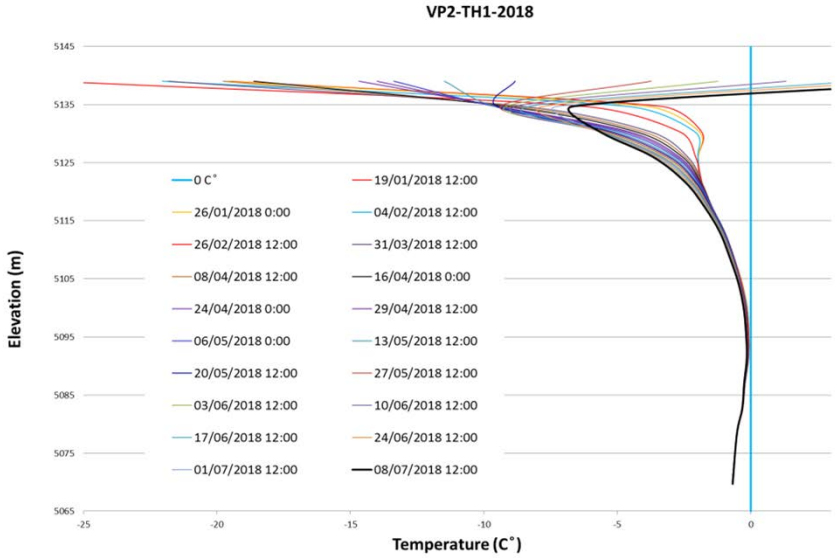
VAULT PIT

PIEZOMETERS & THERMISTORS

VP2-A, VP2-B, VP2-TH1







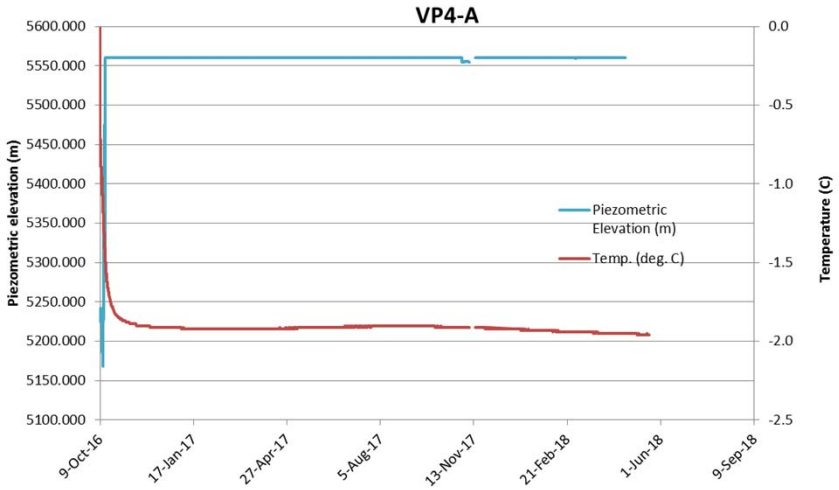
Comments:

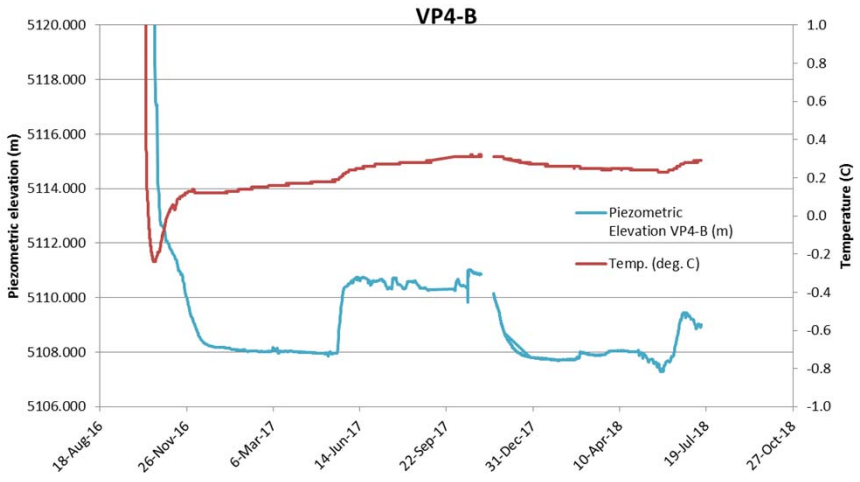
- PZ-A&B are below the freezing point since their installation and their data are considered unreliable.
- The section between 5105 and 5085 is close to the freezing but still below. Apart the top beads, minimal variations were recorded for the rest of the hole.

VAULT PIT

PIEZOMETERS & THERMISTORS

VP4-A, VP4-B





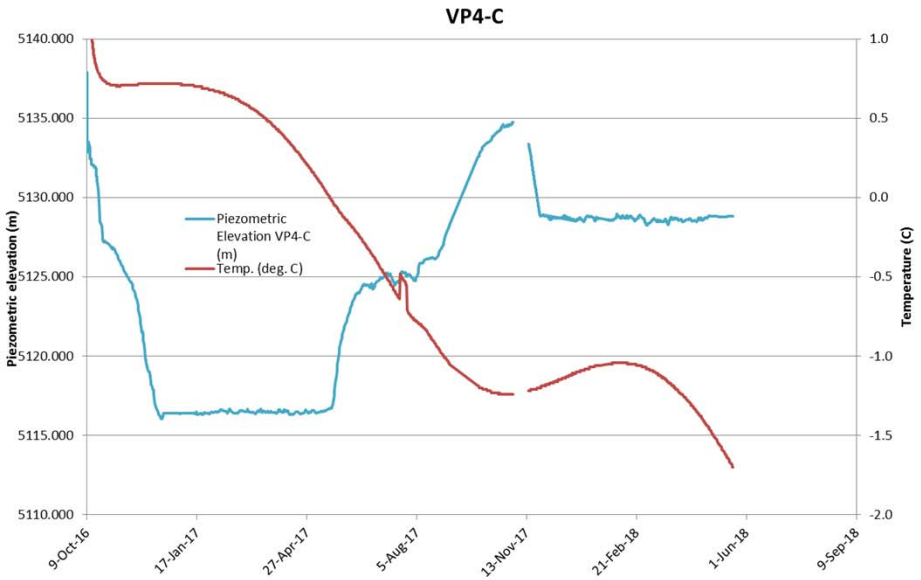
Comments:

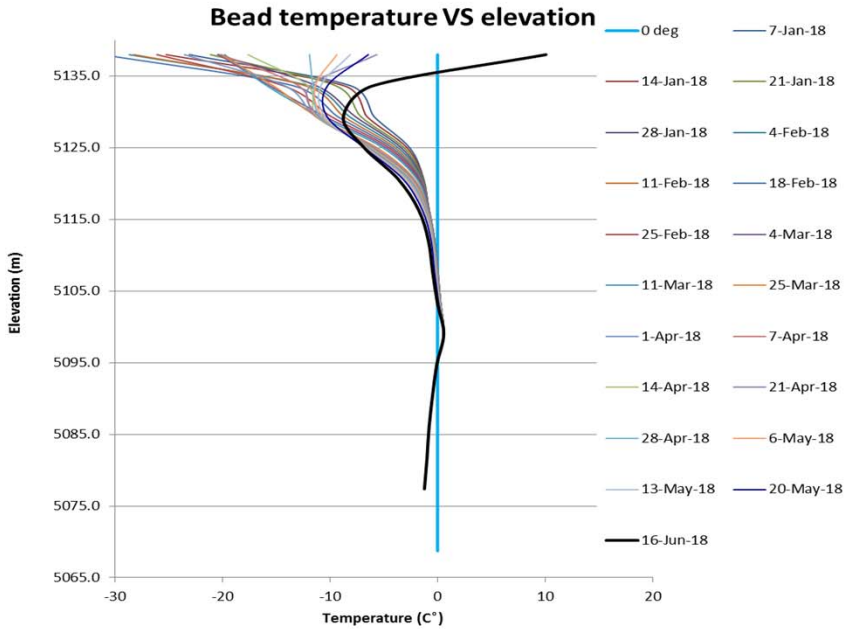
- PZ-A is under the freezing point and considered unreliable.
- PZ-B is unfrozen and since is significant pressure drop, it remained stable during Q1 ,2018. The instrument is installed in the confined layer of talik in between 5105 and 5095 at the source of the seepage causing the major ice wall in the area.
- The temperature of PZ-B is on a very slight downward trend suggesting a freeze back of the slope and aggradation of permafrost.

VAULT PIT

PIEZOMETERS & THERMISTORS

VP4-C, VP4-TH1



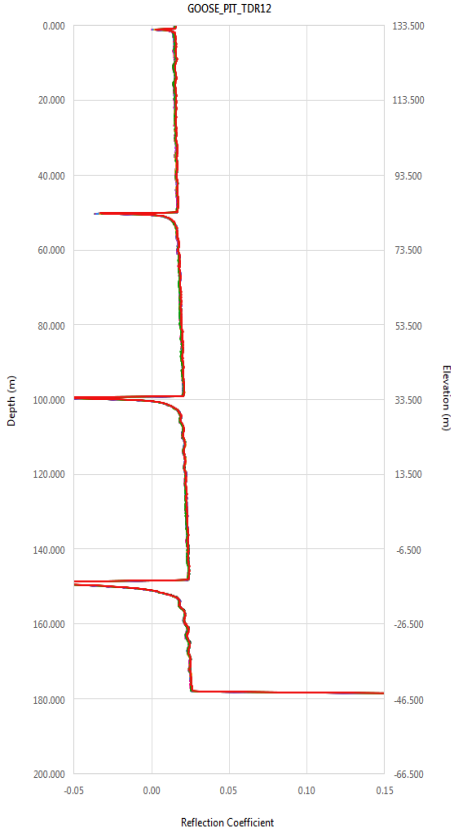


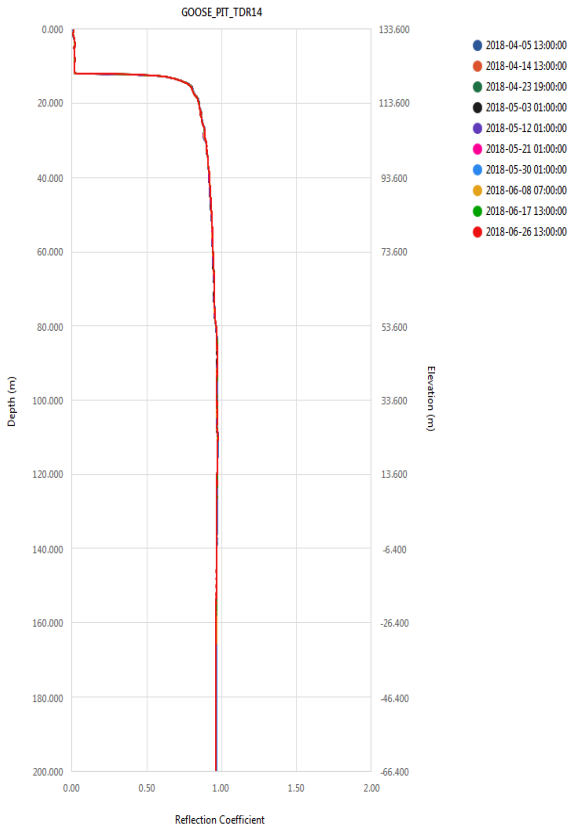
Comments:

- PZ-C is frozen and data is considered unreliable.
- The thermistor show that the hole is mainly in the permafrost at the exception of the section in between 5100 and 5095 (0.57˚C). This zone causes the seepage and therefore the ice wall.

GOOSE PIT

TDR



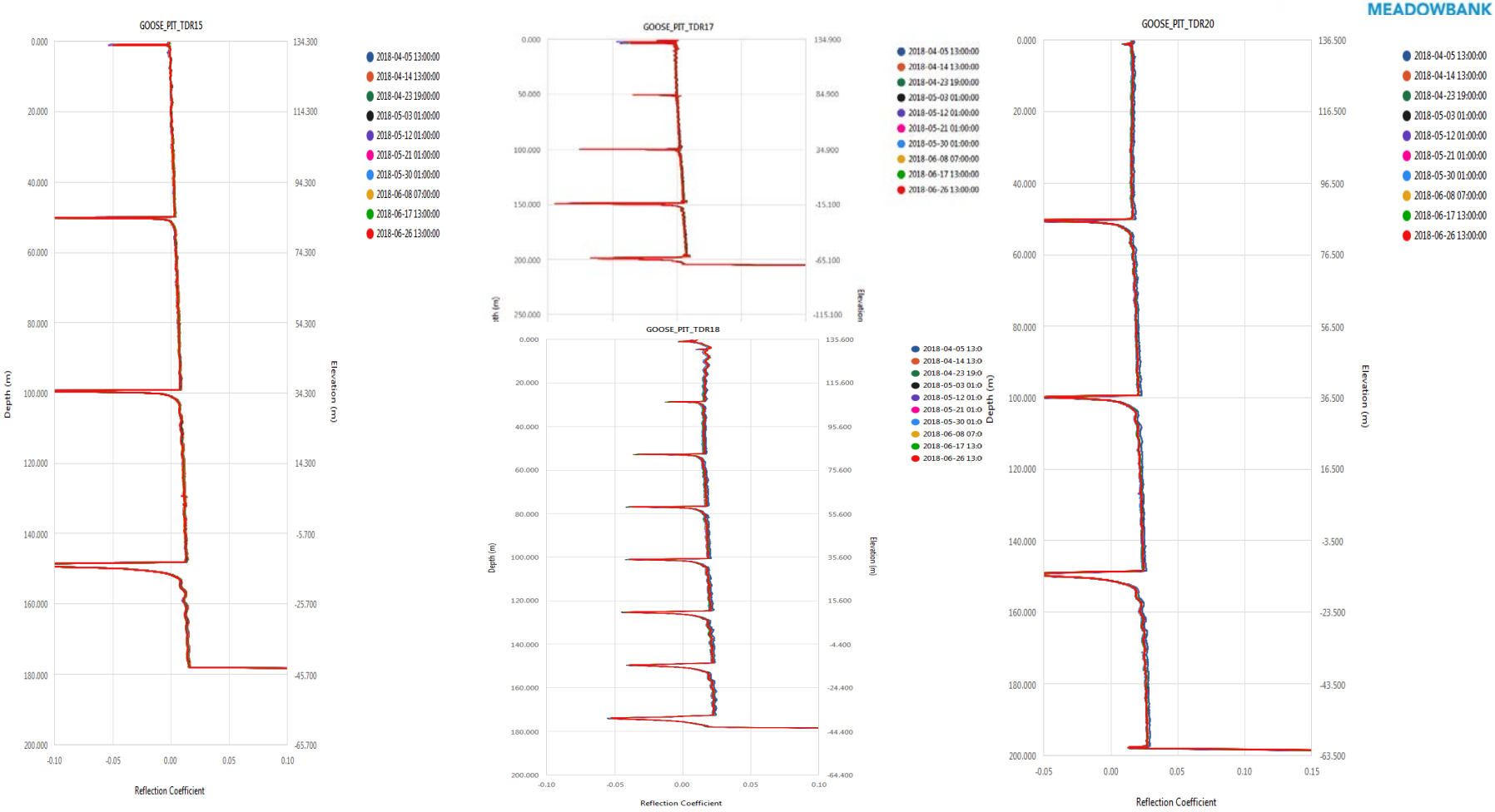


Comments:

- No sign of deformation was observed in these TDRs.
- Anomalies from the TDR logger are still presents and were disregarded in the presented graphs. We are currently still trying to find a solution for this problem but it does not compromise the data integrity.
- TDR 14 was pinched at installation and therefore result might be compromise in the case of an event raising the reflection coefficient.

GOOSE PIT

TDR

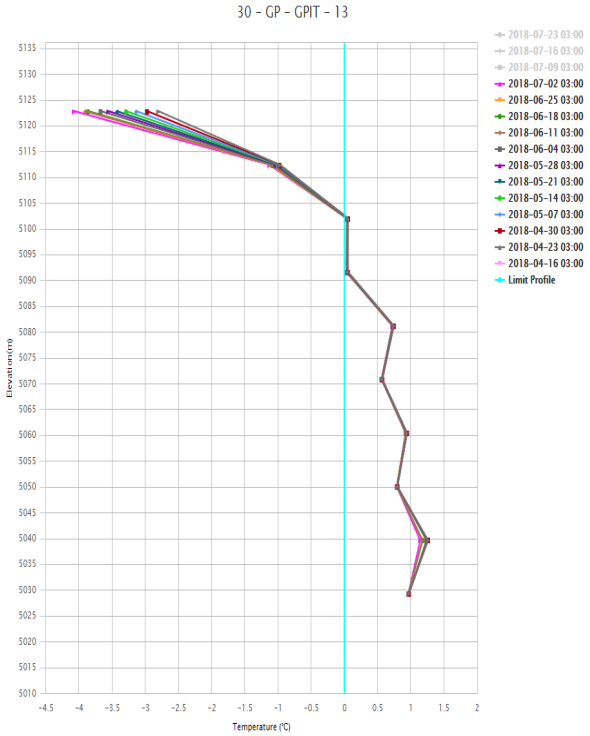


- No sign of deformation was observed in these TDRs.
- Anomalies from the TDR logger are still presents and were disregarded in the presented graphs. We are currently still trying to find a solution for this problem but it does not compromise the data integrity.

GOOSE PIT

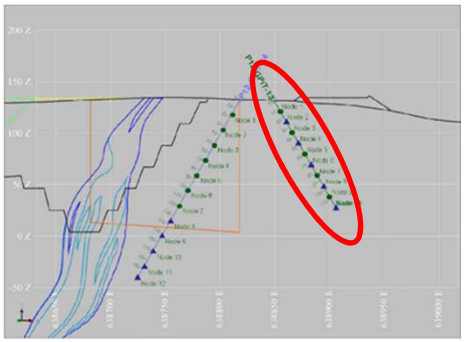
PIEZOMETERS & THERMISTORS

GPIT-13-PZ-1-2-3-4-5, GPIT-13-TH



Comments:

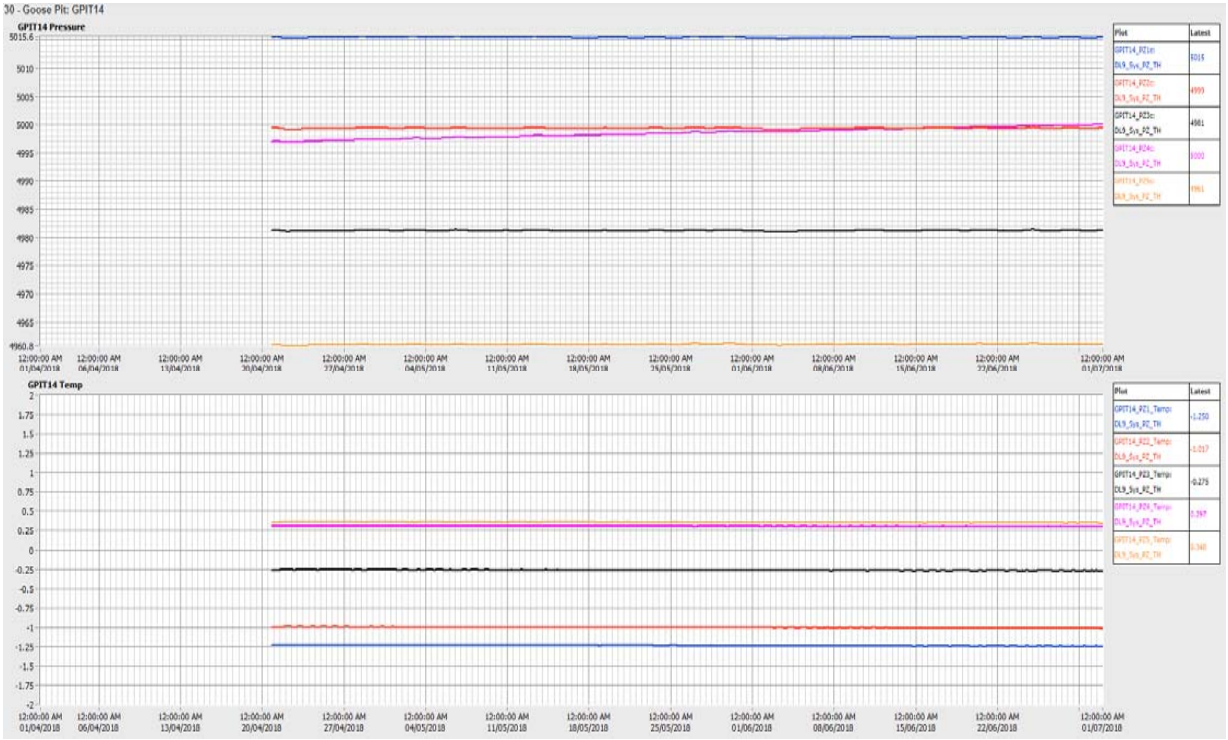
- All piezometers presents little or no variation during the Q2, 2018. All of them are above freezing point.
- A part of the data logger (DL9) was used on DL13 and no record were taken in between Feb. 23 to April 20, 2018.
- TH-GPIT-13 was stable during Q2 compared to previous data sets. It is in the permafrost from top to elev. 5102. First bead at elevation5123 lose 1.2˚C and a decimal of a degree at elevation 5039 during the Q2.

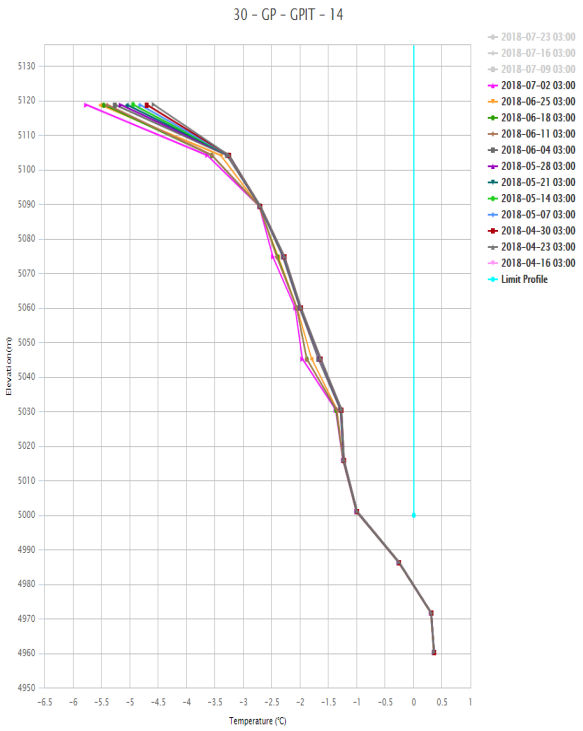


GOOSE PIT

PIEZOMETERS & THERMISTORS

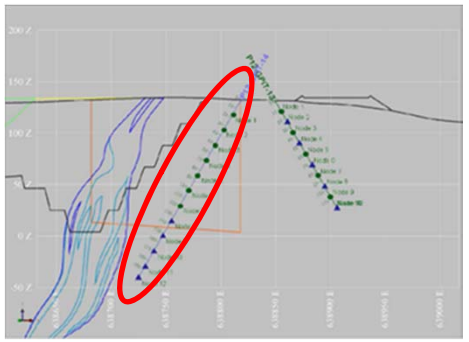
GPIT-14-PZ-1-2-3-4-5, GPIT-14-TH





Comments:

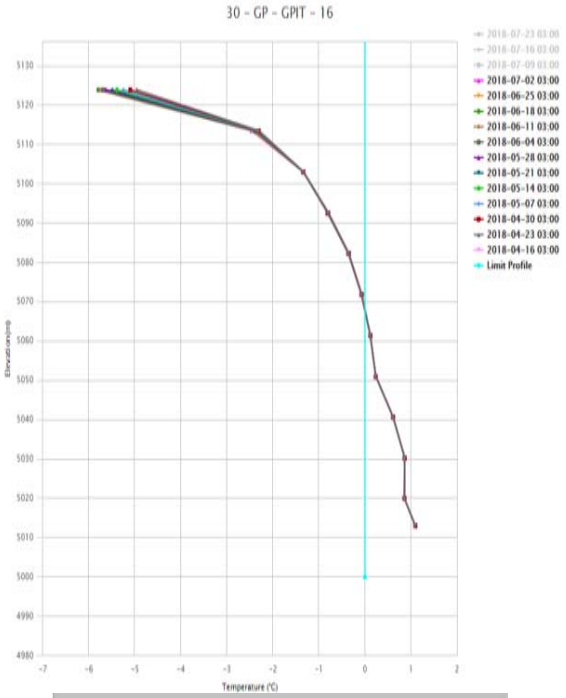
- PZ-4 is on a slow rising trend. It rose 3.12 m pore water pressure during the second quarter and that could be related to the water level within the Goose pit that is raising (natural flooding).
- PZ-5 stayed constant with very few variations (0.17m).
- PZ-1,2,3 are below the freezing point.
- TH-GPIT-14 is in the permafrost from top at elevation 5120 to 4980. The last 20m of the hole is above the freezing line. From elev. 5120 to 5030, temperatures generally went down decimals of a degree. The remaining of the hole stayed the same from 5015 to 4960.

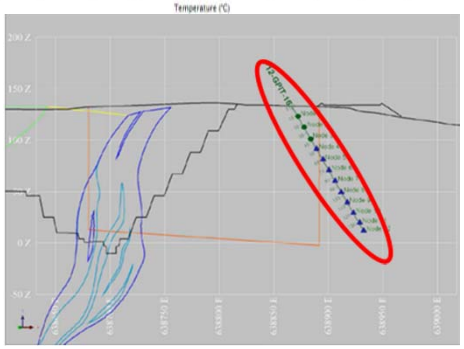


GOOSE PIT

PIEZOMETERS & THERMISTORS

GPIT-16-PZ-1-2-3-7-8-9, GPIT-16-TH





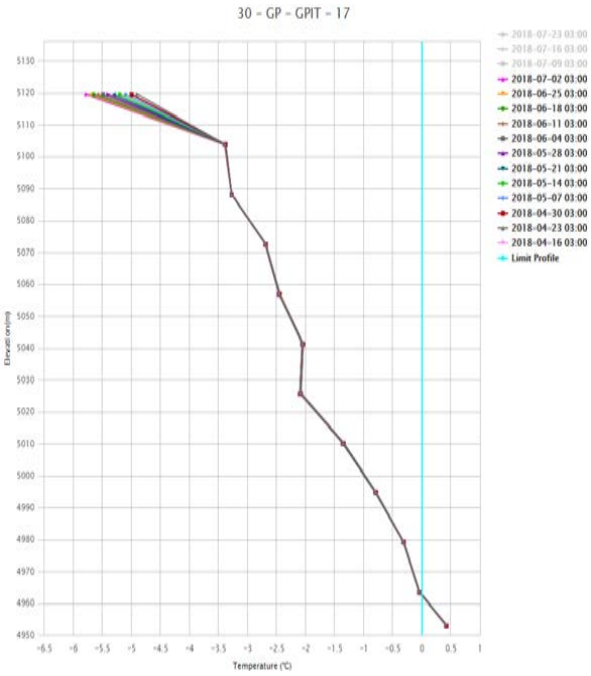
Comments:

- PZ-7,8,9 are on a very slow rinsing trend.
- PZ-1,2,3 are below the freezing point and can't be considered reliable.
- TH-GPIT-16 is in the permafrost from top at elevation 5124 to 5070. The last 57m of the hole is above the freezing line. The first couple of beads loose decimals of a degree during the Q2.

GOOSE PIT

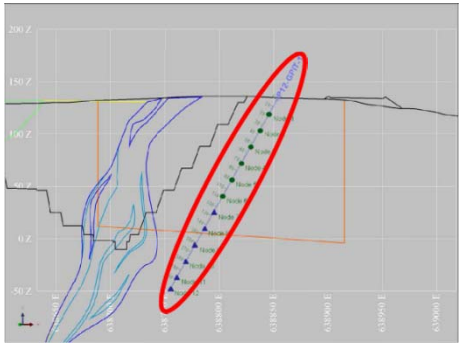
PIEZOMETERS & THERMISTORS

GPIT-17-PZ-1-2-3-4-5, GPIT-17-TH



Comments:

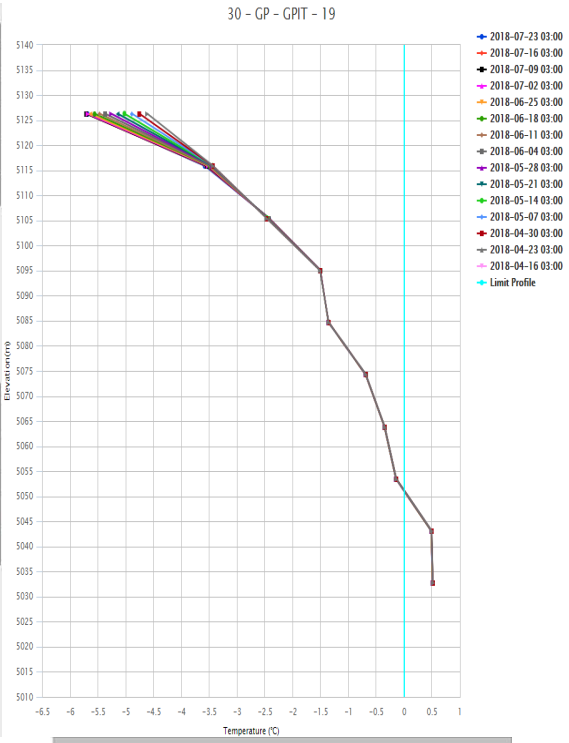
- PZ-1,2,3,4&5 are below the freezing point and can't be considered reliable.
- TH-GPIT-17 is in the permafrost from top at elevation 5119 to 4963. The first bead lost 0.7˚C. The last 10m of the hole is above the freezing line.



GOOSE PIT

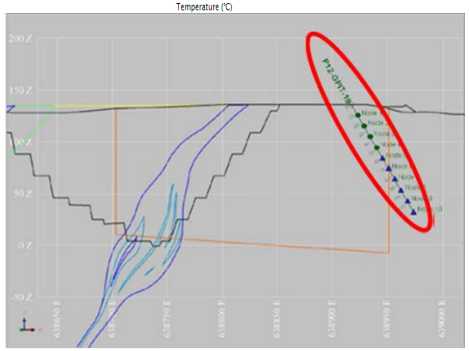
PIEZOMETERS & THERMISTORS

GPIT-19-PZ-1-2-3-4-5, GPIT-19-TH



Comments:

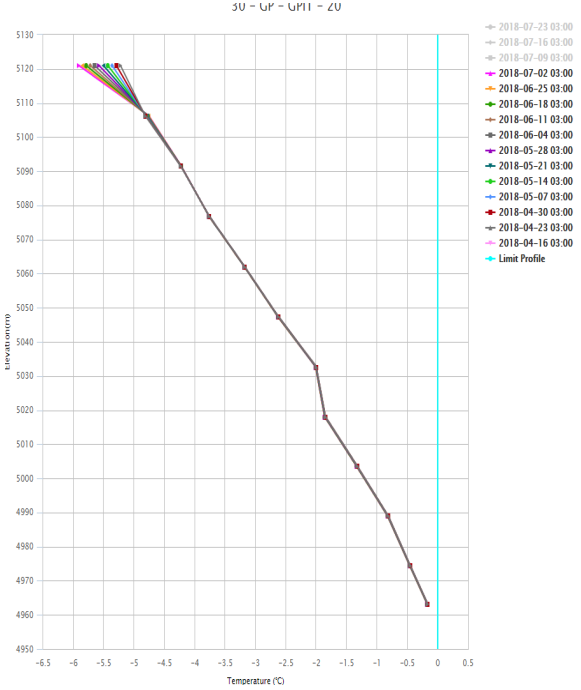
- PZ-5 is above the freezing line and it shows little or no pore water pressure variations during the Q2, 2018.
- PZ-1,2,3,4 are below the freezing point and can't be considered reliable.
- TH-GPIT-19 is in the permafrost from top at elevation 5126 to 5051. The first bead lost 1˚C. The last 19m of the hole is above the freezing line and didn't varied during the Q2.



GOOSE PIT

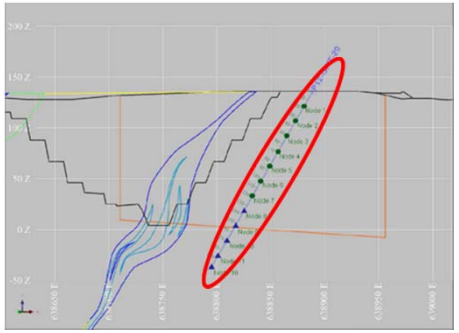
PIEZOMETERS & THERMISTORS

GPIT-20-PZ-1-2-3-4-5, GPIT-20-TH



Comments:

- PZ-1,2,3,4,5 are below the freezing point and can't be considered reliable.
- TH-GPIT-20 is in the permafrost on its entire length from is top at elevation 5121 to the bottom at4963. The first bead at elevation lost 0.6˚C during the Q2, 2018.



APPENDIX E

EXAMPLE WALL INSPECTION REPORTS

AGNICO EAGLE PIT WALL INSPECTION

Pit Wall Inspection

Agnico Eagle Meadowbank Division

September 7, 2018

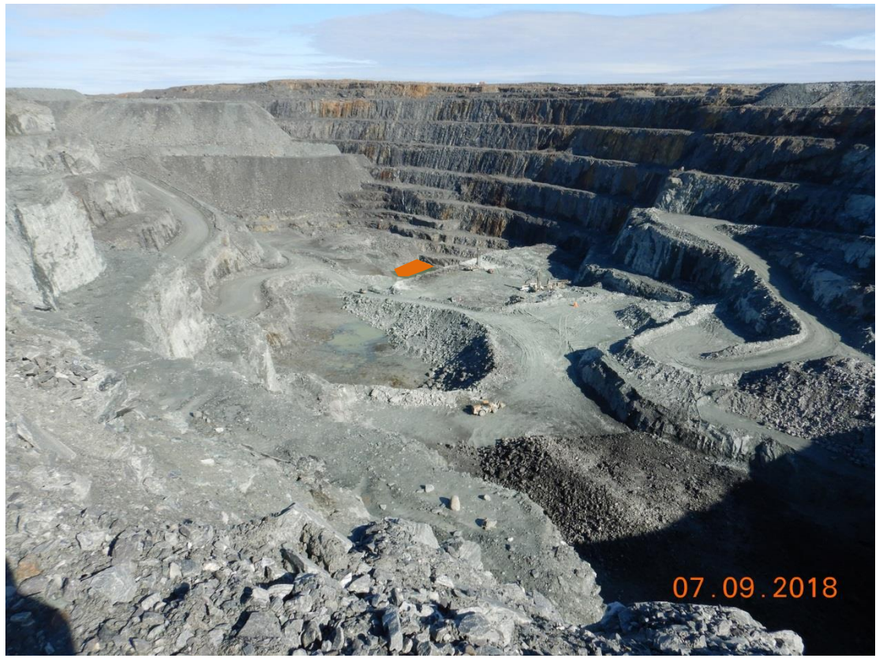
Attendees: W. Standing, C. Legacy , E. , W. Kadjuk, V. Duranleau

Distributed to: Meadowbank Wall Inspection Group.

Location	Observations	Recommendations	Due date	Date completed
Zone : **E01** Pit : E3 Wall : South Bench : 5053 Status:	The No Entry area is now applying only to the lower south pit portion (flooded section). The pumping has stopped.	Keep the bumpers in place around the flooded area. Start the pumping back before winter and leave the remaining water to freeze.	End of Sept. 2018	NA
Zone : **E29** Pit : E5 Wall : South Bench: 5046 Status:	PREVIOUSLY: After a series of rock falls totalizing around 2,500T, the bench above as well as the toe of the current floor is covered with muck. Slabs were detached from the wall in the ultramafic formation undercutting the catch bench on the 21m rock falls area. The ramp was built, rocks from the fall were cleared and the ramp was removed. UPDATE: There is still a linear progression seen on the radar on the western section of the previous rock fall. This section is made of slabs with a greater angle than the wall. It is still considered to be in the ultramafic formation.	PREVIOUSLY: Ramp is being built to access the rock fall and to be able to access the pit below. No access still in place until all loose rock fall material is cleared. UPDATE: Frequent monitoring of the potentially unstable area is required. The area will be cleared in the event of movements' acceleration.	Ongoing	NA
Zone : **E31** Pit : E3 Wall : West Bench:5081 Status:	PREVIOUSLY: There is a small ramp on the wall-side of the main ramp. The ramp was used to install a crack metre to monitor a potential problematic area in the ultramafic formation. The zone to monitor is about 200m3. UPDATE: The ramp was removed and a bumper put in place.	PREVIOUSLY: Remove the ramp and used the muck to continue the bumper from the actual ramp location to where the wall is slightly changing direction. Monitor the potential problematic zone. UPDATE: Monitor the crack metre for any movement and continue to visually inspect the zone.	Ongoing	NA
Zone : **E35** Pit : E3 Wall : West Bench:5081 Status:	PREVIOUSLY: Loose material was left over from a previous rock fall. UPDATE: No additional debris was found.	PREVIOUSLY: Remove loose material from behind berm prior to using ramp for production. UPDATE: Pick up the material.	Sept.14, 2018	NA

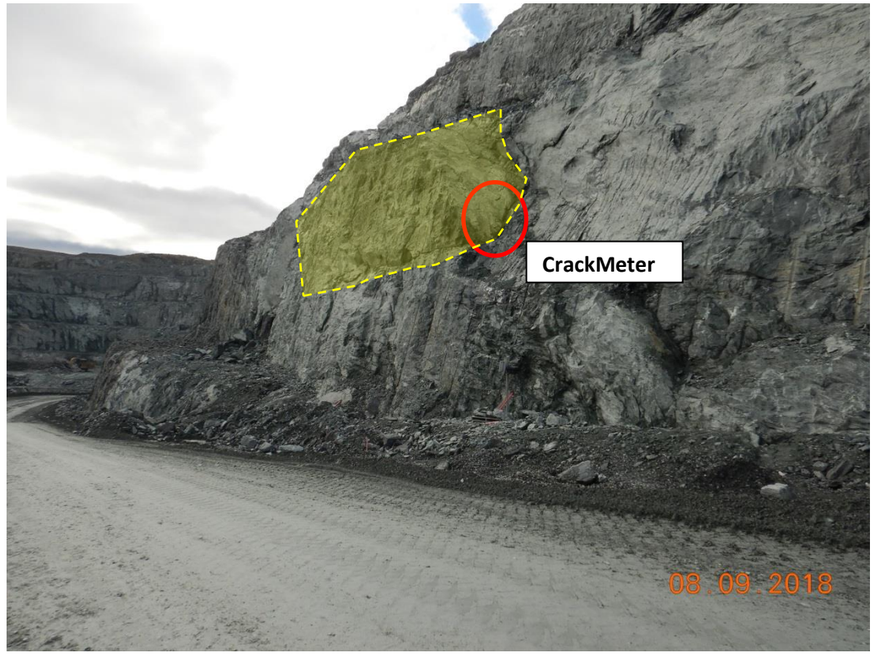
Zone : **E36** Pit : E5 Wall : E5 Ramp Bench:5123 Status:	NEW: Following the mine planning sequences, the buttress built in order to keep the required width of the ramp was mucked out. The lower section of the ramp has not the required width for heavy equipment anymore. A bumper was built on the very top of the ramp and only authorized personal with light vehicle can access the area. The E3 ramp is now used to access the E5 pit.	NEW: Keep the bumper in place and continue to monitor the area. Only authorized personal should access the ramp.	Ongoing	NA
Zone : **E37** Pit : E5 Wall : South Bench:5039 Status:	NEW: This wall section is made of heavily foliated ultramafic rock. In addition to that, bumpers from above are too close crest. The wall is the top section of a 21 meters wall and could become a problem as we go down.	NEW: Scale and remove all loose material from the wall. Because of the large section above open space), there is a possibility to use a backhoe and slope the crest if needed. Pull back the bumpers away from the crest.	Sept. 14, 2018	NA
Zone : **E38** Pit : E5 Ring Road Wall : West/South Bench:5144 Status:	NEW: There is two water inflows coming from two different ponds located on top of the ring road. The water is flowing from both the west and the south walls.	NEW: Pump the two ponds and monitor the pit water inflow.	Sept. 14, 2018	NA
Zone: **P30** Pit: Phaser Wall: West Bench: 5088 Status:	NEW: This section of the wall was not pre-sheared and it presents mostly slabs naturally dipping toward the pit.	NEW: Scale and remove the blocky material without over digging the face and clean up the debris after proceeding.	Sept. 14, 2018	NA
Zone: **P31** Pit: Phaser Wall: East Bench: 5088 Status:	NEW: A new section of the wall was exposed and presents mostly toes and loose material on its bottom despite being in general good condition.	NEW: Scale the wall and hammer the toes when required.	Sept. 21, 2018	NA
Zone: **BB04** Pit: BB Phaser Wall: West Bench: 5123 Status:	PREVIOUSLY: The rock is altered and fragmented on this first high wall of the pit, especially on the crest. The pre-shear barrels are not visible everywhere and the crest suffered quite a bit of back break in some sections. The west section of the zone has seen some material detaching from the faces where there is no pre-shear. UPDATE: After mucking was completed, toes were revealed close to wall on the east wall. The west wall is not pre-sheared and presents blocky material dipping toward the pit.	PREVIOUSLY: Lightly scale the zone without over-digging the face. Remove any unstable material on the crest prior to take another bench. Remove the debris after proceeding. UPDATE: Hammer the toes, scale and pick up the debris left all around the pit.	Sept. 21, 2018	NA

Zone: **BB05** Pit: BB Phaser Wall: West/ East Bench: 5123 Status:	NEW: there is one remaining corner that hasn't been thermal capped.	NEW: Thermal capped the area.	Sept. 21, 2018	NA



Zone E01: **Pit E3**: No Access Zone while in dewatering process.

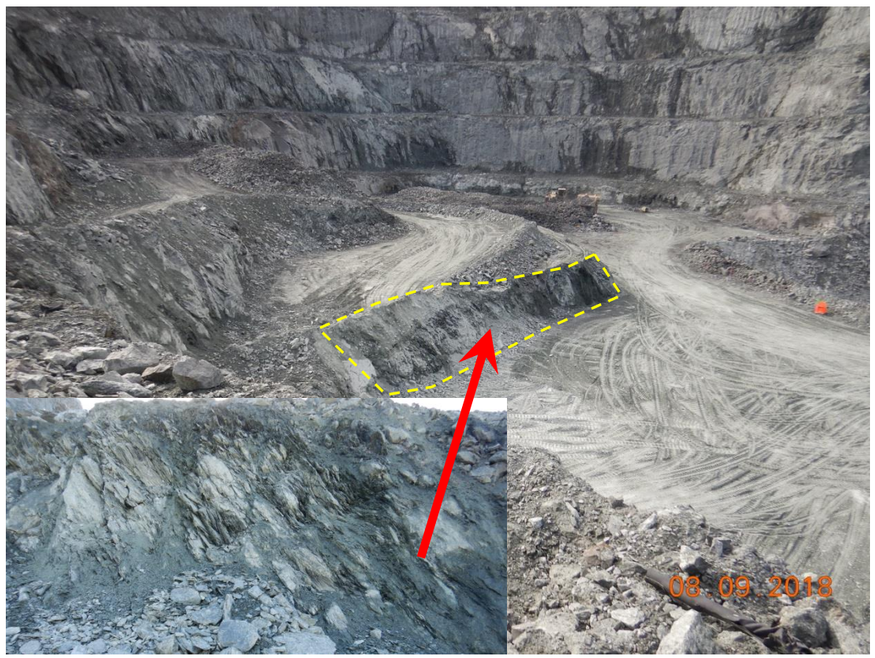
Zone E29: **Pit E5, South Wall:** Slab with linear progression to be monitored.



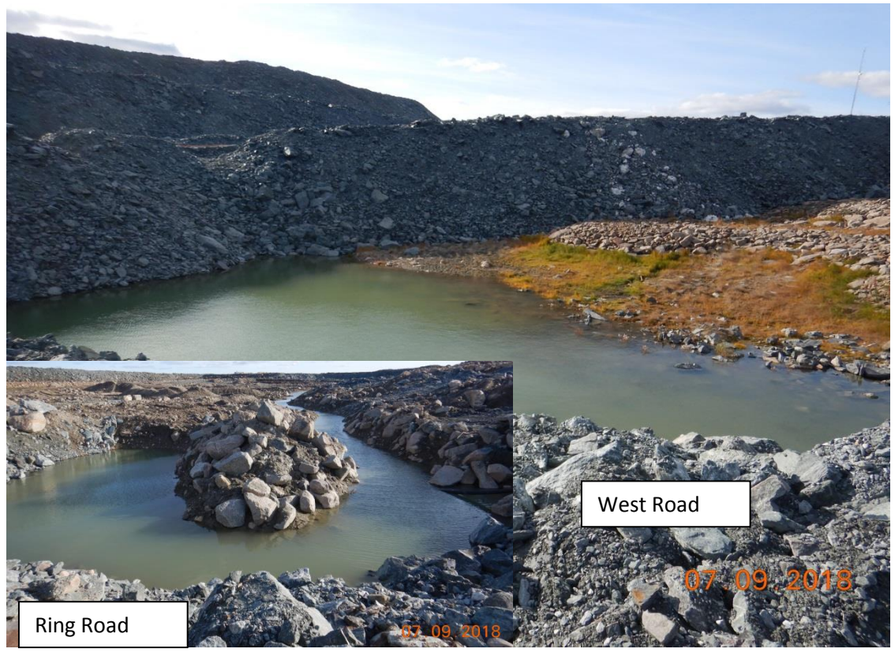
<u>Zone E31:</u> E3 Ramp, West Wall: Perform monitoring with crack meter.

<u>Zone E35:</u> E3 Ramp, West Wall: Remove all loose material from previous rock fall.

<u>Zone E29:</u> E5, South Wall: Restricted Access while waiting for the rock fall removal.



<u>Zone E37:</u> E5, South Wall: Scale and slope the wall. Pull back the bumpers away from the crest.



Zone E38: **Top of E5 Pit:** Pump the two ponds; 1 close to the old marginal on the west road and the other one on the ring road close to the till.

Zone P30: **Phaser, West Wall:** Lightly scale the wall.

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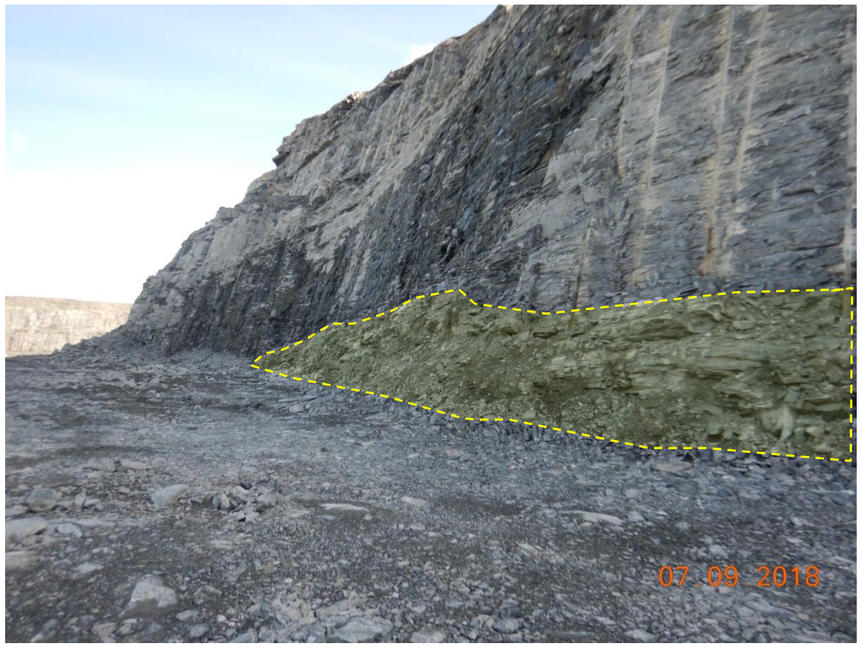
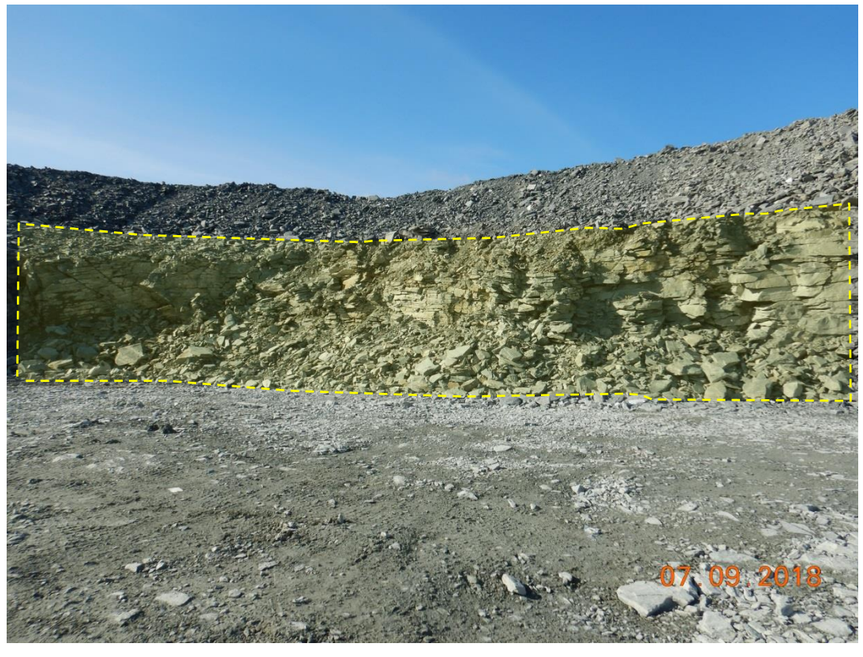
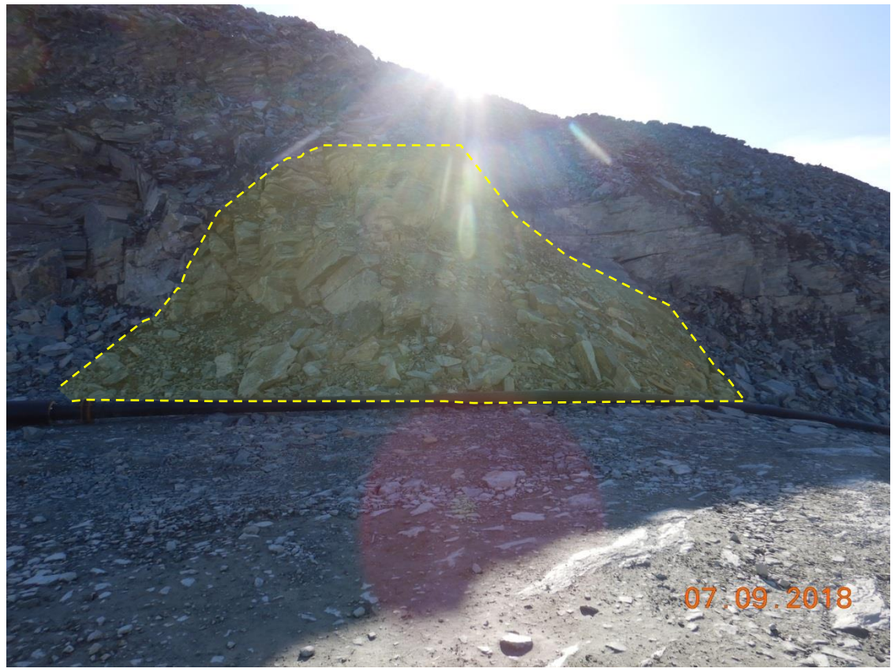


Zone P31: **Phaser, East Wall:** Scale the wall and hammer the toes when required.



Zone BB04: **E4, West Wall:** Lightly scale the wall, and pick up debris.



Zone BB04: **BB Phaser East Wall:** scale the loose material and remove the bulging section.

Zone BB05: **BB Phaser, West Wall:** Thermal capping is required on the section.

APPENDIX F

ROCKFALL RECORDS

TETRA TECH

ROCKFALL LOG - Table 1

Date of Rock fall	Time	Exact Time ?	Pit	Location	Rock type	Easting	Northing	Elevation	Reported by	Estimated tonnage	Calculated tonnage (MAPTEK)	Reported to mine Inspector	Predicted by radar	Comment
1/29/2015	9:00		E3	West wall - South Ramp		1802	5984	5077	Engineering personnel		410	Yes	No radar yet	
5/22/2015	Between May 21 - 20h17 & May 22-02h05		E3	West wall - South Ramp (below)		1843	5990	5059	Pit personnel	10		No	No radar yet	Large ammount of material scaled after rock fell
6/7/2015	Day		E3	West wall - South Ramp		1812	5961	5066	Pit personnel	<10		No	No radar yet	
6/13/2015	14:30		E3	West wall - South Ramp		1812	5961	5066	Pit personnel		120	Yes	No	
6/14/2015	21:00		E3	South Wall		2024	5690	5084	Pit personnel	40		No	No	
6/21/2015	23:50		E3	West wall - South Ramp		1760	6131	5090	Pit personnel		95	Yes	No	
6/24/2015	7:05		E3	South Wall		2024	5690	5084	Pit personnel		275	Yes	No	
6/25/2015	12:05		E3	West wall - South Ramp		1820	5941	5065	Pit personnel	30		No	No	Large ammount of material scaled after rock fell
6/25/2015	Night		E3	South Wall		2024	5690	5084	Pit personnel		177	Yes	No	
6/27/2015	7:55		E3	South Wall		2024	5690	5084	Pit personnel		30	No	No	
6/28/2015	1:10		E3	South Wall		2024	5690	5084	Night shift Operator		<10	No	No	
6/29/2015	13:30		E3	South Wall		1991	5652	5087	Rock Mechanic Eng (witness)		39	No	No	
6/29/2015	Night		Vault	West Wall		3018 (estimated)	4739 (estimated)	5116 (estimated)	Pit personnel	<10		No	No	
6/30/2015	7:00		E3	South Wall		1984	5655	5080	Pit personnel		76	Yes	No	
7/6/2015	7:00	Yes	E3	South Wall		2007	5673	5084	Pit personnel		1770	Yes	No	
7/7/2015	10:44	Yes	E3	East Wall					Pit personnel		350	Yes	Blind Spot	
7/9/2015	0:45		E3	South Wall					Pit personnel		550	Yes	No	
7/15/2015	2:00		E3	South Wall					Pit personnel		650	Yes	Yes	
7/21/2015	21:30	No	E3	South Wall					Pit personnel		1440	Yes	Yes	

LEGEND

NOTES
Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE
MEADOWBANK

TETRA TECH

MEADOWBANK MINE
ANNUAL PIT WALL INSPECTION

Rockfall Log – Table 1

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	JV	CJC	CJC	CJC

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure F-1

TETRA TECH

ROCKFALL LOG - Table 2

Date of Rock fall	Time	Exact Time ?	Pit	Location	Rock type	Easting	Northing	Elevation	Reported by	Estimated tonnage	Calculated tonnage (MAPTEK)	Reported to mine Inspector	Predicted by radar	Comment
7/27/2015	22:05	No	E3	South Wall					Engineering personnel		499	Yes	Yes	
8/3/2015	10:03	Yes	E3	South Wall					Pit personnel		7500	Yes	Yes	
8/7/2015	15:36	Yes	E3	South Wall					Pit personnel		2500	Yes	Yes	
8/9/2015	11:07	Yes	E3	South Wall					Pit personnel		1650	Yes	Yes	
8/22/2015	10:50	Yes	E3	South Wall					No Pit Personnel. Radar alarms showed us		115	Yes	Yes	
8/30/2015	0:45	No	E3	South Wall					No Pit Personnel. Radar alarms showed us		5	No	Yes	
8/31/2015	2:30	No	E3	South Wall					No Pit Personnel. Radar alarms showed us		950	Yes	Yes	
9/21/2015	16:31	Yes	E3	South Wall					Pit personnel		9200	Yes	Yes	On video
6/1/2016	12:00	No	Vault	North					Pit personnel		30	No	Not monitored	
6/19/2016	12:00	No	A	East Wall - ramp	Intermediate Volcanic				Pit personnel		29	No	Not monitored	Contained within safety berm; At the junction of 2 pit designs
7/1/2016	21:00	No	A	West wall	Ultramafic				Pit personnel		134	Yes	Not monitored	Rain in the evening
7/3/2016	7:30	No	A	West	Ultramafic				Pit personnel - Witnessed		393	Yes	Not monitored	
7/4/2016	8h30	No	A	West Wall	Ultramafic				Pit personnel		722	Yes	Not monitored	
7/8/2016	06h00	No	A	West wall	Ultramafic				Pit personnel		25	No	Not monitored	
7/27/2016	8h30	No	A	East - Ramp	Intermediate Volcanic				Pit personnel - Witnessed		337	Yes	Not monitored	Just beside backhoe doing hammer
9/24/2016	20h00	No	A	West wall	Ultramafic				Pit personnel	100		Yes	Not monitored	On working platform (mucking bench)
9/25/2016	14h00	No	A	West wall	Ultramafic				Pit personnel		4265	Yes	Not monitored	Upper bench
6/16/2017	1h00	No	E5	South Wall	Intermediate Volcanic				Pit personnel	350	350	Yes	Not monitored	
6/17/2017	12h00	no	E5	South Wall	Ultramafic				Pit personnel	300		yes	No	
6/17/2017	4h00	No	A	North east	Intermediate Volcanic				Pit Personnel	179		yes		
6/19/2017	10h25	No	E5	South East wall	Ultramafic				Pit Personnel		337	Yes	Yes	
6/19/2017	21h30	No	E5	South East wall	Ultramafic				Pit Personnel		172	Yes	Yes	
7/7/2017	8h40	Yes	Vault	East wall	Ice				Pit Personnel		385	yes	Not monitored	ice fall, not rock
7/17/2017	Unknown	No	E5	South East wall	Ultramafic				Visual inspection	60		yes	no	New material observed on catchbench. Fell between July 15th and 17th.

LEGEND

NOTES
Data provided by Agnico Eagle Mines Ltd.

STATUS
ISSUED FOR USE

CLIENT
AGNICO EAGLE MEADOWBANK

TETRA TECH

MEADOWBANK MINE ANNUAL PIT WALL INSPECTION

Rockfall Log – Table 2

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	JV	CJC	CJC	CJC

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure F-2

TETRA TECH

ROCKFALL LOG - Table 3

Date of Rock fall	Time	Exact Time ?	Pit	Location	Rock type	Easting	Northing	Elevation	Reported by	Estimated tonnage	Calculated tonnage (MAPTEK)	Reported to mine inspector	Predicted by radar	Comment
1/29/2015	9:00		E3	West wall - South Ramp		1802	5984	5077	Engineering personnel		410	Yes	No radar yet	
5/22/2015	Between May 21 - 20h17 & May 22-02h05		E3	West wall - South Ramp (below)		1843	5990	5059	Pit personnel	10		No	No radar yet	Large ammount of material scaled after rock fell
6/7/2015	Day		E3	West wall - South Ramp		1812	5961	5066	Pit personnel	<10		No	No radar yet	
6/13/2015	14:30		E3	West wall - South Ramp		1812	5961	5066	Pit personnel		120	Yes	No	
6/14/2015	21:00		E3	South Wall		2024	5690	5084	Pit personnel	40		No	No	
6/21/2015	23:50		E3	West wall - South Ramp		1760	6131	5090	Pit personnel		95	Yes	No	
6/24/2015	7:05		E3	South Wall		2024	5690	5084	Pit personnel		275	Yes	No	
6/25/2015	12:05		E3	West wall - South Ramp		1820	5941	5065	Pit personnel	30		No	No	Large ammount of material scaled after rock fell
6/25/2015	Night		E3	South Wall		2024	5690	5084	Pit personnel		177	Yes	No	
6/27/2015	7:55		E3	South Wall		2024	5690	5084	Pit personnel		30	No	No	
6/28/2015	1:10		E3	South Wall		2024	5690	5084	Night shift Operator		<10	No	No	
6/29/2015	13:30		E3	South Wall		1991	5652	5087	Rock Mechanic Eng (witness)		39	No	No	
6/29/2015	Night		Vault	West Wall		3018 (estimated)	4739 (estimated)	5116 (estimated)	Pit personnel	<10		No	No	
6/30/2015	7:00		E3	South Wall		1984	5655	5080	Pit personnel		76	Yes	No	
7/6/2015	7:00	Yes	E3	South Wall		2007	5673	5084	Pit personnel		1770	Yes	No	
7/7/2015	10:44	Yes	E3	East Wall					Pit personnel		350	Yes	Blind Spot	
7/9/2015	0:45		E3	South Wall					Pit personnel		550	Yes	No	
7/15/2015	2:00		E3	South Wall					Pit personnel		650	Yes	Yes	
7/21/2015	21:30	No	E3	South Wall					Pit personnel		1440	Yes	Yes	
7/27/2015	22:05	No	E3	South Wall					Engineering personnel		499	Yes	Yes	
8/3/2015	10:03	Yes	E3	South Wall					Pit personnel		7500	Yes	Yes	
8/7/2015	15:36	Yes	E3	South Wall					Pit personnel		2500	Yes	Yes	
8/9/2015	11:07	Yes	E3	South Wall					Pit personnel		1650	Yes	Yes	
8/22/2015	10:50	Yes	E3	South Wall					No Pit Personnel. Radar alarms showed us		115	Yes	Yes	
8/30/2015	0:45	No	E3	South Wall					No Pit Personnel. Radar alarms showed us		5	No	Yes	
8/31/2015	2:30	No	E3	South Wall					No Pit Personnel. Radar alarms showed us		950	Yes	Yes	
9/21/2015	16:31	Yes	E3	South Wall					Pit personnel		9200	Yes	Yes	On video
6/1/2016	12:00	No	Vault	North					Pit personnel		30	No	Not monitored	
6/19/2016	12:00	No	A	East Wall - ramp	Intermediate Volcanic				Pit personnel		29	No	Not monitored	Contained within safety berm; At the junction of 2 pit designs
7/1/2016	21:00	No	A	West wall	Ultramafic				Pit personnel		134	Yes	Not monitored	Rain in the evening
7/3/2016	7:30	No	A	West	Ultramafic				Pit personnel - Witnessed		393	Yes	Not monitored	
7/4/2016	8h30	No	A	West Wall	Ultramafic				Pit personnel		722	Yes	Not monitored	
7/8/2016	06h00	No	A	West wall	Ultramafic				Pit personnel		25	No	Not monitored	
7/27/2016	8h30	No	A	East - Ramp	Intermediate Volcanic				Pit personnel - Witnessed		337	Yes	Not monitored	Just beside backhoe doing hammer
9/24/2016	20h00	No	A	West wall	Ultramafic				Pit personnel	100		Yes	Not monitored	On working platform (mucking bench)
9/25/2016	14h00	No	A	West wall	Ultramafic				Pit personnel		4265	Yes	Not monitored	Upper bench
6/16/2017	1h00	No	E5	South Wall	Intermediate Volcanic				Pit personnel	350	350	Yes	Not monitored	
6/17/2017	12h00	no	E5	South Wall	Ultramafic				Pit personnel	300		yes	No	
6/17/2017	4h00	No	A	North east	Intermediate Volcanic				Pit Personnel	179		yes		
6/19/2017	10h25	No	E5	South East wall	Ultramafic				Pit Personnel		337	Yes	Yes	
6/19/2017	21h30	No	E5	South East wall	Ultramafic				Pit Personnel		172	Yes	Yes	
7/7/2017	8h40	Yes	Vault	East wall	Ice				Pit Personnel		385	yes	Not monitored	Ice fall, not rock
7/17/2017	unknown	No	E5	South East wall	Ultramafic				Visual inspection	60		yes	no	New material observed on catchbench. Fell between July 15th and 17th
6/10/2018	unknown	No	E5	South Wall	Ultramafic				Pit Personnel		215	Yes		
6/10/2018	unknown	No	E5	South Wall	Ultramafic				Pit Personnel		75	Yes		
6/10/2018	unknown	No	E5	South Wall	Ultramafic				Pit Personnel		160	Yes		
6/11/2018	unknown	No	E5	South Wall	Ultramafic				Pit Personnel		250	Yes		
6/20/2018	15:22	Yes	E5	South Wall	Ultramafic				Alarm + pit personnel+geotech		79	Yes	Yes	Other rockfalls predicted in the area (the rest of the wedge)
6/25/2018	17:27	No	E5	South Wall	Ultramafic				Visual inspection + Radar investigation	250		no	no	First high wall of the pit (5123) investigated 3 weeks later when visual inspection. Rock fall took 3 days to completely stop (radar signature)
6/29/2018	unknown	No	E3	Ramp	Ultramafic				Geotech		110	Yes		
6/30/2018	14:12	Yes	E5	South Wall	Ultramafic				Geotech		350	Yes		
7/5/2018	05h10	Yes	E5	South Wall (west)	Ultramafic				Driller and Geotech		2700	Yes	Yes	
7/4/2018	20h15	Yes	E5	South Wall (east)	Ultramafic				Driller and Geotech		310	Yes	Yes	
7/8/2018	17h32	Yes	E5	South Wall (west)	Ultramafic				Driller and Geotech		100	Yes	Yes	Was a continuation of the july 5th large fall
7/9/2018	8h38	Yes	E5	South Wall (east)	Ultramafic				Worker and camera		226	Yes	Yes	Contuniation of June 20th Rock fall and mine was cleared prior as it was anticipated
7/11/2018	12h38	Yes	E5	South Wall (west)	Ultramafic				Worker		314	Yes	Yes	
7/26/2018	unknown	No	Vault	East wall	Ice				Pit Personnel		150	Yes		Vault ice wall. Spraying water on it
7/30/2018	unknown	No	E3	West Wall	Ultramafic				Pit Personnel		258	Yes		

LEGEND

NOTES

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STATUS

ISSUED FOR USE

CLIENT

AGNICO EAGLE MEADOWBANK

TETRA TECH

MEADOWBANK MINE ANNUAL PIT WALL INSPECTION

Rockfall Log – Table 3

PROJECT NO.	DWN	CKD	APVD	REV
704-ENG.ROCK03053-02	JV	CJC	CJC	CJC

OFFICE	DATE
VANCOUVER	DECEMBER 2018

Figure F-3

APPENDIX G

TETRA TECH'S LIMITATION ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

1.16 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

1.17 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

AGNICO EAGLE
MEADOWBANK

Tetra Tech
14940 - 123 Avenue
Edmonton, AB T5V 1B4 CANADA
Tel 780.451.2121
Contact: Cameron Clayton Cameron.Clayton@tetratech.com
p. 604.608.8619

TETRA TECH