2011 Geotechnical Inspection

Waste and Water Management Facilities Vangorda/Grum

Faro Mine Complex, Yukon

Report Prepared for

Denison Environmental Services

Report Prepared by

srk consulting

SRK Consulting (Canada) Inc.
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1 Introduction

At the request of Denison Environmental Services (DES), Mr. Peter Healey of SRK Consulting (Canada) Inc. (SRK) completed an inspection of the Vangorda/Grum waste and water management facilities at Faro Mine Complex on May 24 to 25, 2011. The Vangorda/Grum mine is located 16 km south of the Faro Mine, near Faro, Yukon as shown on Figure 1. The annual inspection of this area focuses on the geotechnical performance and stability of the following structures:

- Vangorda Waste Rock Containment Facility including the seepage collection system;
- Little Creek Dam;
- Vangorda Creek Diversion;
- Sludge Pond Embankments at the Water Treatment Plant;
- Grum Settling (Groucho) Pond;
- V-15 Seepage Collection System and Moose Pond;
- The Grum Interceptor Ditch; and
- The Sheep Pad Sediment Ponds below the Overburden Stockpile.

A plan which identifies the above components is shown in Figures 2 and 3.

This report presents our observations and comments on the performance and stability of the structures and provides recommendations for any remedial action, where appropriate. The report also provides comments and recommendations on the water levels recorded by DES in the wells installed in the Vangorda Waste Rock Dump in 2010.

2 Vangorda Waste Rock Pile

2.1 Observations

2.1.1 Seepage Collection System

Transverse Drains and Weirs

During construction of the original till starter dyke, six transverse drains were installed beneath the dyke to allow seepage to drain from the waste dump. These drains discharge into the seepage collection channel built during the 1994 upgrading of the channel around the dump. V-Notch weirs were installed by mine personnel in four of the drains (#'s 2, 3, 5 and 6) to monitor the seepage.

During this year's inspection, seepage flow was observed at Weir #6 (Photo 1) and Weir #5 (Photo 2). The ditch from Weir #4 (Photo 3) was snow covered with a trace of seepage. Measurable seepage was observed at Weir #3 (Photo 4).

Seepage Collection Channel

As seen in the Photos 5, 6 and 7, seepage is collected in the Vangorda seepage collection channel around the Waste dump and discharges into Little Creek Pond.

2.1.2 Till Starter Dyke

In 2006, Deloitte and Touche resloped sections of the till starter dyke. During the 2008 inspection, a small shallow subsidence was observed on the sideslope of these resloped areas. In addition to this subsidence, a number of wet spots and salt depositions were also noted near the crest of the dyke.

In the 2009 report, SRK commented that a possible cause of the wet areas and the shallow subsidence may be due to an elevated water table within the waste rock behind the dyke. However water levels recorded in the dumps wells installed by SRK in 2010, demonstrated that the water table within the waste rock was too low to cause the observed seepage associated with the subsidence. During the 2011 inspection of the shallow subsidence on the till dyke at the western end of the dump (Photo 8), although there was evidence of seepage, we observed that the area was dry and no further subsidence had occurred since our inspection in 2010.

Photo 9 shows the area of the resloped till dyke below the till cover trials. These slopes show some signs of erosion but not significant enough to warrant any immediate remedial action. There were no signs of major instability. DES continues to monitor the upper reaches of the ditch for infill by sediment caused by erosion of the cover.

2.1.3 Instrumentation

Water levels in the standpipe piezometers (P94 series) located in the till dyke around the Vangorda Waste Rock Dump have normally been recorded twice a year since they were installed in 1994. A summary of the water level readings taken to date (July 2, 2011) in the 94 series piezometers and groundwater wells and the recently installed wells (DH, or "PW-10-x"series) are presented in Table 1. The location of all the piezometers and wells are shown on Figure 4. Figures 5 to 9 present sections through the waste rock dump that are aligned at close as possible with the 94 series piezometers, the 94 series groundwater wells, 2001 series wells and the 2010 groundwater wells. These sections also show the collar and base elevations of all the piezometers and wells. The most recent water levels are also shown on each section and an inferred overall groundwater table was generated.

SRK's interpretation of these results indicate that while there appears to be a perched water table in the till dyke, the water table within the waste dump appears to be at or slightly below the original ground and does not present an immediate stability problem.

The water levels in the 2010 drillholes are relatively stable with the exception of PW-10-02. As shown on Table 1 and in the figures in Appendix C, the level in the well has fluctuated from a high of El 1128.18 to a low of El 1124.68. While these levels do not exceed the trigger level of El 1131, DES should closely monitor this well.

2.1.4 Trigger Water levels and Monitoring Schedule

SRK determined trigger levels for each of the above referenced monitoring stations based on the results of a stability analysis on the till dyke completed recently by SRK (SRK Memo Jan 2011).

The triggers represent the water level above which the factors of safety for seismic events are less than then 1.1. The trigger levels and actions that should be followed in event that trigger levels are reached are listed in Table 2. In review of the water levels this year (Table 4), no triggers were met or exceeded. It should be noted however that a change was made to the trigger level in well DH04 (PW-10-04).

2.1.5 Vangorda Waste Rock Dump

Old tension cracks are still evident in places along the crest at the northeast end of the dump. However there have been no changes to these cracks for several years.

2.2 Recommendations

2.2.1 Transverse Drains

The outlet of these drains should be inspected monthly for any signs of damage or deterioration of the steel v-notch weirs. The inspection should include recording of any flow or seepage rates.

2.2.2 Seepage Collection Channel

In the upper reaches of the seepage collection channel at the location of the till cover, DES should continue to monitor any sediment build-up and periodically remove the sediment that accumulates in the channel.

2.2.3 Till Starter Dyke

DES should inspect the resloped areas of the Till Starter dyke for any signs of instability or the development of significant erosion gullies. DES should also identify any wet or soft areas on the slopes. Particular attention should be made of the area of the shallow subsidence. These inspections should be carried out on a monthly basis and any unusual observations should be forwarded to SRK.

2.2.4 Instrumentation

While water levels in the 94 series wells and piezometers have historically been recorded twice a year, there has been no consistency in timing of the recording sessions. This was primarily a function of fact that there were different field programs that made use of this data and the data was collected by multiple groups. SRK had recommended in an early report all three systems be monitored in accordance with the schedule provided in Table 2. It was noted that in 2011, water level monitoring did take place on the same day at all the sites.

Following water level collection, water levels should be evaluated against the respective expected range and trigger levels and if needed the actions recommended in the Table 2 should be followed.

Readings from Piezometer P94-4A have not been documented since July 2001 because of irregularities in the readings due to a blockage in the pipe. SRK had recommended in a previous report that if a drill rig was in the area for other reasons then the piezometer should be reinstalled. Given the current focus to better understand the water level fluctuations within the waste rock dump, SRK reiterates this recommendation.

However, if future monitoring indicates a rising trend of the water table and trigger levels are exceeded, pumping of the recently installed wells (DH series) will be implemented to control the water level.

SRK is recommending that DES consider the installation of leveloggers in each of the eight 94 series piezometers and the remaining four 94 series groundwater wells. SRK has already installed

leveloggers in four of the new 2010 series wells in the dump and recommends that leveloggers are installed in the remaining well. SRK is of the opinion that to properly understand the behaviour of the water table in the waste rock dump, it will be necessary to monitor the seasonal variation of the water table more accurately. The continuous record provided by the leveloggers would provide this data.

SRK also recommends the installation of five shallow piezometers located at the toe of the till dyke around the Vangorda Waste Rock Dump. The piezometers would be located at the approximate area of the five sections shown on Figure 4.

2.2.5 Rock Pile

DES should continue to inspect, monthly, the surface of the Vangorda rock fill for any signs of widening of the old tension cracks.

3 Little Creek Dam

3.1 Observations

Water level in the pond (Photo 10) during our inspection on May 24, 2011 was recorded at about 1109m. No cracks or major settlement of the dam were observed and no seepage was observed along the downstream toe. Erosion rills are evident on both the upstream and downstream slopes of the dam (Photo 11).

The upstream and downstream faces of the dam show no evidence of surficial movement, bulging or instability.

In 1994, six pneumatic piezometers and three thermistors were installed along the crest of the Little Creek Dam. The six piezometers are located at three separate locations; two piezometers, one deep and one shallow, at each location.

The 900mm CMP emergency spillway (Photo 12) and the associated plunge pool (Photo 13) were inspected and are in good condition. The water ponded in the pool was derived from snow melt and runoff.

In 2010 SRK installed seven piezometers along the toe of the dam. These water levels in these piezometers were not included as part of this inspection.

3.2 Trigger Water levels and Monitoring Schedule

As for Vangorda Dump, trigger levels and actions have been developed for the instrumentation at the Little Creek Dam and are presented in Table 3. The water level triggers are based on SRK's estimate of a critical phreatic surface that would impact the factors of safety of the slope stability of the Little Creek Dam.

The trigger levels for temperature variations in the dam are also shown on Table 3 and are based on SRK's experience.

In review of the pneumatic water levels and the temperature readings, no trigger levels were met or exceeded.

It should also be noted that no triggers levels have been established for the 2010 piezometers installed along the toe of the LCD.

3.3 Recommendations

DES should continue to regularly monitor the crest of the dam for any cracks, settlement or surficial movement of the slope.

Monitoring frequency of the piezometers and the thermistors should be conducted in accordance with the schedule provided in Table 3.

DES should also continue to remove any build-up of debris at the inlet end of the culvert spillway.

If the Little Creek pond is to become a long-term structure to collect seepage from the Vangorda Dump or to function as a polishing pond for the new treatment plant, the spillway would need to be modified to accommodate a larger flood event and should possibly be relocated to the north end of the dam in an open channel.

SRK recommends that the water levels in the seven piezometers at the toe of LCD should be included in future inspections. It appears that the levels are linked to the water level in the pond. Elevated levels in these piezometers may cause stability issues for the dam.

SRK further recommends that trigger levels be developed for the seven piezometers along the toe of LCD.

4 Vangorda Creek Diversion

4.1 Observations

In accordance with a recommendation from SRK, an emergency overflow spillway (2x1m diameter CSP's) was installed at the headworks of the diversion in August 2005 (Photo 14). DES continues to inspect the trash rack at the headworks (Photo 15) and the 2.4m diameter flume (Photos 16, 17 and 18) to facilitate safe passage of flow in Vangorda Creek. Boulders that fall into the flume are periodically removed. There are no signs of instability or settlement of the embankment at the headworks of the diversion. However, the cross braces that support the flume continue to deteriorate and water continues to escape through openings in the flume joints.

DES continues to pump water from a small seepage collection pond in the old Vangorda Creek Ditch back into the flume. This is part of an overall plan to reduce flow of clean water into the Vangorda Pit.

The 2m diameter CMP culvert in the plunge pool shows signs of wear and tear around the entrance to the pipe (Photos 19 and 20). A trash rack has been installed at the entrance. During the inspection no debris on the trash rack was noted.

The exit culvert and the drop box structure remain intact and functioning satisfactorily.

4.2 Recommendations

DES should continue to monitor the sideslopes above the flume for sloughing and areas of instability and should top-up riprap along the flume where the material has settled below the rim of the culvert sections. Any debris or rock that accumulates in the flume, at the entrance to the 2m CMP or at the

headwork's trashrack should be removed. SRK should be notified of any excessive seepage from the flume and increase of discharge into the pit. If any damage to the cross braces and if the structural integrity of any of the flume sections is compromised by ice formation or slides, DES should replace the impacted sections.

SRK recommends that weekly inspections be made of the trash-racks to record any offending debris.

5 North East Interceptor Ditch above Vangorda Pit

5.1 Observation

SRK conducted an inspection of the North East Interceptor ditch located uphill of the Vangorda Pit. Generally this ditch has performed well. However, there are a number of areas along the ditch primarily in the overburden till where there have been a number of subsidence's, which over time may restrict the flow in the ditch (see Photo 21 and 22). DES during their regular inspections also identified a number of areas where the sideslopes had subsided (See DES Photo Log June 2011 in Appendix D.

5.2 Recommendations

SRK recommends that DES inspect this ditch on a monthly basis during the summer months looking for signs of subsidence similar to the one in Photo 21. These occurrences should be noted and if found to restricting flow, should be excavated out.

6 V-15 Seepage Collection Ditch and Moose Pond

6.1 Observations

In 2006, increasing concentrations of zinc were observed at the outlet of the V15 sedimentation pond (Photo 23) upstream of Tributary A. In response to this finding, a Bentomat lined diversion ditch (Photo 24) was constructed in August, 2007 to divert outflow from this pond to a naturally formed Kettle called Moose Pond. Flow from this diversion ditch and the Main Stem of Grum Creek are directed to Moose Pond via a drainage ditch (see Photo 29). Below the V-15 pond is a culvert across the access road which discharges seepage and runoff to the Tributary A. At the time of our inspection, it was noted that the culvert was blocked and water was ponding at the inlet of the culvert (Photo 25). There was evidence in the shoulder of the road above the outlet of the culvert indicating that water had overtopped the road and caused some erosion (Photo 26).

At the lower reach of the V-15 seepage collection ditch (Photo 27), just above the confluence with the Main Stem of Grum Creek and the V-notch weir (Photo 28), it was noted that sediment had built up in the channel. There was also evidence that a significant volume of silt had passed through the V-notch weir and made it way down to Moose Pond (Photo 30). SRK understand that in earlier May 2011, a unexpected rapid snow melt had resulted in the release of high silt laden runoff from the recently completed till cover on the Grum Sulphide cell (GSC) which ended up in Moose Pond. SRK also understands that at one point the volume of runoff from the GSC resulted in a rapid rise of the water level in Moose Pond (Photo 31) which was stressing the downstream slope of the natural embankment of Moose Pond causing high seepage flow through gravel seams in the embankment.

As a result, YG instructed DES to redirect the flow into a newly constructed riprapped spillway to direct the flow to Vangorda Creek. However, following water quality analysis of flow it was discovered that there were elevated levels of zinc in the flow which forced YG to instruct DES to redirect the flow back into Moose Pond. Fortunately, the runoff subsided and the water level in Moose Pond dropped to a manageable level as a result of natural exfiltration from the pond. In the time of our inspection it was estimated that about 20cm of water was ponding on top of the silt.

6.2 Recommendations

Take survey levels of the ponded water, the upper seeps in the downstream face, Moose Seep and the maximum level reached during the runoff event.

The 20 to 30m sideslope section of the channel that direct flows into Moose Pond should be regraded to 2:1 (H:V) and riprapped even though the base of the channel appears to now be in natural ground. During any future heavy runoff events the sideslopes of the channel remain vulnerable to erosion and could add to the high silt content already in the pond. The upstream section could remain without erosion protection.

DES should continue to monitor any sediment build-up in the V15 diversion ditch and clean it out when necessary.

The culvert upstream of Tributary A has been cleaned out but the shoulder above the culvert outlet still needs to be repaired.

7 Sludge Pond Embankment-Vangorda Water Treatment Plant

7.1 Observations

At the time of our inspection, the sludge pond was almost empty (Photo 33). SRK inspected the downstream slopes and crests of the four embankments (Photos 34 and 35) that make up the sludge pond. No subsidence of the slopes, or settlement of the crest and no tension cracks were observed.

Previously SRK was asked to comment on the location of a proposed overflow spillway at the WTP sludge pond. We had recommended that best location would be on the uphill north leg of the pond. No progress had been made on the construction of this spillway.

7.2 Recommendations

- Ensure that the pond level does not exceed 2m. below crest; and
- Continue to monitor on a monthly basis, the crest and sideslopes for cracking or any signs of sloughing.

8 Grum Interceptor Ditch and Sheep Pad Settling Pond

8.1 Observations

In the upper reaches of the GID (Photo 37), the ditch slopes remain stable and the vegetation continues to provide effective erosion control of the ditch sideslopes. However, debris and the odd boulder are beginning to partly block culvert outlets and entrances along the route.

SRK inspected the Sheep Pad Pond dyke (Photo 38) and the Spillway to Vangorda Creek. No signs of slope instability, settlement or cracking were noted.

8.2 Recommendations

- Monitor monthly the crest of the settling pond dykes for any cracks;
- Monitor monthly the toe of the dykes for any seeps; and
- Clear any debris that accumulates at either end of the GID culverts and the settling pond spillway.

This report, **"2011 Geotechnical Inspection Waste and Water Management Facilities – Vangorda/Grum, Faro Mine Complex, Yukon"**, has been prepared by SRK Consulting (Canada) Inc.

Prepared by

Peter M Healey P.Eng.,

Principal

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.

List of Tables

Table 1: PIEZOMETRIC ELEVATIONS IN 1994 GROUNDWATER WELL'S, STANDPIPE PIEZOMETERS, LITTLE CREEK DAM, PNEUMATICS AND 2010 DRILL HOLES WELLS

Top of Pipe Elevations (masl)

V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V47										DH1	DH2	DH3	DH4	DH5
GW-94-01	GW-94-02	GW-94-03	GW-94-04	GW-94-05	P-94-01A	P-94-01B	P-94-02A	P-94-02B	P-94-02C	P-94-03A	P-94-03B	P-94-04B	P2001-02A	P2001-02B	P2001-03	P09-LCD-1	P-09-LCD-2	P09-LCD-3	P09-LCD-4	P09-LCD-6	P09-LCD-7	PW-10-01	PW-10-02	PW-10-03	PW-10-04	PW-10-05
1117.445	1117.405	1118.431	1116.165	1101.673	1136.555	1136.493	1138.41	1138.332	1129.84	1134.373	1134.459	1134.327	1122.78	1122.77	1120	1097.53	1097.69	1093.71	1093.68	1096.21	1101.68	1149.08	1139.30	1137.72	1141.69	1180.39

Piezometric Elevation (masl)

Date	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V47										DH1	DH2	DH3	DH4	DH5
	GW-94-01	GW-94-02	GW-94-03	GW-94-04	GW-94-05	P-94-01A	P-94-01B	P-94-02A	P-94-02B	P-94-02C	P-94-03A	P-94-03B	P-94-04B	P2001-02A	P2001-02B	P2001-03	P09-LCD-1	P-09-LCD-2	P09-LCD-3	P09-LCD-4	P09-LCD-6	P09-LCD-7	PW-10-01	PW-10-02	PW-10-03	PW-10-04	PW-10-05
3-May-94	1109.17	1103.08	1107.15	1101.84	1090.11	1124.19	1130.44	1127.84	1132.21	1116.76	1120.27	1124.66	1125.34														
21-Jun-94	1110.00	1108.76	1109.28	1106.52																							
30-Jun-95						1128.77	1130.87	1130.39	1132.22	1120.82	1120.46	1124.66	1125.34														
13-Jul-95						1128.76	1130.90																				
30-Jul-95						1128.70	1131.01	1130.42	1132.21	1121.03	1120.69	1124.66	1125.34														
26-Aug-95	1110.56	1108.94		1107.12																							
31-Aug-95	1110.09					1128.63	1131.84	1130.44	1132.27	1121.18	1120.75																
17-Oct-95	1110.31	1109.15		1106.80		1128.66	1132.26	1129.71	1132.57	1121.30	1120.96																
20-Nov-95	1110.35	1109.23		1106.98																							
13-Mar-96	1110.01	1108.18		1106.78																							
28-May-96	1109.95	1108.07	1108.43	1105.92		1128.22	1131.11	1128.47	1132.21	1120.47	1120.25																
24-Sep-96	1109.95	1109.98	1110.48	1107.00		1126.16	1131.19	1130.11	1132.21	1121.18	1120.69	1124.58	1125.34														
13-May-97	1110.61	1107.99	1108.48	1106.64		1127.39	1130.82	1130.67	1131.83	1120.33	1121.59	1124.50	1124.71														
11-Jul-97						1126.76	1130.59	1130.49	1132.21	1120.87	1120.27	1124.66	1125.33														
11-Aug-97	1110.70	1109.03	1110.02	1107.36	1099.68	1126.97	1131.24	1130.31	1132.08	1121.07	1121.53	1124.50	1125.12														
14-Oct-97	1110.69	1108.83	1109.28	1107.18		1127.05	1131.53	1130.42	1132.10	1120.90	1121.41	1124.50	1125.12														
23-Dec-97	1110.75	1108.36	1108.90	1107.04		1127.31	1131.73	1130.73	1132.26	1120.89	1121.67	1124.65	1125.31														
31-May-98	1110.73	1108.81	1108.70	1106.58	1099.81	1127.04		1130.36		1120.64		1124.51	1125.13														
25-Jul-98						1126.36		1130.37		1120.73																	
15-Sep-98	1110.78	1108.56	1108.91	1107.07	1099.27	1126.54		1130.43		1120.62																	
16-Nov-98						1126.24		1130.48		1120.78																	
31-Dec-98	1110.75	1108.35	1108.52	1106.94																							
18-Jun-99	1110.57	1108.17	1108.19	1105.99		1126.60		1130.06		1120.36																	
12-Oct-99	1110.84	1108.83	1109.62	1107.38		1126.55		1130.25		1121.02																	
31-May-00	1111.70	1108.73	1110.17	1106.84	1099.83	1126.36		1130.56	1132.40	1120.87			1125.45														
5-Sep-00	1110.79																										
9-Oct-00	1112.47	1113.45	1111.53	1107.62	1100.74																						
9-Jul-01						1126.14	1131.65	1129.55	1130.61	1124.38	1121.53	1124.68	1125.45														
11-Jun-02														1118.06	1118.01	1090.00											
4-Sep-02						1125.81	1131.18	1130.42	1132.31	1120.52	1120.85	1124.68	1125.42														
27-May-03						1125.99	1131.43	1130.59	1132.46	1120.64	1120.30	1124.68	1125.40														
5-Jun-03														1118.12	1118.12												
9-Sep-03						1125.91	1131.45	1130.57	1132.46	1120.69	1120.51	1124.68	1125.40														
8-May-04						1125.95	1131.23	1130.38	1132.40	1120.64	1120.30	1124.68	1125.35														
8-Jun-04														1118.14	1118.15												
8-Sep-04						1125.84	1131.29	1130.62	1132.56	1120.40	1120.29	1124.68	1125.34														
22-Sep-04														1118.00	1117.72												
3-May-05														1117.68													
19-May-05						1126.29	1131.41	1130.93	1132.71	1120.96	1121.53	1124.68	1125.34														
8-Sep-05														1118.02													
9-Sep-05						1126.19	1131.61	1130.97	1132.89	1120.93	1121.10	1124.68	1125.34														
16-May-06						1125.86	1131.10	1130.32	1132.22	1120.49	1120.29	1124.68															
7-Jun-06														1118.04	1117.94												
11-Sep-06						1125.52	1130.95	1130.42	1132.49	1120.67	1120.48	1124.68															
19-Sep-06														1117.91	1117.81												
10-May-07						1125.94	1130.60	1130.47	1132.21	1120.27	1120.30	1124.69	1125.34														
29-May-07	1110.93	1108.25	1108.44											1117.67	1117.63	1081.64											
3-Jun-07				1106.89																							
27-Aug-07						1125.62	1130.46	1130.20	1132.21	1120.96	1120.33	1124.68	1125.34														
11-Oct-07	1111.24	1111.21		1107.35										1117.84	1117.78												
4-Jun-08	1111.41	1109.97	1110.63	1107.41										1119.26	1119.23	1089.50											
18-Sep-08	1112.37	1112.31	1110.08	1107.86		1129.70	1132.09	1131.10	1133.32	1121.24	1121.91	1124.64	1125.44	1119.00	1118.99												
30-May-09		1109.80	1110.28																								
31-May-09	1111.73			1107.40																							
12-Sep-09	1111.91	1109.88	1109.43	1107.51										1118.45	1118.31	1082.88											
3-Feb-10						1126.24	1131.38	1130.79	1132.39		1123.50	1124.68	1125.44														
15-May-10						1125.88	1130.93	1130.57	1132.25	1121.32	1122.74	1124.68	1125.44														
12-Jun-10														1118.19	1118.43	1083.00	1093.71			1089.94	1090.50						
27-Jun-10						1125.49	1130.77	1130.48	1132.21	1120.98	1120.80	1124.68	1125.44														
13-Jul-10						1124.85	1130.66	1130.27	1132.22	1124.13	1120.74	1124.68	1125.43														
4-Aug-10						1124.85	1130.65	1130.24	1132.21	1121.11	1120.69	1124.67	1125.43														
3-Sep-10	1111.54	1112.13	1109.03			1124.82	1130.68	1130.22	1132.15	1120.82	1120.71	1124.68	1125.44														
15-Sep-10														1118.21	1117.90	1082.19											
20-Sep-10																	1093.55			1086.42	1090.42						
14-Oct-10						1125.08	1130.64	1130.37	1132.22	1121.27	1120.65	1124.63	1125.34														
18-Oct-10																							1125.68	1124.79	1123.22		1137.86
3-Nov-10						1125.11	1130.64	1130.15	1132.22	1121.08	1120.60	1124.68	1125.43														
15-Nov-10				1107.26																							
24-Jan-11						1125.26	1130.61	1130.16	1132.22	1120.10	1120.37	1124.67	1125.43										1125.30	1124.57	1123.47	1132.42	1137.87
26-Jan-11																	1093.45	1093.26	1091.63	1087.92	1090.40	1096.93					
3-Feb-11	1111.45	1108.43	1108.67	1107.11										1117.95	1117.94	1082.07										1132.57	
28-Mar-11																										1132.57	
12-Apr-11						1125.21		1129.98					1125.44										1124.90	1124.09	1123.14		1137.84
18-Apr-11						1125.24	1130.39	1130.15	1132.15		1120.26	1124.58	1125.27										1124.88	1124.00	1123.09		1137.83
21-Apr-11	1111.23	1108.23	1108.59	1107.07										1117.61	1117.54	1081.78											
25-Apr-11	1111.23	1108.22	1108.59	1106.91		1125.12	1130.47	1130.01	1132.23		1120.31	1124.70	1125.27	1117.61	1117.54	1081.97											
2-May-11																							1124.98	1123.99	1123.14		1137.84
9-May-11	1111.18	1108.23	1108.61	1107.05		1125.01	1130.46	1129.89	1132.24	1120.82	1119.95	1124.70	1125.43	1118.16	1118.14	1081.900							1124.86	1123.84	1123.01		1137.81
16-May-11	1111.33	1107.74	1108.64	1106.70		1125.08	1130.48	1130.14	1132.22	1120.90	1120.30	1124.68	1125.44	1118.42	1118.37	1081.90				1090.96			1124.90	1123.93	1123.10	1132.11	1137.81
23-May-11	1111.33	1108.47	1109.10	1107.10		1125.04	1130.46	1130.05	1132.24	1120.77	1120.31	1124.69	1125.42	1119.02	1118.93	1081.87				1091.12			1124.77	1123.93	1123.08	1132.42	1137.82
30-May-11	1111.38	1108.61	1109.87	1107.14		1125.02	1130.46	1130.09	1132.24	1120.91	1120.31	1124.70	1125.42	1118.97	1118.95	1081.93				1091.27			1125.19	1128.11	1123.35	1132.66	1137.95
7-Jun-11	1111.46	1108.52	1109.72	1107.18		1124.99	1130.44	1129.98	1132.22	1120.96	1120.29	1124.68	1125.40	1118.63	1118.38	1081.92	1093.69	1093.42	1092.03	1091.43			1125.35	1126.18	1123.39	1132.66	1136.95
13-Jun-11	1111.43	1107.54	1109.49	1105.81		1124.99	1130.43	1129.98	1132.21	1121.11	1120.28	1124.66	1125.32	1118.36	1118.47		1093.62	1093.37	1091.83	1091.56	1090.54	1097.09	1125.29	1126.88	1123.15	1132.44	1137.82
2-Jul-11	1111.54	1109.23	1110.00	1107.59		1125.00	1130.45	1130.09	1132.24	1121.24	1120.40	1124.70	1125.43	1118.89	1118.58	1082.12	1093.74	1093.46	1092.04	1091.62	1090.43	1097.09	1125.20	1126.35	1123.01	1132.53	1137.67
																				1082.50	1090.57	1097.13	1125.69	1125.39	1122.97	1132.54	1137.86

Table 2: Vangorda Waste Rock Dump - Water Level Trigger Elevations and Monitoring Schedule

Instrument	Trigger Levels	Maximum Levels	Max Observed Levels	Date of Max Observed levels	Frequency	Comments
	(mamsl)	(mamsl)	(mamsl)	(mm/yy)		
P94-01A	1131	1132	1129.70	Sep-08	SF(M,S)*	
P94-01B	1133	1134	1132.26	Oct-95	SF(M,S)*	
P94-02A	1133	1135	1131.10	Sep-08	SF(M,S)*	
P94-02B	1134	1135	1133.32	Sep-08	SF(M,S)*	
P94-02C	1125	1126	1124.38	Jul-01	SF(M,S)*	Damaged (no plans to replace)
P94-03A	1126	1128	1123.50	Feb-10	SF(M,S)*	
P94-03B	1126	1128	1124.69	Sep-08	SF(M,S)*	
P94-04A	NA	NA	1124.64	Jul-97	SF(M,S)*	damaged (to be replaced)
P94-04B	1126	1135	1125.45	May-00	SF(M,S)*	
P2001-02A	1123	1124	1119.26	Jun-08	SF(M,S)	
P2001-02B	1123	1124	1119.23	Jun-08	SF(M,S)	
P2001-03	1120	1121	1090.00	Jun-02	SF(M,S)	
GW-94-01	1115	1118	1112.47	Oct-00	SF(M,S)*	
GW-94-02	1115	1118	1113.45	Oct-00	SF(M,S)*	
GW-94-03	1113	1116	1111.53	Oct-00	SF(M,S)*	
GW-94-04	1109	1112	1107.86	Oct-00	SF(M,S)*	
GW-94-05	NA	NA	1100.74	Sep-08	SF(M,S)*	Unable to find in field after 2008
DH-01	1135	1138	1125.69	Jul-11	SF(M,S)	levelogger installed
DH-02	1131	1132	1128.18	May-11	SF(M,S)	levelogger installed
DH-03	1130	1132	1123.39	May-11	SF(M,S)	levelogger installed
DH-04	1133	1135	1132.57	May-11	SF(M,S)*	note trigger level change
DH-05	1139	1142	1137.95	May-11	SF(M,S)*	
P11-01	1125	1128	NA	NA	SF(M,S)*	Proposed Toe Piezometer at Section AA
P11-02	1121	1123	NA	NA	SF(M,S)*	Proposed Toe Piezometer at Section BB
P11-03	1120	1122	NA	NA	SF(M,S)*	Proposed Toe Piezometer at Section CC
P11-04	1120	1121	NA	NA	SF(M,S)*	Proposed Toe Piezometer at Section DD

SF = Spring(May) and Fall (September)

* Recommend the Installation of levelloggers (transducers) in each piezometer/Drillhole/well to provide continuous water levels)

Actions if Trigger level reached:

1. Recheck reading
2. Check instrument
3. Advise Environmental Coordinator and Site Manager
4. Notify Consultant

Table 3: Little Creek Dam - Water Level Trigger Elevation and Monitoring Schedule

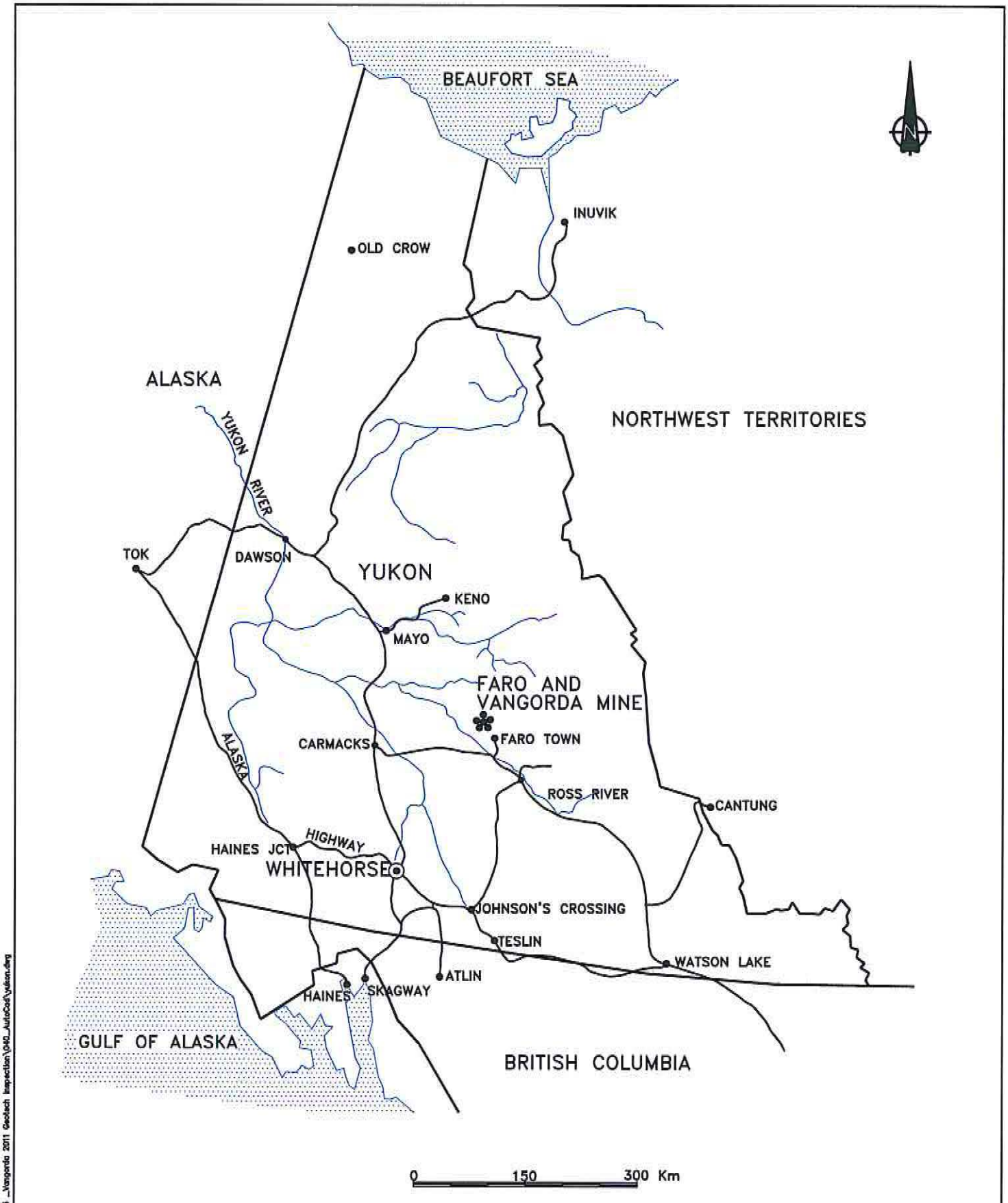
Instrument		Trigger Levels	Maximum Levels	Max Observed Levels	Date of Max Observed levels	Frequency	Action when Trigger level reached	Comments
		(mamsl)	(mamsl)	(mamsl)	(mm/yy)			
BH94 LCD1	Deep	1107	1108	1105.82	Aug-01	SF(M,S)	1. Check Little Creek Pond Level 2. Recheck reading 3. Check instrument 4. Advise Environmental Coordinator and Site Manager 5. Lower Little Creek pond level 6. Notify Consultant	
BH94 LCD1	Shallow	1107	1108	1105.77	Sep-96	SF(M,S)		
BH94 LCD2	Deep	1103	1104	1102.32	Sep-06	SF(M,S)		
BH94 LCD2	Shallow	1103	1104	1101.76	Sep-06	SF(M,S)		
BH94 LCD3	Deep	1109	1110	1108.62	Sep-06	SF(M,S)		
BH94 LCD3	Shallow	1107	1108	1106.76	Sep-06	SF(M,S)		
Pond Level		1111.6	1112.6	1111.70	May-08		Lower pond Level	
		(°C)	(°C)	(°C)				
BH94 LCD4	+0.0 to -3m	+10 < X < -3	+10 < X < -3	+11.5 < X < -2.8	Mar-08	SF(M,S)	1. Recheck reading 2. Check Instrument 3. Advise Environmental Coordinator and Site Manager 4. Notify Consultant	
	-15 to -18m	+8 < X < +1	+8 < X < +1	+6.7 < X < +2	Jun-94	SF(M,S)		
BH94 LCD5	+0.0 to -3m	+10 < X < -3	+10 < X < -3	+9.8 < X < -2	Jun-08	SF(M,S)		
	-15 to -18m	+8 < X < +1	+8 < X < +1	+7.8 < X < +1.8	Sep-00	SF(M,S)		
BH94 LCD6	+0.0 to -3m	+10 < X < -3	+10 < X < -3	+13 < X < -2	Apr-08	SF(M,S)		
	-15 to -18m	+8 < X < +1	+8 < X < +1	+8.2 < X < +2.2	Jun-00	SF(M,S)		
SF = Spring(May) and Fall (September)								

Table 4: Summary of Vangorda Waste Rock Dump Elevations

Site		Date of Most Recent Elevation	Most Recent Elevation	Trigger Levels mamsl	Trigger Activated
V34	GW-94-01	2-Jul-11	1111.542	1115	No
V35	GW-94-02	2-Jul-11	1109.23	1115	No
V36	GW-94-03	2-Jul-11	1109.995	1113	No
V37	GW-94-04	2-Jul-11	1107.586	1109	No
V38	GW-94-05	9-Oct-00	1100.743		
V39	P-94-01A	2-Jul-11	1124.995	1131	No
V40	P-94-01B	2-Jul-11	1130.452	1133	No
V41	P-94-02A	2-Jul-11	1130.092	1133	No
V42	P-94-02B	2-Jul-11	1132.242	1134	No
V43	P-94-02C	2-Jul-11	1121.241	1125	No
V44	P-94-03A	2-Jul-11	1120.397	1126	No
V45	P-94-03B	2-Jul-11	1124.698	1126	No
V47	P-94-04B	13-Jul-10	1125.428	1126	No
	P2001-02A	2-Jul-11	1118.891	1123	No
	P2001-02B	2-Jul-11	1118.583	1123	No
	P2001-03	2-Jul-11	1082.122	1120	No
	P09-LCD-1	2-Jul-11	1093.744		
	P-09-LCD-2	2-Jul-11	1093.456		
	P09-LCD-3	2-Jul-11	1092.035		
	P09-LCD-4	2-Jul-11	1082.498		
	P09-LCD-6	2-Jul-11	1090.572		
	P09-LCD-7	2-Jul-11	1097.125		
DH1	PW-10-01	2-Jul-11	1125.69	1135	No
DH2	PW-10-02	2-Jul-11	1125.39	1131	No
DH3	PW-10-03	2-Jul-11	1122.971	1130	No
DH4	PW-10-04	2-Jul-11	1132.541	1132	No
DH5	PW-10-05	2-Jul-11	1137.861	1139	No

S:\FARO\2210_1CD009.005 _Vangorda 2011 Geotech Inspection\Report\Appendices\Appendix B - LCD Piezo and Thermister rdgs\ Vangorda Waste Rock Piezo Data to 2July2011_r0

List of Figures



srk consulting

Denison Environmental Services

2011 Vangorda Geotechnical Inspection

LOCATION MAP

SRK JOB NO.: 1CD009.005

FILE NAME: yukon.dwg

FARO MINE COMPLEX

DATE: July 2011

APPROVED:

FIGURE: 1

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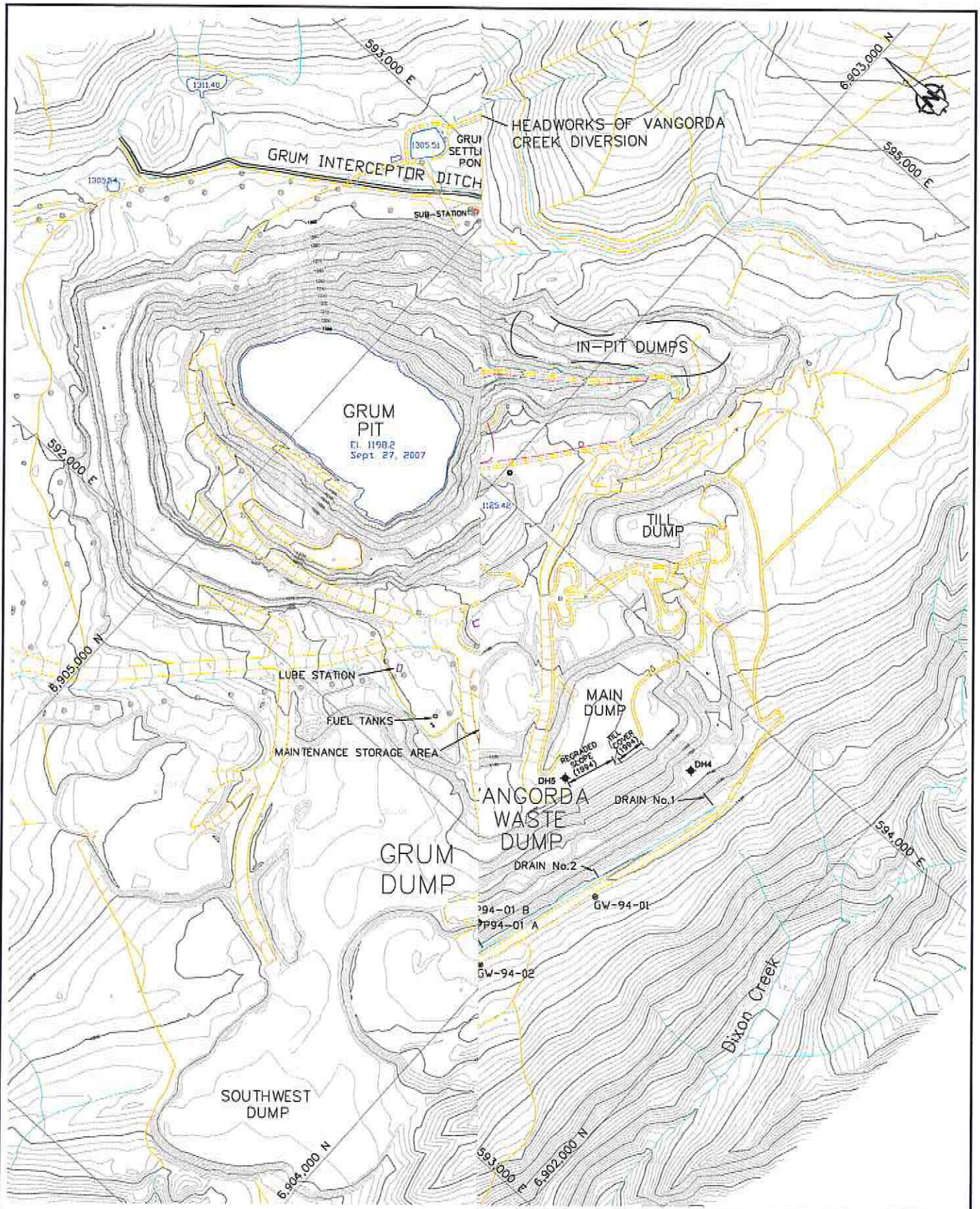

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Contour Interval: 2m
Date of Photography: 03/07/25
Scale of Photography: 1:20000
Survey control derived from existing 1:20000 photography
Survey control based on: UTM Projection, NAD27
Compiled by The ORTHOSHOP, Calgary, September 2003
WO 8856

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E COMPLEX

2011 Vangorda Geotechnical Inspection

General Arrangement Plan

DATE:	APPROVED:	FIGURE:
July 2011		2

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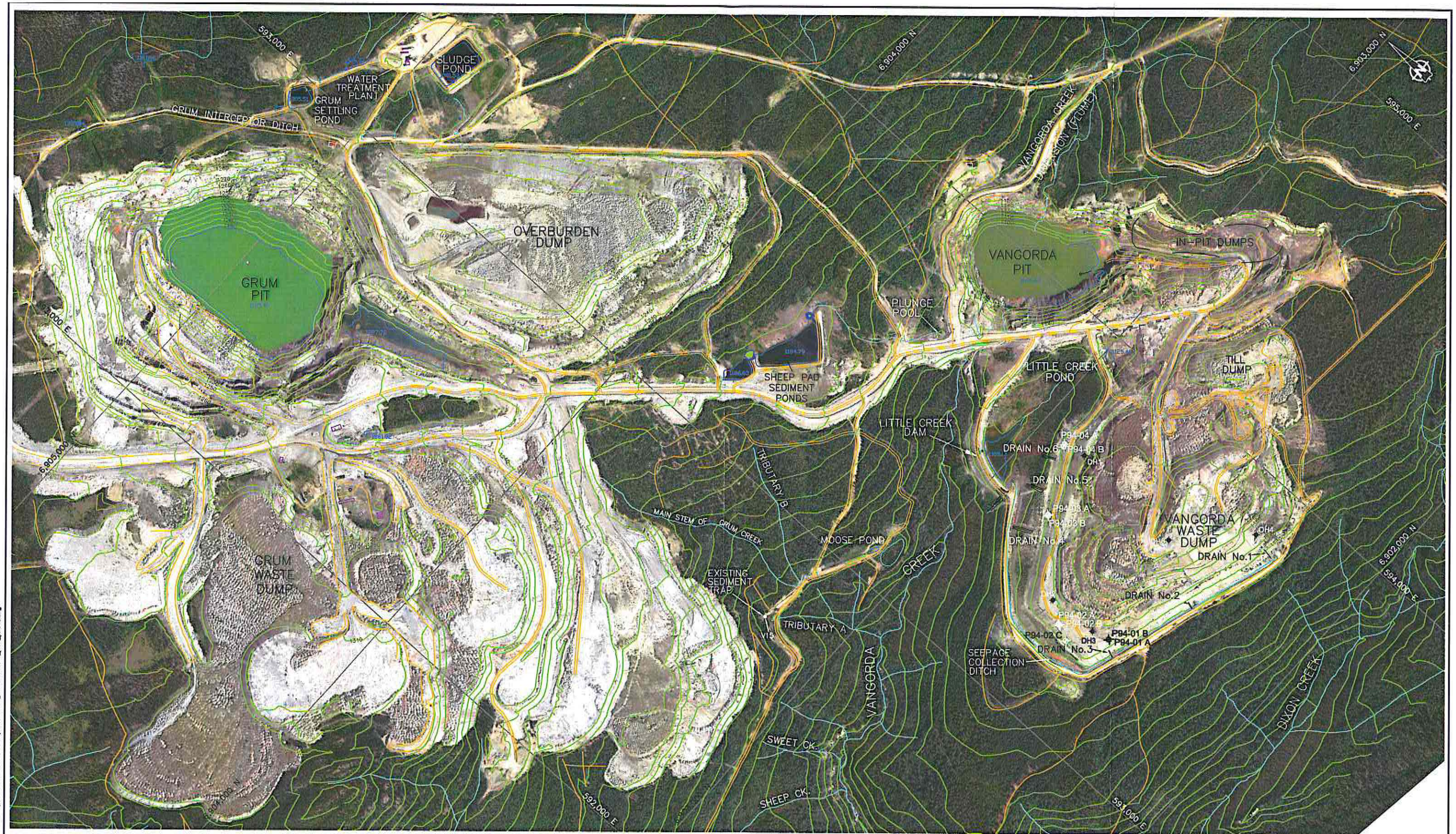

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Date of Photography: 18/09/09
Survey control derived from existing 1:20000 photography
Survey control based on: UTM Projection, NAD27

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Scale 1:10,000

srk consulting

SRK JOB NO.: 1CD009.005
FILE NAME: site_plan_photo.dwg

Denison Environmental Services

FARO MINE COMPLEX

2011 Vangorda Geotechnical Inspection

ORTHO-RECTIFIED MOSAIC, WITH CONTOURS, OF VANGORDA PLATEAU AREA

DATE:	APPROVED:	FIGURE:
July 2011	PMH	3

J:\01_SITES\YUKON\2229_1CD009.005_Vangorda 2011 Geotech Inspection\04_AutoCad\site_plan_photo.dwg

LEGEND

- Piezometer Location
- Monitoring Well Location (1994)
- Monitoring Well Location (2010)
- Monitoring Well Location (2009)

Contour Interval: 2m
Survey control based on: UTM Projection, NAD83
Based on The ORTHOSHOP, Calgary, September 2003

0 50 100 150 200 250
Scale in Metres

srk consulting

SRK JOB NO.: 1CD009.005
FILE NAME: site_plan nad 83.dwg

Denison Environmental Services

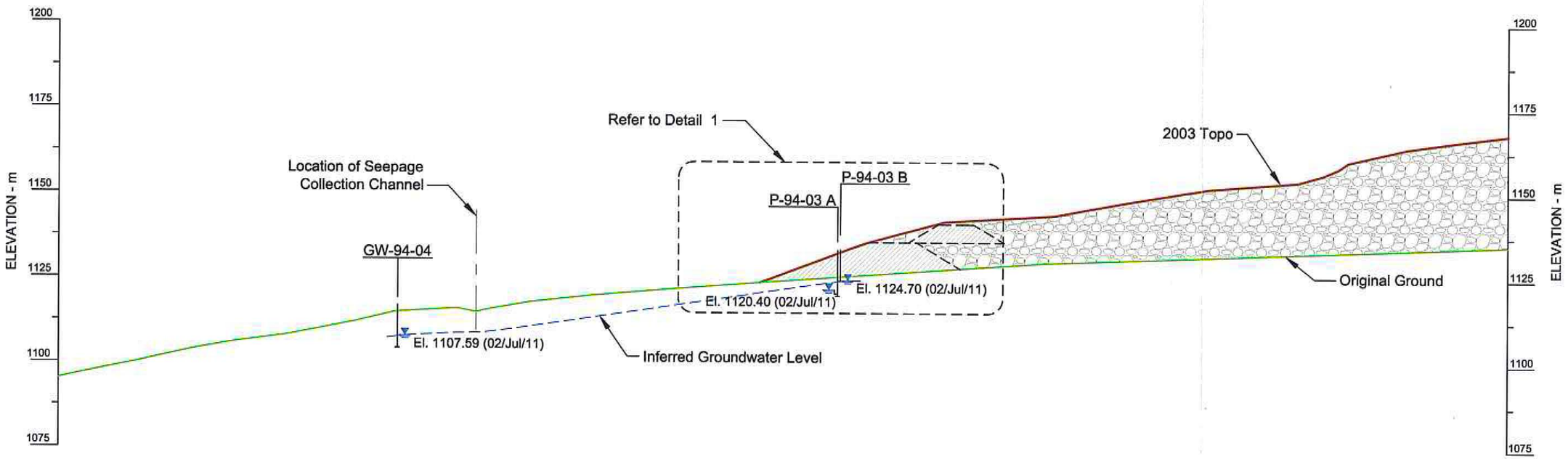
FARO MINE COMPLEX

2011 Vangorda Geotechnical Inspection

General Arrangement Plan
Vangorda Waste Rock Dump

DATE:	APPROVED:	FIGURE:
July 2011	JK	4

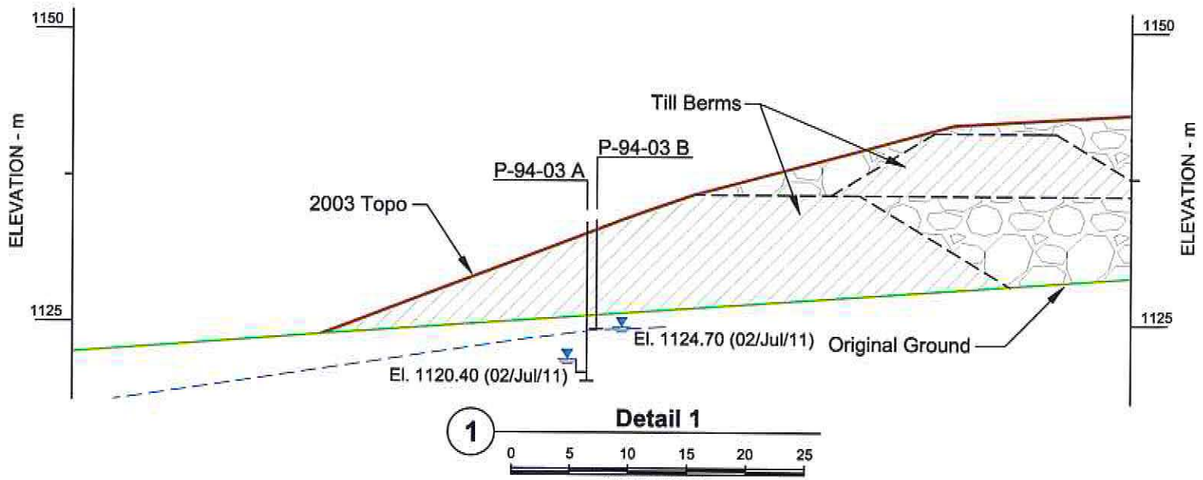
\\Vl_SITES\FARO\2010_1CD009.005 _Vangorda 2011 Geotech Inspection\2400_AutoCad\site_plan nad 83.dwg



A SECTION A-A'

0 10 20 30 40 50

Scale in Metres



1 Detail 1

0 5 10 15 20 25

Scale in Metres

LEGEND

- Phyllite Waste Rock
- Till

NOTE

1. Till berm locations based on available 1994 construction data.

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SRK JOB NO.: 1CD009.005

FILE NAME: SectionA.dwg

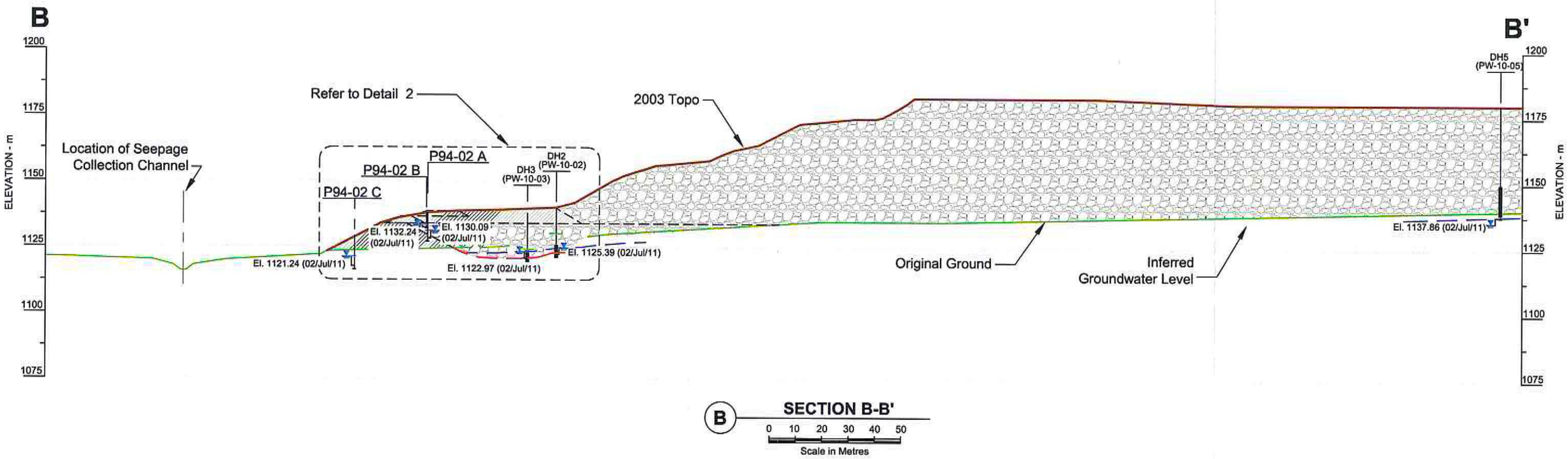
Denison Environmental Services

FARO MINE COMPLEX

2011 Vangorda Geotechnical Inspection

Vangorda Waste Dump
Section A

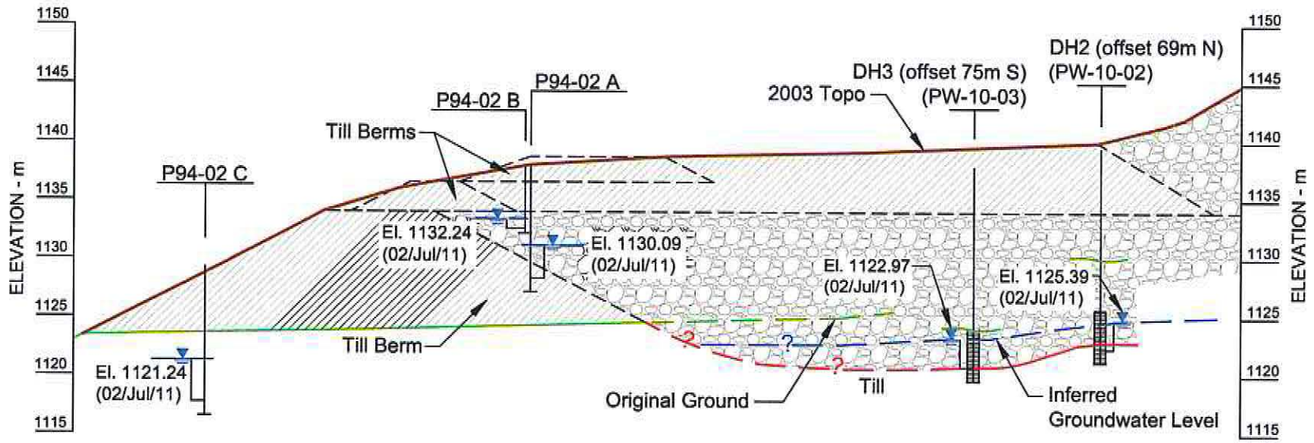
DATE:	APPROVED:	FIGURE:
July 2011	PMH	5



B — SECTION B-B'

0 10 20 30 40 50

Scale in Metres



2 — DETAIL 2

0 5 10 15 20 25

Scale in Metres

LEGEND

- Phyllite Waste Rock
- Till
- Original 1990 Topography (pre-mining)
- Top of Till Horizon as Interpreted from Drilling
- Inferred Groundwater Level

NOTE

1. Till berm locations based on available 1994 construction data.
2. Water level is in sump below screen indicating water level is not currently within the dump.

srk consulting	Denison Environmental Services	2011 Vangorda Geotechnical Inspection
SRK JOB NO.: 1CD009.005	FARO MINE COMPLEX	Vangorda Waste Dump Section B
FILE NAME: SectionB-E.dwg	DATE: July 2011 / APPROVED: JK	FIGURE: 6

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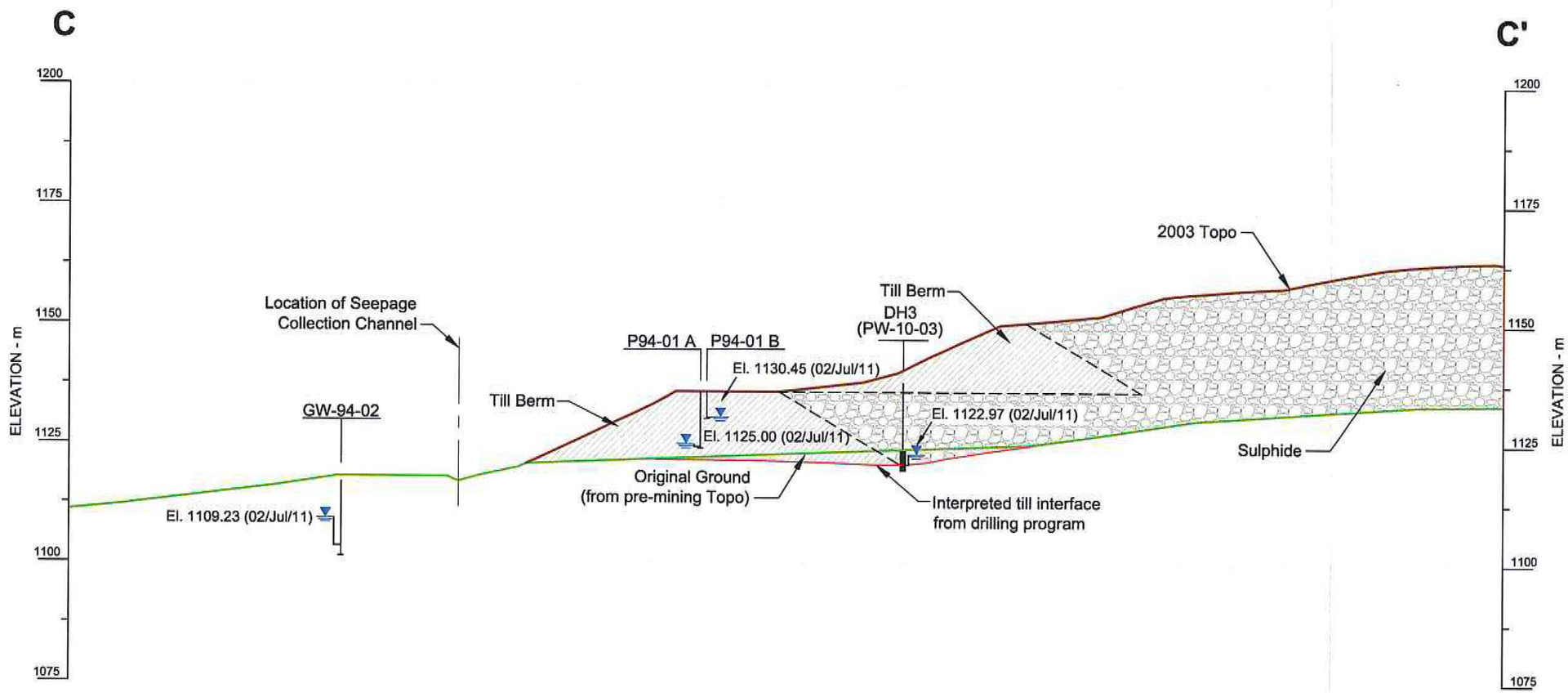


C SECTION C-C'

0 10 20 30 40 50

Scale in Metres

LEGEND

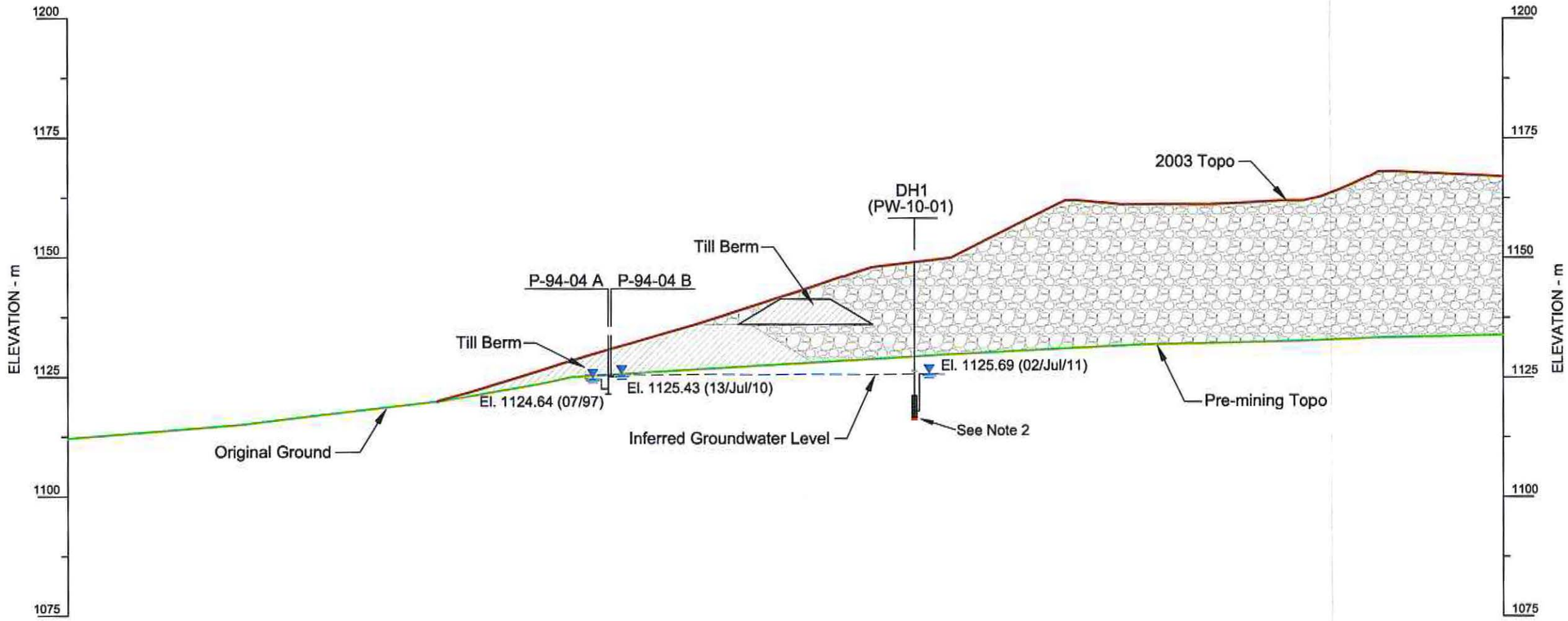
Phyllite Waste Rock

Till

NOTE

1. Till berm locations based on available 1994 construction data.

srk consulting	Denison Environmental Services	2011 Vangorda Geotechnical Inspection
SRK JOB NO.: 1CD009.005		Vangorda Waste Dump Section C
FILE NAME: SectionC.dwg	FARO MINE COMPLEX	DATE: July 2011 / APPROVED: PMH / FIGURE: 7



D **SECTION D-D'**

0 10 20 30 40 50

Scale in Metres

LEGEND

- Phyllite Waste Rock
- Till Berm
- Original Pre-mining Topography

NOTE

1. Till berm locations based on available 1994 construction data.
2. No till was encountered during drilling. It was not possible to differentiate between waste rock and bedrock.

srk consulting	Denison Environmental Services	2011 Vangorda Geotechnical Inspection
SRK JOB NO.: 1CD009.005		Vangorda Waste Dump Section D
FILE NAME: SectionD.dwg	FARO MINE COMPLEX	DATE: July 2011 / APPROVED: PMH / FIGURE: 8

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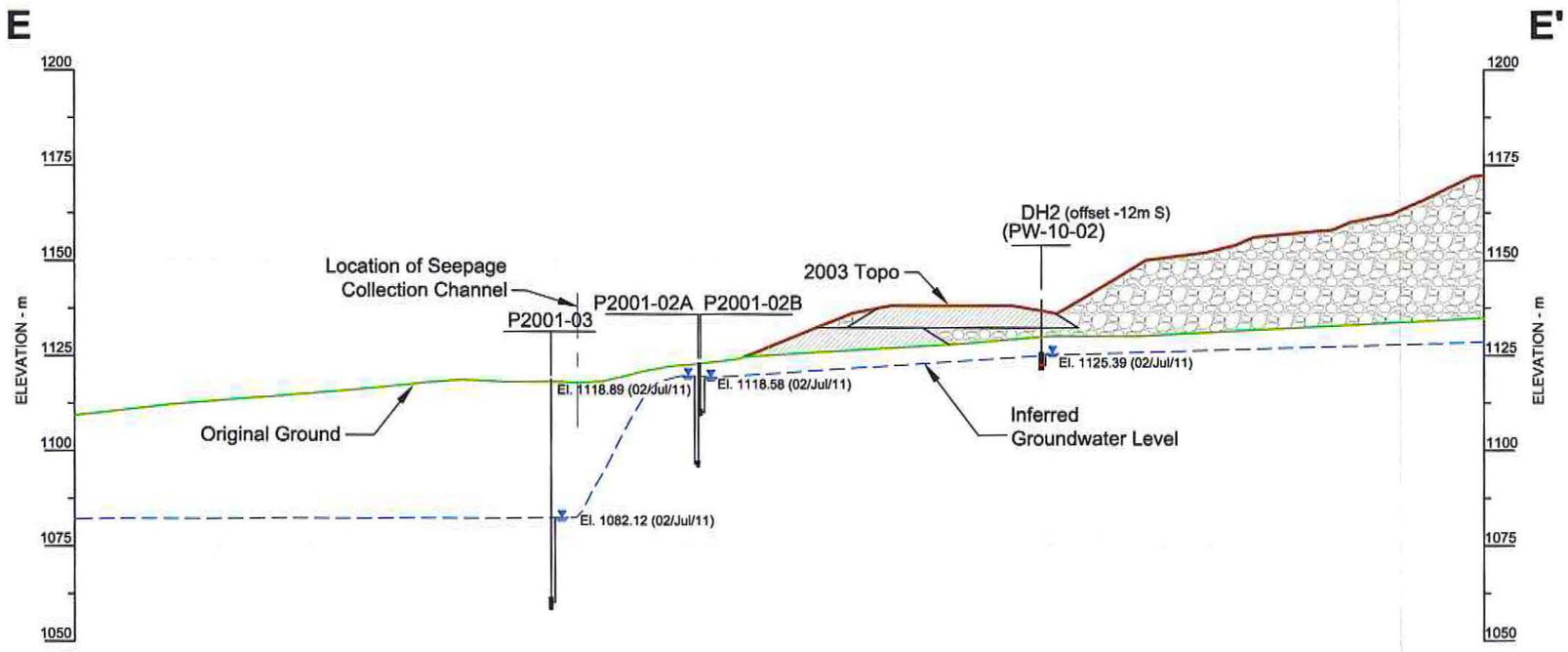

E **SECTION E-E'**

0 10 20 30 40 50

Scale in Metres

LEGEND

- Phyllite Waste Rock
- Till
- Original 1990 Topography (pre-mining)
- Original Ground Interpreted During Drilling

NOTE

1. Till berm locations based on available 1994 construction data.
2. Water level is in sump below screen indicating water level is not currently within the dump.

srk consulting	Denison Environmental Services	2011 Vangorda Geotechnical Inspection
SRK JOB NO.: 1CD009.005	FARO MINE COMPLEX	Vangorda Waste Dump Section E
FILE NAME: SectionB-E.dwg	DATE: July 2011 / APPROVED: JK / FIGURE: 9	

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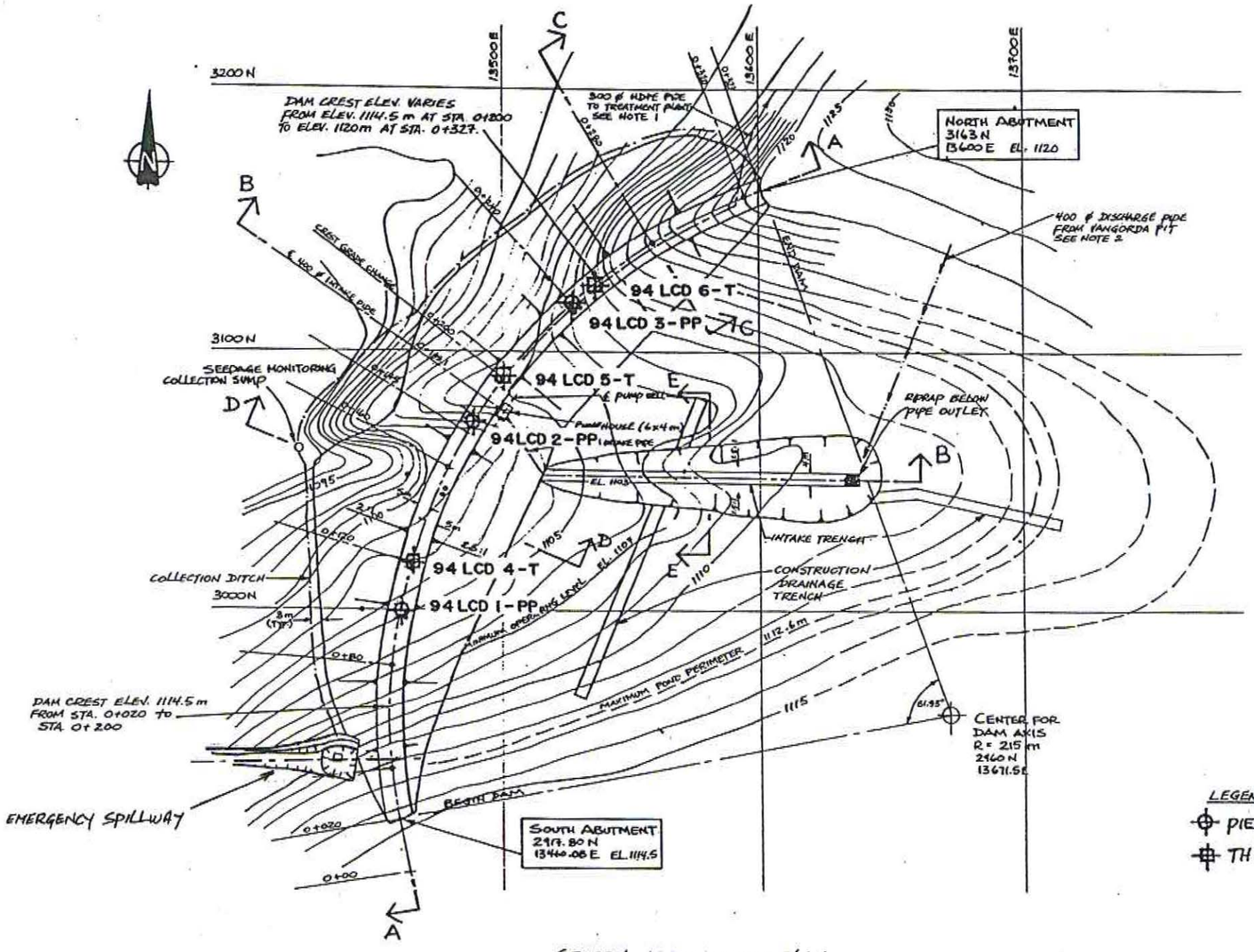

GENERAL ARRANGEMENT PLAN

SCALE - 1:2000

0 10 20 30 40 50 metres
1:2000

srk consulting	Denison Environmental Services	2011 Vangorda Geotechnical Inspection
SRK JOB NO.: 1CD009.005	FARO MINE COMPLEX	LITTLE CREEK DAM GENERAL ARRANGEMENT PLAN
FILE NAME: FIG-10.dwg	DATE: July 2011 / APPROVED: PMH / FIGURE: 10	

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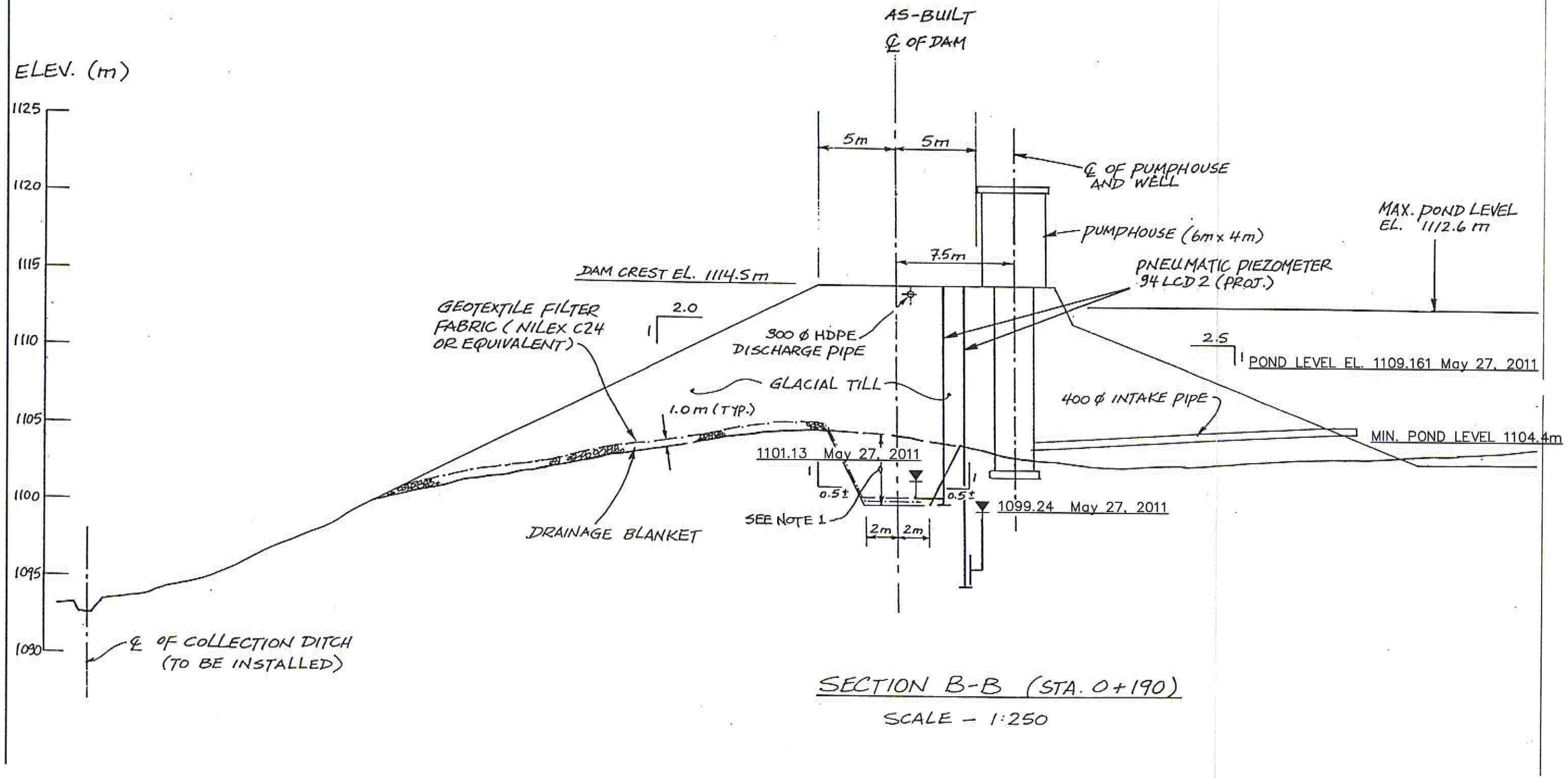
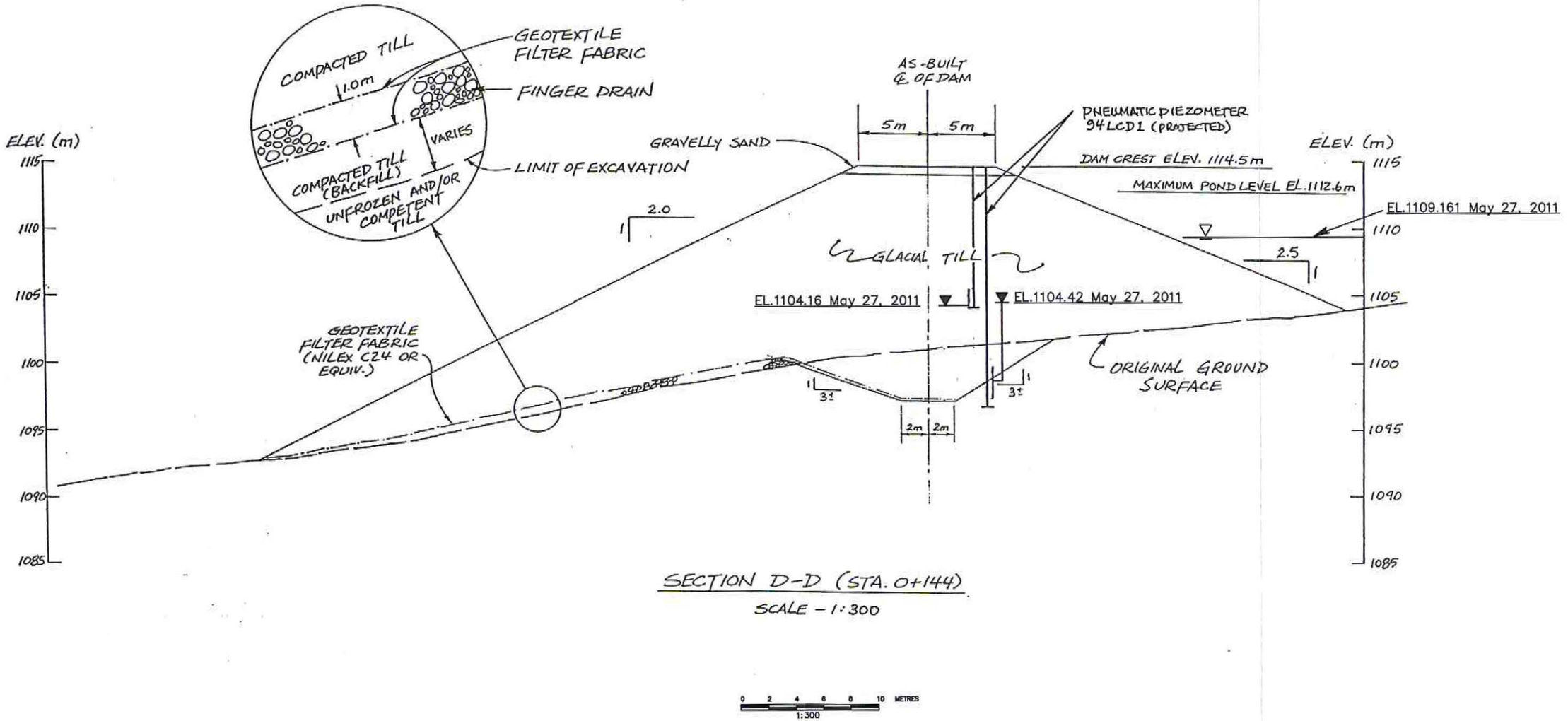


SECTION B-B (STA. 0+190)

SCALE – 1:250

4:\01_SITES\FARO\2210_1CD009.005 _Vangorda 2011 Geotech Inspection\040_AutoCad\FIG-11.dwg

srk consulting	Denison Environmental Services	2011 Vangorda Geotechnical Inspection
SRK JOB NO.: 1CD009.005	FARO MINE COMPLEX	LITTLE CREEK DAM SECTION B-B
FILE NAME: FIG-11.dwg		DATE: July 2011 · APPROVED: PMH · FIGURE: 11

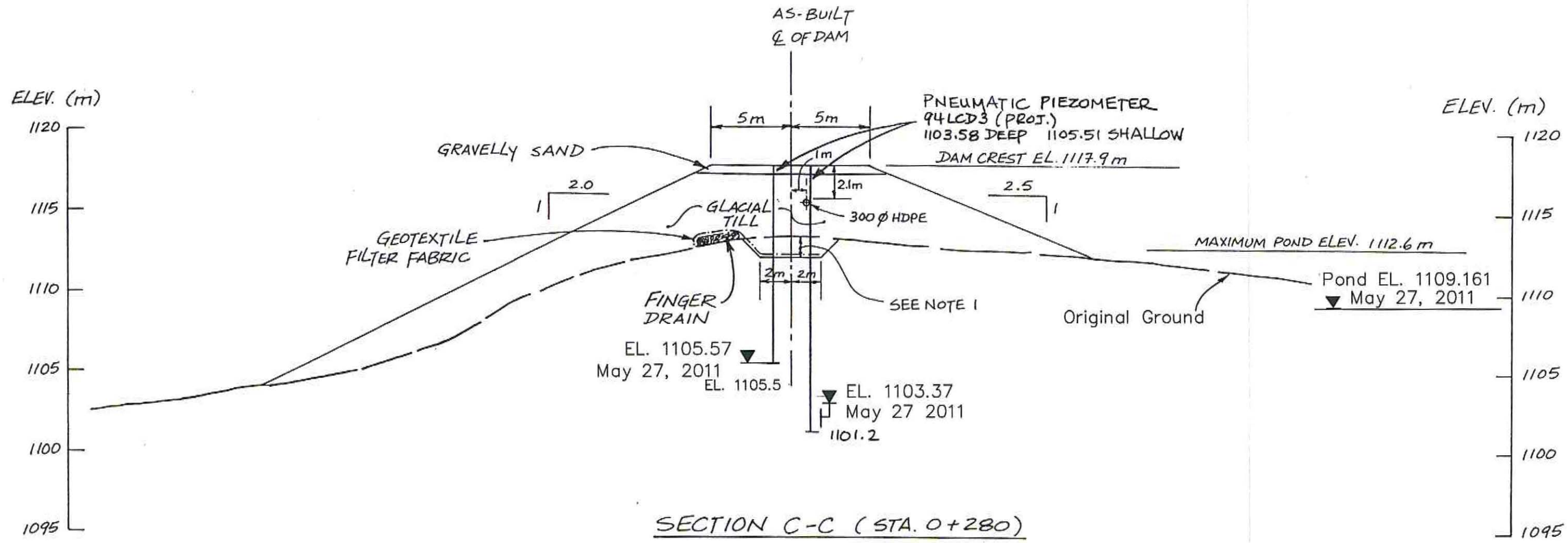


SECTION D-D (STA. 0+144)

SCALE - 1:300

J:\01_SITES\YAR01\2210_1CD009.005 _Vangorda 2011 Geotech Inspection\04D_AutoCad\FIG-12.dwg

srk consulting	Denison Environmental Services	2011 Vangorda Geotechnical Inspection
SRK JOB NO.: 1CD009.005	FARO MINE COMPLEX	LITTLE CREEK DAM SECTION D-D
FILE NAME: FIG-12.dwg		DATE: July 2011 / APPROVED: PMH / FIGURE: 12



SECTION C-C (STA. 0+280)

SCALE - 1:250

0 2 4 6 8 10 METRES
1:250

srk consulting	Denison Environmental Services	2011 Vangorda Geotechnical Inspection
SRK JOB NO.: 1CD009.005		LITTLE CREEK DAM SECTION C-C
FILE NAME: FIG-13.dwg	FARO MINE COMPLEX	DATE: July 2011 / APPROVED: PMH / FIGURE: 13

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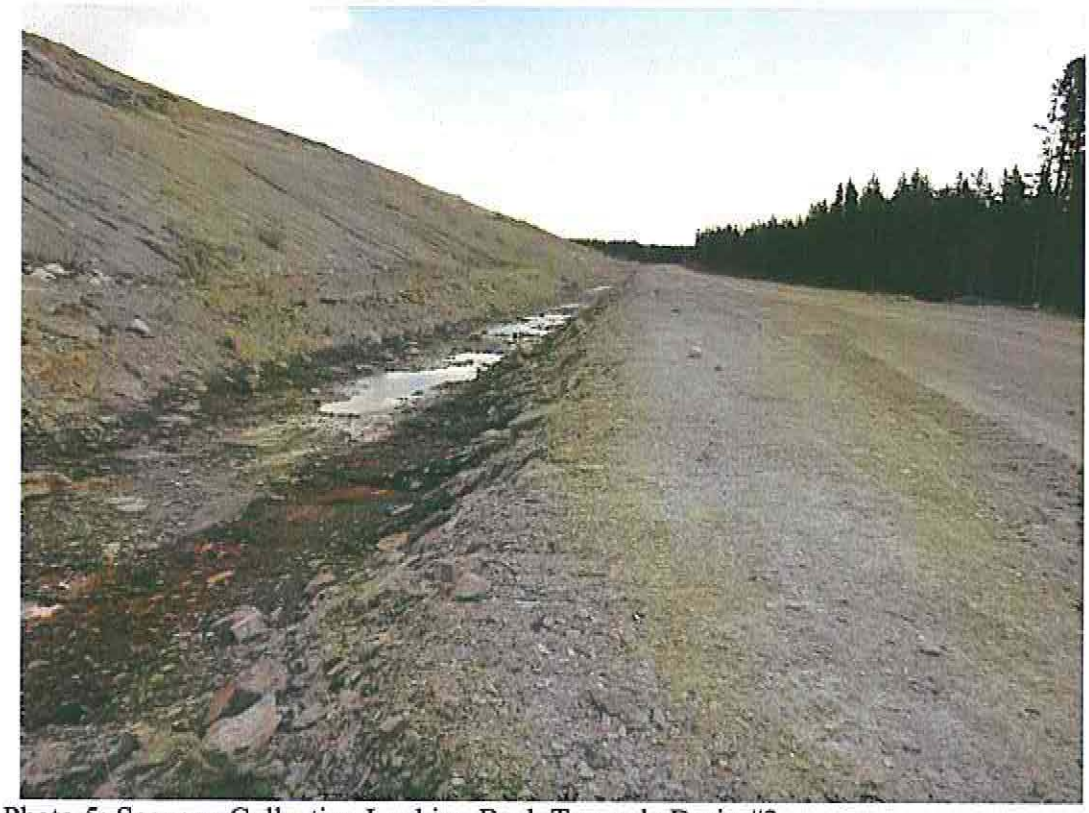

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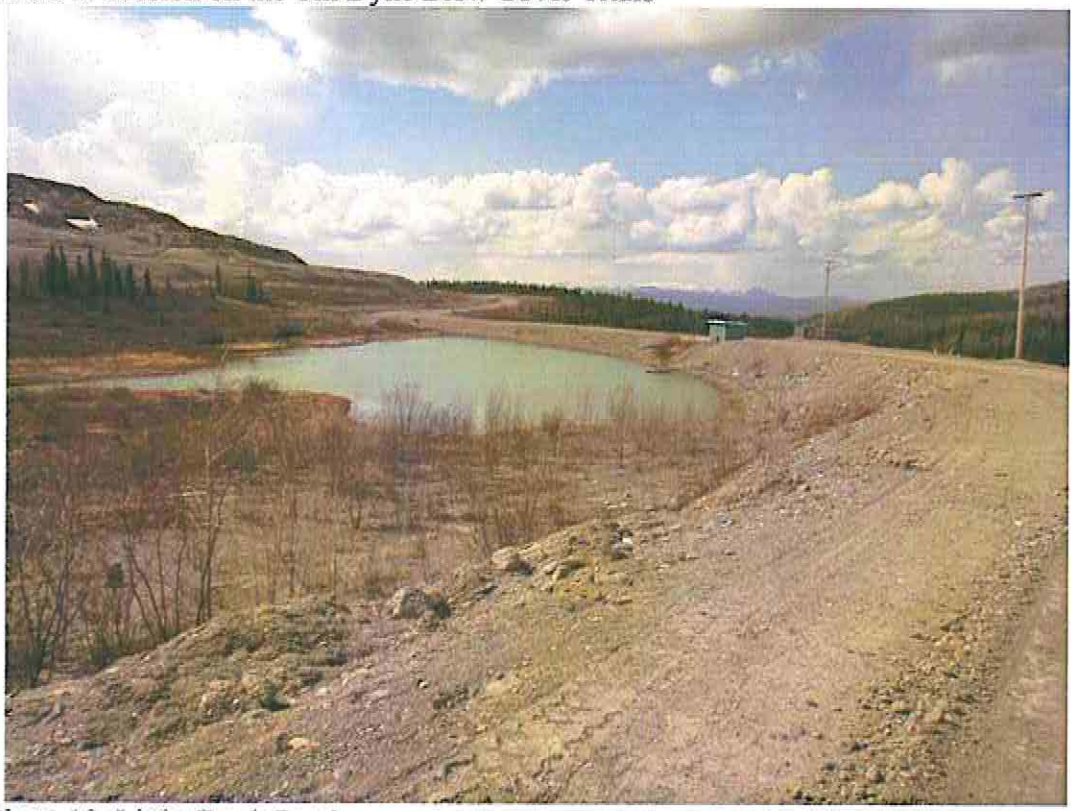

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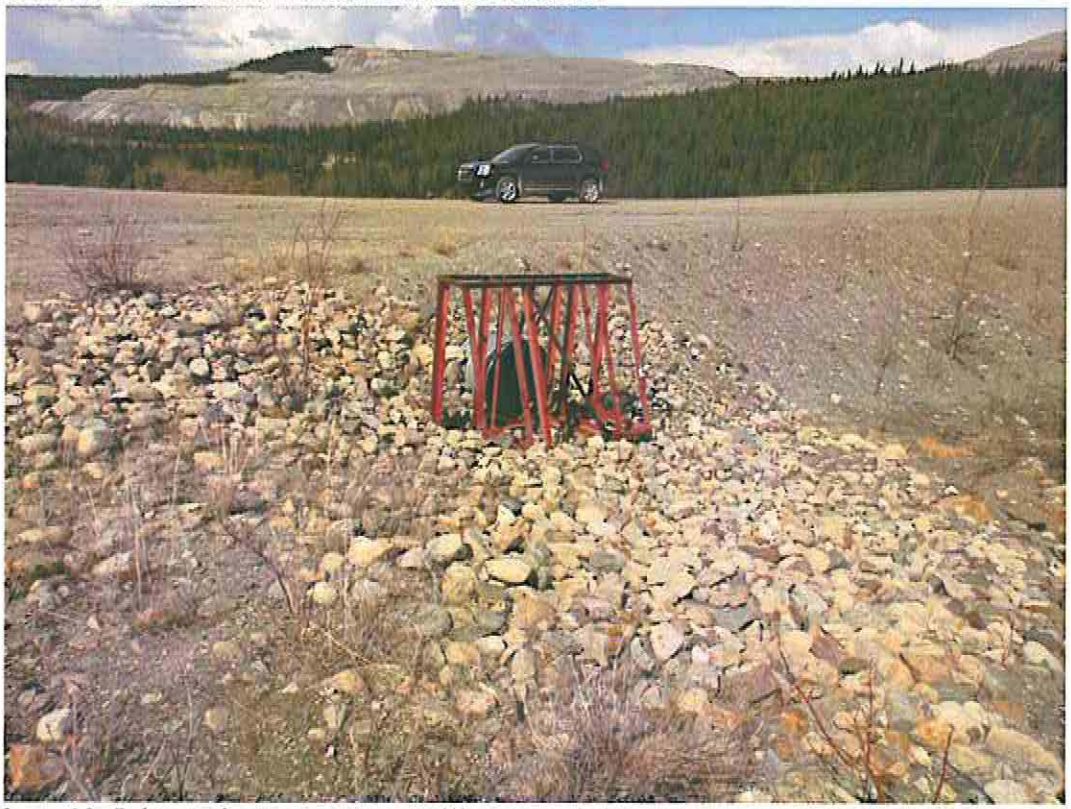

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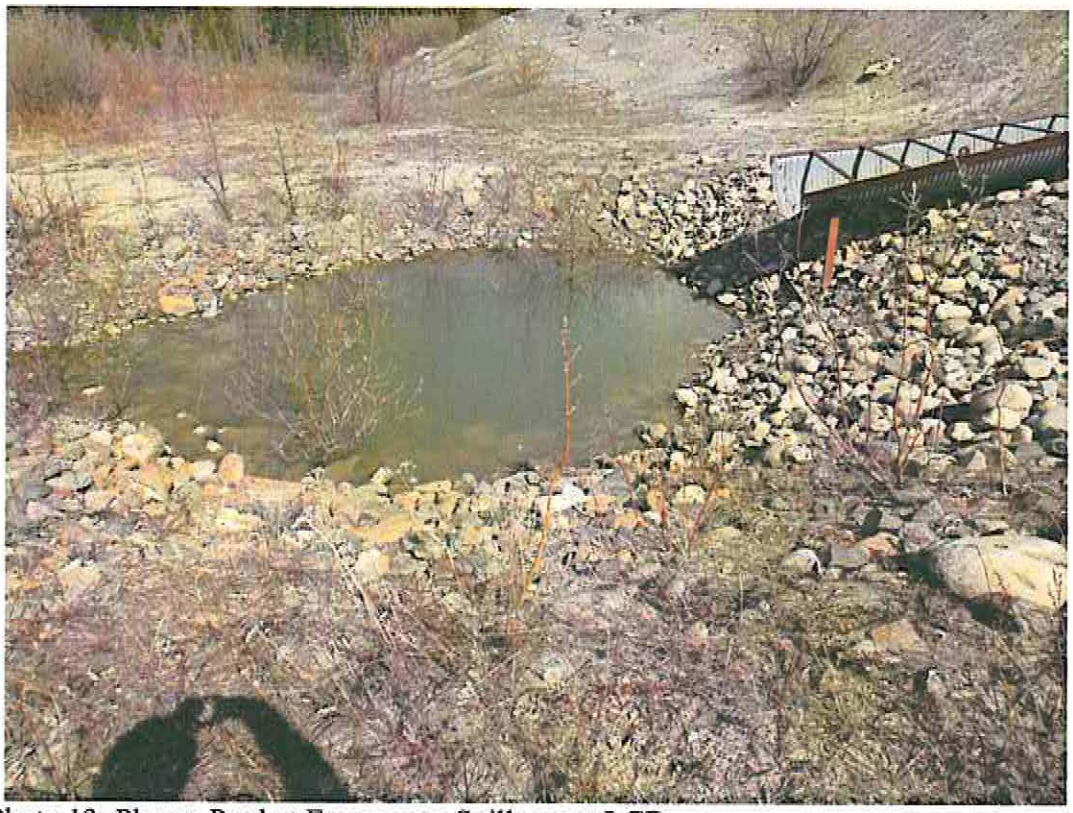

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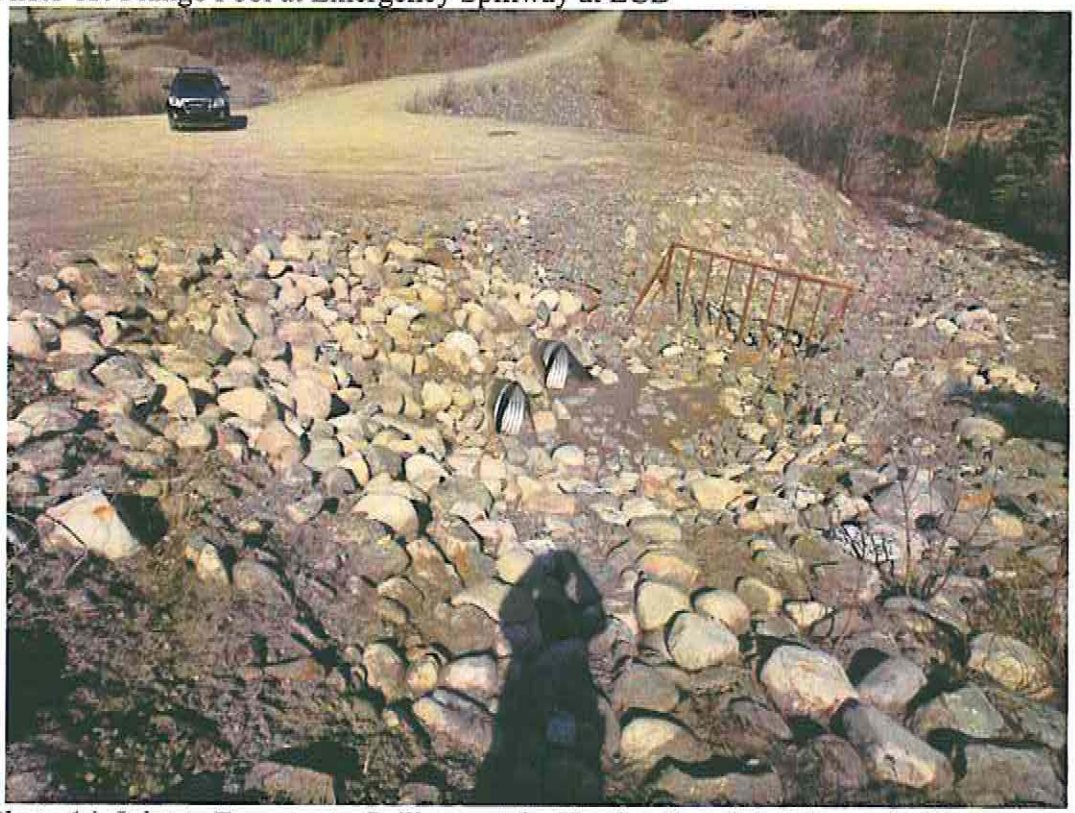

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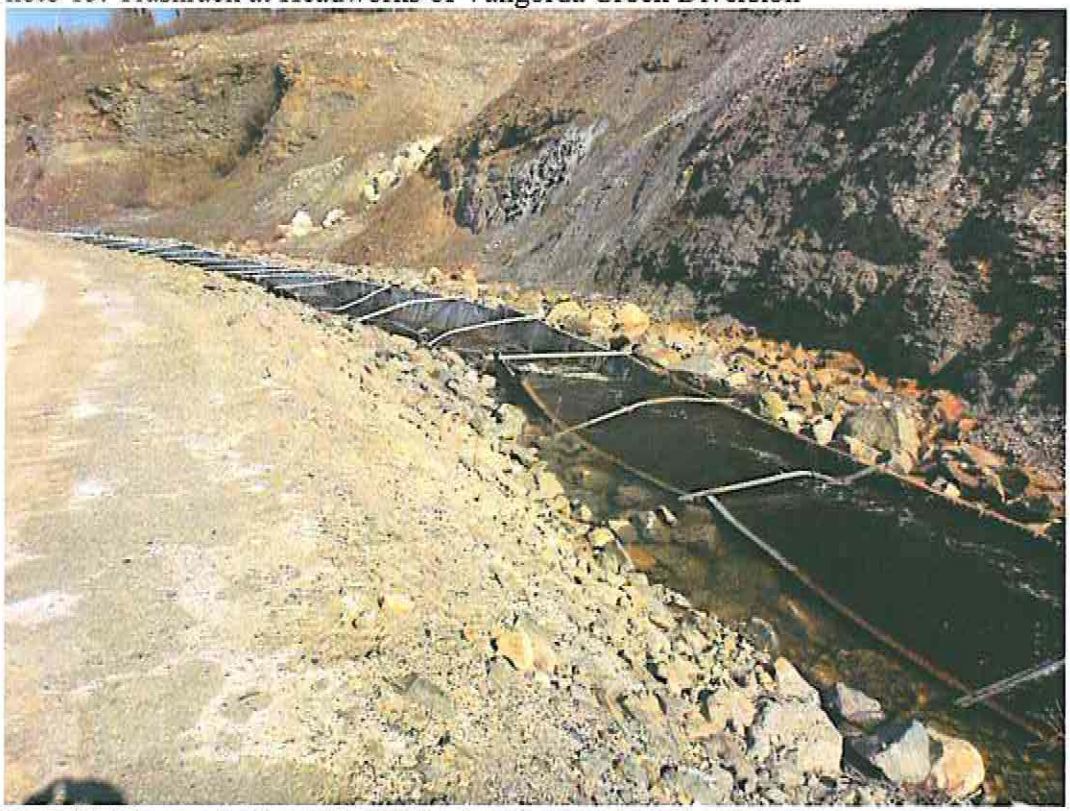

Photo 16: Vangorda Creek Diversion

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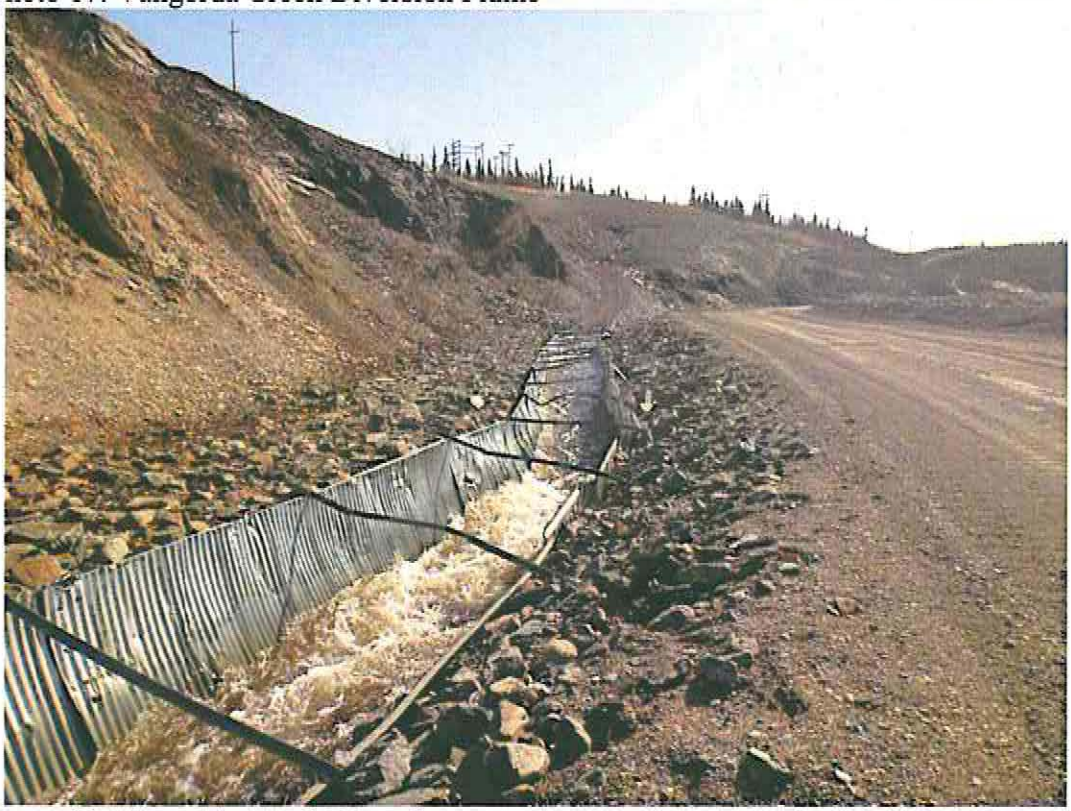

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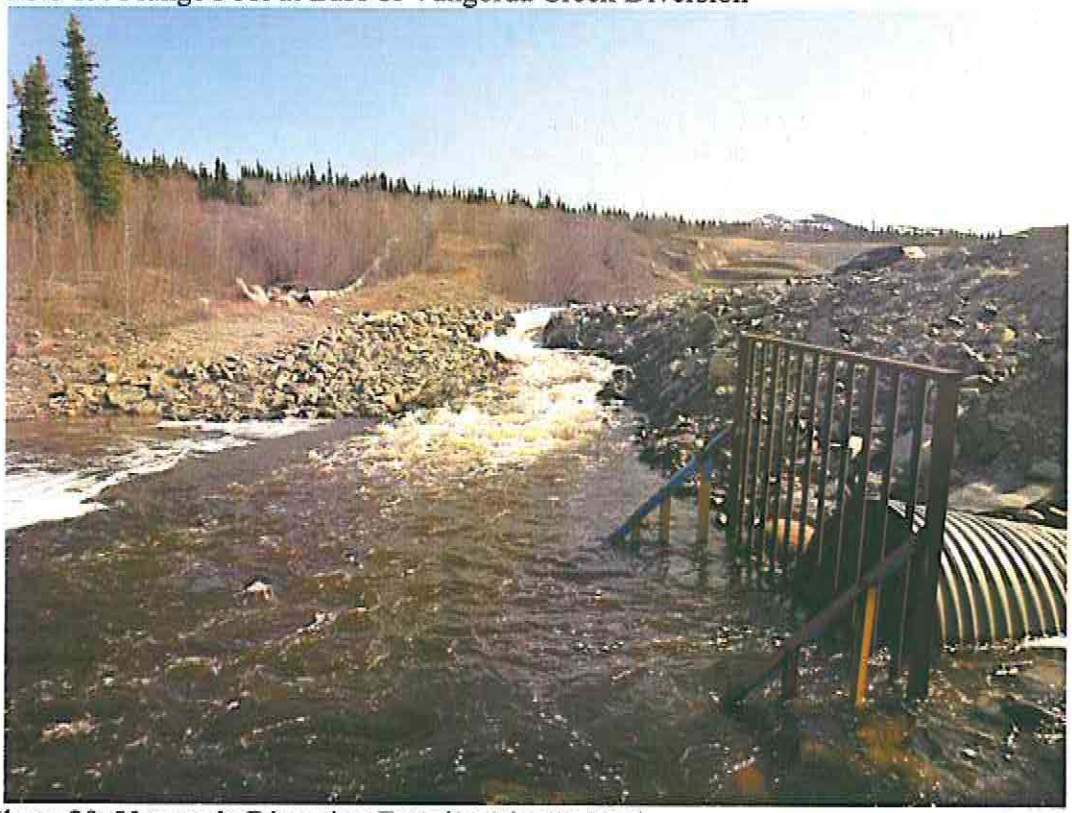

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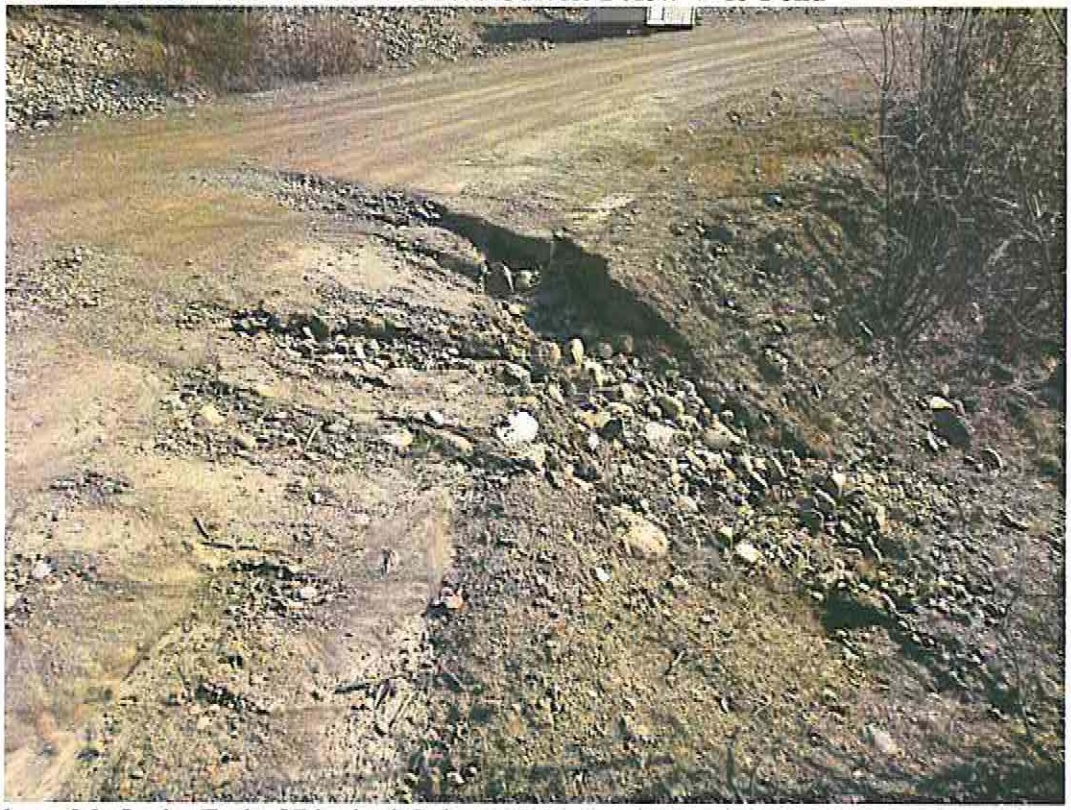

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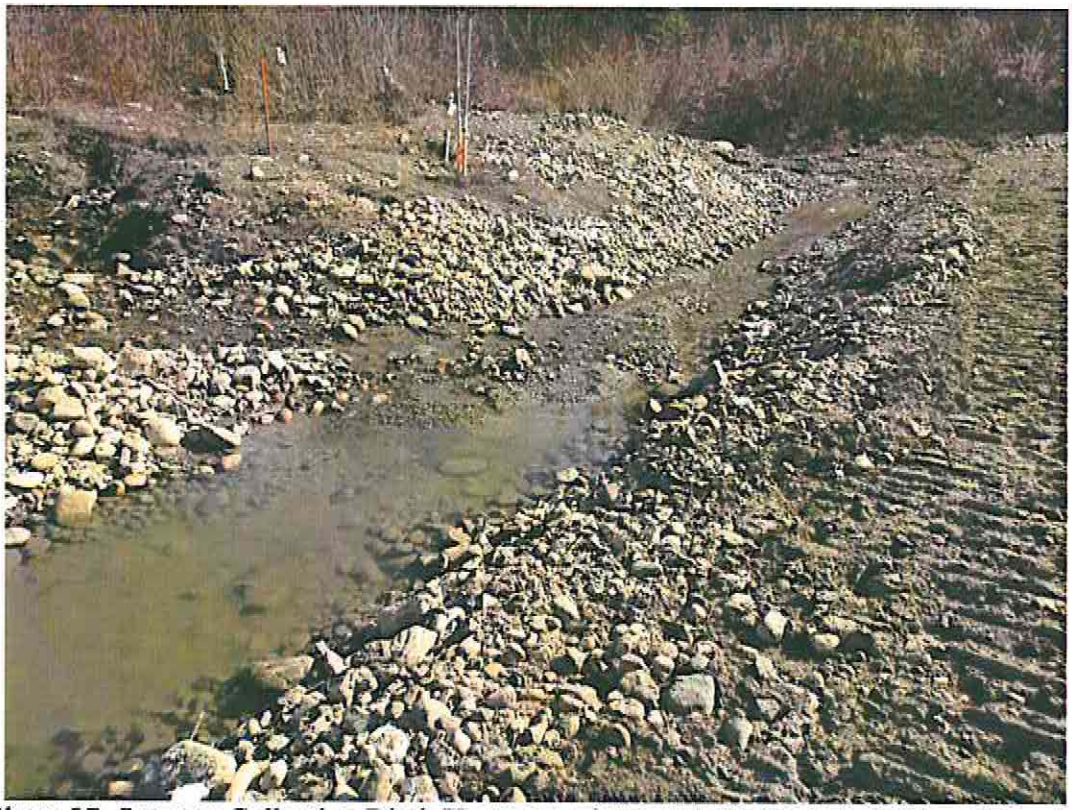

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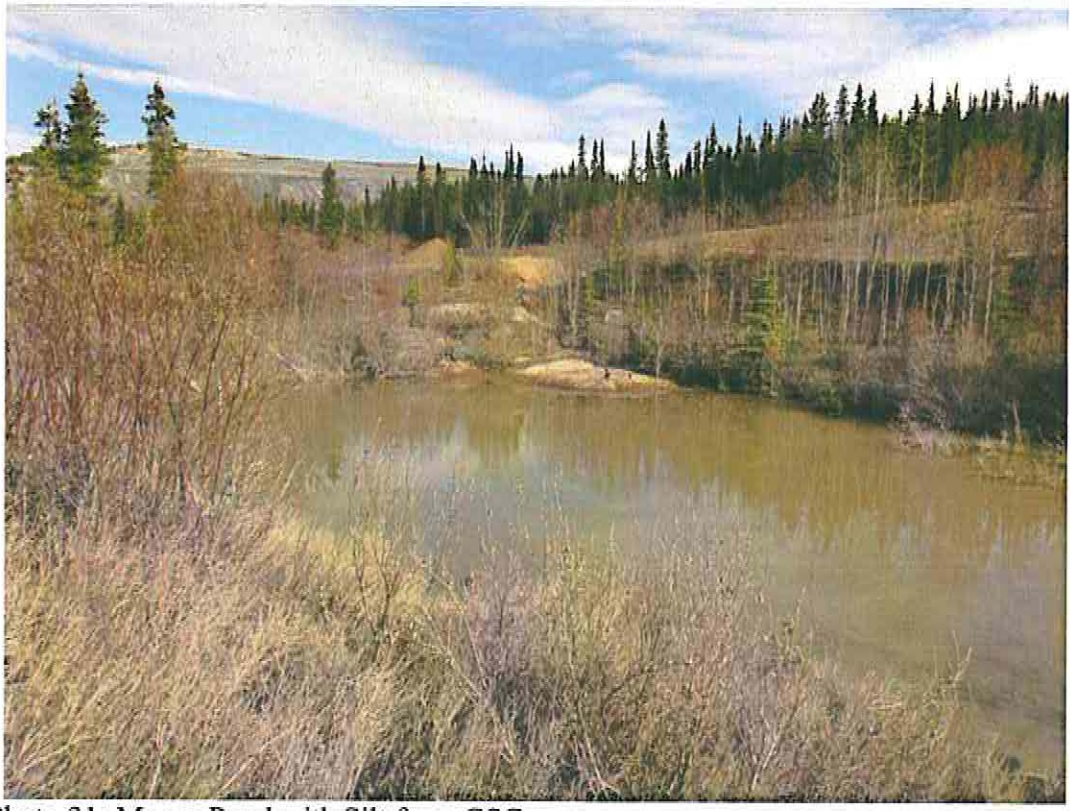

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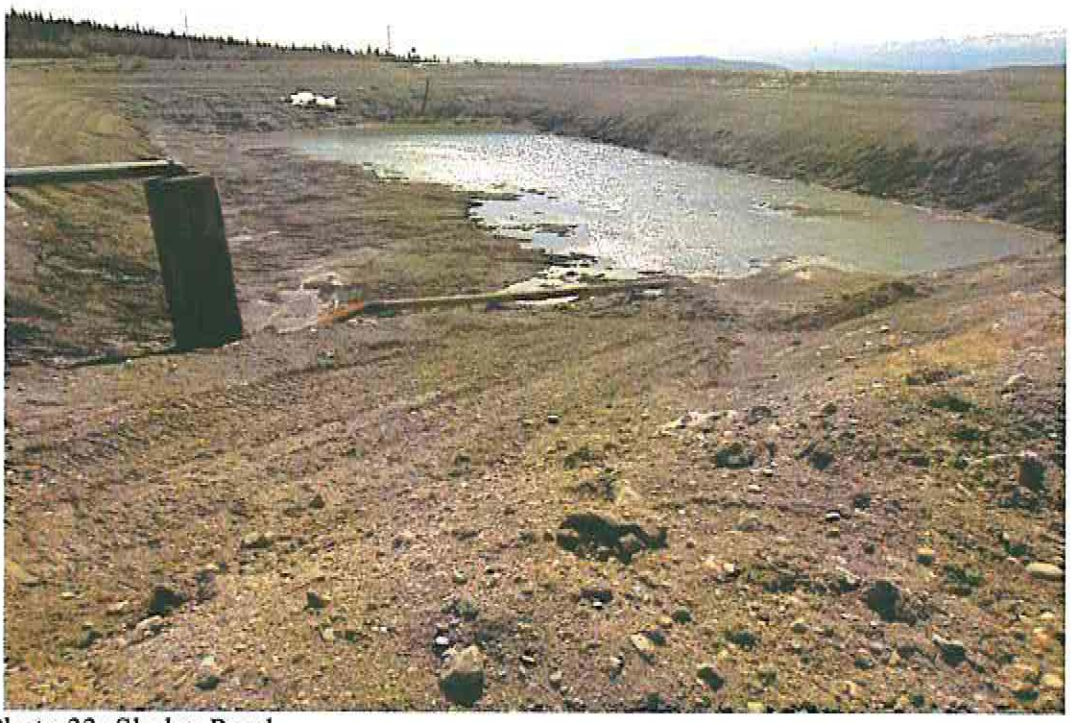
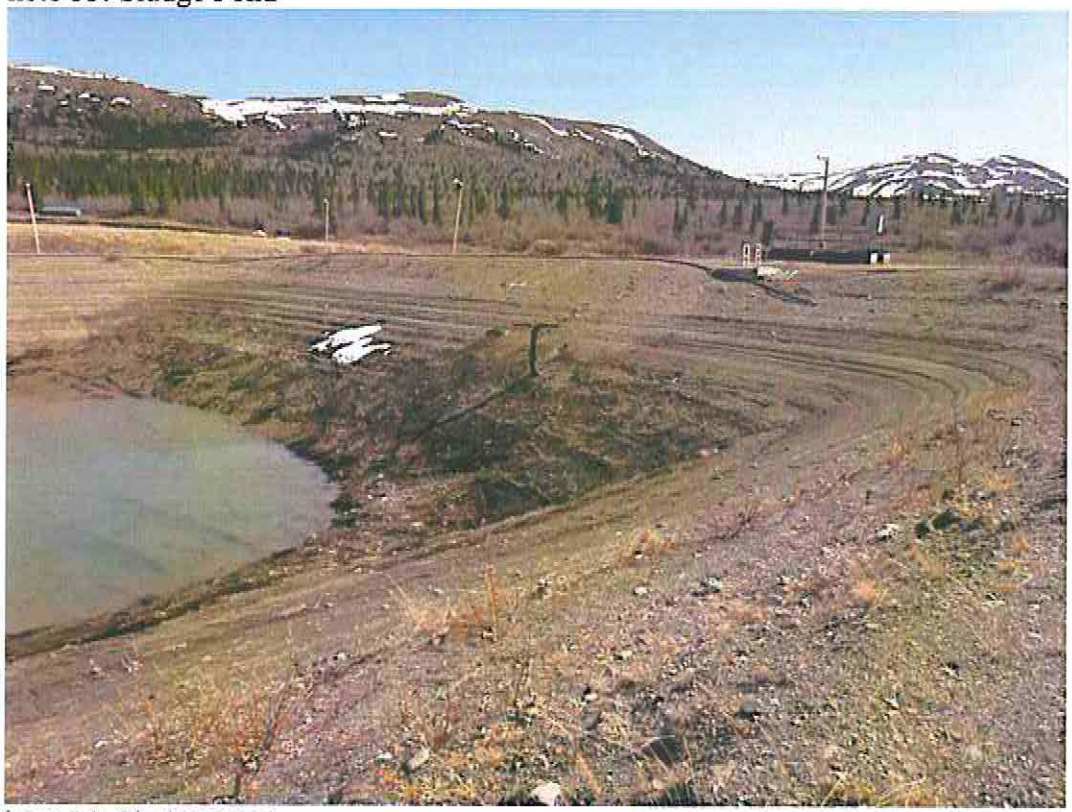


Photo 33: Sludge Pond



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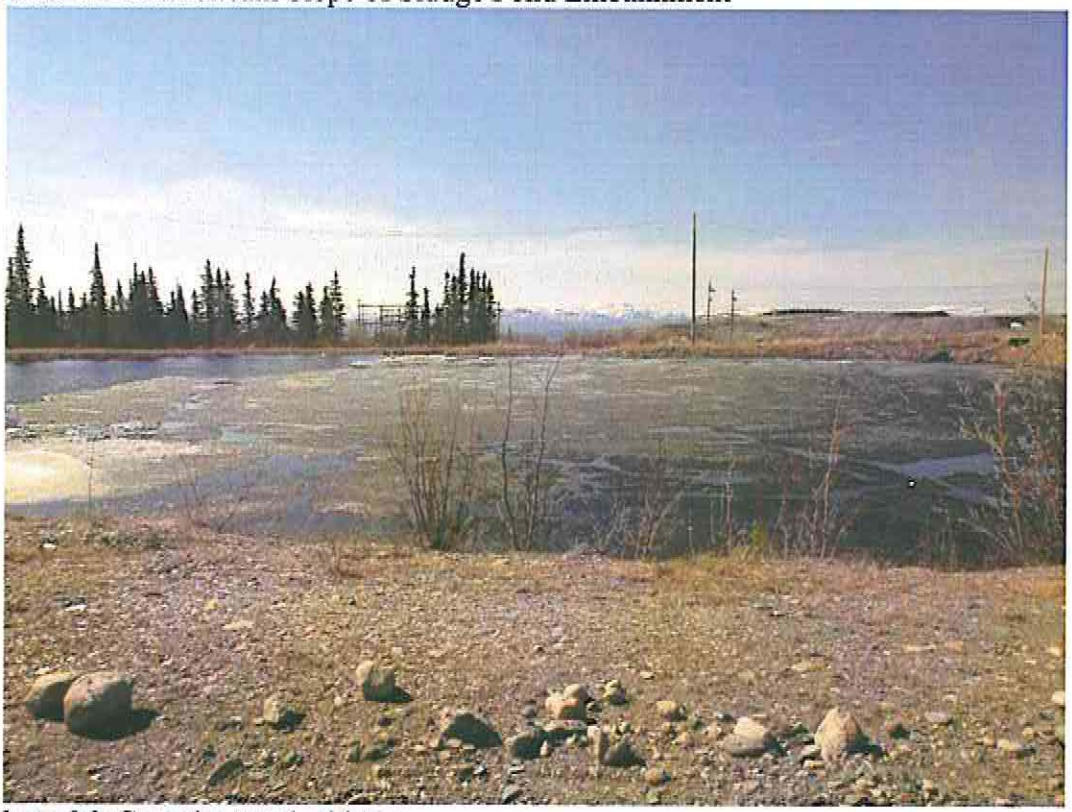

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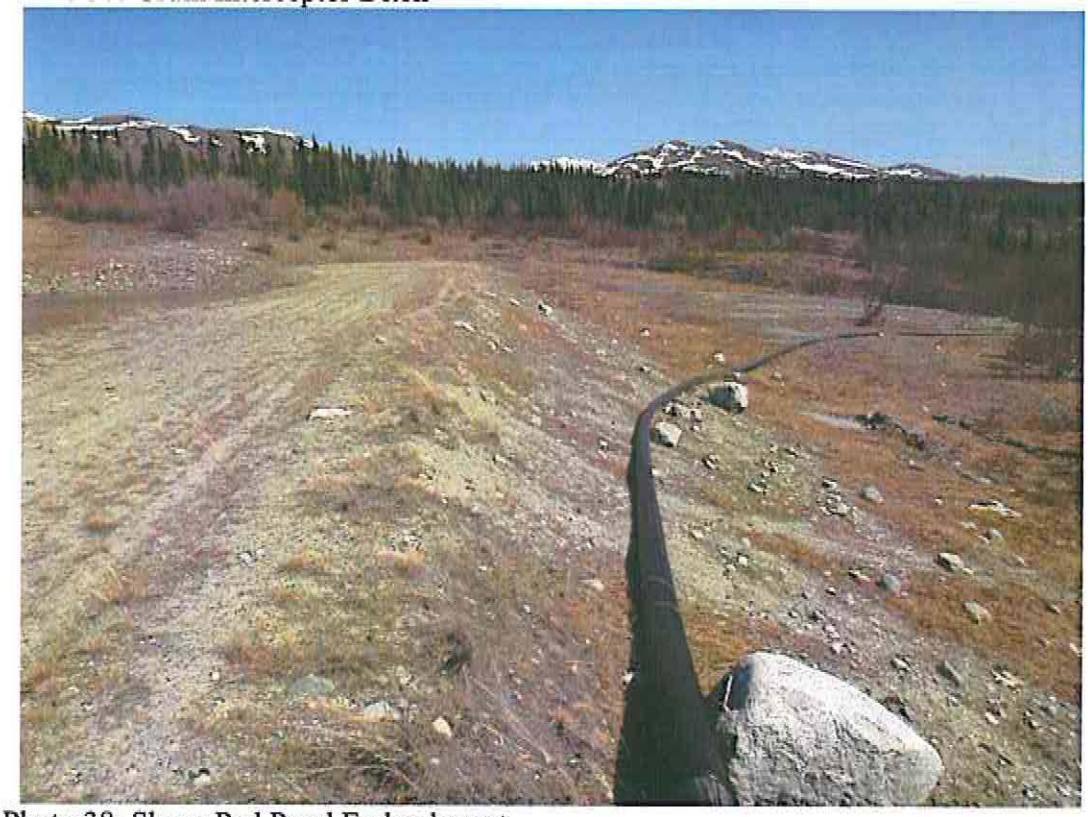


Photo 38: Sheep Pad Pond Embankment

Photo 39: Sheep Pad Pond

Appendix B: Pneumatic Piezometer and Thermistor Readings – Little Creek Dam

Denison Environmental Services

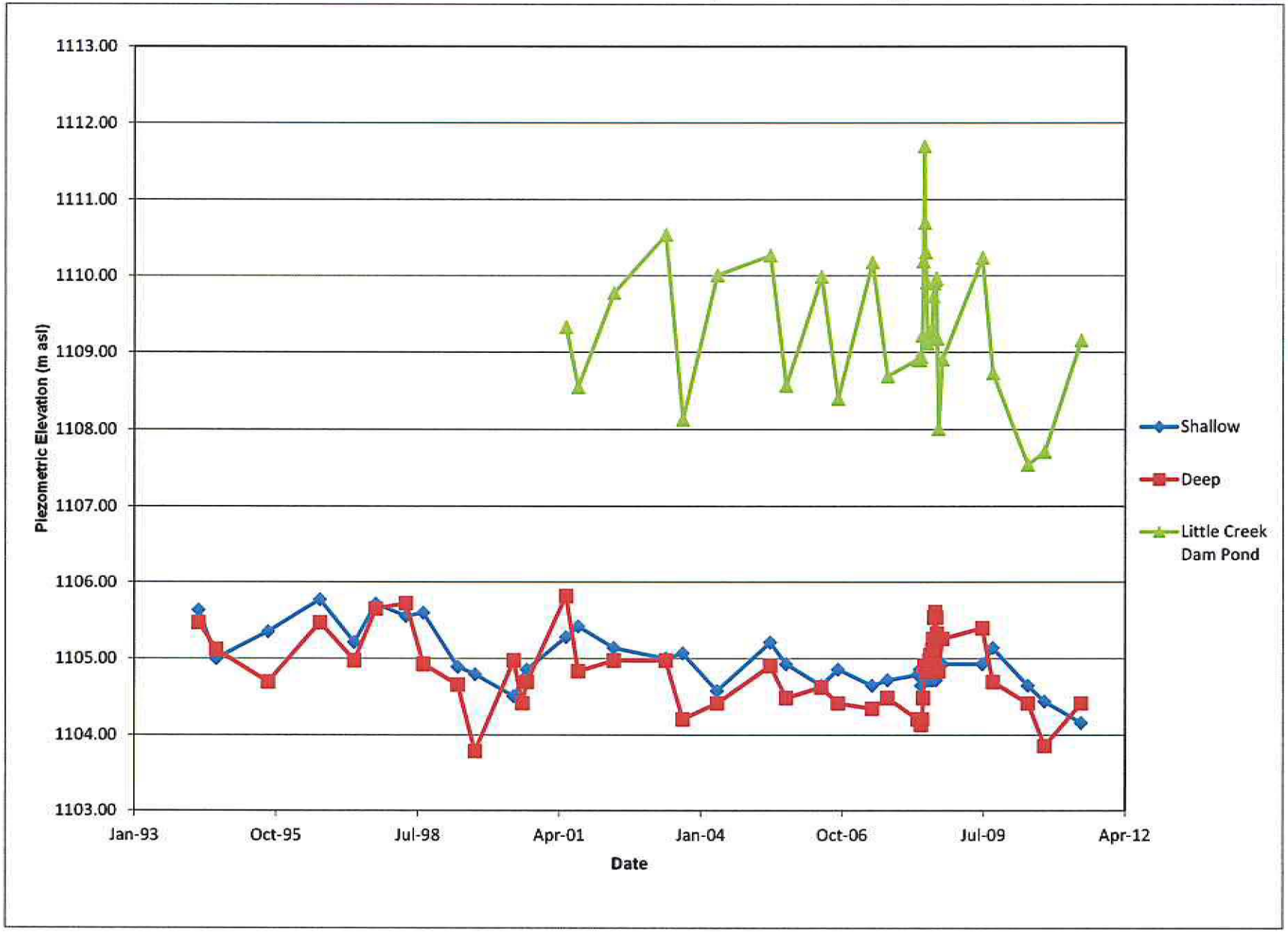
Table H-68: Little Creek Dam
Pneumatic Piezometer BH94-LCD1
(Revised to May 27, 2011)

BH94 LCD1	Date Installed:	June '94	Shallow Tip Elevation:	Deep Tip Elevation:	Little Creek Dam Crest Elev.	
	Surface Protector	yes	1103.6	1097.0	1114.5	
Date	Reading (psi)		Piezometric Elevation (m asl)		Pond Elevation (m asl)	Comment
	Shallow	Deep	Shallow	Deep		
May-94	2.9	12.1	1105.63	1105.47		
Sep-94	2.0	11.6	1105.00	1105.12		
Sep-95	2.5	11.0	1105.35	1104.70		
Sep-96	3.1	12.1	1105.77	1105.47		
May-97	2.3	11.4	1105.21	1104.98		
Oct-97	3.02	12.36	1105.71	1105.65		
May-98	2.79	12.46	1105.55	1105.72		
Sep-98	2.85	11.33	1105.60	1104.93	~1109.5	
May-99	1.85	10.95	1104.90	1104.67		
Sep-99	1.71	9.70	1104.80	1103.79	~1105	
Jun-00	1.30	11.40	1104.51	1104.98		
Aug-00	1.60	10.60	1104.72	1104.42		
Sep-00	1.80	11.00	1104.86	1104.70		
5-Jun-01	2.40	12.60	1105.28	1105.82	1109.33	
30-Aug-01	2.60	11.20	1105.42	1104.84	1108.55	
9-May-02	2.20	11.40	1105.14	1104.98	1109.78	
10-May-03	2.00	11.40	1105.00	1104.98	1110.54	
9-Sep-03	2.10	10.30	1105.07	1104.21	1108.13	
8-May-04	1.40	10.60	1104.58	1104.42	1110.01	
19-May-05	2.30	11.30	1105.21	1104.91	1110.27	
9-Sep-05	1.90	10.70	1104.93	1104.49	1108.57	
16-May-06	1.50	10.90	1104.65	1104.63	1109.99	
11-Sep-06	1.80	10.60	1104.86	1104.42	1108.40	
10-May-07	1.50	10.50	1104.65	1104.35	1110.18	
27-Aug-07	1.60	10.70	1104.72	1104.49	1108.69	
27-Mar-08	1.7	10.3	1104.79	1104.21	1108.91	
4-Apr-08	1.70	10.30	1104.79	1104.21	1108.90	
10-Apr-08	1.80	10.30	1104.86	1104.21	1108.90	
21-Apr-08	1.50	10.20	1104.65	1104.14	1108.94	
28-Apr-08	1.70	10.30	1104.79	1104.21	1109.225	
5-May-08	1.60	10.70	1104.72	1104.49	1110.191	
12-May-08	1.80	11.30	1104.86	1104.91	1111.696	
15-May-08	1.70	11.30	1104.79	1104.91	1110.697	
20-May-08	1.60	11.30	1104.72	1104.91	1110.311	
26-May-08	1.60	11.30	1104.72	1104.91	1109.919	
2-Jun-08	1.80	11.20	1104.86	1104.84	1109.116	
11-Jun-08	1.60	11.30	1104.72	1104.91	1109.176	
18-Jun-08	1.60	11.40	1104.72	1104.98	1109.213	
24-Jun-08	1.70	11.50	1104.79	1105.05	1109.272	
2-Jul-08	1.60	11.50	1104.72	1105.05	1109.295	
7-Jul-08	1.60	11.60	1104.72	1105.12	1109.323	
15-Jul-08	1.60	11.80	1104.72	1105.26	1109.732	
22-Jul-08	1.70	12.20	1104.79	1105.54	1109.903	
29-Jul-08	1.80	12.30	1104.86	1105.61	1109.948	
4-Aug-08	1.60	12.20	1104.72	1105.54	1109.968	
11-Aug-08	1.70	11.90	1104.79	1105.33	1109.181	
21-Aug-08	1.90	11.20	1104.93	1104.84	1108.010	
18-Sep-08	1.90	11.80	1104.93	1105.26	1108.909	
26-Jun-09	1.90	12.00	1104.93	1105.40	1110.237	
9-Sep-09	2.20	11.00	1105.14	1104.70	1108.731	
15-May-10	1.50	10.60	1104.65	1104.42	1107.545	
10-Sep-10	1.20	09.80	1104.44	1103.86	1107.715	
27-May-11	0.80	10.60	1104.16	1104.42	1109.161	Pond Elevation: May 30, 2011

Note: Data to the end of 2009 as reported by SRK Consulting Engineers and Geoscientists; data from 2010 and on reported by Denison Environmental Services

Denison Environmental Services

Figure H-51: Little Creek Dam
Pneumatic Piezometer BH94 LCD-1 (Revised to May 27, 2011)



Denison Environmental Services

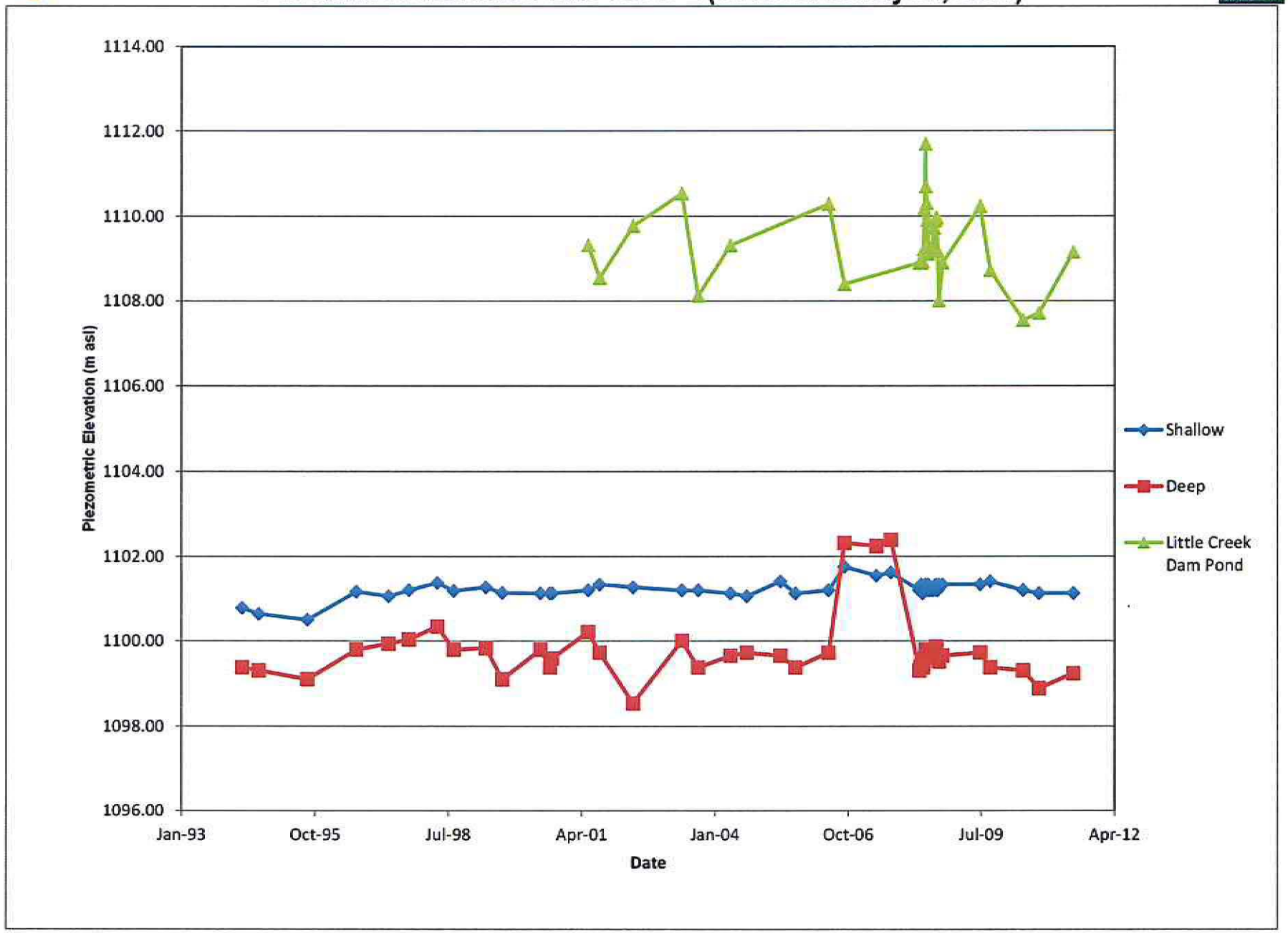
Table H-69: Little Creek Dam
Pneumatic Piezometer BH94 LCD-2
(Revised to May 27, 2011)

BH94 LCD2	Date Installed:	June '94	Shallow Tip Elevation:	Deep Tip Elevation:	Little Creek Dam Crest Elev.	
	Surface Protector	yes	1100.5	1094.9	1114.5	
	Reading (psi)		Piezometric Elevation (m asl)		Pond Elevation (m asl)	Comment
Date	Shallow	Deep	Shallow	Deep		
May-94	0.4	6.4	1100.78	1099.38		
Sep-94	0.2	6.3	1100.64	1099.31		
Sep-95	0.0	06.0	1100.50	1099.10		
Sep-96	1.0	7.0	1101.17	1099.80		
May-97	0.8	7.2	1101.06	1099.94		
Oct-97	1.00	7.34	1101.20	1100.04		
May-98	1.25	7.78	1101.38	1100.35		
Sep-98	0.98	7.00	1101.19	1099.80	~1109.5	
May-99	1.10	7.05	1101.27	1099.84		
Sep-99	0.91	6.00	1101.14	1099.10	~1105	
Jun-00	0.90	07.00	1101.13	1099.80		
Aug-00	0.90	06.40	1101.13	1099.38		
Sep-00	0.90	06.70	1101.13	1099.59		
5-Jun-01	1.00	07.60	1101.20	1100.22	1109.33	
30-Aug-01	1.20	06.90	1101.34	1099.73	1108.55	
9-May-02	1.10	05.20	1101.27	1098.54	1109.78	
10-May-03	1.00	07.30	1101.20	1100.01	1110.54	
9-Sep-03	1.00	06.40	1101.20	1099.38	1108.13	
8-May-04	0.90	06.80	1101.13	1099.66	1109.32	
8-Sep-04	0.80	06.90	1101.06	1099.73		
19-May-05	1.30	06.80	1101.41	1099.66		
9-Sep-05	0.90	06.40	1101.13	1099.38		
16-May-06	1.00	06.90	1101.20	1099.73	1110.29	
11-Sep-06	1.80	10.60	1101.76	1102.32	1108.40	
10-May-07	1.50	10.50	1101.55	1102.25		
27-Aug-07	1.6	10.7	1101.62	1102.39		
27-Mar-08	1.00	6.30	1101.20	1099.31	1108.91	
4-Apr-08	1.10	6.40	1101.27	1099.38	1108.90	
10-Apr-08	1.20	6.50	1101.34	1099.45	1108.90	
21-Apr-08	0.90	6.40	1101.13	1099.38	1108.943	
28-Apr-08	1.10	6.50	1101.27	1099.45	1109.225	
5-May-08	1.10	6.70	1101.27	1099.59	1110.191	
12-May-08	1.20	7.00	1101.34	1099.80	1111.696	
15-May-08	1.10	6.90	1101.27	1099.73	1110.697	
20-May-08	1.00	6.90	1101.20	1099.73	1110.311	
26-May-08	1.00	6.80	1101.20	1099.66	1109.919	
2-Jun-08	1.20	6.80	1101.34	1099.66	1109.116	
11-Jun-08	1.00	6.70	1101.20	1099.59	1109.176	
18-Jun-08	1.00	6.70	1101.20	1099.59	1109.213	
24-Jun-08	1.10	6.70	1101.27	1099.59	1109.272	
2-Jul-08	1.00	6.70	1101.20	1099.59	1109.295	
7-Jul-08	1.10	6.70	1101.27	1099.59	1109.323	
15-Jul-08	1.00	6.80	1101.20	1099.66	1109.732	
22-Jul-08	1.10	7.00	1101.27	1099.80	1109.903	
29-Jul-08	1.20	7.10	1101.34	1099.87	1109.948	
4-Aug-08	1.00	7.00	1101.20	1099.80	1109.968	
11-Aug-08	1.00	6.80	1101.20	1099.66	1109.181	
21-Aug-08	1.20	6.60	1101.34	1099.52	1108.010	
18-Sep-08	1.20	6.80	1101.34	1099.66	1108.909	
26-Jun-09	1.20	6.90	1101.34	1099.73	1110.237	
9-Sep-09	1.30	6.40	1101.41	1099.38	1108.731	
15-May-10	1.00	6.30	1101.20	1099.31	1107.545	
10-Sep-10	0.90	5.70	1101.13	1098.89	1107.715	
27-May-11	0.90	6.20	1101.13	1099.24	1109.161	Pond Elevation: May 30, 2011

Note: Data to the end of 2009 as reported by SRK Consulting Engineers and Geoscientists; data from 2010 and on reported by Denison Environmental Services

Denison Environmental Services

Figure H-52: Little Creek Dam
Pneumatic Piezometer BH94 LCD-2 (Revised to May 27, 2011)



S:\FARO\2210_1CD009.005 _Vangorda 2011 Geotech Inspection\Report\Appendices\Appendix B - LCD Piezo and Thermister rdgs\Vangorda LCD Pneumatic Piezos to27May2011BH94 LCD2 Figure(H-52)

Denison Environmental Services

Table H-70: Little Creek Dam
Pneumatic Piezometer BH94 LCD-3
(Revised to May 27, 2011)

BH94 LCD3	Date Installed:	June '94	Shallow Tip Elevation:	Deep Tip Elevation:	Little Creek Dam Crest Elev.	
	Surface Protector	yes	1105.5	1101.2	1114.5	
	Reading (psi)		Piezometric Elevation (m asl)		Pond Elevation (m asl)	Comment
Date	Shallow	Deep	Shallow	Deep		
May-94	0.8	4.3	1106.06	1104.21		
Sep-94	0.2	3.7	1105.64	1103.79		
Sep-95	0.0	03.5	1105.50	1103.65		
Sep-96	0.2	4.0	1105.61	1104.00		
May-97	0.2	3.8	1105.64	1103.86		
Oct-97	0.14	4.54	1105.60	1104.38		
May-98	0.54	4.58	1105.88	1104.41		
Sep-98	0.17	3.62	1105.62	1103.73	~1109.5	
May-99	0.40	3.50	1105.78	1103.65		
Sep-99	0.30	2.42	1105.71	1102.89	~1105	
Jun-00	0.10	3.40	1105.57	1103.58		
Aug-00	0.00	3.10	1105.50	1103.37		
Sep-00	0.01	3.40	1105.51	1103.58		
5-Jun-01	0.00	4.80	1105.50	1104.56	1109.33	
30-Aug-01	0.01	3.49	1105.51	1103.64	1108.55	
9-May-02	0.01	3.50	1105.51	1103.65	1109.78	
10-May-03	0.00	3.60	1105.50	1103.72	1110.54	
9-Sep-03	0.00	2.70	1105.50	1103.09	1108.13	
8-May-04	0.00	2.80	1105.50	1103.16	1109.32	
8-Sep-04	0.10	3.30	1105.57	1103.51		
19-May-05	0.01	4.00	1105.51	1104.00		
9-Sep-05	0.00	2.80	1105.50	1103.16		
16-May-06	0.00	3.30	1105.50	1103.51	1110.29	
11-Sep-06	1.80	10.60	1106.76	1108.62	1108.40	
10-May-07	1.50	10.50	1106.55	1108.55		
27-Aug-07	1.6	10.70	1106.62	1108.69		
27-Mar-08	0.80	2.80	1106.06	1103.16	1108.91	
4-Apr-08	0.90	2.90	1106.13	1103.23	1108.90	
10-Apr-08	0.90	2.90	1106.13	1103.23	1108.90	
21-Apr-08	0.70	2.90	1105.99	1103.23	1108.943	
28-Apr-08	1.00	3.00	1106.20	1103.30	1109.225	
5-May-08	0.80	3.20	1106.06	1103.44	1110.191	
12-May-08	0.90	3.60	1106.13	1103.72	1111.696	
15-May-08	1.00	3.70	1106.20	1103.79	1110.697	
20-May-08	0.90	3.80	1106.13	1103.86	1110.311	
26-May-08	0.90	3.80	1106.13	1103.86	1109.919	
2-Jun-08	1.00	3.80	1106.20	1103.86	1109.116	
11-Jun-08	0.90	3.60	1106.13	1103.72	1109.176	
18-Jun-08	0.90	3.50	1106.13	1103.65	1109.213	
25-Jun-08	1.00	3.60	1106.20	1103.72	1109.272	
2-Jul-08	0.80	3.50	1106.06	1103.65	1109.295	
7-Jul-08	0.90	3.60	1106.13	1103.72	1109.323	
15-Jul-08	0.90	3.80	1106.13	1103.86	1109.732	
22-Jul-08	1.20	4.20	1106.34	1104.14	1109.903	
29-Jul-08	1.00	4.20	1106.20	1104.14	1109.948	
4-Aug-08	0.80	4.10	1106.06	1104.07	1109.968	
11-Aug-08	0.90	4.10	1106.13	1104.07	1109.181	
21-Aug-08	1.10	4.30	1106.27	1104.21	1108.010	
18-Sep-08	1.10	4.10	1106.27	1104.07	1108.909	
26-Jun-09	1.20	4.10	1106.34	1104.07	1110.237	
9-Sep-09	1.40	3.30	1106.48	1103.51	1108.731	
15-May-10	0.10	3.30	1105.57	1103.51	1108.731	
10-Sep-10	0.00	2.50	1105.50	1102.95	1108.731	
27-May-11	0.10	3.1	1105.57	1103.37	1109.161	Pond Elevation: May 30, 2011

Note: Data to the end of 2009 as reported by SRK Consulting Engineers and Geoscientists; data from 2010 and on reported by Denison Environmental Services

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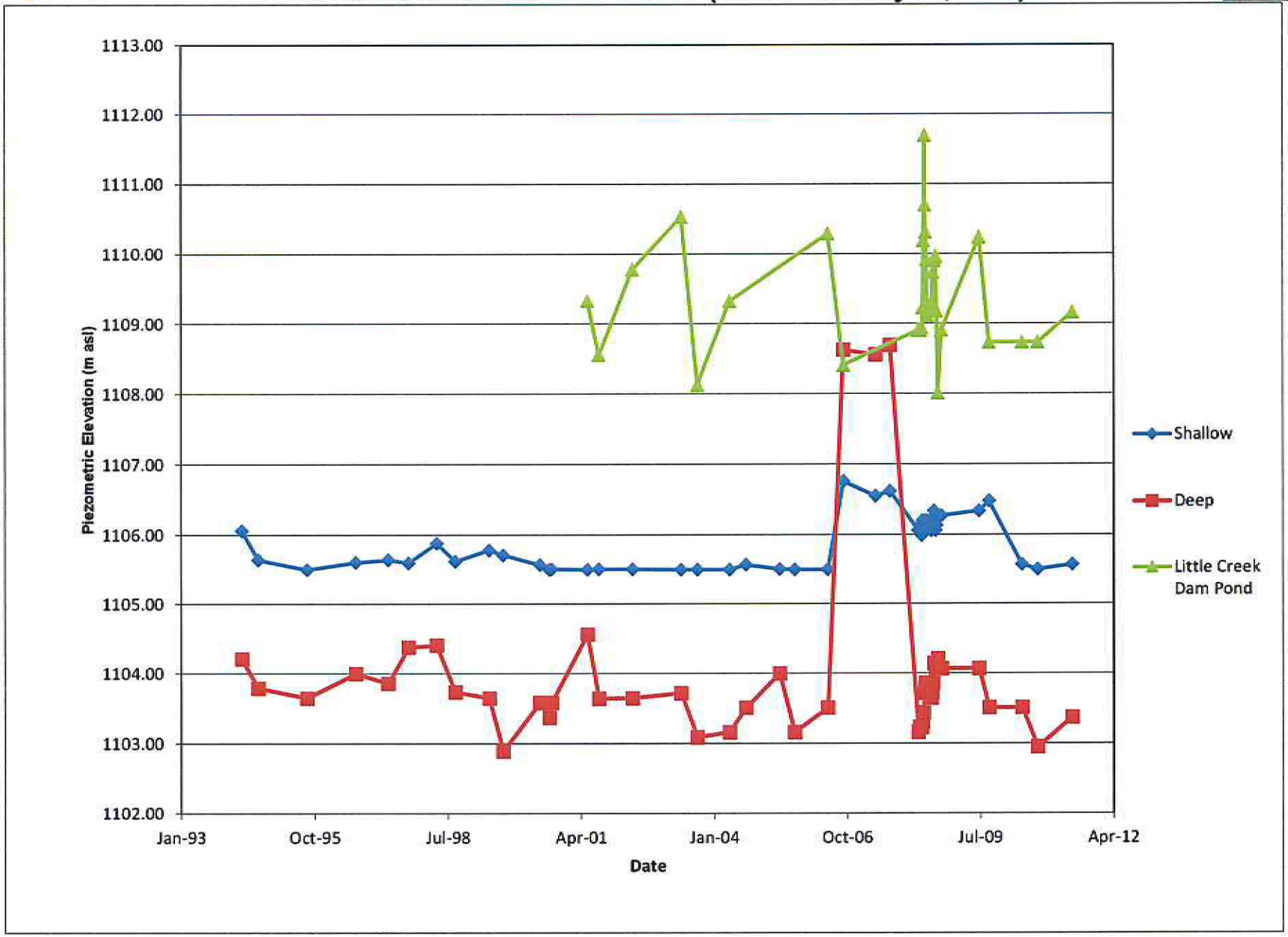
Figure H-53: Little Creek Dam
Pneumatic Piezometer BH94 LCD-3 (Revised to May 27, 2011)



S:\FARO\2210_1CD009.005 _Vangorda 2011 Geotech Inspection\Report\Appendices\Appendix B - LCD Piezo and Thermister rdgs\Vangorda LCD Pneumatic Piezos to27May2011BH94 LCD3 Figure(H-53)

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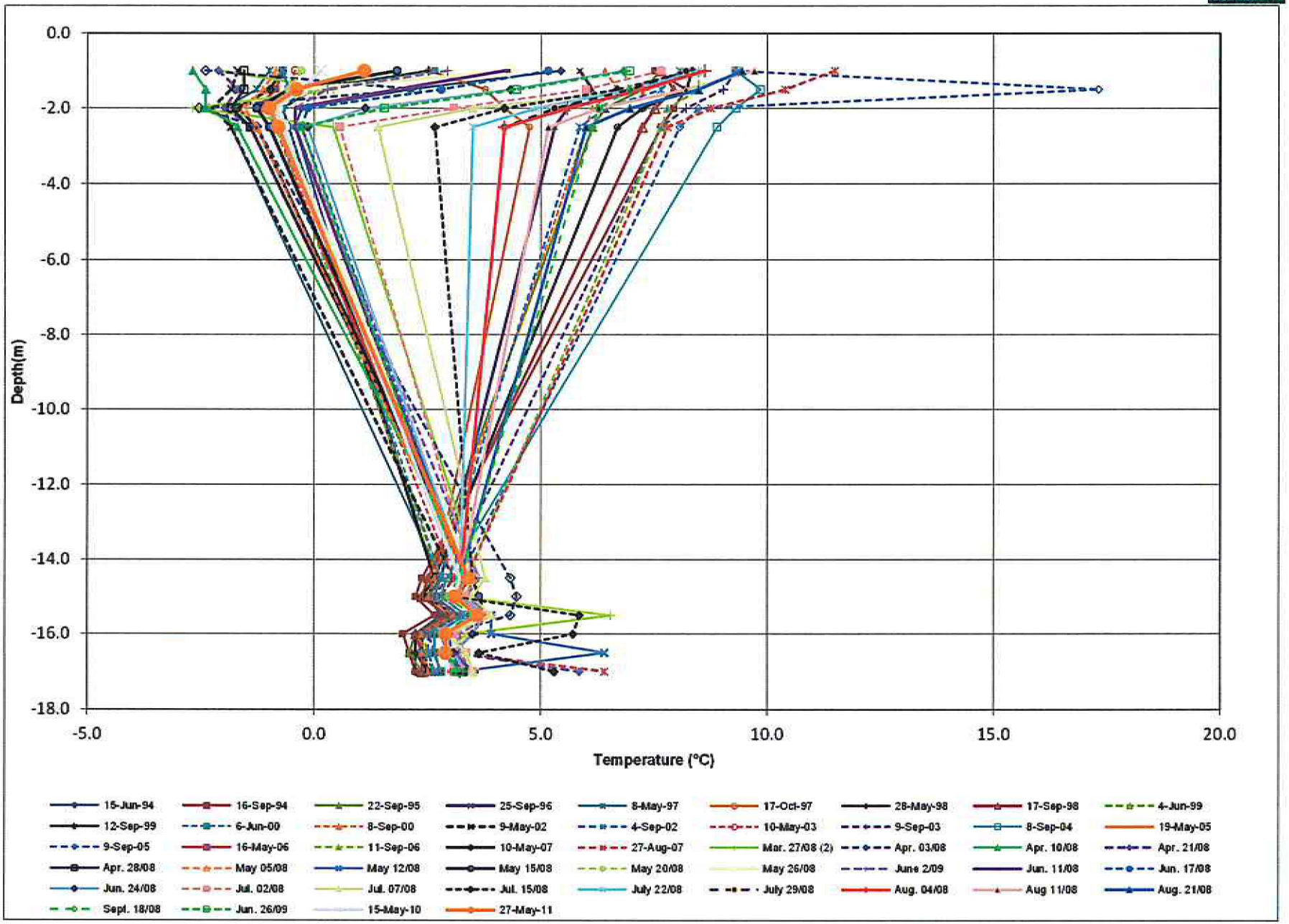
Figure H-48: Little Creek Dam
Thermistor BH94 LCD-4 (Revised to May 27, 2011)



S:\FARO\2210_1CD009.005 _Vangorda 2011 Geotech Inspection\Report\Appendices\Appendix B - LCD Piezo and Thermister rdgs\2011 Vangorda LCD Thermistors to27May2011BH94LCD4Chart(H-48)

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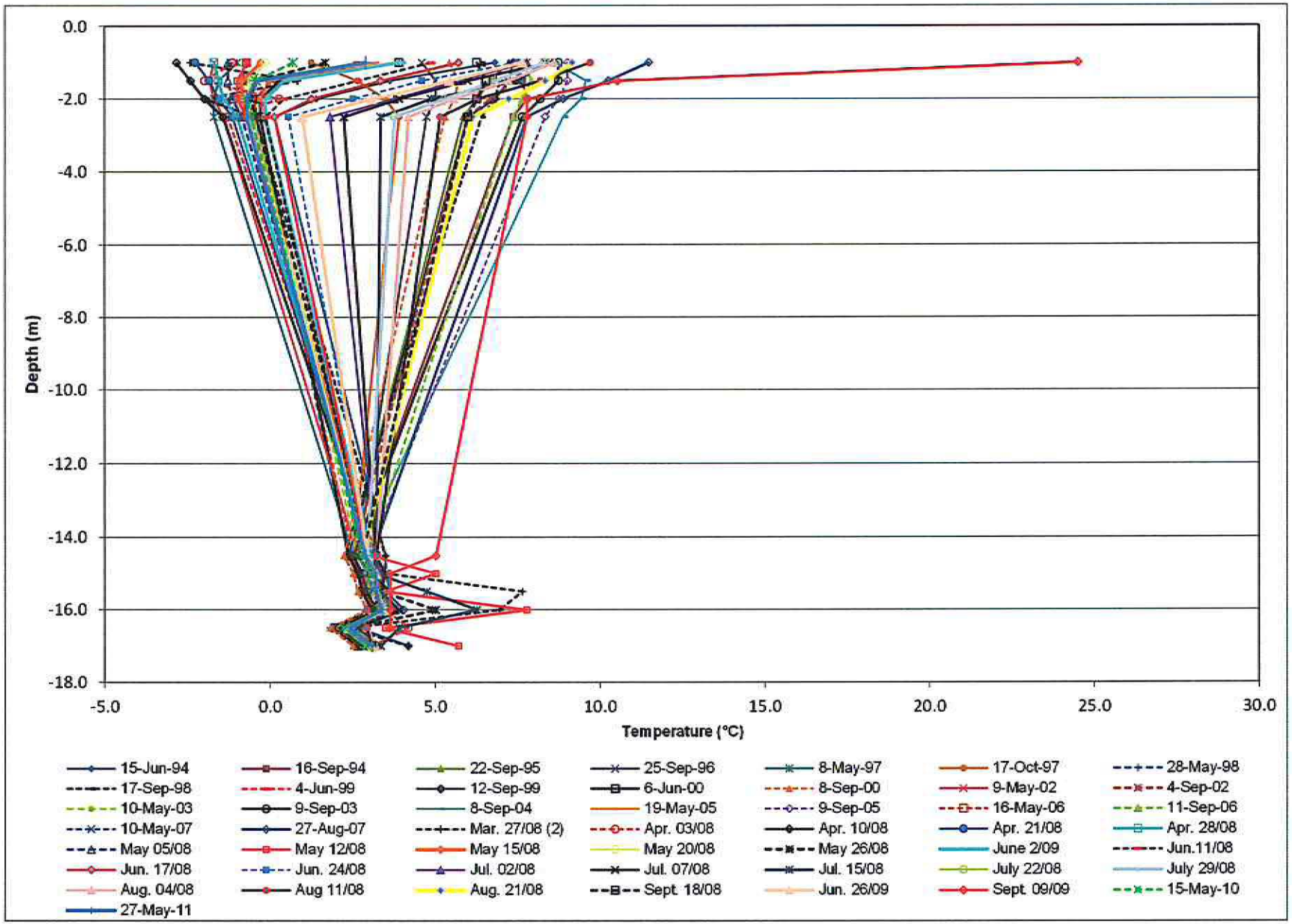
Figure H-49: Little Creek Dam
Thermistor BH94 LCD-5 (Revised to May 27, 2011)



S:\FARO\2210_1CD009.005 _Vangorda 2011 Geotech Inspection\Report\Appendices\Appendix B - LCD Piezo and Thermister rdgs\2011 Vangorda LCD Thermistors to27May2011BH94LCD5Chart(H-49)

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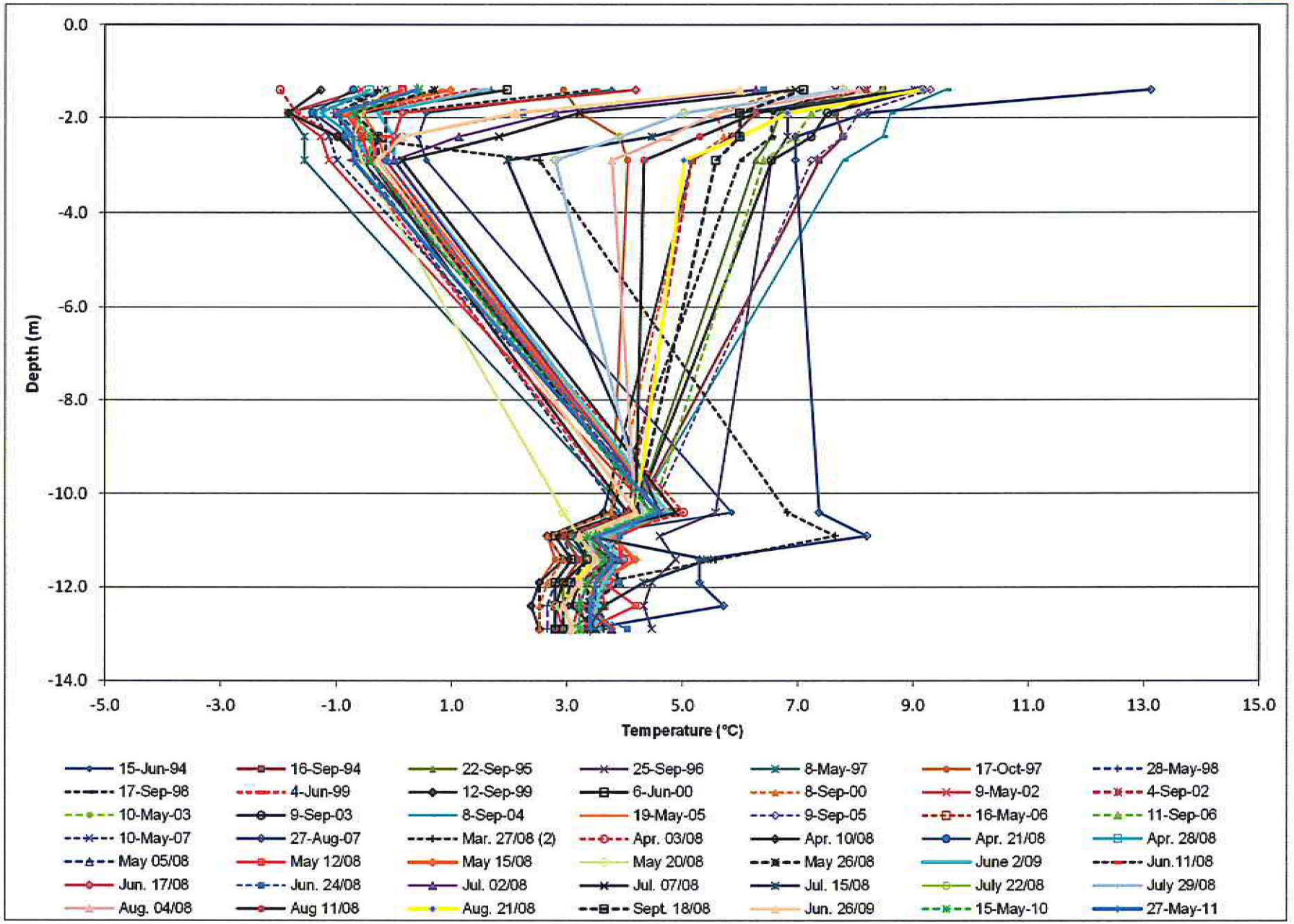
Figure H-50: Little Creek Dam
Thermistor BH94 LCD-6



S:\FARO\2210_1CD009.005 _Vangorda 2011 Geotech Inspection\Report\Appendices\Appendix B - LCD Piezo and Thermister rdgs\2011 Vangorda LCD Thermistors to27May2011BH94LCD6Chart(H-50)

Appendix C: Vangorda Waste Rock Dump - Water Level Trends

VANGORDA ROCK DUMP DRAINS

	V28		V29		V30		V31		V32		V33	
Date	Drain 1		Drain 2		Drain 3		Drain 4		Drain 5		Drain 6	
	Flow L/s	Observations	Flow L/s	Observations	Flow L/s	Observations	Flow L/s	Observations	Flow L/s	Observations	Flow L/s	Observations
16-May-11	0.17	Water flowing off dump, pooling behind drain; Flow est.; Photo taken	0.03	Drain snowed in; Flow est.; Photo taken	0.03	Snow and ice behind weir; Flow est. and taken at weir; Photo taken	none	Snow covered; Photo taken	none	Snow covered; Photo taken		
23-May-11	none	Dry; Photo taken	0.04	Still snow; Photo taken flowing through weir	0.25	Flow est.; Weir tilted so not measured; Photo taken	0.2	Partially covered with snow; flow est.; Photo taken	0.1	Weir still buried in snow; est. flow downstream; Photo taken	0.41	Still partially covered in snow but flowing at weir; Photo taken
30-May-11	none	Dry; Photo taken	0.05	Little flow; Photo taken	0.125	Photo taken	0.1	Photo taken	none	Standing water; Photo taken	0.1	Photo taken; Measurement taken at weir
7-Jun-11	none	Dry; Photo taken	none	No flow through weir; Photo taken	0.08	Weir measured at 2cm; Photo taken	0.1	Photo taken	0.2	Photo taken	0.04	Photo taken; Measurement taken at weir
14-Jun-11	none	Dry; Photo taken	none	Dry; Photo taken	0.02	Weir measured at 1.1cm; Photo taken	0.125	Photo taken	none	Standing water; Photo taken	0.06	Weir measured at 1.8cm; Photo taken
28-Jun-11	none	Dry;	none	Dry	0.07	Estimated flow	0.05	Estimated flow	0.001	Estimated flow	0.04	Weir flow

source: Vangorda Dump Drains Q 2011 to 28Jun2011_rev1

Facility Inspection Report
Grum
Revision: 2010-02-24

Denison Environmental Services

CONTROL STRUCTURES	Schedule*	Status**	Action Item	Photos Taken	Comments (Condition and Action Recommended)
V15 Ditch	M	clear	no	no	
Freshwater Pond for Water Treatment Plant - (old V24)	M	clear	no	no	
CPD Spillway	M	clear	no	no	
Grum Till Dump	M	clear	no	no	
Sludge Pond Enbankment	M	clear	no	no	
Grum Waste Rock Dump	M	clear	no	yes	Pelly Construction onsite hydroseeding.
Sheep Pad Sediment Ponds	M	clear	no	no	
Moose Pond Area (AMP#4)	M	clear	no	yes	Road cut open due to Grum Waste Rock Dump runoff in May, 2011.
Ore Transfer Pad	M	clear	no	no	
Grum Pit (level)	M	clear	no	yes	Elevation taken June 27th, 2011 - 1209.881 (masl); Monthly photo taken on June 16th, 2011
Grum Pit Interceptor Ditch	M	clear	no	no	
Vangorda Clarification Pond	M	clear	no	no	

DIVERSIONS & BERMS	Schedule*	Crest		Upstream Slope		Downstream Slope			Action Item	Photos	Comments
		Physical Change	Veg. Status	Physical Change	Veg. Status	Physical Change	Veg. Status	Seepage			
Grum Access Road Berm	M	none	> 1 m	none	> 1 m	none	> 1 m	none	no	no	

	INFRASTRUCTURE	Schedule*	Status	Action Item	Photo Taken	Comments
SECURITY	Weather Station by Vangorda Treatment Plant - Station #2	M	secure	no	no	
	Grum Shop and Dry (Town of Faro)	M	secure	no	no	Pelly Construction onsite hydroseeding.
	Gate (to Grum)	M	secure	no	no	
	Grum Adit - sealed off	M	secure	no	no	
CULVERTS	Culvert Below Access Water Treatment Plant	M	clear flow	no	no	
	Culverts Above Sheep Pad Pond	M	clear flow	no	no	
	Slotcut Culvert	M	clear flow	no	no	
	Culvert at Access to Grum Dump	M	clear flow	no	no	
	Access to Claification Sludge Cells Culvert	M	clear flow	no	no	
	Access to V25 Culvert	M	clear flow	no	no	
	Grum Inteceptor Ditch Culverts	M	clear flow	no	no	
	V2A Culvert	M	clear flow	no	no	
	CPD Culvert#1	M	clear flow	no	no	
	CPD Culvert#2	M	clear flow	no	no	
	Below V15 Culvert	M	clear flow	no	no	
SIGNS	Grum Access Road Signs (No Hunting Sign, Moose Management)	M	good	no	no	
	Intersection Sign South Access to Haul Road	M	good	no	no	
	Grum Substation and Overhead High Voltage Hazard Sign	M	good	no	no	
	Speed Limit Sign Haul Road	M	good	yes	no	Missing The 40 km/h Sign on Grum Side of Haul Road
	Caution High Voltage Sign by V25BSP	M	good	no	no	
	Overhead Powerline Sign Grum Interceptor Ditch	M	good	no	no	

OBSERVATION NOTES

Cracking on Grum access road.

Inspected by: Tracey Parkin

Date: June 26th, 2011

Action items reported (sign and date):

Environmental Coordinator review (sign and date):

* Schedule Legend
Annual - A
Monthly - M (during snow free months)
Quarterly - Q2 (month of the Quarter)
Semi-Annual - S
** *Status notes are specific terms refer to Inspection Instructions.*

Facility Inspection Report
Vangorda Plateau
Revision: 2010-02-24

Denison Environmental Services

Month: June **Regular Monthly Inspection**

CONTROL STRUCTURES	Schedule*	Status**	Action Item	Photos Taken	Comments (Condition and Action Recommended)
Vangorda Creek Diversion	M	clear	no	no	
Vangorda Pit (Level)	M	clear	no	no	Elevation taken on June 27th, 2011 - 1086.499 (masl)
Vangorda Inteceptor Ditch	M	clear	no	yes	Possible slumps.
Vangorda Seepage Collection Ditch (to LCD)	M	clear	no	no	
Vangorda Flume	M	clear	no	no	
Swimming Hole below Vangorda Flume	M	clear	no	no	

DIVERSIONS & BERMS	Schedule*	Crest		Upstream Slope		Downstream Slope			Action Item	Photos	Comments
		Physical Change	Veg. Status	Physical Change	Veg. Status	Physical Change	Veg. Status	Seepage			
Little Creek Dam	M	none	< 1 m	none	< 1 m	none	< 1 m	none	no	no	Elevation taken on June 27th , 2011 - 1109.062 (masl); No new cracks, sluffs or slumps.
Headwater Berm	M	none	> 1 m	none	> 1 m	none	> 1 m	none	no	no	

	INFRASTRUCTURE	Schedule*	Status	Action Item	Photo Taken	Comments
STABILITY	Till Covers	M	Inspected - OK	no	no	
	Vangorda Test Pad Covers Area	M	Inspected - OK	no	no	
	Vangorda Waste Rock	M	Inspected - OK	no	no	
	Vangorda Overburden Stockpile	M	Inspected - OK	no	no	
SECURITY	Vangorda Substation	M	secure	no	no	
	Step Down Station for Barge	M	secure	no	no	
	Old Pumphouse	M	secure	no	no	
	Vangorda Gate	M	secure	no	no	
CULVERTS	Below V25BSP Culvert	M	clear flow	no	no	
	Vangorda Creek Culvert	M	clear flow	no	no	
	Culvert into Drop Box	M	clear flow	no	no	
	Culvert from Drop Box into Vangorda Creek	M	clear flow	no	no	
	Little Creek Dam Culvert	M	clear flow	no	no	
	Series of Road Culverts above Vangorda Pit	M	clear flow	no	no	
SIGN	Caution Overhead Powerline Sign Haul Road	M	good	no	no	
	Danger High Voltage Sign into Swimming Hole	M	good	no	no	

OBSERVATION NOTES

Roads need grading.

Inspected by: Tracey Parkin

Date: June 26th, 2011

Action items reported (sign and date):

Environmental Coordinator review (sign and date):

*** Schedule Legend**

Annual - A
Monthly - M (during snow free months)
Quarterly - Q2 (month of the Quarter)
Semi-Annual - S

*** Status notes are specific terms refer to Inspection Instructions.*

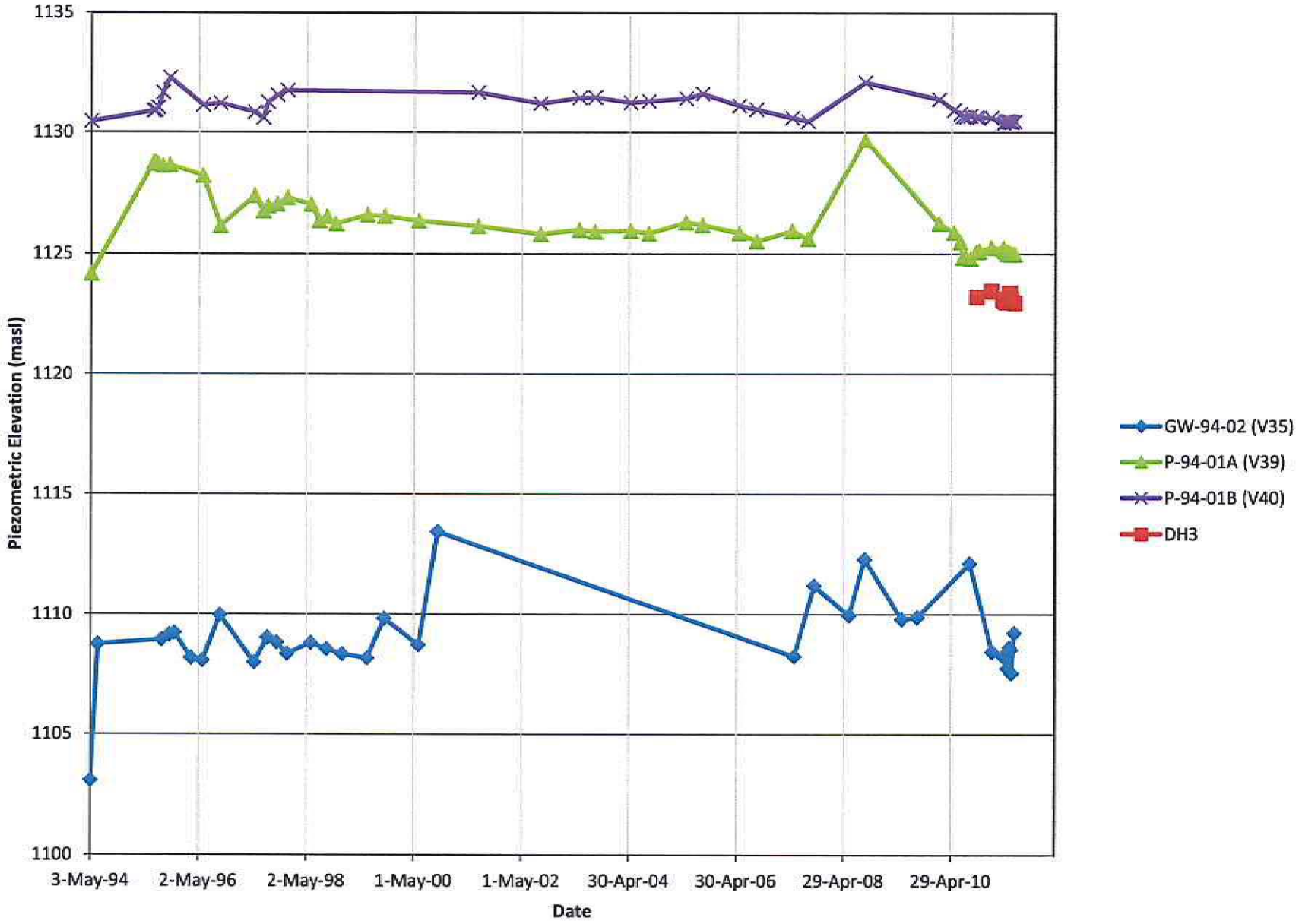


Figure 5

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1

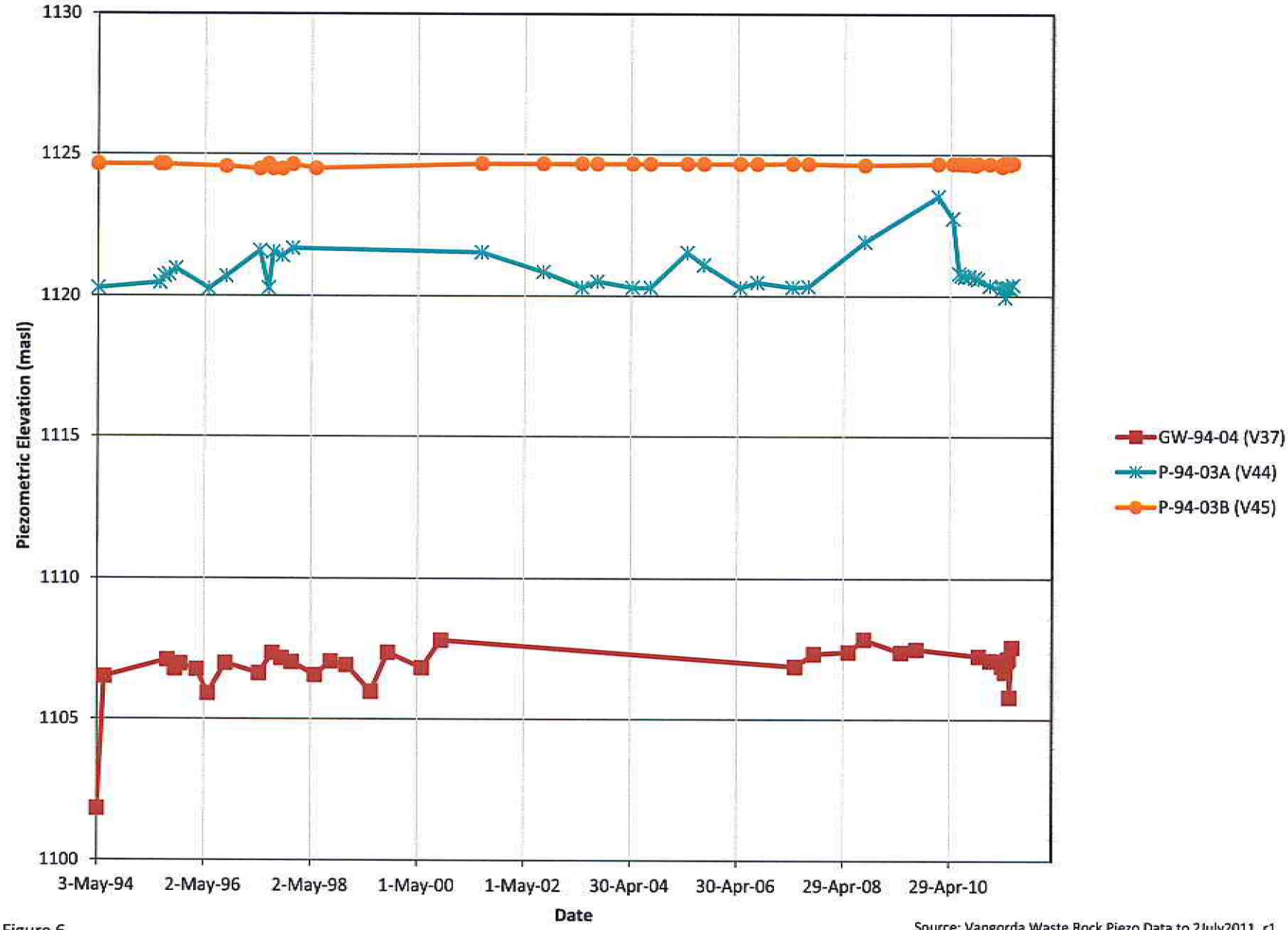


Figure 6

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1

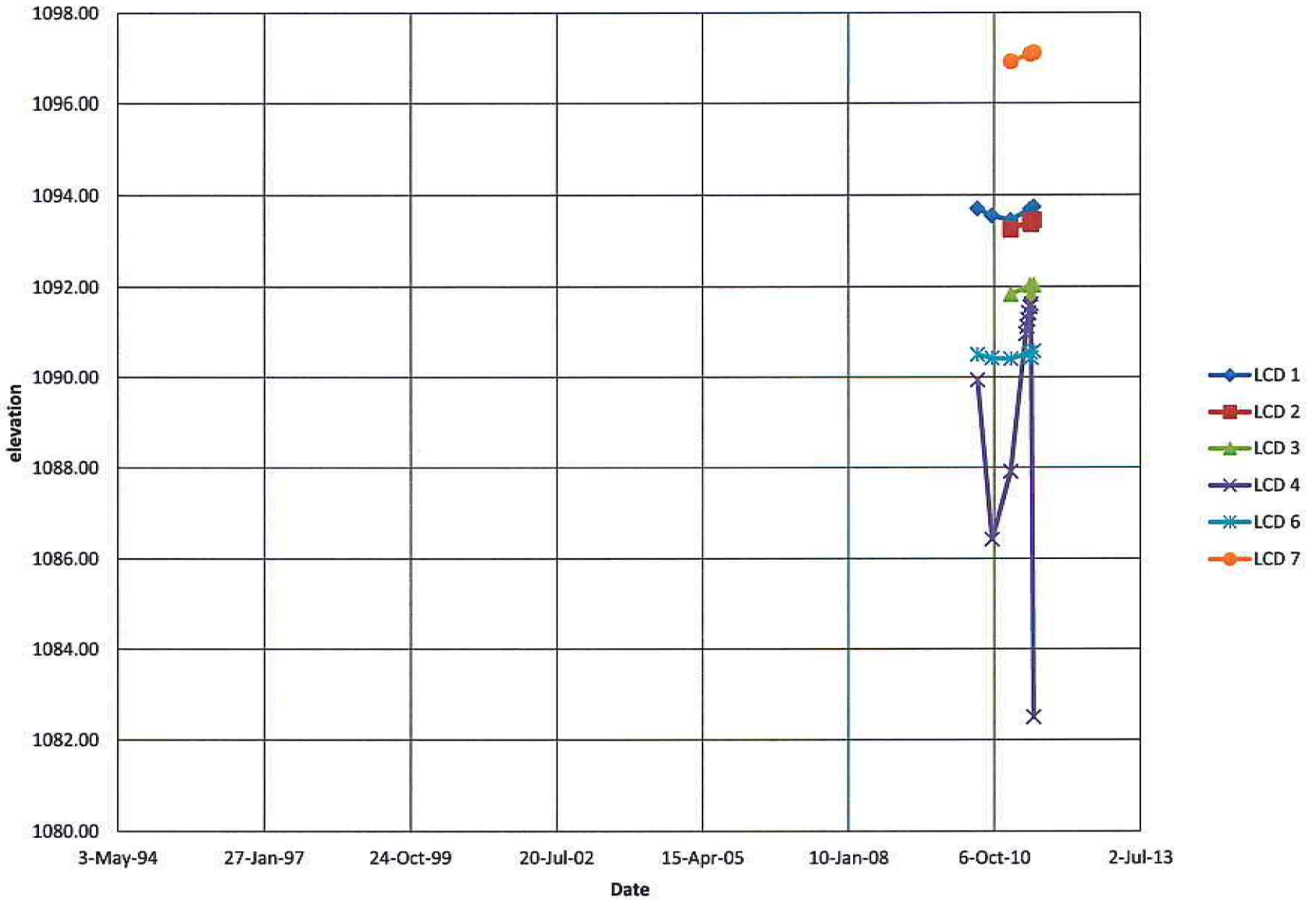


Figure 7

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1

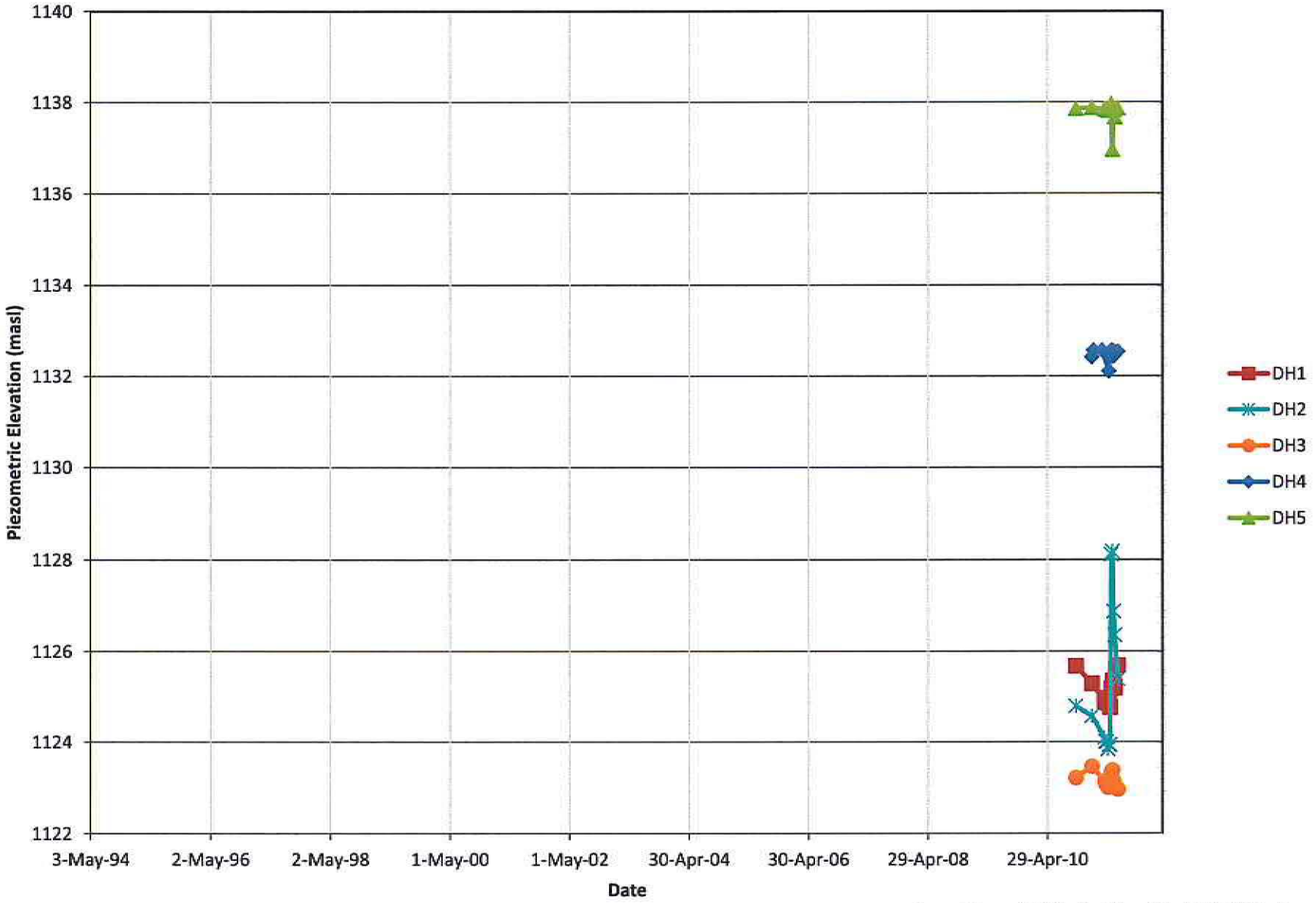
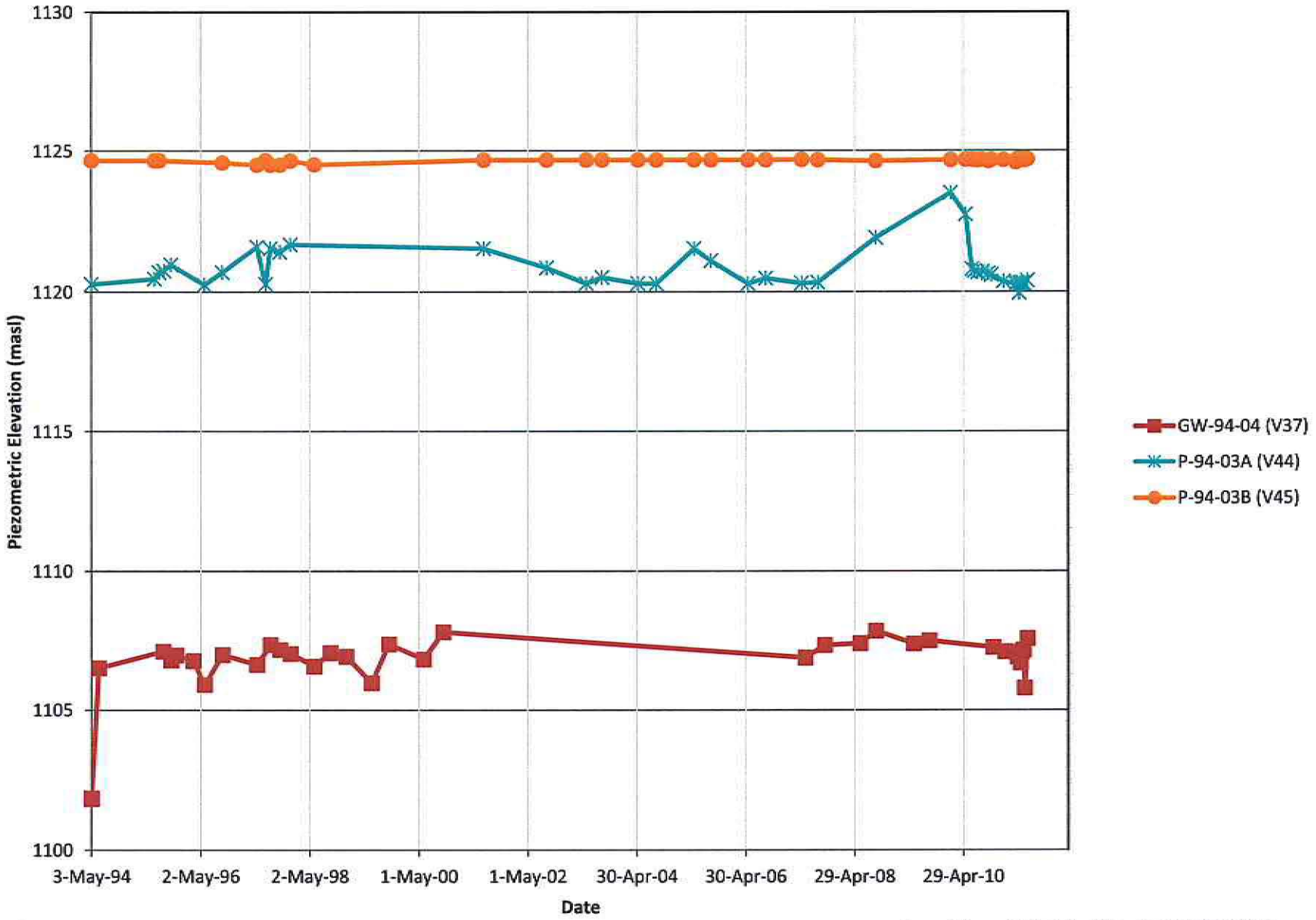


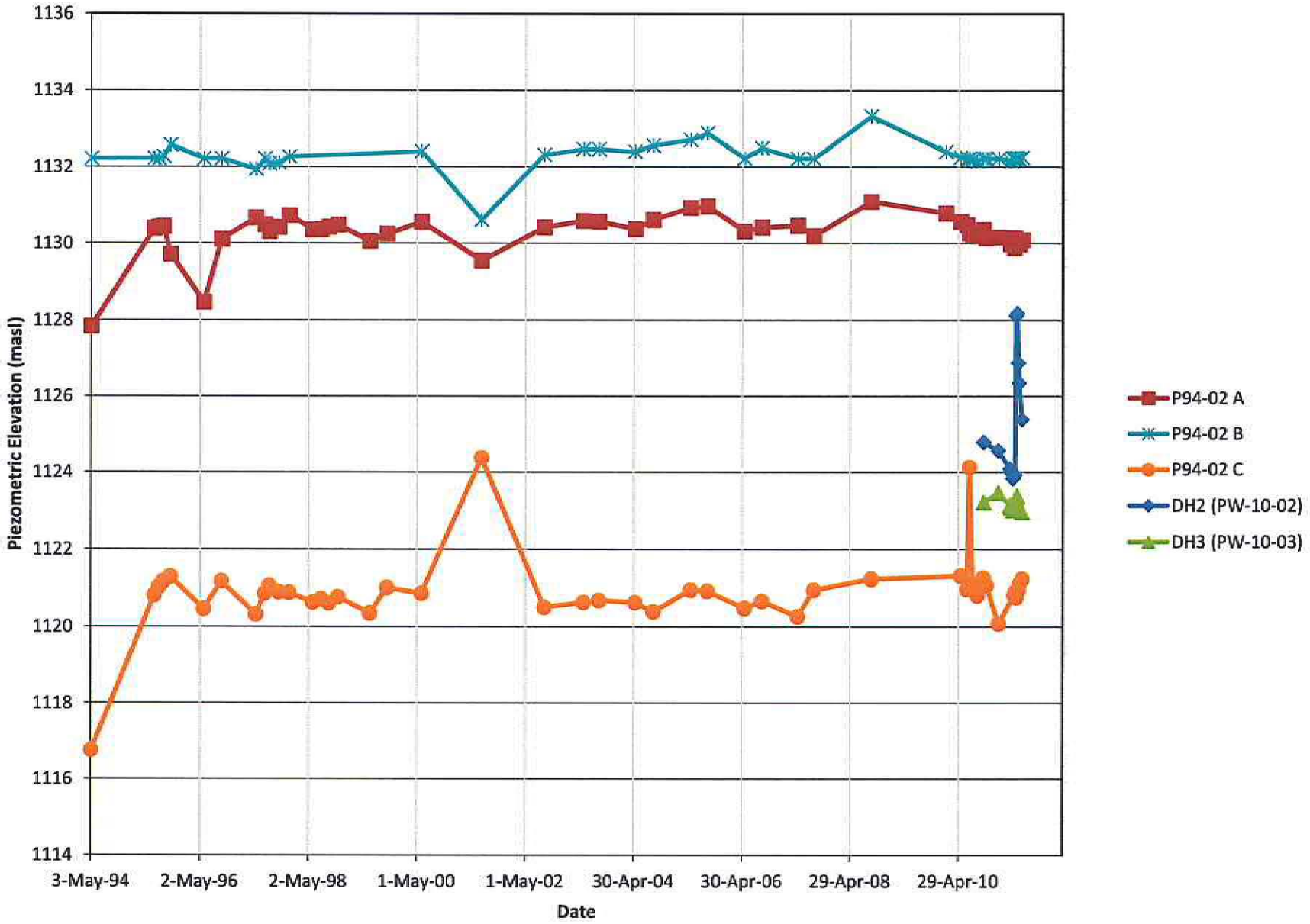
Figure 8

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1



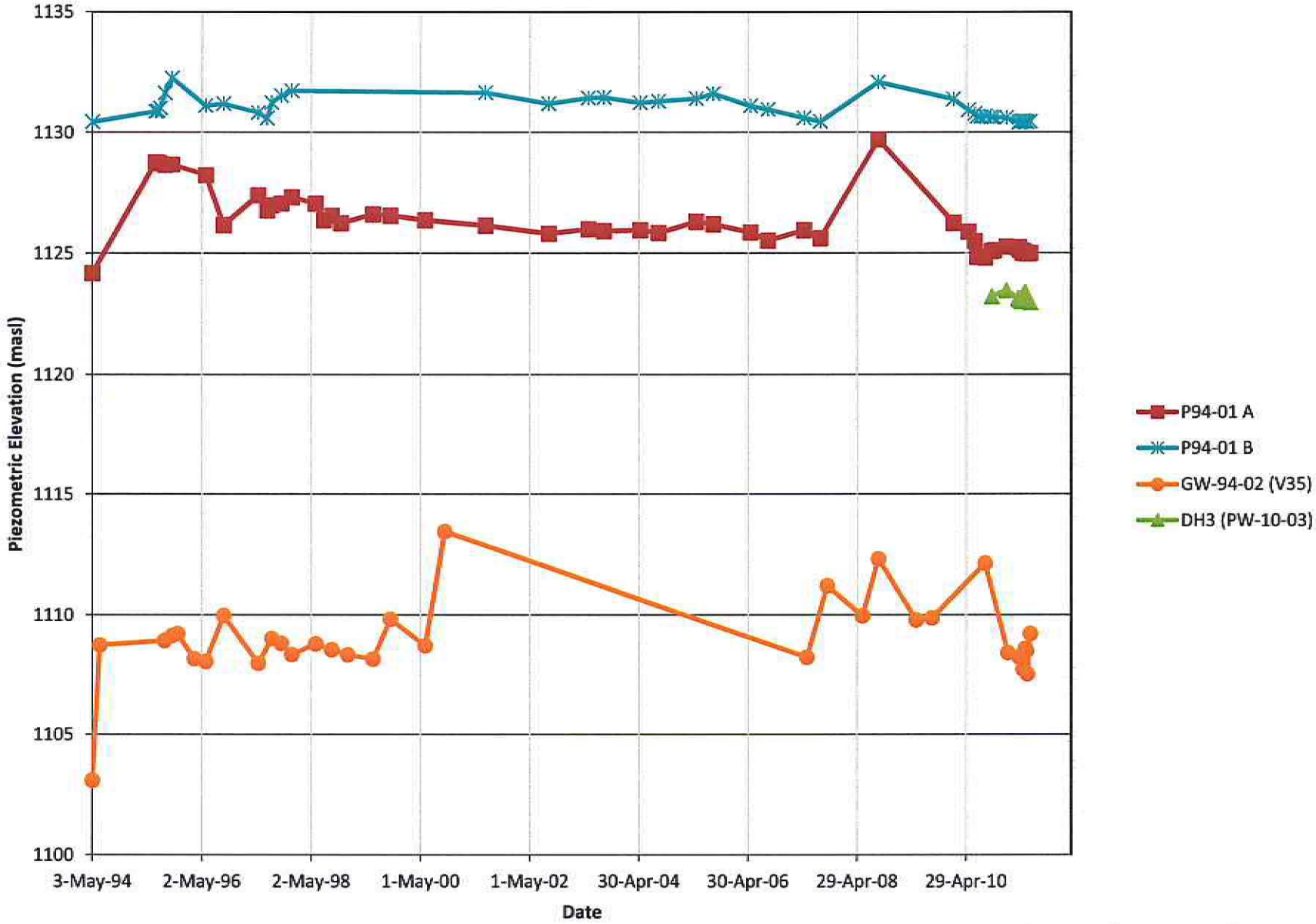
Section A

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1



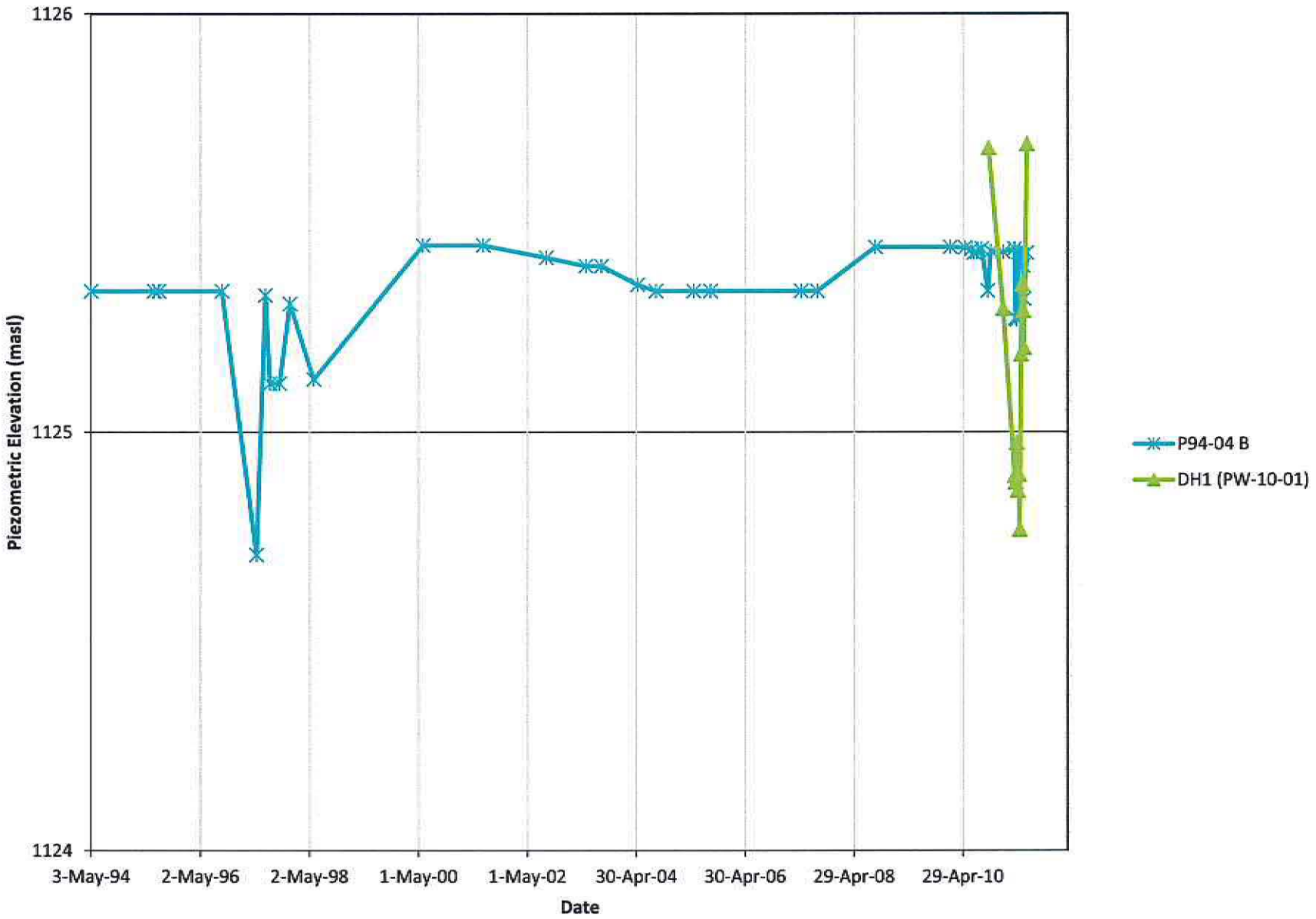
Section B

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1



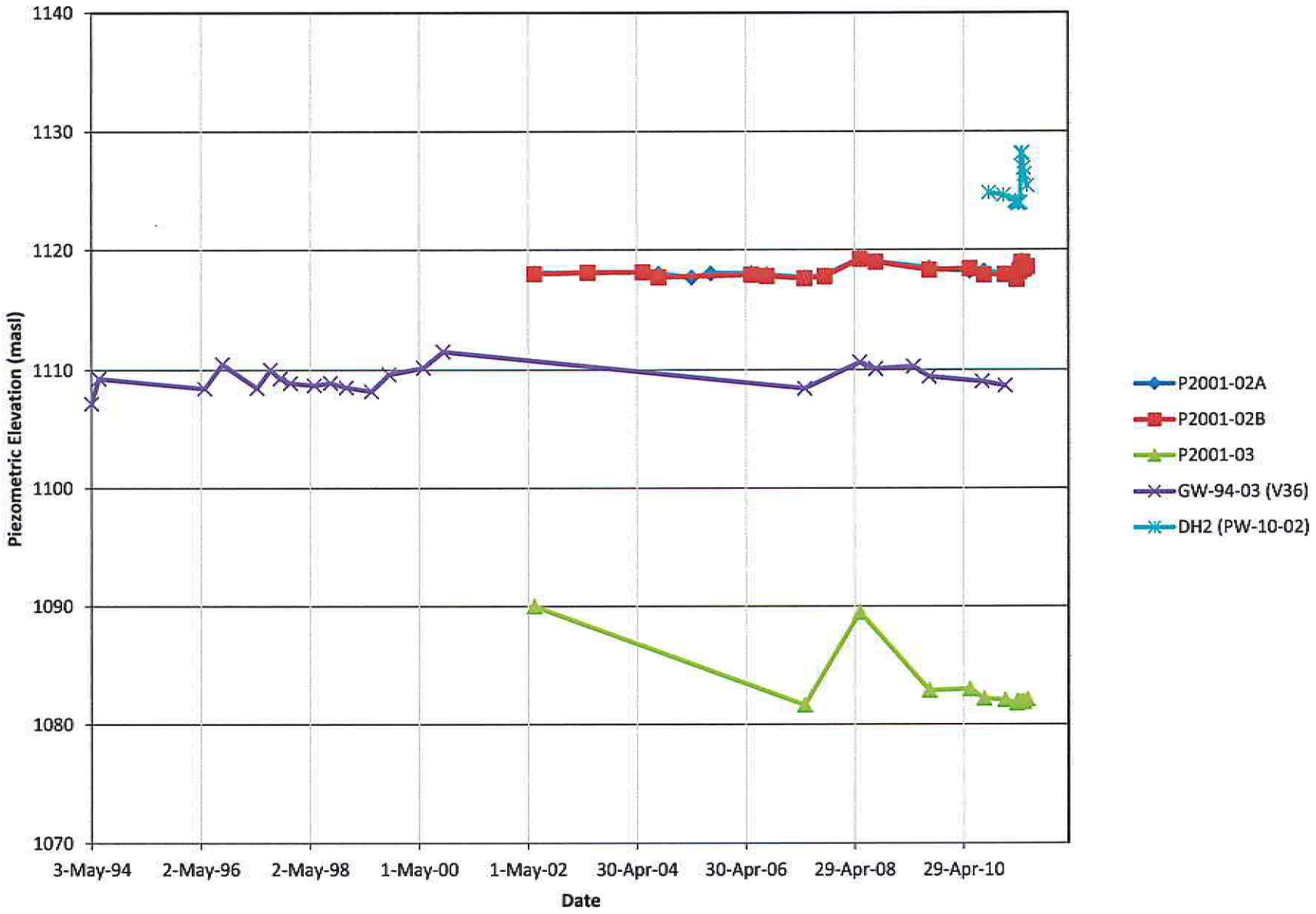
Section C

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1



Section D

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1



Section E

Source: Vangorda Waste Rock Piezo Data to 2July2011_r1

Appendix D: June 2011 Photo Log

Denison Environmental Services

Photo Log:
Grum / Vangorda Geotechnical Observations
June 2011

Faro Mine Closure

Photo 1: Erosion along Vangorda Interceptor East, upper section (June 26, 2011)

Photo 2: slumping along Vangorda Interceptor East, lower section (June 26, 2011)

Denison Environmental Services

Photo Log:
Grum / Vangorda Geotechnical Observations
June 2011

Photo 3: Vangorda Interceptor East Diversion
(June 26, 2011)

Photo 4: Approach to Moose Pond;
(June 26, 2011)

Denison Environmental Services

Photo Log:
Grum / Vangorda Geotechnical Observations
June 2011

Faro Mine Closure

Photo 5: Temporary re-direction off flow blocked off; flow from V15 ditch is directed to Moose Pond (June 26, 2011)

Photo 6: Rip rap on temporary flow path constructed mid-May (not in use at time of photo) (June 26, 2011)

Denison Environmental Services

Photo Log:
Grum / Vangorda Geotechnical Observations
June 2011

Photo 7: Moose Pond (June 28, 2011)