

2012 Geotechnical Annual Review, Minto Mine, YT

Report Prepared for



MINTO EXPLORATIONS LTD.

A Subsidiary of Capstone Mining Corp.



Report Prepared by



SRK Consulting (Canada) Inc.

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2012 Geotechnical Annual Review, Minto Mine, YT

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1 Introduction

SRK Consulting (Canada) Inc. (SRK) completed a geotechnical inspection of the Minto Mine site on September 29 and 30, 2012. The Minto Mine site location is shown in Figure 1. The inspection is documented in the photographic compilation provided in Appendix A. This report summarizes the findings and recommendations.

This is the first geotechnical inspection of the site completed by SRK. Previous inspections were completed by EBA, A Tetra Tech Company (EBA) with the previous inspection occurring on August 25, 2011. The 2011 inspection documents were reviewed by SRK prior to the site visit, and where possible, used to assess changes in condition and recent performance.

This report is in partial fulfillment of the requirements of the existing Quartz Mining License QML-0001 and Type B Water Licence MS04-227. The license requires that annual inspections of the physical stability of all engineered structures, works and installations located at the site be completed by an engineer.



Source: Capstone Mining (<http://capstonemining.com/s/Minto.asp>)

Figure 1: Site Location

2 Conditions

The geotechnical inspection was completed by Peter Mikes, P.Eng. of SRK. Eamon Mauer of Minto Explorations Ltd. (Minto) was SRK's primary contact for information about the activities during the past year. Mr. Mikes was accompanied by Minto personnel throughout the inspection.

Weather during the site inspection was sunny with temperatures estimated at 5-12 °C, and high winds in the afternoon on September 30th. The site was generally dry or slightly moist, with wet patches in low lying areas. No snow was present making the ground surface visible throughout the site.

3 Scope

The following bullets list the facilities that were inspected as part of the inspection:

- Dry Stack Tailings Facility (DSTF), including the Mill Valley Fill (MVF) and tailings diversion ditch;
- Main Waste Rock Dump (MWD);
- Southwest Waste Dump (SWD);
- Reclamation Overburden Dump (ROD);
- Ice Rich Overburden Dump (IROD);
- Ore Stockpiles;
- Mill and Camp Site;
- Mill Water Pond (MWP);
- Fuel Containment Facility;
- South Diversion Ditch (SDD);
- Water Storage Pond Dam (WSP);
- Big Creek Bridge.

Movements have been previously identified in the DSTF, SWD, and the Main Pit south wall. At each location, the movements appear to be due to creep in ice-rich clay layers within the foundations beneath the facilities.

- Movements in the DSTF were first identified sometime in early 2009. EBA, the Engineer-of-Record for the DSTF, has been responsible for most of the investigation and performance monitoring to date associated with the movements and recommended the construction of a valley-fill buttress (Mill Valley Fill) below the DSTF. Construction of that facility began in January 2012 and is near completion.
- The initial indication of movement in the Main Pit south wall was observed by Minto in April 2009. In April 2011, a large block of frozen material failed into the pit with progressive sloughing occurring throughout the summer of 2011 until winter conditions halted further degradation of the slope. A waste rock buttress was subsequently designed and is in the process of construction.

- The SWD has shown similar trends in movements as the Main Pit south wall, but with a delay of about one month and at significantly lower magnitudes.

A detailed assessment and history of the physical stability associated with these movements are provided in two separate letter reports prepared by SRK:

- SRK, 2012a. "Detailed Review of Foundation Performance at Select Mine Waste Facilities and Main Pit South Wall" –report dated November 19, 2012.
- SRK, 2012b. "Detailed Review of Foundation Performance at the South Waste Dump and Stability of the Main Pit South Wall" –report dated November 19, 2012.

The purpose of this report is to document the physical condition of the site based on visual observations and provide geotechnical assessment noting potential signs of physical instability such as erosion, differential settlement, sloughing or bulging of material, seepage, etc.

4 Monitoring and Instrumentation Data

The following sections provide instrumentation data not presented in the detailed review of foundation performance for the DSTF, Main Pit south wall, and SWD. Instrumentation plots are provided in Appendix B.

4.1 Dry Stack Tailings Facility

Representative data from survey hub and slope inclinometer instrumentation is presented in the detailed review of the foundation performance (SRK 2012a). Ground temperature profiles from thermistor instrumentation are provided in Figures 1 to 4 of Appendix B.

As part of the construction quality assurance (CQA) program prepared by EBA (1997) for the DSTF, tailings are placed at 95% maximum dry density under standard compactive effort and field density tests are completed on a monthly basis. SRK requested test results from the past year. At the time of writing, testing results have been provided from April 2012 to June 2012 and are presented in Appendix C. The testing was completed by EBA.

The results on April 11, 2012 did not achieve the required compaction due to high moisture contents, but are (with the exception of one test) within 1% of the required compaction. The high moisture content may be due to snow melt. Results from subsequent testing all met specification. As tailings placement in the DSTF was completed in October 2012, the tailings tested on April 11 are located near the surface of the facility and as a result, no corrective action is recommended. It is recommended that Minto follow-up with EBA to obtain all test results from the DSTF construction for their records.

4.2 Southwest Waste Dump

Instrumentation at the SWD consists of four ground temperature cables (SDT-1, -2, -3, and -4), three inclinometers (SDI-1, -2, and -3), four vibrating wire piezometers (SDP-1, -2, -3 and -4) and nine survey hubs (SWD01, 01A, 02, 02A, 03, 03A, 04, 04A, and 05A) The temperature cables, inclinometers and piezometers were installed in January-February 2010 to monitor foundation conditions along the toe of the slope. The survey hubs were installed in March 2011 to monitor surface movements along the southeast perimeter.

The inclinometer and survey hub results are presented in the detailed foundation performance review (SRK 2012b).

Piezometer water levels and temperatures are presented in Figure 5 of Appendix B. Each vibrating wire tip is located in permafrost, and as a result, only the temperatures can be monitored. The temperature data confirms the frozen conditions. Ground temperature data from the temperature cables are presented in Figures 5 and 6 of Appendix B. The active layer depth ranges from 0.5 m to 3.0 m.

4.3 Mill Water Pond

Instrumentation at the MWP consists of ground temperature cables and survey hubs. Locations of the instrumentation are shown in Figure 14 of Appendix A.

Ground temperature data from the MWP is provided in Figure 7 in Appendix B. Data was available up to April 29, 2012. The active layer at both locations is estimated to extend down to an elevation of approximately 779.3 m, or an approximate depth of 4.8 m during the fall of 2011. This depth is similar to that observed in September 2010, and deeper than that observed in September 2009, where the active layer was approximately 4.3 m deep.

The last survey of the survey hubs (MWPSH-1 to 4) was completed in 2009. In the 2011 inspection, it was noted that hubs 1, 2, and 3 had been removed. Survey hub MWPSH-4 was not found during the 2012 site visit. Settlement surveys are required as part of the CQA manual prepared by EBA (1997) and included in Appendix 7 to Water Use Licence QZ96-006. The CQA states the minimum survey frequency of a quarterly basis for the first year and, based on results, biannually thereafter. It is recommended that the hubs be reinstalled and monitored monthly until consistent results are obtained. The frequency can then be reduced to biannually.

4.4 Water Storage Pond

Instrumentation within the dam at the WSP consists of eight ground temperature cables, thirteen vibrating wire piezometers, and five survey hubs. Locations of the instrumentation are provided in Figure 8 of Appendix B, with the data plotted in Figures 8 to 12 of Appendix B.

The last hub survey was completed in 2009. Surveys of the dam crest are required as part of the CQA manual prepared by EBA (1997) and included in Appendix 7 to Water Use Licence QZ96-006. The CQA manual states biannual surveys are to be completed during the months of May and September. It is recommended that the survey hub be monitored monthly until consistent results are obtained. The frequency can then be reduced to biannually.

Piezometer water elevations and temperature-time plots are presented in Figures 11 and 12 of Appendix B. Each elevation plot includes the elevation of water stored in the pond. In the past year, no new trends in the water elevation results were observed. Generally, the changes in piezometer elevations correspond to changes in the pond elevation.

Ground temperature profiles and temperature-time plots from the temperature cables are presented in Figures 8 and 10 of Appendix B. No permafrost is present in the monitored areas with temperatures generally increasing with depth. Temperatures beneath the upstream slope of the dam and away from the abutments and the surface (WDT-3 and 4) are stabilizing between 3 and 4

°C. Temperatures in cables along the downstream slope near the south abutment have warmed slightly compared to 2011.

5 Summary of Recommendations

Findings of the inspection are documented in the attached photographic compilation of figures in Appendix A. Nineteen figures are included to provide a record of observations across the site. A summary of the recommendations is provided in Table 1.

Table 1: Summary of Recommendations

Area	Appendix A Figure #	Recommendation
Dry Stack Tailings Facility	-	1. A complete record of the field density tests from the DSTF construction should be compiled from the EBA testing and maintained on site.
	3	2. The small sinkhole at the crest should be filled in to prevent equipment damage. The area should be regraded to direct surface runoff away from the sinkhole location.
	4 - 5	3. The Tailings Diversion Ditch should be rehabilitated to capture and convey water along the entire length of the ditch and the ditch discharge constructed.
Main Waste Rock Dump	6	1. Tension cracks were observed at the south end of the dump in an area where instability was noted in previous inspections. The area should be monitored on a quarterly basis by mine personnel for signs of additional movement.
Southwest Waste Dump	7	1. Two large areas of ponded water were noted. Prior to the placement of the next lift, these areas should be regraded to promote runoff.
	8	2. Continue monitoring for erosion at the culvert outlet located near the W-15 Detention Structure and maintain a photographic record to inspect for changes in condition.
	8	3. The liner defects and anchor system for the W-15 detention structure should be repaired the next time a liner crew is on site. Placement of a safety berm or snow fencing should be considered to prevent further damage to the liner.
Reclamation Overburden Dump	9	1. Installation of a rip-rap channel down the slope to minimize slope erosion. Areas near the exiting erosion channels should be regraded to direct runoff to the rip-rap channel.
	9	2. Monitoring of the ponded water to ensure that the offset from the dump toe is maintained as stipulated in the design report.
	9	3. The toe of the dump should be surveyed annually to confirm it is within the permitted boundary.
Ice-Rich Overburden Dump	10	n/a
Ore Stockpiles	11	n/a
Mill and Camp Site	12	1. It is recommended that the concrete barrier below the mill area slope be raised to capture any additional sloughing material.
	13	2. The area above the erosion channels below the camp pad should be regraded to promote runoff away from these areas. One of the channels should be filled with rip-rap or a "half culvert to provide

Area	Appendix A Figure #	Recommendation
		a path for the water to drain". In place of the surface grading, a small ditch could be constructed near the slope crest to direct runoff to the drop channel or half-culvert.
Mill Water Pond	14	1. Re-establish survey hubs and collect monthly data until consistency in results is achieved. Reduce monitoring frequency to biannually thereafter.
	14	2. Tears in the liner system should be patched. The voids beneath the tears should be filled prior to patches being placed.
	14	3. The condition of the liner beneath the by-pass pipe supports should continue to be monitored.
	15	4. Sediments accumulated in the surface runoff ponds and culverts should be cleaned out.
Fuel Containment Facility	16	n/a
South Diversion Ditch	17	1. Vegetation in the channel should be removed to increase flow capacity.
	17	2. The area of exposed liner should be covered as per the channel design.
Water Storage Pond Dam	-	1. Complete monthly surveys of the hubs on the dam crest until consistency in results is achieved. Reduce monitoring frequency to biannually thereafter.
	18	2. Continue regular monitoring of the dam, noting specifically the clarity of the seepage and flow exiting the stilling basin, and the seepage rate through the weir.
Big Creek Bridge	19	1. Continue regular annual monitoring of sediment accumulation in the culverts, and clean out if sediments continue to accumulate

6 References

EBA Engineering Consultants, 1997. Construction Quality Assurance Manual For Waste Dumps, Tailings/Water Dam, Mill Water Pond, and Diversion Ditch, Minto Project, Yukon. Submitted to Minto Explorations, Ltd. August, 1997.

SRK, 2012a. Letter Report, "Detailed Review of Foundation Performance at Select Mine Waste Facilities and Main Pit South Wall". Prepared for Minto Exploration, Ltd. SRK Project Number 219500.050. November 19, 2012.

SRK, 2012b. Letter Report, "Detailed Review of Foundation Performance at the South Waste Dump and Stability of the Main Pit South Wall". Prepared for Minto Exploration, Ltd. SRK Project Number 219500.050. November 19, 2012.

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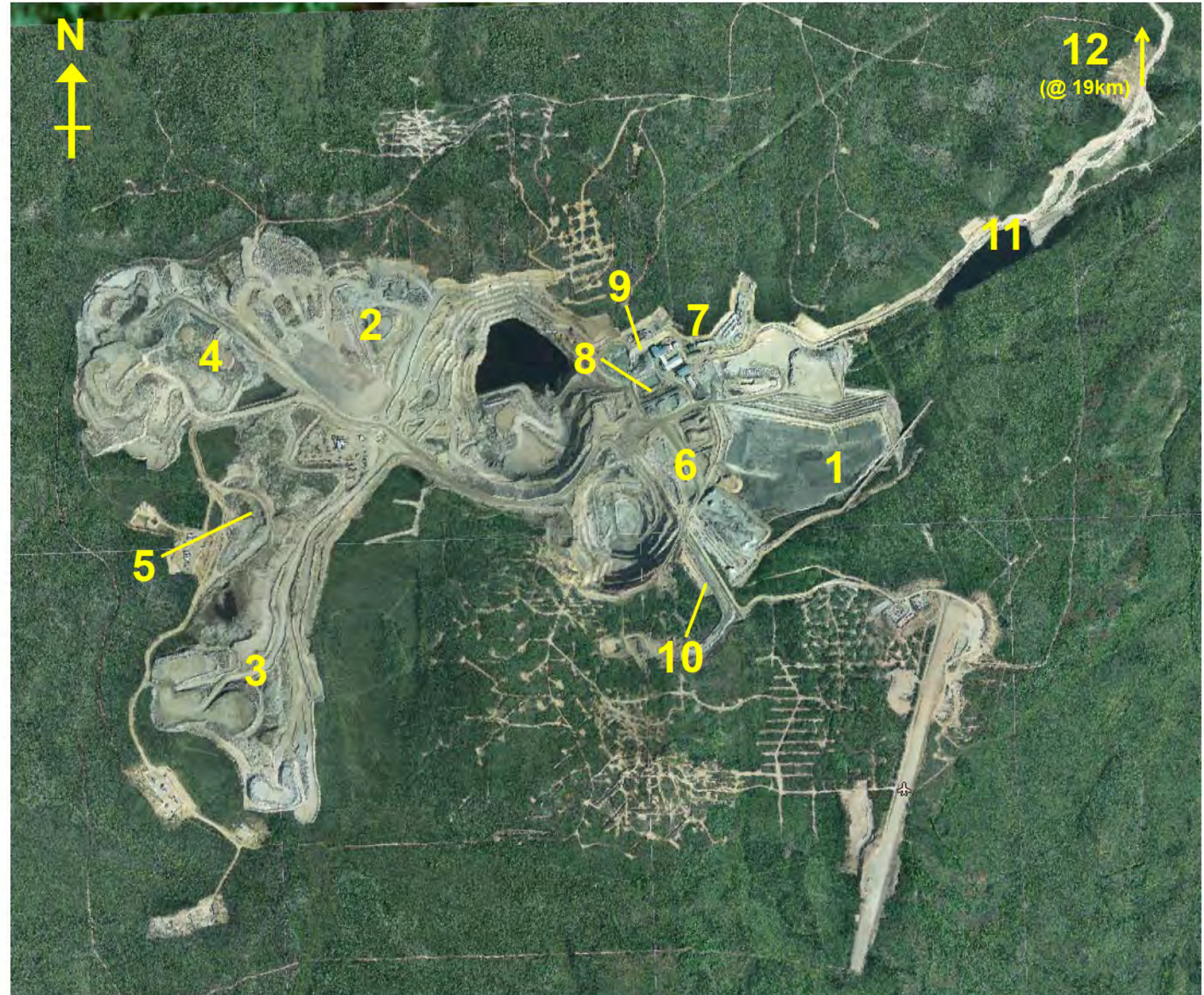


All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Appendices

Appendix A: Photographic Report

Inspection Area		Figures
1	Dry Stack Tailings Facility	2-5
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2012 Orthophoto.

Inspection Area Number



2012 Geotechnical Annual Review

**Minto Mine 2012
Geotechnical Inspection Areas**

Job No: 1CM002.006.400
Filename: Minto 2012 Site Inspection.ppt

Minto Mine

Date: November 2012	Approved: PHM	Figure: 1
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1 Dry Stack Tailings Facility - Overview



(a)



(b)



2012 Orthophoto

➔ Photograph vantage point

(a) Dry Stack Tailings Facility surface from south side looking north.

- The tailings surface was generally dry at the time of the inspection. No large-scale ponded water was observed throughout the tailings facility.
- Some ponded water was observed between compaction equipment tracks as can be seen near the center of the photo. The water can be attributed to recent precipitation events.

(b) Dry Stack Tailings Facility surface from the waste rock shell looking south.

- This photo was taken from one of the main equipment access points onto the tailings. Ruts in the area were up to 0.2 m deep. Runoff from precipitation resulted in a build-up of tailings sediments in the local area. The tailings erosion did not extend onto the waste rock crest surface.



Job No: 1CM002.006.400
Filename: Minto 2012 Site Inspection.ppt



Minto Mine

2012 Geotechnical Annual Review

Dry Stack Tailings Facility

Date: November 2012	Approved: PHM	Figure: 2
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1 Dry Stack Tailings Facility – Waste Rock Shell & Mill Valley Fill

- Photos show the condition of the waste rock shell and slopes.
- The slopes appear to be consistent with original placement: no signs of slumping, bulging or tension cracks were observed.
- One small sinkhole was observed – see Photo (e).

- (a) Aerial view of the north end of the DSTF showing the waste rock shell and the extent of the Mill Valley Fill placement on October 2, 2012.
- (b) West end of the waste rock shell looking west. Placement of the Mill Valley Fill Expansion between the DSTF and camp site.
- (c) North-east end of the waste rock shell looking east.
- (d) East end of the waste rock shell looking north
- (e) A small sinkhole was observed (handheld GPS coordinates: 6,944,850N, 385,757E, NAD83) with a diameter of approximately 1.5 m and a depth of 0.5 m. The hole is located on the inside edge of the shell access road and appears to be approximately above (or close to) one of the finger drain locations. The original shell toe in the area has been covered as part of mill valley fill construction and was not inspected. It is suspected that the sink hole is the result of excessive runoff from the facility collecting and infiltrating at this location and resulting in fines movement (note the wetter appearance of the sediments in the photo on the far side of the sinkhole).
- (f) Seepage from the facility was observed at one location at Photos (f) and (g) just upstream of the Minto Creek Detention Structure. (Note seepage observed at 3 locations during the 2011 inspection, two of the locations (W-8 and W-8A) have been covered due to the mill valley fill construction. The water was clear with no deposition of sediments observed).



Recommendations

- The sinkhole should be filled in to prevent equipment damage.
- The area should be regraded to direct surface runoff away from this location.



(a) Photograph vantage point

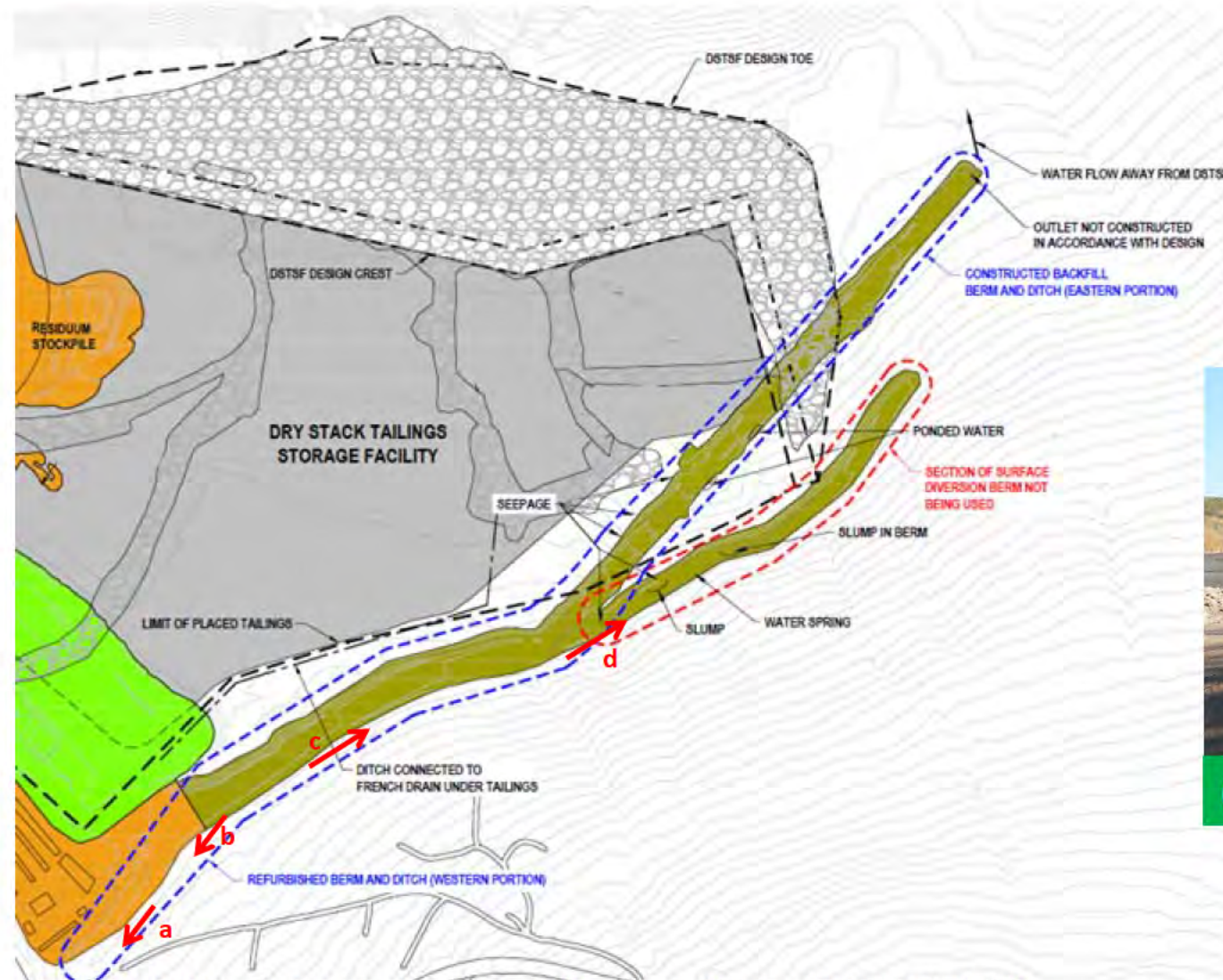
		2012 Geotechnical Annual Review		
		Dry Stack Tailings Facility		
Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	Minto Mine	Date: November 2012	Approved: PHM	Figure: 3

1 Dry Stack Tailings Facility – Surface Diversion Berm – Western Portion



- In general, the western portion of the berm and ditch was functional at the time of inspection, with conditions deteriorating towards the east. East of the location of Photo (d), the ditch is in very poor condition. Details on the eastern portion of the ditch are provided in Figure 5.
- Two seeps were observed below the berm near the locations noted in the 2011 inspection and on the plan in this figure.

- (a) A ditch block at the upstream portion of the ditch has been removed. Layers of geotextile and liner remain across the channel, a small amount of water remains ponded upstream of the block. A small waste rock stockpile is present to the right of the photo.
- (b) Tension cracks are present on the berm side of the ditch over a significant length of the ditch.
- (c) Looking downstream in the western portion of the ditch. Tension cracks visible along the road. The geosynthetic liner is exposed at all points downstream of this location.
- (d) View of the ditch looking downstream at the point where the ditch crosses the south wing portion of the diversion system (outlined in red in the figure plan).
- The ditch near this location and further downstream is not well formed, with sediments building up in the channel, and the liner sagging down the channel sides.
- Liner sections are over-lapped, but not welded. Gaps are present between some sections allowing water to pass through.
- Water was also observed to flow over the sides of the liner in places.



Source: Figure 1, EBA letter "Dry Stack Tailings Storage Facility – 2011 Annual Review, Minto Mine, YT", dated October 18, 2011.

Photograph vantage point

		2012 Geotechnical Annual Review		
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1 Dry Stack Tailings Facility – Surface Diversion Berm – Eastern Portion

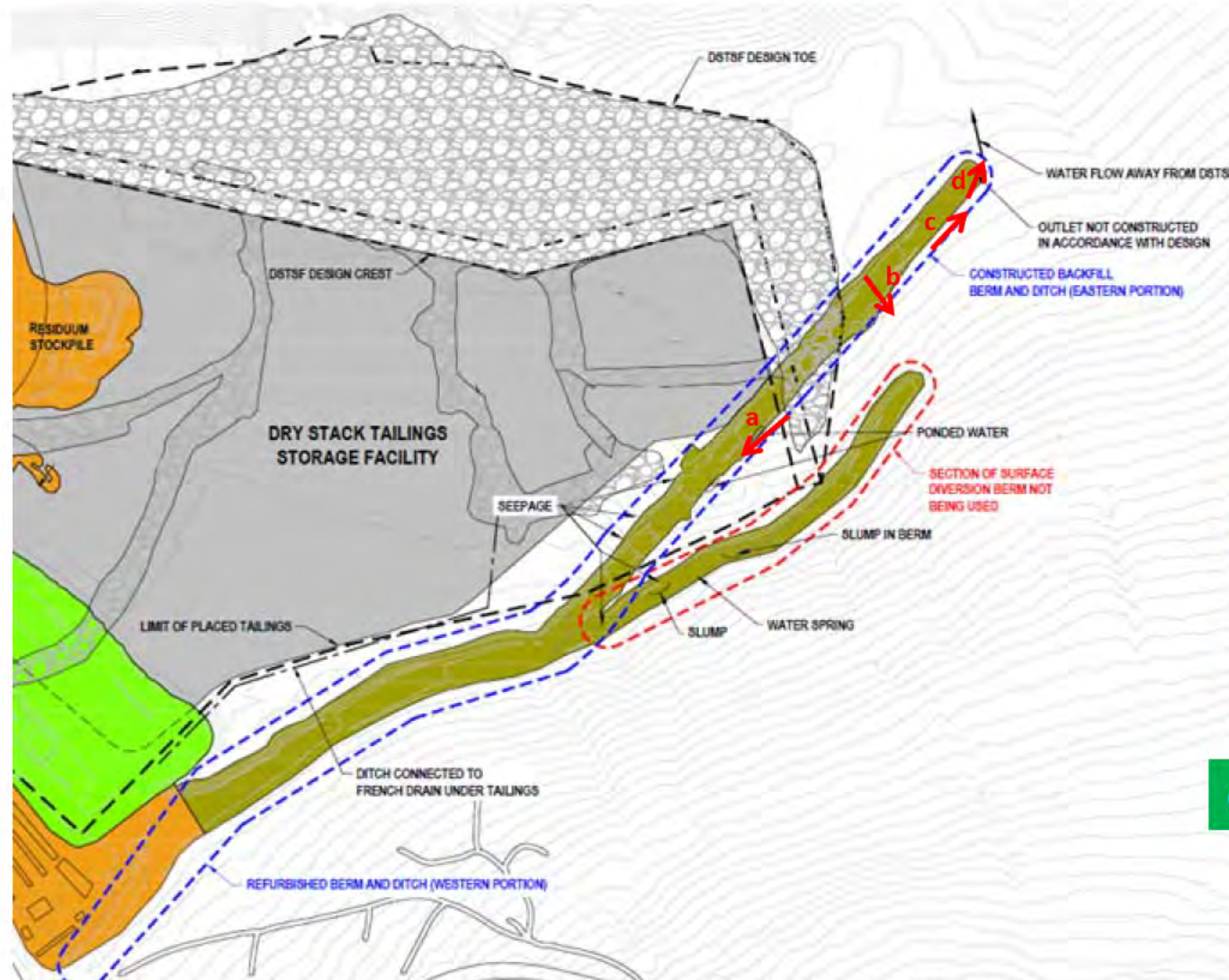


The eastern portion of the ditch is in poor condition. At the time of the inspection, it is estimated that approximately half of the flow was lost along the east portion of the ditch.

- the channel appears undersized (Photo (b) and (c));
- The channel bed has settled in some areas resulting in ponding water (Photo (a));
- the liner has torn in many locations (Photo (c)),
- The anchoring of the liner has failed resulting in the liner slumping down the sides of the channel (Photo (b)),
- There are gaps in the liner resulting in water flowing beneath the liner and over the sides of the liner (Photo (a)).
- As noted in the 2011 inspection, the discharge point of the ditch (Photo (d)) was also not constructed in accordance with the March 23, 2010 Issued for Use Drawing TDD-01, where flow should discharge into a lined stilling basin.
- The vegetation surrounding the discharge point is stressed with many leaning dead trees in the area.

Recommendations

- The surface diversion berm should be rehabilitated to capture and convey water along the entire length of the ditch.
- The ditch discharge should be constructed to an engineered design.



Source: Figure 1, EBA letter "Dry Stack Tailings Storage Facility – 2011 Annual Review, Minto Mine, YT", dated October 18, 2011.

Photograph vantage point

		2012 Geotechnical Annual Review		
		Dry Stack Tailings Facility		
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2 Main Waste Rock Dump

- During the 2011 inspection, reclamation activities at the dump had started with re-contouring. The resloping area is noted in the plan below. At the time of the 2012 inspection, re-contouring was completed, a reclamation cover was placed over a portion of the regraded area and revegetated. It appears that different vegetation prescriptions have been placed on different portions of the cover.
- The area of slumping noted in the 2011 inspection was not observed during the site visit as the area has likely been graded over.
- The blockage of the ditch at the toe of the southern portion of the MWD was also not found and is assumed to have been cleared as recommended in the 2011 inspection report.
- Photos (a) and (b) show the regraded slopes and vegetation growth on the south end of the dump.
- Photo (c) shows a diversion channel excavated near the crest to direct runoff away from the reclamation plots.
- Photo (d) shows minor erosional channels above the access road west of the dump.
- Photo (e) show tension cracks found near the location where cracks were noted in the 2011 inspection. The area noted in 2011 has been graded over. The cracks in photo (e) are near the edge of the regraded area near the edge of a slope at the angle of repose.

Recommendations

- As signs of instability in the vicinity of photo (e) have been noted in past inspections, the area should be monitored by mine personnel on a regular basis to determine if there is any additional movement.



Source: Figure 1, EBA letter "Main Waste Rock Dump – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

		2012 Geotechnical Annual Review		
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3 Southwest Waste Dump



(a)



2012 Orthophoto

➔ Photograph vantage point

- The construction method of the dump is described in the 2011 annual review as follows: “Minto is utilizing a series of benches and setbacks during dump construction. Benches of finer grained non ice-rich waste have been constructed back of the overall crest of the facility. These benches are being and will continue to be capped with coarse waste rock until the ultimate dump dimensions are achieved. Therefore, the exterior slope will be constructed with coarse waste rock only.”
- Photo (d) was taken in October 2, 2012 on a flight to Minto.
- No signs of instability (slumping, bulging, tension cracks, differential settlement) were observed. Erosion was observed at the outlet of the culvert located north east of the dump (see Figure 8).
- Construction of the dump appears to be in accordance of the method described above.
- Safety berms were present throughout the dump.
- Ponded water was observed in two locations (Photos (a) and (b)),

Recommendations

- Prior to placement of the next bench, areas with ponded water should be regraded to promote runoff and drain the large ponded areas.



(b)



(c)



(d)



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Minto Mine

2012 Geotechnical Annual Review

Southwest Waste Dump

Date: November 2012	Approved: PHM	Figure: 7
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3 Southwest Waste Dump

Photos (a) and (b) show the outlet of the culvert at the NE corner of the dump and east of the Pelly Laydown area.

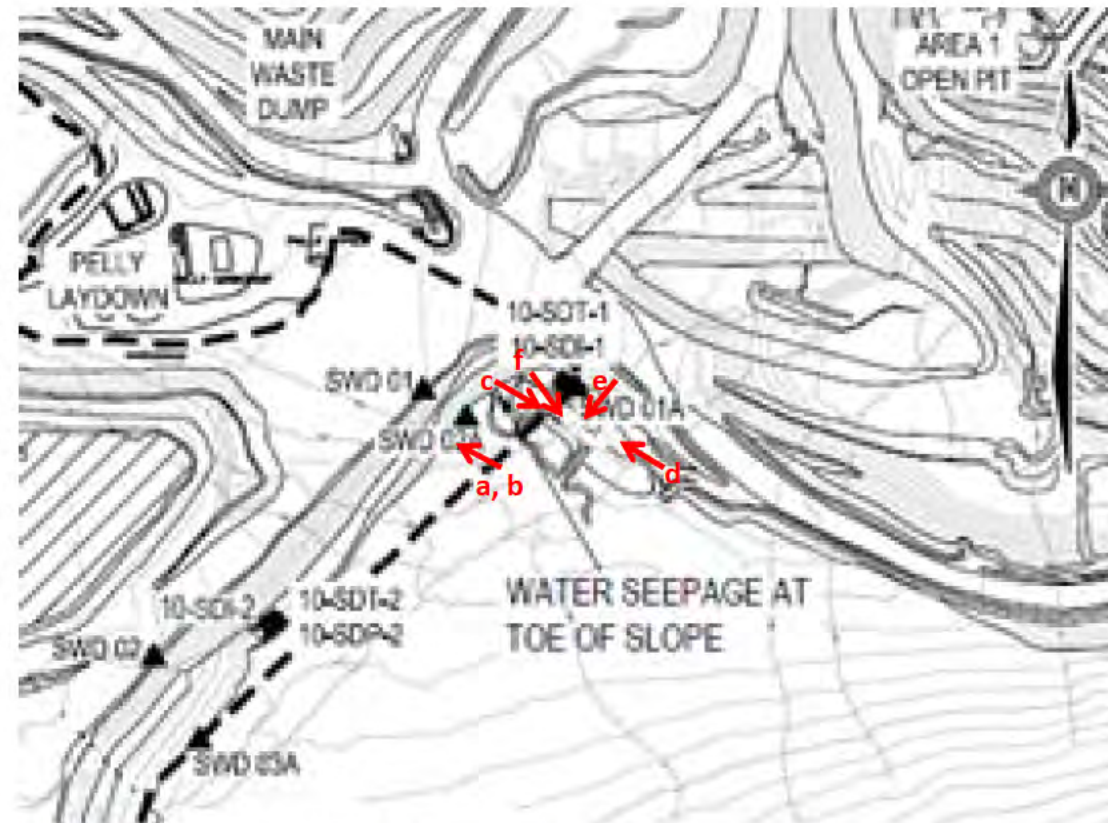
- No photos of the area from previous inspections are available and as a result, it is unclear if erosion beneath the culvert outlet is continuing or has stabilized.
- Based on equipment tracks in the area, it appears that the large diameter boulders have been placed along the slope to mitigate erosion. The area should be monitored at least annually with a photographic record maintained to observed for changes.

Photos (c) to (f) show the W-15 Detention Structure Area.

- Water continues to seep from the toe of the fill slope into the W-15 Detention Structure Area. The water was clear, with low turbidity.
- Sediment is accumulating at the west end of the pond. The weight of the sediment appears to have stretched the liner and resulted in a large tear from along the crest of the berm at the anchorage point.
- There are 3 punctures in the liner located near the crest west of the pump (Punctures shown in photo (e)). The punctures were caused by either equipment damage or rocks raveling down the slope.
- Photo (d): The inlet line for the pump is placed on a layer of rip-rap placed directly on the liner. A large boulder is in the foreground of the photo directly on the liner.

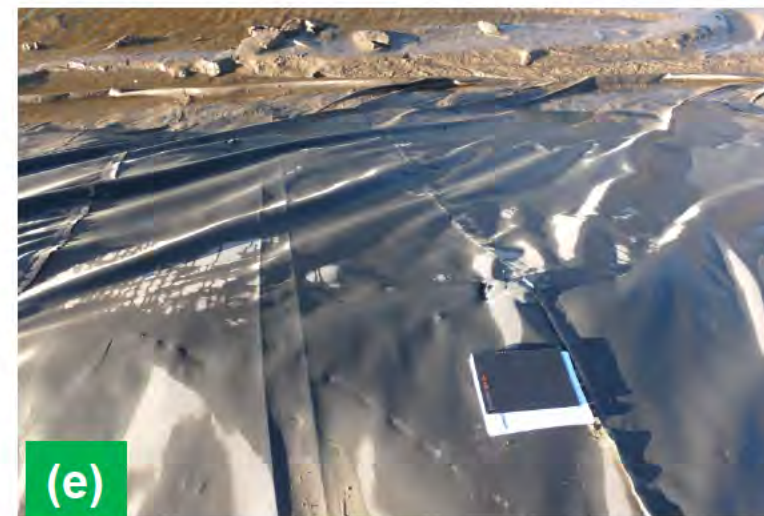
Recommendations

- Continue monitoring for erosion at the culvert outlet and maintain a photographic record to inspect for changes in condition.
- The anchor system of the liner on the west side of the facility should be repaired the next time a liner crew is on site. At the same opportunity the holes in the liner should be repaired.
- Placement of a safety berm or snow fencing should be considered to prevent further damage to the liner from equipment trafficking and/or rocks.



Source: Figure 1, EBA letter "Southwest Waste Dump- 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point



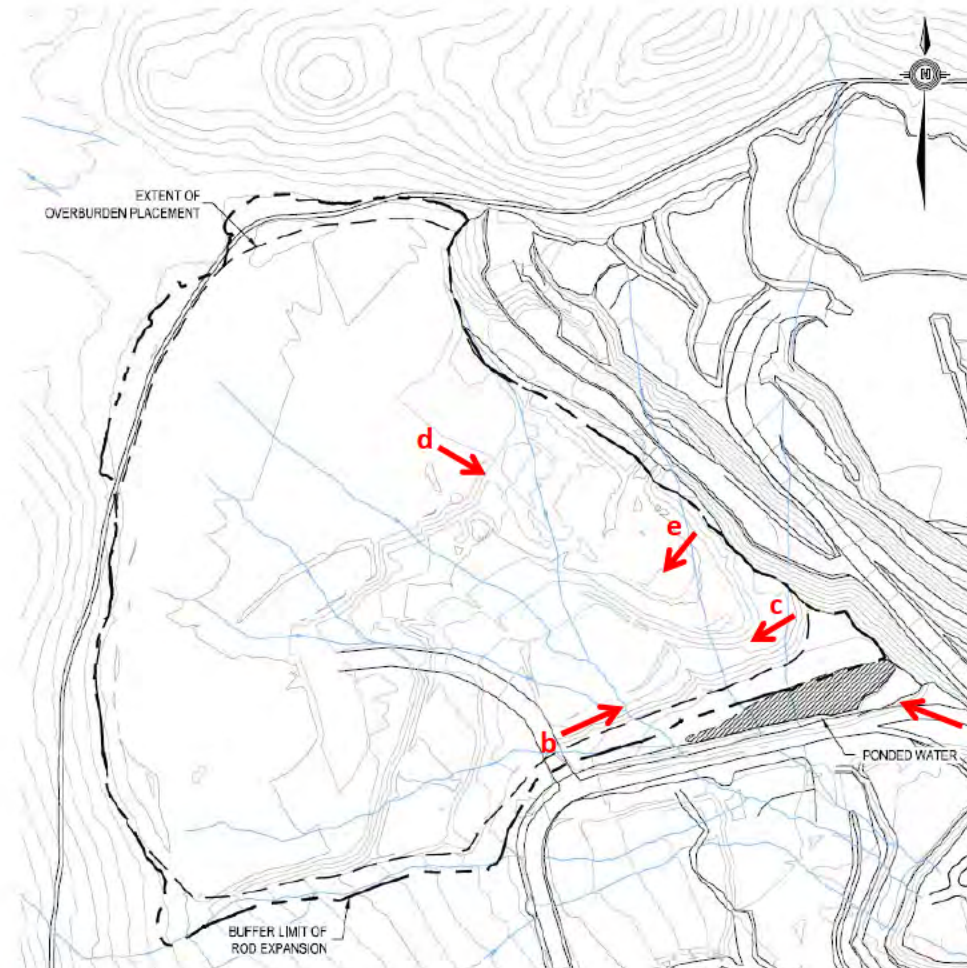
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4 Reclamation Overburden Dump



• Conditions of the dump are similar to conditions reported in the 2011 site inspection completed by EBA. Slumping, settlement and tension cracks are expected in the dump as it is constructed with frozen overburden with thawing expected.

- a) Ponded water adjacent to the Dyno Access Road southeast of the ROD. Two small erosional channels were observed (circled in yellow).
- b) Localized slumping of the perimeter slope. The 2011 inspection notes that some of the sloughing areas have increased in size.
- c) Discontinuous tension cracks and differential settlement observed along the perimeter crest (above the slope shown in Photo (b)).
- d) Overview of the ROD dump area.
- e) Tension cracks and zones of differential settlement present throughout the lift whose location is shown in Photo (d) and the figure below. The ground is undulating by approximately 0.3 m.



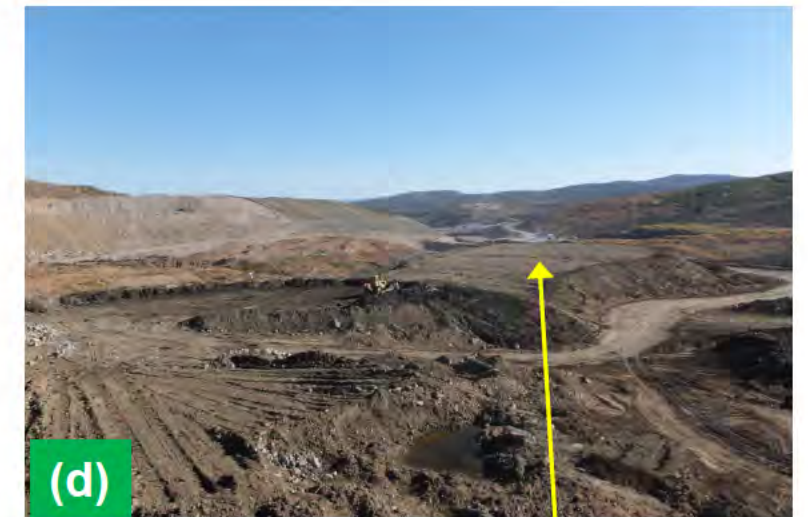
Source: Figure 1, EBA letter "Reclamation Overburden Dump – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

Recommendations

Recommendations are the same as those mentioned in the 2011 EBA annual review:

- Installation of a rip-rap channel down the slope to minimize slope erosion. Areas near the exiting erosion channels should be regraded to direct runoff to the rip-rap channel.
- Monitoring of the ponded water to ensure that the offset from the dump toe is maintained as stipulated in the design report.
- The toe of the dump should be surveyed annually to confirm it is within the permitted boundary.



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Reclamation Overburden Dump

Date: November 2012	Approved: PHM	Figure: 9
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5 Ice Rich Overburden Dump

- A containment berm constructed of coarse waste rock is present on the north, east and south sides of the dump.
- Photo (a) shows outside slope of the berm, while Photos (b) and (c) show the inside slope and ice rich overburden material.
- No signs of instability were observed along the containment berm. Safety berms were present along the entire length of the crest on both sides.
- Discussions with site personnel indicate that no material has been placed in the dump since the last inspection.
- No pooling water was visible from the berm inside of the dump, and it appears the berm is functioning as intended by allowing most water to drain to the outside of the facility.



2012 Orthophoto

➔ Photograph vantage point

		2012 Geotechnical Annual Review		
		Ice Rich Overburden Dump		
Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	Minto Mine	Date: November 2012	Approved: PHM	Figure: 10

6 Ore Stockpiles



- The ore stockpile area was investigated briefly in passing. All slopes appeared in good condition: no slumping, bulges, cracks, or other signs of instability were observed.



Photograph vantage point
Orthophoto taken in 2011



 Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	 Minto Mine	2012 Geotechnical Annual Review		
		Ore Stockpiles		
Date: November 2012	Approved: PHM	Figure: 11		

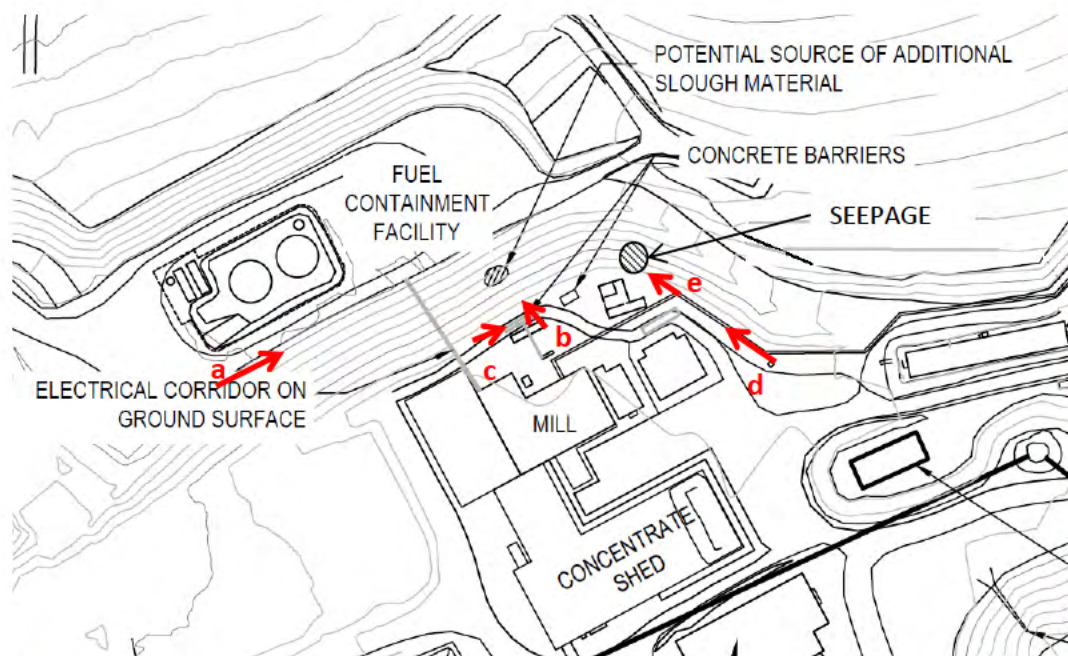
7 Mill and Camp Site



- a) Slope above the main mill site appears stable
 - Safety berms at the top of the slope are in good condition.
 - Eroded sand/gravel is generally present at the base of the slope with occasional cobbles/boulders up to 300 mm.
- b) A small slough is present near the center of the slope approximately 10 m east of the electrical corridor where there appears to be some larger rocks that have raveled down the slope.
- c) Concrete barriers are present at the toe below this area. The barrier is approaching the capacity for containment.
- d) East end of the mill slope looking northwest. Two small seeps (circled and shown in 'e') are present at the corner of the slope, emerging approximately 2 m above the toe.
- e) View of the seep location. The flow is a minor trickle, with algae present along the stream path.

Recommendations

- It is recommended that the concrete barrier (Photo (c)) be cleaned out or raised to capture any additional sloughing material. A simple solution to raise the barrier may be to place wooden planks anchored by rebar.



Source: Figure 1, EBA letter "Mill & Camp Site – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

→ Photograph vantage point

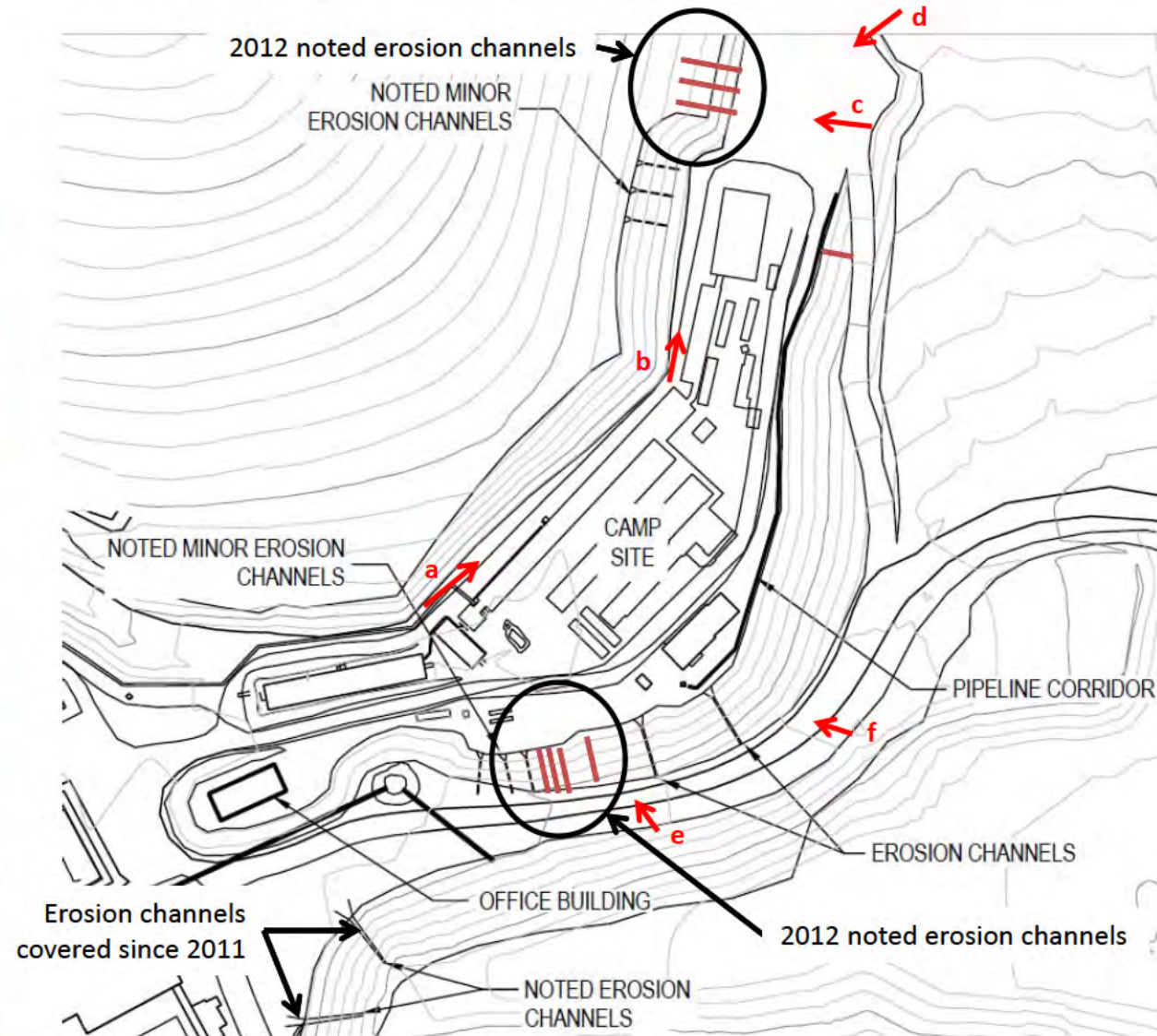
		2012 Geotechnical Annual Review		
		Mill and Camp Site		
Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	Minto Mine	Date: November 2012	Approved: PHM	Figure: 12

7 Mill and Camp Site



- a) & b) Slope above the main camp site appears stable.
 - Eroded sand/gravel is generally present at the base of the slope with occasional cobbles/boulders up to 300 mm.
- c) Minor erosion channels present at the north end of the camp area. Three minor erosion channels were noted in the EBA 2011 in this area. There are numerous other minor erosion channels in this area, as can be seen in photos (c) and (d). It is unclear if these channels were present in 2011.
- d) & e) Erosion channels present south of the camp site pad. It appears that the same erosion channels noted in the 2011 inspection are still present as well as additional erosion channels, as noted in the figure below.

Note: Since the 2011 inspection, fill was placed below the main access road as part of the Mill Valley Fill pad that have covered over the erosion channels noted in the figure below.



Source: Figure 1, EBA letter "Mill & Camp Site – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Recommendations

- The 2011 EBA annual review recommended the area above the erosion channels below the camp pad be regraded to promote runoff away from these areas and that one of the channels be filled with rip-rap or a "half culvert to provide a path for the water to drain". It appears that no action has been taken in the past year and that further erosion channels have developed.
- It is recommended that these actions be completed in the following year. In place of the surface grading, a small ditch could be constructed near the slope crest to direct runoff to the drop channel or half-culvert.



- Photograph vantage point
- Additional Erosion Channels noted in 2012 site visit
- Erosion channels covered since 2011



Job No: 1CM002.006.400
 Filename: Minto 2012 Site Inspection.ppt



Minto Mine

2012 Geotechnical Annual Review

Mill and Camp Site

Date: November 2012
 Approved: PHM
 Figure: 13

8 Mill Water Pond

- a) Panoramic view of the mill pond. Tears in the liner system are the same as that reported in the previous inspection. No new tears or liner defects were observed.
- b) View of the tear in the liner at the north corner of the pond. The tear is approximately 1m in length and first noted in the 2008 inspection.
- c) Two tears in the liner midway along the northeast edge of the pond. These tears were first observed in the 2009 inspection. The largest tear is approximately 1.5m in length and is parallel to the slope. The smaller tear is approximately 0.5m in length and is orientated across the slope. A void is present beneath the slope that in previous EBA inspections has been noted to be increasing in size due to water penetration from surface.
- d) View of the south east side of the pond and by-pass pipe.
 - The bypass pipe and metal clamps are resting on pieces of plywood, while the 2011 review notes that they were resting directly on the liner. Placement on plywood is an improvement, but particular attention should be made at each support for liner damage in future inspections.
 - The 2011 observation of a “minor bulge under the liner system in the vicinity of the southwest corner” was not observed during this visit. The liner in the area did not appear to be stressed or contain defects.
- e) View of the inlet culvert on the east side of the pond with a small flow of water entering the pond.



(a)



(b)



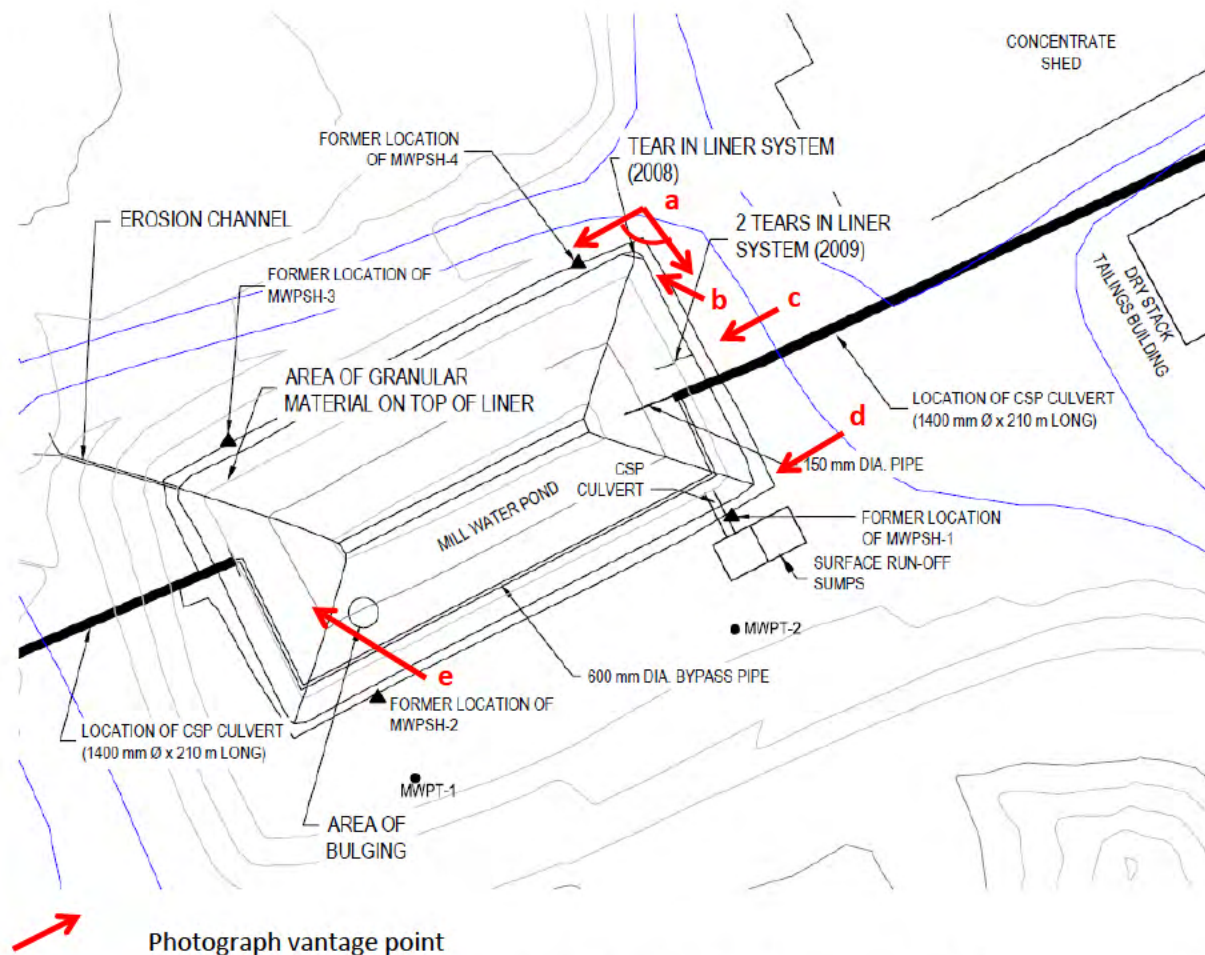
(c)



(d)



(e)



Source: Figure 1, EBA letter "Mill Water Pond – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

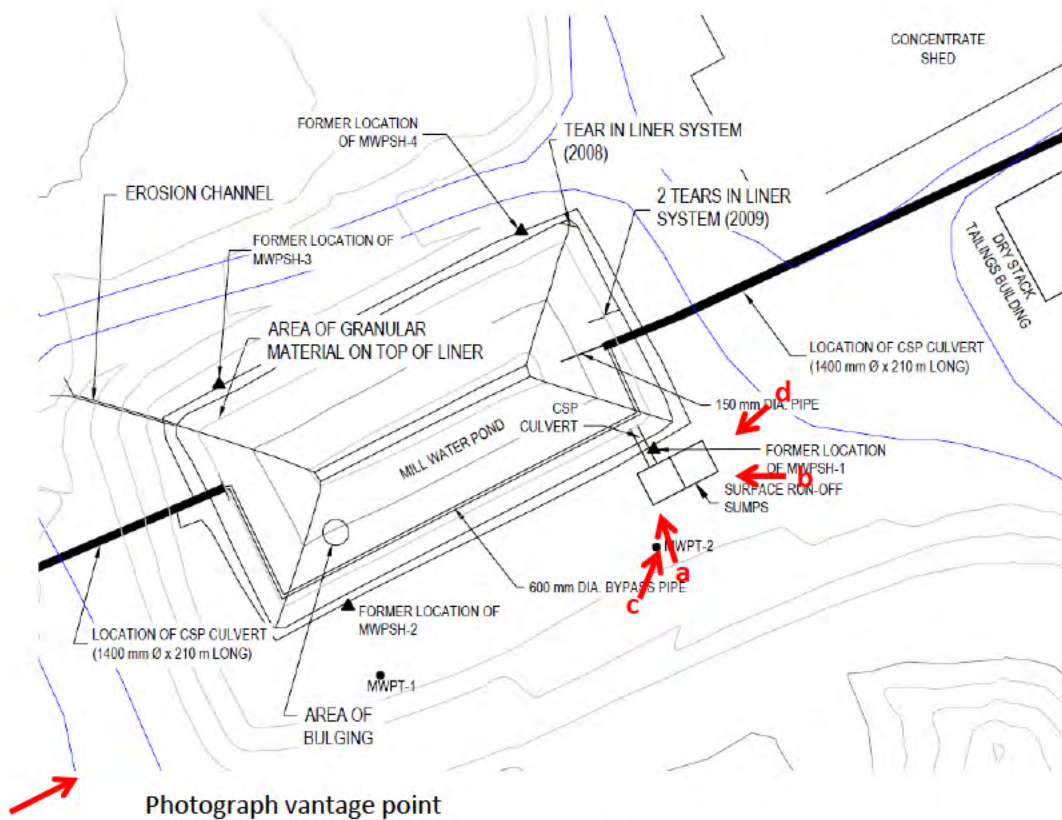
		2012 Geotechnical Annual Review		
		Mill Pond Water		
Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	Minto Mine	Date: November 2012	Approved: PHM	Figure: 14

8 Mill Water Pond

- Photos show the condition of the surface runoff ponds south east of the mill water pond.
- There are significant sediments in both ponds, each culvert, and outside the ponds to the east. It is recommended that each pond/culvert be cleaned.

Recommendations

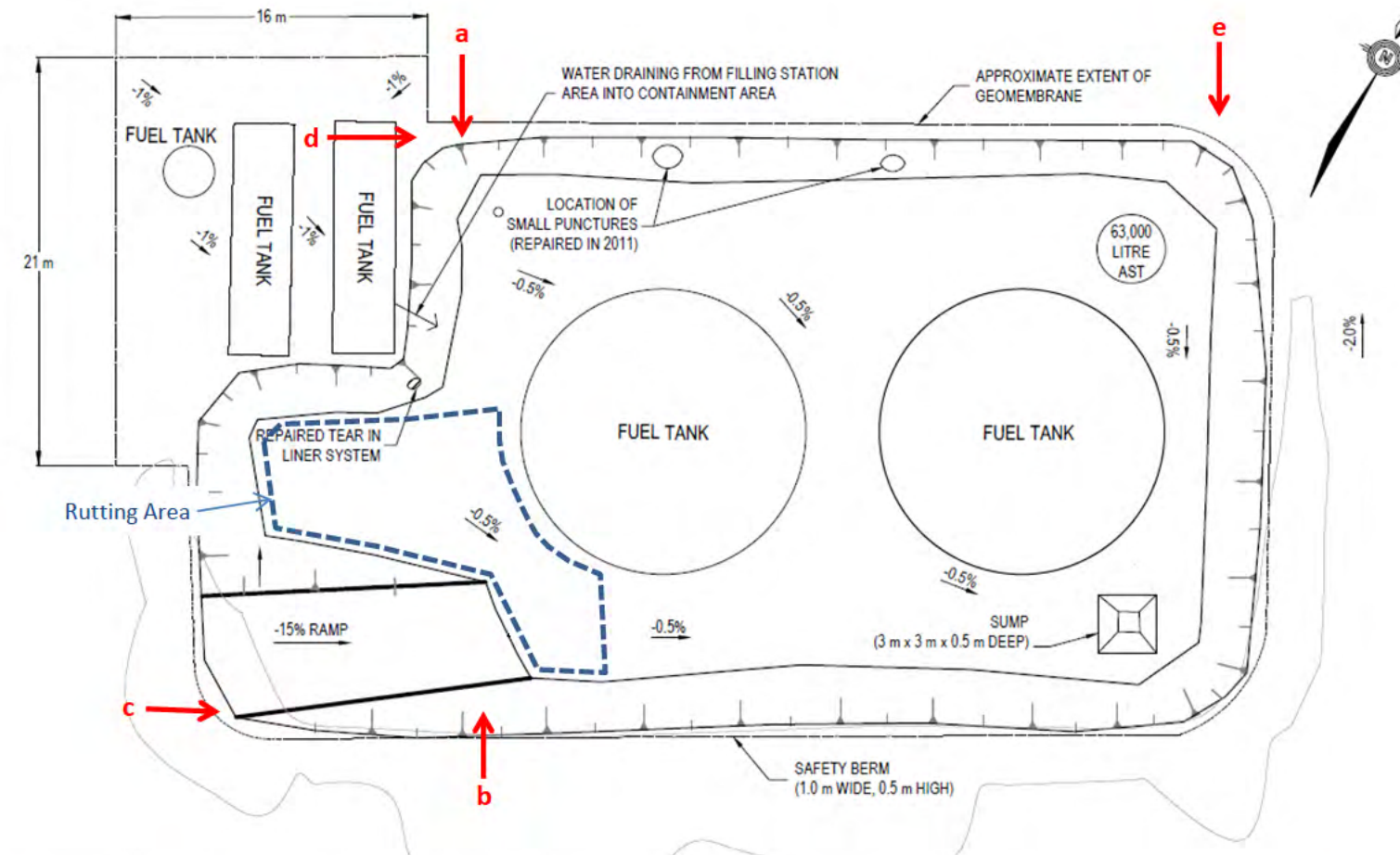
- The liner tears should be patched the next time a liner crew is onsite. For the liner tear noted in Photo (c), Figure 14, sand should be placed to fill the void beneath the tear.
- The liner condition beneath the bypass pipe supports should continue to be monitored.
- The sediments accumulated in the surface runoff ponds and culverts should be cleaned out.



Source: Figure 1, EBA letter "Mill Water Pond – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

		2012 Geotechnical Annual Review		
		Mill Pond Water		
Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	Minto Mine	Date: November 2012	Approved: PHM	Figure: 15

9 Fuel Containment Facility



Source: Figure 1, EBA letter "Fuel Containment Facility – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

→ Photograph vantage point

Observations

- Photos (a) to (e) show the condition of the liner on each side of the facility.
- Conditions of the facility appear to be the same as reported in the 2011 review.
- No tears or defects in the liner were observed.
- Ponded water is present throughout the facility.
- No ponded water was observed at the filling station area northwest of the containment area. The area appears to drain into containment area as per design.
- Ruts are present at the base of the ramp and at the western portion of the facility as seen in Photo (b). It is unclear if the ruts are new or the same as in the 2011 inspection.

Recommendations

- No actions required.
- As noted in the previous EBA inspections, the bedding layer over the geomembrane was not meant for heavy equipment. Vehicle access should be limited to the occasional visit with low ground pressure equipment.



Job No: 1CM002.006.400
 Filename: Minto 2012 Site Inspection.ppt



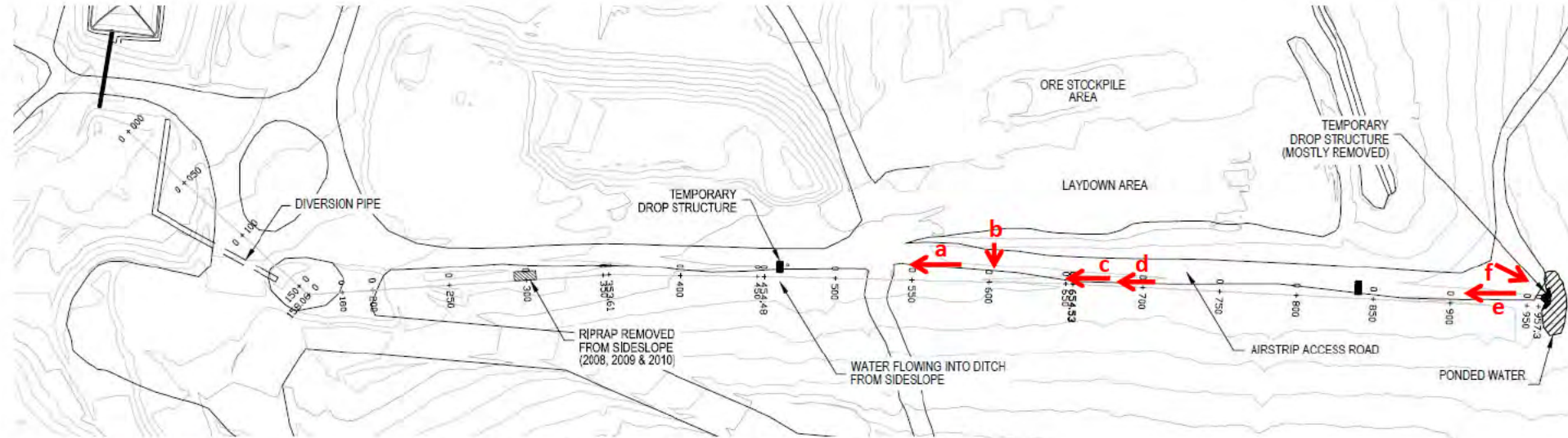
Minto Mine

2012 Geotechnical Annual Review

Fuel Containment Facility

Date: November 2012
 Approved: PHM
 Figure: 16

10 South Diversion Ditch



Source: Figure 1, EBA letter "South Diversion Ditch – 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

- STA 0+540 to 0+957 of the ditch were inspected during the site visit. The lower portion of the channel has been blocked off at a road crossing at STA 0+540 with flow diverted through two 16" HDPE pipes.
- The 2011 Annual Review completed by EBA notes that the upper portion of the channel is a lined ditch constructed to the specifications outlined in the "South Diversion Ditch Collection Pond IFC drawings, Figures SD1 through SD3, dated July 2007.
- The channel is generally in good condition with no blockages or instability along the side-slopes.
- The area of settlement noted in the 2011 annual review between STA 0+600 and 0+650 was not observed.

- a) View of pooled water at the downstream end of the channel near STA 0+540 and road crossing.
- b) Exposed liner at the top of the south bank near STA 0+600.
- c) View looking downstream of the two 16" HDPE pipelines and vegetation. Pounded water is present
- d) Obstructed view of the inlet structure to two 16" HDPE diversion pipes. Vegetation up to 6 feet high has become established in the area.
- e) Upper portion of the channel looking downstream from near the inlet structure.
- f) Pounded water present at the inlet structure. It is understood that the drop structure is in place to provide a water source for exploration drilling activities.



Recommendations

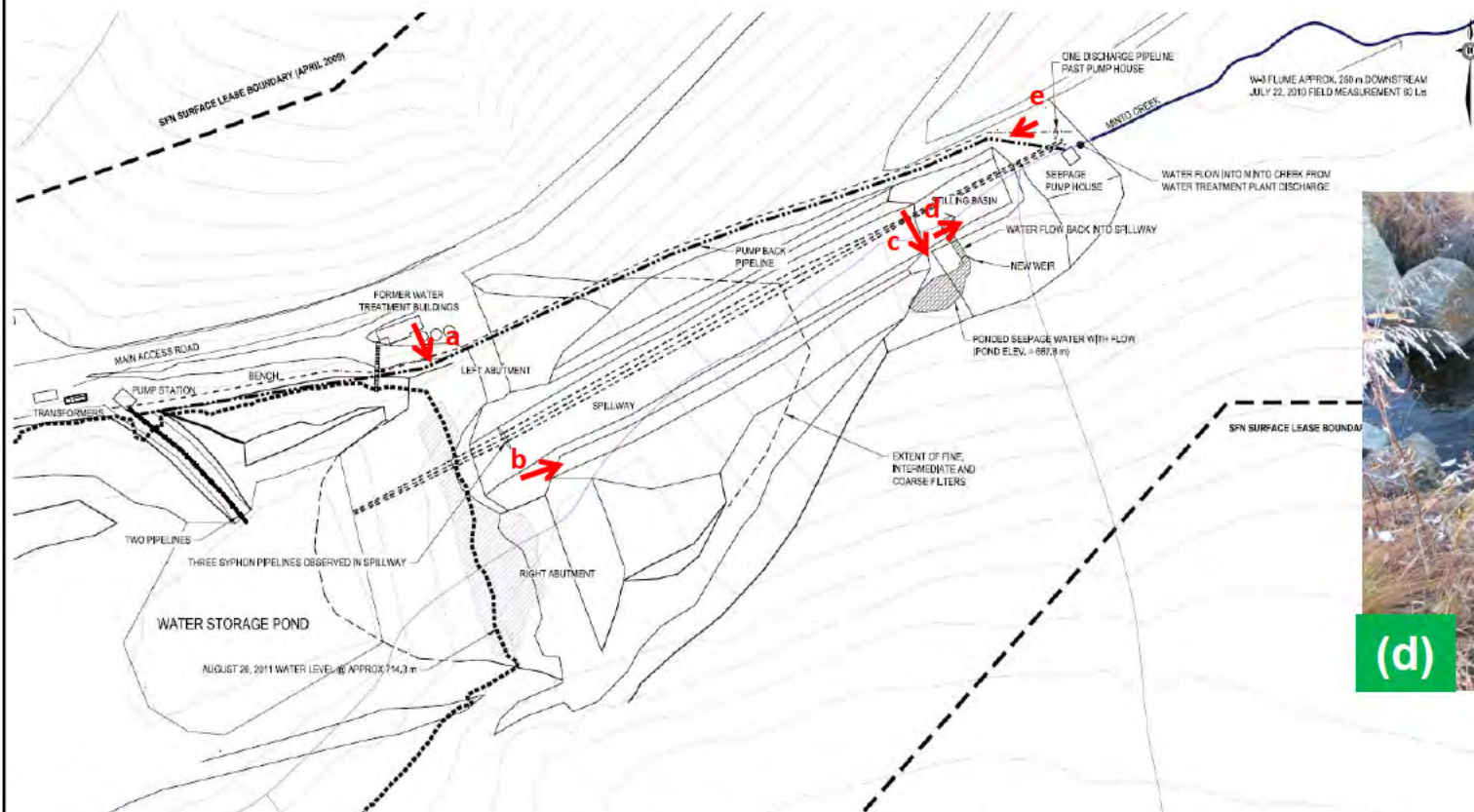
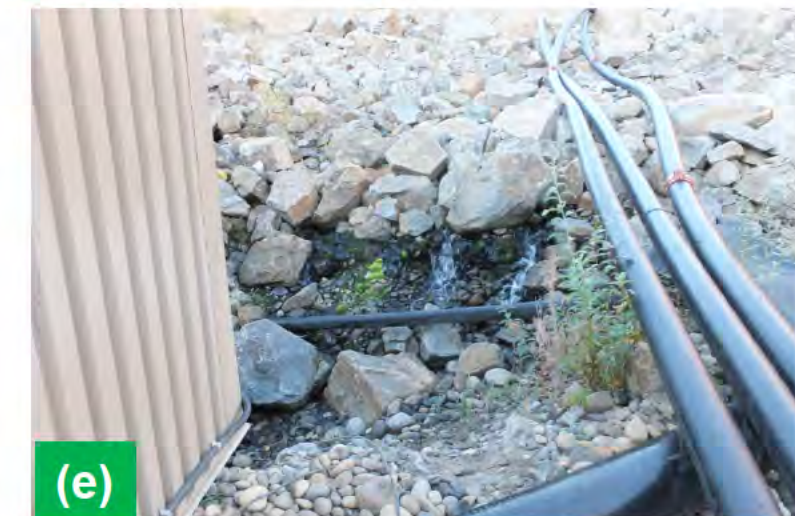
- To increase the capacity of flow into the diversion piping, it is recommended that the vegetation be removed. If the downstream portion of the channel is re-established (between STA. 0+540 and 0+650), vegetation along the channel should also be removed to increase flow capacity.
- The exposed liner should be covered as per the channel design.

		2012 Geotechnical Annual Review		
		South Diversion Ditch		
Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	Minto Mine	Date: November 2012	Approved: PHM	Figure: 17

11 Water Storage Pond Dam



- Conditions of the dam appear to be unchanged since the 2011 Physical Observation Report issued by EBA on Oct. 5, 2011.
 - The WSP water level was estimated to be approximately the same as during the 2011 (714.3 m) estimated based on photographs provided in the 2011 report.
- The crest, upstream slope and abutments shows no signs of instability (settlement, bulging, slumping).
 - During the 2011 inspection, a minor erosion channel was noted in the general fill in the water treatment building pads. The erosional channel could not be found during the 2012 inspection.
 - View of the downstream slope and spillway.
 - Three 200 mm diameter siphon pipelines are present in the spillway that run from the water storage pond to the seepage pump house.
 - No signs of instability, settlement or erosion were observed on the downstream slopes or abutment areas.
 - The ponded seepage water as noted in the 2008 to 2011 inspection reports can be seen to the right of the spillway and in Photos (c) and (d).
 - View of the ponded seepage water.
 - Condition of the seepage water appears unchanged compared to the 2011 inspection.
 - Water flow could not be heard in the rockfill adjacent to the seep.
 - The water was clear with no turbidity.
 - Sediments do not appear to be accumulated within the ponded area.
 - A weir is present on the downstream side of the ponded seepage water to measure/monitor flow from the dam two.
 - The estimated flow rate at the time of inspection was 1 L/s.
 - View of the stilling basin upstream of the seepage pump house.
 - The seepage water was clear with no turbidity. No accumulation of sediments were observed.

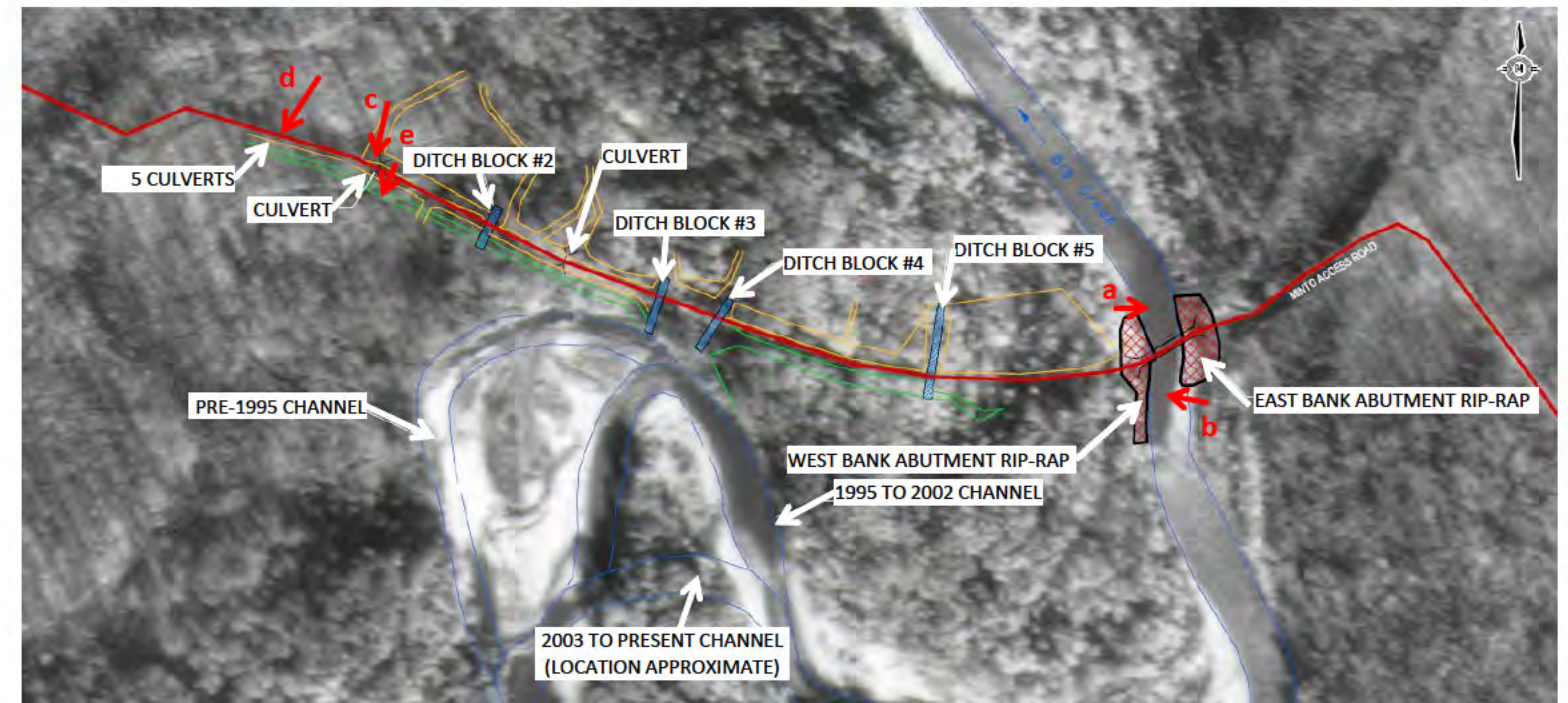


Source: Figure 1, EBA letter "Water Storage Pond Dam— 2011 Physical Observation Report, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

		2012 Geotechnical Annual Review		
		Water Storage Pond Dam		
Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	Minto Mine	Date: November 2012	Approved: PHM	Figure: 18

12 Big Creek Bridge



Source: Figure 1, EBA letter "Big Creek Bridge- 2011 Annual Review, Minto Mine, YT", dated September 30, 2011.

Photograph vantage point

- Photos (a) and (b) show east and west abutments, respectively. The bridge abutments and road approaches are in good condition, no signs of instability were observed.
- Consistent with the 2011 inspection, Ditch Block #1 (closure berm) has not been constructed, Ditch Blocks #2 through #5 are in good condition.
- The first culvert west of the bridge is in satisfactory condition. The north end of the culvert has been dented by a large rock. It appears that a compacted bedding layer has not been placed outside the culvert.
- Sediment is accumulating in the second culvert and backing up inside the culvert as shown in photo (c). Sediment accumulation should continue to be monitored and cleaned out if sediments continue to accumulate.
- Photo (d) shows 5 culverts, each with a diameter of 1.1 m, are located further west in the approximate location shown on the plan. The culverts are not noted in the 2011 inspection and likely installed within the past year. The culverts are in satisfactory condition. The middle culvert has been slightly damaged (dented) by a large rock.
- Photo (e) shows a slough in the channel on the south side of the road located approximately 10 m downstream of the first culvert. The slough does not appear to cause a significant blockage to the channel, but should continue to be monitored.

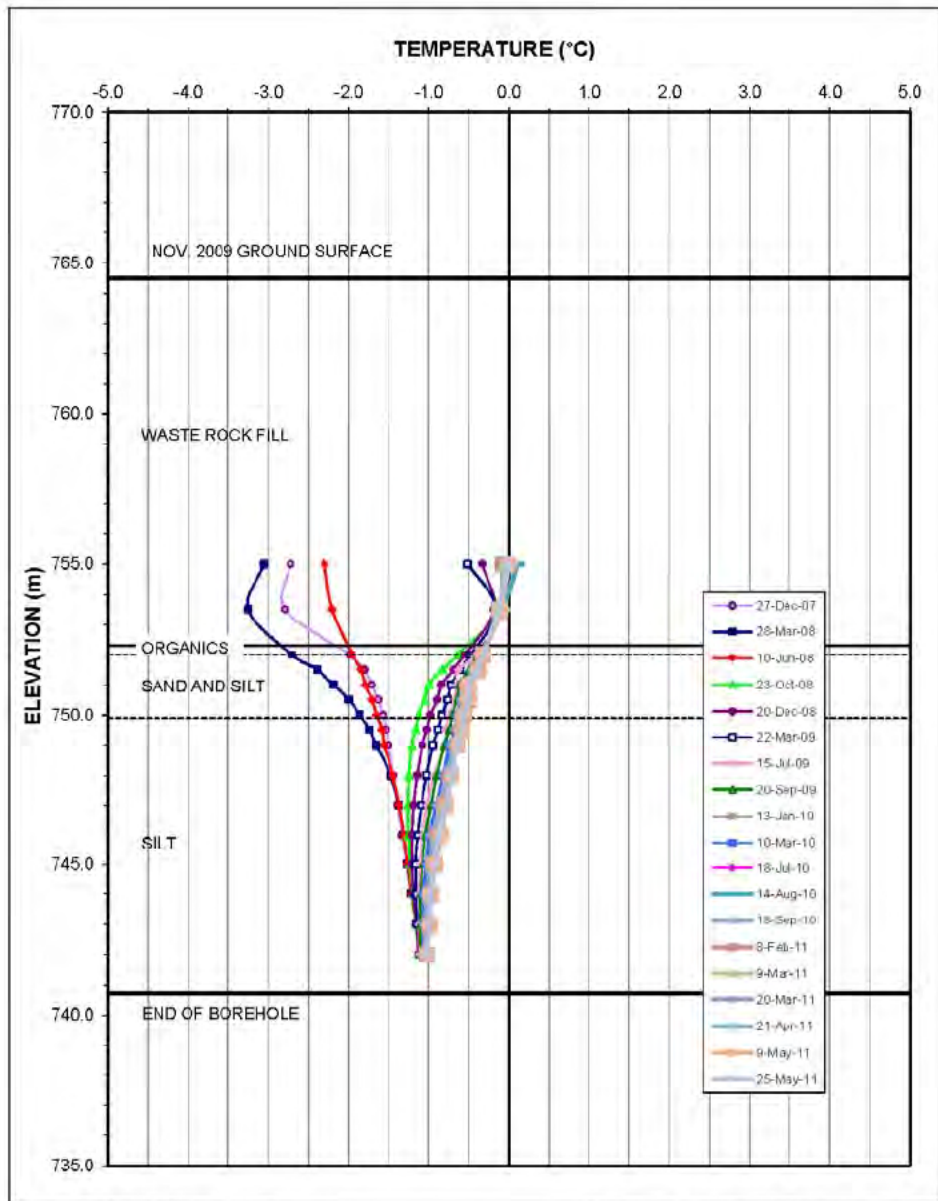
Recommendations

- Continue regular annual monitoring of sediment accumulation in the culverts, and clean out if sediments continue to accumulate.



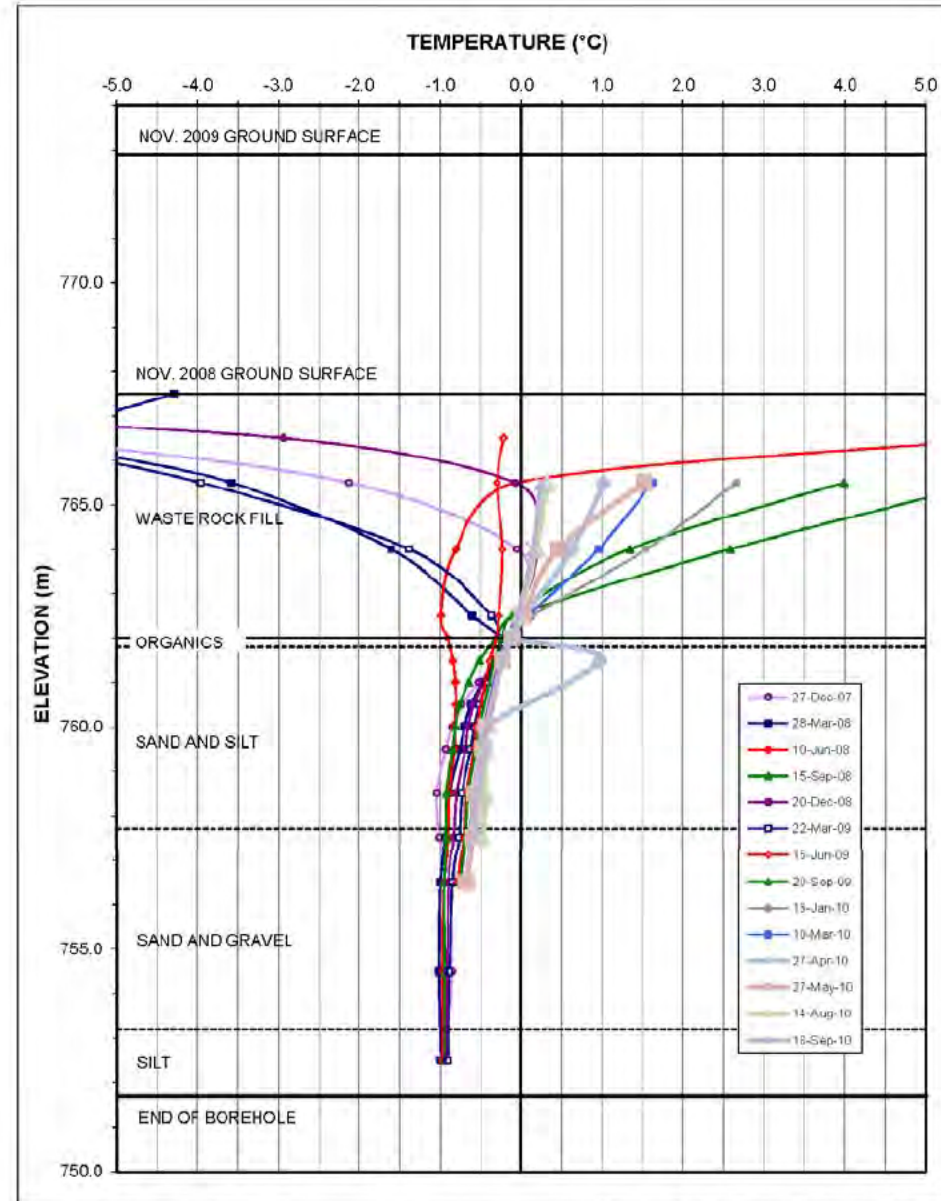
		2012 Geotechnical Annual Review		
		Big Creek Bridge		
Job No: 1CM002.006.400 Filename: Minto 2012 Site Inspection.ppt	Minto Mine	Date: November 2012	Approved: PHM	Figure: 19

Appendix B: Monitoring Instrumentation Data



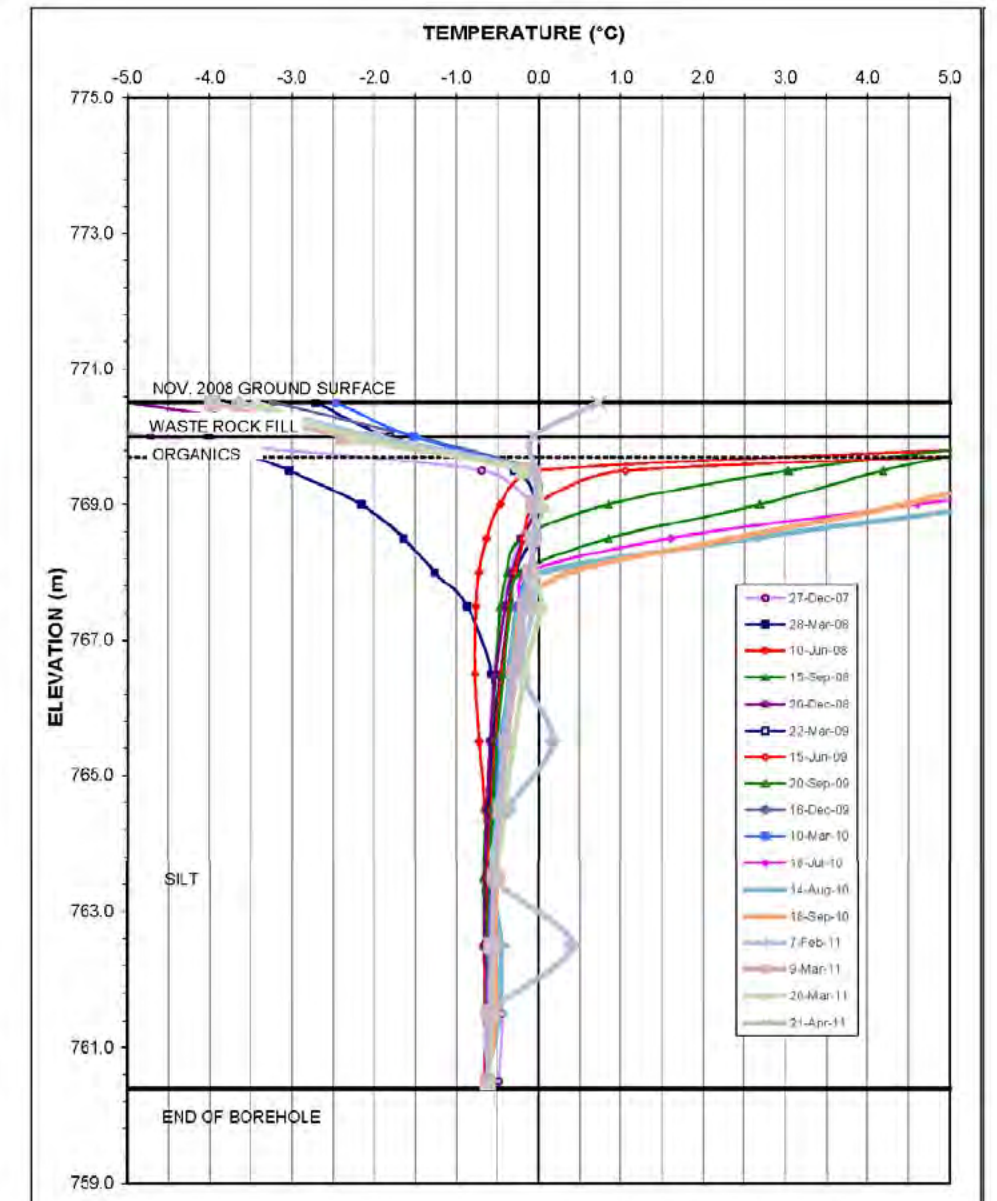
Installed: October 30, 2007
 Destroyed: July 10, 2011

Dry Stack Tailings Storage Facility
 Ground Temperature Profile - DST-1



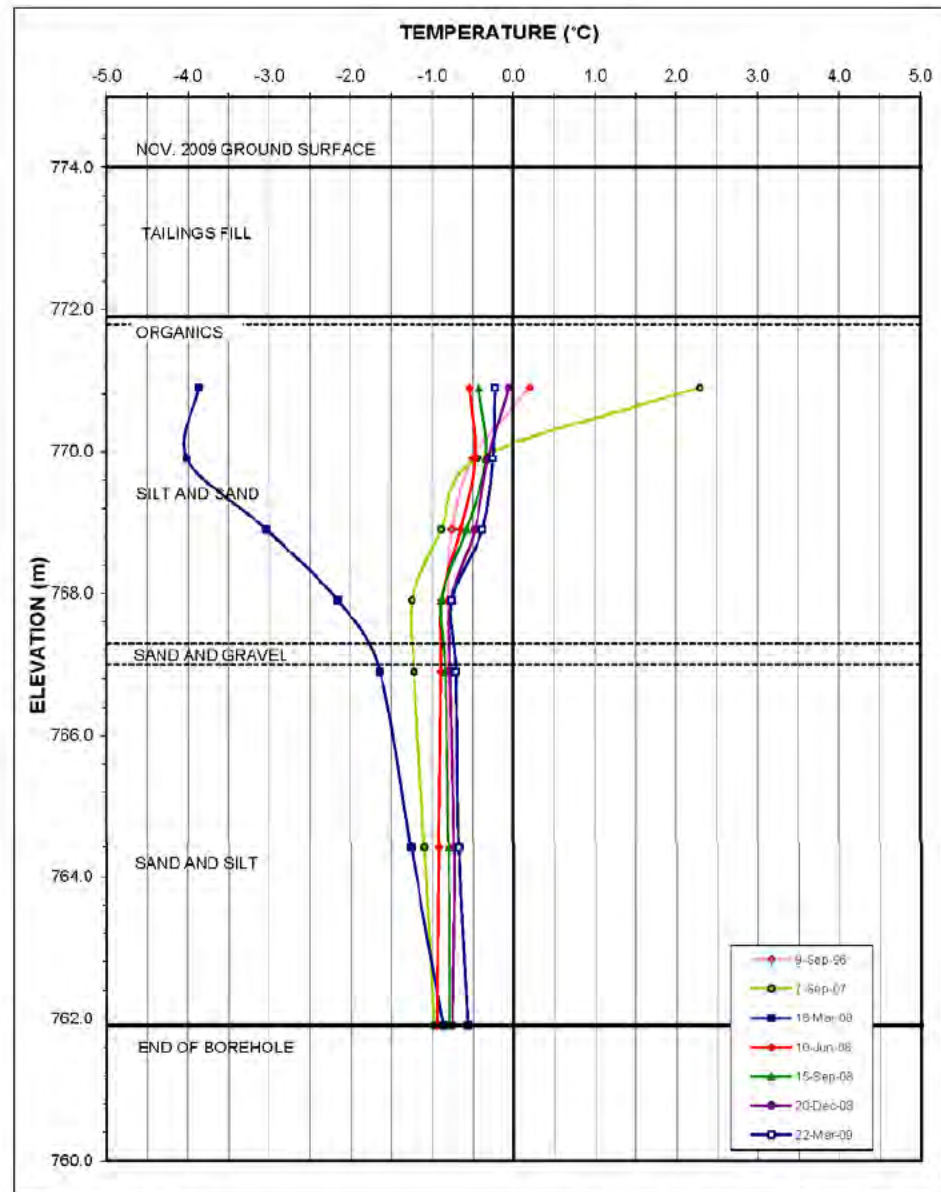
Installed: November 1, 2007
 Destroyed: 10-Jul-11

Dry Stack Tailings Storage Facility
 Ground Temperature Profile - DST-2

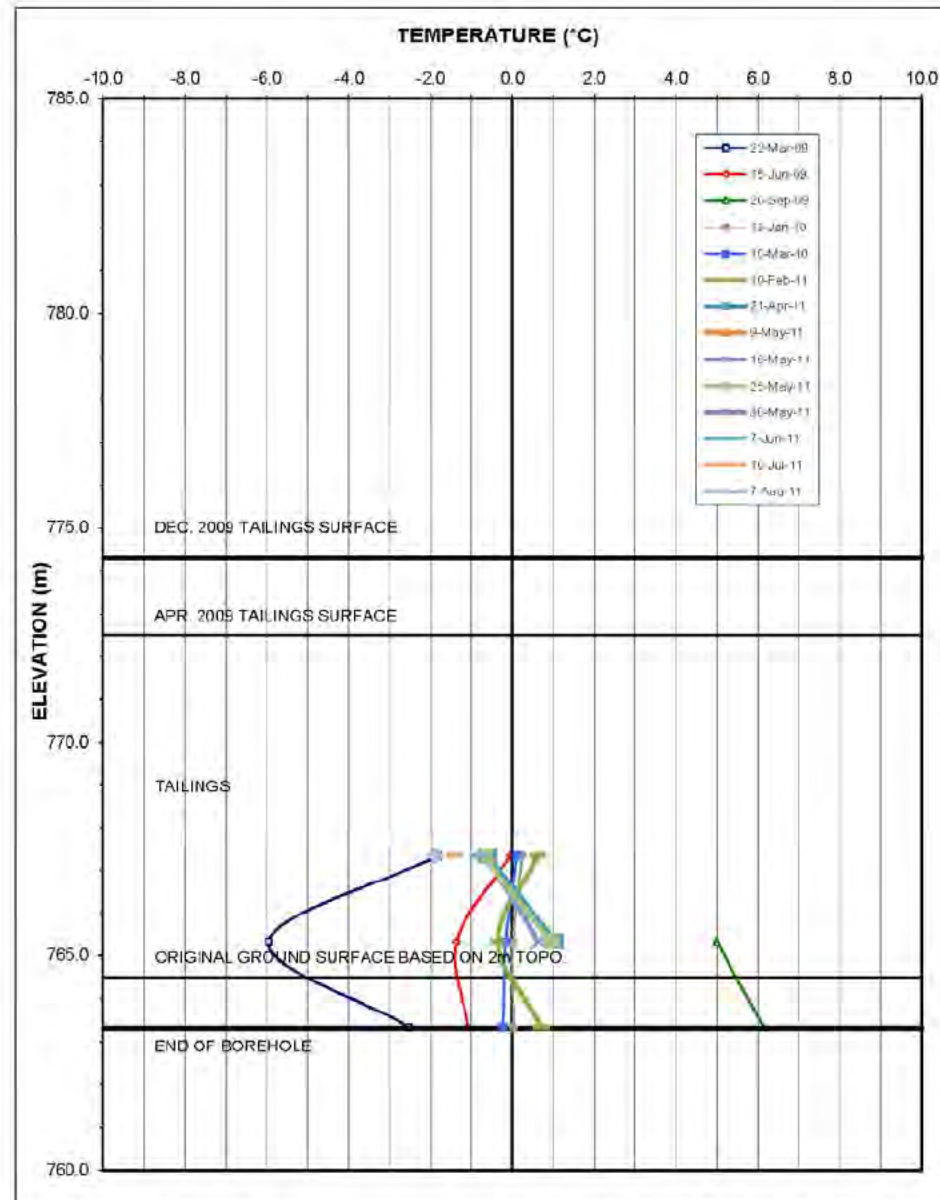


Installed: October 30, 2007
 Destroyed: May 9, 2011

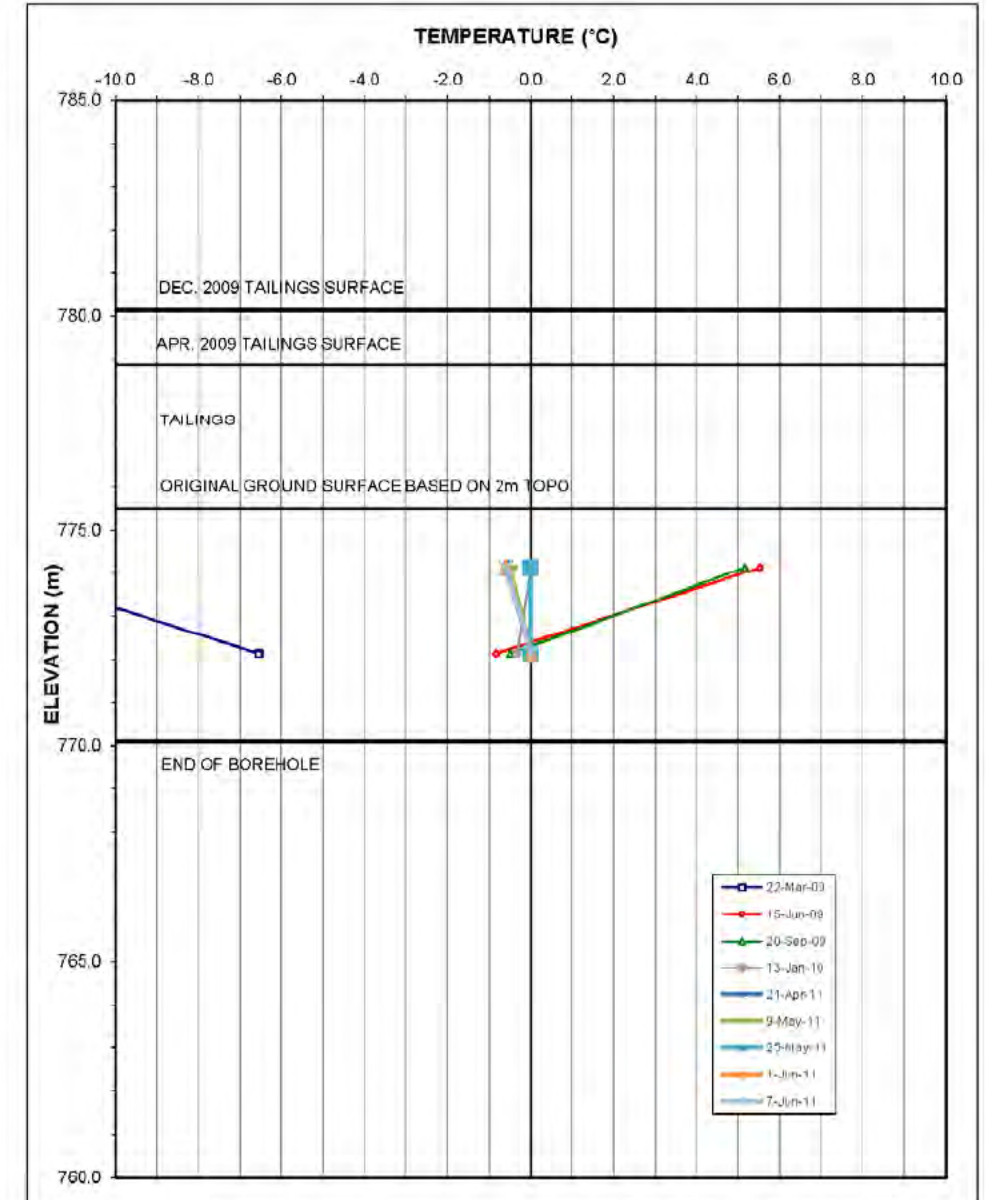
Dry Stack Tailings Storage Facility
 Ground Temperature Profile - DST-5



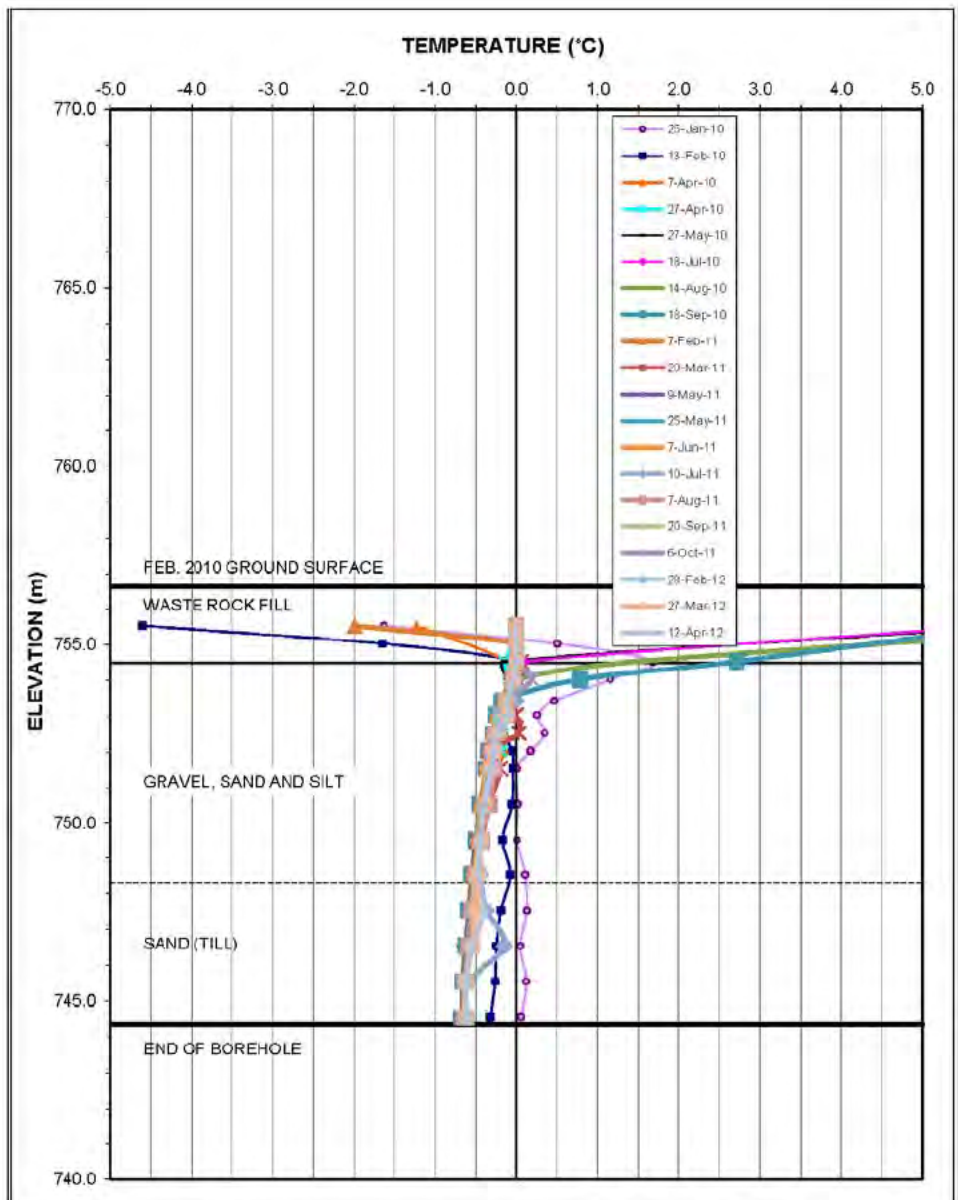
Installed: July 7, 1996
 Destroyed: 2009
**Dry Stack Tailings Storage Facility
 Ground Temperature Profile - 96-G08**



Installed: March 22, 2009
 Destroyed: August 7, 2011
**Dry Stack Tailings Storage Facility
 Ground Temperature Profile - DST-8**

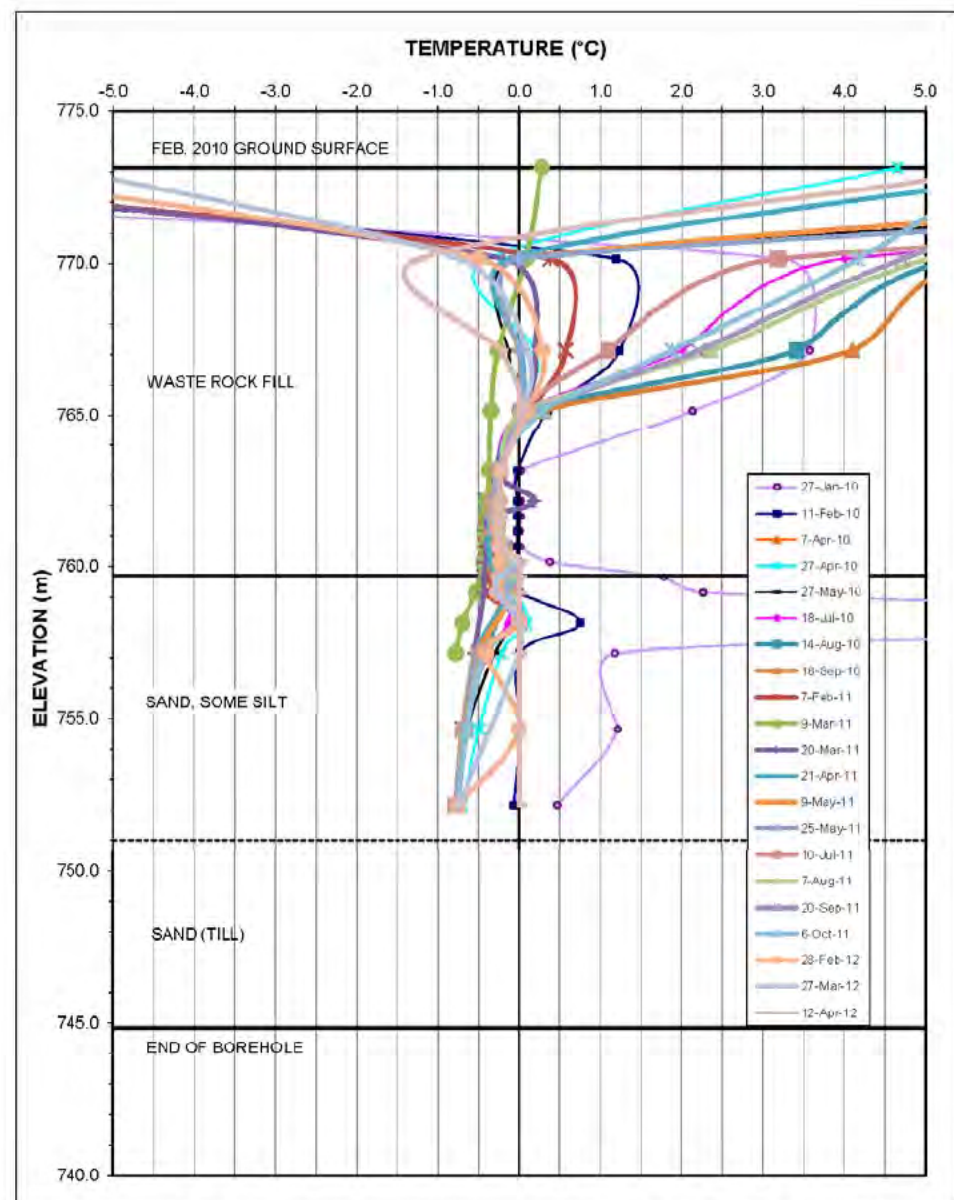


Installed: March 22, 2009
 Destroyed: August 7, 2011
**Dry Stack Tailings Storage Facility
 Ground Temperature Profile - DST-9**



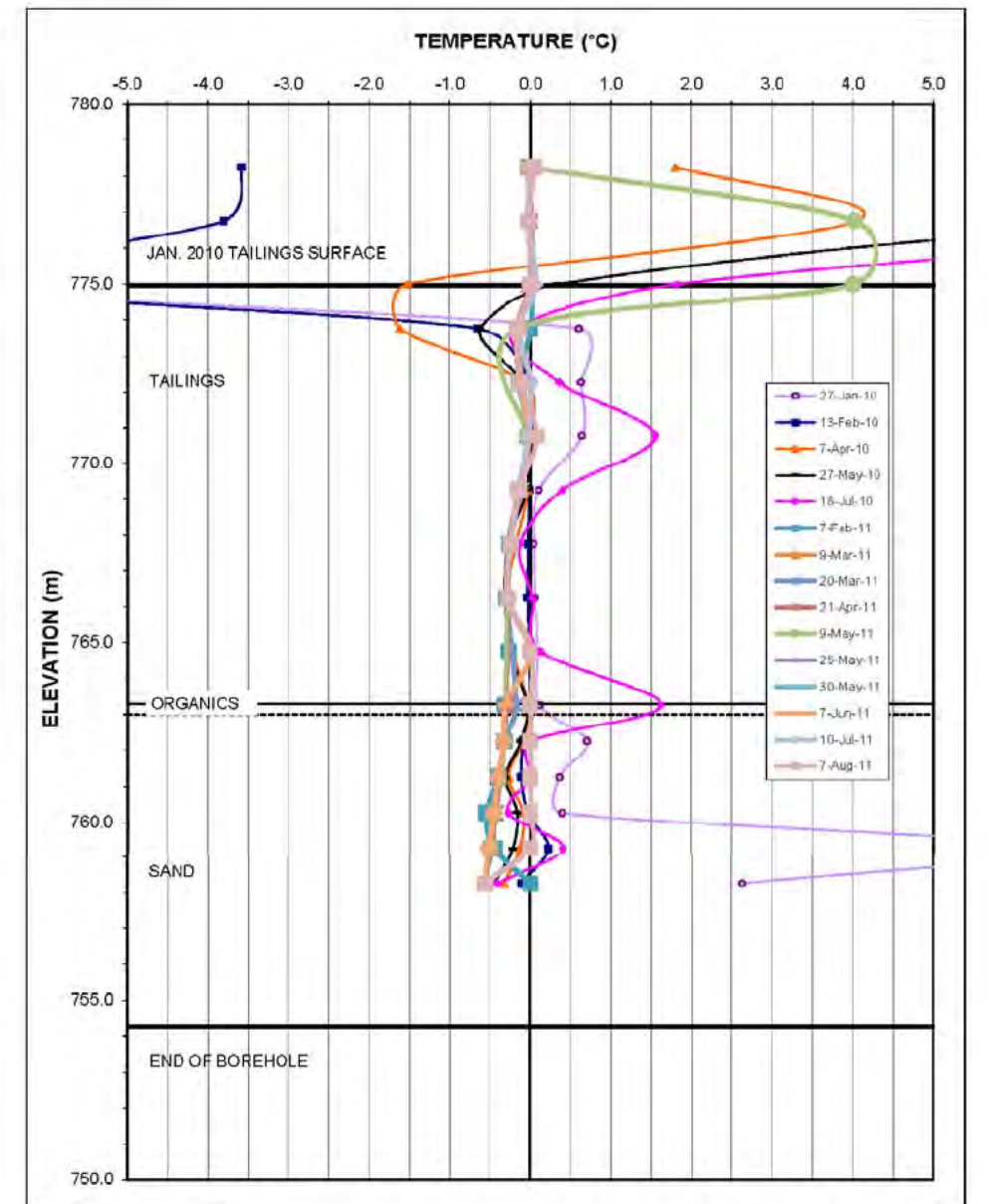
Installed: January 22, 2010

Dry Stack Tailings Storage Facility
Ground Temperature Profile - DST-3



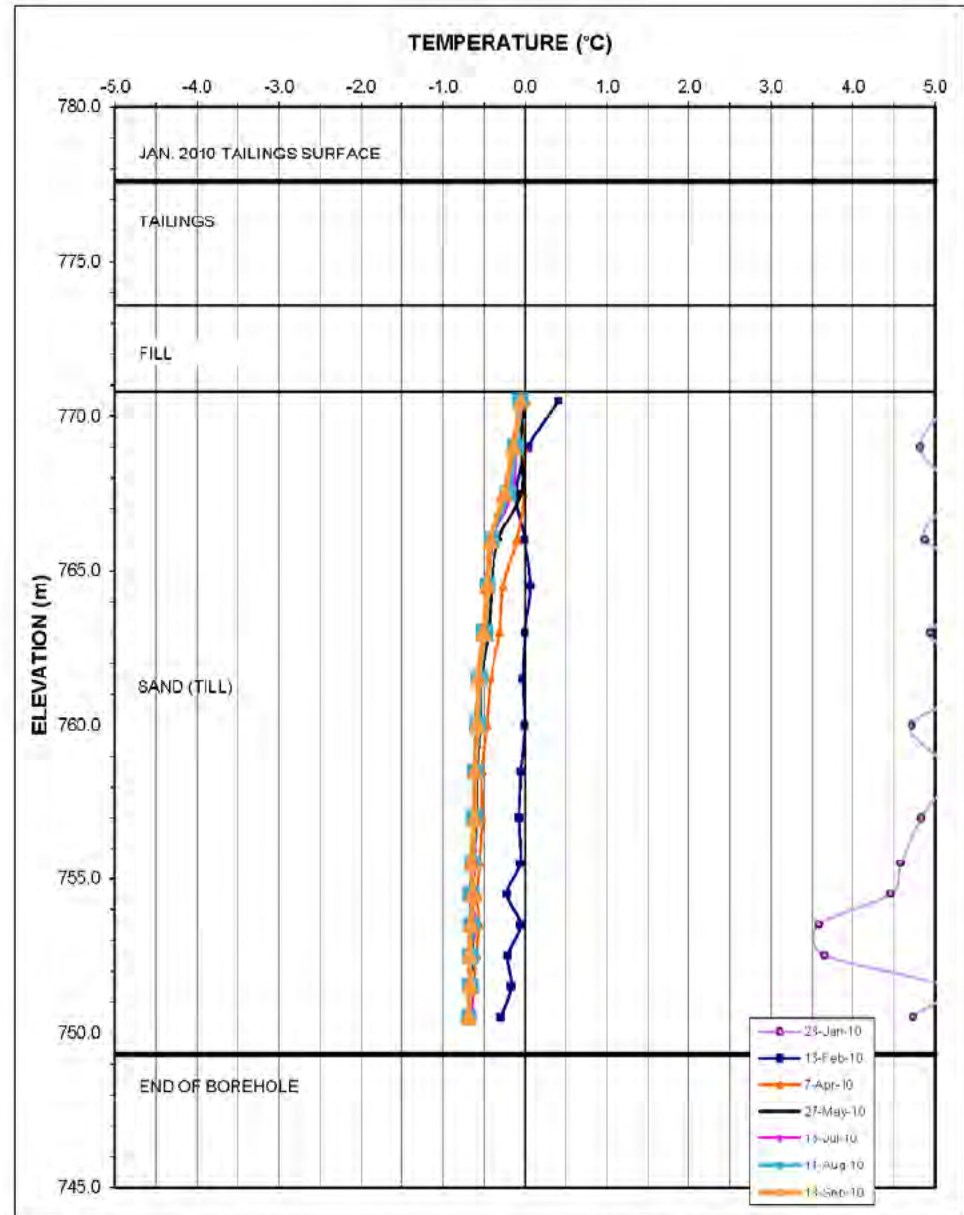
Installed: January 26, 2010

Dry Stack Tailings Storage Facility
Ground Temperature Profile - DST-4



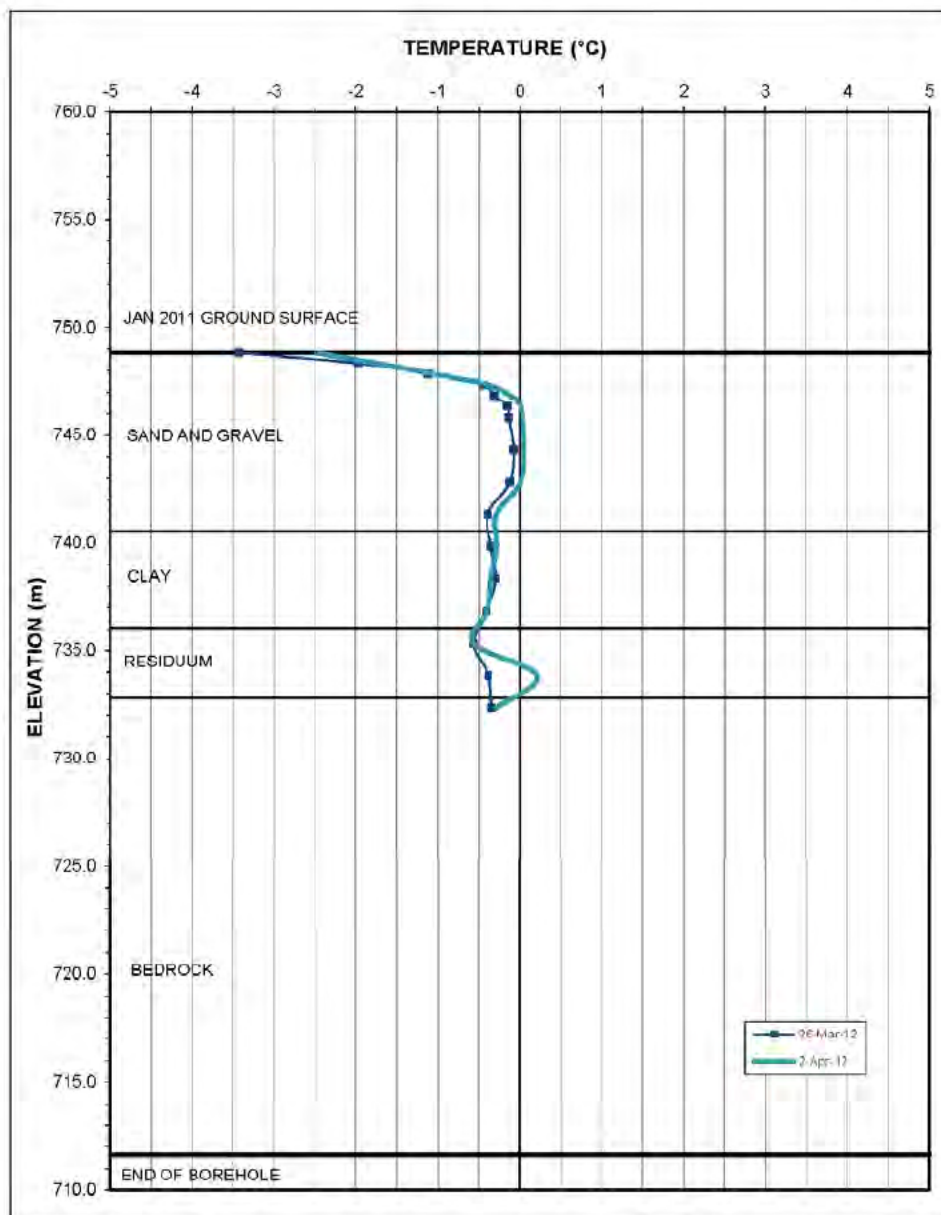
Installed: January 27, 2010
Destroyed: August 2011

Dry Stack Tailings Storage Facility
Ground Temperature Profile - DST-6



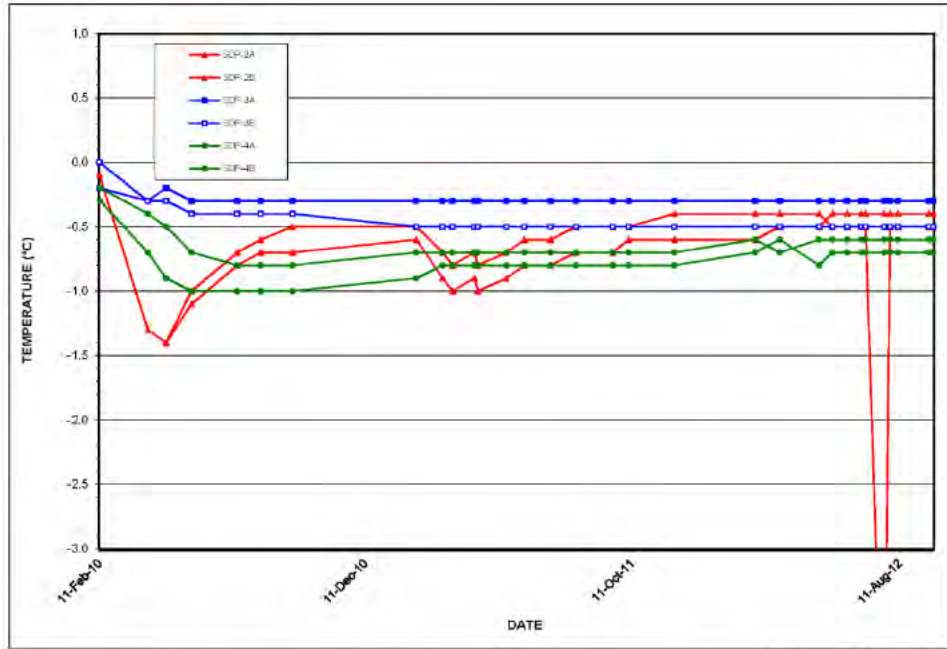
Installed: January 28, 2010
 Destroyed: September 2010

Dry Stack Tailings Storage Facility
 Ground Temperature Profile - DST-7

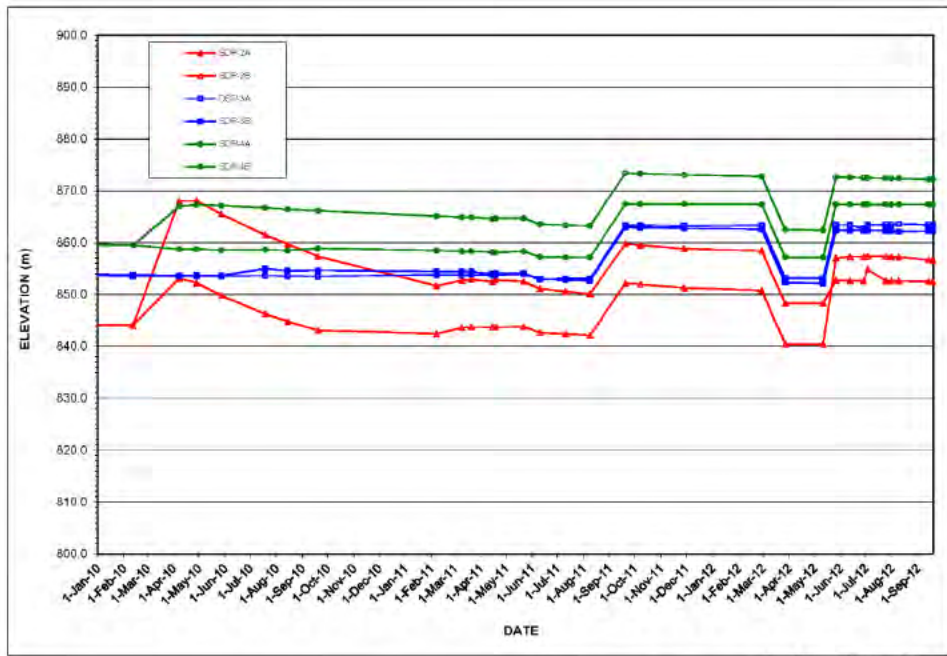


Installed: March 12, 2010

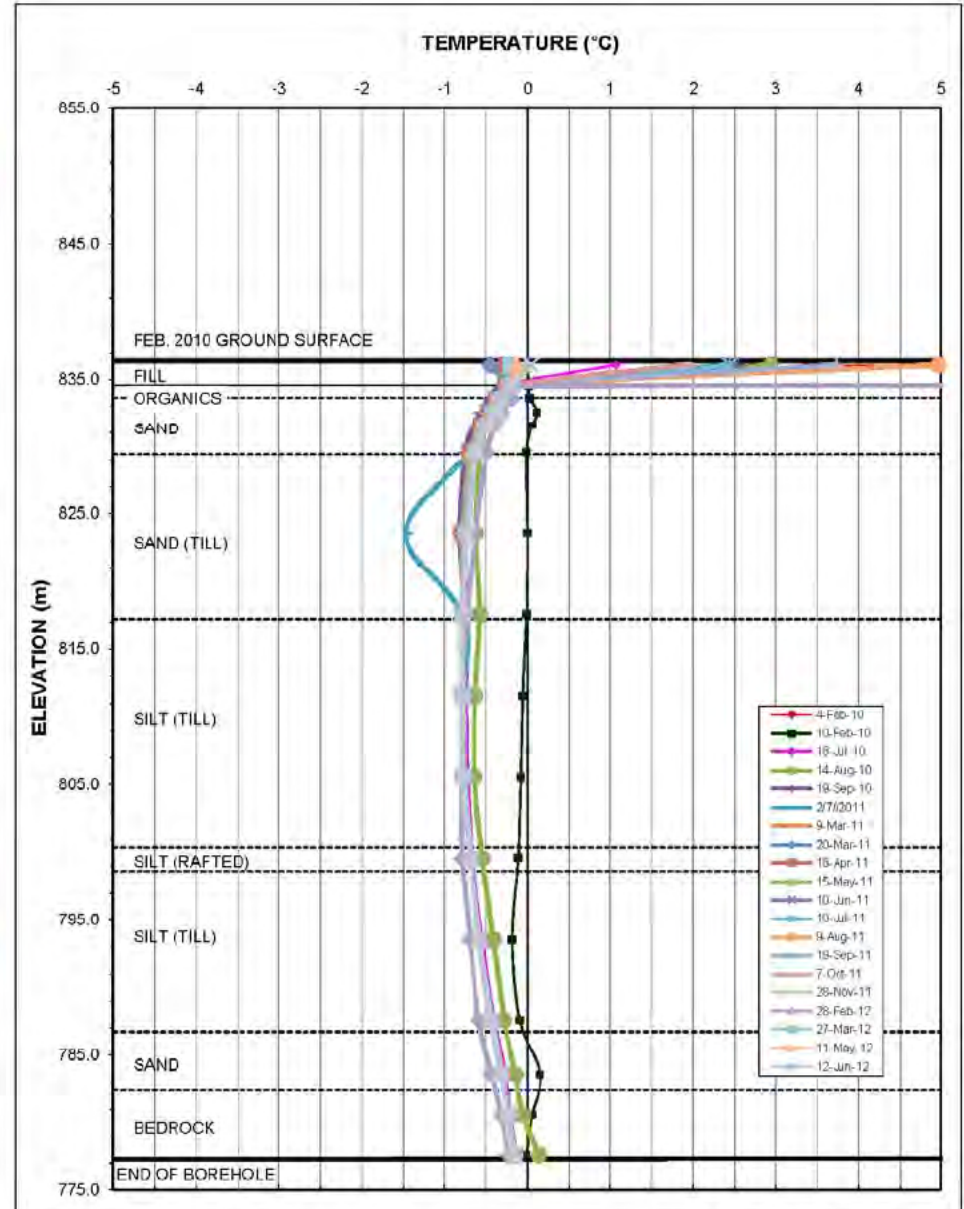
Dry Stack Tailings Storage Facility
 Ground Temperature Profile - DST-12



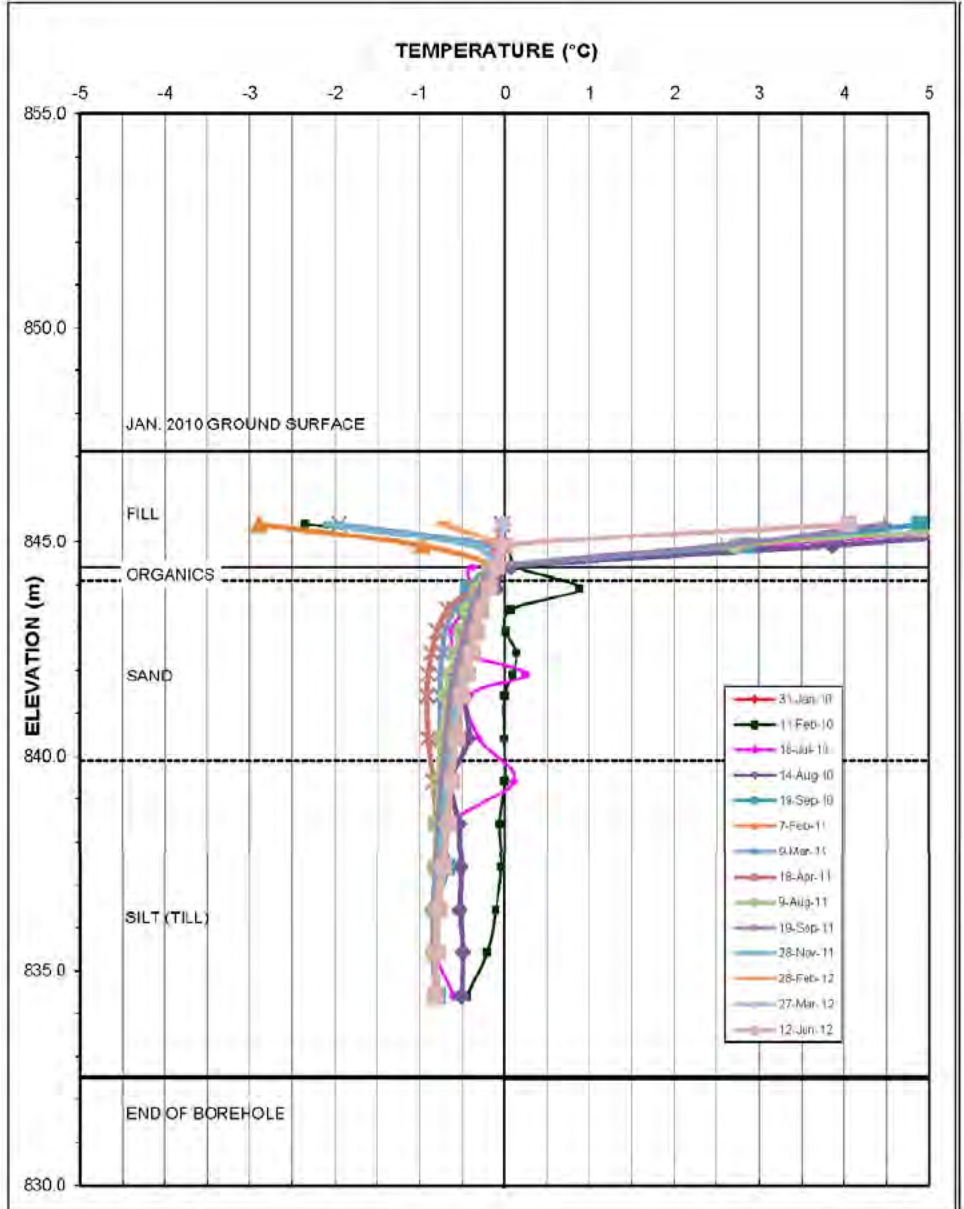
Southwest Waste Dump
Ground Temperature Profile of VW Piezometer - SDP-2A, SDP-2B, SDP-3A, SDP-3B, SDP-4A, SDP-4B



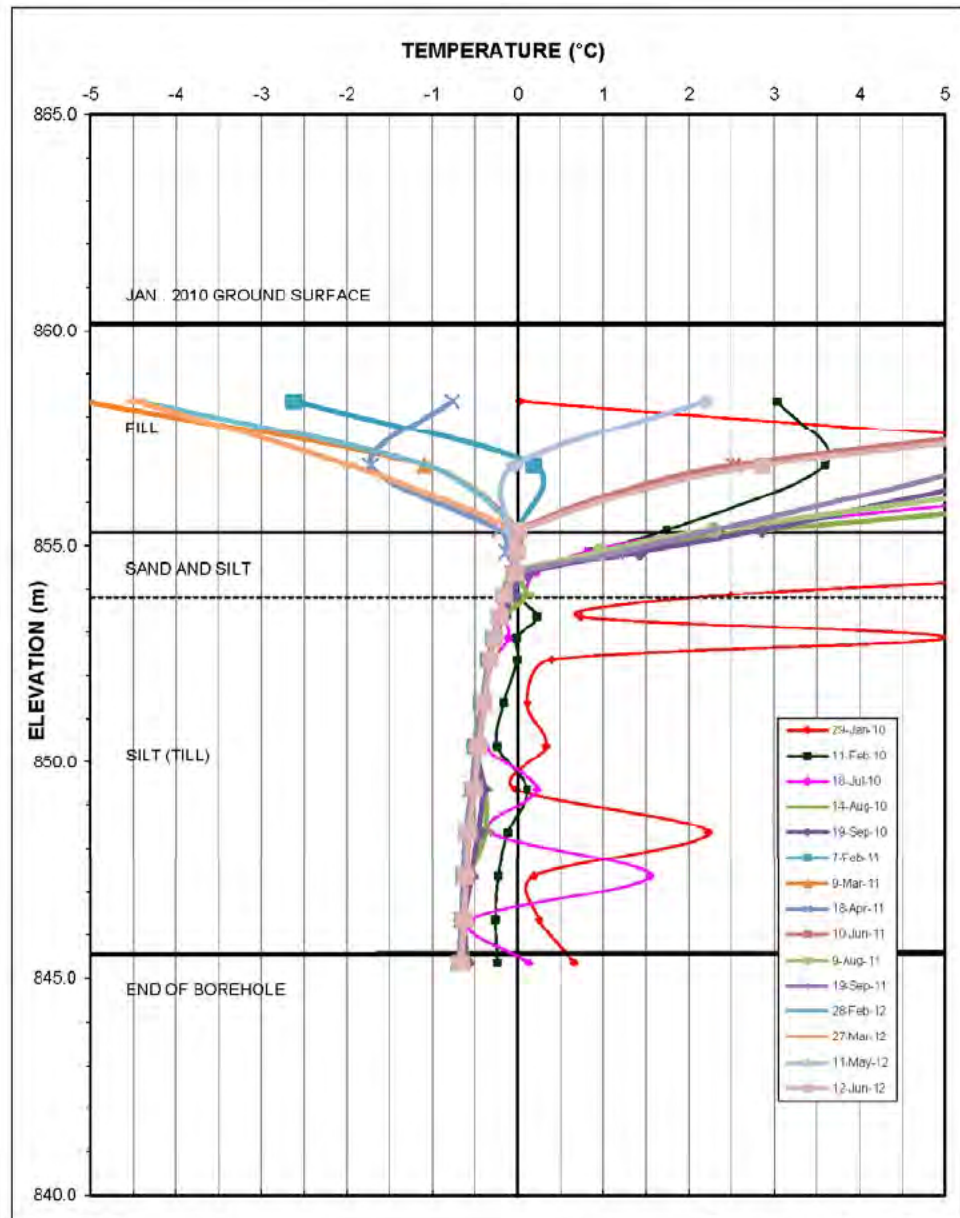
Southwest Waste Dump
Instrument Water Elevation - SDP-2A, SDP-2B, SDP-3A, SDP-3B, SDP-4A, SDP-4B



Installed: February 4, 2010
Southwest Waste Dump
Ground Temperature Profile - SDT-1

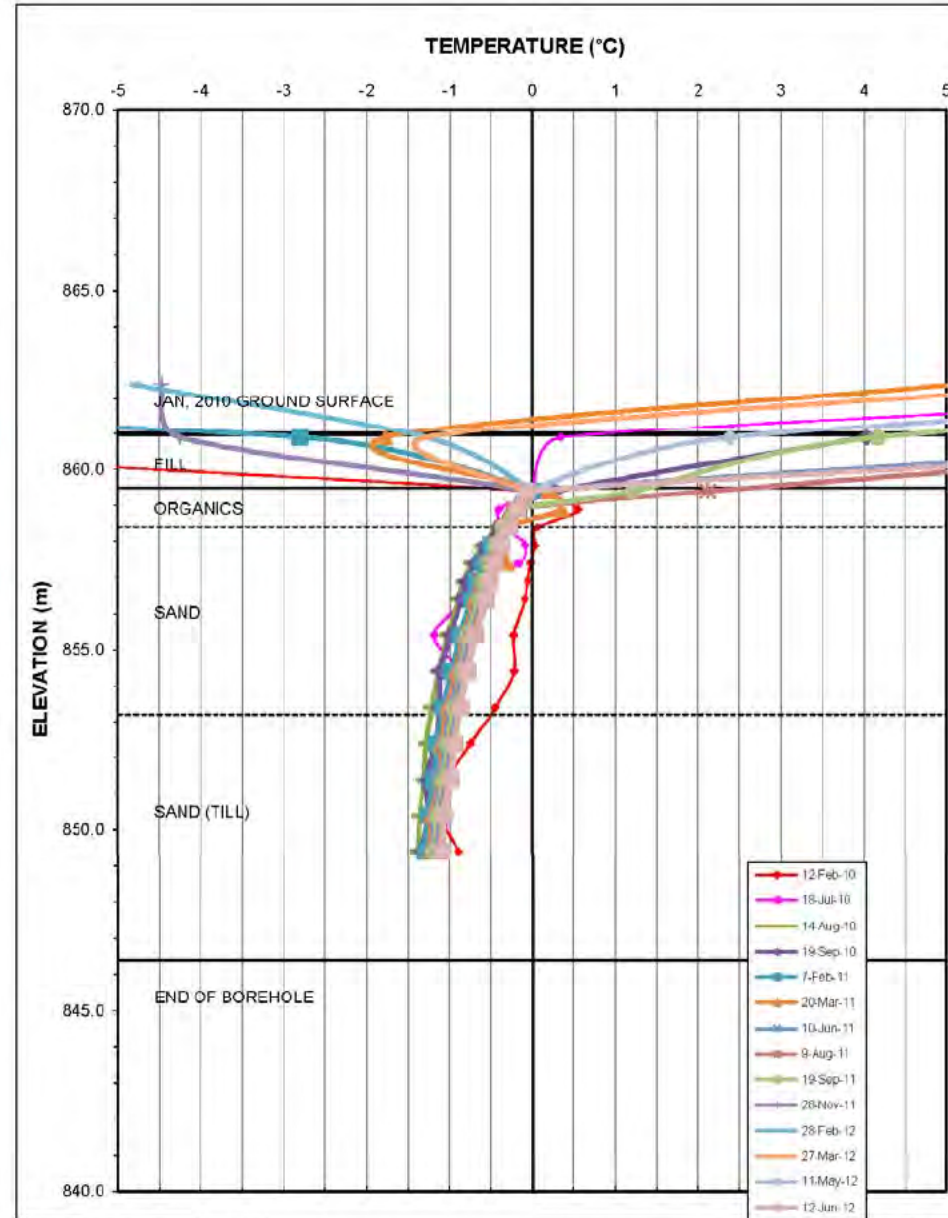


Installed: January 31, 2010
Southwest Waste Dump
Ground Temperature Profile - SDT-2



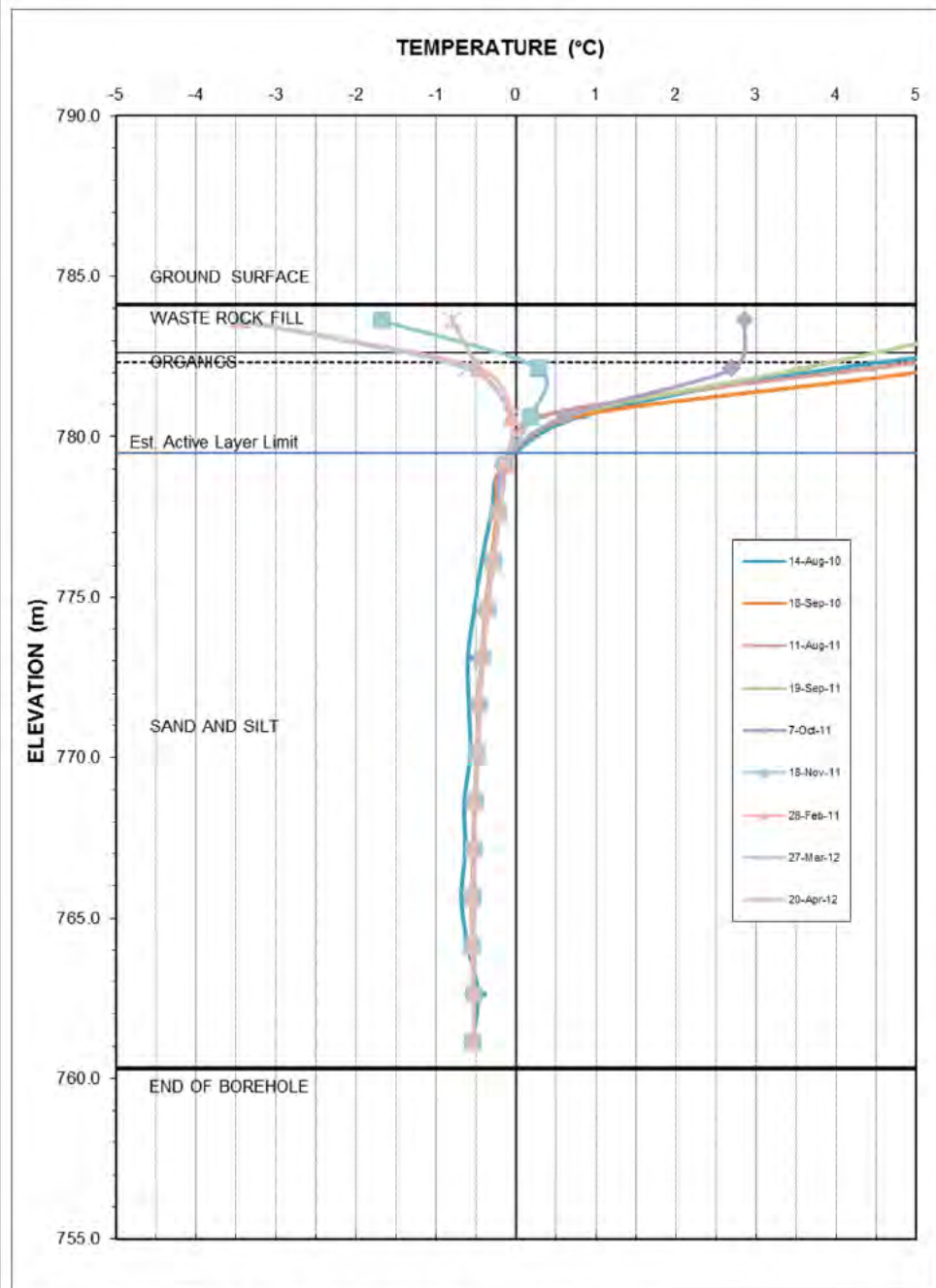
Installed: January 28, 2010

Southwest Waste Dump
Ground Temperature Profile - SDT-3

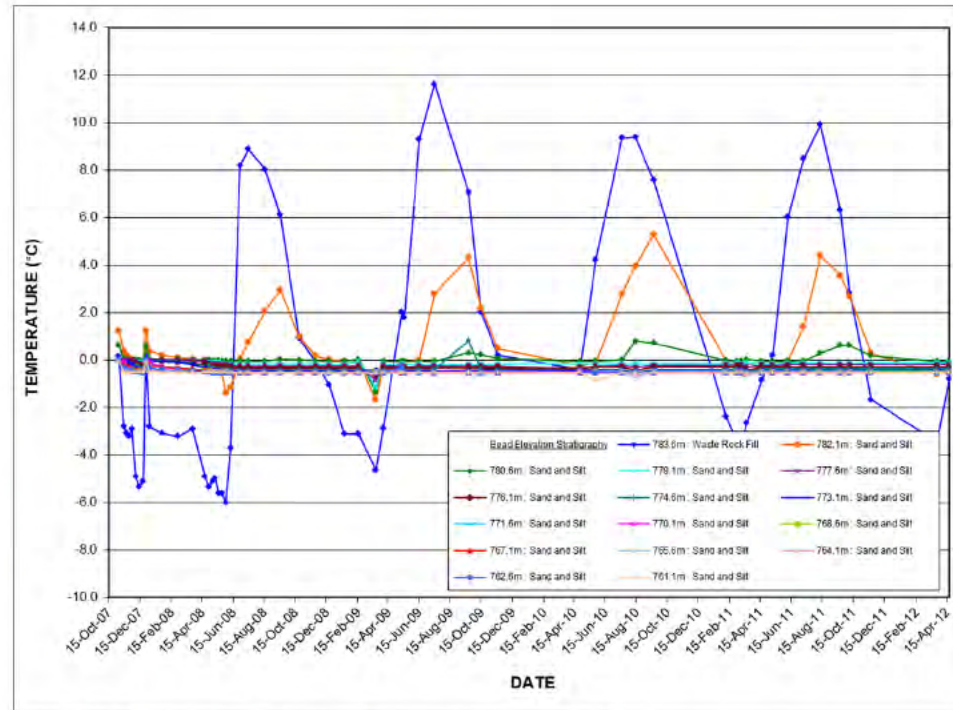


Installed: January 30, 2010

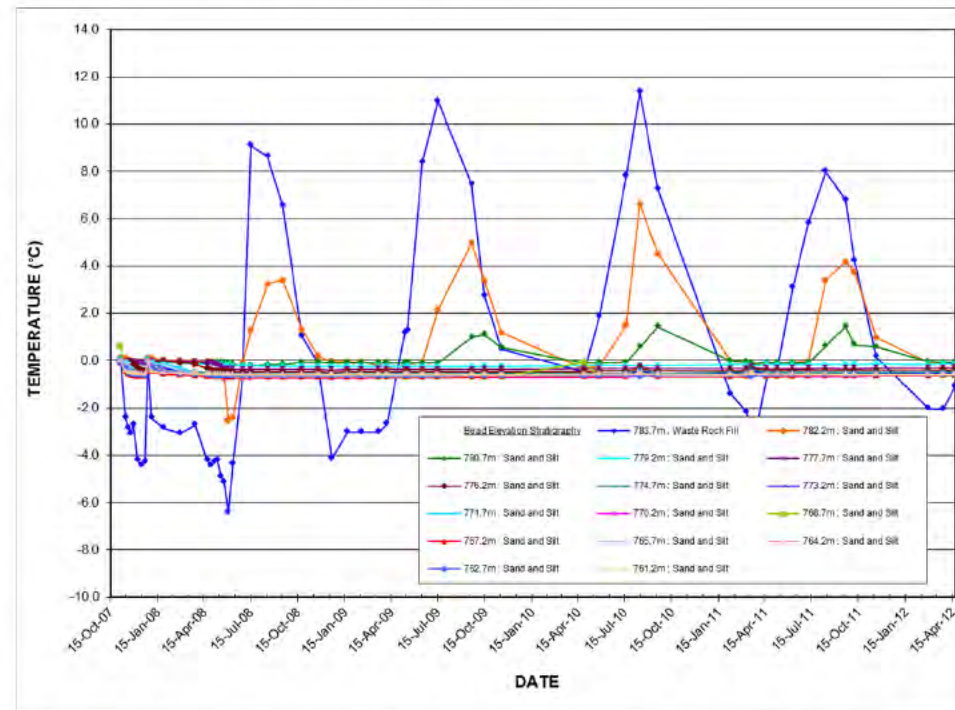
Southwest Waste Dump
Ground Temperature Profile - SDT-4



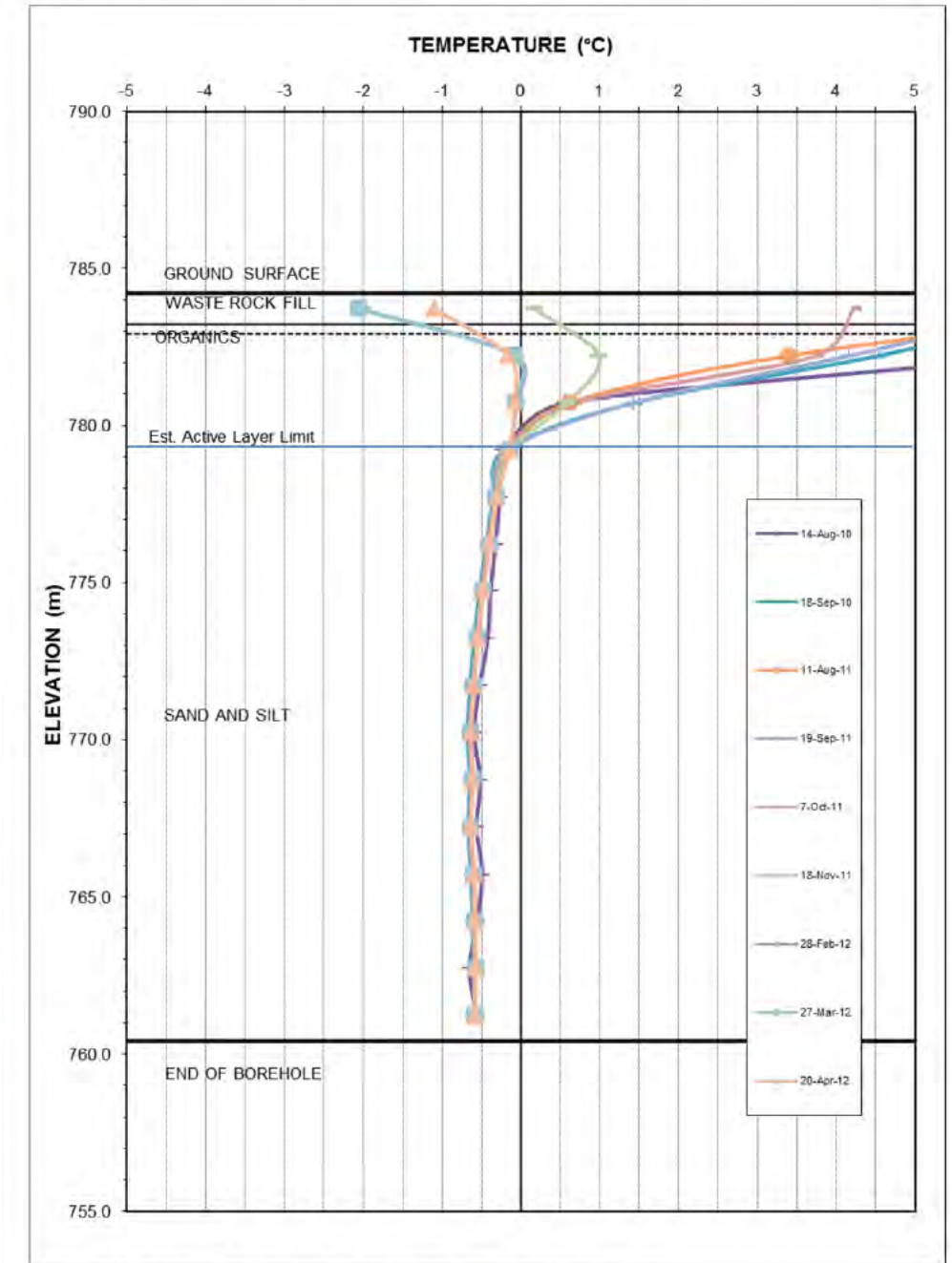
(T1) MWPT-1 Ground Temperature Profile.



(T1B) MWPT-1 Ground Temperature Profile



(T2B) MWPT-2 Ground Temperature Profile



(T2) MWPT-2 Ground Temperature Profile

Thermistors installed November 2, 2007



Job No: 1CM002.006.400
 Filename: Minto 2012 Site Inspection.ppt

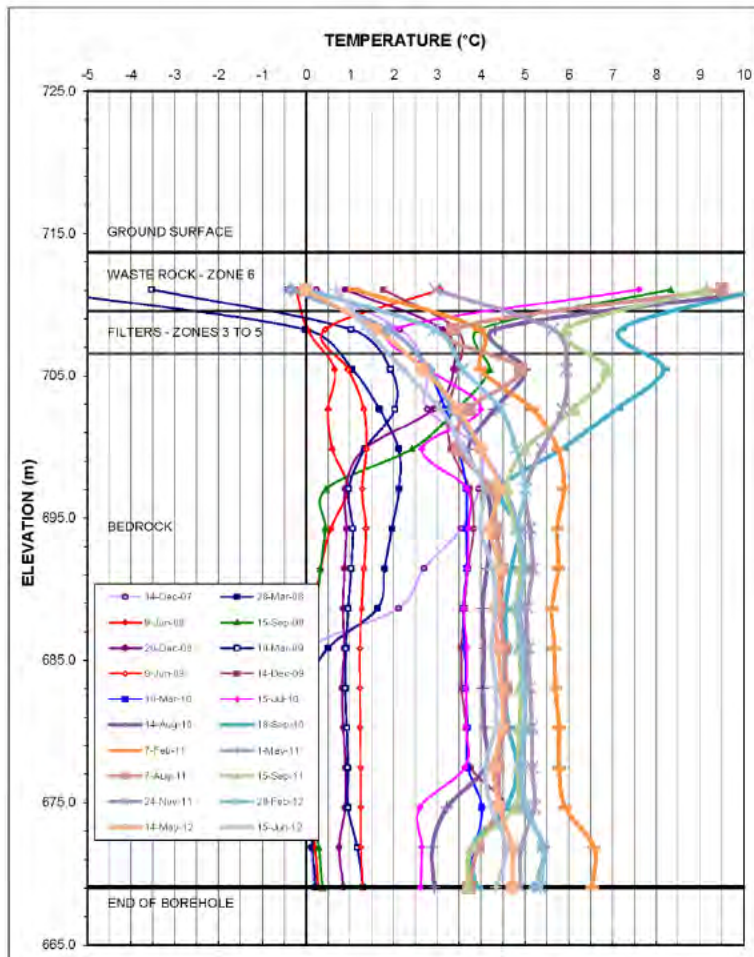


Minto Mine

2012 Geotechnical Annual Review

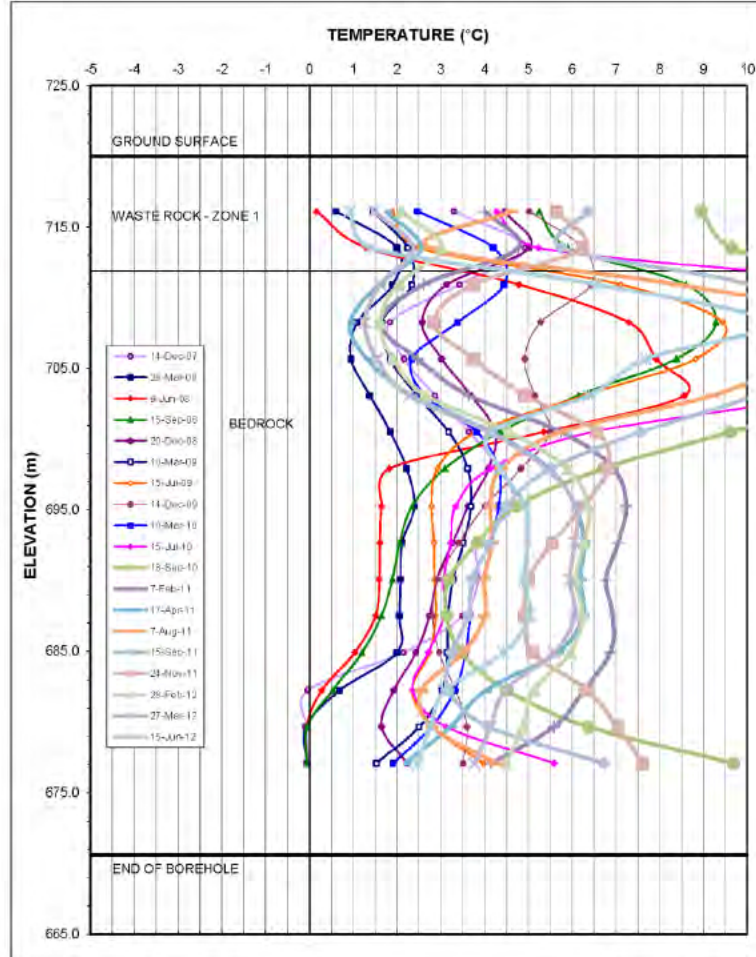
Mill Water Pond Thermistors

Date: November 2012	Approved: PHM	Figure: 7
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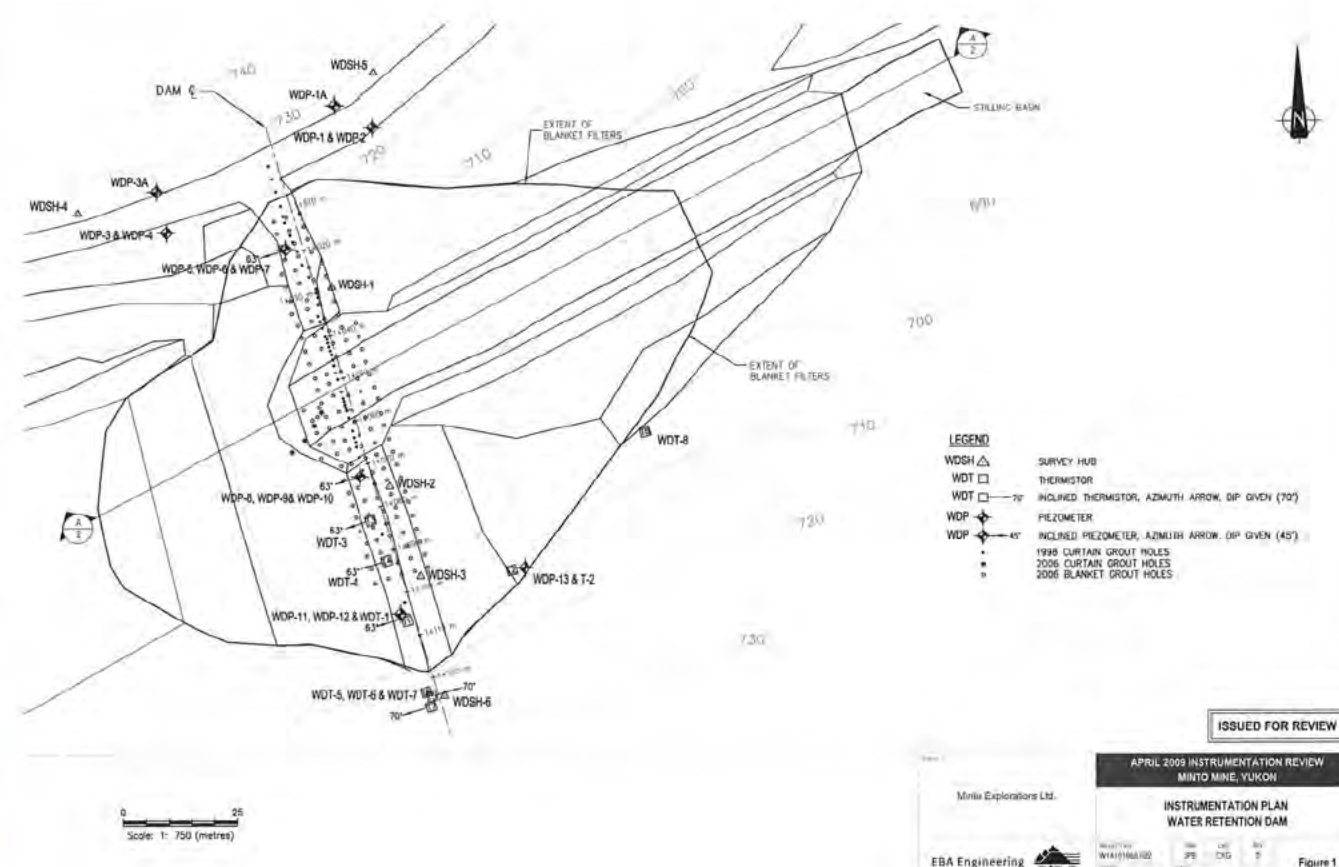
Installed: November 7, 2007

Water Storage Pond Dam
Ground Temperature Profile - WDT-2



Installed: November 16, 2007

Water Storage Pond Dam
Ground Temperature Profile - WDT-1



ISSUED FOR REVIEW

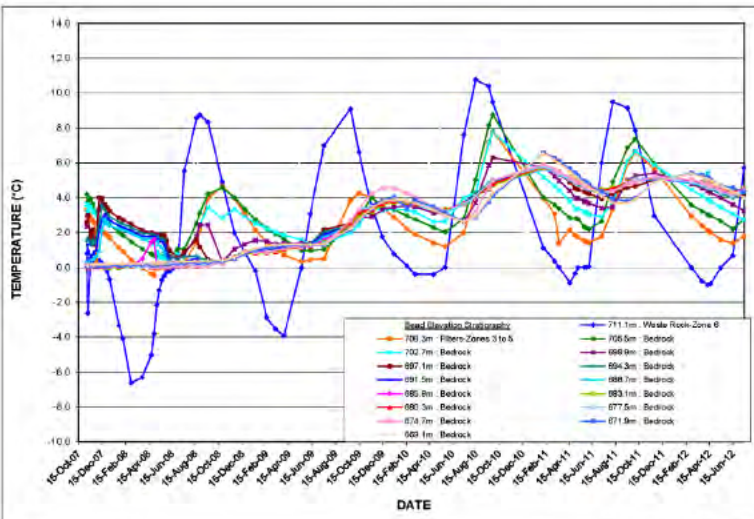
APRIL 2009 INSTRUMENTATION REVIEW
MINTO MINE, YUKON

Minto Explorations Ltd.

EBA Engineering Consultants Ltd.

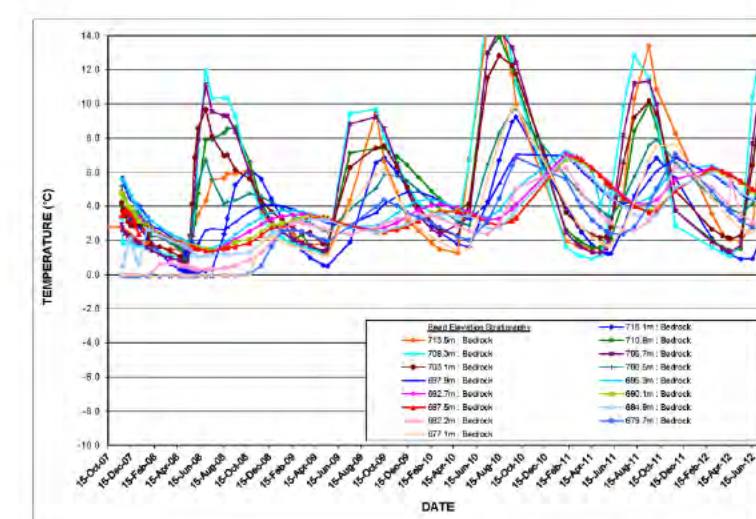
INSTRUMENTATION PLAN
WATER RETENTION DAM

Figure 1



Installed: November 7, 2007

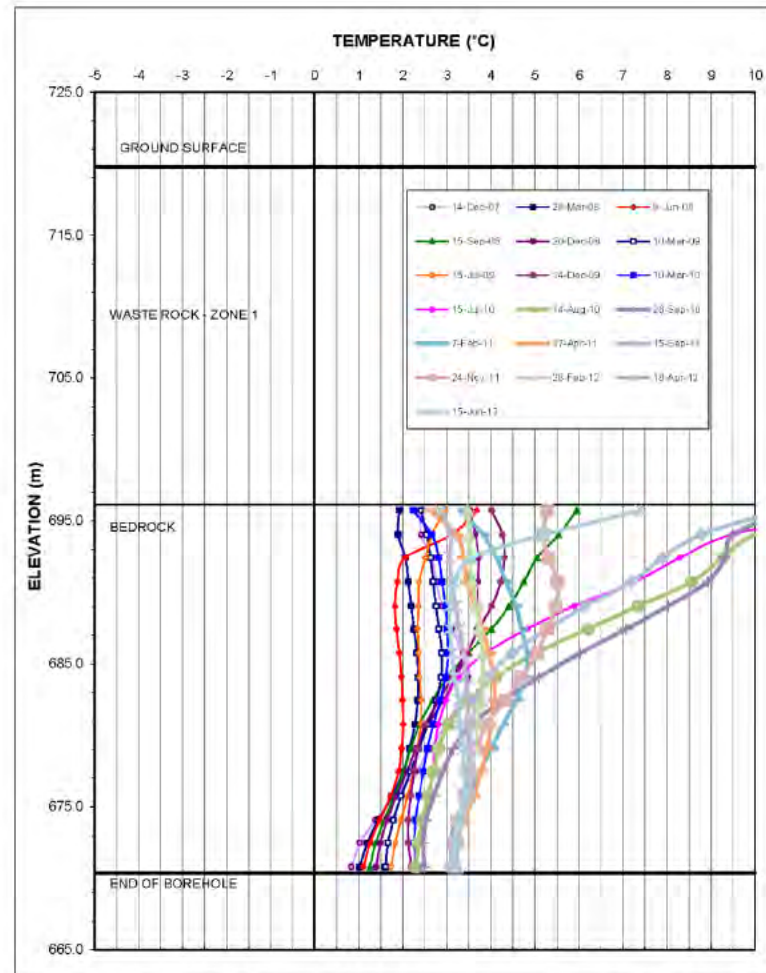
Water Storage Pond Dam
Ground Temperature Profile - WDT-2



Installed: November 16, 2007

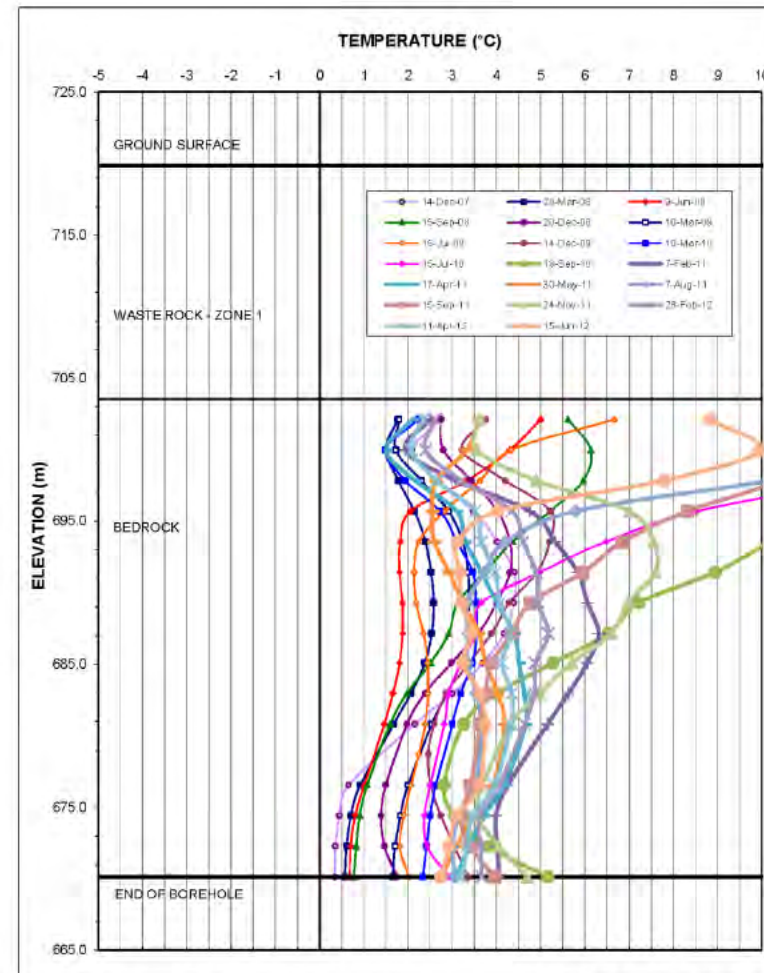
Water Storage Pond Dam
Ground Temperature Profile - WDT-1

 VANCOUVER	 MINTO EXPLORATIONS LTD. A Subsidiary of Capstone Mining Corp.	2012 Geotechnical Annual Review		
		Water Storage Pond Ground Temperatures		
Job No: 1CM002.006.400	Minto Mine	Date: November 2012	Approved: PHM	Figure: 8
Filename: Minto 2012 Site Inspection.ppt				



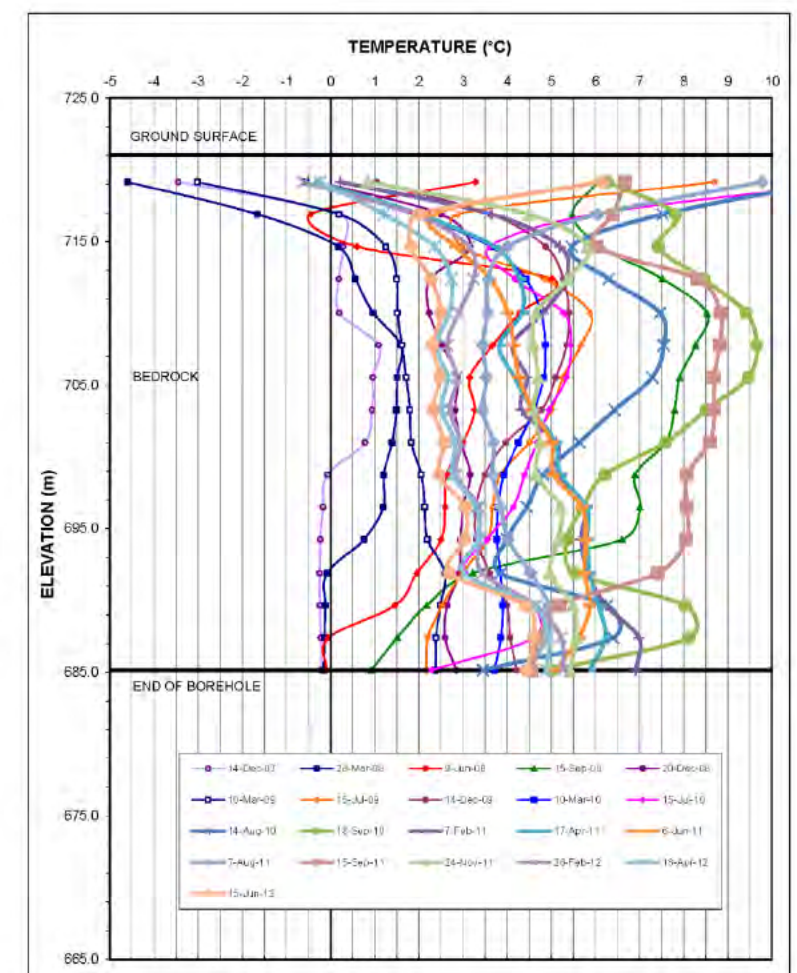
Installed: November 11, 2007

Water Storage Pond Dam
Ground Temperature Profile - WDT-3



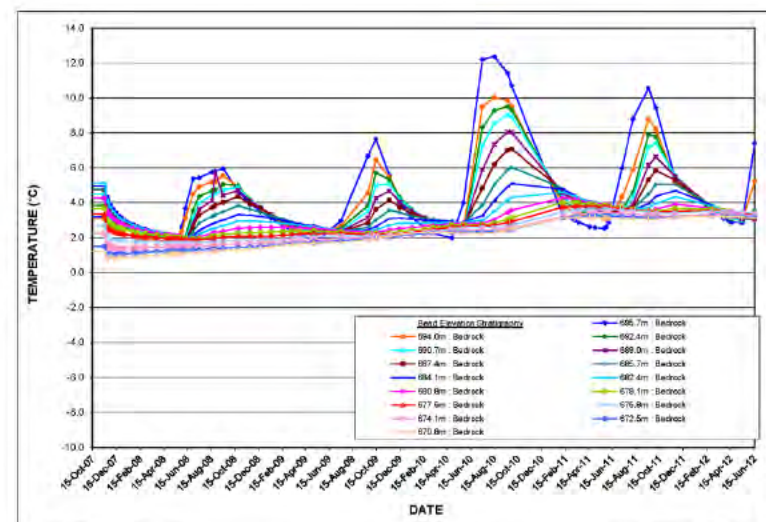
Installed: November 10, 2007

Water Storage Pond Dam
Ground Temperature Profile - WDT-4



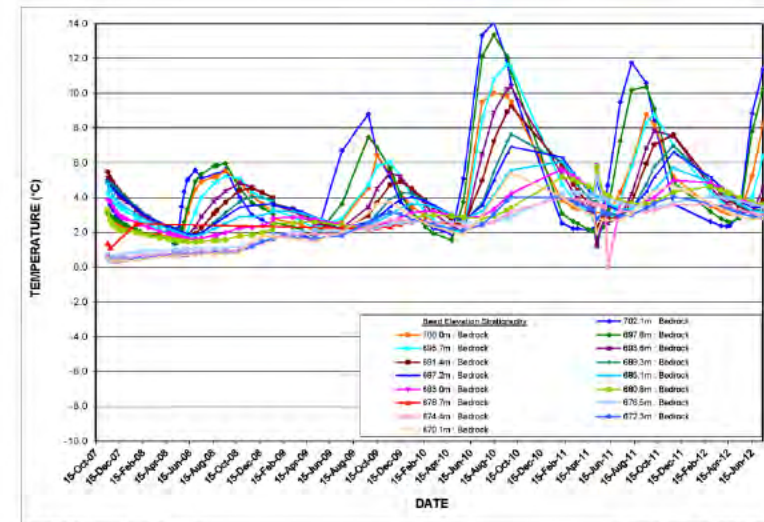
Installed: November 13, 2007

Water Storage Pond Dam
Ground Temperature Profile - WDT-5



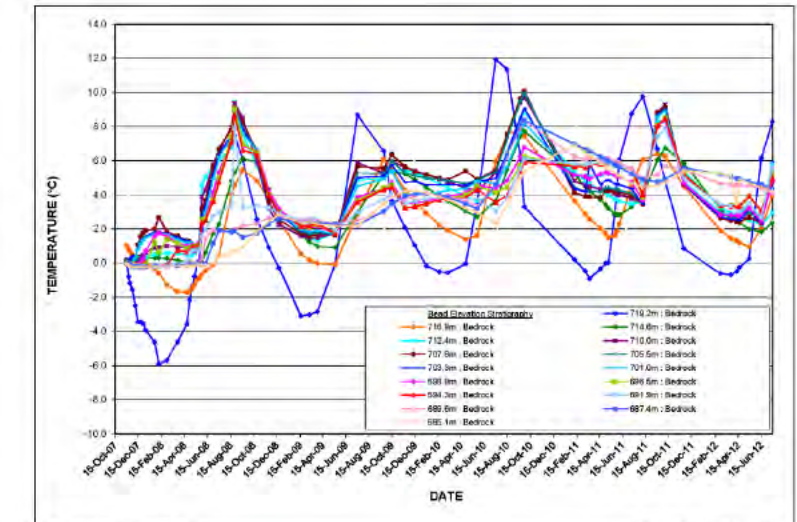
Installed: November 11, 2007

Water Storage Pond Dam
Ground Temperature Profile - WDT-3



Installed: November 10, 2007

Water Storage Pond Dam
Ground Temperature Profile - WDT-4



Installed: November 13, 2007

Water Storage Pond Dam
Ground Temperature Profile - WDT-5



Job No: 1CM002.006.400
Filename: Minto 2012 Site Inspection.ppt



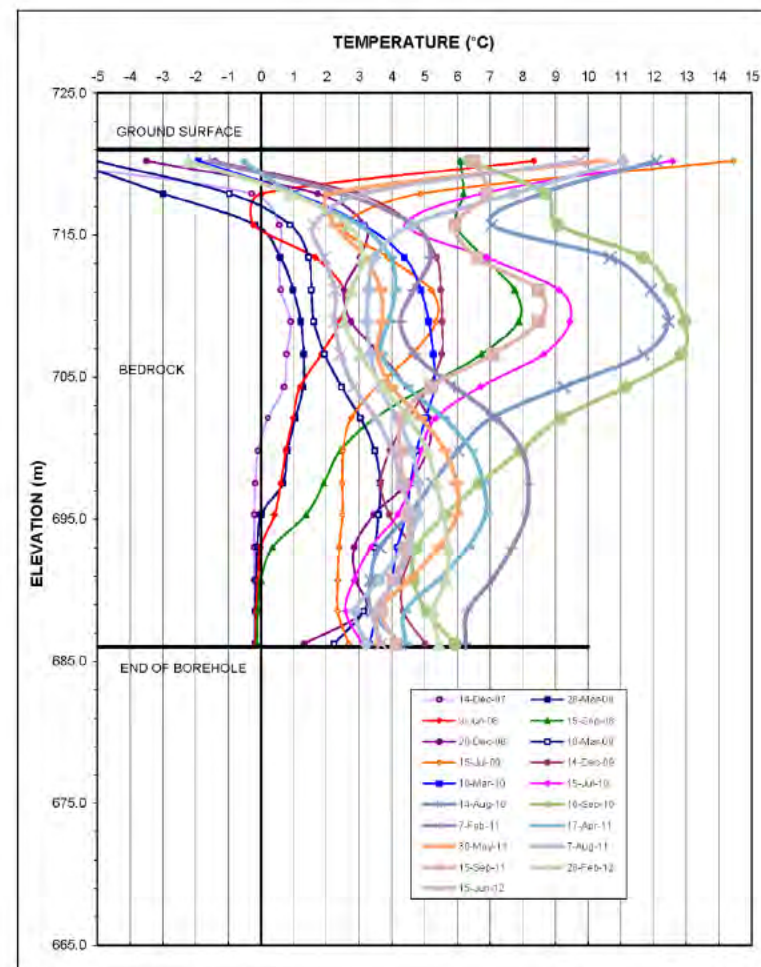
MINTO EXPLORATIONS LTD.
A Subsidiary of Capstone Mining Corp.

Minto Mine

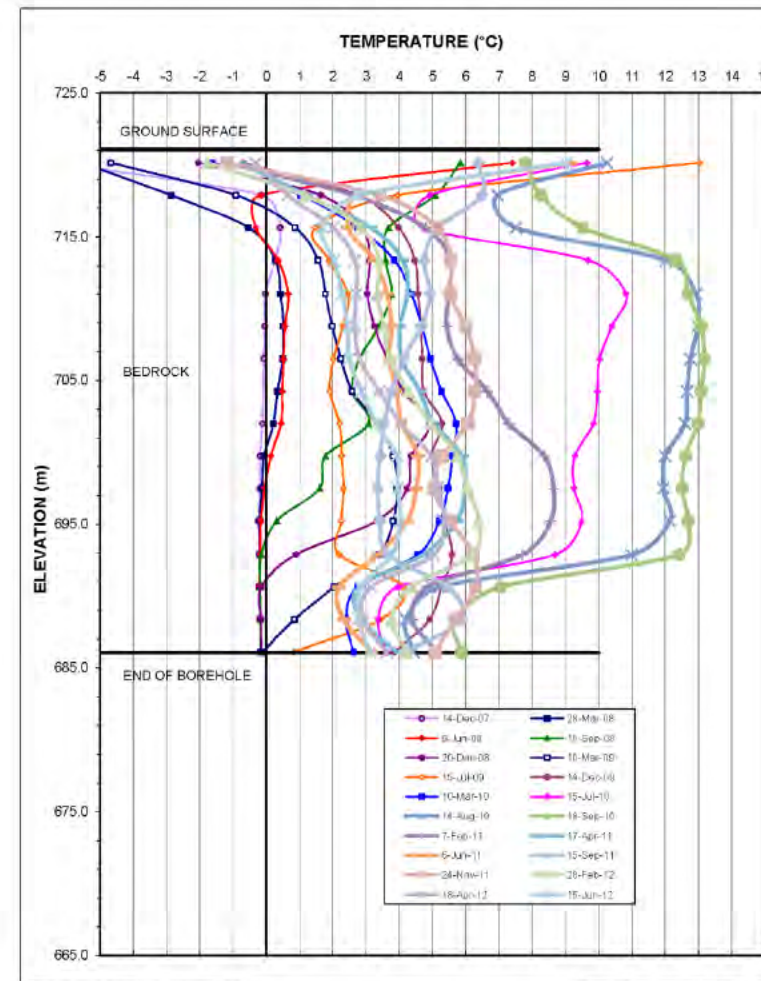
2012 Geotechnical Annual Review

Water Storage Pond Ground
Temperatures

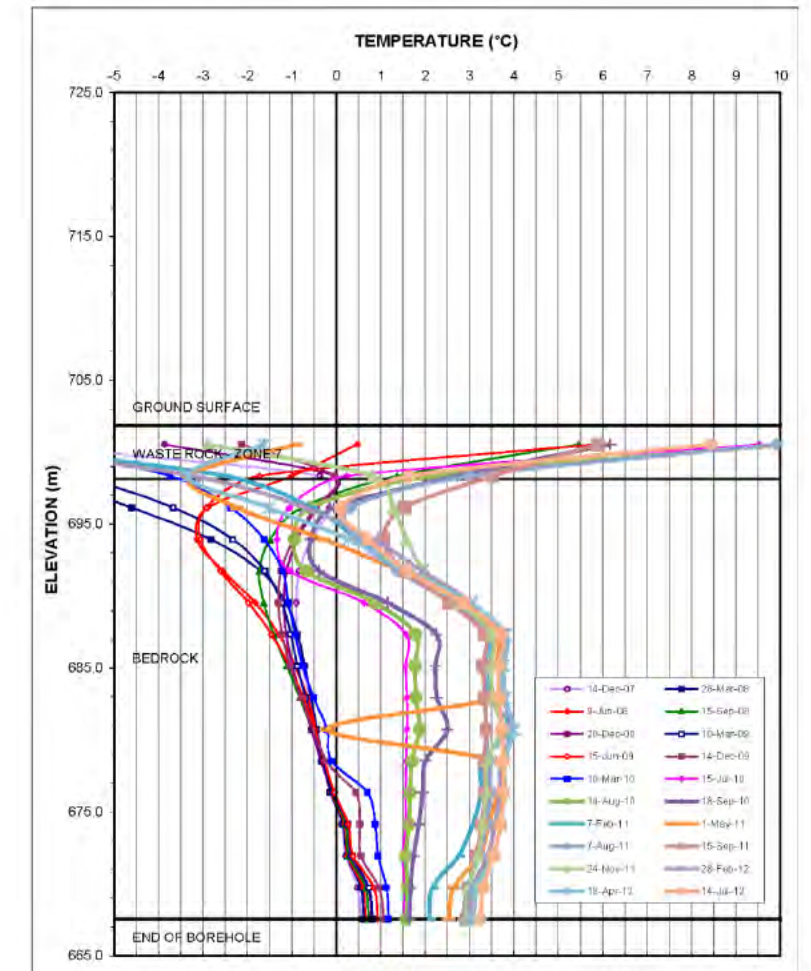
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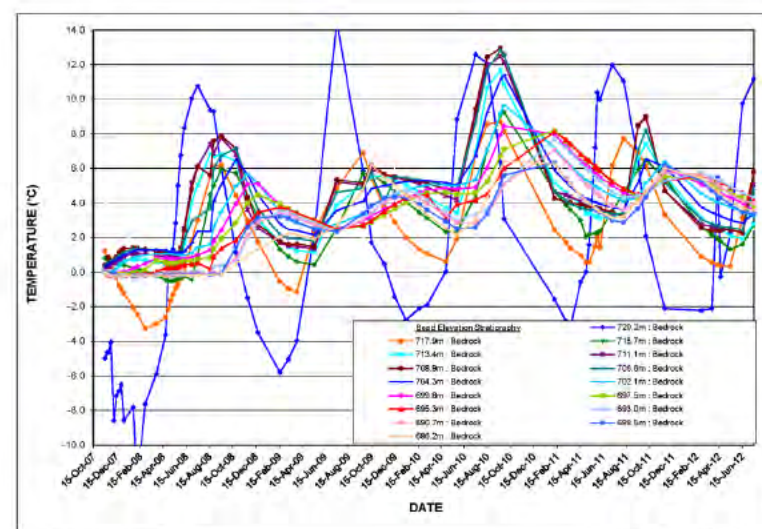
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Water Storage Pond Dam
Ground Temperature Profile - WDT-6



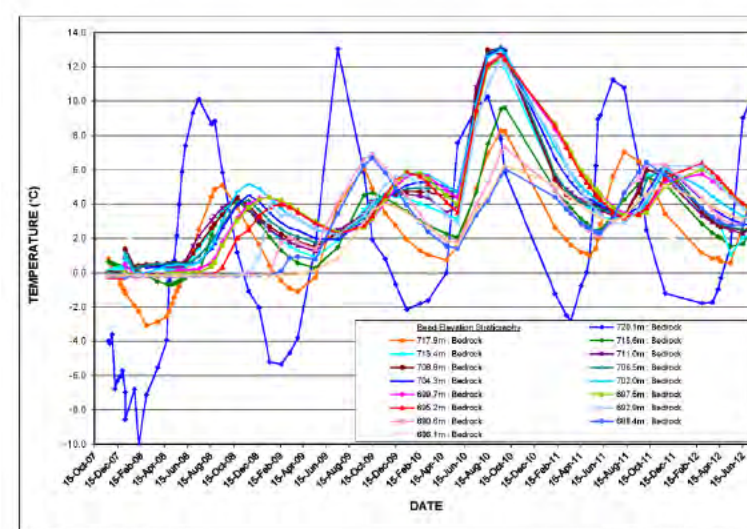
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Water Storage Pond Dam
Ground Temperature Profile - WDT-7



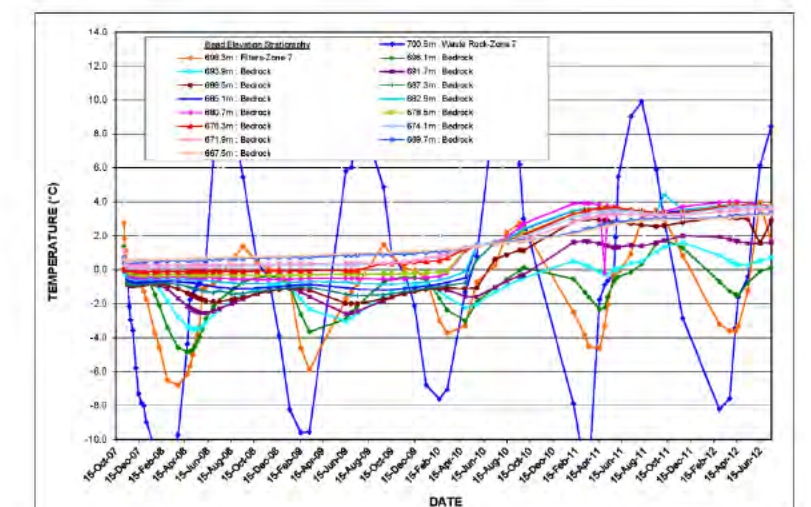
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Water Storage Pond Dam
Ground Temperature Profile - WDT-8



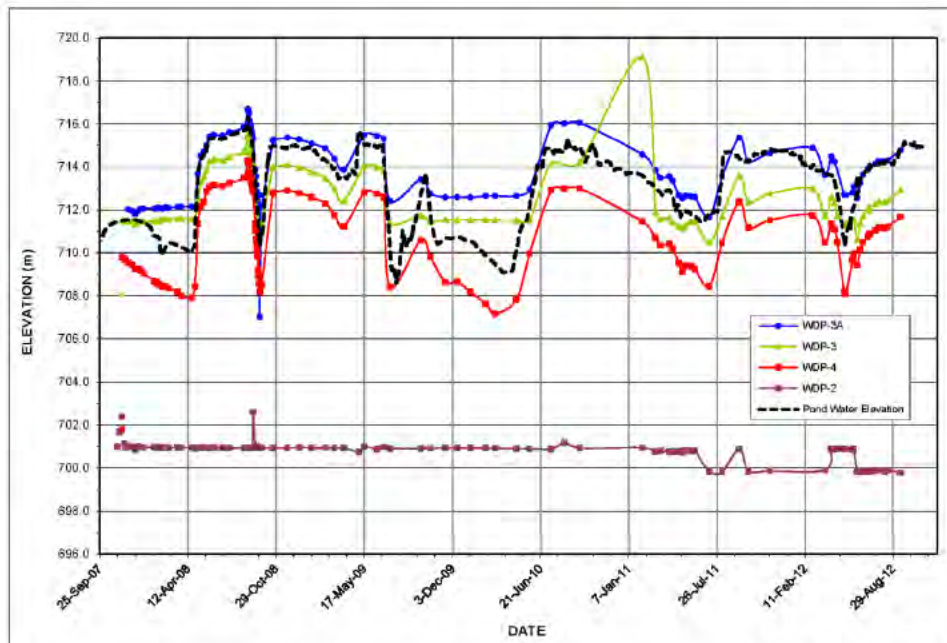
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Water Storage Pond Dam
Ground Temperature Profile - WDT-6



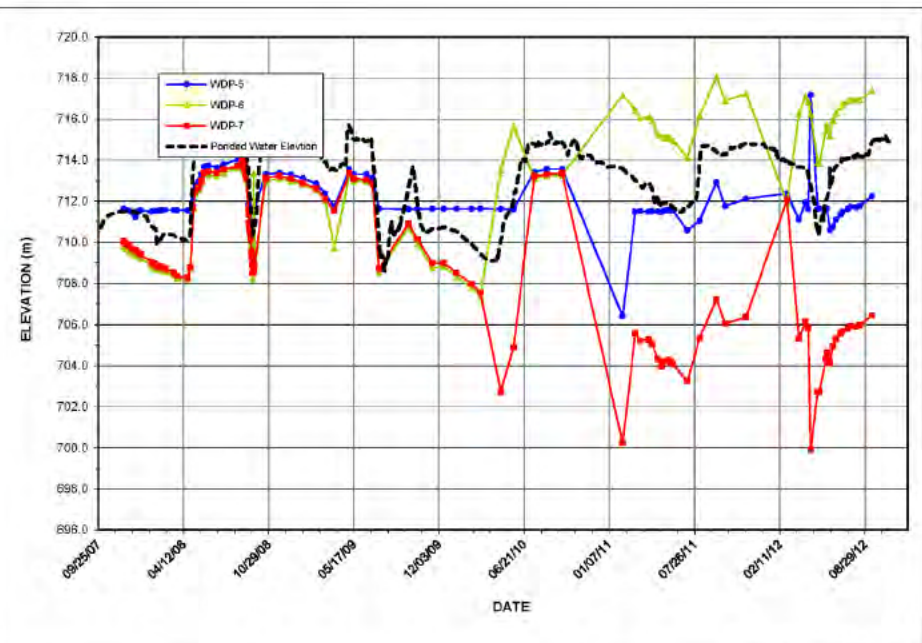
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Water Storage Pond Dam
Ground Temperature Profile - WDT-7



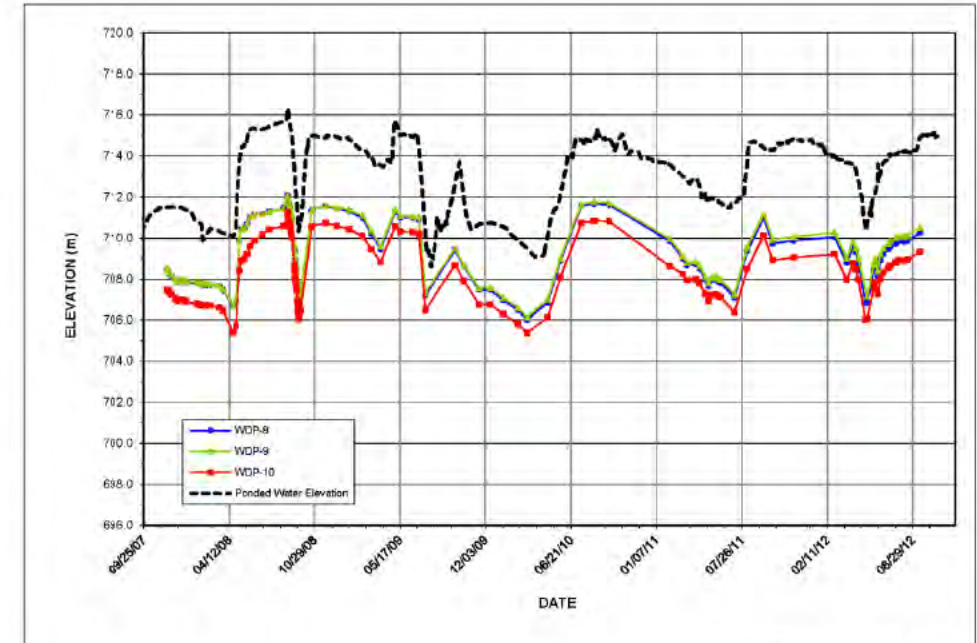
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Water Storage Pond Dam
Ground Temperature Profile - WDT-8



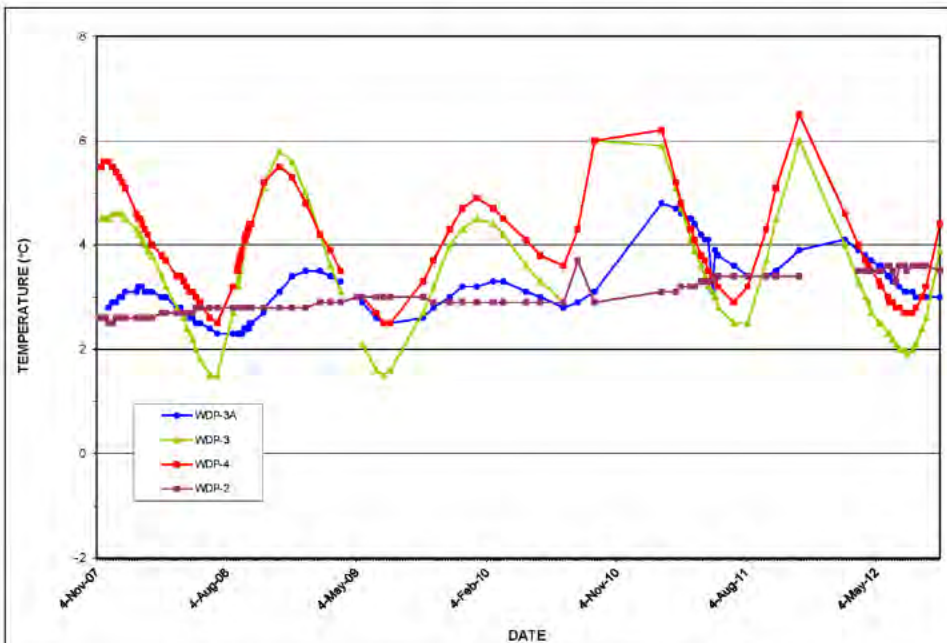
Water Storage Pond Dam
Instrument Water Elevation - WDP-3A, WDP-3, WDP-4, WDP-2



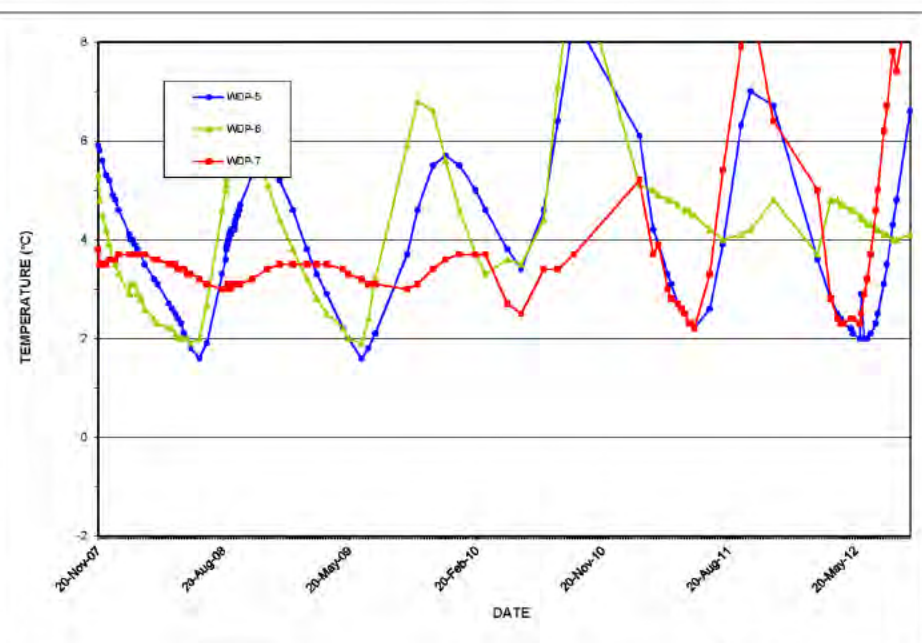
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Instrument Water Elevation - WDP-5, WDP-6, WDP-7



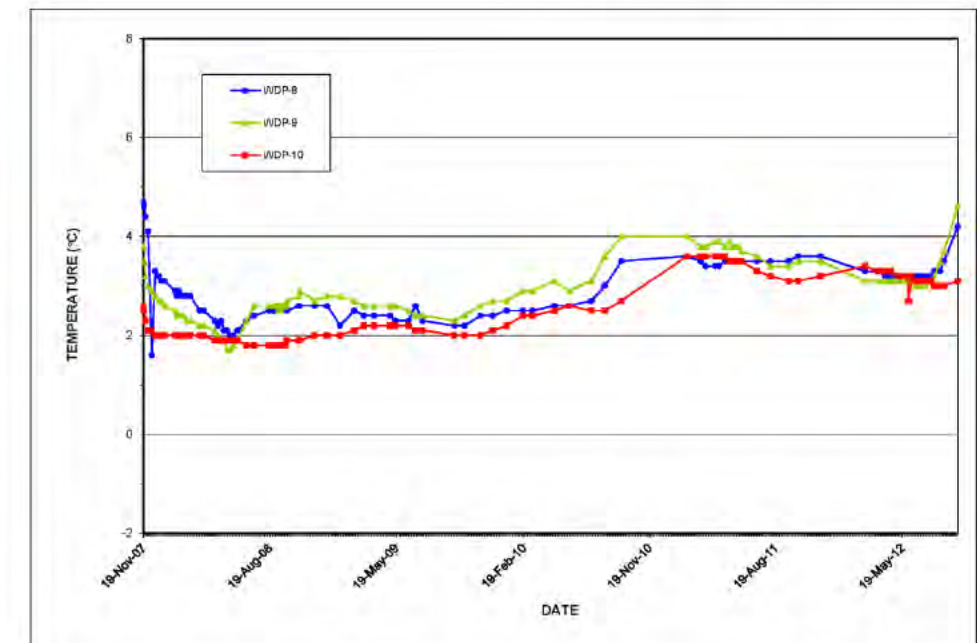
Water Storage Pond Dam
Instrument Water Elevation - WDP-8, WDP-9, WDP-10



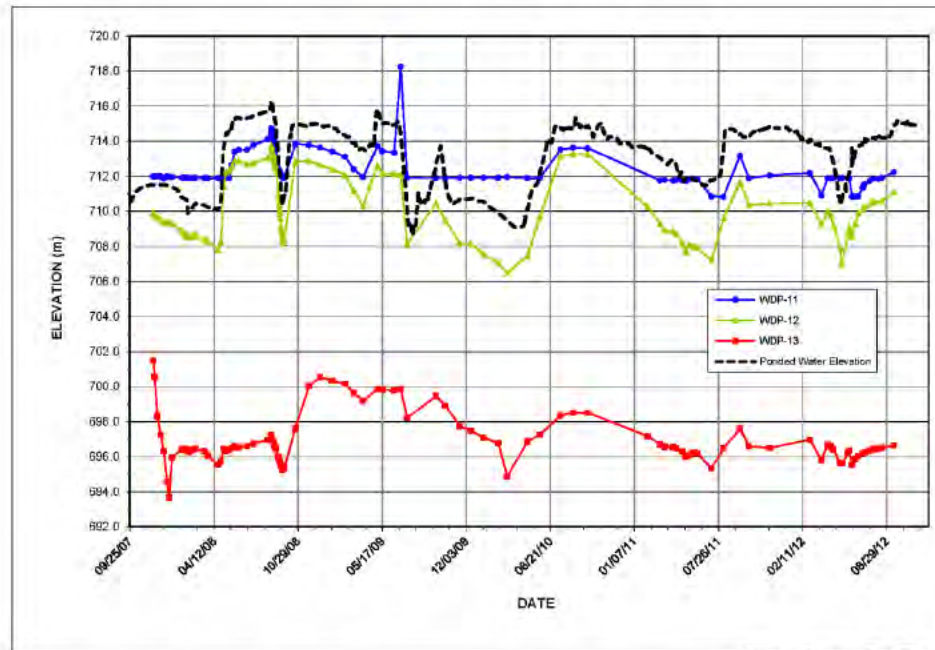
Water Storage Pond Dam
Ground Temperature Profile of VW Piezometer - WSP-3A, WSP-3, WSP-4, WSP-2



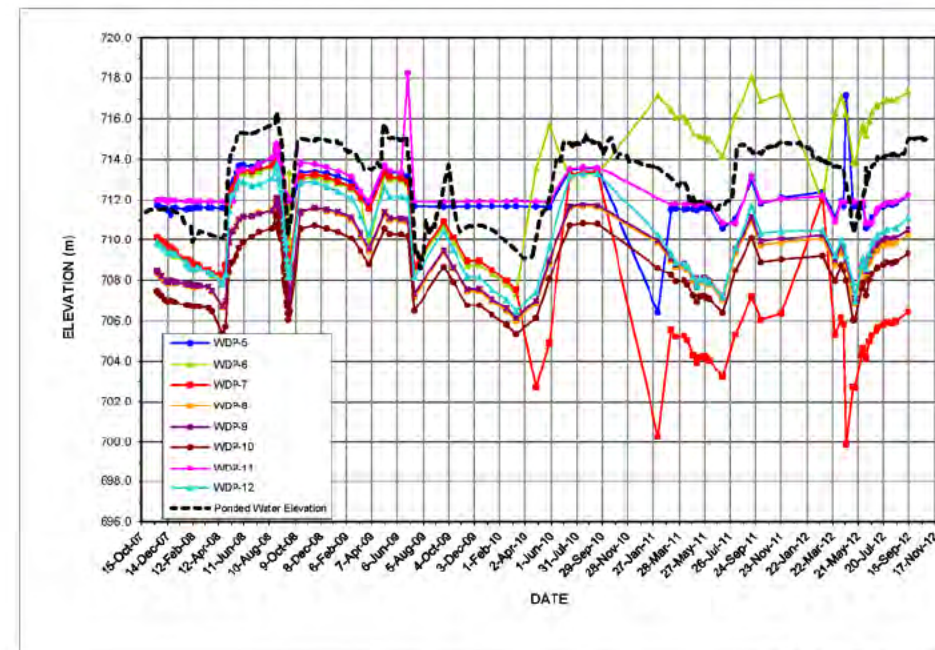
Water Storage Pond Dam
Ground Temperature Profile of VW Piezometer - WDP-5, WDP-6, WDP-7



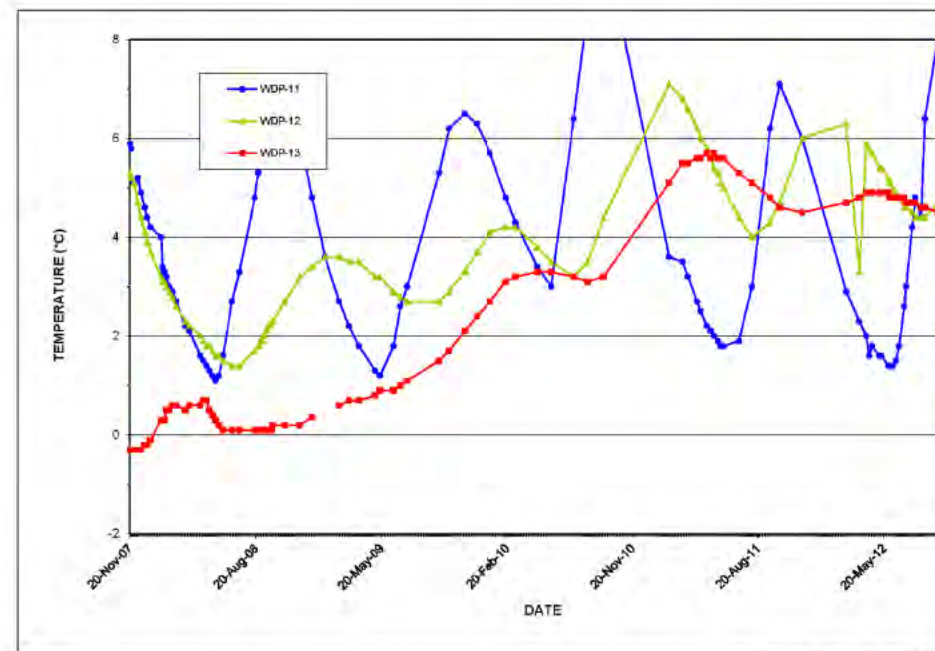
Water Storage Pond Dam
Ground Temperature Profile of VW Piezometer - WDP-8, WDP-9, WDP-10



Water Storage Pond Dam
Instrument Water Elevation - WDP-11, WDP-12, WDP-13



Water Storage Pond Dam
Instrument Water Elevation - WDP-5, WDP-6, WDP-7, WDP-8, WDP-9, WDP-10, WDP-11, WDP-12



Water Storage Pond Dam
Ground Temperature Profile of VW Piezometer - WDP-11, WDP-12, WDP-13

Appendix C: Tailings Compaction Summary

TABLE 1: TAILINGS COMPACTION SUMMARY (April 2012 - June 2012)

Project:	Dry Stack Tailings Storage Facility	Test Apparatus:	<u>Nuclear</u>	
Address:	Minto Mine, Yukon	Soil Description:	<u>Tailings</u>	
Client:	Minto Explorations Ltd.	Project Number:	<u>W14101068.001</u>	Spec. Grav.
Attention:	Mr. Eamon Mauer	Compaction Standard:	<u>ASTM D 698</u>	Specified Compaction: <u>95%</u> 2.76
				Optimum Moisture Content: <u>15.0%</u>

Test Number	Test Date	Test Depth (mm)	Location	Max Dry Density (kg/m ³)	Wet Density (kg/m ³)	Dry Density (kg/m ³)	Moisture (kg/m ³)	Moisture Content (%)	Air Voids (%)	Void Ratio	Compaction (%)	Pass/Fail	Comments
55	11-Apr-12	300	N6944742, E385875	1770	1995	1577	417.9	26.5	1.1	0.750	89.10	Fail	
56	11-Apr-12	300	N6944754, E385862	1770	2013	1666	346.5	20.8	5.0	0.657	94.12	Fail	
57	11-Apr-12	300	N6944752, E385849	1770	1974	1671	302.5	18.1	9.2	0.652	94.41	Fail	
58	11-Apr-12	300	N6944743, E385837	1770	1993	1667	326.7	19.6	6.9	0.656	94.18	Fail	
59	11-Apr-12	300	N6944728, E385829	1770	2028	1674	354.9	21.2	3.9	0.649	94.58	Fail	
60	19-Jun-12	300	N6944721, E385773	1770	1997	1667	335.1	20.1	6.1	0.656	94.18	Fail	
61	19-Jun-12	300	N6944721, E385800	1770	2107	1831	274.7	15.0	6.2	0.507	103.45	Pass	
62	19-Jun-12	300	N6944744, E385786	1770	1997	1701	290.9	17.1	9.3	0.623	96.10	Pass	
63	19-Jun-12	300	N6944772, E385786	1770	1951	1710	241.1	14.1	13.9	0.614	96.61	Pass	
64	19-Jun-12	300	N6944799, E385786	1770	2053	1801	252.1	14.0	9.5	0.532	101.75	Pass	
65	19-Jun-12	300	N6944809, E385812	1770	1972	1789	182.5	10.2	16.9	0.543	101.07	Pass	
66	19-Jun-12	300	N6944783, E385822	1770	2022	1787	234.1	13.1	11.8	0.544	100.96	Pass	
67	19-Jun-12	300	N6944757, E385831	1770	2032	1761	271.2	15.4	9.1	0.567	99.49	Pass	
68	19-Jun-12	300	N6944731, E385840	1770	2045	1818	227.3	12.5	11.4	0.518	102.71	Pass	
69	19-Jun-12	300	N6944759, E385869	1770	1974	1736	237.8	13.7	13.3	0.590	98.08	Pass	
70	19-Jun-12	300	N6944806, E385851	1770	2014	1776	232.7	13.1	12.4	0.554	100.34	Pass	
71	19-Jun-12	300	N6944801, E385896	1770	2033	1807	225.9	12.5	11.9	0.527	102.09	Pass	