BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

DELOITTE & TOUCHE INC.

2008 ANNUAL GEOTECHNICAL EVALUATION AND INSTRUMENT REVIEW

VOLUME 2 OF 2

VARIOUS FACILITIES AT FARO MINE, YUKON

FINAL

PROJECT NO.: 0257-051-05
DATE: FEBRUARY 13, 2009

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APPENDIX I
FARO CREEK DIVERSION CANAL INVESTIGATION REPORT

DELOITTE AND TOUCHE INC.

FARO CREEK DIVERSION CHANNEL INVESTIGATION

FARO MINE, YT.

FINAL

PROJECT NO.: 0257-052-01
DATE: OCTOBER 30, 2008

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Project No. 0257-052-01
October 30, 2008

Mr. Douglas Sedgwick
Deloitte & Touche Inc.
Suite 1900, TD Centre
79 Wellington Street West
Toronto, Ontario
M5K 1B9

RE: FARO CREEK DIVERSION CHANNEL INVESTIGATION

Dear Mr. Sedgwick:

Please find attached our final report on the test pit investigation conducted at the Faro Creek Diversion Channel which was completed in September 2008 at the Faro Mine. This report contains sampling results and further analysis and supersedes the preliminary draft report submitted September 24, 2008.

We trust that this information meets with your requirements at this time. Should you have any questions or comments, please do not hesitate to contact me at the number listed above.

Yours truly,
BGC Engineering Inc.
per:

original signed by

Gerry Ferris, M.Sc., P.Eng.
Geotechnical Engineer

GWF/sf

Attached: Final Report

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LIMITATIONS OF REPORT

BGC Engineering Inc. (BGC) prepared this report for the account of Deloitte and Touche Inc. in their capacity of interim receiver for Anvil Range Mining Corporation. The material in it reflects the judgment of BGC staff in light of the information available to BGC at the time of report preparation. Any use which a third party makes of this report, or any reliance on decisions to be based on it are the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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1.0 INTRODUCTION

The Faro Creek Diversion Channel (FCDC) passes clean water from Faro Creek, above and around the main Faro open pit, before it is discharged into the North Fork of Rose Creek. The diversion channel is composed of two main upper, flatter segments:

- The upper 1.1 km segment that flows parallel to the Faro Creek Valley (north-south); and
- The 1 to 1.1 km long segment that flows above the northeast wall of the Faro open pit.

These two segments then lead into a steeper section that drains into the North Fork Rose Creek. The FCDC is part of the original mine development dating back to approximately 1968-69.

The FCDC is known to leak and this leakage is partially the cause of slope retrogression occurring above the Faro pit wall, as noted in various reports by Golder Associates Ltd. (Golder) on the pit wall stability (Golder 2007). Work performed by site staff in 2003 included the installation of a geocomposite liner (GCL) into selected portions of the FCDC, partially in an effort to reduce seepage quantities from the channel. No channel flow measurements were available to quantify the improvements that occurred by this construction work. Based on flow measurements conducted in 2007 the seepage loss from the channel is between 20 and 30% of the total flow, based on measurements near the upstream and downstream limits of the upper two segments. The majority of the seepage loss occurs in the upper (north-south) segment of the diversion (BGC 2008).

Denholm (2002) provided a summary of information about the FCDC, along with estimates of expected seepage and related water treatment costs. Based on that information and based on an expected 10 year time frame (approximate care and maintenance and permitting period), he recommended that upgrading of the channel should be undertaken. He did note that assumptions and costs would need to be verified before finally accepting this recommendation.

Golder conducted crest retreat and stability reviews of the east wall of the Faro Pit in 2002 and 2005. The analyses are based on site reconnaissance and distance measurements between the slope crest to the FCDC. The 2005 assessment indicated that the instability zones (on the East Wall of Faro Pit) had not significantly changed since the 2002 inspection. However, it was noted that instability of limited extent would likely continue to develop slowly at the crest of the wall. Sloughing or ravelling due to seepage erosion are the current modes of failure and this activity will continue to be a threat over the long-term performance of the FCDC. In 2006 a further slope stability monitoring program was initiated that consisted of slope movement observation points and monitoring points to evaluate large scale deformations. Preliminary data indicates that on-going large scale deformation associated with major instability is not occurring on the East Wall and continued monitoring is recommended (Golder 2007).

In 2007, a seepage event occurred near the upstream limit of the FCDC. This event was considered to be related to; the foundation conditions of the dike, the dike construction techniques (completed in the late 1960's by mine site forces) and the unusually cold conditions in the previous winter with a limited snow cover. BGC Engineering Inc. (BGC) prepared the following five memorandums related to this seepage event:

- Summary of Seepage Event and Remediation Efforts, Faro Creek Diversion Channel, May 23, 2007,
- Supplementary Memo on Channel Rehabilitation Needs, Faro Creek Diversion Channel, June 28, 2008,
- Summary of Notes and Recommendations, FMEA Risk Assessment, Faro Creek Diversion Channel, July 27, 2007,
- A report on the as-built conditions, Remediation Construction Summary, Faro Creek Diversion Channel, September 17, 2007, and
- A summary of the activities, Faro Creek Diversion Status Update, October 30, 2007

2.0 SCOPE OF WORK

During the FMEA risk assessment, reported in the July 2008 BGC report, eight failure modes were considered to have moderately high risk and it was considered that these risks should be acted upon, so as to reduce their probability of occurrence. For each of these failure modes a recommended course of action was outlined. The status of the recommendations was summarized in BGC's memo of October 30, 2007. D&T issued a memorandum dated December 3, 2007 that provided further information related to the status of the action items to address BGC's recommendations. The 2008 program was completed to address some of the actions outlined in the FMEA risk assessment, although not all have been addressed to date.

BGC provided a proposal (No. 08-0508) for the Faro Creek Diversion Canal Investigation, dated May 14, 2008, to Mr. Doug Sedgwick of Deloitte & Touche Inc. (Deloitte), Interim Receiver for Anvil Range Mining Corporation. It was noted in the proposal that BGC understood that the Faro Mine Closure Planning Office had decided not to proceed with the final design Faro Creek Diversion Canal relocation in 2008. The recommendation for moving forward with the relocation design work was reiterated by BGC (in the proposal), as moving the canal would provide significant risk reduction for many of the identified failure modes. The work program was approved by Mr. Sedgwick via email dated June 23, 2008.

The proposed scope of work comprises the following main elements:

1. Complete repairs to slumped and over steepened slopes of the Faro Creek Diversion Canal, and
2. Test pit investigation to determine the extent of poor quality subsurface conditions along the upper reach of the diversion channel.

The slope repair work (as outlined above) was not completed as the Faro mine site experienced a very wet summer in 2008 and access to the area was not possible.

3.0 WORK LOCATION

The Faro Mine site is located in the central Yukon, approximately 200 km north-northeast of Whitehorse. The Faro Mine is situated approximately 22 km north of the Town of Faro, as shown in Figure 1. A mine site plan indicating the locations of major structures is shown in Figure 2. This figure shows the general area of the site investigation work completed as part of this program.

4.0 INVESTIGATION

The investigation was completed during the September Faro inspection trip by Mr. Gerry Ferris, P. Eng. and Mr. Ashton Friesen, EIT. Test pitting was conducted on the FCDC dike on September 10th, 2008 and a total of 9 test pits were excavated, as outlined in Table 1.

Table 1 Test Pit Program

Test Pit	Northing (m)	Easting (m)	Elevation (m)	Depth (m)
BGC08-01	6915885	585194	1308	4.26
BGC08-02	6915954	585230	1307	4.26
BGC08-03	6915995	585254	1308	4.57
BGC08-04	6916034	585278	1302	4.26
BGC08-05	6916125	585323	1311	4.42
BGC08-06	6916193	585345	1311	3.76
BGC08-07	6916421	585431	1320	3.81
BGC08-08	6916462	585453	1317	2.90
BGC08-09	6916274	585392	1310	3.51

*NAD27 UTM Coordinates

Test pit logs associated with each test pit listed above are located in Appendix A and a plan view of the location of the test pits is provided in Figure 3.

The test pits were located, in all cases, on the downhill side of the access road adjacent to the diversion channel. The test pits were also of limited extent, extending a maximum of only about ¼ of the width of the access road, note that most testpits did not take up this much of the road surface. The pits were excavated while the channel was flowing. The pits were located in this manner to reduce the disturbance on the water retaining element and reduce the possibility of inducing a failure of the dyke. This investigation methodology restricted the ability to examine the full section of the dyke fill.

Four of the nine test pits were located adjacent to known seepage zones and others were sited to collect information from areas where seepage was not occurring. The known seepage zones are shown on Figure 3.

5.0 SOIL CONDITIONS

In general the exposed stratigraphy consisted of:

- Road fill
- Waste rock fill or Silty gravel fill,
- Top soil, and
- Till.

In six of the nine test pits either topsoil or organic material was encountered between the fill and the underlying till soil. Based on this it has been assumed that no clearing of the organics and topsoil was completed as part of the road construction. A large buried tree was encountered in test pit 9.

Two reaches could be defined based on the material exposed in the test pits; the upper reach located upstream of the 2007 repair area and the lower reach, as shown on Figure 3. The upper reach is characterized on the surface as having a narrower road surface, no turn-outs and less road fill. The subsoil in this area consisted of road fill, silty gravel fill, top soil and till. The till was noted in the field and verified during testing to have organics present. Seepage was noted in both of the test pits located in this reach, seepage water and wet soil was encountered in both the topsoil and the fill material. Upon backfilling, the material proved to be soft and wet, almost unworkable and un-trafficable when completed. Based on the appearance of the fill soils it is speculated that the road section was built from the material from the channel cut.

In the lower reach (south of the 2007 repair zone and north of the corner), the FCDC dike fill consisted of road fill and waste rock overlying topsoil and till. No silty gravel fill (excavated channel material) was observed in this section of the dike, however organics and debris was noted in the test pits. Seepage was noted in 3 of the 7 test pits excavated in this area. It is thought that the same construction method was used in this reach, but since the road surface had been extended using waste rock, and given the test pits were located on the downstream side of the road, this fill was not encountered. Upon backfilling the material was soft and un-trafficable near the three seepage zones, however relatively good compaction was achieved in the dry areas.

6.0 LABORATORY TESTING PROGRAM

Samples were taken at all 9 test pits, 14 samples in all. All 14 samples were tested for moisture content, 3 were tested for Atterberg Limits, and 3 for grain size analysis. All laboratory results are included in the test pit logs (Appendix A), and are shown separately in Appendix B. A summary of the laboratory results are included in Table 2.

8.0 CLOSURE

We trust that this information will meet with your requirements at this time. Should you have any questions or require any additional information, please do not hesitate to contact the undersigned.

Yours truly,

BGC Engineering Inc.
Per

original signed by

Ashton Friesen, EIT.
Mining Engineer

Reviewed By:

original signed by

original signed by

Gerry Ferris, M.Sc., P.Eng.
Senior Geotechnical Engineer

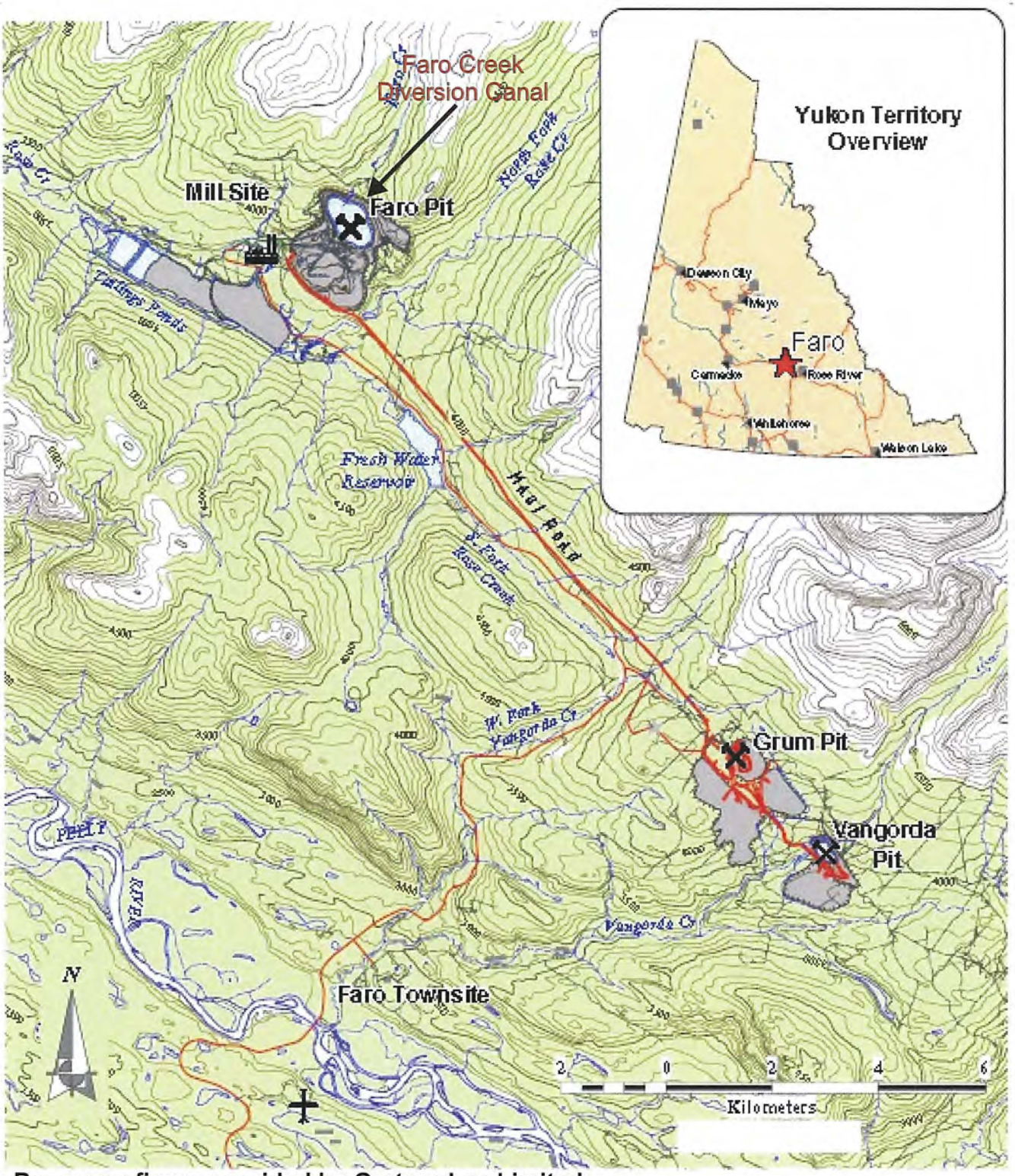
Holger Hartmaier, M.Eng., P.Eng (AB)
Senior Geotechnical Engineer

REFERENCES

BGC Engineering Inc. 2008. 2007 Annual Geotechnical Evaluation and Instrument Review, Various Facilities at Faro Mine, Yukon. Submitted to Deloitte and Touche Inc., Project No 0257-042-06, February 2008.

Eric Denholm, 2002. Faro Creek Diversion – Upgrade Versus Leave-As. Memo produced for SRK, 3 pages.

Golder Associates Ltd. 2007. Faro Pit slope movement monitoring. Letter report submitted to Deloitte and Touche Inc.



Note: Base map figure provided by Gartner Lee Limited.

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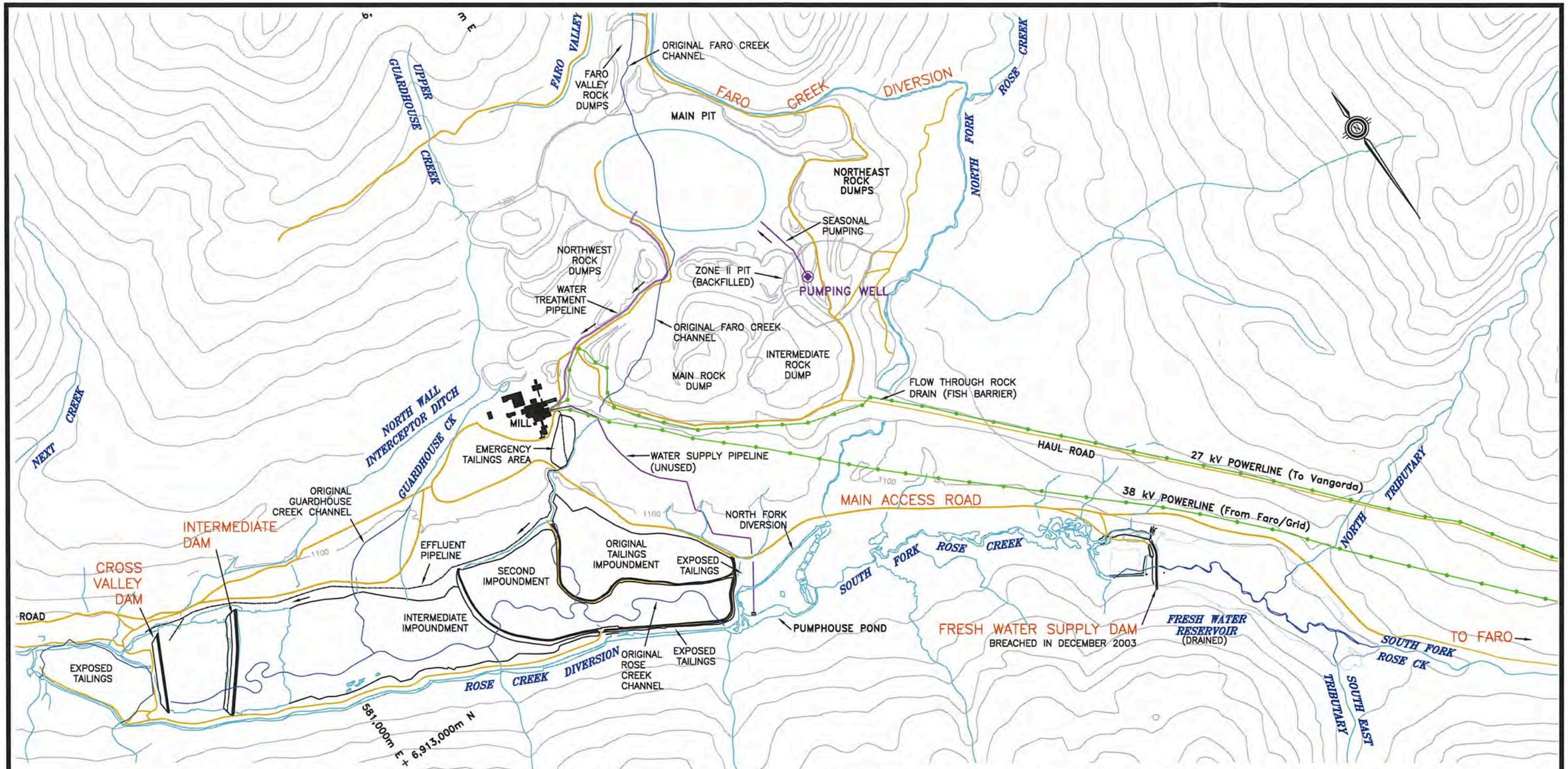
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PROJECT: FARO CREEK DIVERSION CHANNEL INVESTIGATION

TITLE: SITE LOCATION

PROJECT No.	FIGURE NO.	REV.
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Scale 1:25000

500 0 500 1000 1500

metres

LEGEND:

- ROADS
- EXISTING SURFACE DRAINAGE
- PRE-MINE DRAINAGE
- EFFLUENT PIPELINE
- PIPELINE
- WATER TREATMENT PIPELINE
- POWERLINE
- SURFACE WATER

REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

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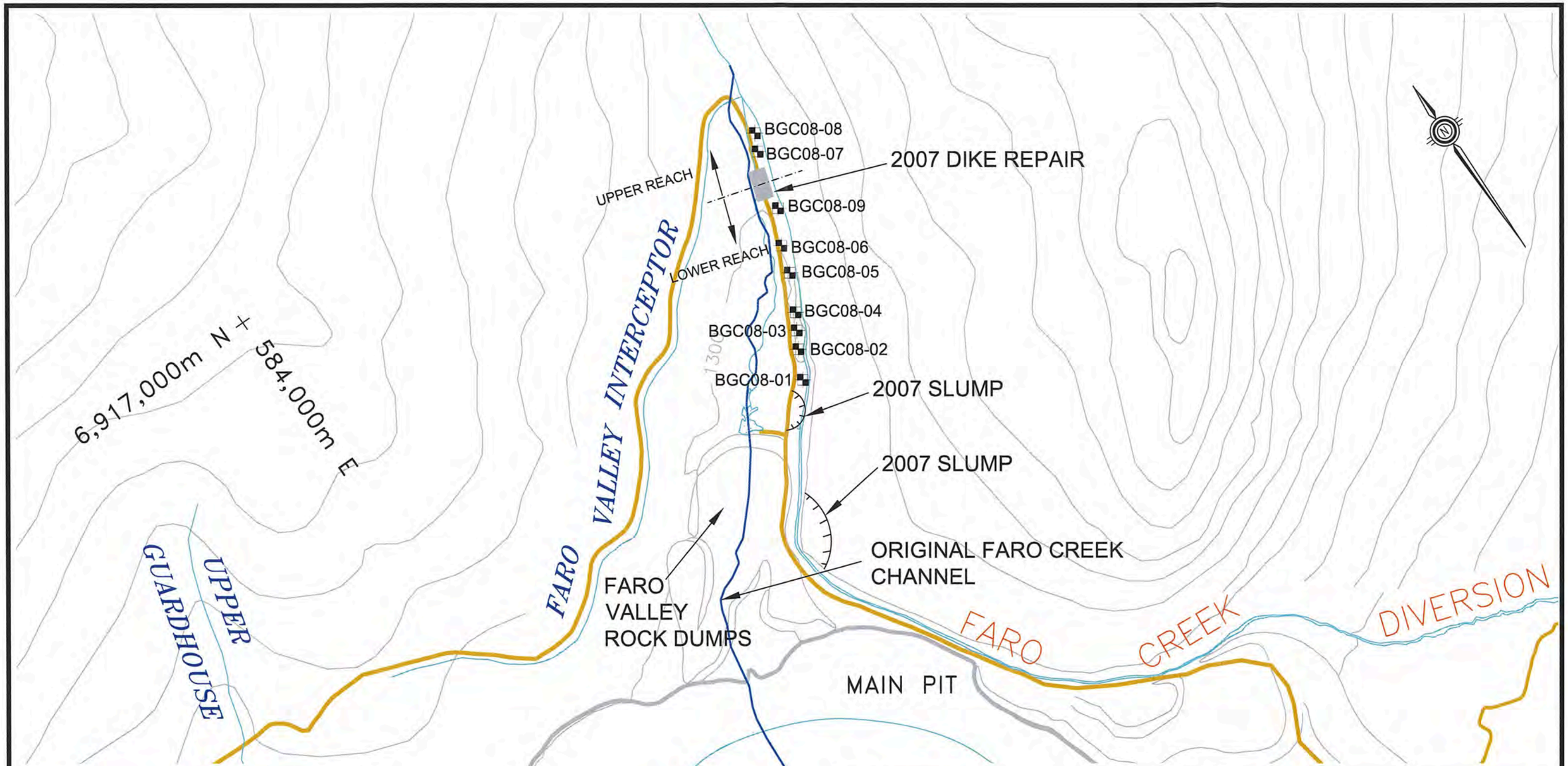
PROJECT: FARO CREEK DIVERSION CHANNEL INVESTIGATION

TITLE: FARO MINE SITE OVERVIEW

PROJECT No.	FIGURE No.	REV.
0257-052-01	2	0

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0257-018-02 001 FIGURE1.dwg



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LEGEND:

- ROADS
- EXISTING SURFACE DRAINAGE
- PRE-MINE DRAINAGE
- EFFLUENT PIPELINE
- PIPELINE
- WATER TREATMENT PIPELINE
- POWERLINE
- SURFACE WATER
- TESTPITS

REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

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DATE:	SEPTEMBER 2008
DRAWN:	JL
DESIGNED:	ALF
CHECKED:	GWF
APPROVED:	HHH

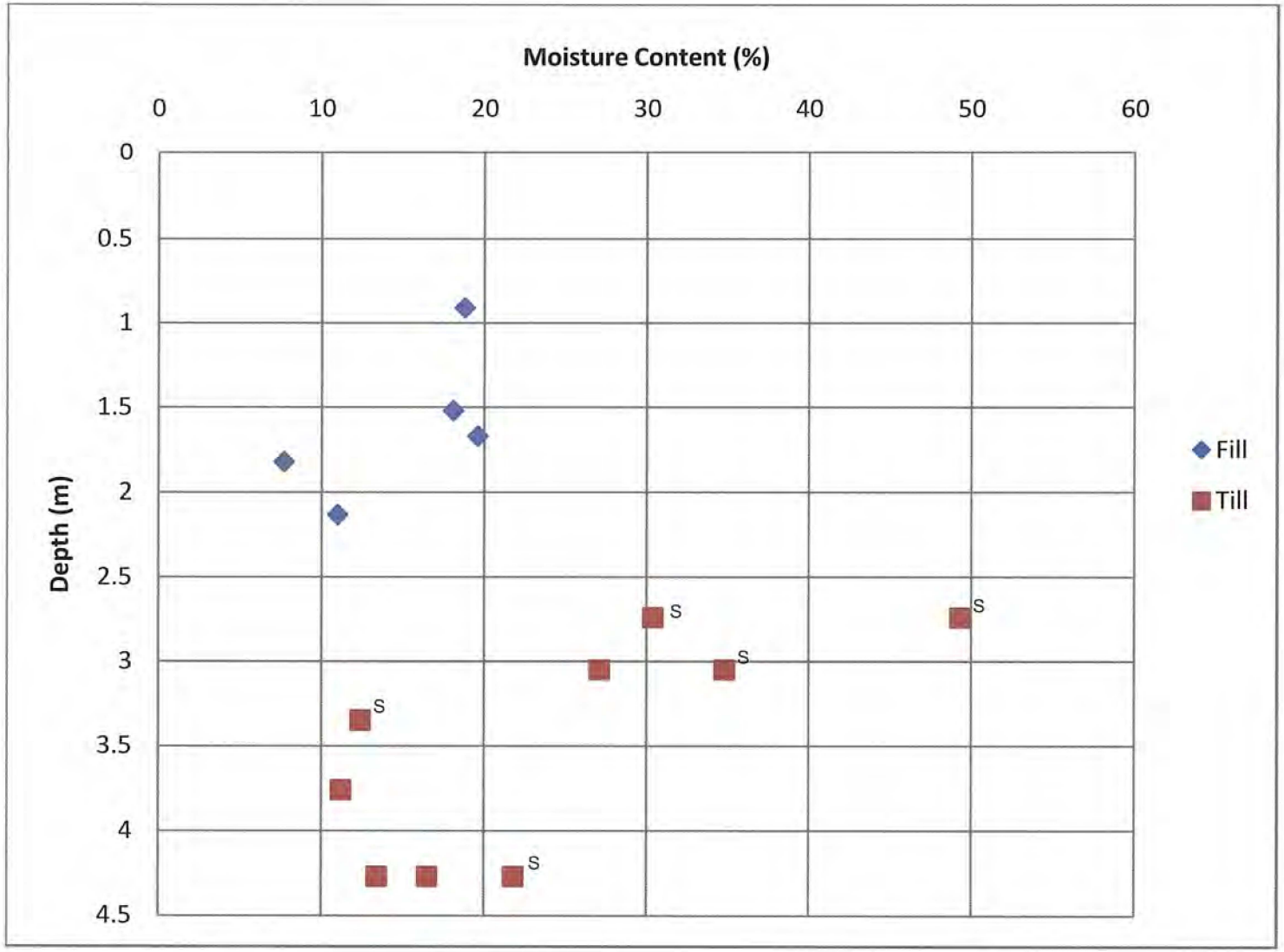
PROJECT: FARO CREEK DIVERSION CHANNEL INVESTIGATION

TITLE: FARO CREEK DIVERSION OVERVIEW

PROJECT No.	FIGURE No.	REV.
0257-052-01	3	0

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0257-018-02 001 FIGURE1.dwg



Note: S= seepage noted in testpit

SCALE: N/A	DESIGNED: ALF	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY	PROJECT: FARO CREEK DIVERSION CHANNEL INVESTIGATION
DATE: OCTOBER 2008	CHECKED: GWF		TITLE: SUMMARY OF MOISTURE CONTENT TESTING
DRAWN: SLF	APPROVED: HHH	CLIENT: Deloitte & Touche	PROJECT No.: 0257-052-01 / FIGURE No.: 4 / REV.: 0

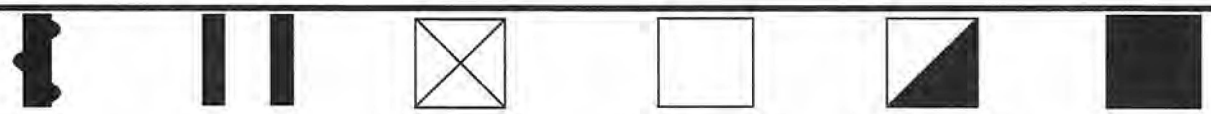
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APPENDIX A – TEST PIT LOGS

SYMBOLS AND TERMS

FOR SOIL DESCRIPTIONS ON BOREHOLE AND TEST PIT LOGS

SAMPLE SYMBOLS



AUGER | CORE | GRAB | NO RECOVERY | SHELBY TUBE | SPT

CLASSIFICATION BY PARTICLE SIZE[1]			
	SIZE RANGE		
		US STANDARD SIEVE SIZE	
NAME	(mm) [2]	Retained	Passing
Boulders	>200	8 inch	-
Cobbles	75 - 200	3 inch	8 inch
Gravel:			
Coarse	19 - 75	0.75 inch	3 inch
Fine	5 - 19	No. 4	0.75 inch
Sand:			
Coarse	2 - 5	No. 10	No. 4
Medium	0.4 - 2	No. 40	No. 10
Fine	0.074 - 0.4	No. 200	No. 40
Fines (Silt or Clay)[3]	<0.074	-	No. 200

PROPORTION OF MINOR COMPONENTS BY WEIGHT	
"and"	40% to 50%.
"y/ey"	25% to 40%
"Some"	10% to 25%
"Trace"	0% to 10%

PARTICLE SHAPE	
Flat	Particles with width/thickness >3
Elongated	Particles with length/width >3
Flat and Elongated	Particles that meet both criteria

DENSITY OF GRANULAR SOILS		
DESCRIPTION	SPT - "N"[4]	FIELD IDENTIFICATION
"Very Loose"	0-4	
"Loose"	4-10	Easy to drive wooden stake
"Compact"	10-30	
"Dense"	30-50	Difficult to drive wooden stake more then 50 mm.
"Very dense"	>50	

ANGULARITY	
"Angular"	Particles have sharp edges and relatively plane sides with un-polished surfaces.
"Subangular"	Particles are similar to angular description but have rounded edges.
"Subrounded"	Particles have nearly plane sides but have well rounded corners and edges.
"Rounded"	Particles have smoothly curved sides and no edges.

CONSISTENCY OF COHESIVE SOILS			
DESCRIPTION	SPT-"N" [6]	UNDRAINED	FIELD IDENTIFICATION
"Very soft"	<2	<12	Easily penetrated several centimetres by the fist.
"Soft"	2-4	12-25	Easily penetrated several centimetres by the thumb.
"Firm"	4-8	25-50	Can be penetrated several centimetres by the thumb with
"Stiff"	8-15	50-100	Readily indented by the thumb but penetrated only with
"Very Stiff'	15-30	100-200	Readily indented by the thumb nail.
"Hard"	>30	>200	Indented with difficulty by the thumbnail.

(1) Unified Soil Classification (USCS).
(2) Approximate metric conversion.
(3) Fines are classified as silt or clay on the basis of Atterberg limits (refer to Plasticity Chart).
(4) Standard Penetration Test (SPT) blow count uncorrected, after Terzaghi and Peck, 1948.
(5) Undrained shear strength can be estimated by vane (gives S_u), pocket penetrometer (gives unconfined compressive strength, i.e., 2 S_u), or unconfined compression test (gives 2 S_u).
(6) Very approximate correlation with Standard Penetration Test blow counts, after Terzaghi and Peck, 1948.

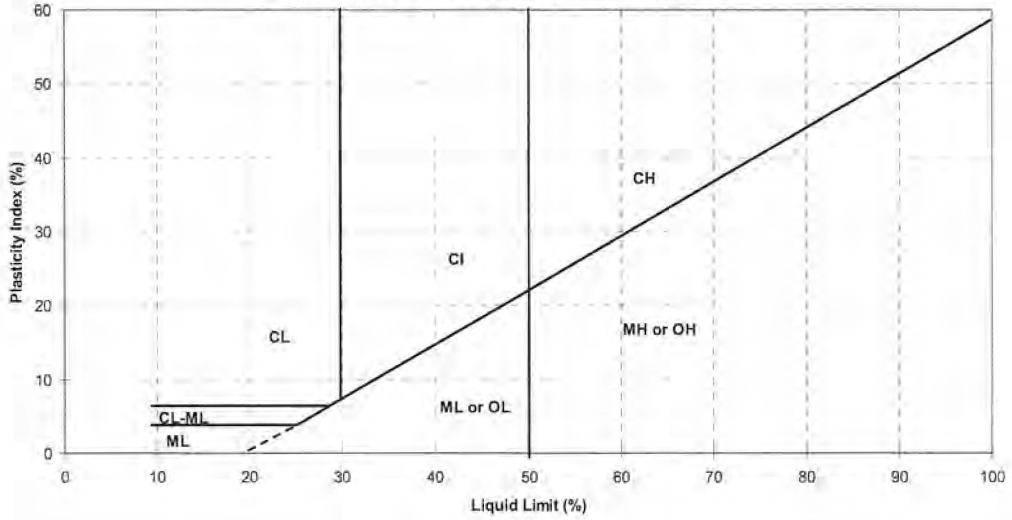
SYMBOLS AND TERMS

FOR SOIL DESCRIPTIONS ON BOREHOLE AND TEST PIT LOGS

PLASTICITY OF COHESIVE SOILS [7]

DESCRIPTION	SILT	CLAY	CRITERIA
High	W_L [8] >50	W_L >50	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.
Medium	-	30 <W_L<50	The thread is easy to roll and not much time is required to reach the plastic limit. The lump crumbles when drier than the plastic limit.
Low	W_L<50	W_L<30	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Non-Plastic	NP	-	A 1/8 inch (3 mm) thread cannot be rolled at any water content.

PLASTICITY OF COHESIVE SOILS[7]



CLASSIFICATIONS OF GROUND ICE [9]

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
N	Ice not visible by unaided eye	Nf	Poorly bonded or friable
		Nbn	Well bonded, no excess ice
		Nbe	Well bonded, excess ice
V	Visible ice less than 25 mm thick	Vx	Individual ice crystals or inclusions
		Vc	Ice coatings on soil particles
		Vr	Random or irregularly oriented ice
		Vs	Stratified or distinctly oriented ice
ICE	Visible ice greater than 25 mm thick	ICE + (soil type)	Ice with soil inclusions
		ICE	Ice without soil inclusions



(7) This plasticity classification conforms to the Unified Soil Classification System (USCS) and the ASTM D-2487 plasticity cart, except for the addition of an intermediate category for clay, where the liquid limit is between 30% and 50% (CI). Under ASTM and USCS, all clays with a liquid limit less than 50% are classified as low plasticity (CL).

(8) W_L = Liquid Limit (%)

(9) For soil descriptions, estimate percentage of ground ice based on volume, after national Research Council of Canada, 1963.

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 4

Test Pit Number: BGC08-01 Location: Faro Creek Diversion Elevation: 1308 m Water level at end of digging: None

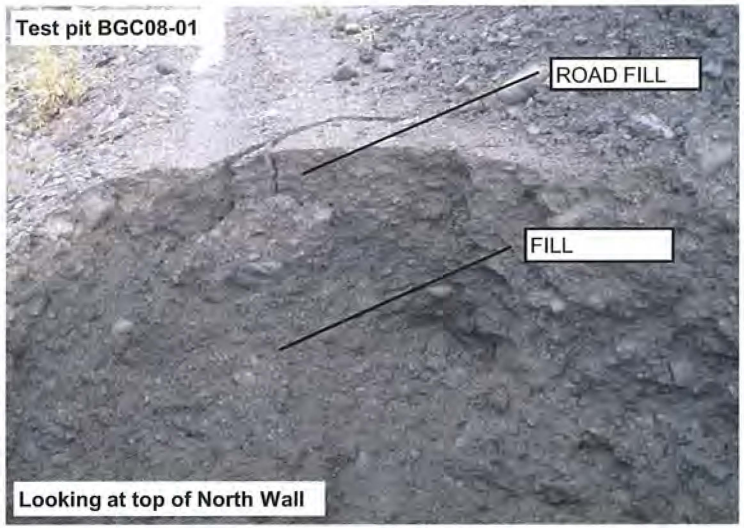
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 9:45 AM Finished: 10:15 AM Slouging interval: 3.048 to 4.26 m

Coordinates NAD 27 UTM 8 V 0585194 6915885

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Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	ROAD FILL, silt and gravel, moist.			Loose			Grey - Black	
0.2								
0.3			3.5					
0.4	FILL (WASTE ROCK), silt, some clay, some sand, trace gravel, gap graded, low plastic, moist.			Compact			Olive - Grey	
0.5								
0.6			2.7					
0.7								
0.8								
0.9								
1.0			4.5					
1.1			3.5					
1.2								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 4

Test Pit Number: BGC08-01 Location: Faro Creek Diversion Elevation: 1308 m Water level at end of digging: None

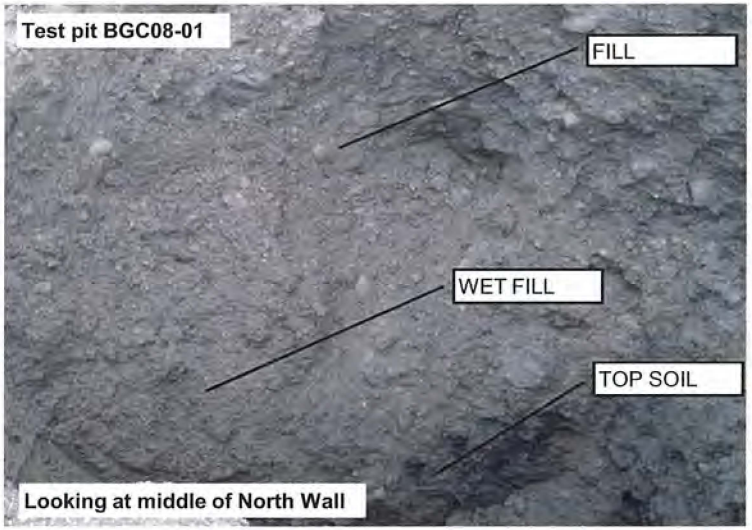
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 9:45 AM Finished: 10:15 AM Slouging interval: 3.048 to 4.26 m

Coordinates NAD 27 UTM 8 V 0585194 6915885

BGC ENGINEERING INC.
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Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3	FILL (WASTE ROCK), silt, some clay, some sand, trace gravel, gap graded, low plastic, moist.			Compact			Olive - Grey	
1.4								
1.5								
1.6								
1.7								
1.8	wet.							
1.9								
2.0								
2.1	ALF1			Compact	LP		Olive - Grey	ML
2.2								
2.3								
2.4								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

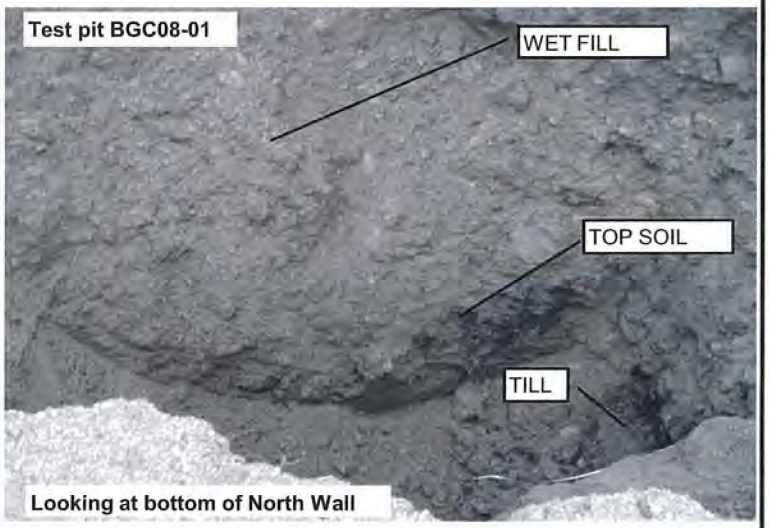
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 4
Test Pit Number: BGC08-01 Location: Faro Creek Diversion Elevation: 1308 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 9:45 AM Finished: 10:15 AM Slouging interval: 3.048 to 4.26 m
Coordinates NAD 27 UTM 8 V 0585194 6915885

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	FILL (WASTE ROCK), silt, some clay, some sand, trace gravel, gap graded, low plastic, wet.			Compact			Olive - Grey	
2.6								
2.7								
2.8								
2.9	TOP SOIL, organics present, moist.			Firm			Grey - Black	
3.0	TILL, clay and silt, some sand, low plastic, moist. ALF2		0.7		LP			CL
3.1								
3.2								
3.3				Firm			Black	
3.4								
3.5								
3.6								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm²)

Project Number: 0257-052 | Project Name: Faro Creek Div | Date: Sept. 10th, 2008 | Page: 4 of: 4

Test Pit Number: BGC08-01 | Location: Faro Creek Diversion | Elevation: 1308 m | Water level at end of digging: None

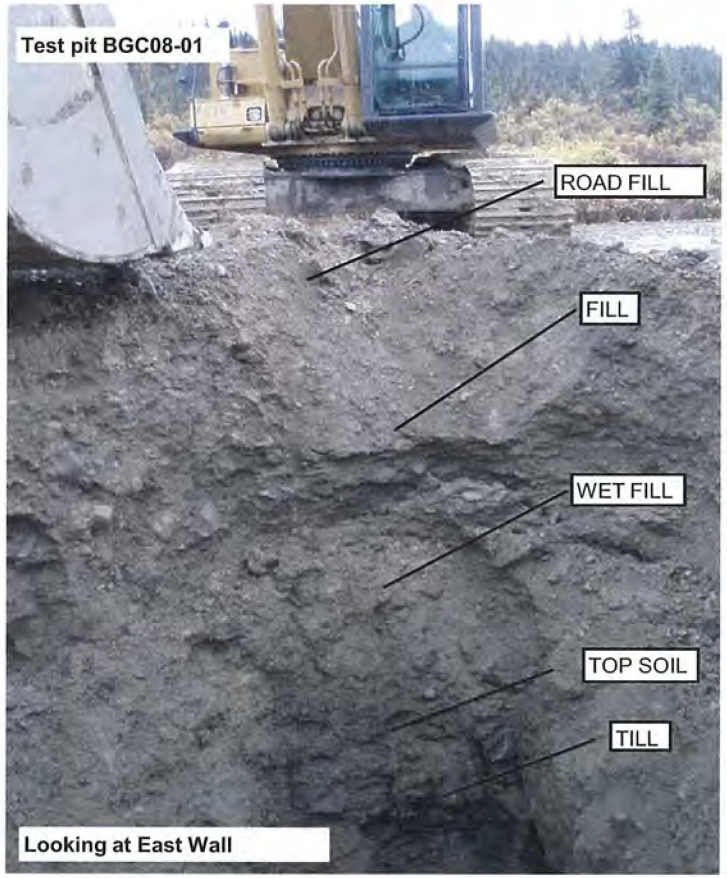
Weather: Cloudy - Rainy | Digging Method: Back Hoe | Depth of Test Pit: 4.26 m | Water Level: ____ min/hr after digging: N/A

Engineer: ALF | Time Started: 9:45 AM | Finished: 10:15 AM | Slouging interval: 3.048 to 4.26 m

Coordinates NAD 27 UTM | 8 V 0585194 | 6915885

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
3.7	TILL, clay and silt, some sand, low plastic, moist.			Firm			Grey - Black	
4.3	END OF HOLE Due to hole sloughing. No water present at bottom of test pit.							



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 4

Test Pit Number: BGC08-02 Location: Faro Creek Diversion Elevation: 1307 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 10:25 AM Finished: 11:05 AM Slouging interval: 2.5 to 4.26 m

Coordinates NAD 27 UTM 8 V 0585230 6915954

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	ROAD FILL, silt and gravel, moist.			Compact			Grey - Black	
0.2								
0.3	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, gap graded, angular particles, moist.		3.0	Dense			Orange - Brown	
0.4								
0.5								
0.6								
0.7								
0.8								
0.9			1.5					
1.0								
1.1								
1.2								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 4

Test Pit Number: BGC08-02 Location: Faro Creek Diversion Elevation: 1307 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 10:25 AM Finished: 11:05 AM Slouging interval: 2.5 to 4.26 m

Coordinates NAD 27 UTM 8 V 0585230 6915954

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, gap graded, angular particles, moist.							
1.4								
1.5								
1.6								
1.7				Dense			Orange - Brown	
1.8	ALF3	X			LP			CL
1.9								
2.0								
2.1								
2.2	trace boulders.							
2.3				Dense			Orange - Brown	
2.4								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 4
Test Pit Number: BGC08-02 Location: Faro Creek Diversion Elevation: 1307 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 10:25 AM Finished: 11:05 AM Slouging interval: 2.5 to 4.26 m
Coordinates NAD 27 UTM 8 V 0585230 6915954

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, trace boulders, angular particles, moist.			Dense			Orange - Brown	
3.2	TILL, silt and cobbles, trace clay, trace gravel, low plastic, moist.			Firm			Olive-Grey	
3.6								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
- Disturbed
- Fair
- Good
- Lost

Densities
- Very Loose
- Loose
- Compact
- Dense
- Very Dense

Consistency
- Very Soft
- Soft
- Firm
- Stiff
- Very stiff
- Hard

PP - Pocket Penetrometer (kg/cm²)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 4 of: 4

Test Pit Number: BGC08-02 Location: Faro Creek Diversion Elevation: 1307 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 10:25 AM Finished: 11:05 AM Slouging interval: 2.5 to 4.26 m

Coordinates NAD 27 UTM 8 V 0585230 6915954

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
3.7	TILL, silt and cobbles, trace clay, trace gravel, low plastic, moist.			Firm			Olive - Grey	
3.8								
3.9								
4.0								
4.1								
4.2								
4.3	ALF4		3.2		LP			CL
4.4	END OF HOLE Due to hole sloughing. No photo of Till as test pit was actively sloughing. No water present at bottom of test pit.							

Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm²)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 4
Test Pit Number: BGC08-03 Location: Faro Creek Diversion Elevation: 1308 m Water level at end of digging: 4.50 m
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.57 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 11:15 AM Finished: 11:55 AM Slouging interval: 2.2 to 4.57 m
Coordinates NAD 27 UTM 8 V 0585254 6915995

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	ROAD FILL, silt and gravel, moist.			Loose			Grey - Black	
0.2	FILL (WASTE ROCK), silt, some clay, some sand, trace gravel, gap graded, rounded particles, low plastic, moist.							
0.3								
0.4								
0.5								
0.6				Compact			Olive - Grey	
0.7								
0.8								
0.9	ALF5		2.5					
1.0								
1.1								
1.2								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

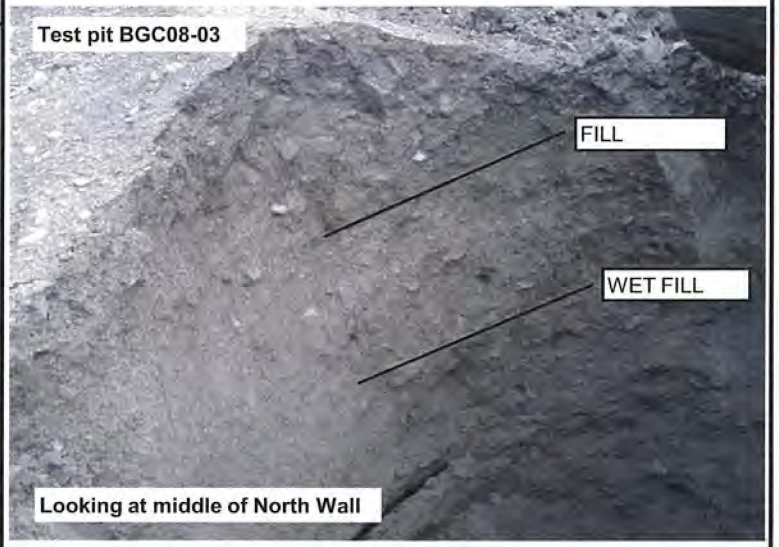
Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 4
Test Pit Number: BGC08-03 Location: Faro Creek Diversion Elevation: 1308 m Water level at end of digging: 4.50 m
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.57 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 11:15 AM Finished: 11:55 AM Slouging interval: 2.2 to 4.57 m
Coordinates NAD 27 UTM 8 V 0585254 6915995

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3 – 1.7	FILL (WASTE ROCK), silt, some sand, some clay, trace gravel, gap graded, rounded particles, low plastic, moist.			Compact			Olive - Grey	
1.7 – 2.4	wet.			Compact			Olive - Grey	



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 4
Test Pit Number: BGC08-03 Location: Faro Creek Diversion Elevation: 1308 m Water level at end of digging: 4.50 m
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.57 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 11:15 AM Finished: 11:55 AM Slouging interval: 2.2 to 4.57 m
Coordinates NAD 27 UTM 8 V 0585254 6915995

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	FILL (WASTE ROCK), silt, some sand, some clay, trace gravel, gap graded, rounded particles, low plastic, wet.							
2.6								
2.7								
2.8								
2.9								
3.0				Compact			Olive - Grey	
3.1								
3.2								
3.3								
3.4								
3.5								
3.6								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 4 of: 4

Test Pit Number: BGC08-03 Location: Faro Creek Diversion Elevation: 1308 m Water level at end of digging: 4.50 m

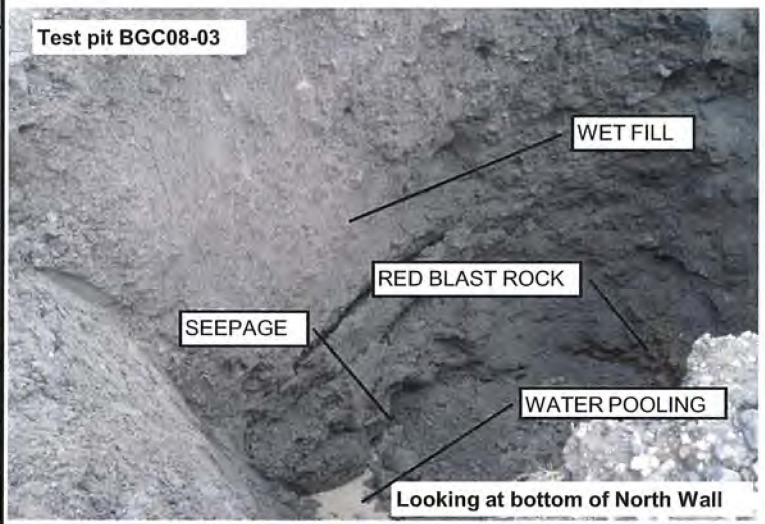
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.57 m Water Level: ____ min/hr after digging: N/A

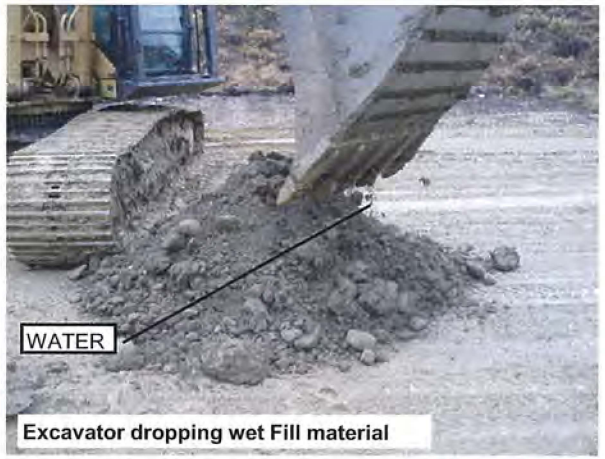
Engineer: ALF Time Started: 11:15 AM Finished: 11:55 AM Slouging interval: 2.2 to 4.57 m

Coordinates NAD 27 UTM 8 V 0585254 6915995

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
3.7	FILL (WASTE ROCK), silt, some sand, some clay, trace gravel, gap graded, rounded particles, low plastic, wet.			Dense			Grey - Black	
4.3	ALF6							
4.3	TILL, silt and cobbles, low plastic, wet. red blast rock uncovered at bottom of test pit.			Firm			Olive - Grey	
4.6	END OF HOLE Due to hole sloughing. Water pooled at bottom of test pit. Seepage water flowed in through slabbing north wall.							





Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 4

Test Pit Number: BGC08-04 Location: Faro Creek Diversion Elevation: 1302 m Water level at end of digging: None

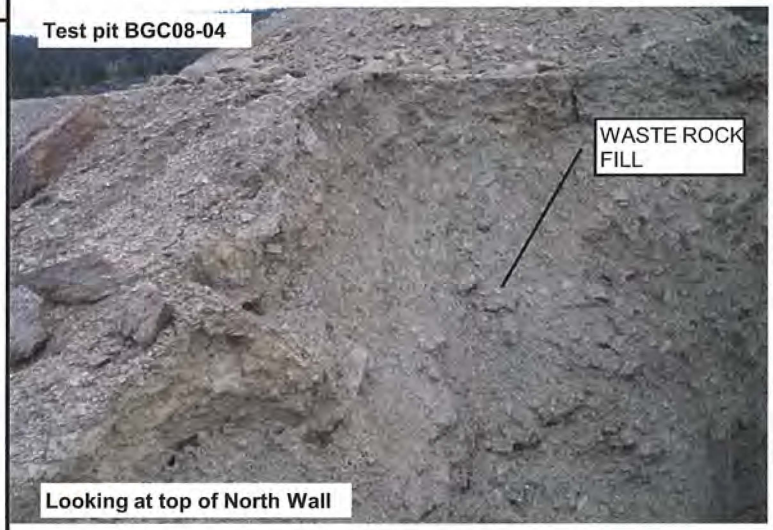
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 11:55 AM Finished: 12:25 PM Slouging interval: 1.4 to 2.1 m

Coordinates NAD 27 UTM 8 V 0585278 6916034

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, gap graded, angular particles, moist.			Compact			Orange - Brown	
0.2								
0.3								
0.4								
0.5								
0.6								
0.7								
0.8								
0.9								
1.0								
1.1								
1.2								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

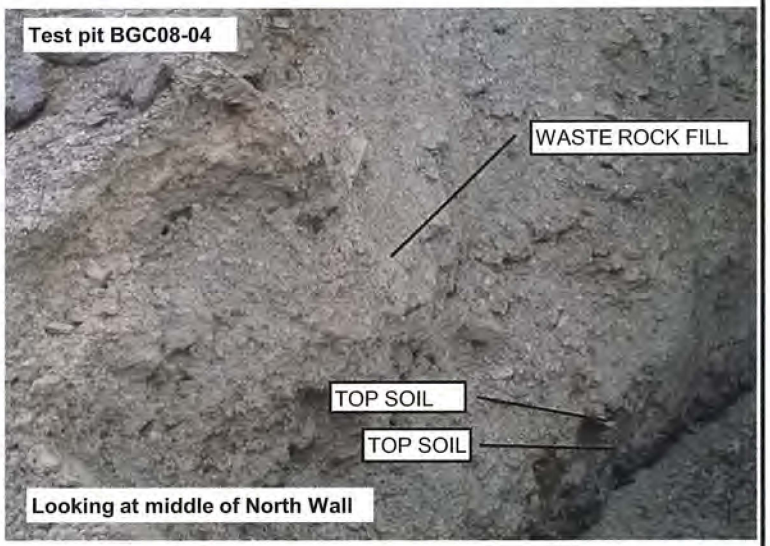
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 4
Test Pit Number: BGC08-04 Location: Faro Creek Diversion Elevation: 1302 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 11:55 AM Finished: 12:25 PM Slouging interval: 1.4 to 2.1 m
Coordinates NAD 27 UTM 8 V 0585278 6916034

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, gap graded, angular particles, moist.							
1.4								
1.5								
1.6				Compact			Orange - Brown	
1.7	ALF7							
1.8								
1.9								
2.0	FILL (silt and clay), clay and silt, trace gravel, trace sand, moist.			Compact			Dark Brown	
2.1								
2.2	TOP SOIL, organics present, moist to wet.			Firm			Brown - Black	
2.3								
2.4								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

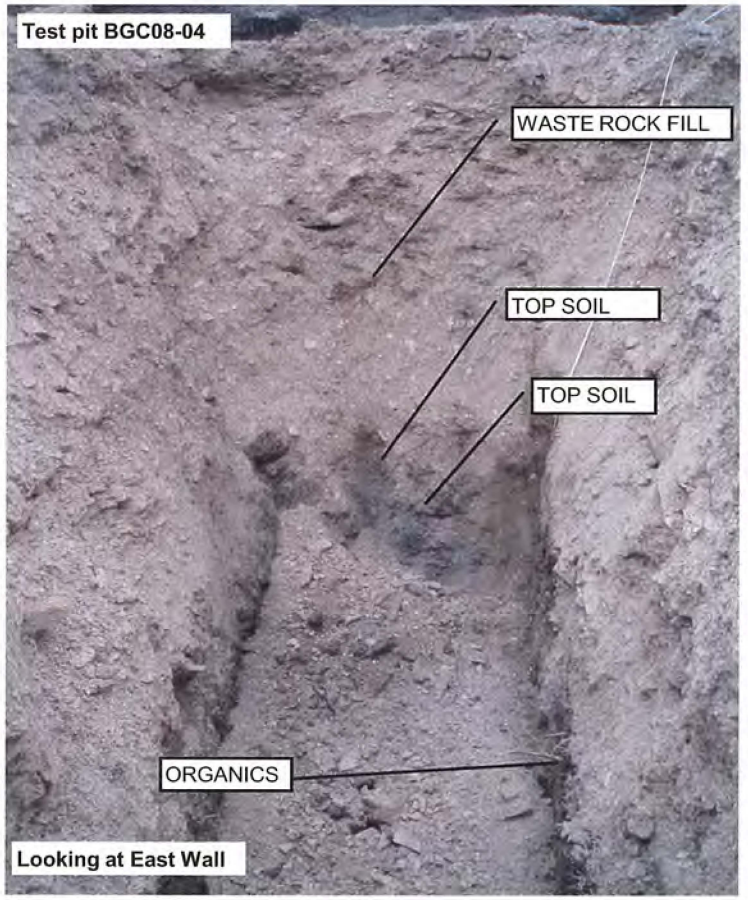
Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 4
Test Pit Number: BGC08-04 Location: Faro Creek Diversion Elevation: 1302 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 11:55 AM Finished: 12:25 PM Slouging interval: 1.4 to 2.1 m
Coordinates NAD 27 UTM 8 V 0585278 6916034

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	TOP SOIL, organics present, moist to wet.			Firm			Brown - Black	
2.6								
2.7								
2.8	TILL, silt and cobbles, trace clay, gap graded, low plastic, moist			Firm			Olive - Grey	
2.9								
3.0								
3.1								
3.2								
3.3								
3.4								
3.5								
3.6								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 4 of: 4
Test Pit Number: BGC08-04 Location: Faro Creek Diversion Elevation: 1302 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.26 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 11:55 AM Finished: 12:25 PM Slouging interval: 1.4 to 2.1 m
Coordinates NAD 27 UTM 8 V 0585278 6916034

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
3.7	Till, silt and cobbles, trace clay, gap graded, low plastic, moist.			Firm			Grey - Black	
4.3	ALF8		3.5		LP			CL
	END OF HOLE Due to hole sloughing. No water evident in bottom of test pit.							



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 4

Test Pit Number: BGC08-05 Location: Faro Creek Diversion Elevation: 1311 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.42 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 12:30 PM Finished: 12:45 PM Slouging interval: 1.6 to 4.42 m

Coordinates NAD 27 UTM 8 V 0585323 6916125

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, angular particles, moist.			Compact			Red - Orange - Brown	
0.2								
0.3								
0.4								
0.5								
0.6								
0.7								
0.8								
0.9								
1.0								
1.1								
1.2								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm²)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 4

Test Pit Number: BGC08-05 Location: Faro Creek Diversion Elevation: 1311 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.42 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 12:30 PM Finished: 12:45 PM Slouging interval: 1.6 to 4.42 m

Coordinates NAD 27 UTM 8 V 0585323 6916125

BGC ENGINEERING INC.
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Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, angular particles, moist.			Compact			Red - Orange - Brown	
1.4								
1.5								
1.6								
1.7								
1.8								
1.9	wet.			Compact			Red - Orange - Brown	
2.0								
2.1								
2.2	TILL, silt and gravel, trace clay, medium soft, low plastic, moist.			Firm			Olive - Grey - Brown	
2.3								
2.4								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 4
Test Pit Number: BGC08-05 Location: Faro Creek Diversion Elevation: 1311 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.42 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 12:30 PM Finished: 12:45 PM Slouging interval: 1.6 to 4.42 m
Coordinates NAD 27 UTM 8 V 0585323 6916125

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	TILL, silt and gravel, trace clay, medium soft, low plastic, moist.							
2.6								
2.7								
2.8								
2.9								
3.0	ALF9	⊠	3.0	Firm/Stiff			Olive - Grey - Brown	
3.1								
3.2								
3.3								
3.4								
3.5								
3.6								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 4 of: 4

Test Pit Number: BGC08-05 Location: Faro Creek Diversion Elevation: 1311 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 4.42 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 12:30 PM Finished: 12:45 PM Slouging interval: 1.6 to 4.42 m

Coordinates NAD 27 UTM 8 V 0585323 6916125

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
3.7	Till, silt and gravel, trace clay, medium soft, low plastic, moist.			Firm/Stiff			Olive - Grey - Brown	
3.8								
3.9								
4.0								
4.1								
4.2								
4.3								
4.4								
4.5	END OF HOLE Due to hole sloughing. Seepage noted on top of till (small amount)							
4.6								

Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 4

Test Pit Number: BGC08-06 Location: Faro Creek Diversion Elevation: 1311 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.76 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 13:25 PM Finished: 13:50 PM Slouging interval: N/A

Coordinates NAD 27 UTM 8 V 0585345 6916193

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, gap graded, angular particles, moist.			Compact			Orange - Brown	
0.2								
0.3								
0.4								
0.5								
0.6								
0.7								
0.8								
0.9								
1.0								
1.1								
1.2								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 4
Test Pit Number: BGC08-06 Location: Faro Creek Diversion Elevation: 1311 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.76 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 13:25 PM Finished: 13:50 PM Slouging interval: N/A
Coordinates NAD 27 UTM 8 V 0585345 6916193

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, gap graded, angular particles, moist.			Compact			Orange - Brown	
1.4								
1.5								
1.6								
1.7	ALF10		2.3					
1.8	FILL (silt and cobbles), silt and cobbles, trace clay, organics present, moist.			Dense			Brown - Orange	
1.9								
2.0	TILL, silt and cobbles, trace clay, low plastic, moist.			Firm			Olive - Grey - Brown	
2.1								
2.2								
2.3								
2.4								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

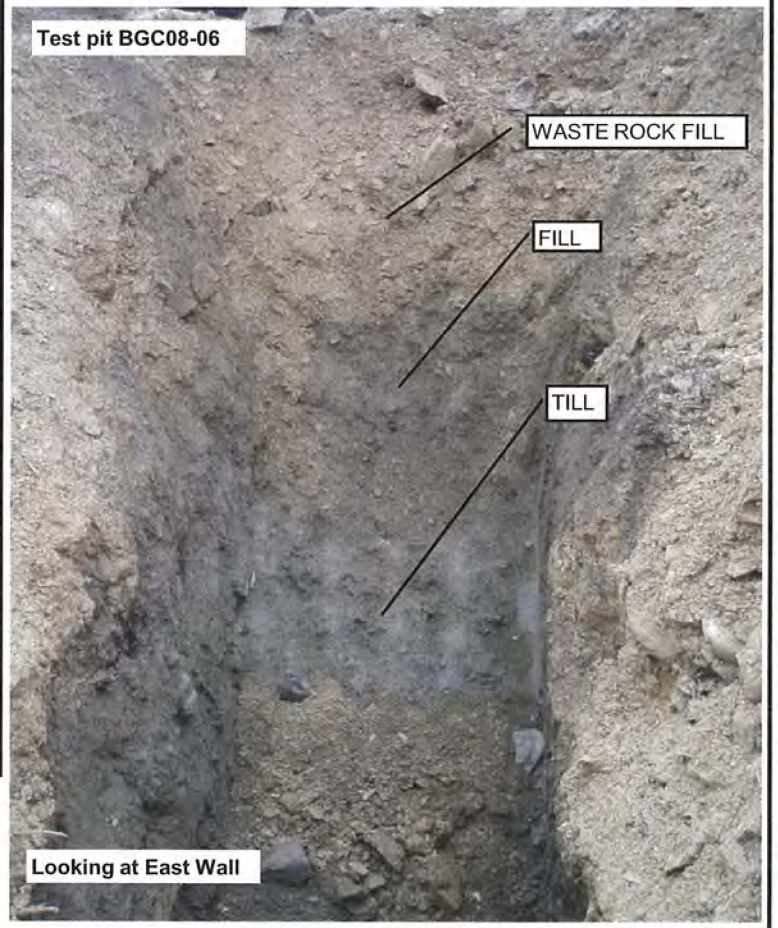
Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 4
Test Pit Number: BGC08-06 Location: Faro Creek Diversion Elevation: 1311 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.76 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 13:25 PM Finished: 13:50 PM Slouging interval: N/A
Coordinates NAD 27 UTM 8 V 0585345 6916193

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	TILL, silt and cobbles, trace clay, low plastic, moist.							
2.6								
2.7								
2.8								
2.9								
3.0				Firm			Olive - Grey - Brown	
3.1								
3.2								
3.3								
3.4								
3.5								
3.6								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 4 of: 4

Test Pit Number: BGC08-06 Location: Faro Creek Diversion Elevation: 1311 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.76 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 13:25 PM Finished: 13:50 PM Slouging interval: N/A

Coordinates NAD 27 UTM 8 V 0585345 6916193

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
3.7	Till, silt and cobbles, trace clay, gap graded, low plastic, moist			Firm			Olive - Grey - Brown	
3.8	ALF11	Grab	4.0					
3.9	END OF HOLE Due to hole sloughing. No water evident in bottom of hole.							
4.0								
4.1								
4.2								
4.3								
4.4								
4.5								
4.6								

Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 4

Test Pit Number: BGC08-07 Location: Faro Creek Diversion Elevation: 1320 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.81 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 13:55 PM Finished: 14:20 PM Slouging interval: 1.6 to 3.81 m

Coordinates NAD 27 UTM 8 V 0585431 6916421

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	FILL (WASTE ROCK), silt, some clay, some sand, trace gravel, gap graded, low plastic, moist.			Compact			Olive - Grey	
0.2								
0.3								
0.4								
0.5								
0.6								
0.7								
0.8			2.5					
0.9								
1.0								
1.1								
1.2								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 4

Test Pit Number: BGC08-07 Location: Faro Creek Diversion Elevation: 1320 m Water level at end of digging: None

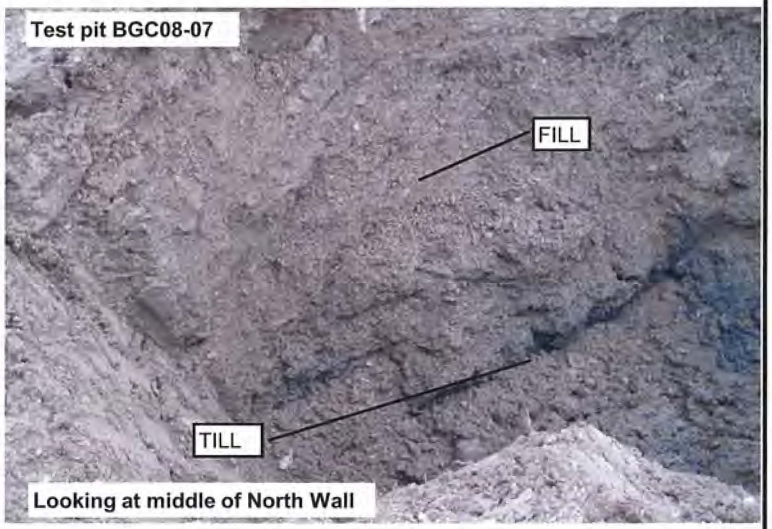
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.81 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 13:55 PM Finished: 14:20 PM Slouging interval: 1.6 to 3.81 m

Coordinates NAD 27 UTM 8 V 0585431 6916421

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3	FILL (WASTE ROCK), silt, some clay, some sand, trace gravel, gap graded, low plastic, moist.			Compact			Olive - Grey	
1.4								
1.5								
1.6								
1.7								
1.8								
1.9								
2.0								
2.1								
2.2								
2.3								
2.4								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 4

Test Pit Number: BGC08-07 Location: Faro Creek Diversion Elevation: 1320 m Water level at end of digging: None

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.81 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 13:55 PM Finished: 14:20 PM Slouging interval: 1.6 to 3.81 m

Coordinates NAD 27 UTM 8 V 0585431 6916421

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	FILL (WASTE ROCK, silt, some clay, some sand, trace gravel, gap graded, low plastic, moist.			Compact			Olive - Grey - Brown	
2.6	TILL, silt, some sand, some clay, trace gravel, gap graded, ogranics present, low plastic, moist.							
2.7	ALF13	⊠			LP			ML
2.8								
2.9								
3.0								
3.1				Firm			Blue - Purple - Grey	
3.2								
3.3								
3.4								
3.5								
3.6								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

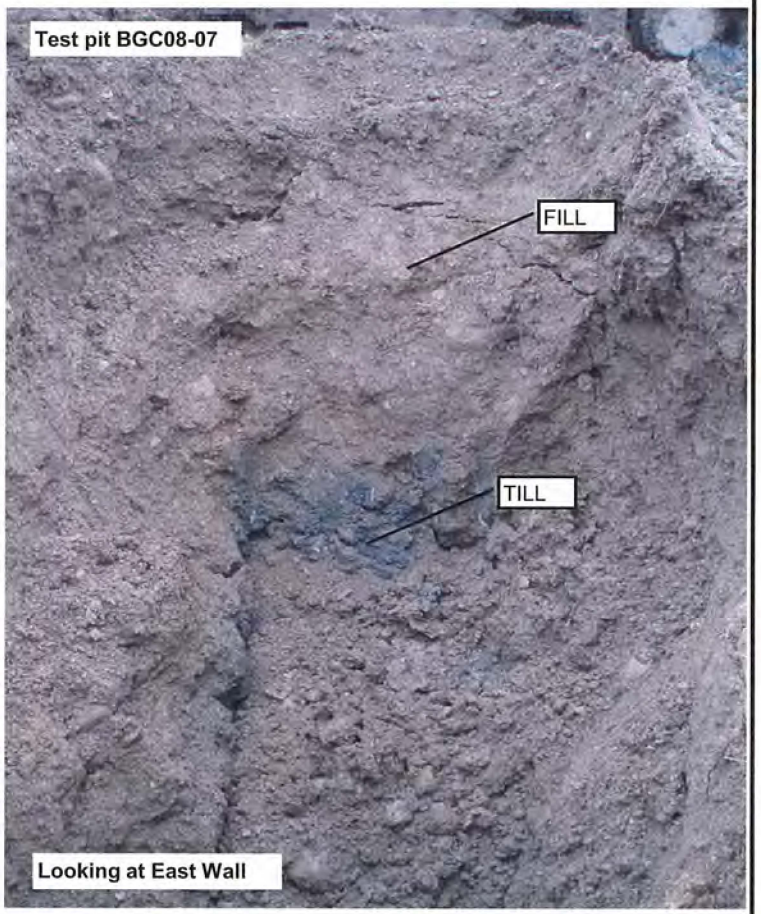
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 4 of: 4
Test Pit Number: BGC08-07 Location: Faro Creek Diversion Elevation: 1320 m Water level at end of digging: None
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.81 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 13:55 PM Finished: 14:20 PM Slouging interval: 1.6 to 3.81 m
Coordinates NAD 27 UTM 8 V 0585431 6916421

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
3.7	Till, silt and cobbles, trace clay, gap graded, organics present, low plastic, moist.			Firm			Blue - Purple - Grey	
3.8								
3.9	END OF HOLE Due to hole sloughing. No water evident in bottom of test pit, but seepage paths present. Operator mentioned wet material while digging. When backfilled material was soft and wet almost unworkable.							
4.0								
4.1								
4.2								
4.3								
4.4								
4.5								
4.6								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 3
Test Pit Number: BGC08-08 Location: Faro Creek Diversion Elevation: 1317 m Water level at end of digging: 2.89 m
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 2.90 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 14:30 PM Finished: 14:50 PM Slouging interval: 1.5 to 2.90 m
Coordinates NAD 27 UTM 8 V 0585453 6916462

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	FILL (WASTE ROCK), silt, some clay, some sand, trace gravel, gap graded, low plastic, moist.			Dense			Olive - Grey	
0.2								
0.3								
0.4								
0.5								
0.6								
0.7								
0.8								
0.9								
1.0								
1.1								
1.2								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 3

Test Pit Number: BGC08-08 Location: Faro Creek Diversion Elevation: 1317 m Water level at end of digging: 2.89 m

Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 2.90 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 14:30 PM Finished: 14:50 PM Slouging interval: 1.5 to 2.90 m

Coordinates NAD 27 UTM 8 V 0585453 6916462

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3	FILL (WASTE ROCK), silt, some clay, some sand, trave gravel, gap graded, firm, low plastic, moist.							
1.4								
1.5								
1.6								
1.7								
1.8				Dense			Olive - Grey	
1.9								
2.0								
2.1								
2.2								
2.3								
2.4								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

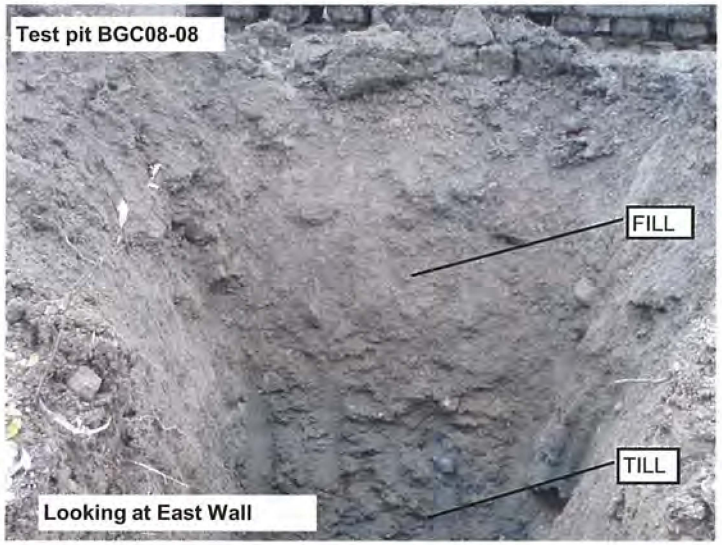
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

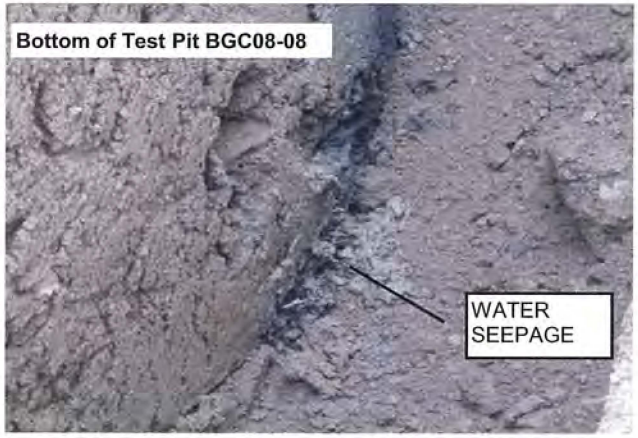
PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 3
Test Pit Number: BGC08-08 Location: Faro Creek Diversion Elevation: 1317 m Water level at end of digging: 2.89 m
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 2.90 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 14:30 PM Finished: 14:50 PM Slouging interval: 1.5 to 2.90 m
Coordinates NAD 27 UTM 8 V 0585453 6916462

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	FILL (WASTE ROCK), silt, some clay, some sand, trace gravel, gap graded, low plastic, moist.			Dense			Olive - Grey - Brown	
2.6								
2.7	TILL, silt, some sand, some clay, trace gravel, gap graded, ogranics present, moderately plastic, moist. ALF14		1.3	Firm	LP - HP		Blue - Purple - Grey	ML
2.8								
2.9								
3.0	END OF HOLE Due to hole sloughing and water seepage. Seeps occuring on Fill - Till contact. Material likely was placed from channel cut (moved Till material) When backfilled material was soft and wet almost unworkable.							
3.1								
3.2								
3.3								
3.4								
3.5								
3.6								





Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

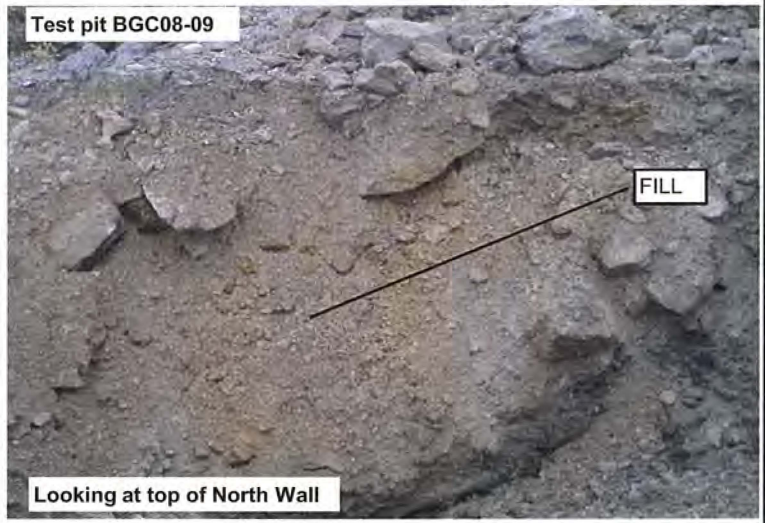
Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 1 of: 4
Test Pit Number: BGC08-09 Location: Faro Creek Diversion Elevation: 1310 m Water level at end of digging: 3.51 m
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.51 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 15:00 PM Finished: 15:15 PM Slouging interval: 1.4 to 3.51 m
Coordinates NAD 27 UTM 8 V 0585392 6916274

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
0.1	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, gap graded, angular particles, moist.			Dense			Orange - Brown	
0.2								
0.3								
0.4								
0.5								
0.6								
0.7								
0.8								
0.9								
1.0								
1.1								
1.2								



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 2 of: 4

Test Pit Number: BGC08-09 Location: Faro Creek Diversion Elevation: 1310 m Water level at end of digging: 3.51 m

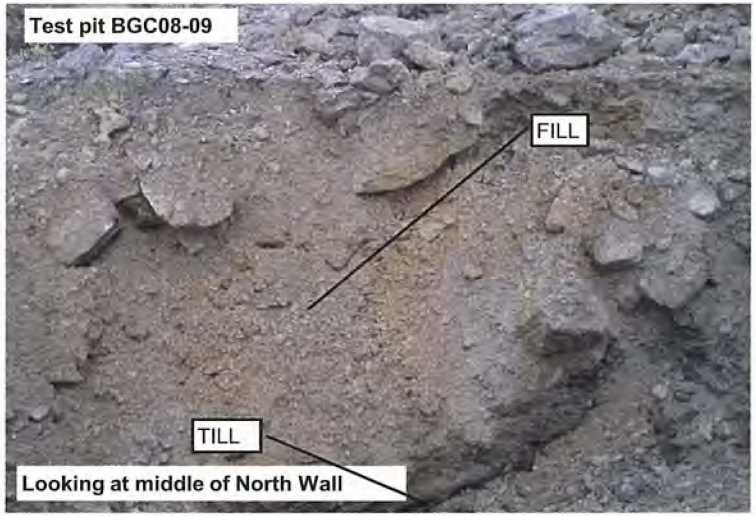
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.51 m Water Level: ____ min/hr after digging: N/A

Engineer: ALF Time Started: 15:00 PM Finished: 15:15 PM Slouging interval: 1.4 to 3.51 m

Coordinates NAD 27 UTM 8 V 0585392 6916274

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
1.3	FILL (SULFIDE WASTE ROCK), gravel, some sand, trace silt, gap graded, angular particles, moist.							
1.4								
1.5								
1.6								
1.7								
1.8				Dense			Orange - Brown	
1.9								
2.0								
2.1								
2.2								
2.3								
2.4								



Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

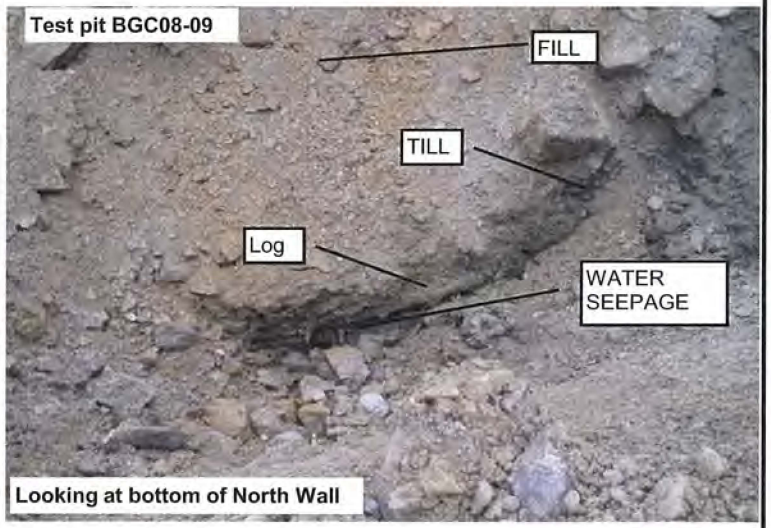
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 3 of: 4
Test Pit Number: BGC08-09 Location: Faro Creek Diversion Elevation: 1310 m Water level at end of digging: 3.51 m
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.51 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 15:00 PM Finished: 15:15 PM Slouging interval: 1.4 to 3.51 m
Coordinates NAD 27 UTM 8 V 0585392 6916274

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Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
2.5	FILL (SULFIDE WASTE ROCK),			Dense			Orange - Brown	
2.6	TILL, silt and cobbles, trace clay, gap graded, organics present, low plastic, wet.							
2.7								
2.8								
2.9								
3.0				Firm			Olive - Grey	
3.1								
3.2								
3.3								
3.4	ALF15		3.7					
3.5								
3.6	END OF HOLE.							



Sample Types
- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality
Disturbed
Fair
Good
Lost

Densities
Very Loose
Loose
Compact
Dense
Very Dense

Consistency
Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

Project Number: 0257-052 Project Name: Faro Creek Div Date: Sept. 10th, 2008 Page: 4 of: 4
Test Pit Number: BGC08-09 Location: Faro Creek Diversion Elevation: 1310 m Water level at end of digging: 3.51 m
Weather: Cloudy - Rainy Digging Method: Back Hoe Depth of Test Pit: 3.51 m Water Level: ____ min/hr after digging: N/A
Engineer: ALF Time Started: 15:00 PM Finished: 15:15 PM Slouging interval: 1.4 to 3.51 m
Coordinates NAD 27 UTM 8 V 0585392 6916274

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Depth (m)	Soil Description	Sample Type	PP	Consistency/ Density	Plasticity	Grain Size	Colour	USCS
3.7	END OF HOLE Due to hole sloughing. Water running into test pit along log in bottom of pit (approx. 0.5 L/min) Material is likely till excavated from the channel (shows disorder and a mix of decomposed organics) When backfilled material was soft and wet almost unworkable.							
3.8								
3.9								
4.0								
4.1								
4.2								
4.3								
4.4								
4.5								
4.6								

Sample Types

- Shelby Sample
- Grab Sample
- SPT Sample

Sample Quality

Disturbed
Fair
Good
Lost

Densities

Very Loose
Loose
Compact
Dense
Very Dense

Consistency

Very Soft
Soft
Firm
Stiff
Very stiff
Hard

PP - Pocket Penetrometer (kg/cm^2)

APPENDIX B – LABORATORY TESTING RESULTS

Testpit	Sample	Depth (m)	FIELD Soil Description	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	SG	Organics (%)	LAB Soil Description
08-01	ALF1	2.13	WASTE ROCK FILL	11						MH - ML
	ALF2	3.05	TILL	27.1						CL
08-02	ALF3	1.82	SULFIDE WASTE ROCK FILL	7.7						GM or GC; Gravel some sand, trace silt
	ALF4	4.27	TILL	13.4						CL
08-03	ALF5	0.91	WASTE ROCK FILL	18.8				2.67		MH - ML; SILT, some clay, some sand, trace gravel
	ALF6	4.27	TILL	21.8						CL
08-04	ALF7	1.67	SULFIDE WASTE ROCK FILL	19.6						GM or GC; Gravel some sand, trace silt
	ALF8	4.27	TILL	16.5	30	19	11			CI- CL
08-05	ALF9	3.05	TILL	34.8						CL
08-06	ALF10	1.52	WASTE ROCK FILL	18.1						MH - ML
	ALF11	3.76	TILL	11.2						CL
08-07	ALF13	2.74	TILL	30.4	39	27	12		6.5	ML
08-08	ALF14	2.74	TILL	49.3	50	38	12	2.54		MH - ML; SILT, some sand, some clay, trace gravel
08-09	ALF15	3.35	TILL	12.4						CL

APPENDIX II
SITE VISIT INSPECTION MEMOS
(MAY/JUNE AND SEPTEMBER)

BGC ENGINEERING INC.

AN APPLIED EARTH SCIENCES COMPANY

200, 1121 Centre Street NW, Calgary, Alberta, Canada. T2E 7K6
Phone (403) 250-5185 Fax (403) 250-5330

MEMORANDUM

To:	**Anvil Range Mining Corporation**	**Fax No.:**	**Via e-mail**
Attention:	**Dana Haggar**	**CC:**	**Doug Sedgwick**
From:	**Gerry Ferris**	**Date:**	**June 24, 2008**
Subject:	**Spring Inspection of Faro Mine**		
No. of Pages (including this page): 5		**Project No:**	**0257-051-02**

Mr. Gerry Ferris, P.Eng., from BGC Engineering Inc.(BGC), undertook a visual inspection of selected facilities at Faro Mine between May 29 and June 1, 2008. During this inspection much of the items contained in this memo were discussed with various site staff members including Mr. Ken Alderson and Mr. Ken Pearl. Later these items were discussed separately with Mr. Dana Haggar and Mr. Doug Sedgwick. This memo summarizes the conditions observed, along with any required maintenance or monitoring:

FWSD Breach

- Minor cracking continues in the backslope behind the rip rap on both sides of the floodplain.
- Last year the slough neat the south abutment of the dam was re-graded and some re-vegetation completed. This area appears to be performing well, however, directly adjacent to this area the slough has expanded. This area should be visually monitored, but no further work is recommended.
- Erosion and bank undercutting continues downstream of the breach works, within the Fresh Water Channel. This behaviour was expected and does not require further intervention at this time.
- Erosion of the former seepage blanket continues, the small swale that was recommended in the 2007 Annual report should be constructed to re-direct the water in this area. This work was discussed with the site foreman while on site, and it understood that this will be completed this year.
- Otherwise appears in satisfactory condition.

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K8 Creek Rehab.

- The delta continues to form as K8 Creek flows into the former borrow pit.
- Channel erosion continues as the new section of K8 Creek from the borrow pit to the confluence with South Fork of Rose Creek. Erosion and sediment generation continues in this reach of the creek.
- Appears in satisfactory condition.

Upstream Section of Former Reservoir

- Erosion continues as South Fork of Rose Creek enters the former reservoir area.
- Appears in satisfactory condition.

Cross Valley Dam

- Minor cracks were apparent on the crest of the dam, this is due to frost action and typically occurs at this site.
- The majority of the vegetation was removed from this dam last year. It appears that on some parts of the dam this work was not completed. The remaining vegetation should be removed, from the upstream portion of the spillway, the south abutment and the surface of the seepage blanket.
- During the removal of the woody vegetation from the crest of the dam, it appears that in some locations the amount of soil removed with the roots was quite significant. In a few areas the crest width of the dam has been reduced by this activity, mostly on the downstream side of the crest. The normal crest width should be re-established by placing addition material within the areas that show loss of crest width. It appears that the material removed was shell, which consists of sand and gravel, and should be replaced (and compacted) in kind. If during this repair work, it is discovered that some of the core material was disturbed, different repairs will be required and geotechnical advice should be sought.
- The spot rip-rap repairs completed last year appear in good shape.
- Appears in satisfactory condition.

Intermediate Dam

- No crest cracking or toe seepage noted.
- Downstream face experienced fairly significant rilling erosion and some slumping. This type of behaviour has occurred on the face of the dam a number of times over the last four or five years, ever since some sand and gravel was applied to the face of the dam. The rill erosion and slumping is occurring within this surfacing material. In previous years this material has been used to re-surface the downstream face. This should not be completed this year. The rilling and slump material should not be repaired, as this is only a surface feature. This will make the downstream face appear in rough shape and more and more of the surface fill will be removed each year, this is the intent of this recommendation.

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- The granular material collected on the road surface (eroded down the face of the dam in previous years) should be removed in order to expose the gravel drain.
- On the polishing pond side of the lower road there is evidence of wave erosion occurring where the rip rap has been disturbed. This area should be visually inspected on a regular basis.
- A small area within the spillway (near the crest of the dam) does not appear to be adequately lined with rip rap. This is the location of a test pit that was dug in the spillway in 2005. This area should be examined and rip rap re-established in the area.
- The rip rap repairs on the upstream side of the dam appear to be performing adequately.
- Other than the notes above, the dam is generally in satisfactory condition.

Spoil Pile Toe at Polishing Pond

- Over the past few years, when the water level in the polishing pond was maintained at low levels, significant seepage was noted in this area. In conjunction with the seepage sloughing of the edge of the pond has been noted. This appears to have been an area with on-going movements, as evidenced by the bowed appearance of trees in the area.
- This year the water level in the polishing pond is higher than the last few, which should provide some extra stability at the toe. However, the slumping is now extending further up the slope. A number of headscarps were noted in the area.
- This area should be regularly inspected and a study of this area should be undertaken to determine the best method to repair the slumping.

Secondary Impoundment Dam

- The structure appears to be performing adequately.

Rose Creek Diversion Channel

- A new slump of the back slope was noted this year. This slump is located approximately at the Intermediate dam. This small headscarp should be visually monitored to ensure that it does not become more significant.
- No signs of cracking or settlement noted on the canal dike crest.
- Appears in satisfactory condition.

North Fork Rose Creek Rock Drain

- Rock drain appears to be discharging water with no signs of significant instability.
- A break in the safety berm is located on the outlet side of the rock drain. Significant erosion is occurring as a results of this break in the berm. So far this does not appear to significantly affect the performance of the drain, but this break should be repaired. If a outlet for surface water is needed, the break in the safety berm should be moved so that it is not directly above the drain outlet.

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- The following monitoring program should be followed throughout the summer period:
  - Once per week measure the water elevation in the pond.
  - Once per week measure the water elevation exit at the downstream toe of the drain.
  - Once per week record the water levels at staff gauges NFRC 23 and X2. Once per month measure the top of the staff gauge (elevation survey).
  - Once per month download the data from the pond and creek dataloggers and send to BGC.

K8 Rock Drain

- Water appears to be flowing freely through, appears in satisfactory condition.

North Valley Wall Interceptor Ditch

- Selected sections of the channel were inspected and found to be flowing properly.
- Appears in satisfactory condition.

Faro Creek Diversion Channel

- Some minor rip rap movement has occurred in select locations, exposing the underlying geotextile. This was likely caused by ice action during this past winter. The rip rap should be reinstated.
- Last year a number of slumps occurred in the slope above the diversion and also on the downstream side of the road. Repair of the major slump in the hill side at the corner appears to have been repaired adequately. As part of this repair, rip rap has been placed on the hill side edge of the channel. This rip rap placement has restricted the flow in the channel, and should be re-adjusted so as to remove the restriction.
- The section of the channel repaired last year through the addition of bituminous liner and rip rap appears to be performing adequately. In this area there is no need to cover the bituminous liner.
- The slump in the downstream face of the road needs further repairs. This should consists of removal of the soft wet material, replacing it with course gravel to drain the area and replacement of the shoulder of the road that has slumped.
- Channel appears to be performing in a satisfactory manner.

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In general, the inspected facilities appear in satisfactory condition and only some minor maintenance and monitoring is required. Please contact the undersigned should you have any questions or comments.

Respectfully submitted,
BGC Engineering Inc.
per:

Gerry Ferris, M.Sc., P.Eng.
Geotechnical Engineer

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BGC ENGINEERING INC.

AN APPLIED EARTH SCIENCES COMPANY

200, 1121 Centre Street NW, Calgary, Alberta, Canada. T2E 7K6
Phone (403) 250-5185 Fax (403) 250-5330

MEMORANDUM

To:	**Anvil Range Mining Corporation**	**Fax No.:**	**Via e-mail**
Attention:	**Dana Haggar**	**CC:**	**Doug Sedgwick**
From:	**Gerry Ferris**	**Date:**	**September 18, 2008**
Subject:	**Fall Inspection of Faro Mine**		
No. of Pages (including this page): 4		**Project No:**	**0257-051-03**

Messrs. Gerry Ferris, P.Eng., and Ashton Friesen, EIT from BGC Engineering Inc.(BGC), undertook a visual inspection of selected facilities at Faro Mine between September 9 and 12, 2008. During this inspection much of the items contained in this memo were discussed with Mr. Greg Stevens and various lab staff personnel. This memo summarizes the conditions observed, along with any required maintenance or monitoring:

FWSD Breach

- Minor cracking continues in the backslope behind the rip rap on both sides of the floodplain.
- Last year the slough near the south abutment of the dam was re-graded and some re-vegetation completed. This area appears to be performing well, however, directly adjacent to this area the slough has expanded. This area should be visually monitored, but no further work is recommended.
- Erosion and bank undercutting continues downstream of the breach works, within the Fresh Water Channel. This behaviour was expected and does not require further intervention at this time.
- A small swale was constructed at the edge of the seepage blanket and excavation for the channel. This small swale was recommended in the 2007 Annual report and was completed since the spring inspection. The swale appears to be performing as planned.
- Otherwise appears in satisfactory condition.

K8 Creek Rehab.

- The delta continues to form as K8 Creek flows into the former borrow pit.
- The channel formation between the former borrow pit and the lower channel leading to the lower reach of this creek is now complete. Some additional channel erosion and reach formation should be expected, but now a clearly established open channel is evident throughout the former reservoir base.
- Appears in satisfactory condition.

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Upstream Section of Former Reservoir

- Minor erosion continues as South Fork of Rose Creek enters the former reservoir area.
- Appears in satisfactory condition.

Cross Valley Dam

- The majority of the vegetation was removed from this dam last year. It appears that on some parts of the dam this work was not completed. The remaining vegetation should be removed, from the upstream portion of the spillway, the south abutment and the surface of the seepage blanket.
- During the removal of the woody vegetation from the crest of the dam, it appears that in some locations the amount of soil removed with the roots was quite significant. In a few areas the crest width of the dam has been reduced by this activity, mostly on the downstream side of the crest. The normal crest width should be re-established by placing addition material within the areas that show loss of crest width. It appears that the material removed was shell, which consists of sand and gravel, and should be replaced (and compacted) in kind. If during this repair work, it is discovered that some of the core material was disturbed, different repairs will be required and geotechnical advice should be sought.
- Tension cracks and a faint backscarp is evident on the upstream crest of the dam, in the soil material directly above the rip rap. These tension cracks are apparent on the crest of the dam near the old access road. This area should be watched carefully, and if conditions worsen repairs may be needed.
- Appears in satisfactory condition.

Intermediate Dam

- No crest cracking or toe seepage noted.
- Downstream face experienced fairly significant rilling erosion and some minor slumping. As recommended in the Spring of 2008 this area should not be repaired, unless by hand placement of "clean" angular gravel.
- The granular material collected on the road surface (eroded down the face of the dam in previous years) should be removed in order to expose the gravel drain.
- On the polishing pond side of the lower road there is evidence of wave erosion occurring where the rip rap has been disturbed. This area should be monitored by site staff during the regular visual inspections.
- A significant seepage point was encountered at the right (south) abutment, directly below the PVC pipe. The amount of seepage was significantly greater than ever encountered in the past. Initially we were concerned about this being seepage from the tailings reservoir, but field temperature and pH testing indicated that this is more likely seepage from the RCDC. Site staff should check the seepage amount an pH on a regular basis and report to BGC.
- Other than the notes above, the dam is generally in satisfactory condition.

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Spoil Pile Toe at Polishing Pond

- Over the past few years, when the water level in the polishing pond was maintained at low levels, significant seepage was noted in this area. In conjunction with the seepage sloughing of the edge of the pond has been noted. This appears to have been an area with on-going movements, as evidenced by the bowed appearance of trees in the area.
- This year the water level in the polishing pond is higher than the last few, which should provide some extra stability at the toe. However, the slumping is now extending further up the slope. A number of headscarps were noted in the area.
- This area should be regularly inspected and a study of this area should be undertaken to determine the best method to repair the slumping.

Secondary Impoundment Dam

- The structure appears to be performing adequately.

Rose Creek Diversion Channel

- No signs of cracking or settlement noted on the canal dike crest.
- Minor worsening of a small slump on the backslope near the Intermediate Dam, no work is recommended for this area.
- Appears in satisfactory condition.

North Fork Rose Creek Rock Drain

- A gap in the safety berm is located on the outlet side of the rock drain. Significant erosion is occurring as a result of this gap in the berm. So far this does not appear to significantly affect the performance of the drain, but this gap should be repaired. If an outlet for surface water is needed, the gap in the safety berm should be moved so that it is not directly above the drain outlet.
- The pond data logger experienced problems in the winter of 2007 period (draining the battery) and a detailed check of the data logger was undertaken in the spring of 2008. No problems were encountered with the data logger. But during this inspection the battery was completely drained and non-functional. It appears that the problem is likely due to the instrument. A new vented pressure gauge is recommended for this location. A careful examination of the external batteries will be needed to ensure that these are useable will also need to be undertaken.
- Rock drain appears to be discharging water with no signs of significant instability.

K8 Rock Drain

- Water appears to be flowing freely through, appears in satisfactory condition.

This communication is intended for the use of the above named recipient. Any unauthorized use, copying, review or disclosure of the contents by other than the recipient is prohibited.

North Valley Wall Interceptor Ditch

- Selected sections of the channel were inspected and found to be flowing properly.
- Appears in satisfactory condition.

Faro Creek Diversion Channel

- Some minor rip rap movement has occurred in select locations, exposing the underlying geotextile. The rip rap should be reinstated.
- Last year a number of slumps occurred in the slope above the diversion and also on the downstream side of the road. Repair of the major slump in the hill side at the corner appears to have been repaired adequately. As part of this repair, rip rap has been placed on the hill side edge of the channel. This rip rap placement has restricted the flow in the channel, and should be re-adjusted so as to remove the restriction.
- The section of the channel repaired last year through the addition of bituminous liner and rip rap appears to be performing adequately. In this area there is no need to cover the bituminous liner. In one location, marked by a rock with flagging, the joint in the liner has come loose. This joint should be closed using a patch.
- Test pitting in the road adjacent to the diversion channel was completed and will be presented under a separate cover.
- Channel appears to be performing in a satisfactory manner.

In general, the inspected facilities appear in satisfactory condition and only some minor maintenance and monitoring is required. Please contact the undersigned should you have any questions or comments.

Respectfully submitted,
BGC Engineering Inc.
per:

ISSUED AS DIGITAL DOCUMENT.
SIGNED HARDCOPY ON FILE WITH
BGC ENGINEERING INC.

Gerry Ferris, M.Sc., P.Eng.
Geotechnical Engineer

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APPENDIX III
INSTRUMENTATION DATA RECORDS AND GRAPHS

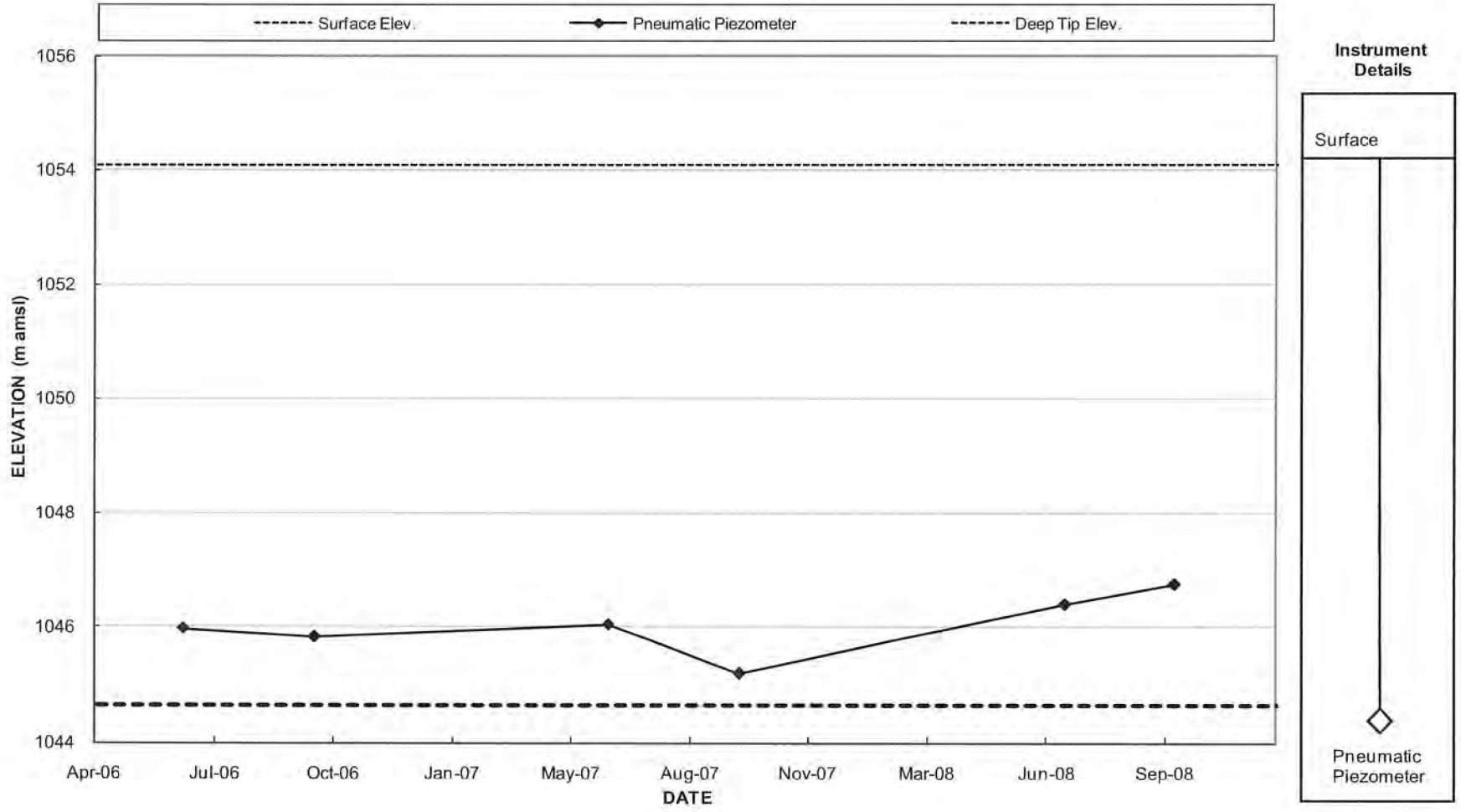
DIVERSION CANAL
CANAL DIKE

PIEZOMETERS

Faro Mine Instrumentation
Canal Dike

BGC05-02		Location:	Canal Dike St.1+900		
		Coordinates:	8V580881 6913412	Ground Elevation (m amsl):	1054.10
Surface Protector:	Yes	Date Installed:	2005	Tip Elevation (m amsl):	1044.65
Date		Reading (psi) (#030137)		Piezometric Elevation (m amsl)	Comments
14-Jun-06		1.9		1045.98	
2-Oct-06		1.7		1045.84	
06-Jun-07		2		1046.05	good flow
24-Sep-07		0.8		1045.21	
24-Jun-08		2.5		1046.40	
24-Sep-08		3		1046.75	

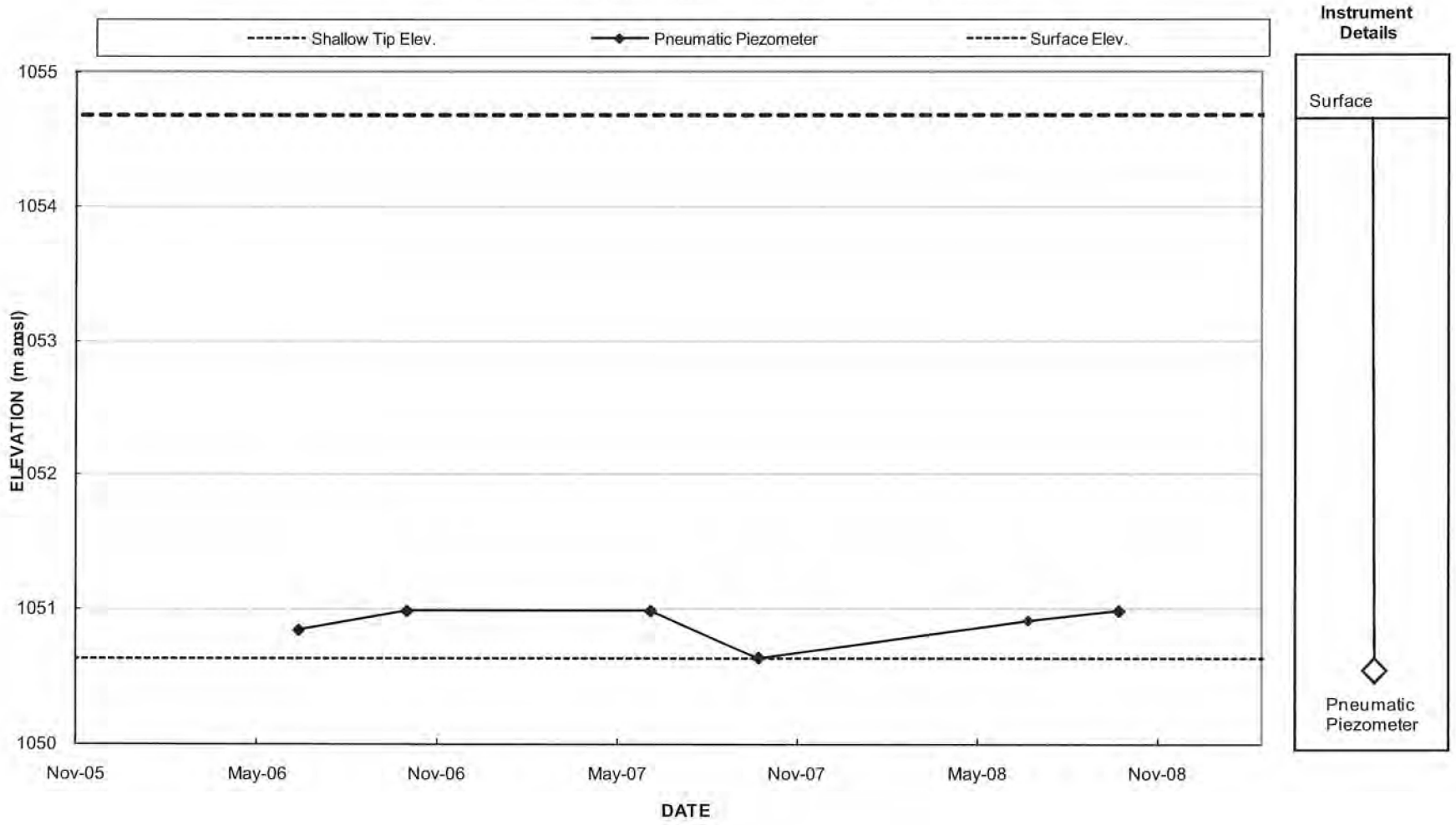
DIVERSION CANAL DIKE
Piezometric Monitoring
BGC05-02 Pneumatic Piezometer (Deep Tip)



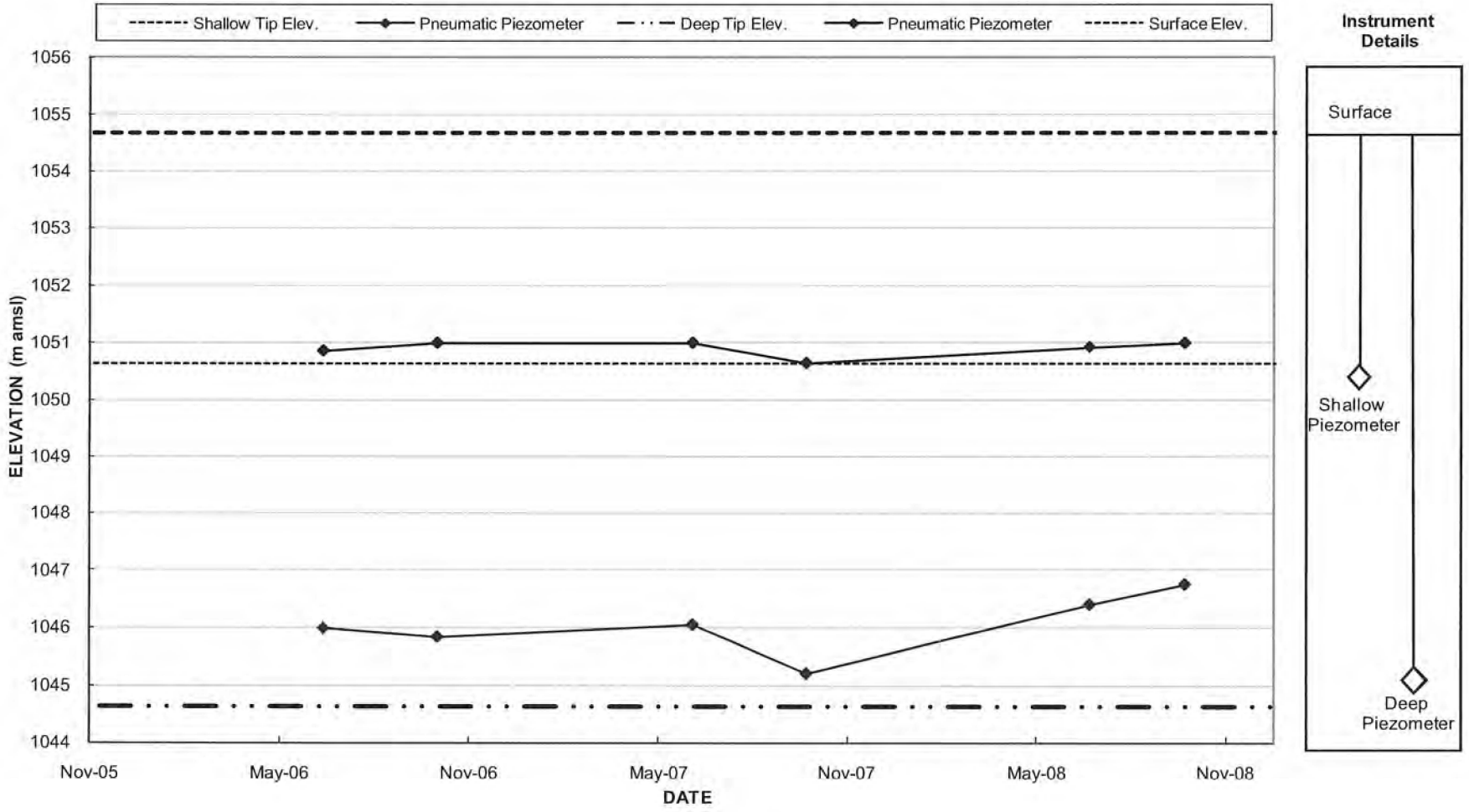
Faro Mine Instrumentation
Canal Dike

BGC05-03		Location:	Canal Dike St.1+900		
		Coordinates:	8V580868 6913418	Ground Elevation (m amsl):	1054.68
Surface Protector:	Yes	Date Installed:	2005	Tip Elevation (m amsl):	1050.64
Date		Reading (psi) (#030139)		Piezometric Elevation (m amsl)	Comments
14-Jun-06		0.3		1050.85	
2-Oct-06		0.5		1050.99	
6-Jun-07		0.5		1050.99	good flow
24-Sep-07		0		1050.64	
24-Jun-08		0.4		1050.92	
24-Sep-08		0.5		1050.99	

DIVERSION CANAL DIKE
Piezometric Monitoring
BGC05-03 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
BGC05-02/-03 Pneumatic Piezometer

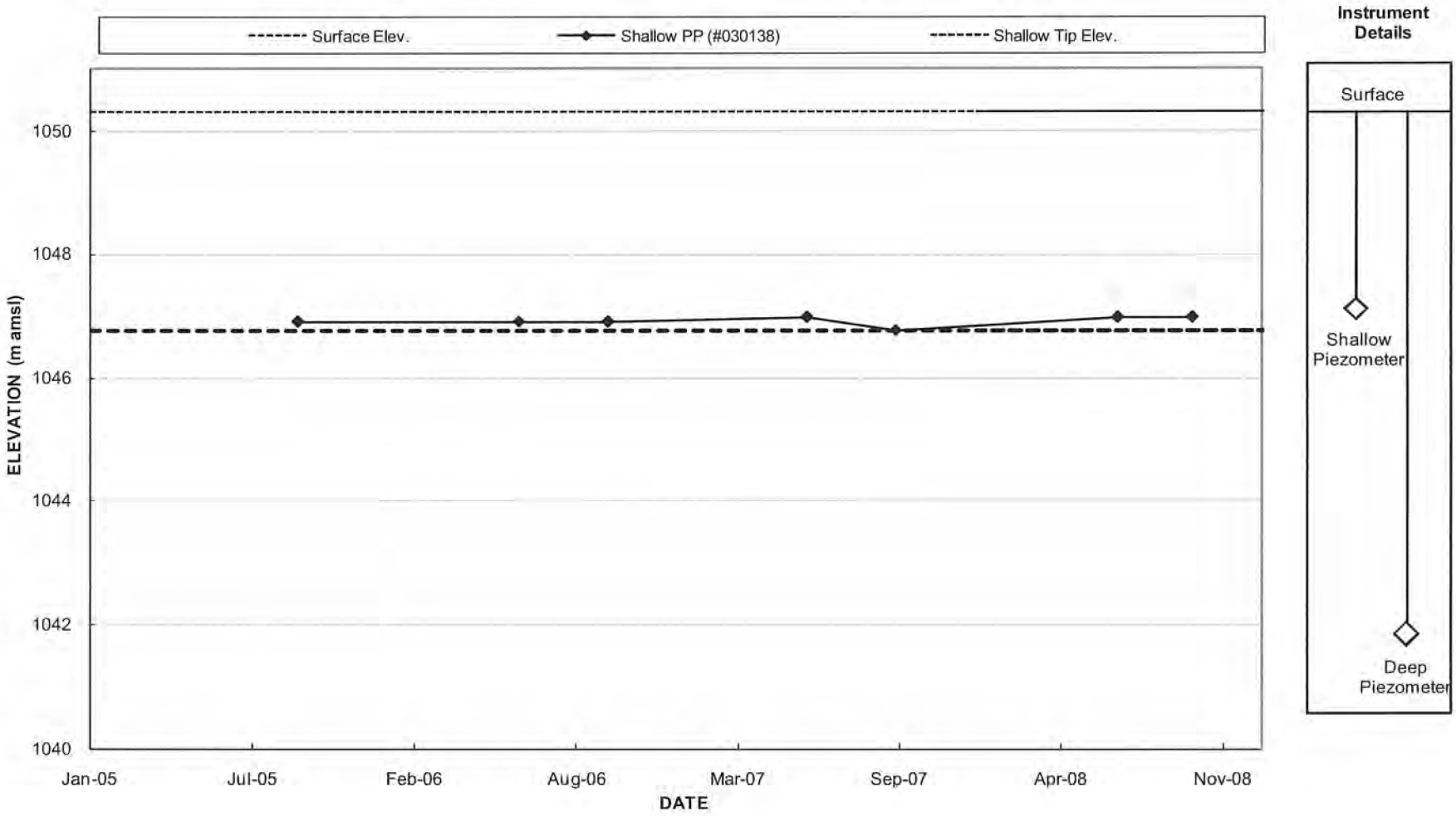


Faro Mine Instrumentation - Diversion Canal Dike

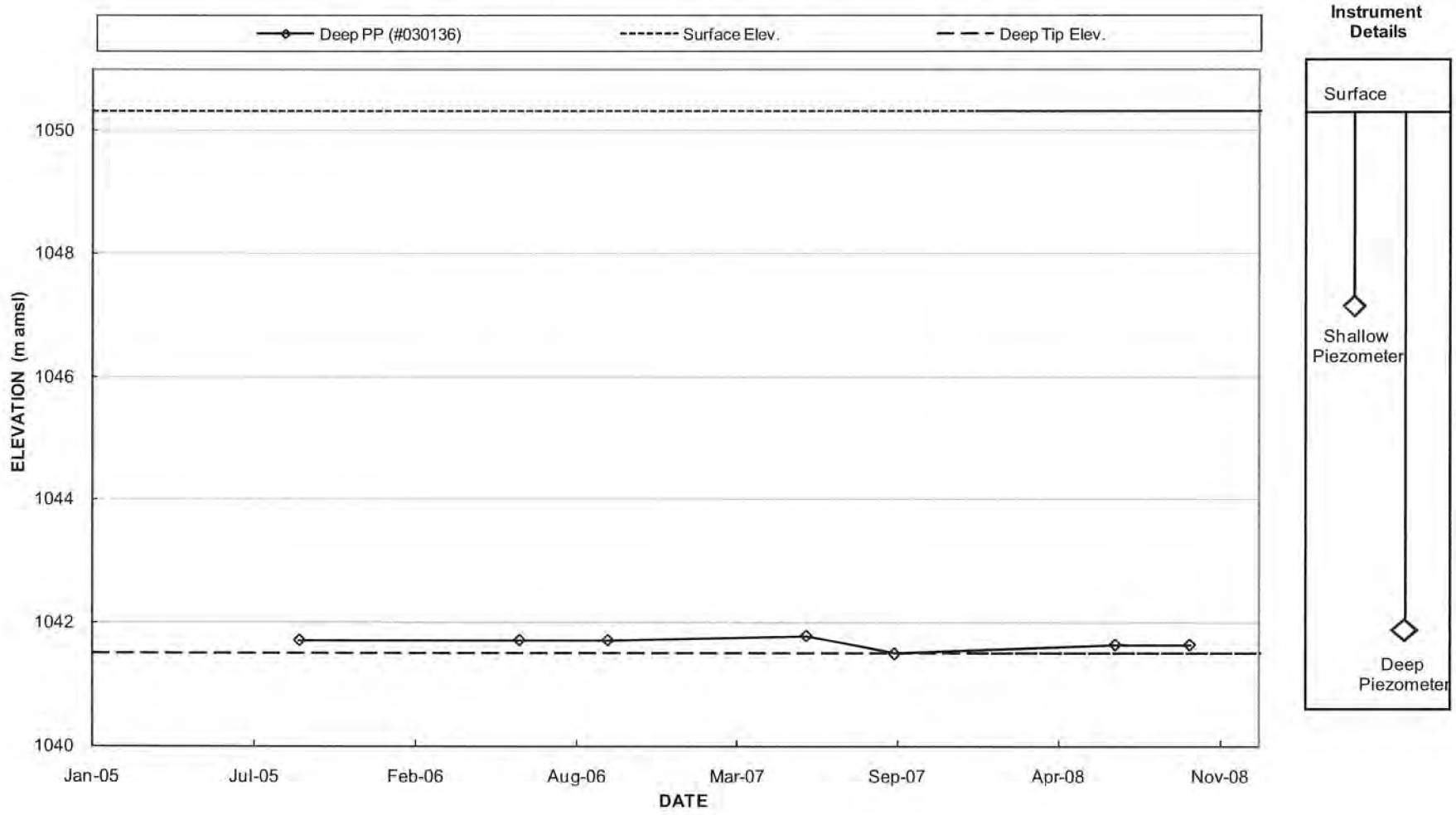
BGC05-06		Location:	Canal Dike St. 2+160 (approx)	Ground Elevation (m amsl):	1050.31
		Coordinates:	8V580715 6913517	Shallow Tip Elevation (m amsl):	1046.78
Surface Protector:	Yes	Date Installed:	2005	Deep Tip Elevation (m amsl):	1041.50

Date	Reading (psi)		Piezometric Elevation (m amsl)		Comments
	Shallow PP (#030138)	Deep PP (#030136)	Shallow (#030138)	Deep (#030136)	
14-Sep-05	0.2	0.3	1046.92	1041.71	
14-Jun-06	0.2	0.3	1046.92	1041.71	
2-Oct-06	0.2	0.3	1046.92	1041.71	
06-Jun-07	0.3	0.4	1046.99	1041.78	good flow
24-Sep-07	0	0	1046.777	1041.50	
24-Jun-08	0.3	0.2	1046.987	1041.64	
24-Sep-08	0.3	0.2	1046.987	1041.64	

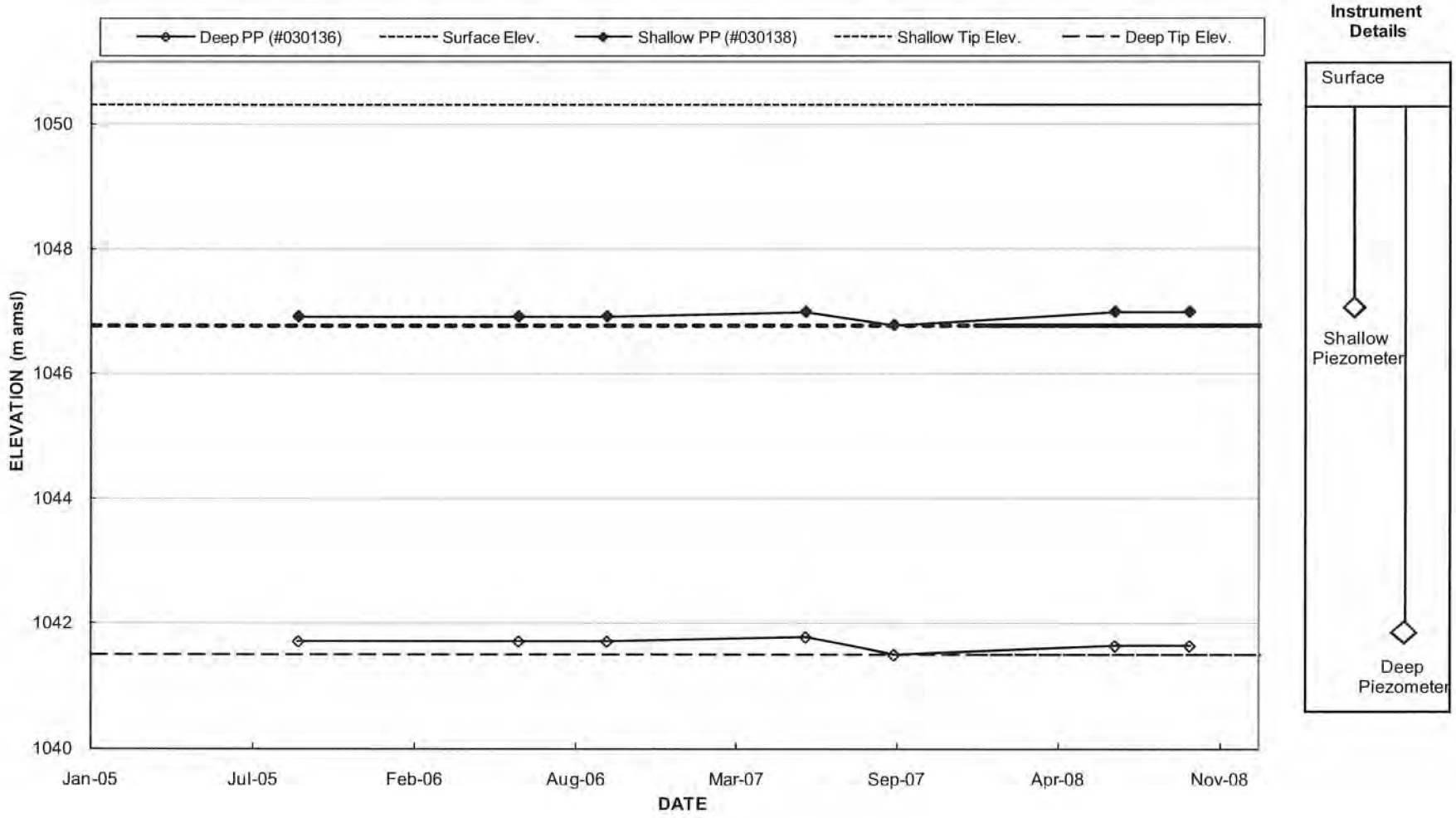
DIVERSION CANAL DIKE
Piezometric Monitoring
BGC05-06 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
BGC05-06 Pneumatic Piezometer (Deep Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
BGC05-06 Pneumatic Piezometer (Both Tips)

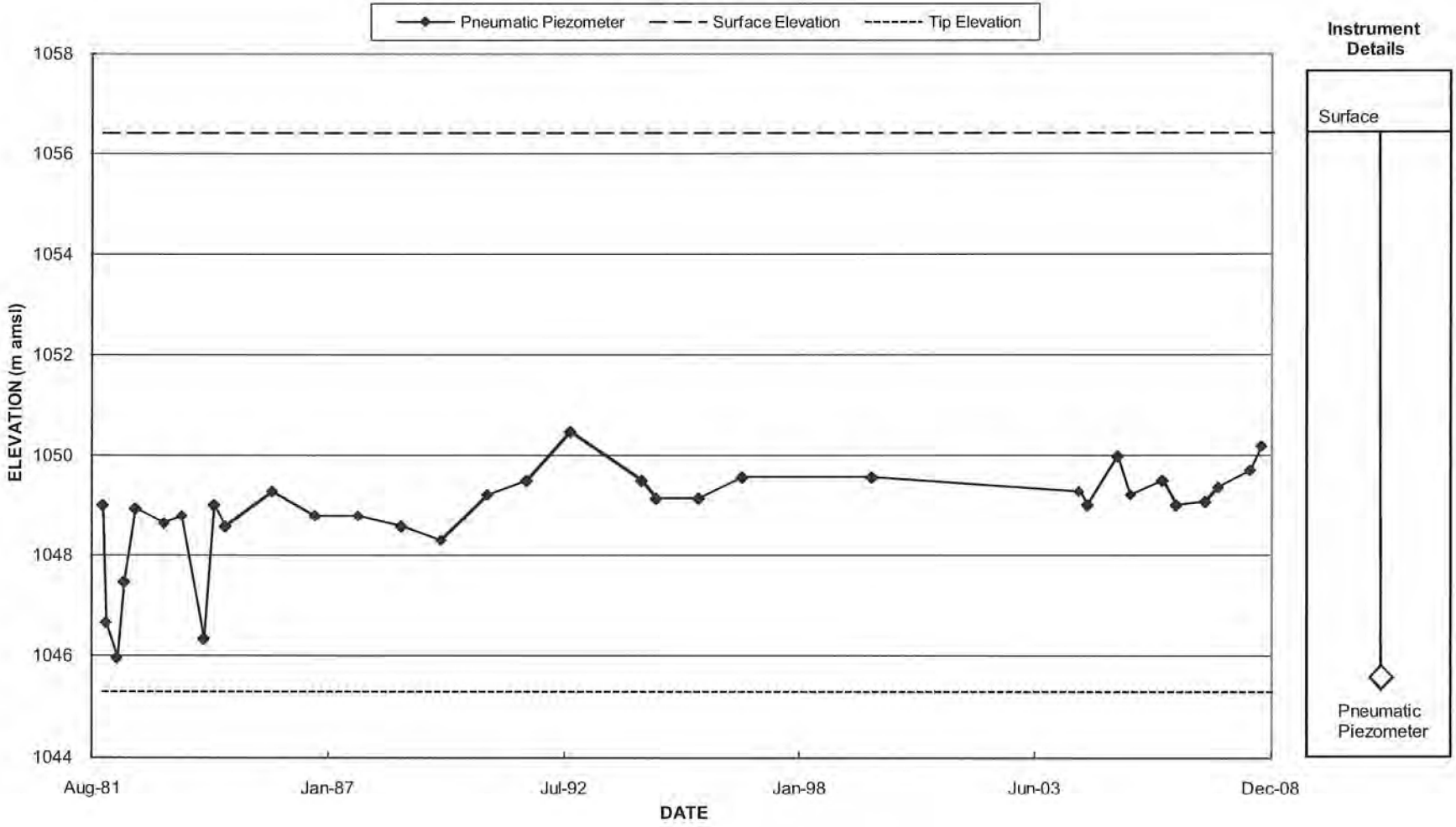


Faro Mine Instrumentation - Diversion Canal Dike

CD-10		Location:	Canal Dike St.0+990	Date Installed:	1981
		Coordinates:	1008.7N, 1519.7E	Ground Elevation (m amsl):	1056.41
Surface Protector:	Yes		8V581739 6913053	Tip Elevation (m amsl):	1045.30

Date		Reading (psi)		Piezometric Elevation (m amsl)	Comments
Nov-81		5.3		1049.01	
Dec-81		1.95		1046.67	
Mar-82		0.95		1045.97	
May-82		3.1		1047.47	
Aug-82		5.2		1048.94	
Apr-83		4.8		1048.66	
Sep-83		5		1048.80	
Mar-84		1.5		1046.35	
Jun-84		5.3		1049.01	
Sep-84		4.7		1048.59	
Oct-85		5.7		1049.29	
Oct-86		5		1048.80	
Oct-87		5		1048.80	
Oct-88		4.7		1048.59	
Sep-89		4.3		1048.31	
Oct-90		5.6		1049.22	
Sep-91		6		1049.50	
Sep-92		7.4		1050.48	
May-94		6		1049.50	
Sep-94		5.5		1049.15	
Sep-95		5.5		1049.15	
Sep-96		6.1		1049.57	
11-Sep-99		6.1		1049.57	
6-Jul-04		5.7		1049.29	
16-Sep-04		5.3		1049.01	
31-May-05		6.7		1049.99	
14-Sep-05		5.6		1049.22	
14-Jun-06		6		1049.50	
2-Oct-06		5.3		1049.01	
6-Jun-07		5.4		1049.08	
24-Sep-07		5.8		1049.36	
24-Jun-08		6.3		1049.71	
24-Sep-08		7		1050.2	

DIVERSIONAL CANAL DIKE
Piezometric Monitoring
CD-10 Pneumatic Piezometer

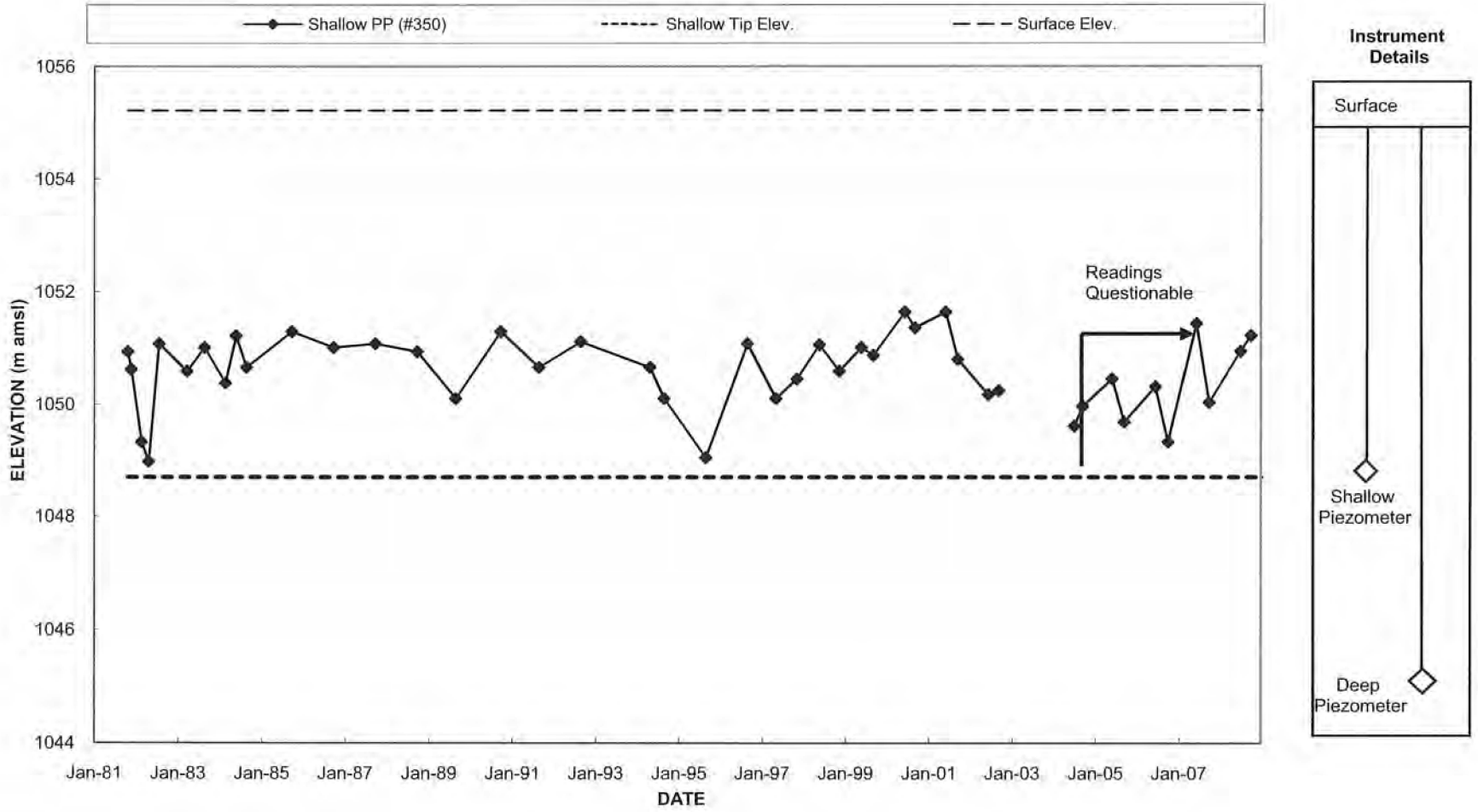


Faro Mine Instrumentation - Diversion Canal Dike

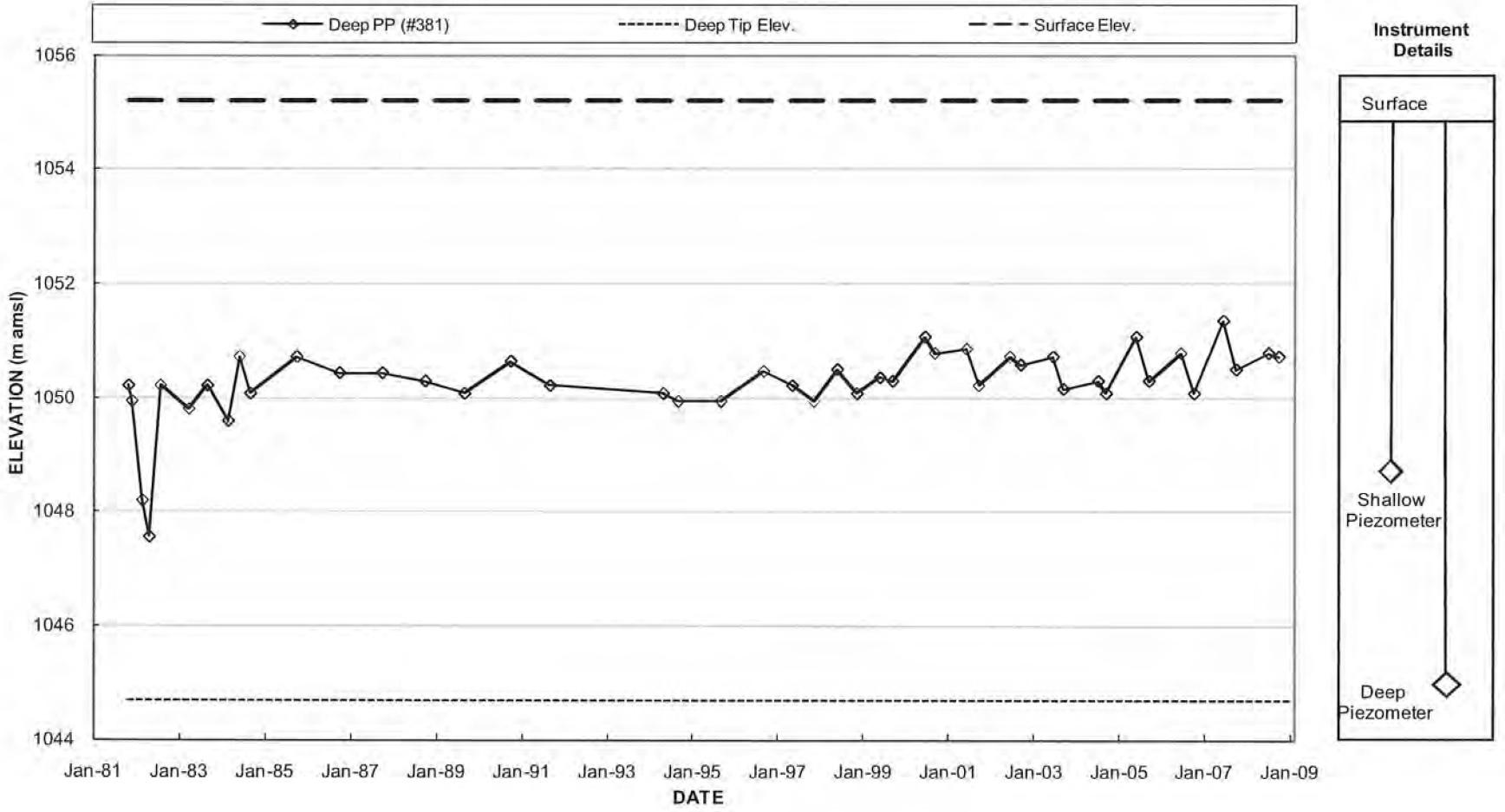
CD-13		Location:	Canal Dike St.1+350	Ground Elevation (m amsl):	1055.214
		Coordinates:	8V581400 6913185	Shallow Tip Elevation (m amsl):	1048.70
Surface Protector:	yes	Date Installed:	1981	Deep Tip Elevation (m amsl):	1044.70

	Reading (psi)		Piezometric Elevation (m amsl)		
	Shallow PP	Deep PP	Shallow	Deep	
Date	(#350)	(#381)	(#350)	(#381)	Comments
Nov-81	3.2	7.9	1050.94	1050.23	
Dec-81	2.75	7.5	1050.63	1049.95	
Mar-82	0.9	5	1049.33	1048.20	
May-82	0.4	4.1	1048.98	1047.57	
Aug-82	3.4	7.9	1051.08	1050.23	
Apr-83	2.7	7.3	1050.59	1049.81	
Sep-83	3.3	7.9	1051.01	1050.23	
Mar-84	2.4	7	1050.38	1049.60	
Jun-84	3.6	8.6	1051.22	1050.72	
Sep-84	2.8	7.7	1050.66	1050.09	
Oct-85	3.7	8.6	1051.29	1050.72	
Oct-86	3.3	8.2	1051.01	1050.44	
Oct-87	3.4	8.2	1051.08	1050.44	
Oct-88	3.2	8	1050.94	1050.30	
Sep-89	2	7.7	1050.10	1050.09	
Oct-90	3.7	8.5	1051.29	1050.65	
Sep-91	2.8	7.9	1050.66	1050.23	
Sep-92	3.45		1051.12		
May-94	2.8	7.7	1050.66	1050.09	
Sep-94	2	7.5	1050.10	1049.95	
Sep-95	0.5	7.5	1049.05	1049.95	
Sep-96	3.4	8.25	1051.08	1050.48	
08-May-97	2.0	7.9	1050.10	1050.23	
07-Nov-97	2.5	7.5	1050.45	1049.95	
26-May-98	3.37	8.30	1051.06	1050.51	
15-Nov-98	2.70	7.70	1050.59	1050.09	
28-May-99	3.30	8.10	1051.01	1050.37	
11-Sep-99	3.10	8.00	1050.87	1050.30	
14-Jun-00	4.20	9.10	1051.64	1051.07	
09-Sep-00	3.80	8.70	1051.36	1050.79	
06-Jun-01	4.20	8.80	1051.64	1050.86	
19-Sep-01	3.00	7.90	1050.80	1050.23	
13-Jun-02	2.1	8.6	1050.17	1050.72	
12-Sep-02	2.2	8.4	1050.24	1050.58	
17-Jun-03	0.1	8.6		1050.72	(#350 very wet)
12-Sep-03	0.1	7.8		1050.16	(#350 very wet)
06-Jul-04	1.3	8	1049.61	1050.30	(#350 kept rising)
16-Sep-04	1.8	7.7	1049.96	1050.09	(#350 kept rising)
31-May-05	2.5	9.1	1050.45	1051.07	(#350 kept rising)
14-Sep-05	1.4	8	1049.68	1050.30	#350 Bubbles stop then numbers start rising
14-Jun-06	2.3	8.7	1050.31	1050.79	#350 Keeps Climbing
2-Oct-06	0.9	7.7	1049.33	1050.09	Ice in casing and on cable
06-Jun-07	3.9	9.5	1051.43	1051.35	read three times, was very noisy
24-Sep-07	1.9	8.3	1050.03	1050.51	#350 stopped then keeps rising
24-Jun-08	3.2	8.7	1050.94	1050.79	#350 stopped then keeps rising
24-Sep-08	3.6	8.6	1051.22	1050.72	
	Questionable values				

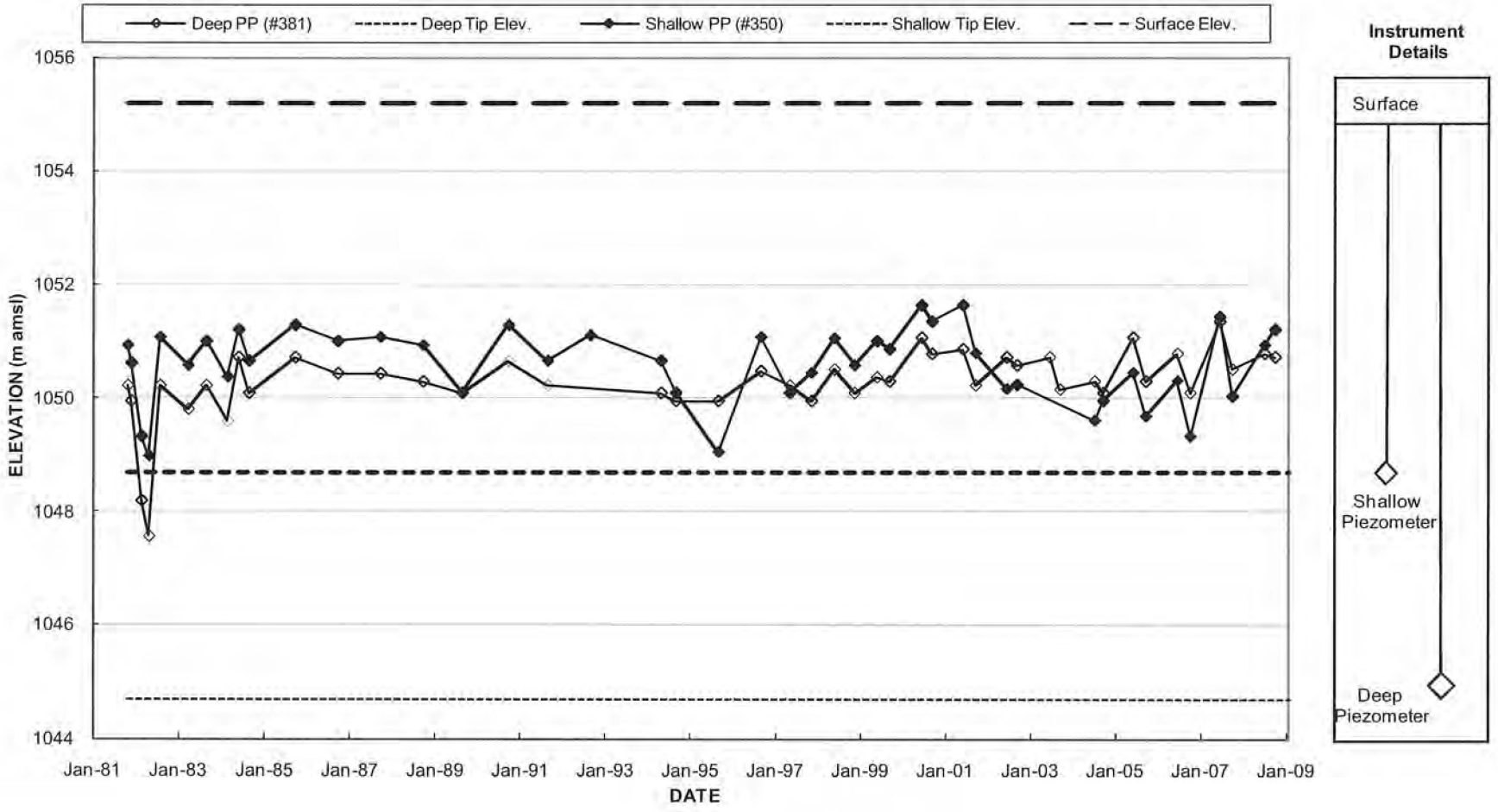
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-13 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-13 Pneumatic Piezometer (Deep Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-13 Pneumatic Piezometer (Both Tips)

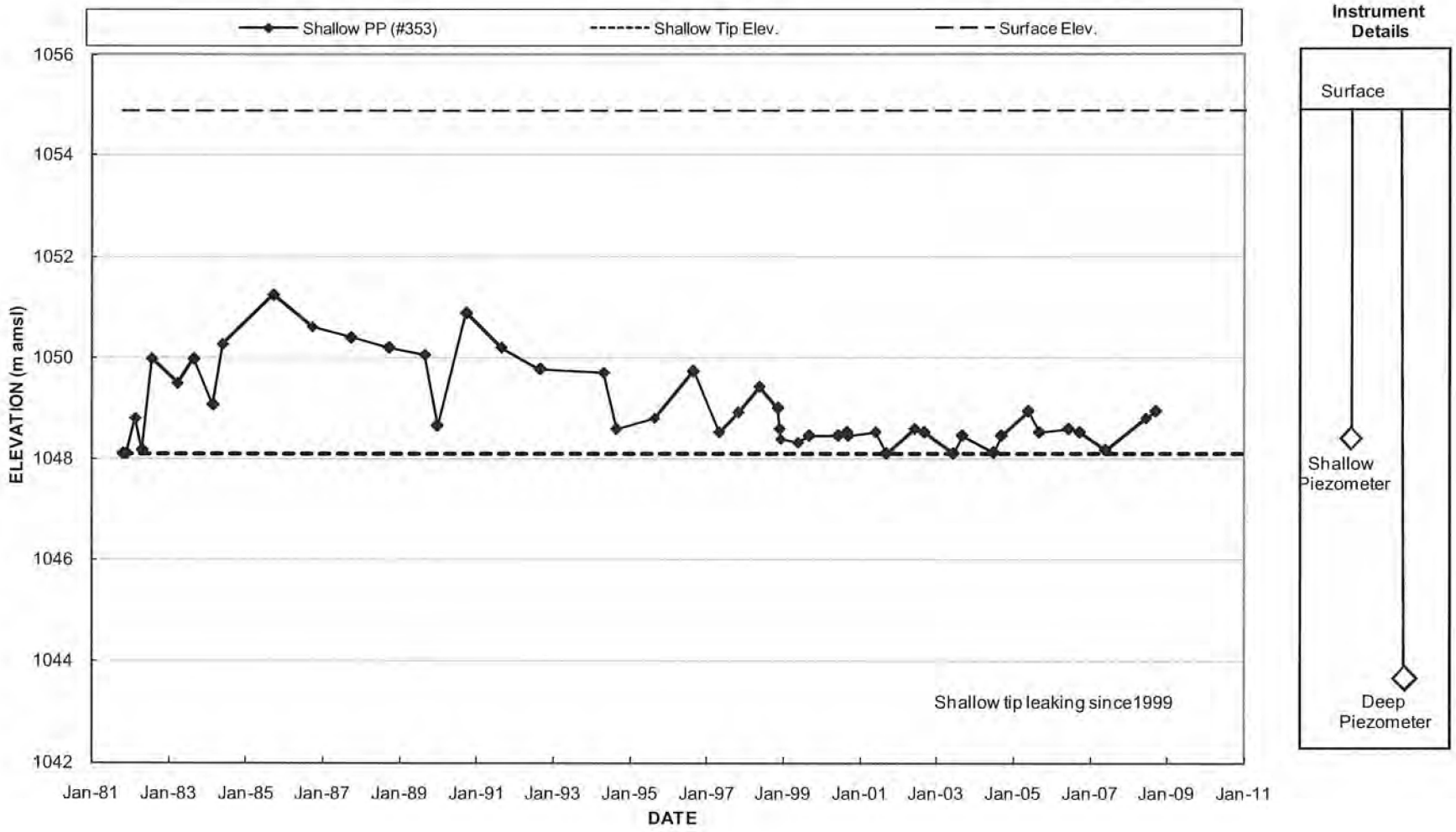


Faro Mine Instrumentation - Diversion Canal Dike

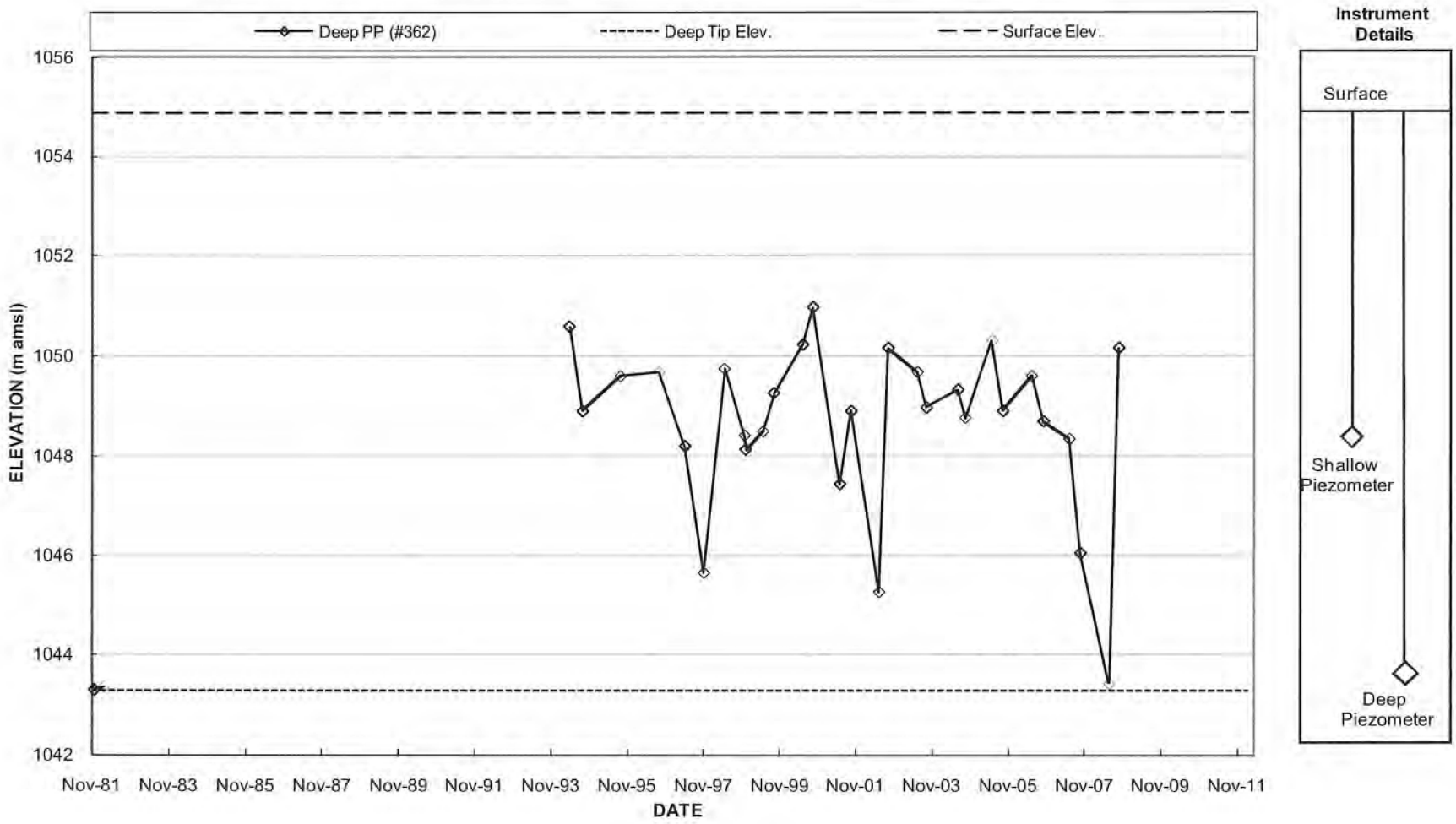
CD-15		Location:	Canal Dike St.1+530	Ground Elevation (m amsl):	1054.882
		Coordinates:	1233.7N, 1028.7E 8V581245 6913275	Shallow Tip Elevation (m amsl):	1048.10
Surface Protector:	yes	Date Installed:	1981	Deep Tip Elevation (m amsl):	1043.30

	Reading (psi)		Piezometric Elevation (m amsl)		
	Shallow PP	Deep PP	Shallow	Deep	
Date	(#353)	(#362)	(#353)	(#362)	Comments
Nov-81	0	0.1	1048.1	1043.37	
Dec-81	0	0.02	1048.1	1043.314	
Mar-82	1	0.1	1048.8	1043.37	
May-82	0.1		1048.17		
Aug-82	2.7		1049.99		
Apr-83	2		1049.5		
Sep-83	2.7		1049.99		
Mar-84	1.4		1049.08		
Jun-84	3.1		1050.27		
Oct-85	4.5		1051.25		
Oct-86	3.6		1050.62		
Oct-87	3.3		1050.41		
Oct-88	3		1050.2		
Sep-89	2.8		1050.06		
Jan-90	0.8		1048.66		
Oct-90	4		1050.9		
Sep-91	3		1050.2		
Sep-92	2.4		1049.78		
May-94	2.3	10.4	1049.71	1050.58	
Sep-94	0.7	8	1048.59	1048.9	
Sep-95	1	9	1048.8	1049.6	
Sep-96	2.35	9.1	1049.745	1049.67	
08-May-97	0.6	7.0	1048.52	1048.2	
06-Nov-97	1.17	3.35	1048.919	1045.645	
26-May-98	1.90	9.20	1049.43	1049.74	
15-Nov-98	1.3		1049.01		No return in deep piezo
04-Dec-98	0.7	7.3	1048.59	1048.41	
16-Dec-98	0.4	6.9	1048.38	1048.13	
28-May-99	0.30	7.42	1048.31	1048.494	
11-Sep-99	0.50	8.5	1048.45	1049.25	
14-Jun-00	0.50	9.9	1048.45	1050.23	
09-Sep-00	0.60		1048.52		No return in deep piezo
19-Sep-00	0.50	10.95	1048.45	1050.965	
06-Jun-01	0.60	5.9	1048.52	1047.43	
19-Sep-01	0.00	8.0	1048.1	1048.9	Shallow tip is "dry"
13-Jun-02	0.7	2.8	1048.59	1045.26	
12-Sep-02	0.6	9.8	1048.52	1050.16	
17-Jun-03	0	9.1	1048.1	1049.67	*readings recorded with
12-Sep-03	0.5	8.1	1048.45	1048.97	new piezometer
06-Jul-04	0.04	8.6	1048.128	1049.32	
16-Sep-04	0.5	7.8	1048.45	1048.76	
31-May-05	1.2	10	1048.94	1050.3	
14-Sep-05	0.6	8	1048.52	1048.9	
14-Jun-06	0.7	9	1048.59	1049.6	
2-Oct-06	0.6	7.7	1048.52	1048.69	
06-Jun-07	0.1	7.2	1048.17	1048.34	good flow
24-Sep-07	dry	3.9		1046.03	#353 Dropping - #362 No Bubbles
24-Jun-08	1	0.2	1048.8	1043.44	
24-Sep-08	1.2	9.8	1048.94	1050.16	

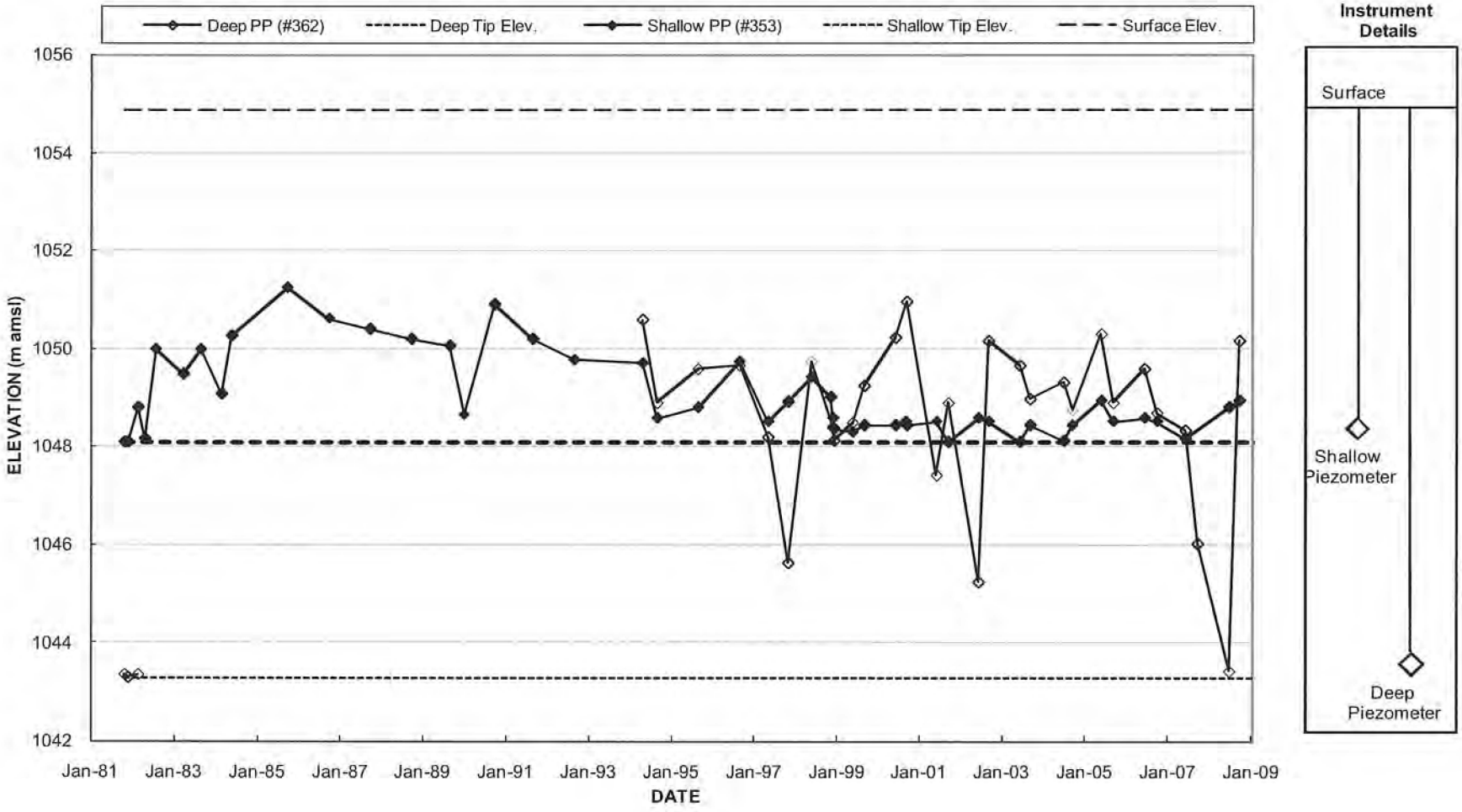
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-15 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-15 Pneumatic Piezometer (Deep Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-15 Pneumatic Piezometer (Both Tips)

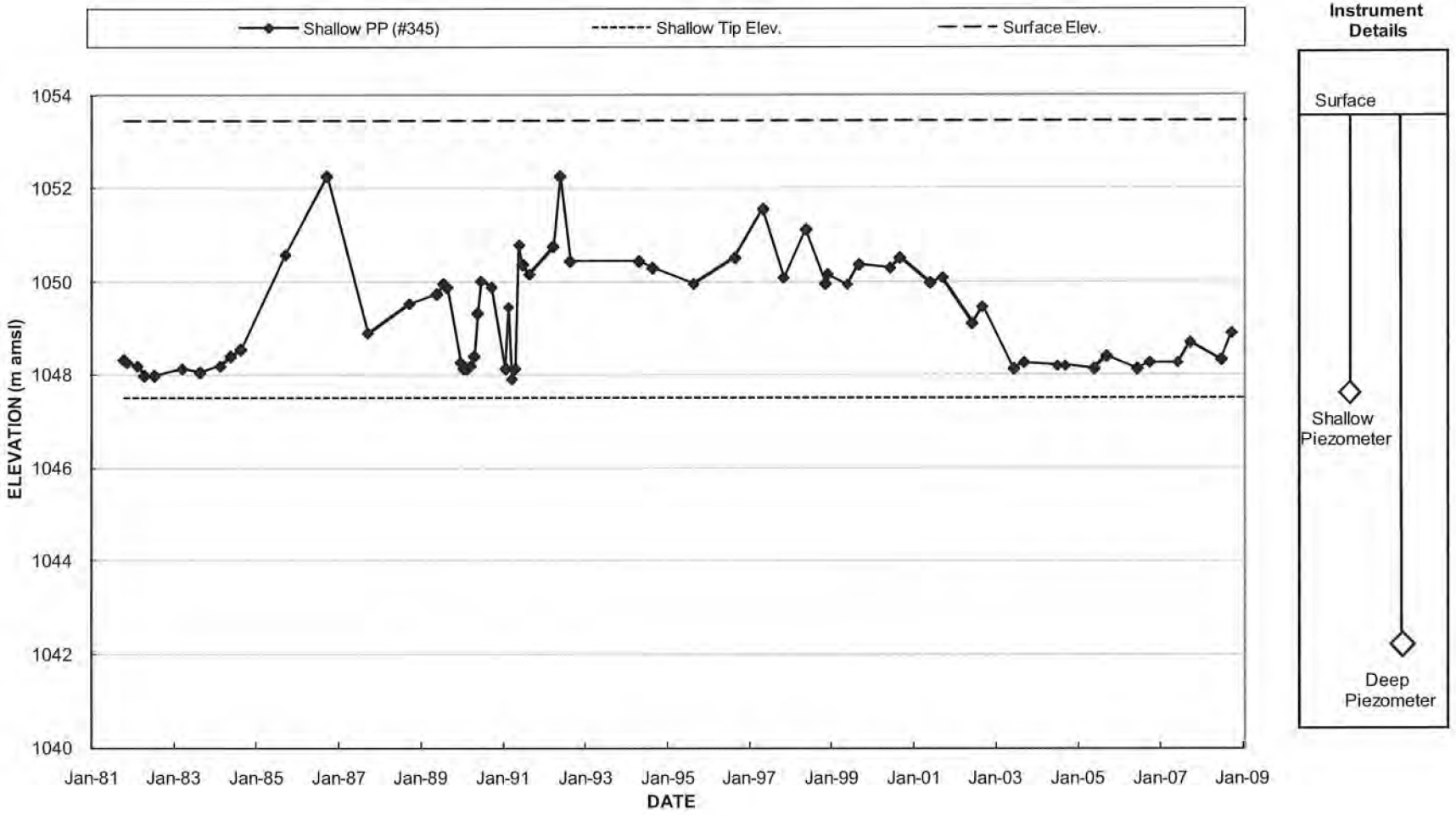


Faro Mine Instrumentation - Diversion Canal Dike

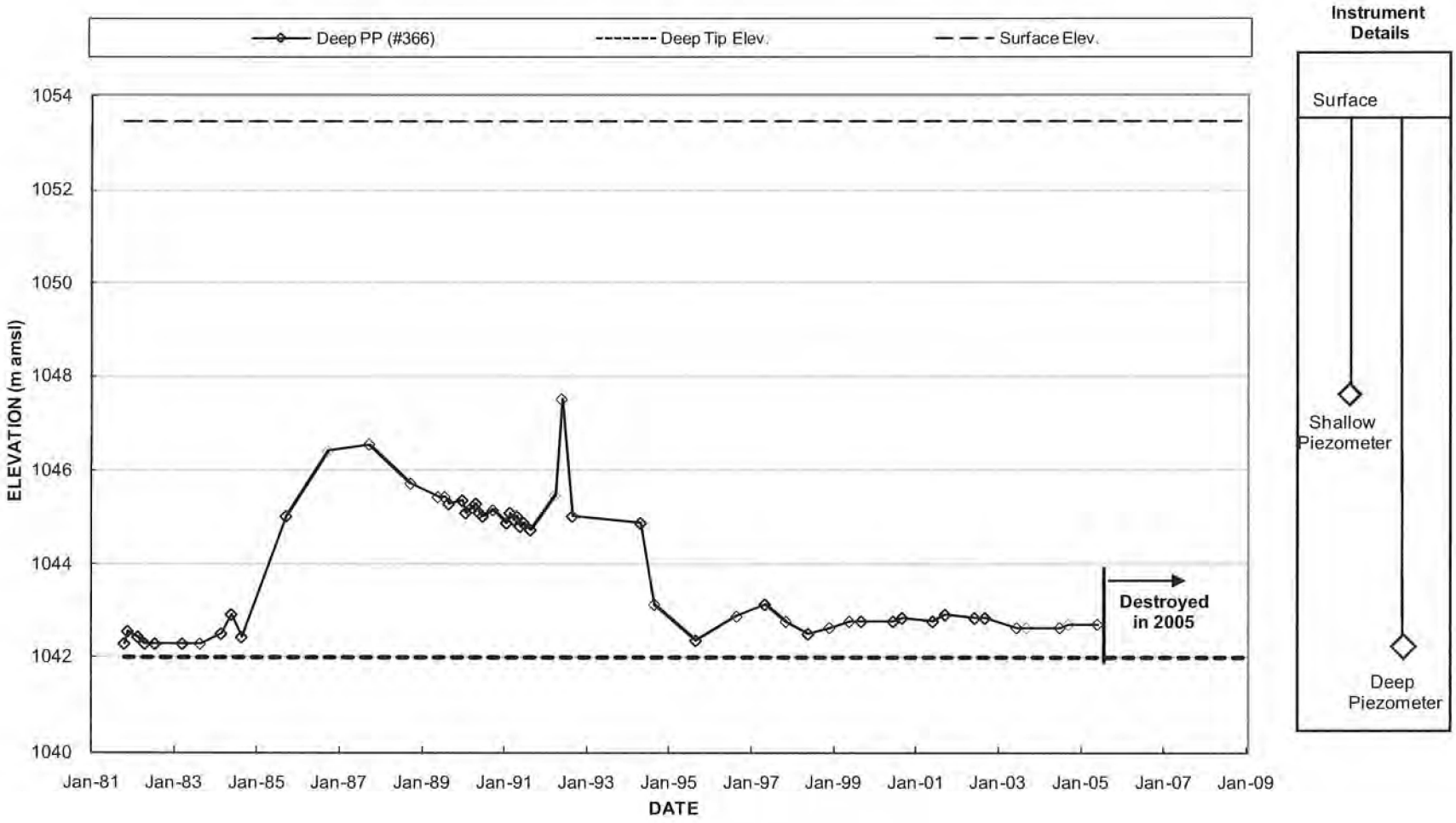
CD-21		Location:	Canal Dike St.2+100	Ground Elevation (m amsl):	1053.447
		Coordinates:	1455.9N, 509.5E 8V580724 6913495	Shallow Tip Elevation (m amsl):	1047.50
Surface Protector:	yes	Date Installed:	1981	Deep Tip Elevation (m amsl):	1042.00

	Reading (psi)		Piezometric Elevation (m amsl)		
	Shallow PP	Deep PP	Shallow	Deep	
Date	(#345)	(#366)	(#345)	(#366)	Comments
Nov-81	1.2	0.4	1048.34	1042.28	
Dec-81	1.1	0.78	1048.27	1042.546	
Mar-82	1	0.6	1048.2	1042.42	
May-82	0.7	0.4	1047.99	1042.28	
Aug-82	0.7	0.4	1047.99	1042.28	
Apr-83	0.9	0.4	1048.13	1042.28	
Sep-83	0.8	0.4	1048.06	1042.28	
Mar-84	1	0.7	1048.2	1042.49	
Jun-84	1.3	1.3	1048.41	1042.91	
Sep-84	1.5	0.6	1048.55	1042.42	
Oct-85	4.4	4.3	1050.58	1045.01	
Oct-86	6.8	6.3	1052.26	1046.41	
Oct-87	2	6.5	1048.9	1046.55	
Oct-88	2.9	5.3	1049.53	1045.71	
Jun-89	3.2	4.9	1049.74	1045.43	
Aug-89	3.5	4.9	1049.95	1045.43	
Sep-89	3.4	4.7	1049.88	1045.29	
Jan-90	1.1	4.8	1048.27	1045.36	
Feb-90	0.9	4.4	1048.13	1045.08	
Mar-90	0.9	4.5	1048.13	1045.15	
Apr-90	1	4.6	1048.2	1045.22	
May-90	1.3	4.7	1048.41	1045.29	
Jun-90	2.6	4.4	1049.32	1045.08	
Jul-90	3.6	4.3	1050.02	1045.01	
Oct-90	3.4	4.5	1049.88	1045.15	
Feb-91	0.9	4.1	1048.13	1044.87	
Mar-91	2.8	4.4	1049.46	1045.08	
Apr-91	0.6	4.2	1047.92	1044.94	
May-91	0.9	4.3	1048.13	1045.01	
Jun-91	4.7	4	1050.79	1044.8	
Jul-91	4.1	4.1	1050.37	1044.87	
Sep-91	3.8	3.9	1050.16	1044.73	
Apr-92	4.65	4.95	1050.755	1045.465	
Jun-92	6.8	7.87	1052.26	1047.509	
Sep-92	4.2	4.3	1050.44	1045.01	
May-94	4.2	4.1	1050.44	1044.87	
Sep-94	4	1.6	1050.3	1043.12	
Sep-95	3.5	0.5	1049.95	1042.35	
Sep-96	4.3	1.25	1050.51	1042.875	
08-May-97	5.8	1.6	1051.56	1043.12	
10-Nov-97	3.7	1.1	1050.09	1042.77	
26-May-98	5.16	0.70	1051.112	1042.49	
15-Nov-98	3.50	n.r.	1049.95		
04-Dec-98	3.80	0.90	1050.16	1042.63	
28-May-99	3.49	1.10	1049.943	1042.77	
11-Sep-99	4.10	1.10	1050.37	1042.77	
14-Jun-00	4.00	1.10	1050.3	1042.77	
09-Sep-00	4.30	1.20	1050.51	1042.84	
06-Jun-01	3.55	1.10	1049.985	1042.77	
19-Sep-01	3.70	1.30	1050.09	1042.91	
13-Jun-02	2.3	1.2	1049.11	1042.84	
12-Sep-02	2.8	1.2	1049.46	1042.84	
17-Jun-03	0.9	0.9	1048.13	1042.63	*readings recorded with new piezometer
12-Sep-03	1.1	0.9	1048.27	1042.63	
06-Jul-04	1	0.9	1048.2	1042.63	#366 Bubbles stpped at 1.7Psi
16-Sep-04	1	1	1048.2	1042.7	
31-May-05	0.9	1	1048.13	1042.7	casing full of water, lots of air over 35 psi
14-Sep-05	1.3		1048.41		#366 - gone
14-Jun-06	0.9		1048.13		#366 - gone
2-Oct-06	1.1		1048.27		#366 - gone
06-Jun-07	1.1	n.r.	1048.27		#366 - gone
24-Sep-07	1.7	n.r.	1048.69		#366 - gone (No Cable)
24-Jun-08	1.2		1048.34		#366 - gone
24-Sep-08	2		1048.9		#366 - gone

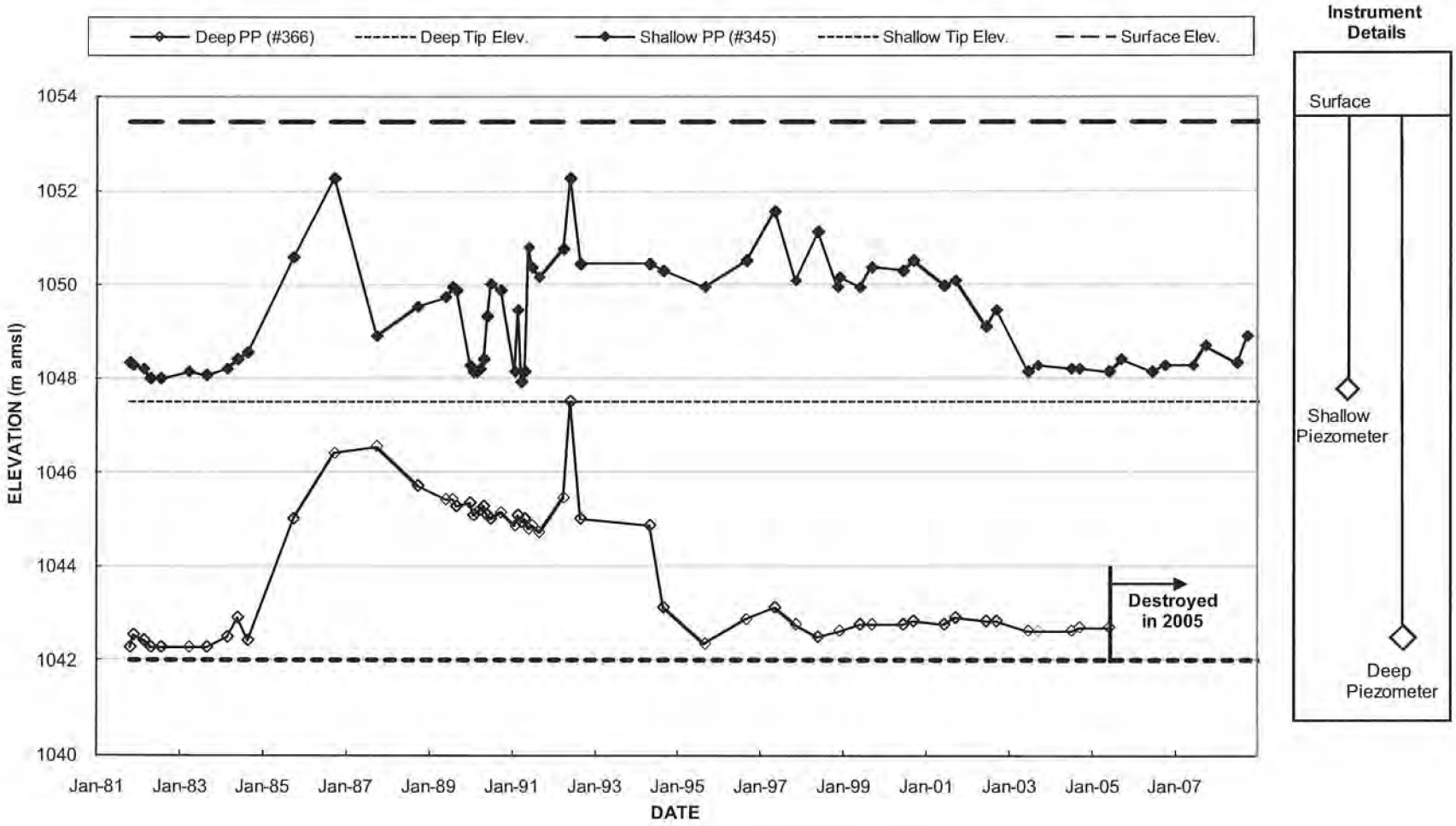
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-21 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-21 Pneumatic Piezometer (Deep Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-21 Pneumatic Piezometer (Both Tips)

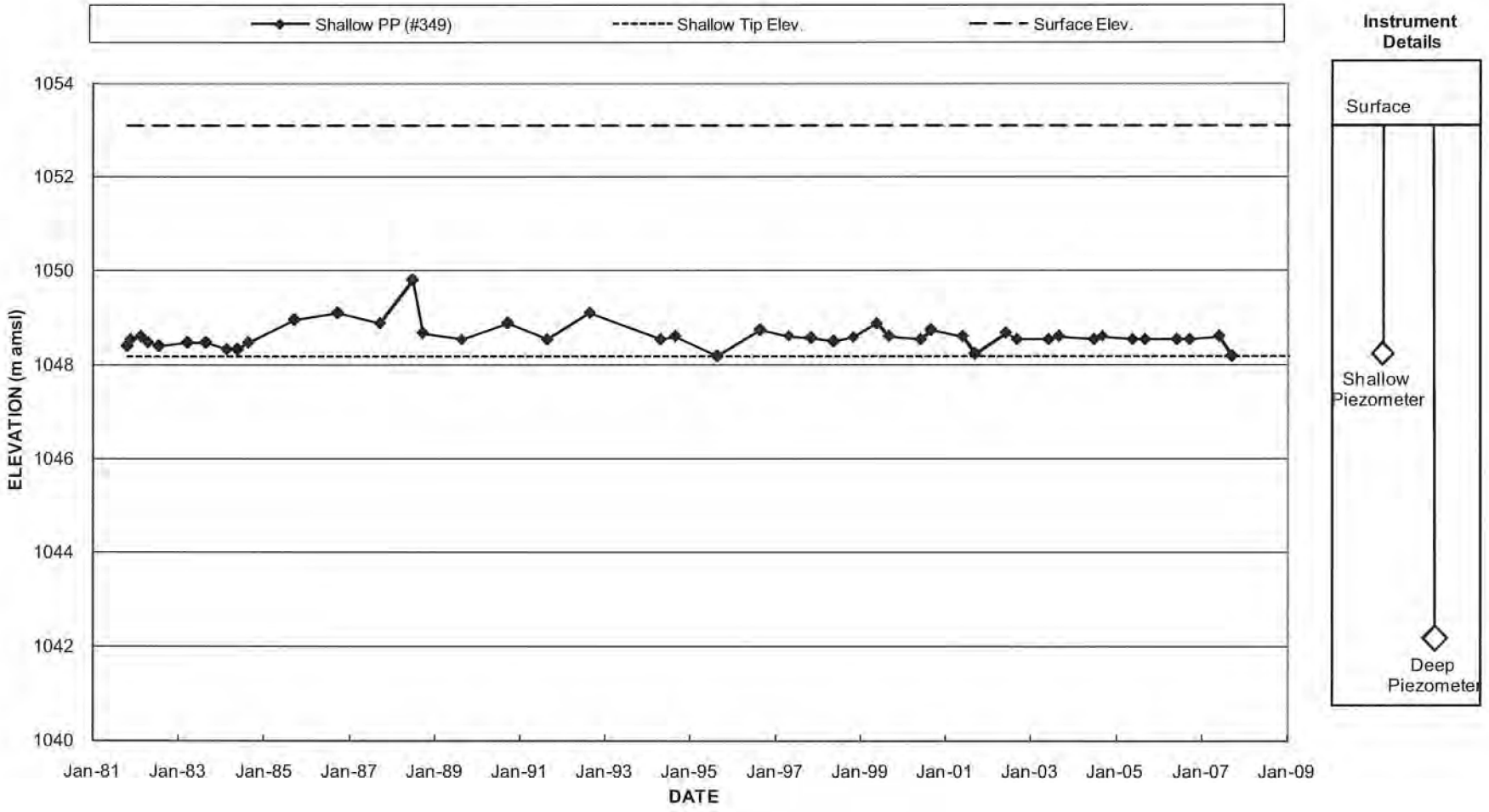


Faro Mine Instrumentation - Diversion Canal Dike

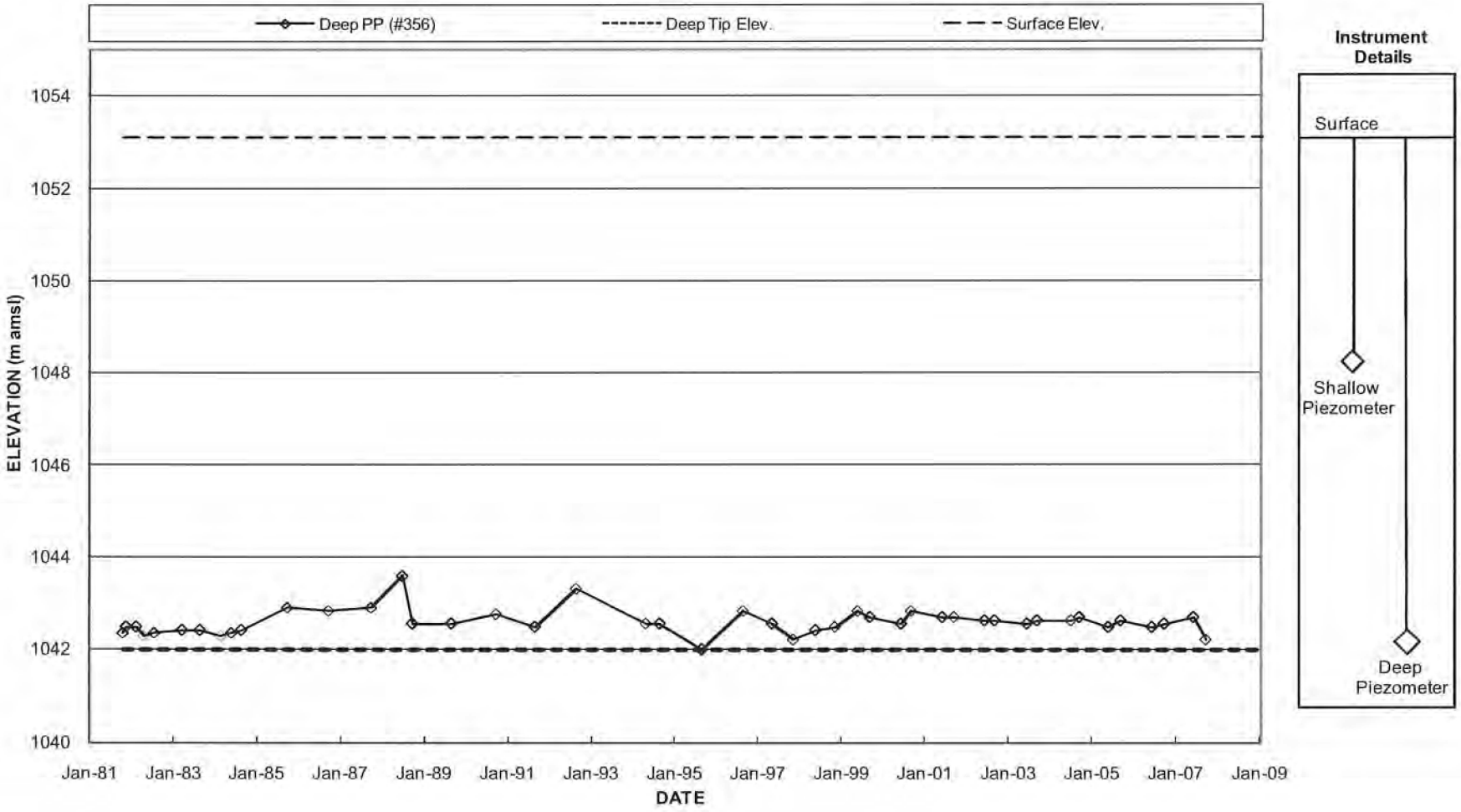
CD-26		Location:	Canal Dike St.2+600	Ground Elevation (m amsl):	1053.10
		Coordinates:	1674.7N, 71.7E 8V580284 6913710	Shallow Tip Elevation (m amsl):	1048.20
Surface Protector:	yes	Date Installed:	1981	Deep Tip Elevation (m amsl):	1042.00

Date	Reading (psi)		Piezometric Elevation (m amsl)		Comments
	Shallow PP (#349)	Deep PP (#356)	Shallow (#349)	Deep (#356)	
Nov-81	0.3	0.5	1048.41	1042.35	
Dec-81	0.5	0.7	1048.55	1042.49	
Mar-82	0.6	0.7	1048.62	1042.49	
May-82	0.4	0.4	1048.48	1042.28	
Aug-82	0.3	0.5	1048.41	1042.35	
Apr-83	0.4	0.6	1048.48	1042.42	
Sep-83	0.4	0.6	1048.48	1042.42	
Mar-84	0.2	0.4	1048.34	1042.28	
Jun-84	0.2	0.5	1048.34	1042.35	
Sep-84	0.4	0.6	1048.48	1042.42	
Oct-85	1.1	1.3	1048.97	1042.91	
Oct-86	1.3	1.2	1049.11	1042.84	
Oct-87	1	1.3	1048.90	1042.91	
Jul-88	2.3	2.3	1049.81	1043.61	
Oct-88	0.7	0.8	1048.69	1042.56	
Sep-89	0.5	0.8	1048.55	1042.56	
Oct-90	1	1.1	1048.90	1042.77	
Sep-91	0.5	0.7	1048.55	1042.49	
Sep-92	1.3	1.9	1049.11	1043.33	
May-94	0.5	0.8	1048.55	1042.56	
Sep-94	0.6	0.8	1048.62	1042.56	
Sep-95	0	0	1048.20	1042.00	
Sep-96	0.8	1.2	1048.76	1042.84	
08-May-97	0.6	0.8	1048.62	1042.56	
10-Nov-97	0.55	0.30	1048.59	1042.21	
26-May-98	0.44	0.60	1048.51	1042.42	
12-Nov-98	0.57	0.70	1048.60	1042.49	
28-May-99	0.98	1.20	1048.89	1042.84	
11-Sep-99	0.60	1.0	1048.62	1042.70	
14-Jun-00	0.50	0.8	1048.55	1042.56	
09-Sep-00	0.80	1.2	1048.76	1042.84	
06-Jun-01	0.60	1.0	1048.62	1042.70	
19-Sep-01	0.07	1.0	1048.25	1042.70	
13-Jun-02	0.7	0.9	1048.69	1042.63	
12-Sep-02	0.5	0.9	1048.55	1042.63	
17-Jun-03	0.5	0.8	1048.55	1042.56	*readings recorded with new piezometer
12-Sep-03	0.6	0.9	1048.62	1042.63	
06-Jul-04	0.5	0.9	1048.55	1042.63	
16-Sep-04	0.6	1	1048.62	1042.70	
31-May-05	0.5	0.7	1048.55	1042.49	good flow
14-Sep-05	0.5	0.9	1048.55	1042.63	
14-Jun-06	0.5	0.7	1048.55	1042.49	
2-Oct-06	0.5	0.8	1048.55	1042.56	wet in casing
06-Jun-07	0.6	1	1048.62	1042.70	good flow
24-Sep-07	0	0.3	1048.20	1042.21	

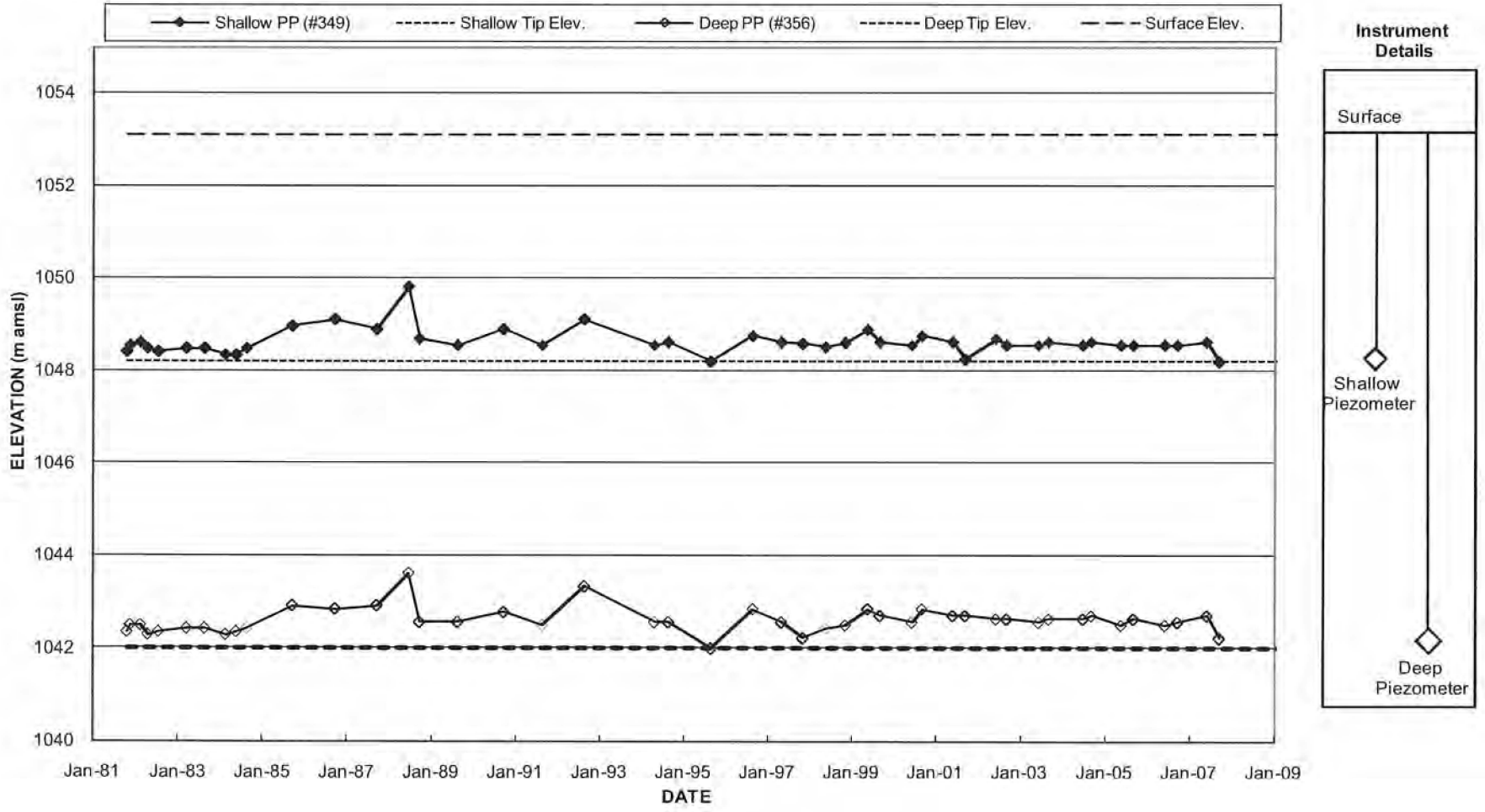
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-26 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-26 Pneumatic Piezometer (Deep Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-26 Pneumatic Piezometers (Both Tips)

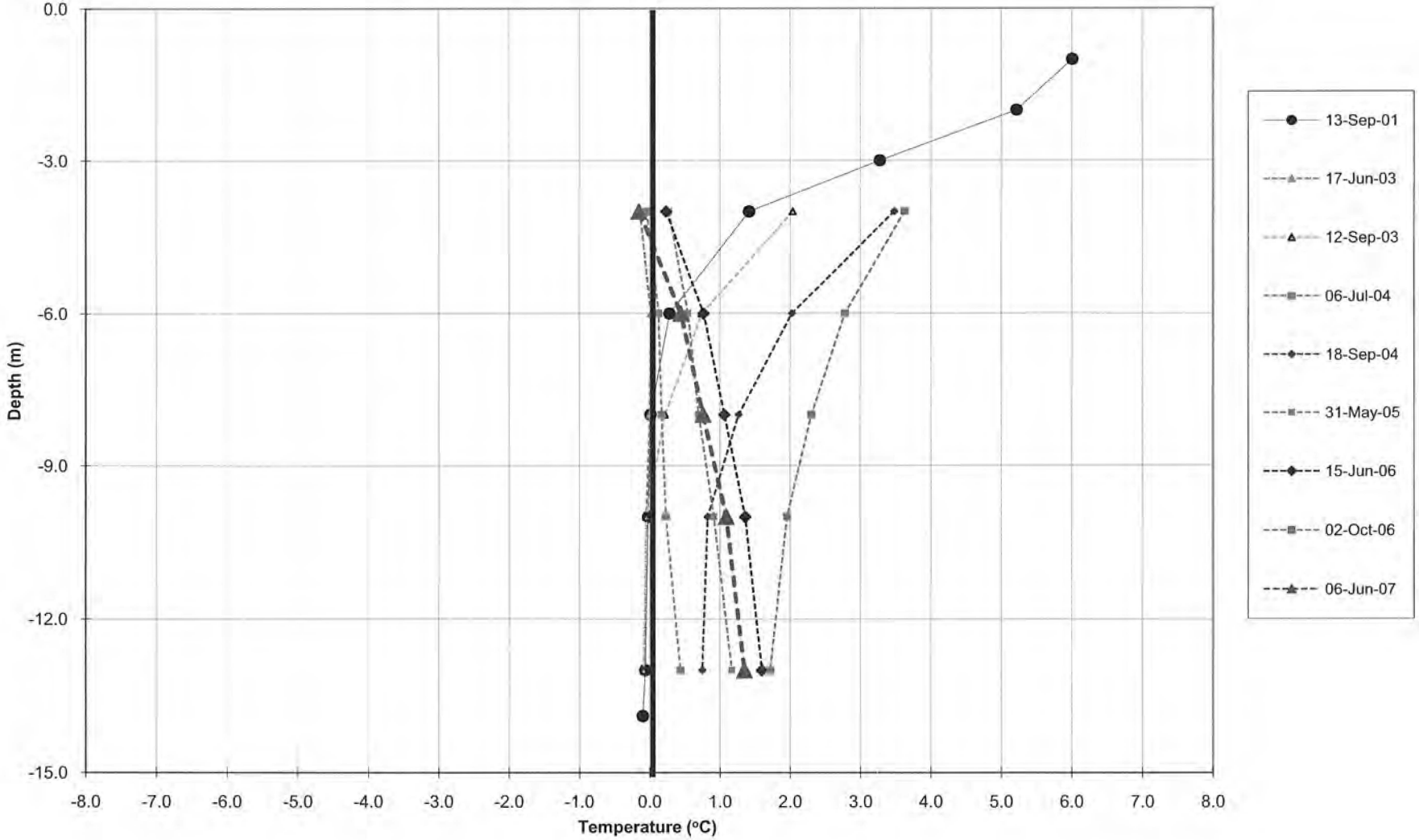


THERMISTORS

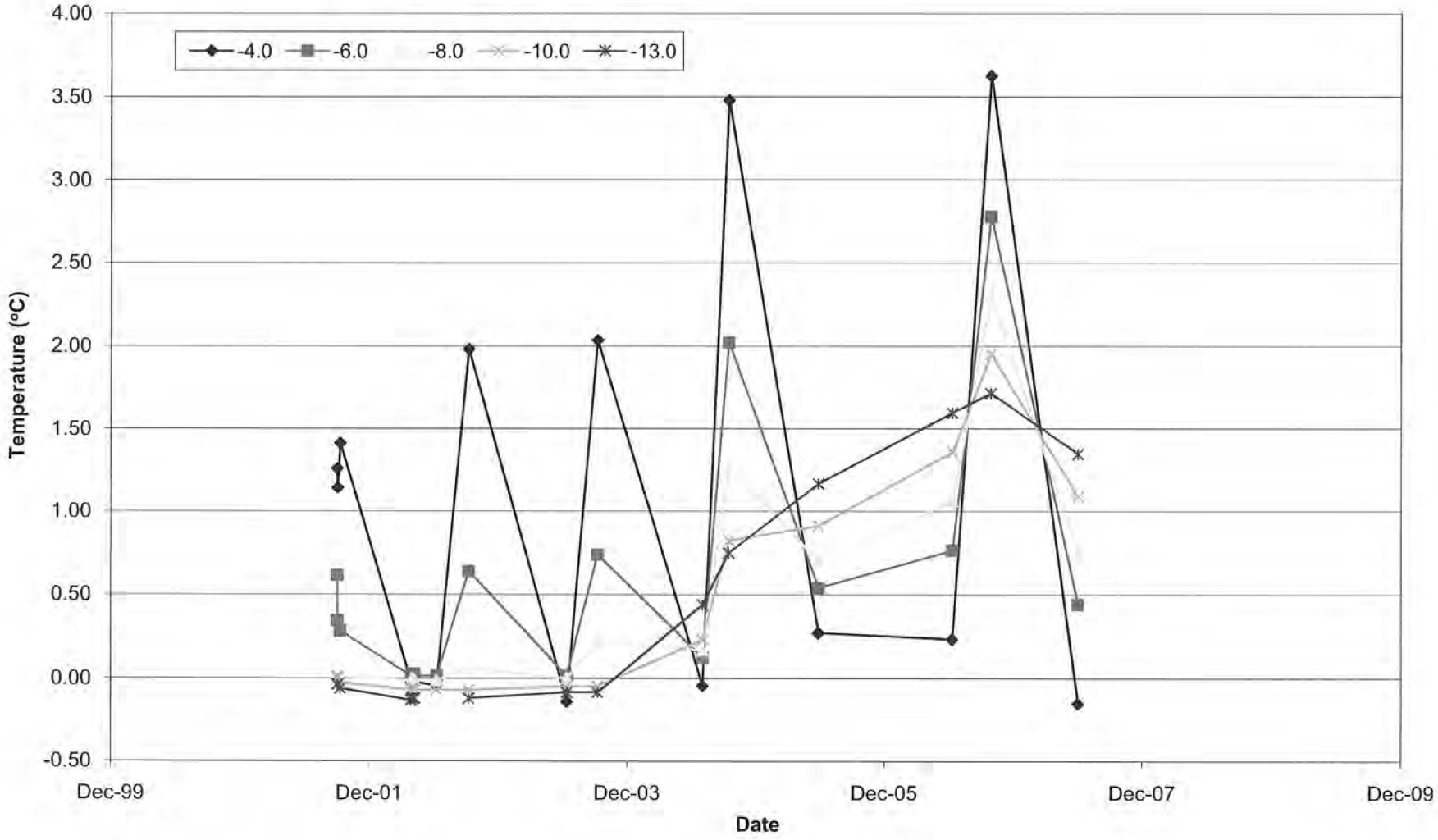
BGC01-02		Location:	Canal Dyke St.2+160			Elevation (m amsl):	1052.76	Coordinates:	1478.8mN 456.6mE	8V580652 6913530									
		Thermistor String #	Date Installed:	2001	Thermistor Type:	YSI 44007	Ice-Bath Calibration:	yes	Surface Protector:	yes									
Depth Correction:	0																		
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	05-Sep-01	06-Sep-01	13-Sep-01	02-Apr-02	05-Apr-02	09-Apr-02	12-Apr-02	13-Jun-02	12-Sep-02	17-Jun-03	12-Sep-03	06-Jul-04	18-Sep-04	31-May-05	15-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07
1.0	-1.0	10.86	11.05	12.05	20.50														
2.0	-2.0	11.82	11.97	12.53															
3.0	-3.0	13.25	13.53	13.83															27.96
4.0	-4.0	15.31	15.40	15.19	16.34	16.33	16.33	16.34	16.36	14.76	16.44	14.72	16.36	13.69	16.10	16.13	13.59	16.45	
6.0	-6.0	15.82	16.04	16.09	16.31	16.30	16.30	16.31	16.31	15.80	16.31	15.72	16.22	14.73	15.88	15.70	14.18	15.96	
8.0	-8.0	16.32	16.32	16.33	16.35	16.34	16.35	16.35	16.35	16.29	16.34	16.16	16.20	15.32	15.77	15.48	14.54	15.72	
10.0	-10.0	16.32	16.33	16.35	16.39	16.38	16.38	16.39	16.39	16.39	16.37	16.37	16.14	15.66	15.59	15.24	14.79	15.45	
13.0	-13.0	16.32	16.32	16.34	16.40	16.39	16.39	16.39		16.39	16.36	16.36	15.93	15.68	15.35	15.02	14.93	15.21	
13.9	-13.9	16.35	16.35	16.38															
		15.37	15.42	15.43			20.90												
Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	05-Sep-01	06-Sep-01	13-Sep-01	02-Apr-02	05-Apr-02	09-Apr-02	12-Apr-02	13-Jun-02	12-Sep-02	17-Jun-03	12-Sep-03	06-Jul-04	18-Sep-04	31-May-05	15-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07
1.0	-1.0	8.13	7.77	6.01	-4.44														
2.0	-2.0	6.40	6.14	5.22															
3.0	-3.0	4.13	3.71	3.28															-10.19
4.0	-4.0	1.26	1.14	1.41	-0.02	-0.01	-0.01	-0.02	-0.04	1.98	-0.14	2.04	-0.04	3.48	0.27	0.23	3.63	-0.15	
6.0	-6.0	0.61	0.34	0.28	0.02	0.03	0.03	0.02	0.02	0.64	0.02	0.74	0.12	2.02	0.54	0.76	2.78	0.44	
8.0	-8.0	0.02	0.02	0.01	-0.01	0.00	-0.01	-0.01	-0.01	0.06	0.00	0.22	0.17	1.27	0.70	1.06	2.30	0.76	
10.0	-10.0	0.01	0.00	-0.02	-0.07	-0.06	-0.06	-0.07	-0.07	-0.07	-0.05	-0.05	0.23	0.82	0.91	1.36	1.95	1.09	
13.0	-13.0	-0.04	-0.04	-0.06	-0.13	-0.12	-0.12	-0.12		-0.12	-0.08	-0.08	0.44	0.75	1.17	1.60	1.71	1.35	
13.9	-13.9	-0.06	-0.06	-0.10															

The node is malfunctioning. Numbers are not included in the graphs.

DIVERSION CANAL DIKE
Geothermal Monitoring
BGC01-02 (BH88-11 Replacement)



Diversion Canal Dike
Geothermal Monitoring
Long Term Monitoring for Nodes in BGC01-02



Faro Mine Instrumentation
Diversion Canal Dike

CD-10		Location:	Canal Dyke St. 0+990			Elevation (m amsl):	1056.09	Coordinates:	1008.7 mN 1519.7 mE	8V581754 6913048	
		Thermistor String #23	Date Installed:	1981	Thermistor Type:	Canlec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes	
Depth Correction:	-0.1										

Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-81	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	13-Sep-99	07-Jun-00	05-Sep-00	13-Jun-02	12-Sep-02
1.0	-0.9	23.70	13.83	12.20	11.98	12.25	11.65	10.54	12.94	12.13	11.85
2.0	-1.9	16.68	16.31	10.90	11.74	12.47	11.78	16.06	12.77	16.01	11.93
3.0	-2.9	16.50	17.55	11.39	12.54	13.65	12.93	17.21	13.74	18.77	13.10
4.0	-3.9	16.13	16.67	12.03	12.94	15.07	14.28	16.84	15.68		13.97
5.0	-4.9	16.24	16.50	13.24	13.77	16.83	16.48	16.75			
6.0	-5.9	16.31	16.43	14.03	14.40	16.34	15.85	16.64	15.88		15.16
7.0	-6.9	16.19	16.15	14.19	14.92	15.56	14.96	17.24	15.88	16.63	14.82
8.0	-7.9	16.19	16.00	13.93	15.26	15.08	14.34	16.20	15.81	16.39	14.75
9.0	-8.9	16.36	16.31	16.68	15.52	15.38	15.09		16.08	16.72	14.91
10.0	-9.9	16.21	16.17	14.87	15.31	15.60	15.26		15.77	16.48	14.70

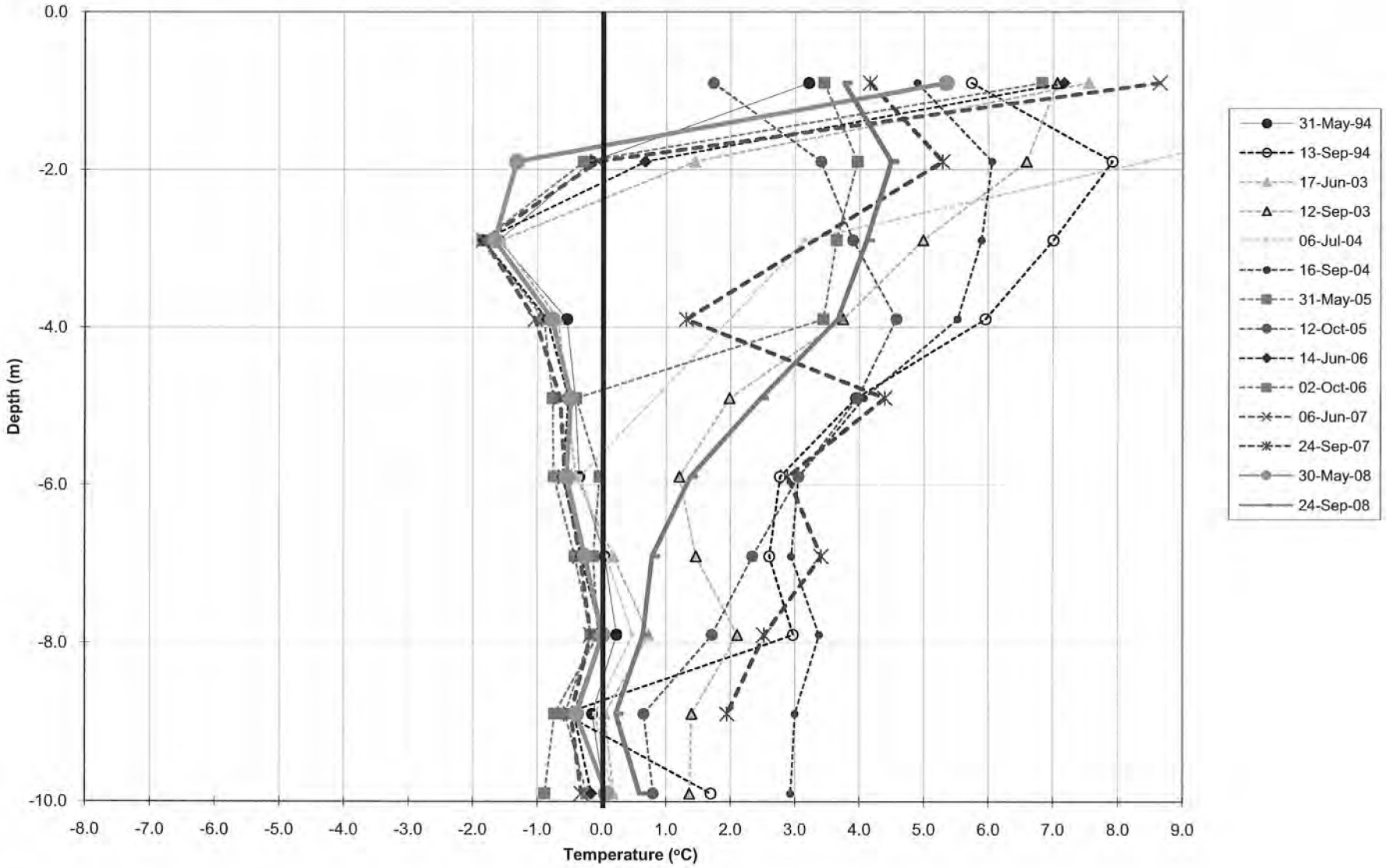
*The initial reading (Nov 15/81) is excluded from the data set because post-installation equilibrium may not have been complete.

Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	13-Sep-99	07-Jun-00	05-Sep-00	13-Jun-02	12-Sep-02
1.0	-0.9	-7.20	3.22	5.74	6.11	5.65	6.67	8.72	4.55	5.85	6.33
2.0	-1.9	-0.60	-0.16	7.91	6.40	5.17	6.33	0.14	4.69	0.20	6.07
3.0	-2.9	-0.40	-1.60	7.00	5.05	3.35	4.43	-1.22	3.22	-2.90	4.17
4.0	-3.9	0.10	-0.54	5.95	4.48	1.44	2.51	-0.74	0.66		2.94
5.0	-4.9	-0.10	-0.41	3.95	3.16	-0.80	-0.39	-0.70			
6.0	-5.9	-0.20	-0.35	2.77	2.25	-0.24	0.36	-0.60	0.32		1.23
7.0	-6.9	0.00	0.05	2.60	1.61	0.78	1.56	-1.23	0.38	-0.52	1.74
8.0	-7.9	0.00	0.23	2.97	1.16	1.40	2.39	-0.01	0.47	-0.24	1.83
9.0	-8.9	-0.20	-0.14	-0.58	0.83	1.01	1.38		0.13	-0.63	1.62
10.0	-9.9	0.00	0.04	1.69	1.12	0.75	1.18		0.54	-0.33	1.92

Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
17-Jun-03	12-Sep-03	06-Jul-04	16-Sep-04	31-May-05	12-Oct-05	14-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	30-May-08	24-Sep-08
11.16	11.43	8.32	12.72	11.56	14.90	11.37	13.67	10.58	13.19	12.44	13.46
15.03	11.63	10.63	11.94	16.41	13.62	15.63	13.24	16.23	12.4	17.31	12.9
17.52	12.58	13.79	12.03	17.78	13.28	17.77	13.45	17.76	18.47	17.61	13.14
16.79	13.42		12.29	16.98	12.88	16.94	13.63	17.1	15.17	16.87	13.48
	14.61		13.16	16.60	13.23	16.59	16.49	16.7	12.95	16.56	14.26
16.48	15.18	16.42	13.83	16.77	13.83	16.65	16.17	16.62	13.95	16.6	15.05
16.04	15.03	16.13	13.95	16.54	14.38	16.46	16.3	16.47	13.63	16.41	15.56
15.60	14.55	15.80	13.65	16.33	14.84	16.19	16.24	16.33	14.25	16.18	15.67
16.15	15.08	16.28	13.91	16.67	15.66	16.55	16.81	16.59	14.67	16.52	16.01
16.06	15.12	16.07	13.97	16.40	15.56	16.34	16.96	16.47	34.4	16.15	15.73

Temperature (C)	Temperatur e (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
17-Jun-03	12-Sep-03	06-Jul-04	16-Sep-04	31-May-05	12-Oct-05	14-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	30-May-08	24-Sep-08
7.55	7.06	13.67	4.89	6.83	1.73	7.17	3.45	8.65	4.16	5.34	3.76
1.44	6.59	8.43	6.05	-0.28	3.40	0.67	3.97	-0.07	5.29	-1.33	4.49
-1.57	4.99	3.14	5.89	-1.85	3.90	-1.84	3.64	-1.83		-1.66	4.12
-0.68	3.75		5.52	-0.90	4.57	-0.85	3.44	-1.04	1.31	-0.77	3.66
	1.98		4.07	-0.76	3.96	-0.52	-0.40	-0.65	4.39	-0.48	2.47
-0.41	1.21	-0.34	3.06	-0.75	3.06	-0.61	-0.04	-0.57	2.88	-0.55	1.38
0.18	1.46	0.07	2.94	-0.42	2.34	-0.32	-0.13	-0.34	3.41	-0.26	0.78
0.73	2.11	0.48	3.38	-0.17	1.71	0.00	-0.06	-0.17	2.52	0.01	0.64
0.05	1.40	-0.11	3.00	-0.57	0.65	-0.43	-0.73	-0.48	1.94	-0.39	0.22
0.18	1.36	0.17	2.93	-0.23	0.80	-0.16	-0.89	-0.32		0.05	0.57

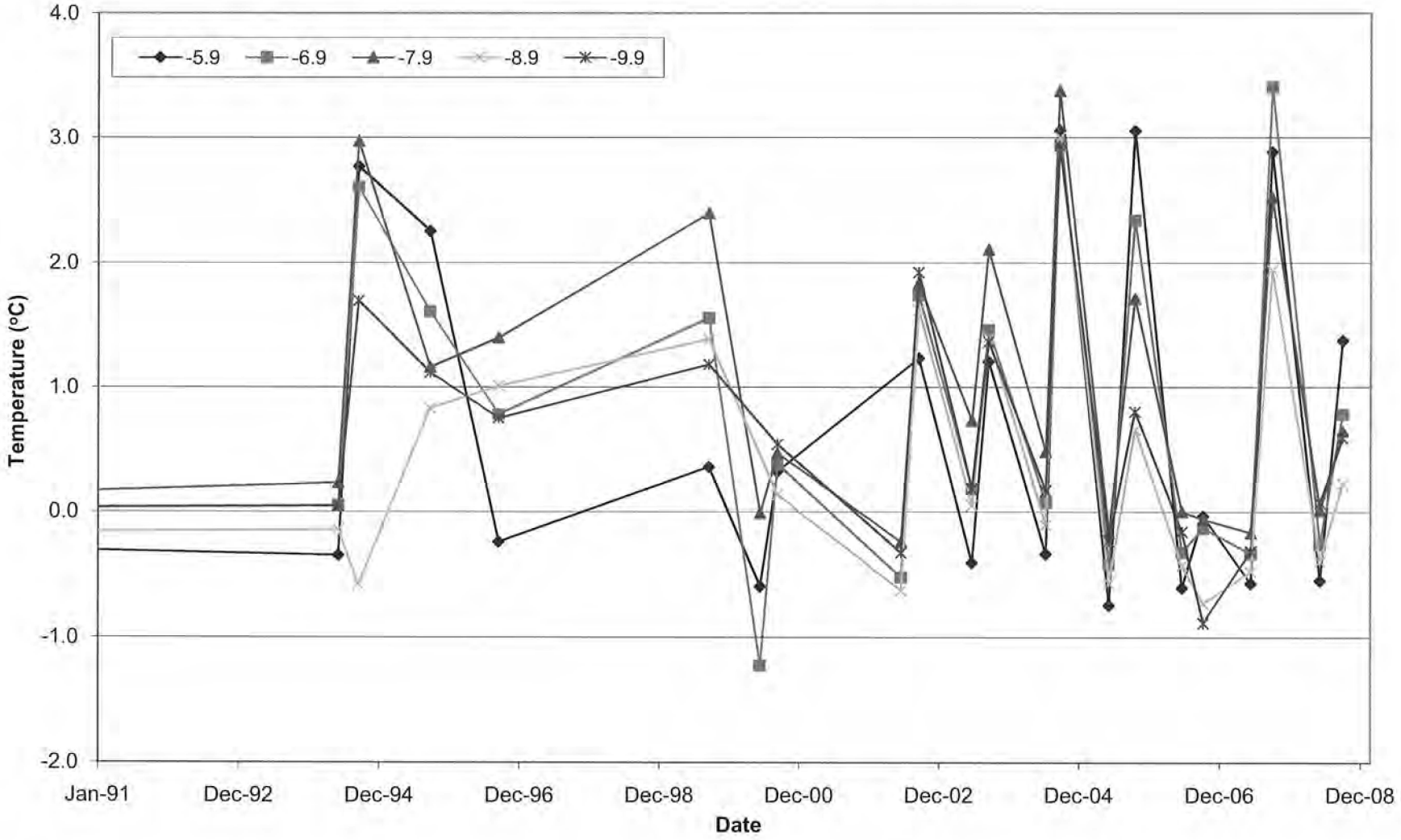
DIVERSION CANAL DIKE
Geothermal Monitoring
CD-10



CDtherm_updated_2008.xls
CD-10 chrt

BGC Engineering Inc.

Diversion Canal Dike
Geothermal Monitoring
Long Term Monitoring for Nodes in CD-10



Faro Mine Instrumentation
Diversion Canal Dike

CD-15		Location:	Canal Dyke St. 1+530			Elevation (m amsl):	1054.73	Coordinates:	1233.7 mN 1028.7 mE	8V561228 8913287
		Thermistor String #26	Date Installed:	1981	Thermistor Type:	Canlec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes
Depth Correction:	0.1									
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-81	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	13-Sep-99	07-Jun-00	05-Sep-00	25-May-01
1.0	-1.1	20.00	13.84	11.56	11.52	11.93	11.36	13.04	12.03	16.84
2.0	-2.1	16.29	16.58	10.64	11.36	12.23	11.48	16.96	11.74	17.14
3.0	-3.1	15.99	23.62	15.29	16.47	18.13	17.46	24.88	17.37	24.84
4.0	-4.1	15.65		11.34	11.61	13.10	12.17	16.64	12.08	17.01
5.0	-5.1	15.71	16.11	11.81	11.65	13.06	12.38	16.12	11.88	16.21
6.0	-6.1	15.75	15.80	12.17	11.72	13.07	12.50	15.77	12.10	15.90
7.0	-7.1	15.53	15.49	12.61	12.28	13.67	13.09	15.39	12.60	15.52
8.0	-8.1	15.47	15.33	13.42	13.09	14.28	13.78	15.24	13.55	15.40
9.0	-9.1	15.41	15.19	14.09	13.78	14.68	14.38	15.23	14.39	15.40
10.0	-10.1	15.45	15.96	15.21	14.97	15.78	16.64	17.33	16.94	17.64

*The initial reading (Nov 15/81) is excluded from the data set because post-installation equilibrium may not have been complete.

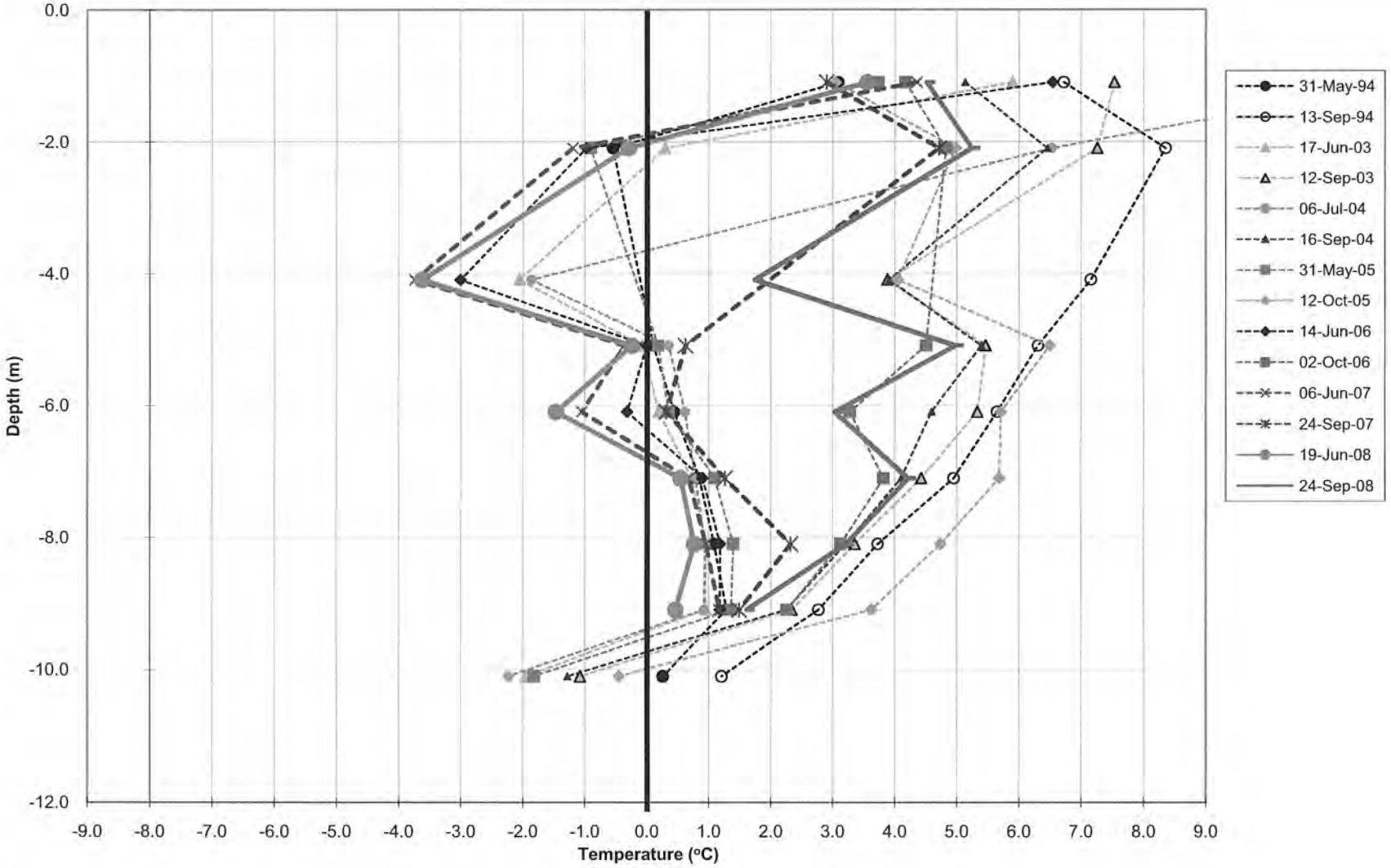
Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	13-Sep-99	07-Jun-00	05-Sep-00	25-May-01
1.0	-1.1	-4.10	3.09	6.72	6.79	6.08	7.08	4.28	5.91	-0.78
2.0	-2.1	-0.20	-0.55	8.35	7.01	5.51	6.79	-0.99	6.34	-1.19
3.0	-3.1	0.20								
4.0	-4.1	0.70		7.15	6.67	4.23	5.72	-0.51	5.87	-0.93
5.0	-5.1	0.60	0.11	6.31	6.58	4.27	5.35	0.09	6.19	-0.01
6.0	-6.1	0.50	0.44	5.65	6.41	4.21	5.11	0.48	5.76	0.31
7.0	-7.1	0.80	0.85	4.95	5.48	3.33	4.20	0.98	4.96	0.81
8.0	-8.1	0.90	1.08	3.73	4.23	2.49	3.20	1.20	3.53	0.99
9.0	-9.1	1.00	1.28	2.77	3.22	1.96	2.37	1.23	2.35	1.01
10.0	-10.1	0.90	0.26	1.21	1.52	0.48	-0.56	-1.35	-0.90	-1.69

* The 3 metre depth tip is suspect

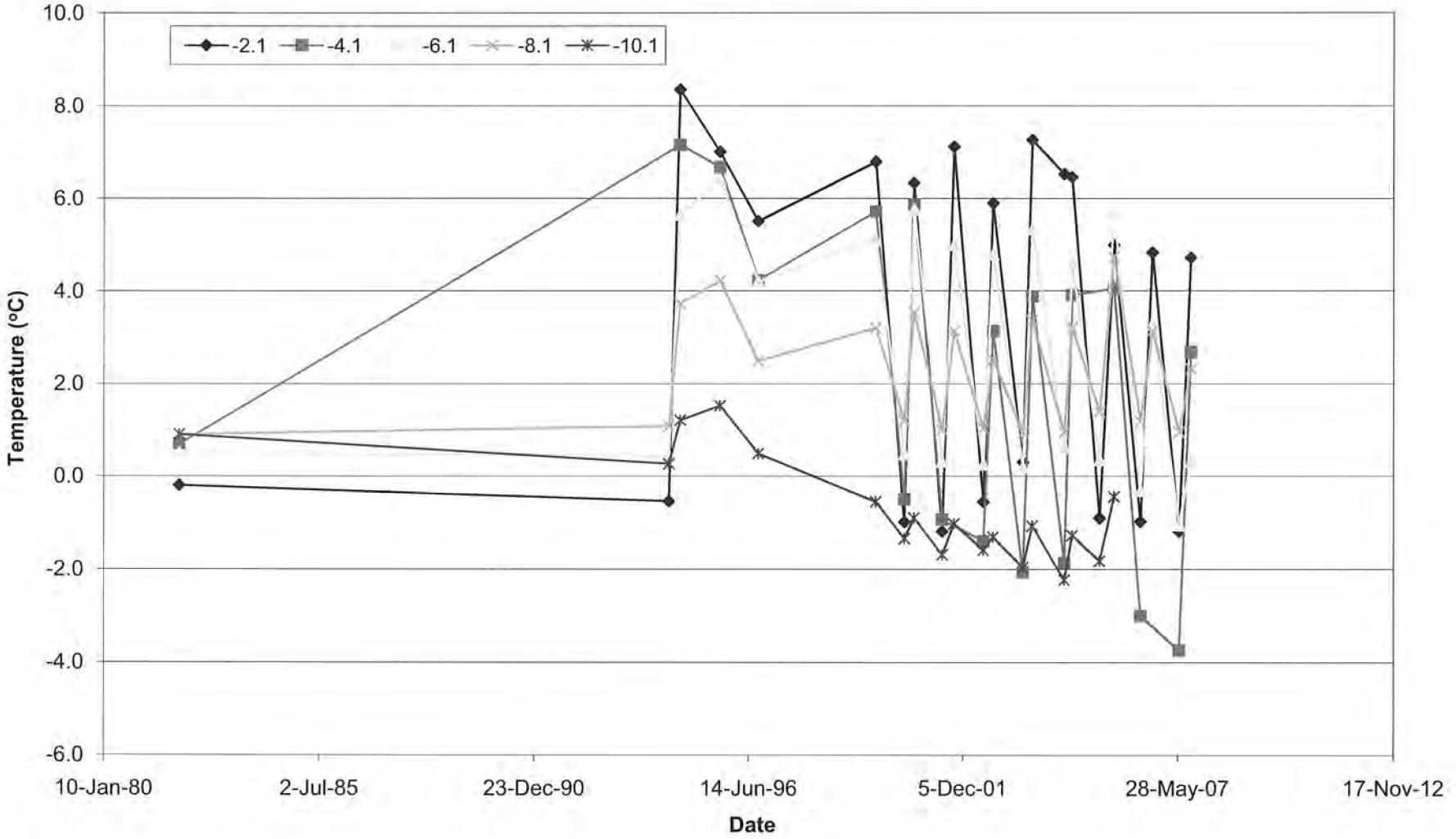
Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
13-Sep-01	13-Jun-02	12-Sep-02	17-Jun-03	12-Sep-03	06-Jul-04	16-Sep-04	31-May-05	12-Oct-05	14-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	19-Jun-08	24-Sep-08
11.56	12.16	11.57	12.04	11.11	8.87	12.50	13.40	13.87	11.66	13.11	12.99	13.97	13.52	12.89
11.30	16.59	12.00	15.88	11.22	11.63	11.67	16.89	12.55	16.95	12.65	17.14	12.72	16.37	12.39
17.05	24.82	18.61	24.71	17.12	21.04	16.94	24.35	17.39	24.52	18.43		13.08		
	17.42	13.84	18.02	13.33	17.84	13.31		13.22	18.93	O/L	19.56	14.08	19.44	14.76
12.38	16.24	12.68	16.26	12.31	15.91	12.35	16.05	11.70	16.20	12.91	16.5	15.69	16.4	12.61
12.57	15.95	12.70	16.00	12.36	15.66	12.82	15.87	12.13	16.42	13.69	17.05	15.9	17.42	13.86
13.10	15.53	13.43	15.59	12.94	15.54	13.15	15.30	12.16	15.45	13.34	15.63	15.17	15.73	13.08
13.83	15.37	14.26	15.43	13.67	15.44	13.77	15.09	12.76	15.25	13.83	15.43	14.4	15.58	13.77
14.52	15.37	14.88	15.45	14.40	15.47	14.46	15.13	13.50	15.27	14.46	15.28	15.03	15.84	14.94
17.05	17.55	17.30	17.88	17.09	18.14	17.27	17.76	16.55	5.17	5.14	28.1			

Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
13-Sep-01	13-Jun-02	12-Sep-02	17-Jun-03	12-Sep-03	06-Jul-04	16-Sep-04	31-May-05	12-Oct-05	14-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	19-Jun-08	24-Sep-08
6.72	5.69	6.70	5.89	7.53	12.20	5.14	3.74	3.05	6.55	4.18	4.36	2.90	3.56	4.52
7.12	-0.56	5.89	0.30	7.26	6.53	6.46	-0.91	4.98	-0.98	4.82	-1.19	4.71	-0.30	5.24
												4.15		
	-1.40	3.13	-2.05	3.88	-1.86	3.91		4.05	-3.00		-3.74	2.68	-3.62	1.74
5.35	-0.05	4.87	-0.07	5.47	0.35	5.40	0.18	6.50	0.00	4.50	-0.36	0.63	-0.24	4.98
4.99	0.25	4.79	0.19	5.33	0.61	4.60	0.35	5.71	-0.32	3.28	-1.05	0.31	-1.47	3.03
4.18	0.80	3.68	0.72	4.43	0.78	4.10	1.09	5.68	0.90	3.82	0.67	1.26	0.55	4.21
3.13	1.03	2.52	0.95	3.36	0.94	3.21	1.39	4.74	1.19	3.13	0.95	2.32	0.76	3.21
2.18	1.05	1.69	0.95	2.34	0.92	2.26	1.36	3.63	1.18	2.26	1.17	1.49	0.46	1.61
-1.03	-1.59	-1.31	-1.95	-1.08	-2.23	-1.28	-1.82	-0.45						

DIVERSION CANAL DIKE
Geothermal Monitoring
CD-15



Diversion Canal Dike
Geothermal Monitoring
Long Term Monitoring for Nodes in CD-15



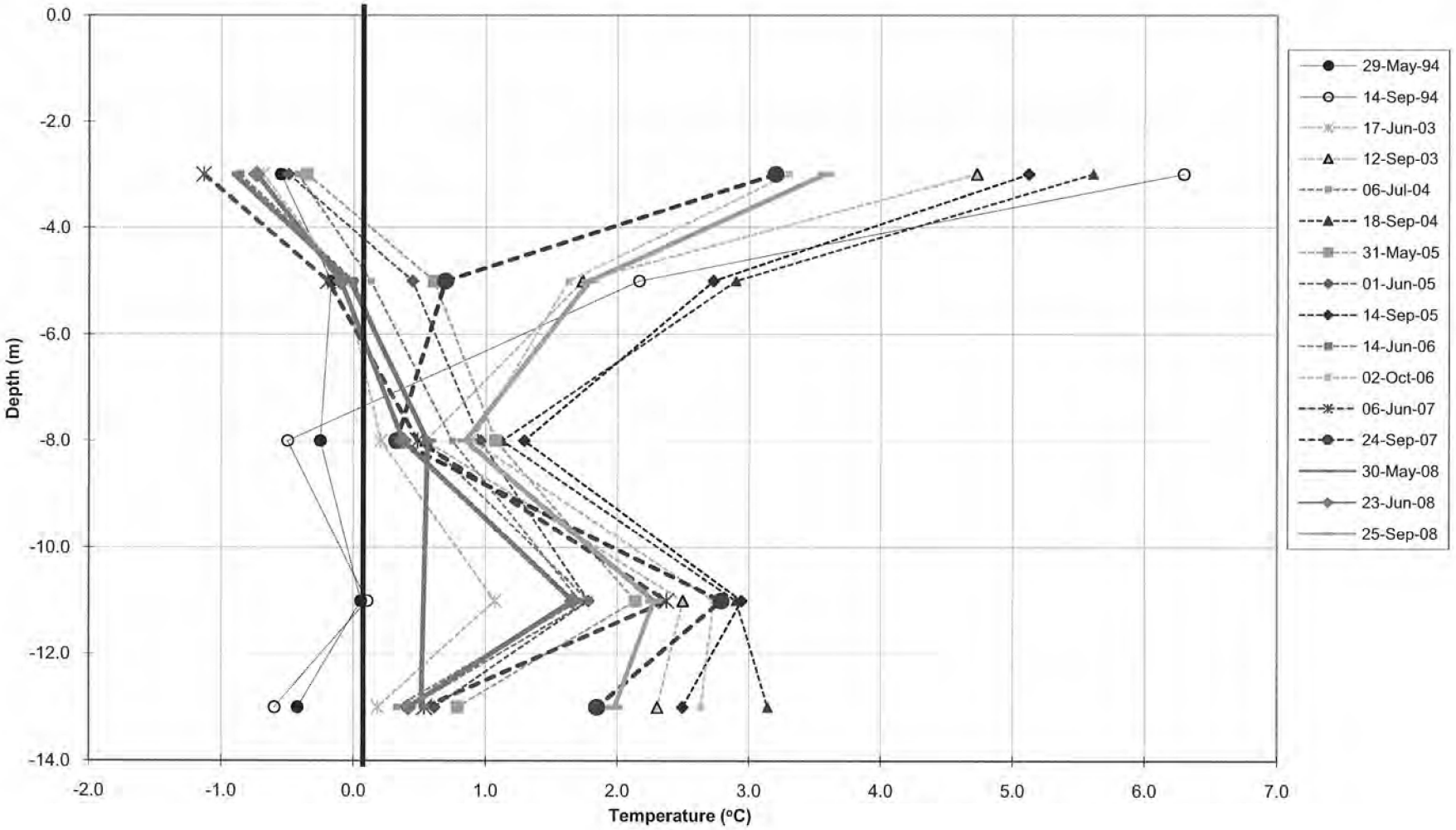
Faro Mine Instrumentation
Diversion Canal Dike

CD-21		Location:	Canal Dyke St.2+100			Elevation (m amsl):	1053.34	Coordinates:	1455.9 mN 509.5 mE	8V580708 6913505
		Thermistor String #12	Date Installed:	1981	Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	NO	Surface Protector:	yes
Depth Correction:	0									
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-82	29-May-94	14-Sep-94	20-Sep-95	13-Sep-96	17-Oct-97	12-Nov-98	13-Sep-99	07-Jun-00
3.0	-3.0	16.58	16.80	11.91	13.12	14.12	14.18	14.78	13.47	16.92
5.0	-5.0	16.56	16.45	14.61	15.04	16.56	15.29	14.65	15.78	16.42
8.0	-8.0	16.89	16.51	16.72	16.68	16.63	16.48	15.79	16.43	16.26
11.0	-11.0	16.87	16.31	16.27	16.31	16.40	16.48	nr	16.13	15.67
13.0	-13.0	16.84	16.69	16.84	16.84	16.83	16.81	16.77	16.59	16.25
Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-82	29-May-94	14-Sep-94	20-Sep-95	13-Sep-96	17-Oct-97	12-Nov-98	13-Sep-99	07-Jun-00
3.0	-3.0	-0.30	-0.55	6.29	4.34	2.87	2.79	1.96	3.81	-0.69
5.0	-5.0	-0.30	-0.17	2.16	1.59	-0.30	1.26	2.11	0.64	-0.14
8.0	-8.0	-0.70	-0.25	-0.50	-0.45	-0.39	-0.22	0.62	-0.16	0.05
11.0	-11.0	-0.60	0.06	0.10	0.06	-0.05	-0.15		0.27	0.84
13.0	-13.0	-0.60	-0.42	-0.60	-0.60	-0.59	-0.56	-0.52	-0.31	0.10

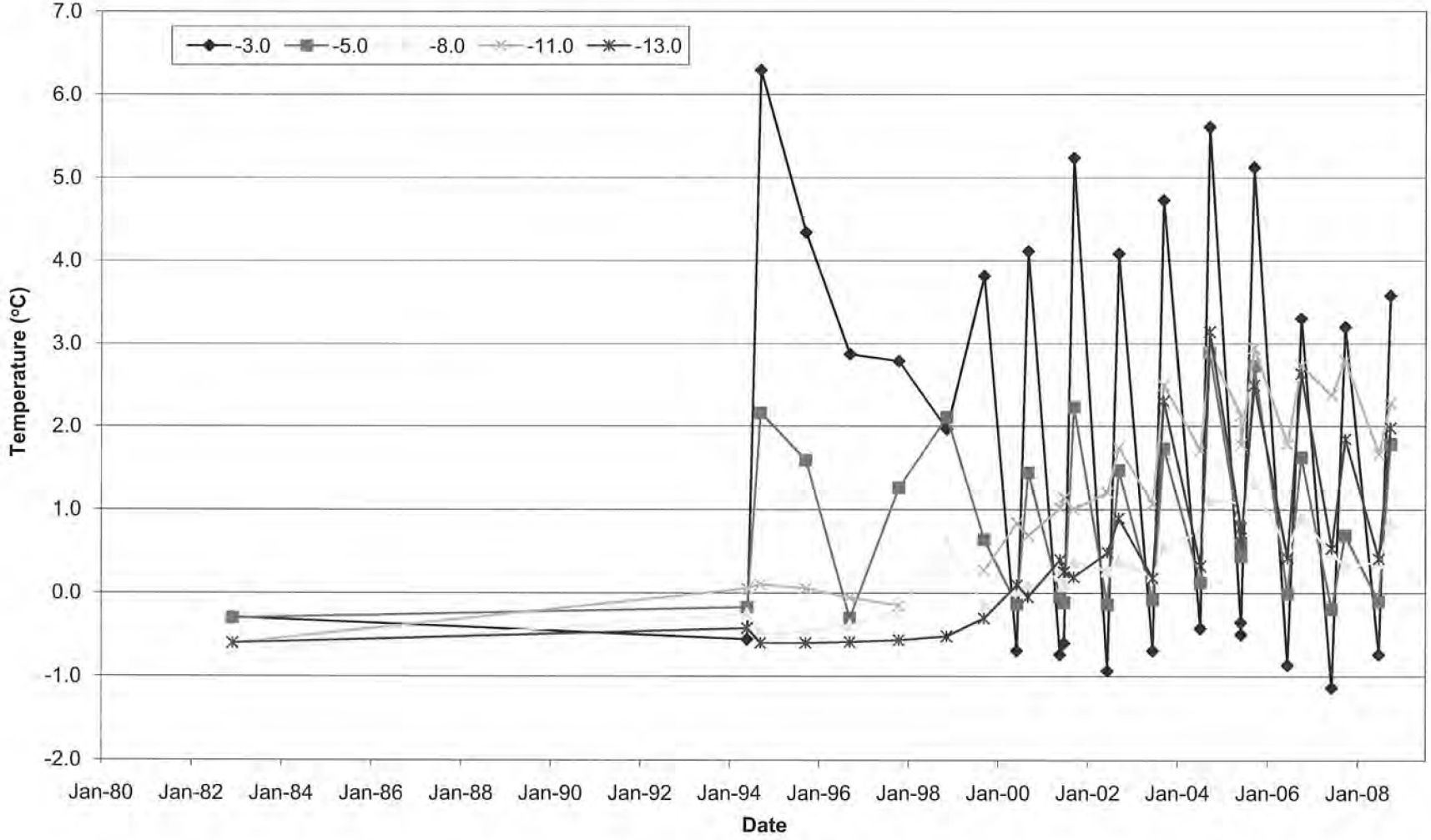
*tip #4 suspect

Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
05-Sep-00	25-May-01	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02	17-Jun-03	12-Sep-03	06-Jul-04	18-Sep-04	31-May-05	01-Jun-05	14-Sep-05	14-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	30-May-08	23-Jun-08	25-Sep-08
13.27	16.96	16.84	12.55	17.13	13.29	16.92	12.87	16.69	12.32	16.63	16.75	12.62	17.07	13.82	17.31	13.89	17.11	16.96	13.63
15.15	16.34	16.40	14.56	16.42	15.13	16.37	14.93	16.20	14.08	15.81	15.94	14.20	16.31	15.01	16.47	15.74	16.33	16.39	14.89
16.23	16.11	16.22	15.99	16.07	15.97	16.13	15.85	15.69	15.39	15.43	15.52	15.26	15.85	15.57	15.9	16.03	15.84	15.99	15.61
15.79	15.53	15.43	15.54	15.38	14.97	15.49	14.41	14.99	14.12	14.67	14.94	14.09	14.94	14.24	14.5	14.2		15.03	14.57
16.37	16.00	16.12	16.17	15.93	15.60	16.18	14.53	16.06	13.93	15.69	15.83	14.39	15.98	14.29	15.89	14.87	15.91	15.99	14.77
Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
05-Sep-00	25-May-01	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02	17-Jun-03	12-Sep-03	06-Jul-04	18-Sep-04	31-May-05	01-Jun-05	14-Sep-05	14-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	30-May-08	23-Jun-08	25-Sep-08
4.11	-0.74	-0.60	5.23	-0.93	4.08	-0.69	4.73	-0.42	5.61	-0.35	-0.49	5.12	-0.86	3.30	-1.14	3.20	-0.91	-0.74	3.58
1.45	-0.04	-0.11	2.23	-0.14	1.47	-0.08	1.73	0.13	2.90	0.61	0.45	2.73	0.00	1.63	-0.20	0.69	-0.03	-0.10	1.79
0.08	0.23	0.09	0.37	0.28	0.40	0.20	0.55	0.75	1.13	1.07	0.96	1.29	0.55	0.90	0.48	0.32	0.56	0.37	0.85
0.69	1.02	1.14	1.00	1.21	1.74	1.07	2.50	1.72	2.90	2.14	1.78	2.94	1.78	2.73	2.37	2.79		1.66	2.28
-0.05	0.40	0.25	0.19	0.49	0.90	0.18	2.30	0.33	3.14	0.79	0.61	2.49	0.43	2.63	0.54	1.84	0.51	0.41	1.98

DIVERSION CANAL DIKE
Geothermal Monitoring
CD-21



Diversion Canal Dike
Geothermal Monitoring
Long Term Monitoring for Nodes in CD-21



CDtherm_updated_2008.xls
CD-21 Depth chart

BGC Engineering Inc.

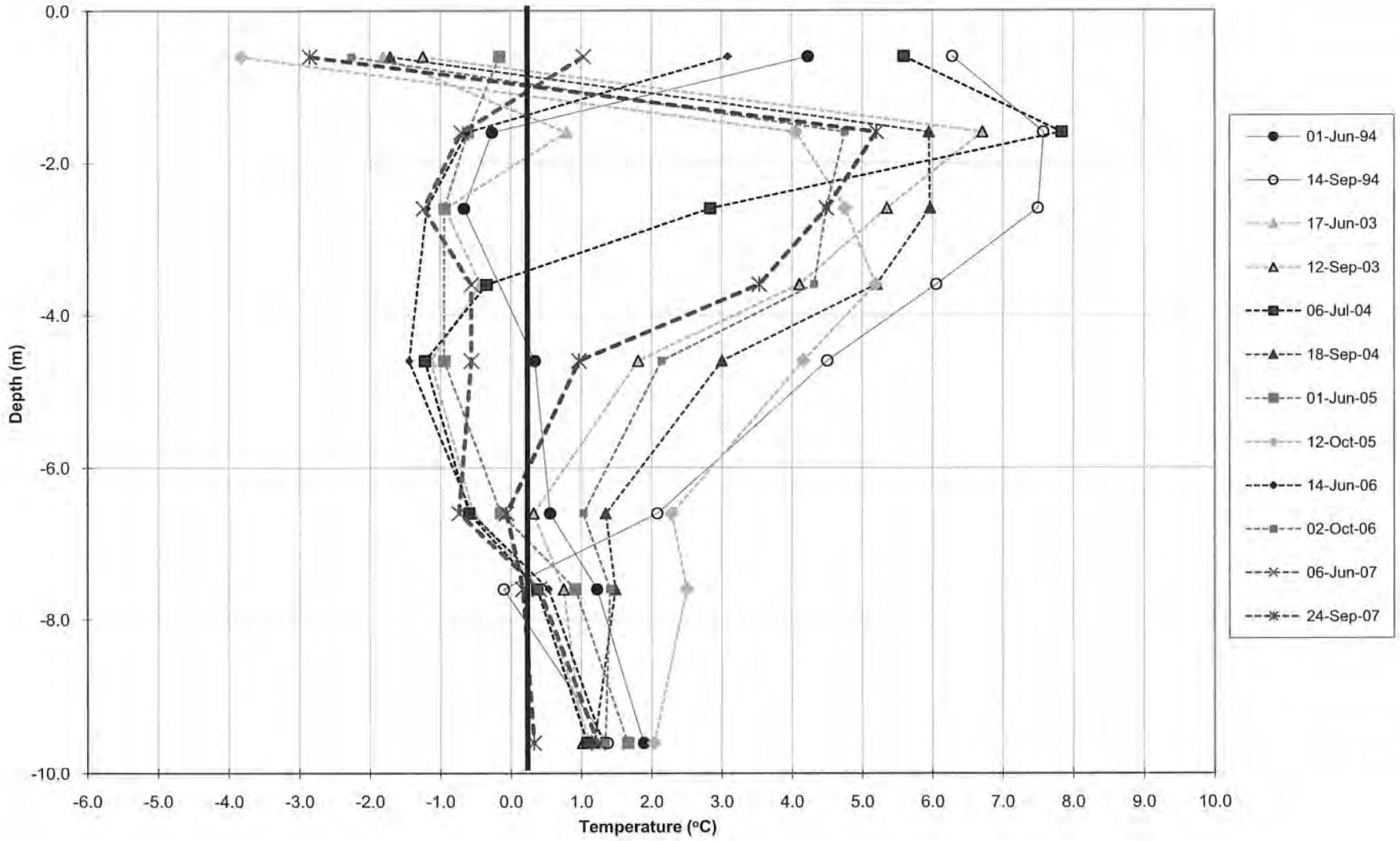
CD-26		Location:	Canal Dyke St.2+600	Elevation (m amsl):	1053.1			Coordinates:	1674.7 mN, 71.7 mE	8V580269 6913720
		Thermistor String #17	Date Installed:	1981	Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes
Depth Correction:	-0.4									

Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-81	01-Jun-94	14-Sep-94	21-Sep-95	13-Sep-96	14-Sep-99	13-Jun-02	12-Sep-02	17-Jun-03	12-Sep-03	06-Jul-04	18-Sep-04	01-Jun-05	12-Oct-05	14-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07
1.0	-0.6	22.70	13.14	11.87	11.54	11.98	11.51	14.85	15.64	17.85	17.34	12.28	17.76	16.40	19.62	13.91	18.27	15.43	18.84
2.0	-1.6	16.32	16.38	11.07	11.52	11.97	11.63	16.08	11.97	15.52	11.55	10.93	11.99	16.67	13.17	16.68	12.72	16.75	12.44
3.0	-2.6	16.20	16.76	11.14	12.01	12.77	12.40	17.06	12.99	16.99	12.38	14.03	12.01	17.00	12.75	17.22	12.92	17.26	12.92
4.0	-3.6	16.17		11.94	12.60	13.59	13.26	16.60	13.83	16.54	13.15	16.46	12.45		12.46		13.03	16.67	13.55
5.0	-4.6	16.24	15.88	12.88	13.36	14.58	14.38	16.99	15.33	17.13	14.74	17.20	13.88	16.96	13.10	17.40	14.53	16.67	15.42
6.0	-5.6	16.28	17.71	15.80	18.08	22.69	27.08	35.50	34.25	37.50	35.00	40.20	34.00	44.20	38.00		42.3	48.3	44.06
7.0	-6.6	16.43	15.73	14.56	14.73	15.61	15.69	16.51	16.23	16.63	15.92	16.68	15.11	16.30	14.41	16.65	15.37	16.82	16.25
8.0	-7.6	16.50	15.19	16.25	14.73	15.35	15.42	15.70	15.73	15.83	15.56	15.86	14.99	15.43	14.24	15.73	15.08	15.87	16.06
9.0	-8.6	16.46	15.33	15.60	15.38	15.80	16.10	16.90	17.17	17.38	17.43	17.99	17.62	18.31	18.06	19.84	19.38	19.85	20.78
10.0	-9.6	16.24	14.68	15.07	14.91	15.01	15.04	15.11	15.34	15.26	15.34	15.29	15.21	14.85	14.57	15.12	15.13	15.21	15.93

Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	01-Jun-94	14-Sep-94	21-Sep-95	13-Sep-96	14-Sep-99	13-Jun-02	12-Sep-02	17-Jun-03	12-Sep-03	06-Jul-04	18-Sep-04	01-Jun-05	12-Oct-05	14-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07
1.0	-0.6	-6.40	4.23	6.28	6.86	6.10	6.91	1.79	0.77	-1.81	-1.25	5.59	-1.71	-0.16	-3.82	3.09	-2.26	1.03	-2.85
2.0	-1.6	-0.20	-0.27	7.58	6.76	5.96	6.57	0.09	5.98	0.79	6.71	7.84	5.95	-0.61	4.05	-0.62	4.75	-0.70	5.20
3.0	-2.6	0.00	-0.67	7.50	5.97	4.72	5.32	-1.01	4.38	-0.93	5.35	2.84	5.97	-0.94	4.76	-1.19	4.49	-1.24	4.49
4.0	-3.6	0.00		6.05	4.96	3.45	3.94	-0.51	3.10	-0.44	4.10	-0.34	5.21		5.19		4.32	-0.56	3.53
5.0	-4.6	-0.10	0.34	4.50	3.77	2.02	2.30	-0.98	1.03	-1.14	1.81	-1.22	3.00	-0.95	4.16	-1.45	2.14	-0.56	0.97
6.0	-5.6	-0.10																	
7.0	-6.6	-0.30	0.56	2.08	1.85	0.71	0.61	-0.39	-0.06	-0.53	0.32	-0.59	1.35	-0.14	2.29	-0.56	1.03	-0.74	-0.06
8.0	-7.6	-0.40	1.22	-0.10	1.83	1.02	0.93	0.57	0.54	0.41	0.75	0.37	1.49	0.91	2.50	0.54	1.41	0.40	0.17
9.0	-8.6	-0.35																	
10.0	-9.6	-0.10	1.89	1.37	1.58	1.45	1.41	1.32	1.02	1.12	1.02	1.08	1.19	1.66	2.04	1.30	1.34	1.24	0.33

*Tips at 5.6 m and 8.6 depth are suspect

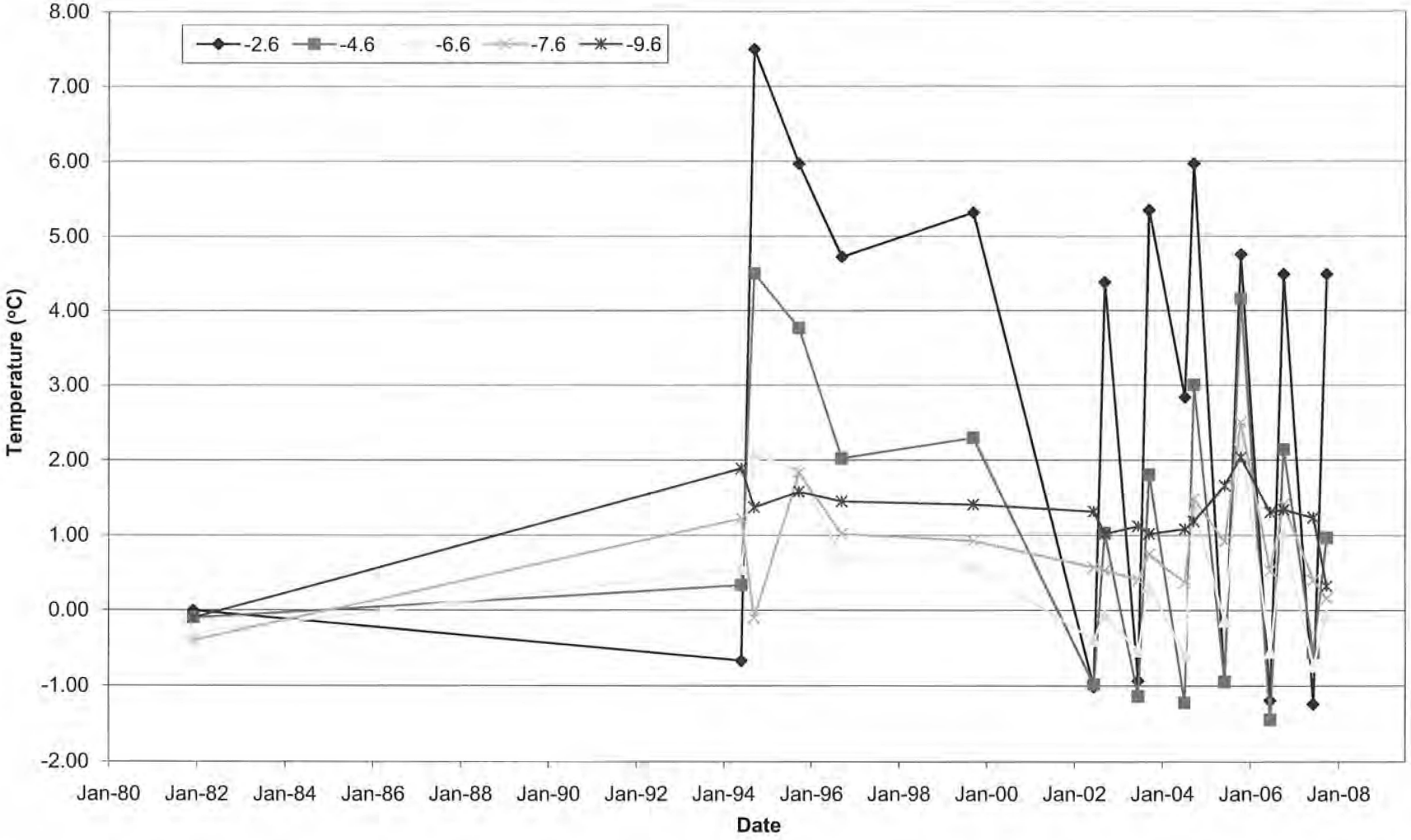
DIVERSION CANAL DIKE
Geothermal Monitoring
CD-26



CDtherm_updated_2008.xls
CD-26 chrt

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Diversion Canal Dike
Geothermal Monitoring
Long Term Monitoring for Nodes in CD-26

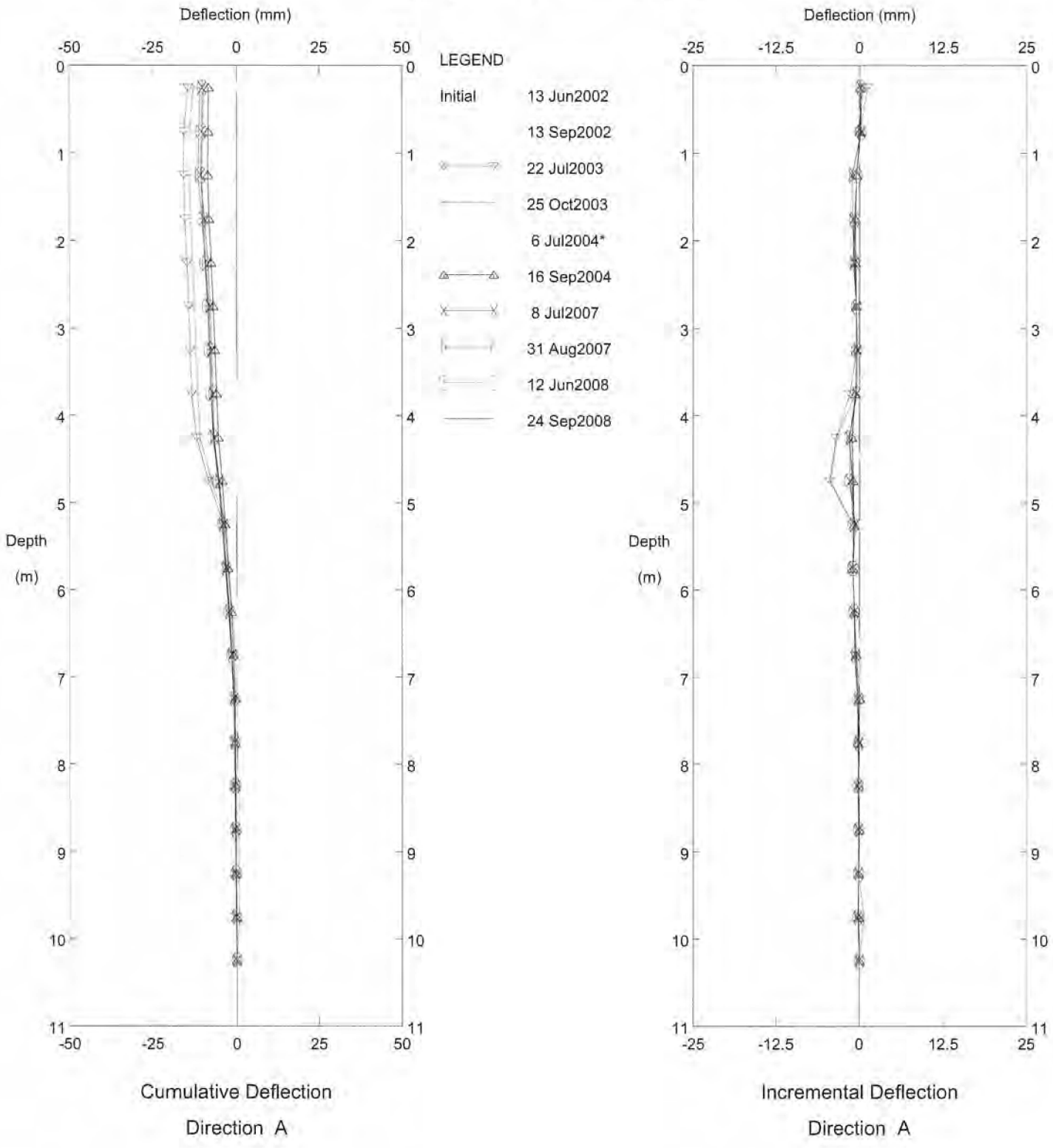


CDtherm_updated_2008.xls
CD-26 Depth chart

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SLOPE INDICATORS

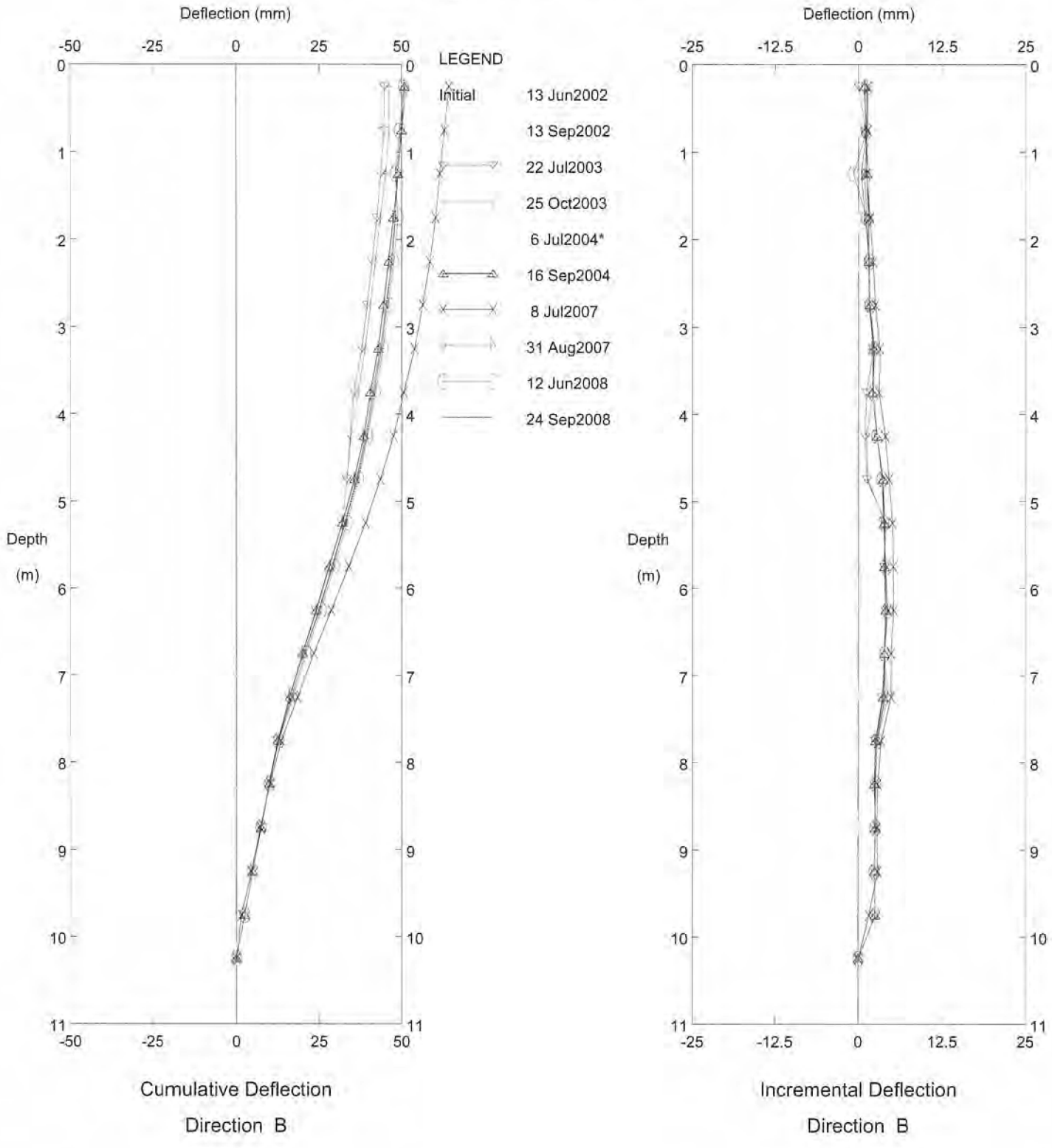
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CD-10, Inclinometer 0+990

Sets marked * include zero shift and/or rotation corrections.

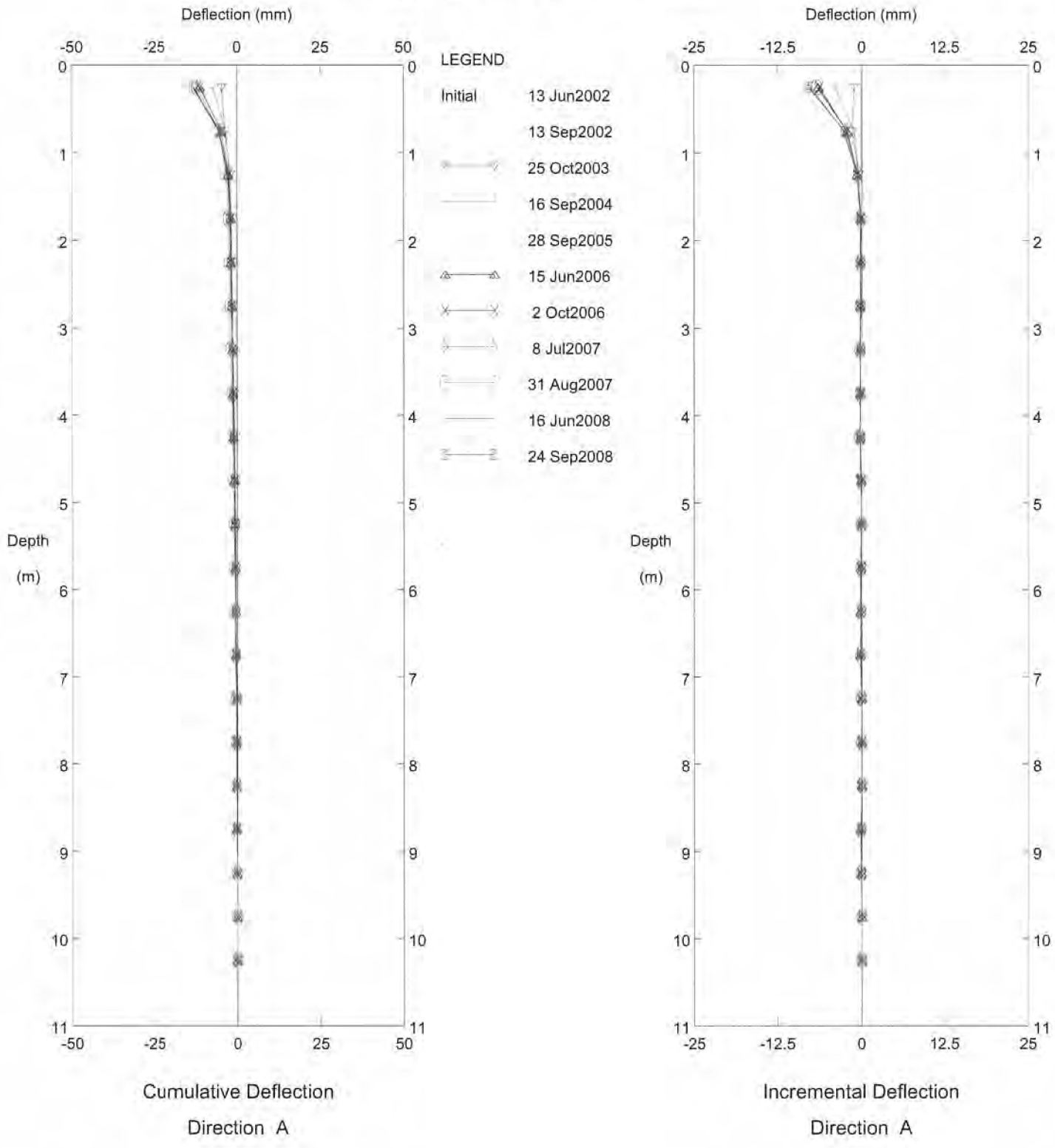
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CD-10, Inclinometer 0+990

Sets marked * include zero shift and/or rotation corrections.

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Cumulative Deflection

Direction A

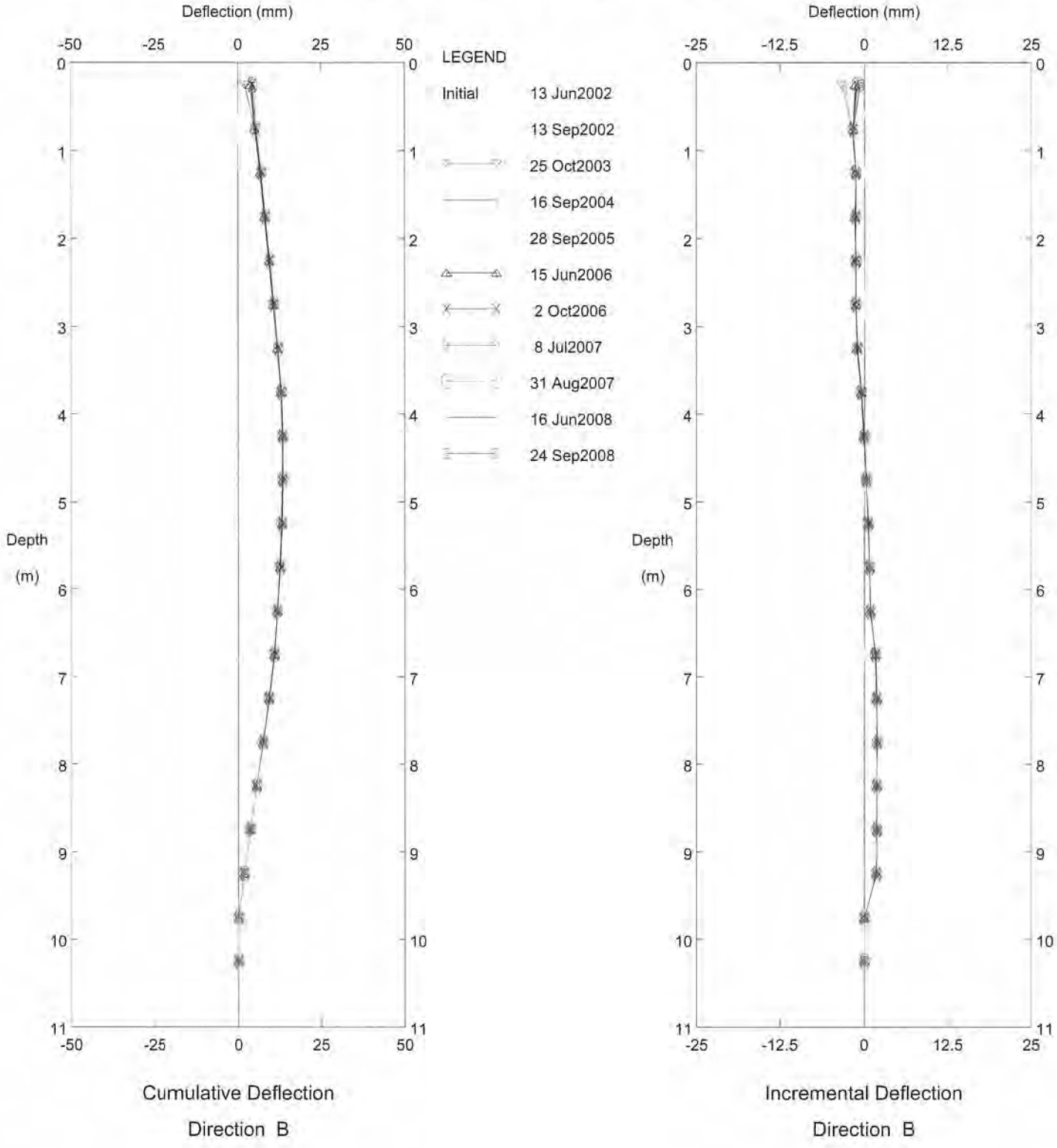
Incremental Deflection

Direction A

CD-15, Inclinometer 1+530

Sets marked * include zero shift and/or rotation corrections.

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Cumulative Deflection

Direction B

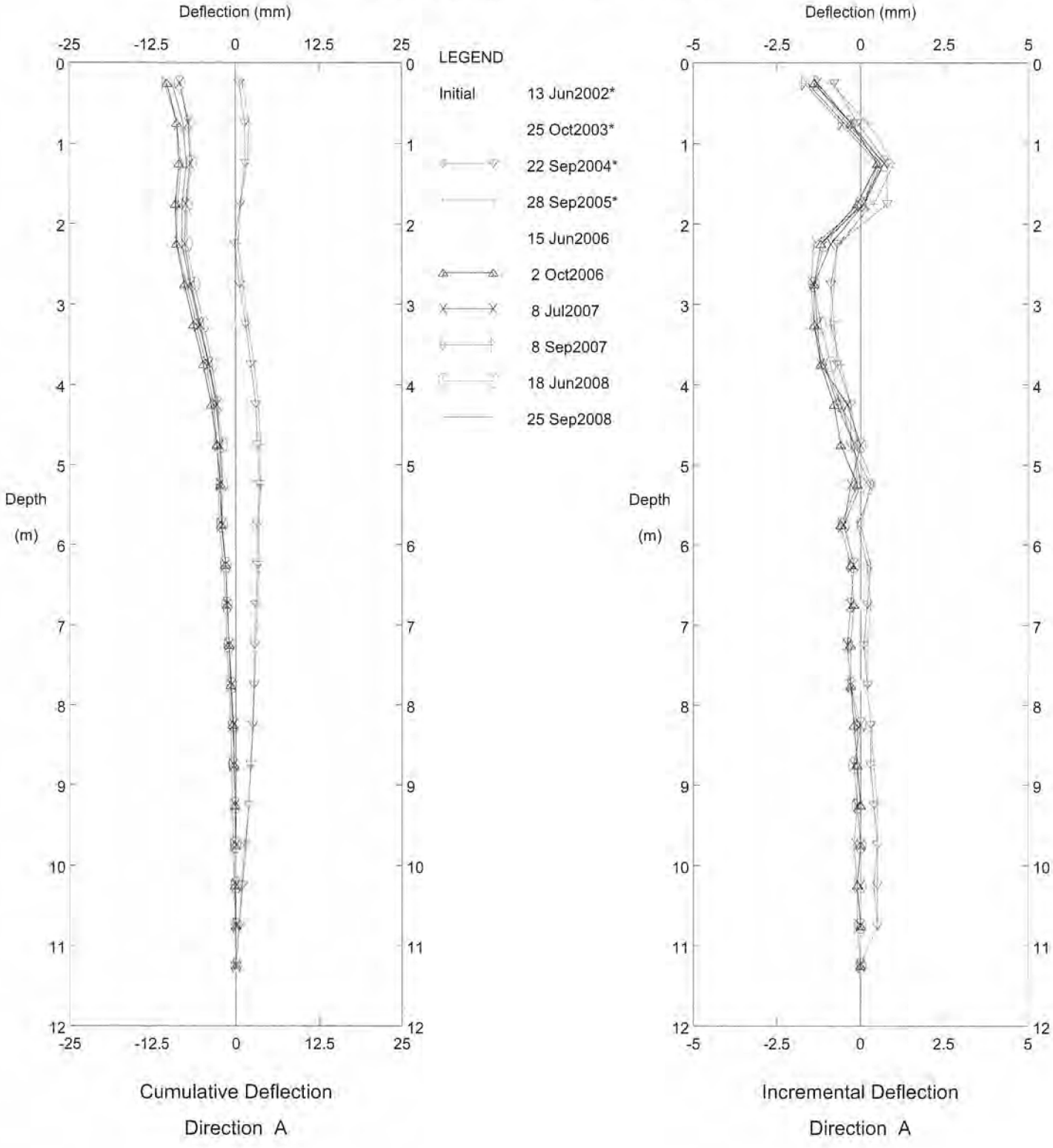
Incremental Deflection

Direction B

CD-15, Inclinometer 1+530

Sets marked * include zero shift and/or rotation corrections.

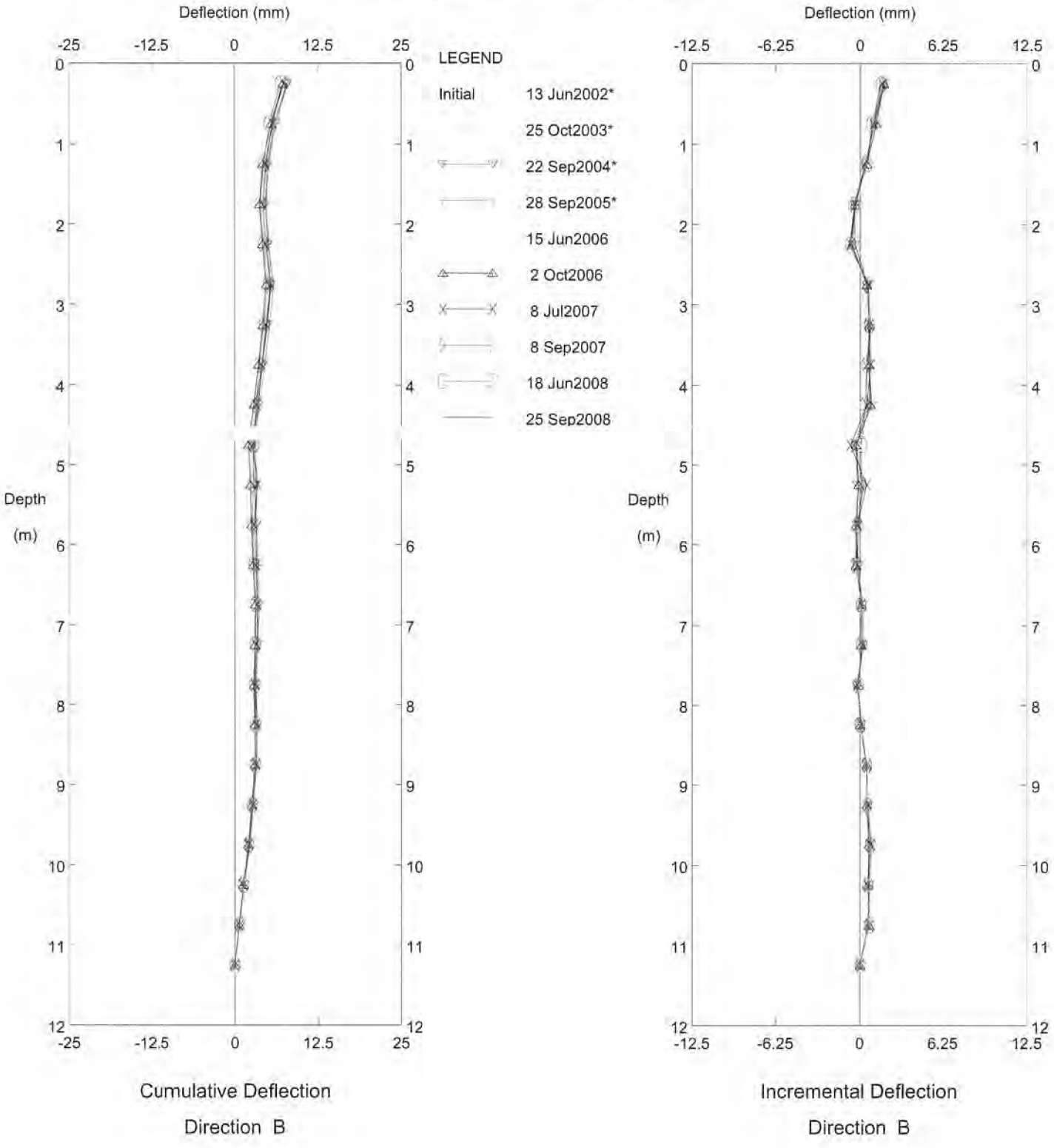
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91CD-1, Inclinometer 1+767

Sets marked * include zero shift and/or rotation corrections.

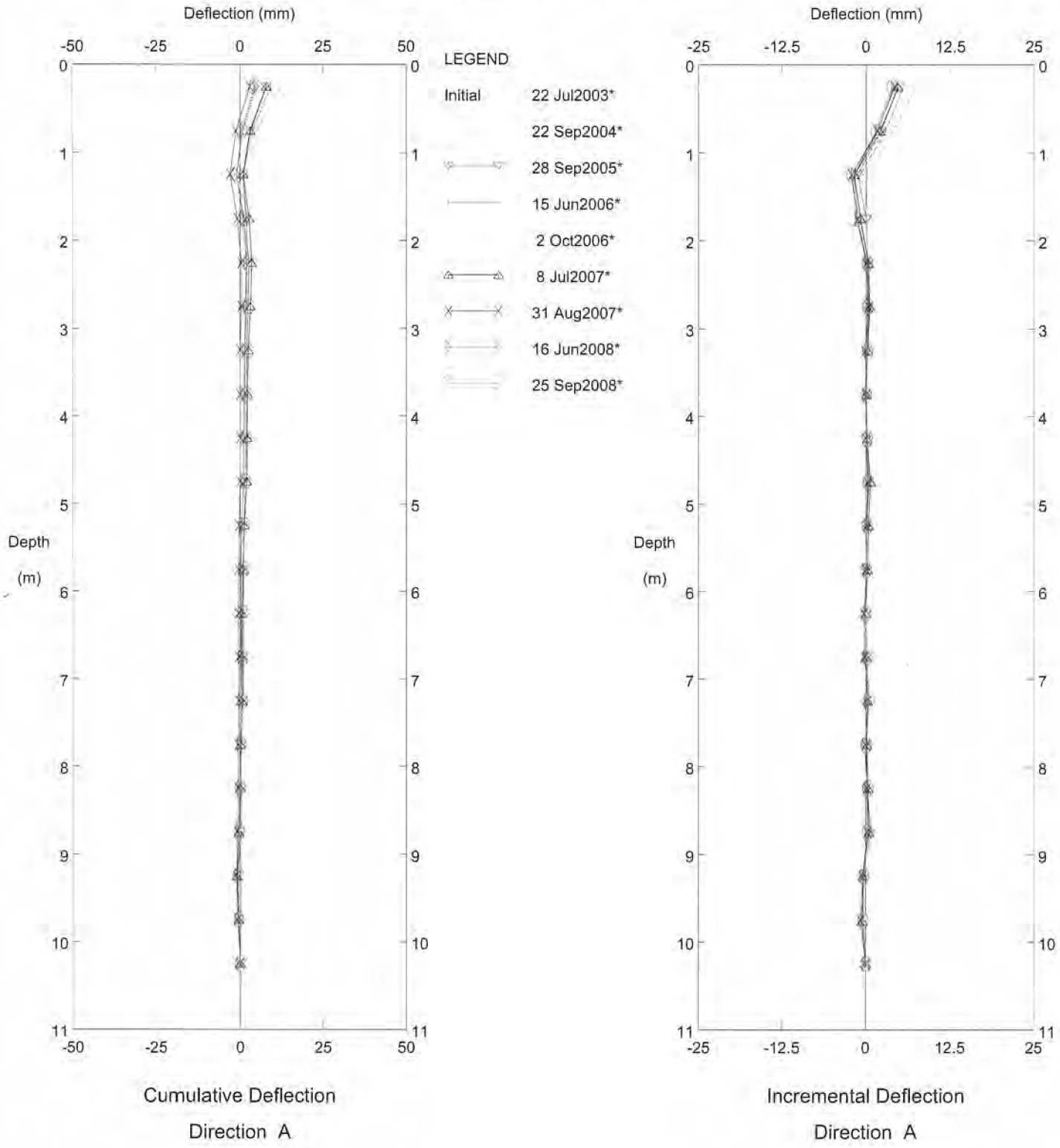
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91CD-1, Inclinometer 1+767

Sets marked * include zero shift and/or rotation corrections.

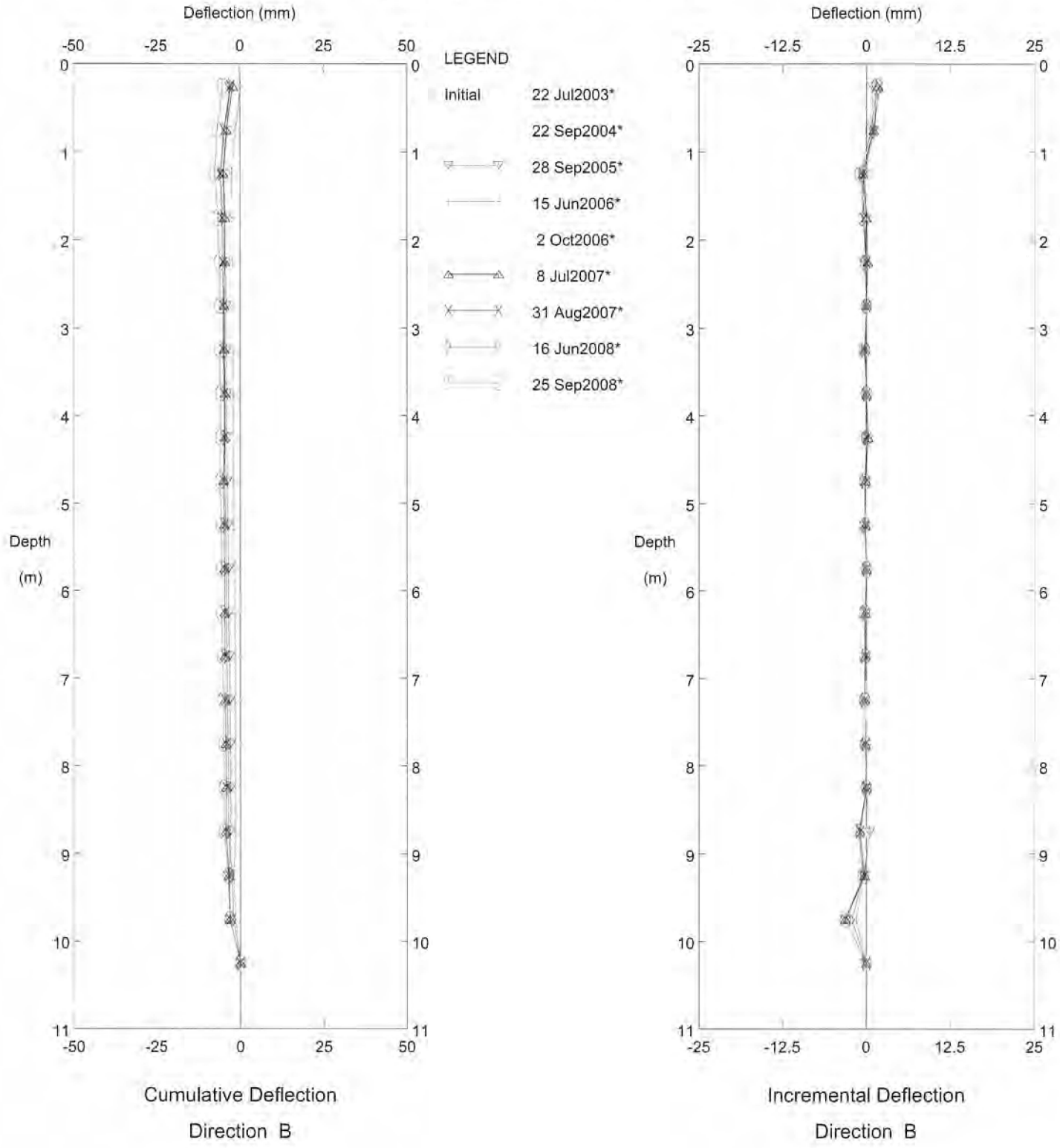
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CD-19, Inclinometer 1+900

Sets marked * include zero shift and/or rotation corrections.

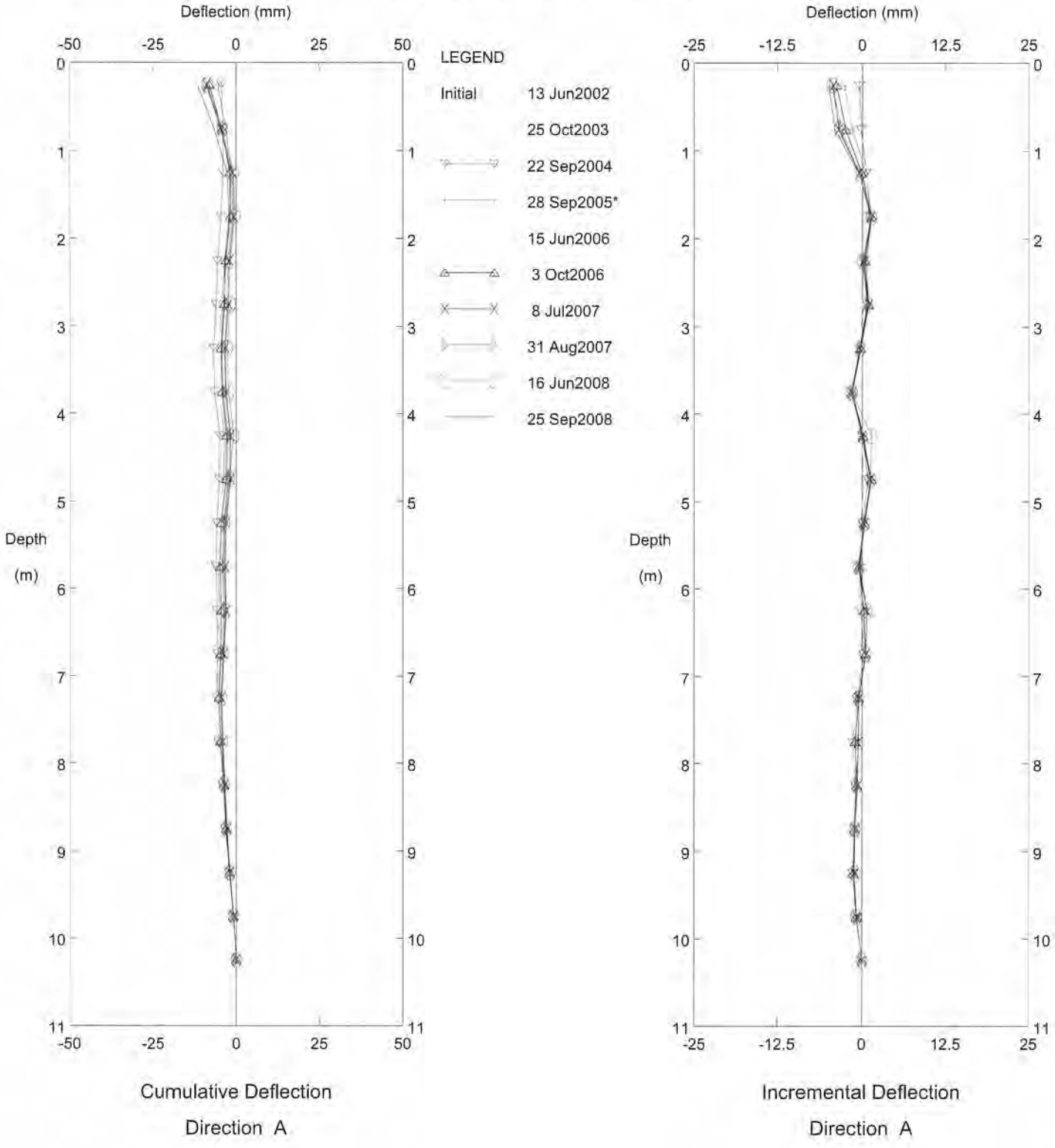
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CD-19, Inclinometer 1+900

Sets marked * include zero shift and/or rotation corrections.

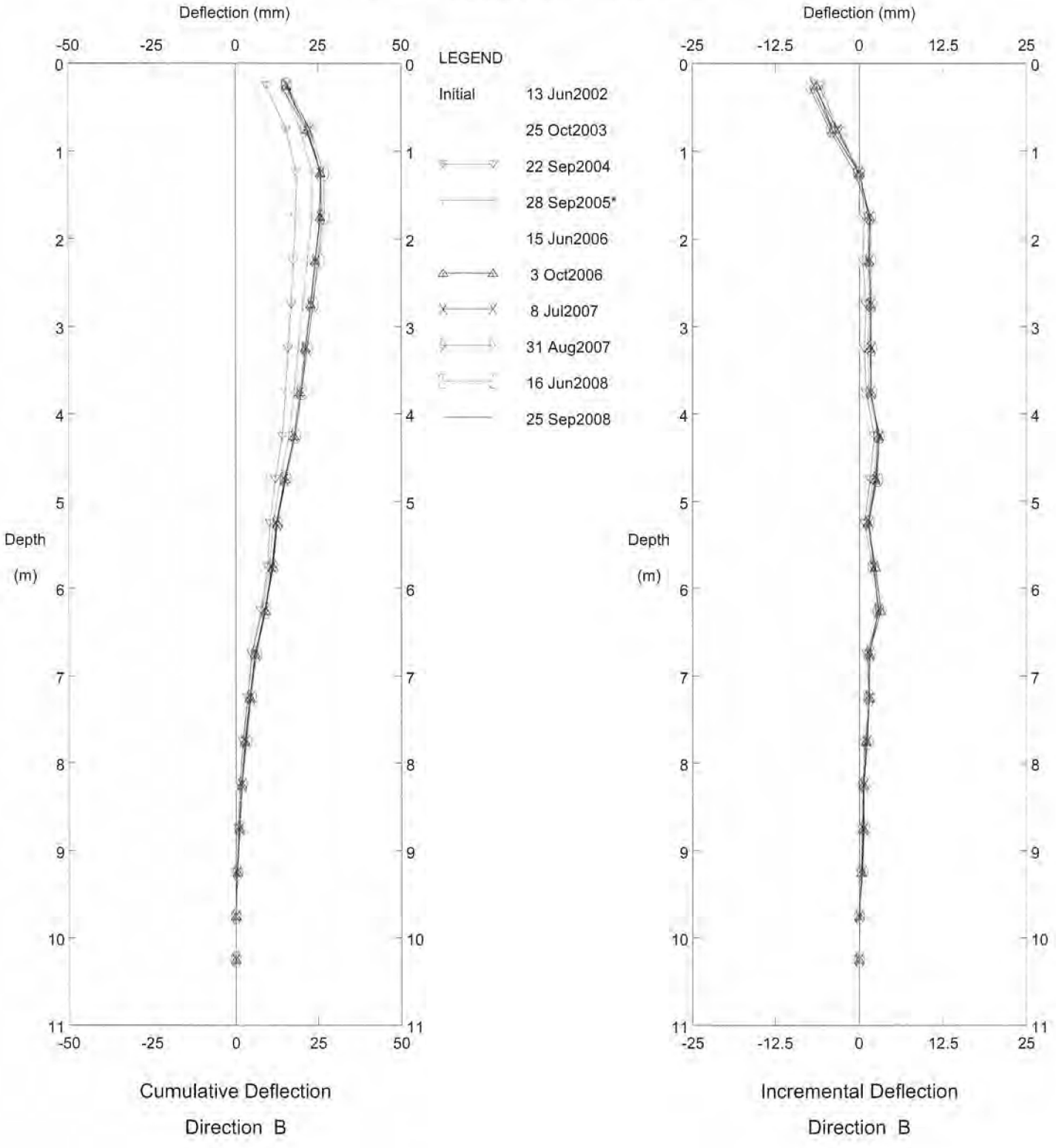
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CD-21, Inclinometer 2+100

Sets marked * include zero shift and/or rotation corrections.

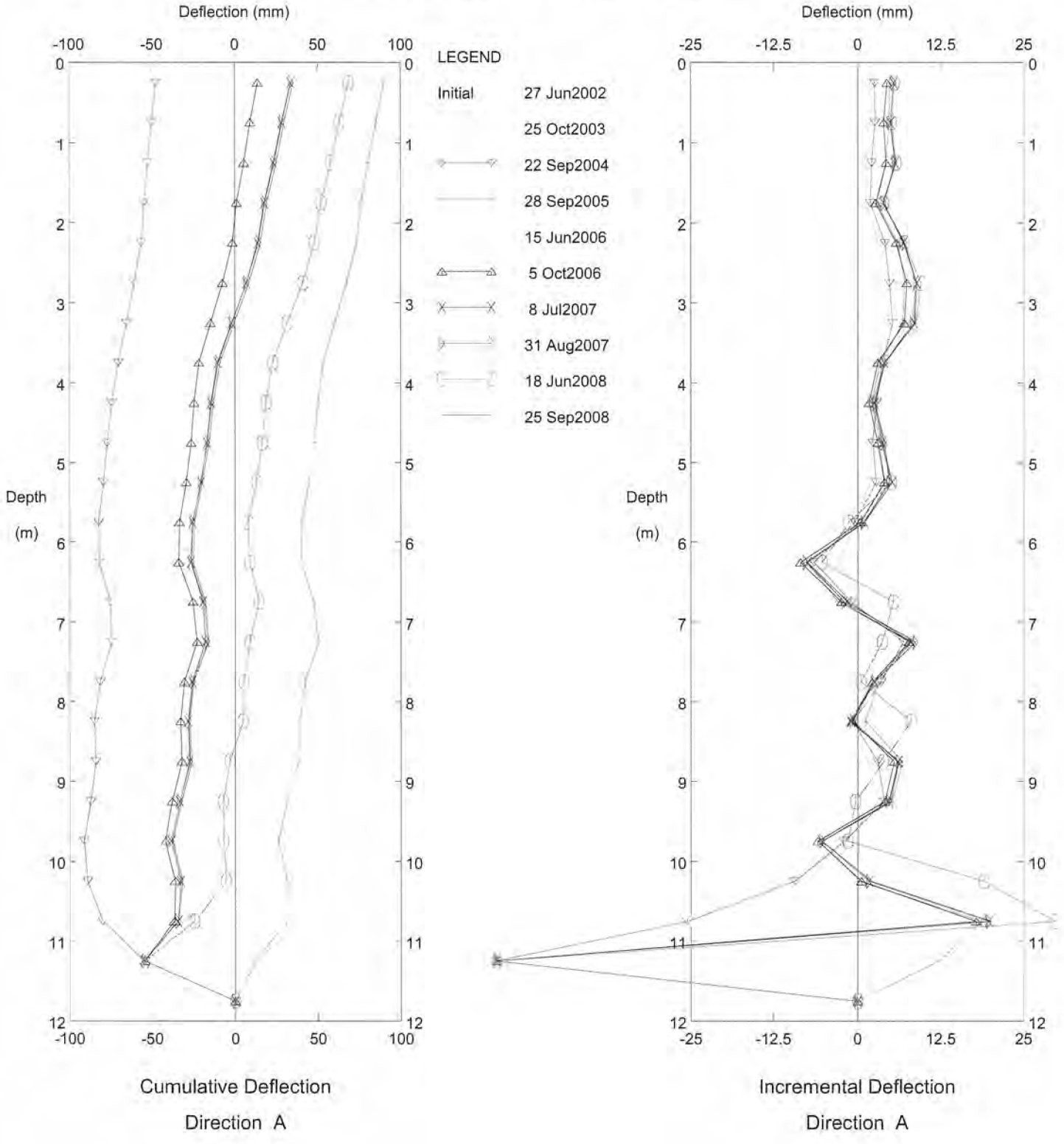
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CD-21, Inclinometer 2+100

Sets marked * include zero shift and/or rotation corrections.

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Cumulative Deflection

Direction A

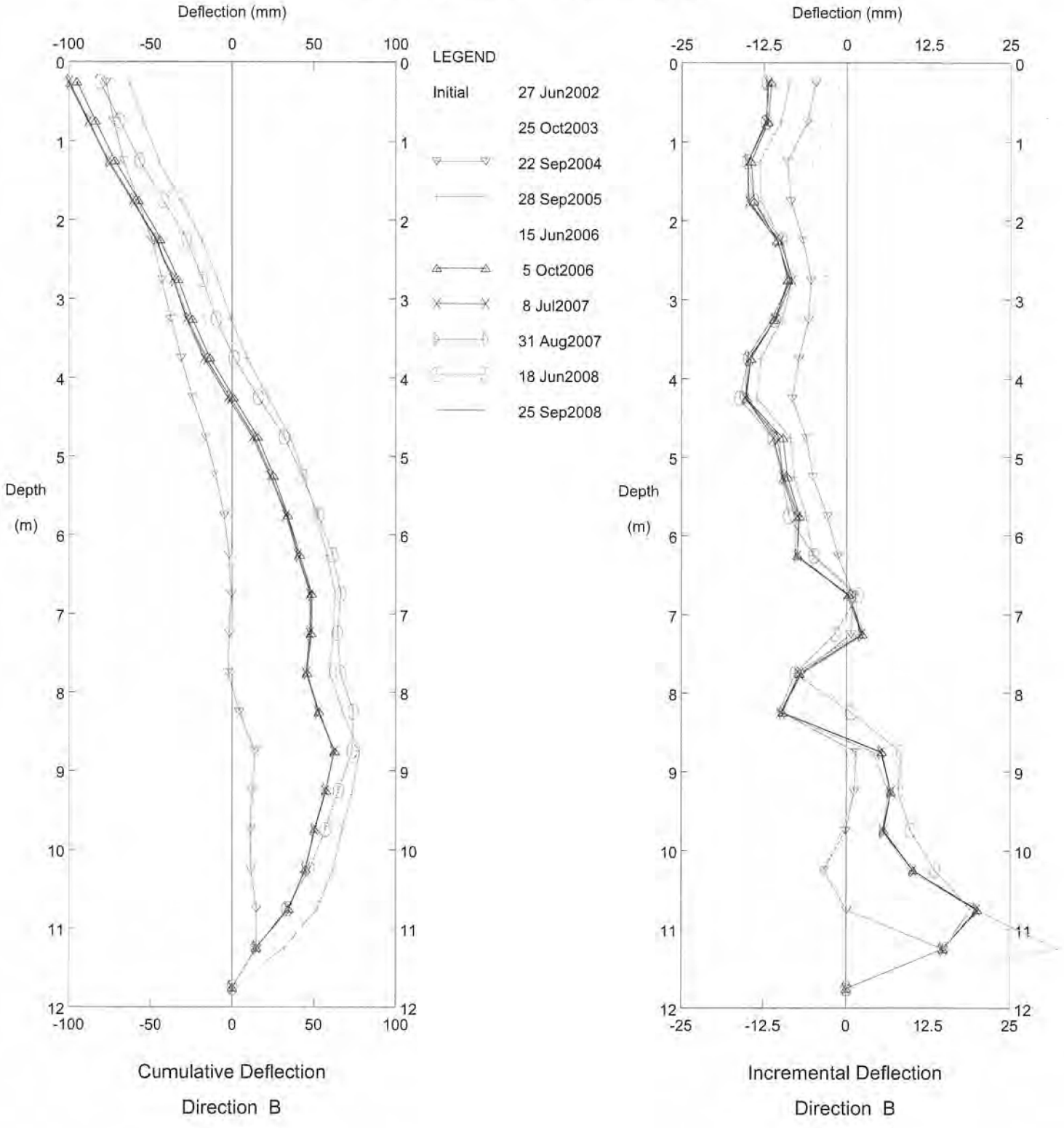
Incremental Deflection

Direction A

BGC01-01, Inclinometer BGC01-01

Sets marked * include zero shift and/or rotation corrections.

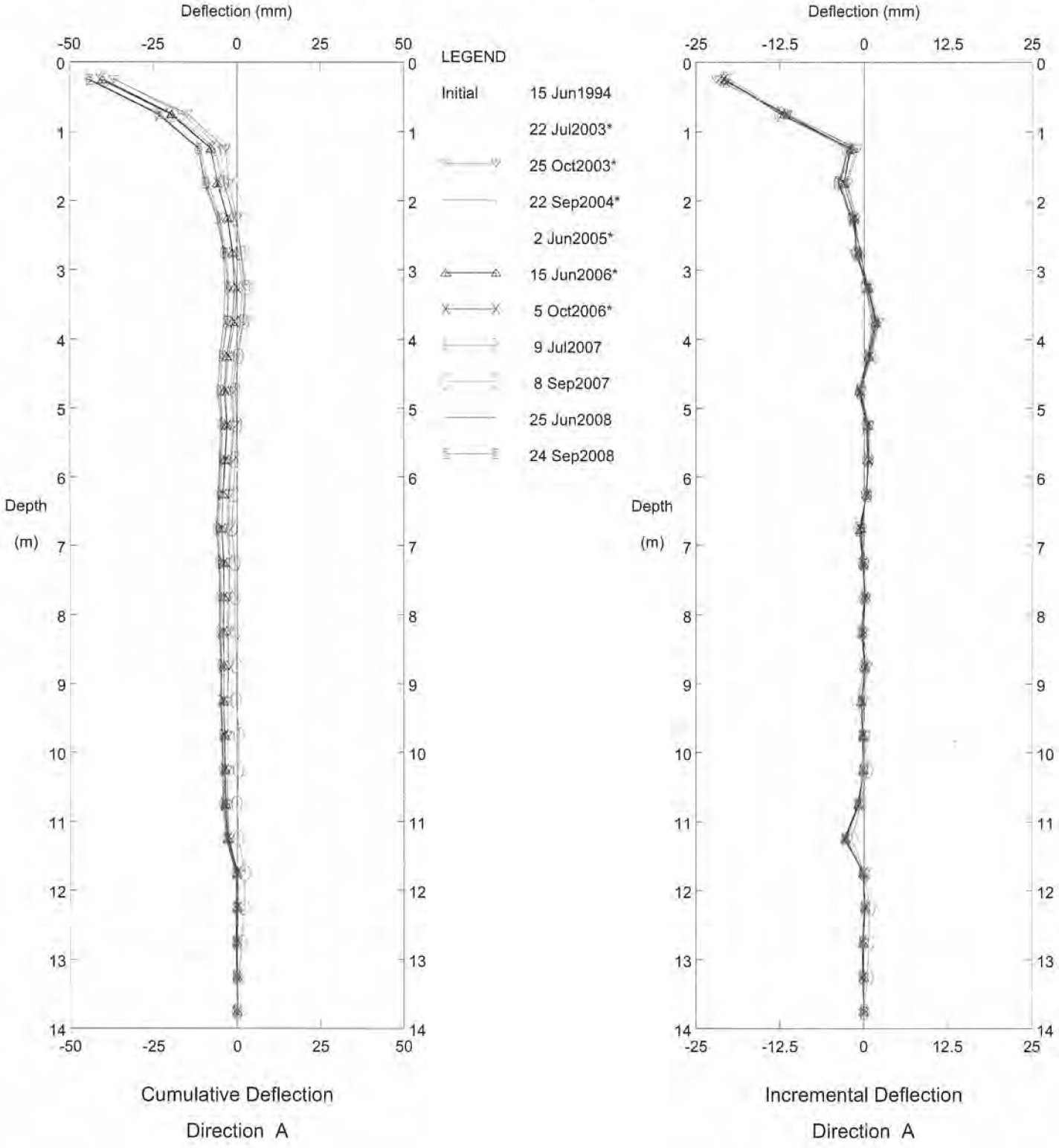
BGC Engineering Inc. - Vancouver, BC



BGC01-01, Inclinometer BGC01-01

Sets marked * include zero shift and/or rotation corrections.

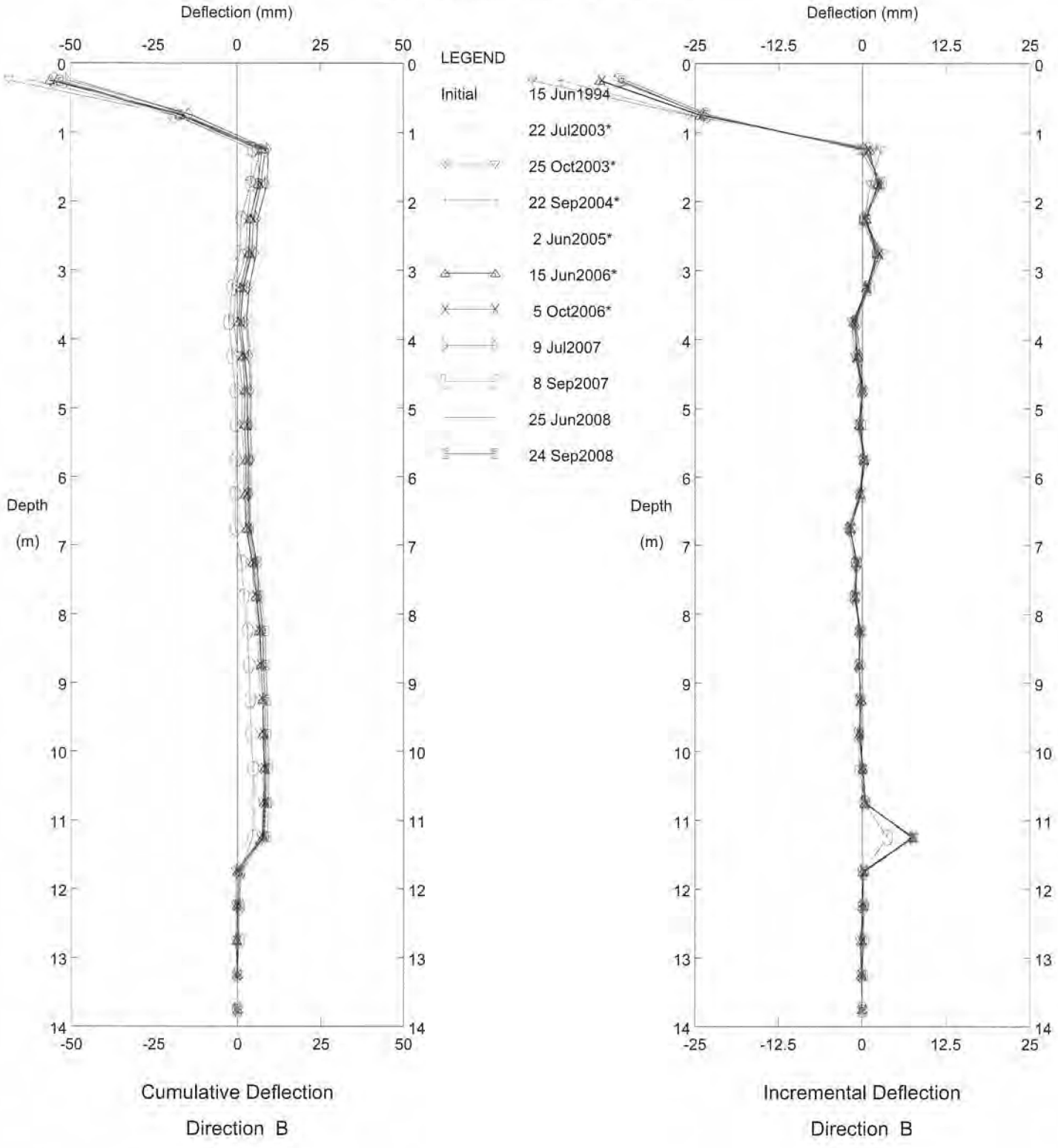
BGC Engineering Inc. - Vancouver, BC



94CD-1, Inclinometer BH-94CD-1

Sets marked * include zero shift and/or rotation corrections.

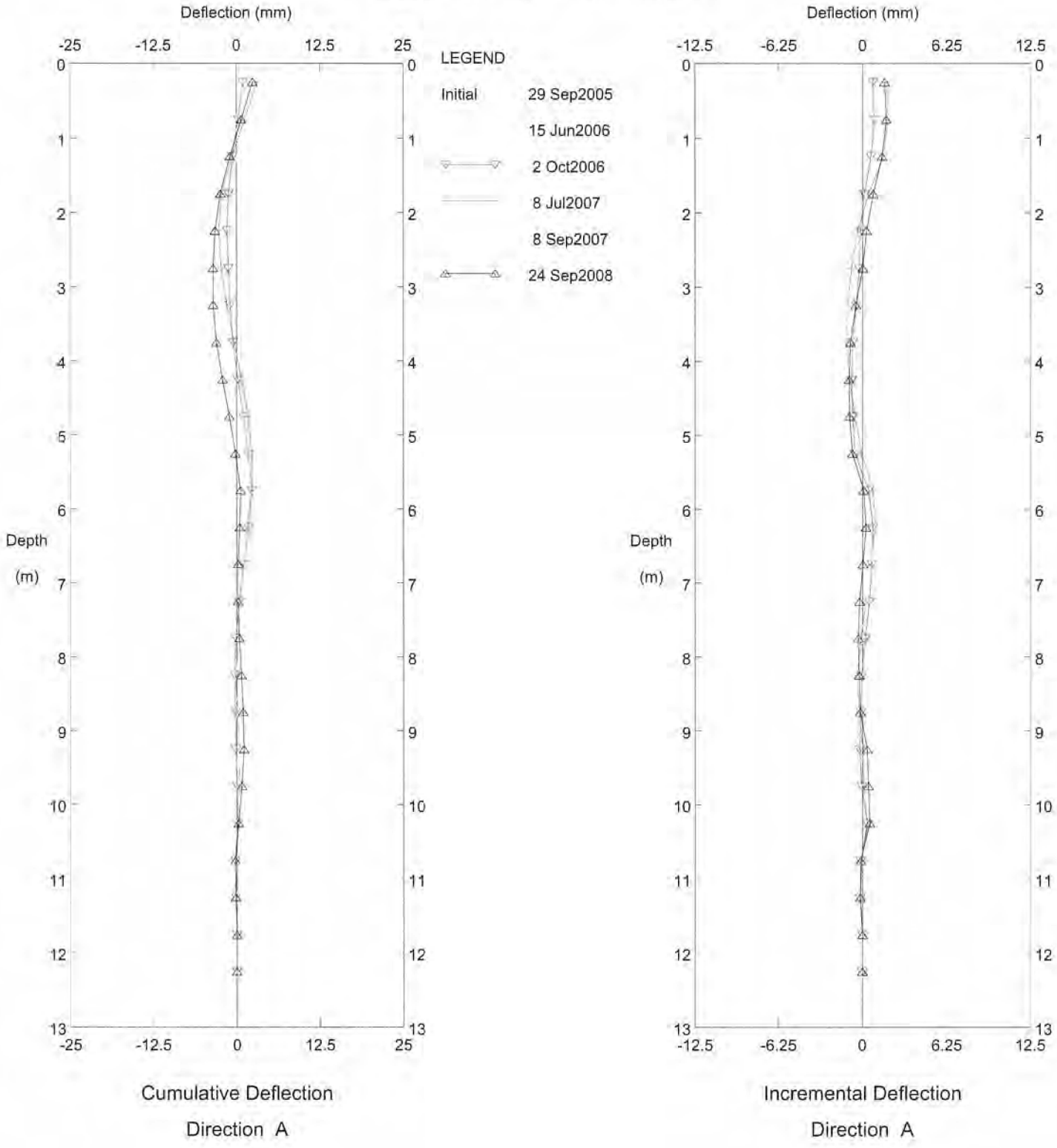
BGC Engineering Inc. - Vancouver, BC



94CD-1, Inclinometer BH-94CD-1

Sets marked * include zero shift and/or rotation corrections.

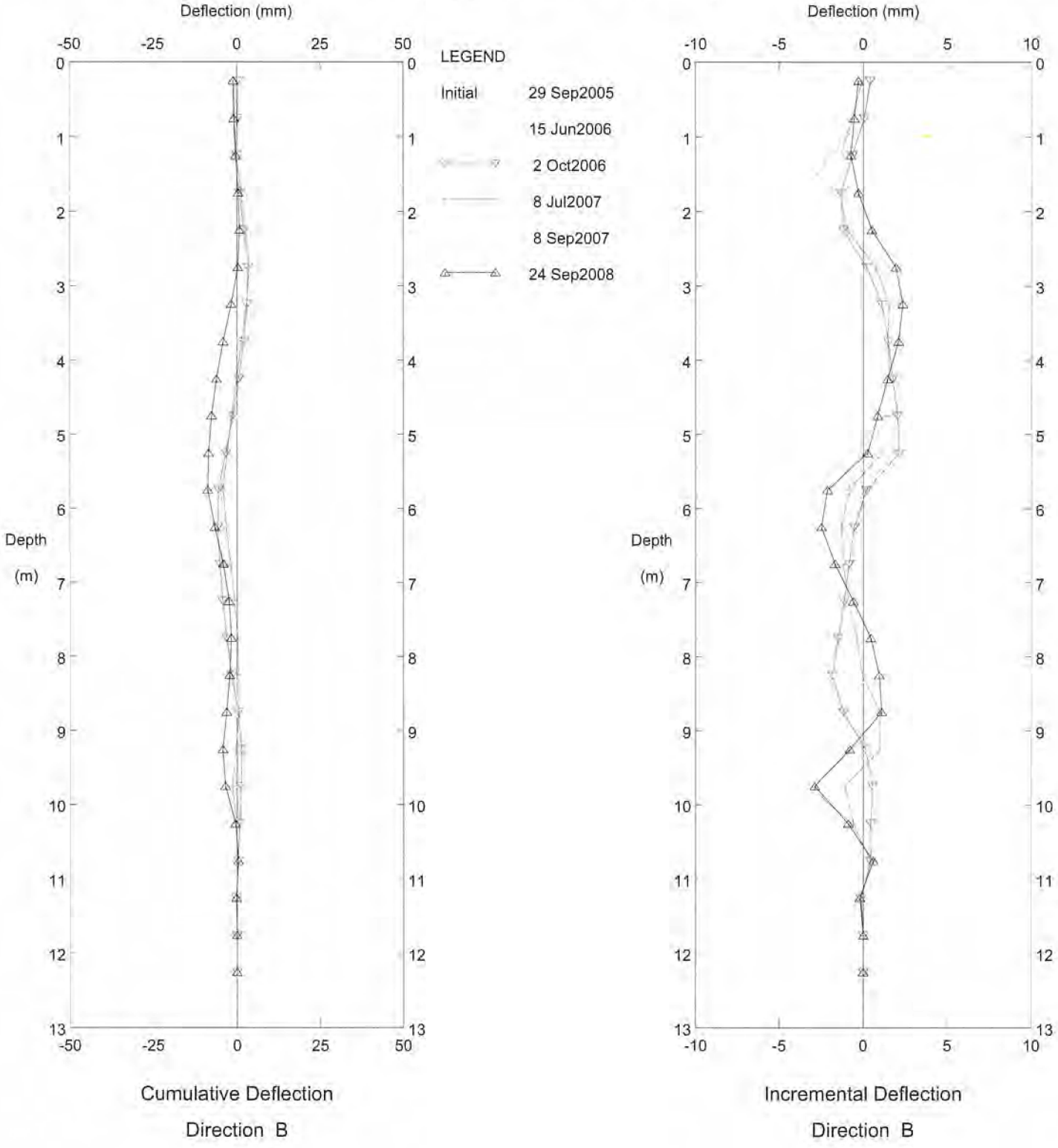
BGC Engineering Inc. - Vancouver, BC



Canal Dike, Inclinometer BGC05-05

Sets marked * include zero shift and/or rotation corrections.

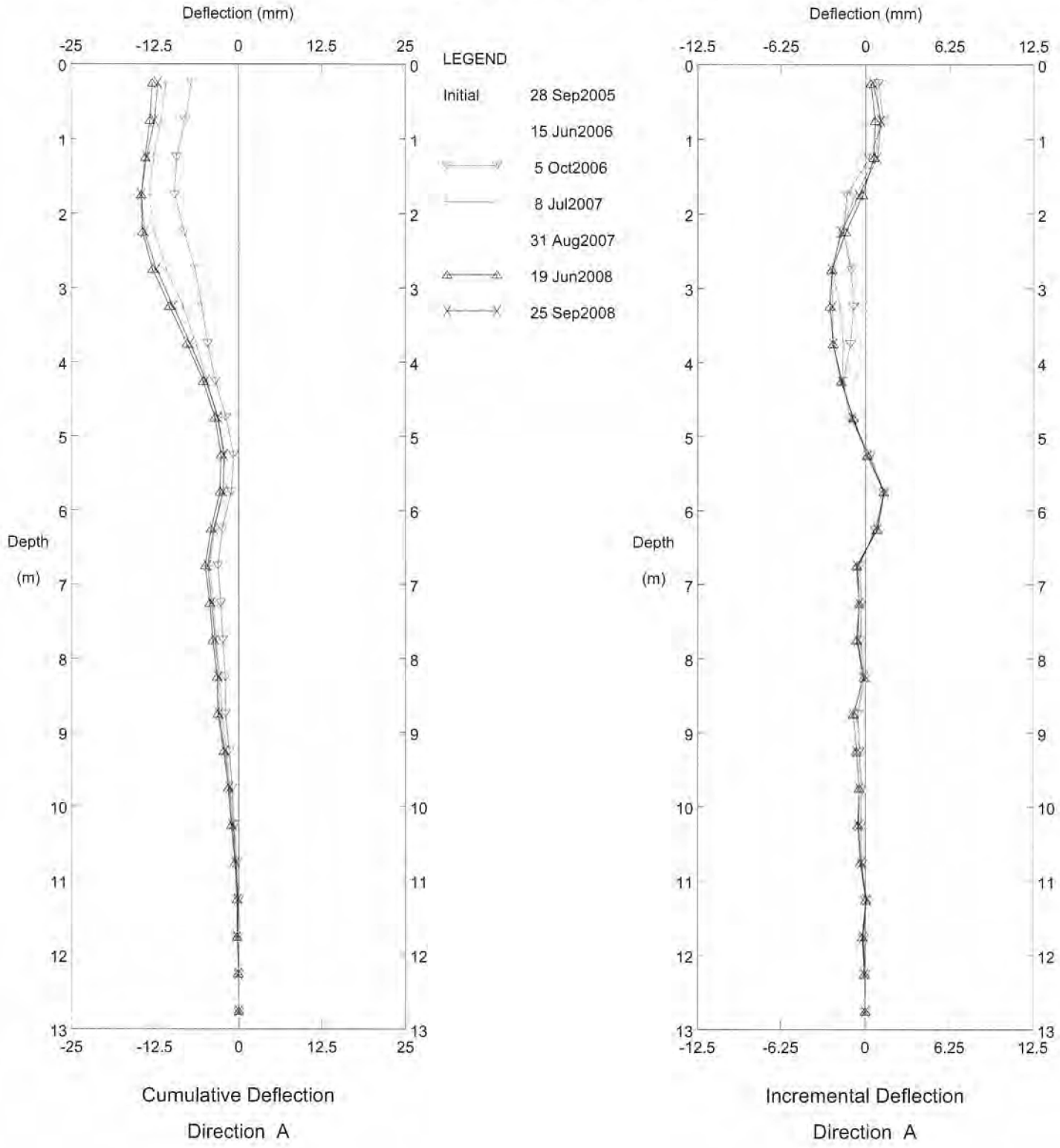
BGC Engineering Inc. - Vancouver, BC



Canal Dike, Inclinometer BGC05-05

Sets marked * include zero shift and/or rotation corrections.

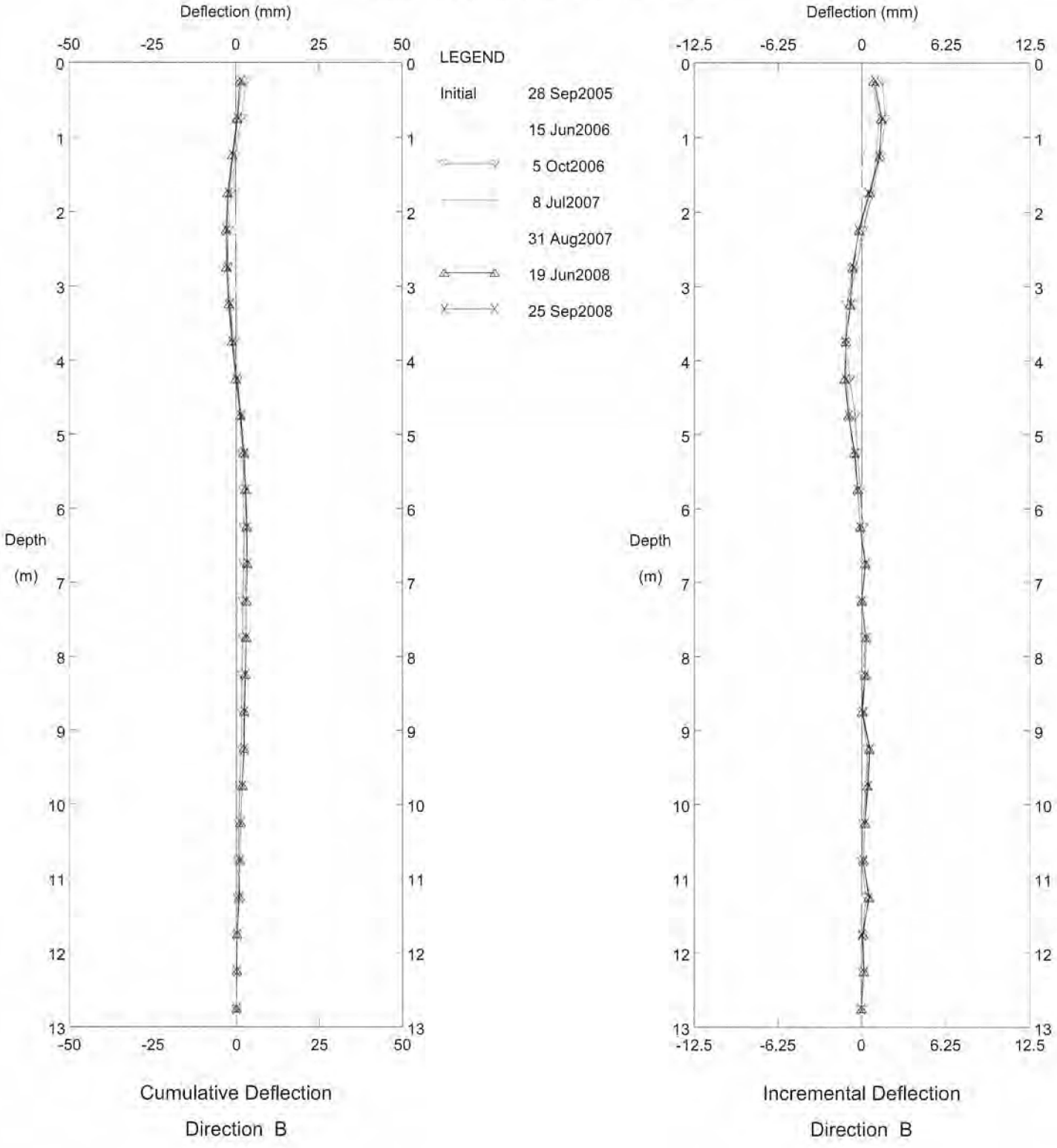
BGC Engineering Inc. - Vancouver, BC



Canal Dike, Inclinometer BGC05-08

Sets marked * include zero shift and/or rotation corrections.

BGC Engineering Inc. - Vancouver, BC



Canal Dike, Inclinometer BGC05-08

Sets marked * include zero shift and/or rotation corrections.

DIVERSION CANAL
SPOIL PILES

THERMISTORS

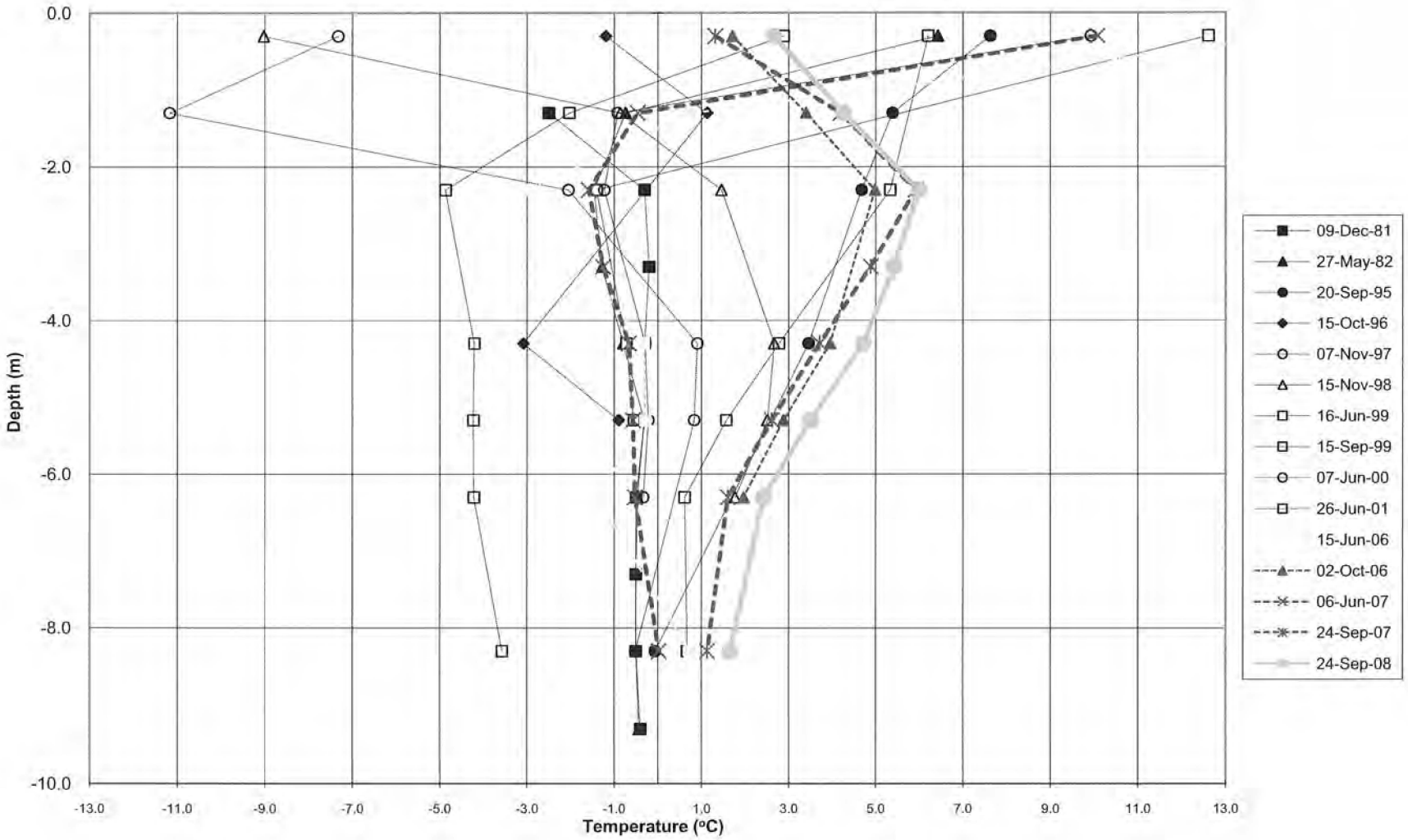
Faro Mine Instrumentation
Diversion Canal Spoil Pile

SP-2		Location:	N. of canal dyke SL1+530		Surface Elevation: (m advpd)	1093.1	Coordinates:	1274.1 mN & 1055.7 mE		
Thermistor String #21		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes
Depth Correction	0.3									

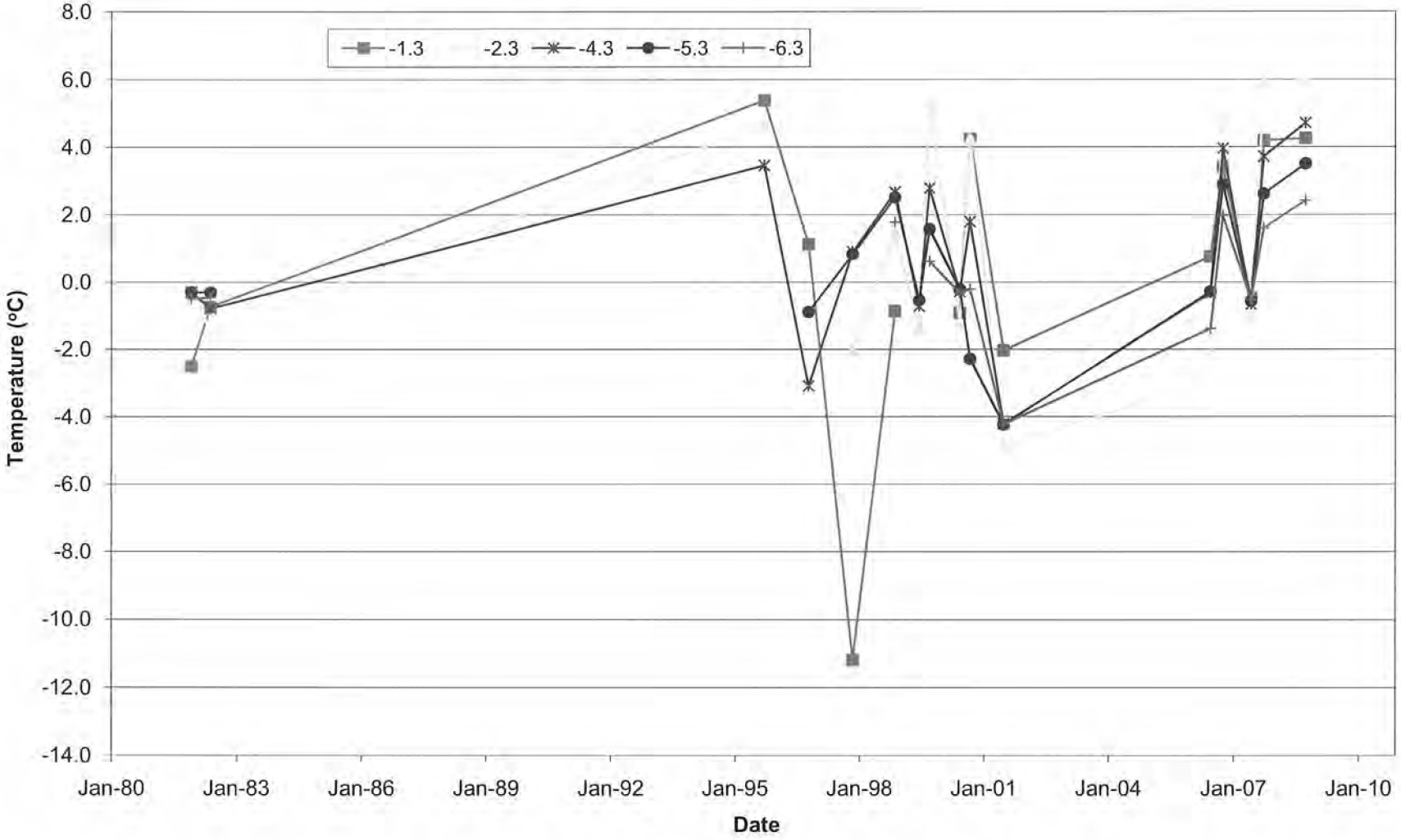
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-81	27-May-82	20-Sep-95	15-Oct-96	07-Nov-97	15-Nov-98	16-Jun-99	15-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	15-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	24-Sep-08
0.0	-0.3		11.74	11.07	17.22	23.75	26.03	8.71	11.87	9.90	13.19	14.00	7.89	14.85	9.83	15.15	14.16
1.0	-1.3	18.44	16.84	12.37	15.29	29.29	16.95			17.00	13.09	18.00	15.60	13.64	16.59	13.11	13.07
2.0	-2.3	16.45	17.46	12.80		18.00	15.04	17.41	12.39	17.25	13.08	20.85	18.86	12.61	17.57	12.04	12
3.0	-3.3	16.34	17.27						13.3				17.21	O/L	17.26	12.67	12.34
4.0	-4.3	16.45	16.87	13.60	18.99	15.47	14.15	16.81	14.07	16.44	14.79	20.14	16.47	13.27	16.76	13.43	12.78
5.0	-5.3	16.40	16.41		16.96	15.48	14.22	16.61	14.91	16.33	18.16	20.1	16.39	14	16.68	14.19	13.57
6.0	-6.3	16.60	16.57				14.79		15.68	16.46	16.36	20.13	17.38	14.66	16.64	14.93	14.33
7.0	-7.3	16.62	16.62										19.90	O/L	too niosy	too niosy	
8.0	-8.3	16.62	16.62	16.25		16.63	14.85		15.65		16.07	19.48	15.60	to niosy	16.18	15.29	14.89
9.0	-9.3	16.50	16.53											85.1	86.4	85.7	

Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	27-May-82	20-Sep-95	15-Oct-96	07-Nov-97	15-Nov-98	16-Jun-99	15-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	15-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	24-Sep-08
0.0	-0.3		6.43	7.63	-1.19	-7.32	-9.03	12.61	6.20	9.93	4.07	2.88	14.70	1.71	10.08	1.32	2.66
1.0	-1.3	-2.50	-0.74	5.39	1.13	-11.17	-0.87			-0.92	4.25	-2.03	0.76	3.40	-0.47	4.20	4.26
2.0	-2.3	-0.30	-1.46	4.68		-2.05	1.46	-1.41	5.33	-1.23	4.24	-4.87	-2.95	4.98	-1.58	5.91	5.98
3.0	-3.3	-0.20	-1.28												-1.26	4.88	5.42
4.0	-4.3	-0.30	-0.79	3.46	-3.08	0.90	2.67	-0.72	2.78	-0.29	1.79	-4.21	-0.33	3.95	-0.67	3.71	4.71
5.0	-5.3	-0.30	-0.31		-0.90	0.83	2.51	-0.55	1.57	-0.22	-2.28	-4.23	-0.29	2.88	-0.57	2.61	3.50
6.0	-6.3	-0.50	-0.46				1.77		0.62	-0.33	-0.21	-4.22	-1.39	1.97	-0.53	1.60	2.42
7.0	-7.3	-0.50	-0.50														
8.0	-8.3	-0.50	-0.50	-0.06		-0.51			0.68		0.14	-3.57	0.74		0.02	1.13	1.66
9.0	-9.3	-0.40	-0.44														

THERMISTOR SP-2
(installed 1981)



Diversion Canal Spoil Pile
Geothermal Monitoring
Long Term Monitoring for Nodes in SP-2



SPtherm_updated_2008.xls
SP-2 Depth chart

Faro Mine Instrumentation
Diversion Canal Spoil Pile

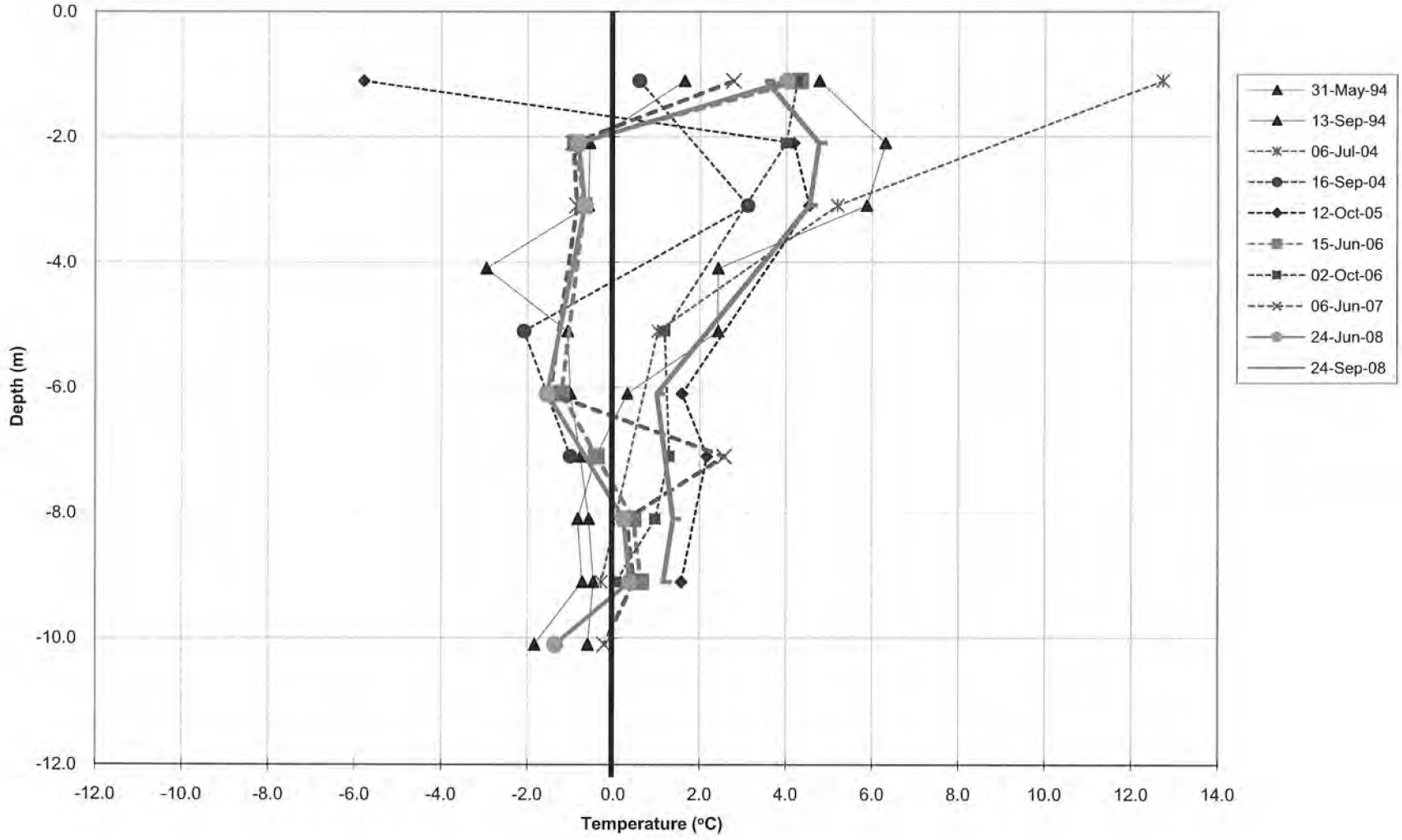
SP-3		Location:	N. of canal dyke Sl.1+900		Surface Elevation (m amsl):	1051.2	Coordinates:	1394.4 m N & 704.5 m E				
		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied			Surface Protector:	yes
Thermistor String#25		Depth Correction	0.1									

Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-81	31-May-84	13-Sep-84	20-Sep-95	15-Oct-96	06-Nov-97	15-Nov-98	15-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02	06-Jul-04	16-Sep-04	12-Oct-05	15-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	24-Jun-08	24-Sep-08			
1.0	-1.1	16.85	14.88	12.72	12.60	17.37	16.59	17.30	12.15		12.38	13.69	12.31	10.81	12.41	8.65	15.69	21.86	13.01	13.05	14.05	13.73	13.21	13.53		
2.0	-2.1	16.20	16.67	11.81	12.29	15.90	14.88	14.95	12.18	16.73	12.06	14.76	11.81		12.21			13.10	16.93	13.22	16.98		16.87	12.73		
3.0	-3.1	16.25	16.66	12.04	12.52	15.59	14.43	14.48	12.38	16.48				17.41	11.78	12.46	13.82	12.87	16.76	62.5	16.90		16.74	12.87		
4.0	-4.1	16.27	16.85	14.32	15.13	16.19	16.09	29.54	nr	nr								53.40	68.30	340.9	92.70		107.30			
5.0	-5.1	16.27	17.10	14.32	14.82	15.10	15.06	15.20	15.11	16.93	16.23	23.65	18.05		13.12	15.35	18.00	144.00	300.40	15.23	1.90		2.30			
6.0	-6.1	16.39	16.99	15.88	15.31	15.23	14.90	14.80	14.96		14.73	19.10	14.50		13.97	25.52	25.10	14.92	17.21	10.12	17.45		17.51	15.37		
7.0	-7.1	16.49	16.81	16.50	16.33	16.04	15.52	15.01	15.49		15.27		14.87		14.71		17.03	14.48	16.51	15.15	14.20					
8.0	-8.1	16.54	16.69	16.91	16.80	16.73	16.27	15.39	15.78			18.79	18.79						15.80	15.4	15.93		15.99	15.08		
9.0	-9.1	16.54	16.60	16.82	16.71	16.70	16.77	15.80	16.01	15.78	15.38	18.50	15.34		15.04	16.41		14.93	15.66	16.13	15.79		15.87	15.25		
10.0	-10.1	16.48	16.65	17.74	16.77	16.77	16.75	16.68	16.38		15.64					85.10					16.35		17.34	16.95		

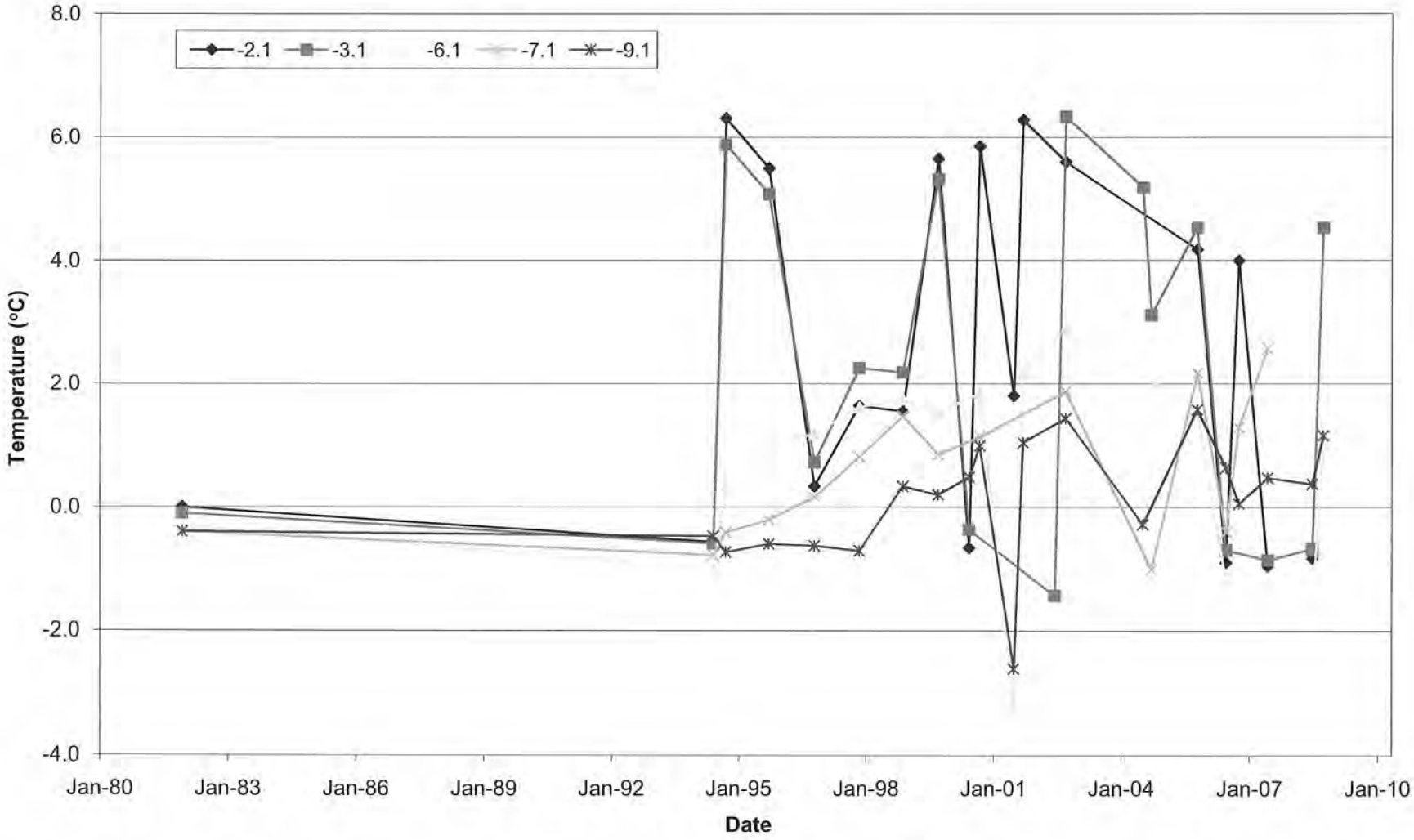
* The initial reading (Nov 15/81) is excluded from the data set because post-installation equilibrium may not have been complete.

Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	31-May-84	13-Sep-84	20-Sep-95	15-Oct-96	06-Nov-97	15-Nov-98	15-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02	06-Jul-04	16-Sep-04	12-Oct-05	15-Jun-06	02-Oct-06	06-Jun-07	24-Sep-07	24-Jun-08	24-Sep-08			
1.0	-1.1	-0.80	1.64	4.77	4.96	-1.39	-0.50	-1.31	5.70		5.32	3.30	5.44	8.08	5.27	12.72	0.60	-5.80	4.32	4.26	2.78	3.24	4.01	3.53		
2.0	-2.1	0.00	-0.56	6.31	5.50	0.33	1.64	1.55	5.65	-0.66	5.85	1.80	6.28		5.60			4.16	-0.89	4.00	-0.95		-0.82	4.76		
3.0	-3.1	-0.10	-0.59	5.87	5.08	0.72	2.25	2.18	5.32	-0.37				-1.44	6.33	5.19	3.11	4.54	-0.70		-0.86		-0.67	4.54		
4.0	-4.1	-0.10	-2.95	2.42	1.33	-0.02	-2.16																			
5.0	-5.1	-0.10	-1.07	2.42	1.74	1.35	1.40	1.22	1.34	-3.05	-0.07	-7.28	-2.14		4.15	1.03	-2.08			1.18						
6.0	-6.1	-0.30	-1.00	0.32	1.04	1.18	1.61	1.75	1.54		1.84	-3.23	-2.15		2.89			1.59	-1.21		-1.48		-1.55	1.60		
7.0	-7.1	-0.40	-0.77	-0.41	-0.21	0.16	0.81	1.47	0.85		1.13				1.87		-1.01	2.17	-0.40	1.29	2.57					
8.0	-8.1	-0.40	-0.57	-0.83	-0.70	-0.66	-0.12	0.98	0.48										0.46	0.96	0.30		0.22	1.38		
9.0	-9.1	-0.40	-0.47	-0.73	-0.60	-0.63	-0.71	0.33	0.20	0.48	0.99	-2.61	1.04		1.43	-0.28		1.57	0.63	0.05	0.47		0.37	1.16		
10.0	-10.1	-0.40	-0.60	-1.83	-0.74	-0.71	-0.68	-0.60	-0.25		0.66										-0.21		-1.36			

DIVERSION CANAL SPOIL PILE
Geothermal Monitoring
SP-3



Diversion Canal Spoil Pile
Geothermal Monitoring
Long Term Monitoring for Nodes in SP-3



SPtherm_updated_2008.xls
SP-3 Depth chart

BGC Engineering Inc.

Faro Mine Instrumentation
Diversion Canal Spoil Pile

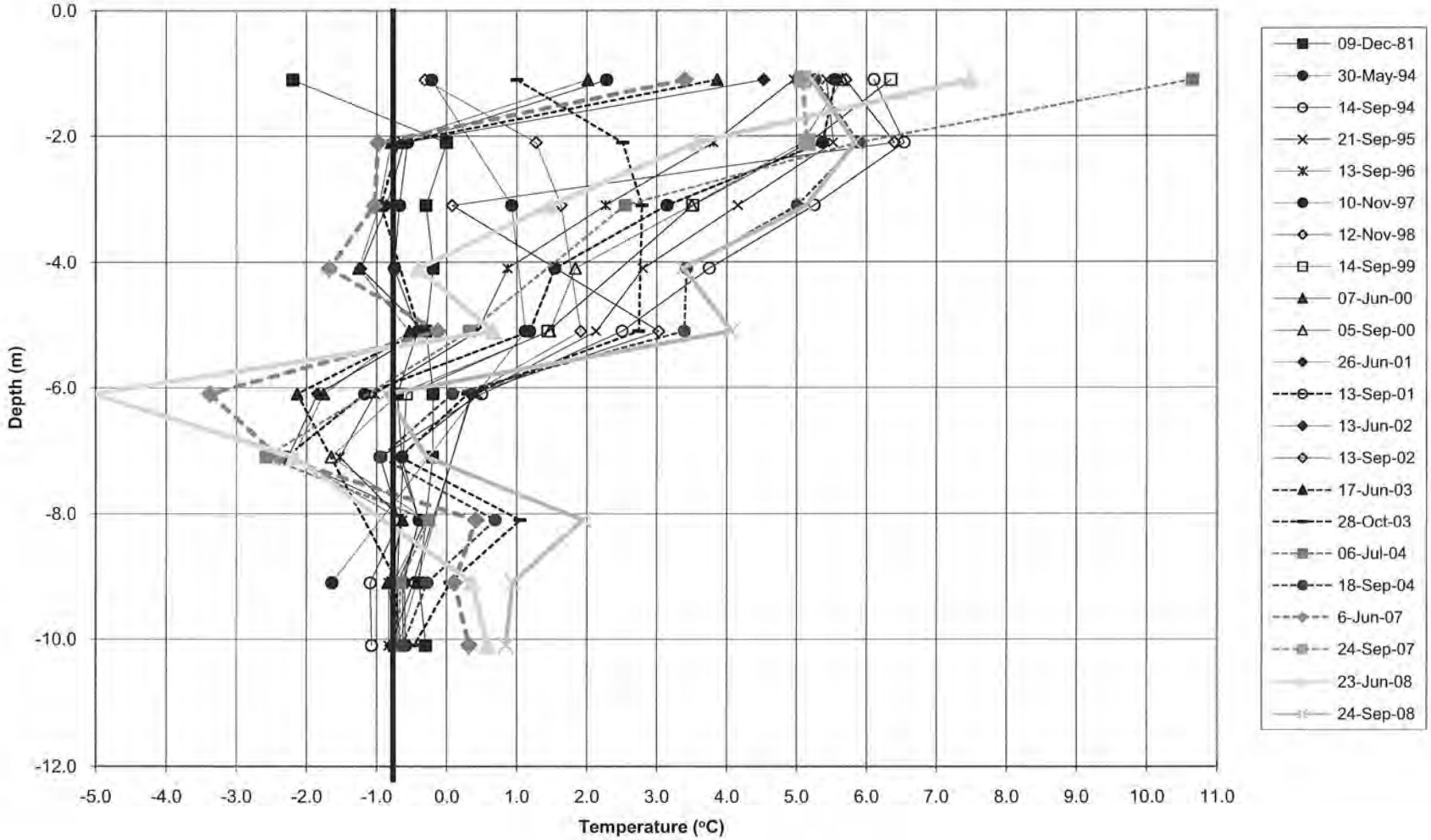
SP-5		Location:	N. of canal dyke St.2+950		Surface Elevation (m amsl):	1045.57	Coordinates:	1898.2 m N & 183.1 m W	8V580012 6913942			
		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied			Surface Protector:	yes
Thermistor String #24		Depth Correction:	0.1									

Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	9-Dec-81	30-May-94	14-Sep-94	21-Sep-95	13-Sep-96	10-Nov-97	12-Nov-98	14-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02	17-Jun-03	28-Oct-03	6-Jul-04	18-Sep-04	6-Jun-07	24-Sep-07	23-Jun-08	24-Sep-08
1.0	-1.1	18.19	14.47	11.96	12.37	12.66	16.43	16.51	11.82	14.67	12.23	12.84	12.29	12.93	12.20	13.37	15.44	9.59	12.47	13.68	12.58	11.18	12.50
2.0	-2.1	16.21	16.68	11.68	12.28	13.37		15.19	12.49	16.88	12.55	17.03	12.37	16.72	11.76	16.79	14.27	12.06	12.06	17.04	12.51	13.53	12.09
3.0	-3.1	16.38	16.70	12.39	13.08	14.38	15.39	14.85	13.51	16.95	13.52	16.87	13.76	16.86	16.07	16.93	14.01	14.18	12.54	17.01		14.96	12.46
4.0	-4.1	16.32	16.79	13.37	14.02	15.48				17.23	14.72	17.23	14.94	17.21		17.35			13.59	17.61		16.5	13.62
5.0	-5.1	16.38	16.48	14.21	14.48	15.78	15.24	14.64	14.99	16.58	14.97	16.51	15.19	16.4	13.84	16.46	14.04	15.87	13.59	16.24		15.6	13.14
6.0	-6.1	16.33	16.76	15.76	15.81	17.04		15.89	16.65	17.69	16.75	17.76	17.17	17.77	15.87	18.04	15.92		16.1	19.24		21	16.9
7.0	-7.1	16.36	16.73	17.00	16.78	17.51				18.12	17.62	18.16	18.22	18.19		18.47	16.75	18.49	16.99	18.32		18.11	16.43
8.0	-8.1	16.40	16.48	16.72	16.48	16.68				16.68	16.38	16.50		16.40		16.40	15.31	16.36	15.59	15.81			14.67
9.0	-9.1	16.54	16.72	17.14	16.74	16.91	17.63		16.81	16.92	16.86	16.85		16.80	16.61	16.80	16.17	16.77	16.44	16.12		15.91	15.45
10.0	-10.1	16.40	16.64	17.06	16.67	16.85		16.73	16.72	16.75	16.77	16.77		16.75	16.82	16.78	16.54	16.72	16.68	15.89		15.68	15.47

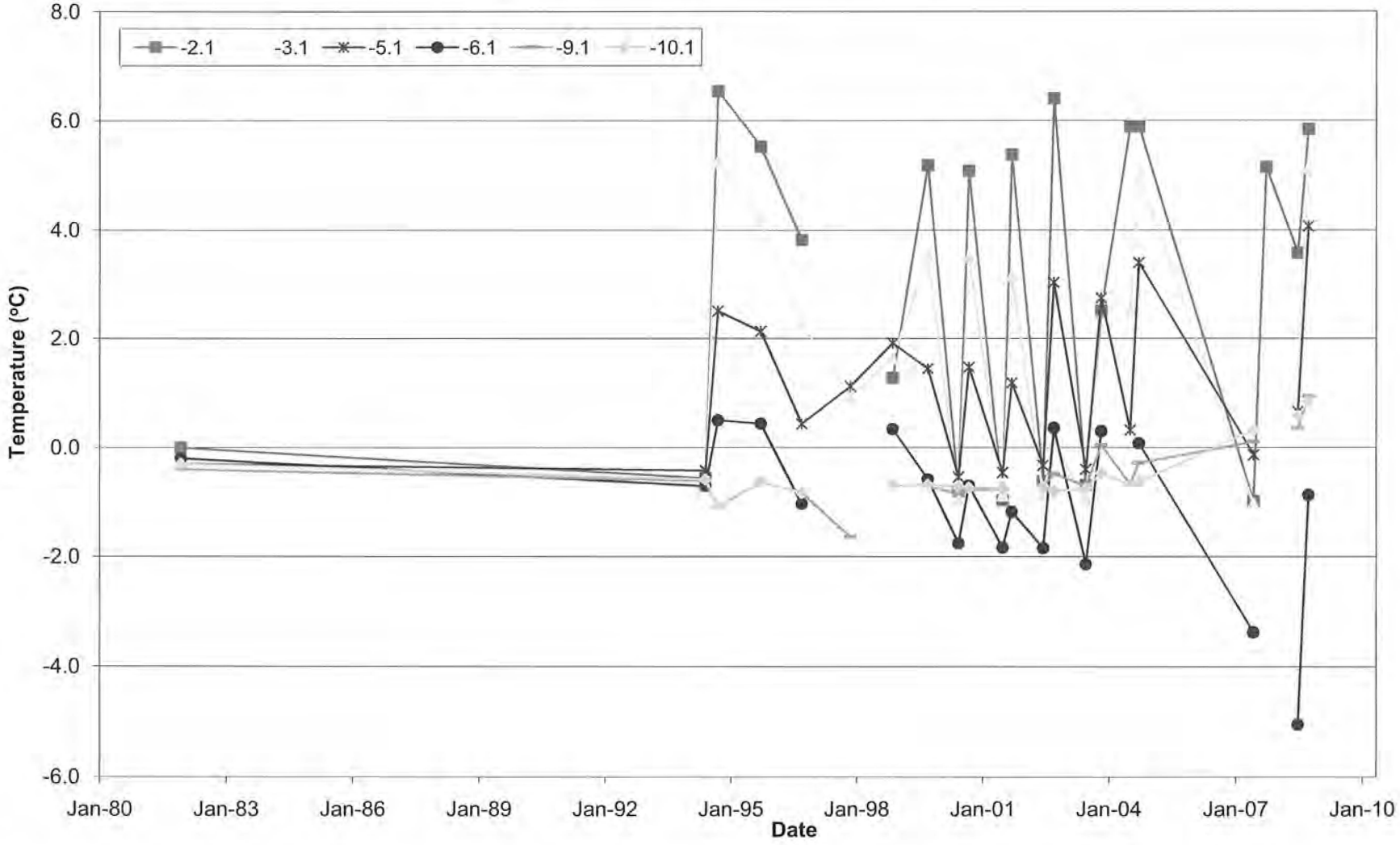
* The initial reading (Nov 15/81) is excluded from the data set because post-installation equilibrium may not have been complete.

Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	30-May-94	14-Sep-94	21-Sep-95	13-Sep-96	10-Nov-97	12-Nov-98	14-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02	17-Jun-03	28-Oct-03	06-Jul-04	18-Sep-04	06-Jun-07	24-Sep-07	23-Jun-08	24-Sep-08
1.0	-1.1	-2.20	2.28	6.11	5.43	4.96	-0.22	-0.31	6.35	2.01	5.66	4.67	5.56	4.53	5.71	3.86	1.00	10.65	5.26	3.40	5.09	7.48	5.22
2.0	-2.1	0.00	-0.56	6.54	5.52	3.81		1.27	5.18	-0.80	5.08	-0.97	5.38	-0.61	6.40	-0.69	2.51	5.89	5.89	-0.98	5.15	3.57	5.84
3.0	-3.1	-0.30	-0.66	5.25	4.16	2.27	0.93	1.63	3.51	-0.97	3.50	-0.87	3.15	-0.86	0.08	-0.94	2.79	2.55	5.01	-1.03		1.49	5.14
4.0	-4.1	-0.20	-0.75	3.75	2.80	0.87				-1.25	1.84	-1.25	1.54	-1.23					3.43	-1.66		-0.41	3.38
5.0	-5.1	-0.30	-0.42	2.51	2.13	0.43	1.12	1.91	1.45	-0.54	1.47	-0.45	1.18	-0.32	3.03	-0.39	2.74	0.32	3.40	-0.13		0.66	4.07
6.0	-6.1	-0.20	-0.71	0.50	0.44	-1.03		0.34	-0.58	-1.76	-0.69	-1.83	-1.18	-1.84	0.36	-2.14	0.30		0.08	-3.38		-5.05	-0.87
7.0	-7.1	-0.20	-0.64	-0.95	-0.70	-1.53				-2.19	-1.65	-2.23	-2.30	-2.27			-0.66	-2.58	-0.94	-2.40		-2.18	-0.29
8.0	-8.1	-0.30	-0.40	-0.68	-0.40	-0.63				-0.63	-0.28	-0.42		-0.30			1.05	-0.25	0.69	0.42			1.94
9.0	-9.1	-0.40	-0.61	-1.09	-0.63	-0.83	-1.64		-0.71	-0.84	-0.77	-0.76		-0.70	-0.48	-0.70	0.04	-0.67	-0.28	0.10		0.36	0.94
10.0	-10.1	-0.30	-0.59	-1.07	-0.62	-0.83		-0.69	-0.68	-0.71	-0.74	-0.74		-0.71	-0.80	-0.75	-0.47	-0.68	-0.63	0.32		0.58	0.84

DIVERSION CANAL SPOIL PILE
Geothermal Monitoring
SP-5



Diversion Canal Spoil Pile
Geothermal Monitoring
Long Term Monitoring for Nodes in SP-5

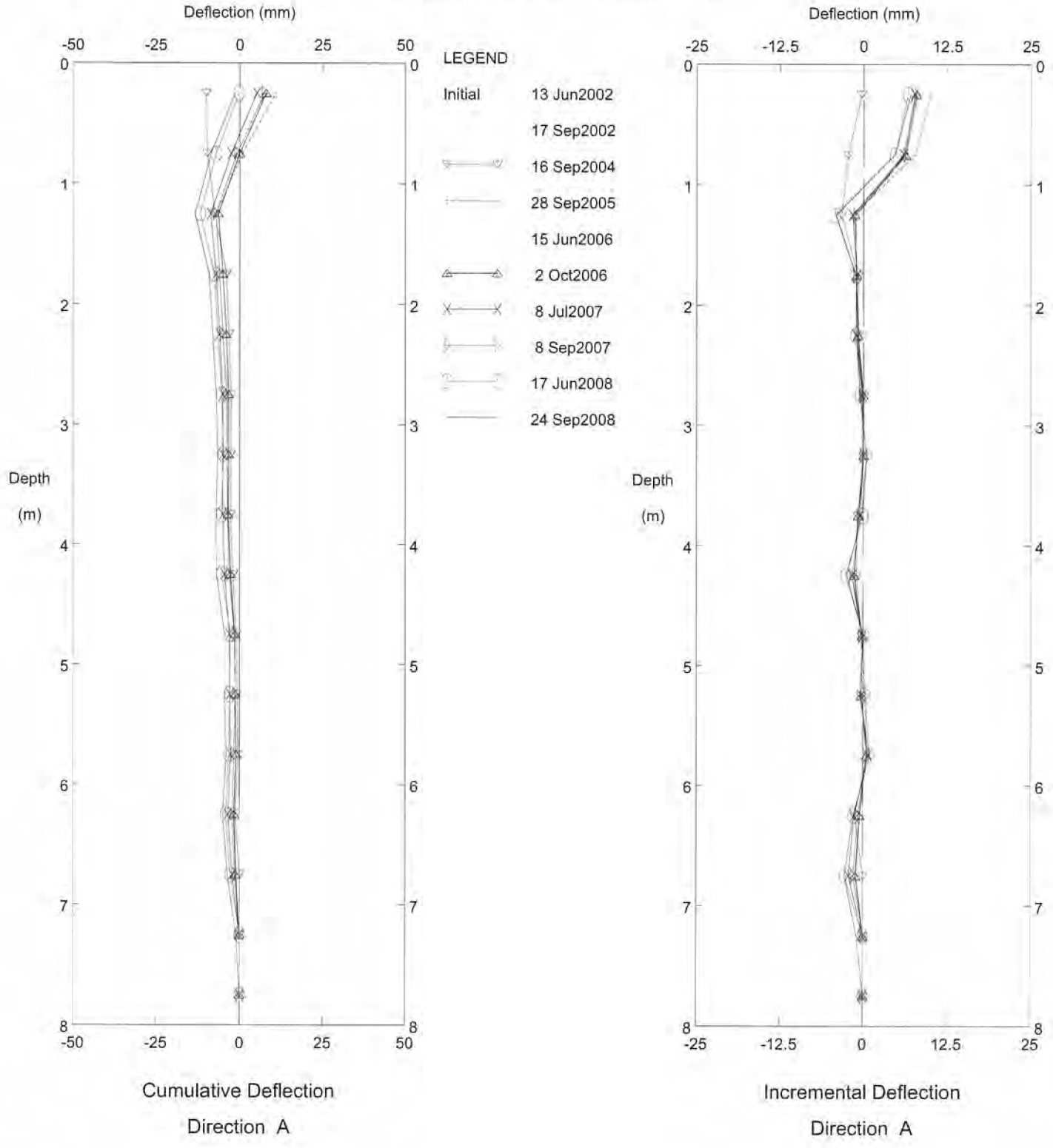


SPtherm_updated_2008.xls
SP-5 Depth chart

BGC Engineering Inc.

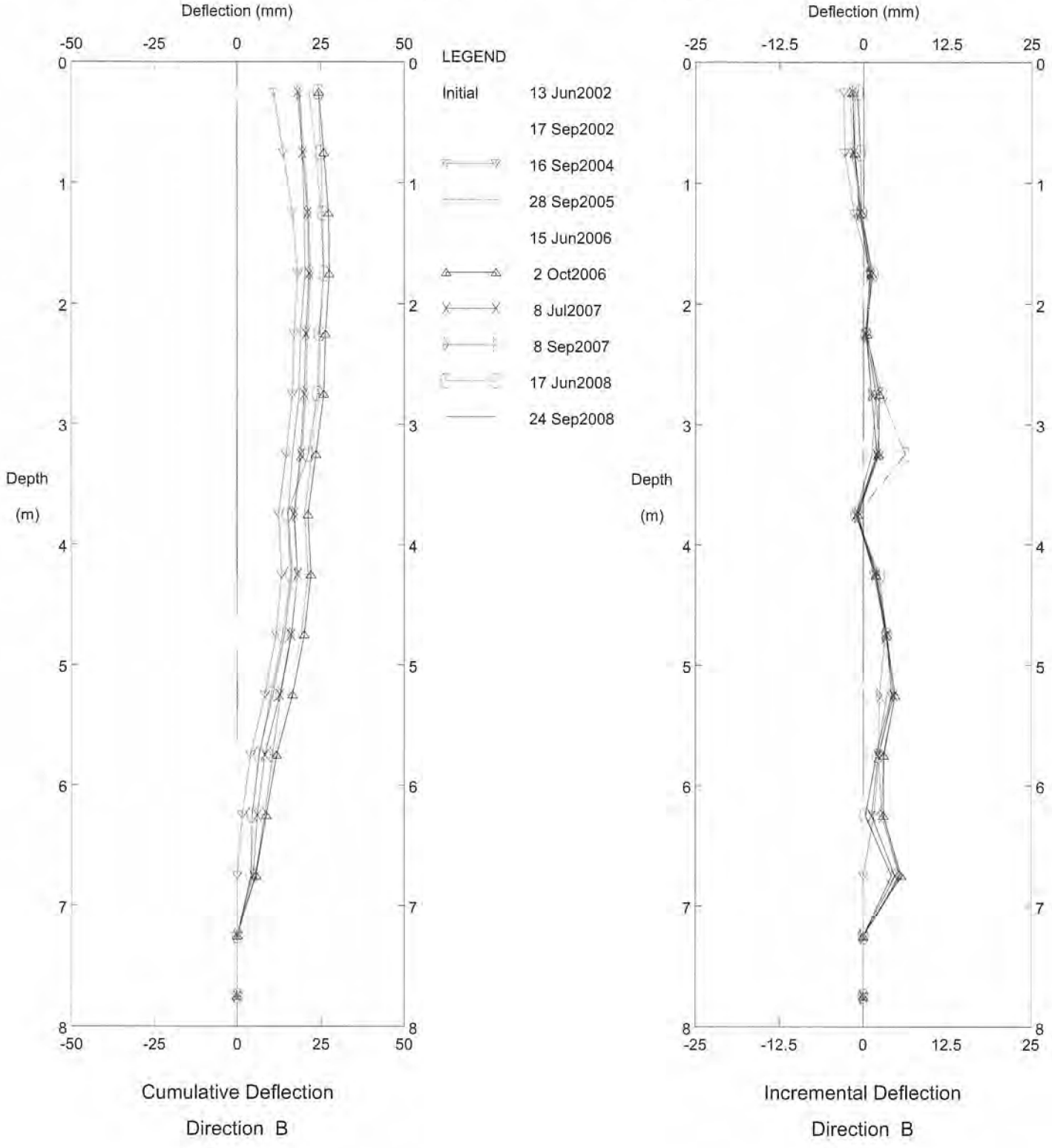
SLOPE INDICATORS

BGC Engineering Inc. - Vancouver, BC



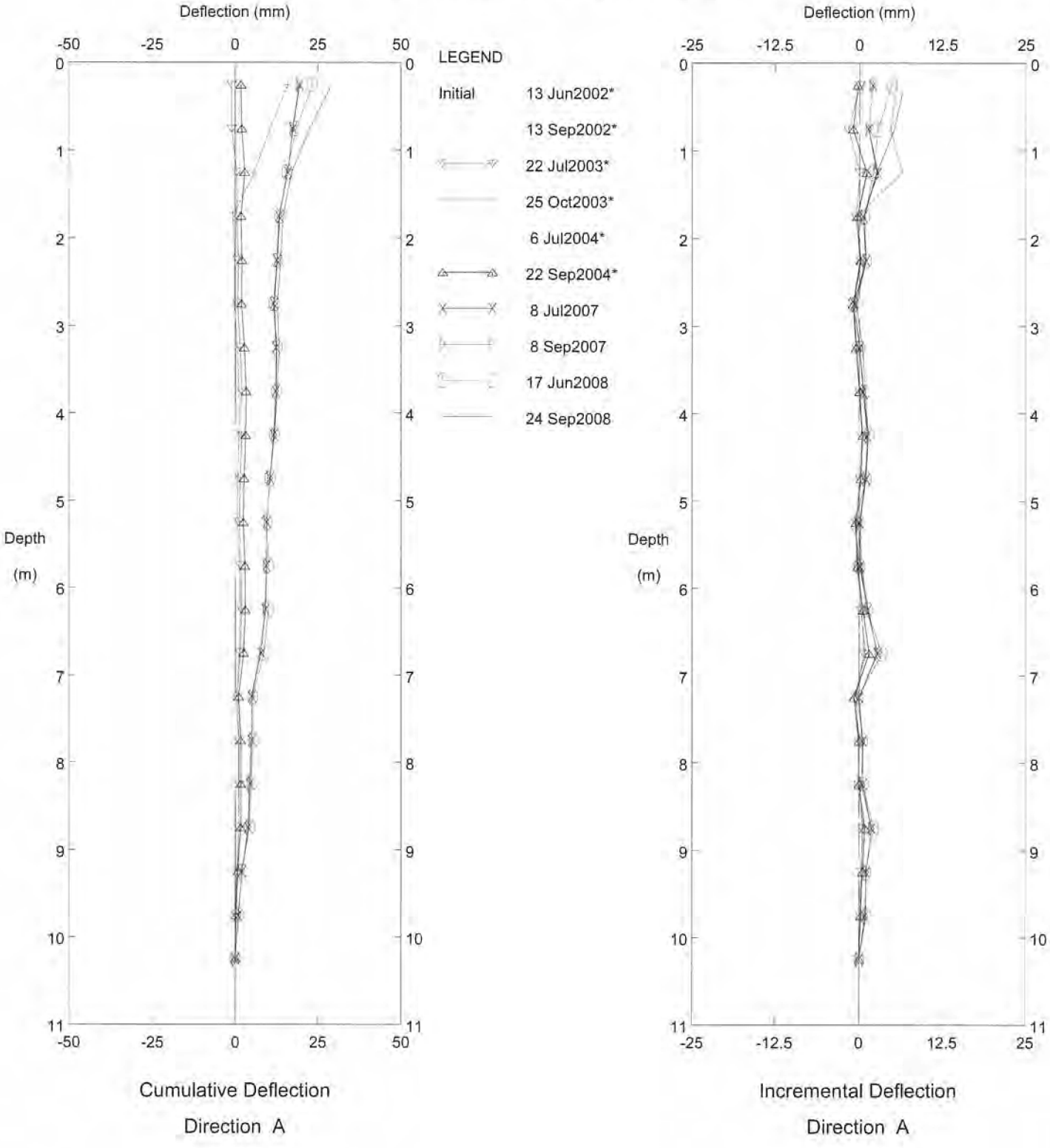
SP-2, Inclinometer 1+530

BGC Engineering Inc. - Vancouver, BC



SP-2, Inclinometer 1+530

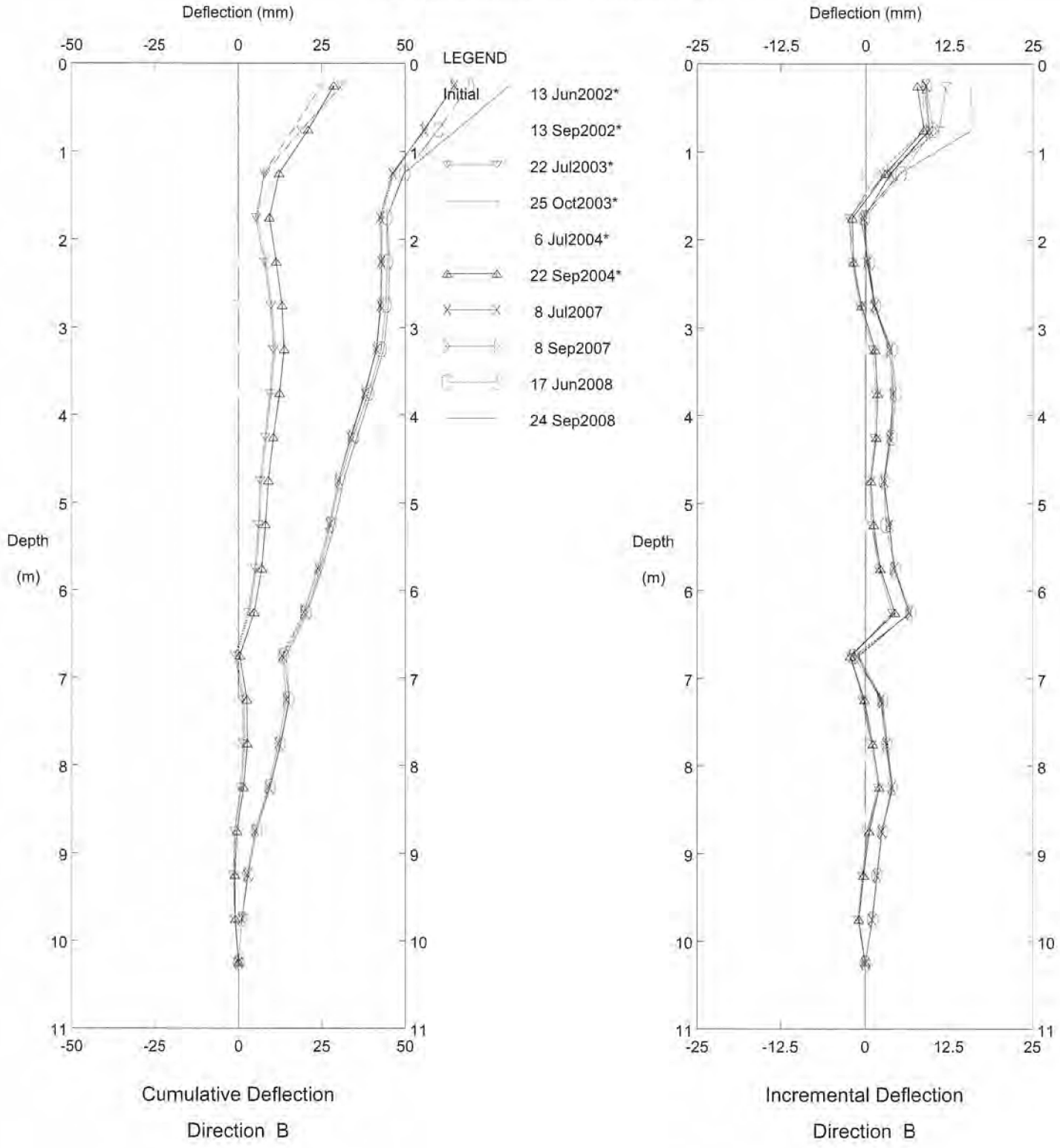
BGC Engineering Inc. - Vancouver, BC



SP-5, Inclinometer 2+950

Sets marked * include zero shift and/or rotation corrections.

BGC Engineering Inc. - Vancouver, BC



SP-5, Inclinometer 2+950

Sets marked * include zero shift and/or rotation corrections.

BACKSLOPE

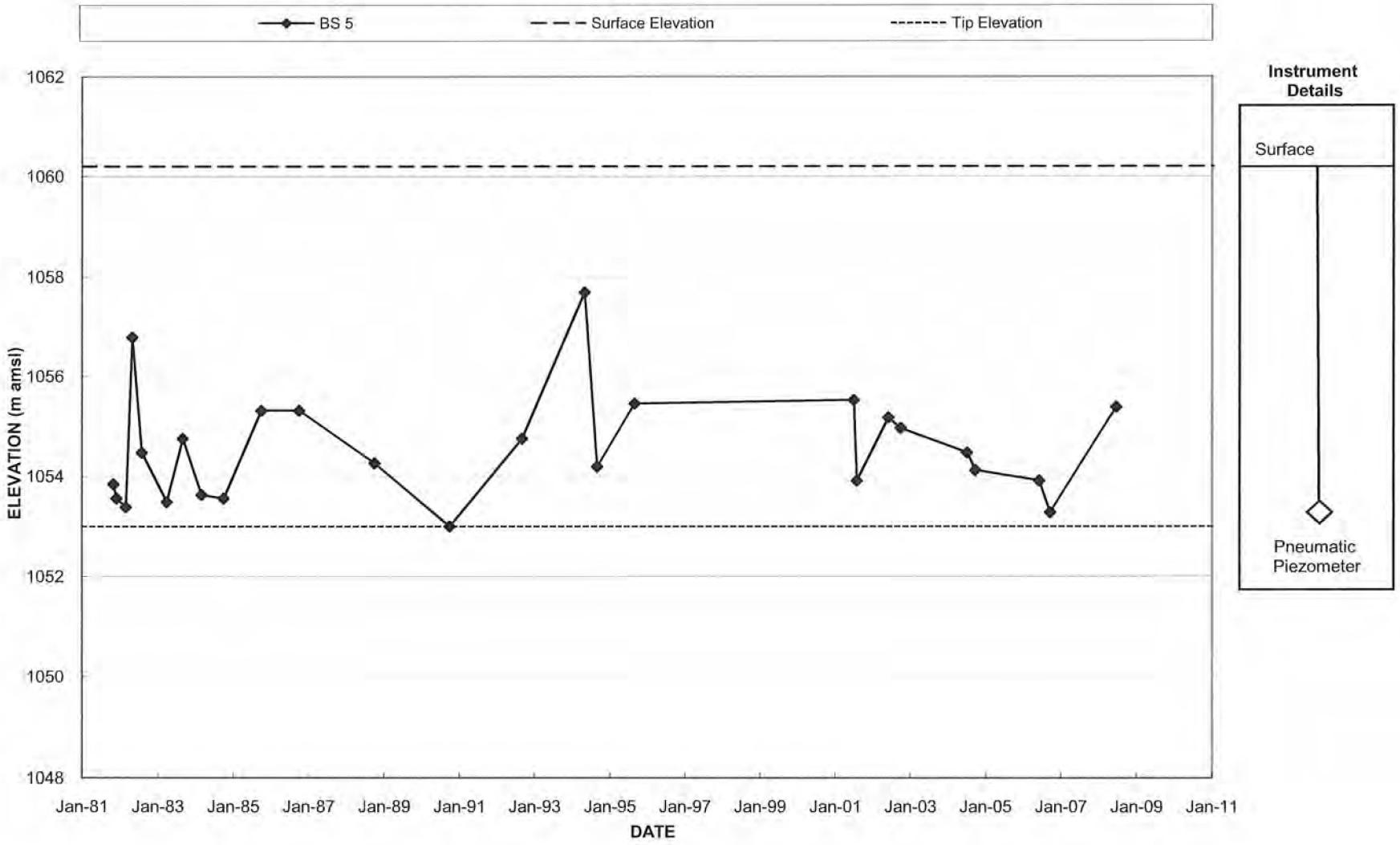
PIEZOMETERS

Faro Mine Instrumentation
Diversion Canal Backslope

BS-5		Location:	Canal Dyke Backslope	Date Installed:	1981
			St.0+960	Ground Elevation (m amsl):	1060.20
Surface Protector:	yes	Coordinates:	953.2N, 1534.6E	Tip Elevation (m amsl):	1053.00

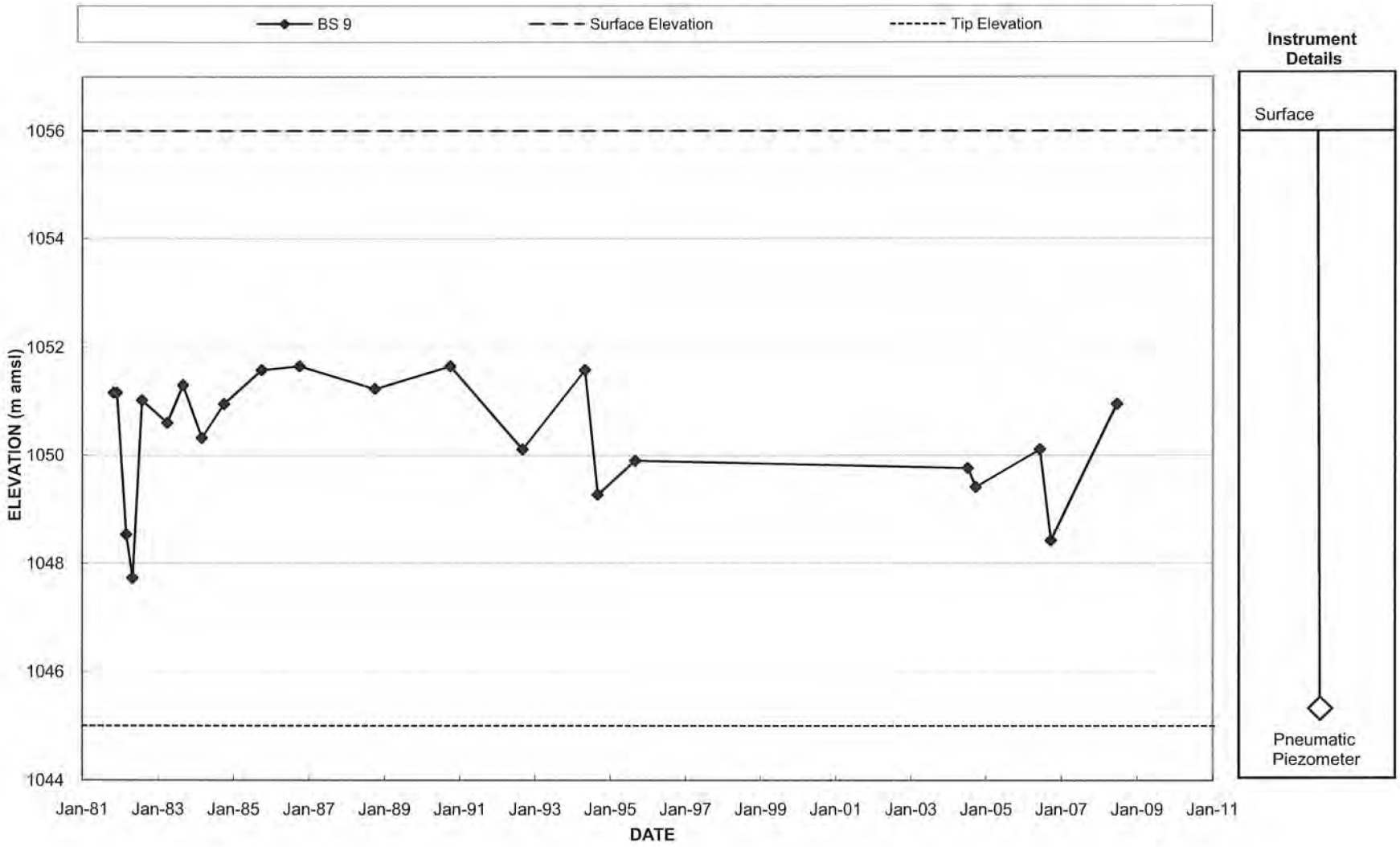
Date		Reading (psi)		Piezometric Elevation (m amsl)	Comments
Nov-81		1.20		1053.84	
Dec-81		0.80		1053.56	
Mar-82		0.55		1053.385	
May-82		5.40		1056.78	
Aug-82		2.10		1054.47	
Apr-83		0.70		1053.49	
Sep-83		2.50		1054.75	
Mar-84		0.90		1053.63	
Oct-84		0.80		1053.56	
Oct-85		3.30		1055.31	
Oct-86		3.30		1055.31	
Oct-88		1.80		1054.26	
Oct-90				1053.00	
Sep-92		2.50		1054.75	
May-94		6.70		1057.69	
Sep-94		1.70		1054.19	
Sep-95		3.50		1055.45	
Jul-01		3.60		1055.52	
Aug-01		1.30		1053.91	
Jun-02		3.10		1055.17	
Sep-02		2.80		1054.96	
Jul-04		2.10		1054.47	
Sep-04		1.60		1054.12	
Jun-06		1.3		1053.91	
Sep-06		0.40		1053.28	
Jun-08		3.40		1055.38	

DIVERSION CANAL BACKSLOPE
Piezometric Monitoring
BS5



BS-9		Location:	Canal Dyke Backslope	Date Installed:	1981
			St.1+530	Ground Elevation (m amsl):	1056.00
Surface Protector:	yes	Coordinates:	1200N, 1018.4E	Tip Elevation (m amsl):	1045.00
Date		Reading (psi)		Piezometric Elevation (m amsl)	Comments
Nov-81		8.80		1051.16	
Dec-81		8.80		1051.16	
Mar-82		5.05		1048.535	
May-82		3.90		1047.73	
Aug-82		8.60		1051.02	
Apr-83		8.00		1050.6	
Sep-83		9.00		1051.3	
Mar-84		7.60		1050.32	
Oct-84		8.50		1050.95	
Oct-85		9.40		1051.58	
Oct-86		9.50		1051.65	
Oct-88		8.90		1051.23	
Oct-90		9.50		1051.65	
Sep-92		7.30		1050.11	
May-94		9.40		1051.58	
Sep-94		6.10		1049.27	
Sep-95		7.00		1049.9	
7-Jul-04		6.80		1049.76	
23-Sep-04		6.30		1049.41	
6-Jun-06		7.30		1050.11	
20-Sep-06		4.90		1048.43	
20-Jun-08		8.50		1050.95	

DIVERSION CANAL BACKSLOPE
Piezometric Monitoring
BS9



THERMISTORS

Faro Mine Instrumentation
Diversion Canal Backslope

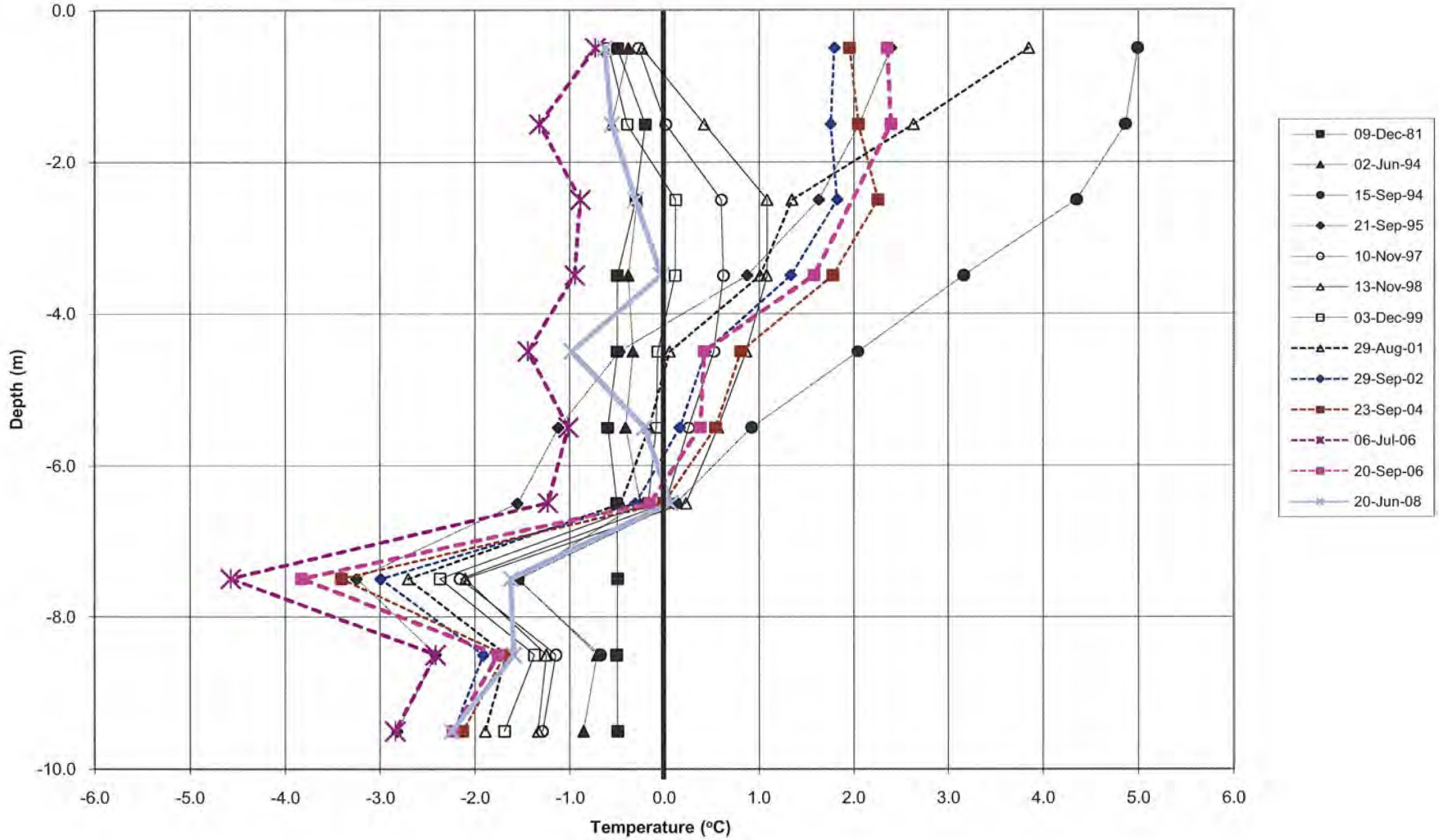
BS-10		Location:	Diversion Canal - Back Slope St.1+900		Surface Elevation (m advd):	1098.2	Coordinates:	1310.5 m N 657.3 m E		
		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes
Thermistor String #5		Depth Correction	-0.5							

Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-81	02-Jun-94	15-Sep-94	21-Sep-95	10-Nov-97	13-Nov-98	03-Dec-99	29-Aug-01	29-Sep-02	07-Jul-04	23-Sep-04	06-Jul-06	20-Sep-06	20-Jun-08
1.0	-0.5	16.64	16.54	12.62	14.37	16.45	16.42	16.72	13.36	14.81	16.11	14.69	16.84	14.40	16.75
2.0	-1.5	16.35	16.65	12.67	14.58	16.17	15.84	16.51	14.20	14.84	16.90	14.62	17.36	14.37	16.69
3.0	-2.5	16.45	16.44	13.01	14.91	15.71	15.33	16.10	15.15	14.79	17.05	14.47	16.98	23.24	16.48
4.0	-3.5	16.55	16.45	13.75	15.43	15.63	15.27	16.04	15.41	15.16	16.57	14.82	17.03	14.97	16.25
5.0	-4.5	16.59	16.45	14.58	16.57	15.75	15.48	16.23	16.18	15.87	16.89	15.57	17.47	15.88	17.06
6.0	-5.5	16.65	16.49	15.41	17.10	15.94	15.69	16.22	16.36	16.09	16.67	15.78	17.09	15.91	16.40
7.0	-6.5	16.62	16.41	16.10	17.54	16.19	16.01	16.34	16.61	16.48	16.79	16.23	17.28	16.35	16.17
8.0	-7.5	16.58	17.50	17.50	19.11	18.06	18.01	18.26	18.65	18.93	19.60	19.34	20.56	19.77	17.63
9.0	-8.5	16.62	16.80	16.77	18.34	17.18	17.27	17.38	17.68	17.90	17.82	17.69	18.37	17.75	17.60
10.0	-9.5	16.58	16.89	16.95	18.69	17.27	17.31	17.63	17.88	18.19	18.06	18.10	18.78	18.20	18.21

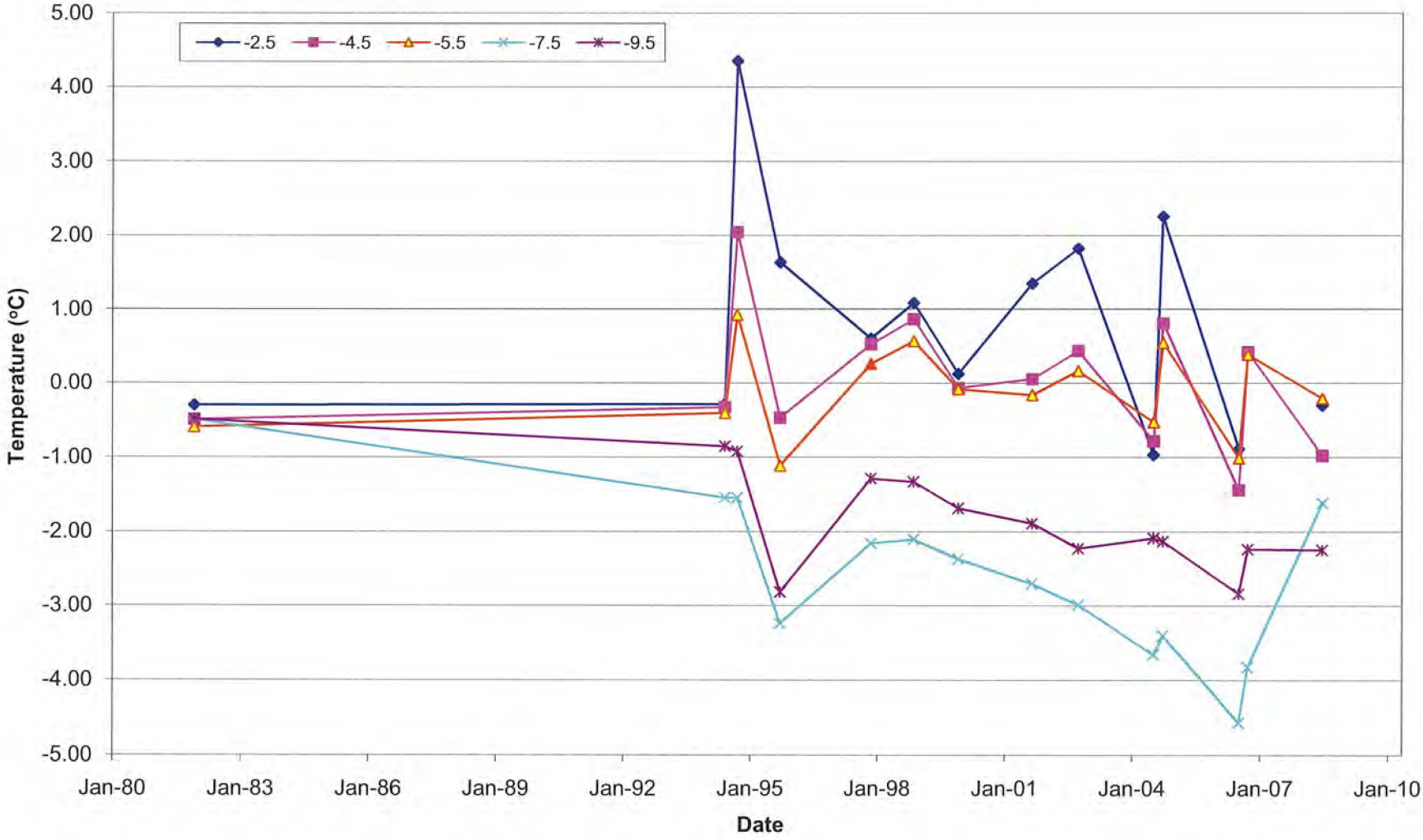
Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	02-Jun-94	15-Sep-94	21-Sep-95	10-Nov-97	13-Nov-98	03-Dec-99	29-Aug-01	29-Sep-02	07-Jul-04	23-Sep-04	06-Jul-06	20-Sep-06	20-Jun-08
1.0	-0.5	-0.50	-0.38	4.99	2.39	-0.27	-0.24	-0.59	3.85	1.79	0.14	1.96	-0.73	2.35	-0.62
2.0	-1.5	-0.20	-0.56	4.86	2.05	0.01	0.42	-0.39	2.63	1.75	-0.80	2.05	-1.32	2.39	-0.55
3.0	-2.5	-0.30	-0.29	4.35	1.63	0.60	1.08	0.12	1.35	1.82	-0.97	2.25	-0.89		-0.31
4.0	-3.5	-0.50	-0.38	3.16	0.87	0.62	1.08	0.11	1.01	1.33	-0.41	1.78	-0.95	1.58	-0.03
5.0	-4.5	-0.50	-0.33	2.04	-0.47	0.52	0.86	-0.07	0.05	0.43	-0.79	0.81	-1.44	0.42	-0.98
6.0	-5.5	-0.60	-0.41	0.92	-1.12	0.26	0.57	-0.09	-0.16	0.16	-0.53	0.54	-1.02	0.38	-0.21
7.0	-6.5	-0.50	-0.25	0.12	-1.55	0.01	0.23	-0.17	-0.46	-0.31	-0.67	-0.01	-1.23	-0.15	0.06
8.0	-7.5	-0.50	-1.55	-1.55	-3.25	-2.16	-2.10	-2.37	-2.71	-2.99	-3.66	-3.41	-4.57	-3.83	-1.62
9.0	-8.5	-0.50	-0.71	-0.68	-2.41	-1.15	-1.25	-1.37	-1.68	-1.91	-1.83	-1.69	-2.42	-1.75	-1.59
10.0	-9.5	-0.50	-0.86	-0.93	-2.82	-1.29	-1.34	-1.69	-1.89	-2.23	-2.09	-2.13	-2.84	-2.24	-2.25

The 8 metre depth tip is suspect

DIVERSION CANAL BACKSLOPE
Geothermal Monitoring
BS-10



Diversion Canal Backslope
Geothermal Monitoring
Long Term Monitoring for Nodes in BS-10

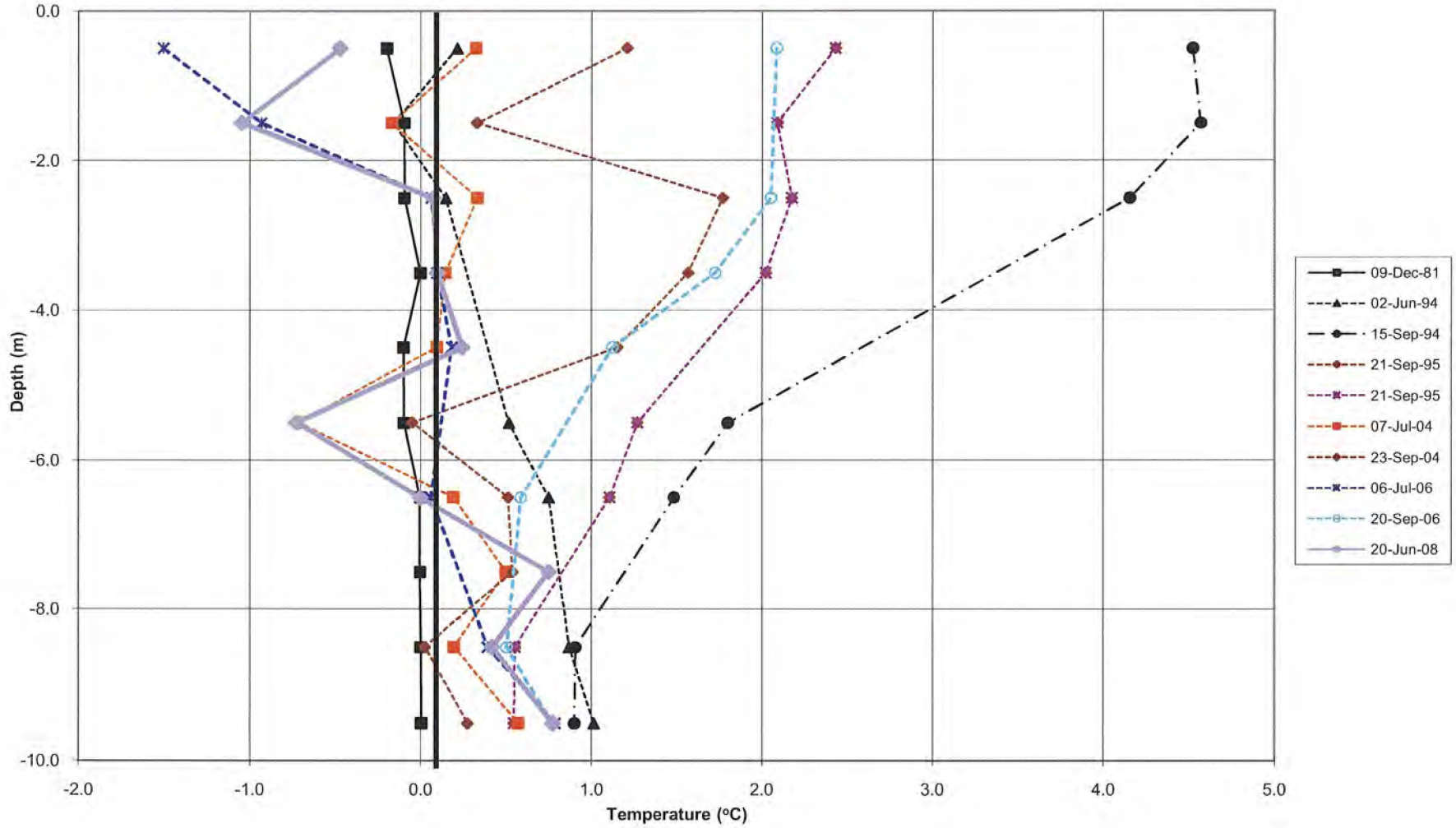


BS-12		Location:	Canal - Back Slope St.2+260		Elevation (m advd):	1094.6 m	Coordinates:	1463.6 m N 343.1 m E		
		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes
r String #10		Depth Correction:	-0.5							
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-81	02-Jun-94	15-Sep-94	21-Sep-95	07-Jul-04	23-Sep-04	06-Jul-06	20-Sep-06	20-Jun-08
1.0	-0.5	16.34	16.00	12.88	14.30	15.91	15.21	17.47	14.55	16.57
2.0	-1.5	16.28	16.33	12.87	14.57	16.34	15.93	16.99	16.06	17.09
3.0	-2.5	16.27	16.07	13.13	14.50	15.92	14.80	16.14	14.59	16.13
4.0	-3.5	16.20			14.62	16.08	14.96	16.12	14.84	16.12
5.0	-4.5	16.24				16.08	15.24	16.01	15.26	15.96
6.0	-5.5	16.23	15.73	14.74	15.14	16.75	16.19	16.68	15.99	16.76
7.0	-6.5	16.21	15.60	15.03	15.32	16.05	15.79	16.16	15.73	16.21
8.0	-7.5	16.21				15.80	15.77	Noisy	15.39	15.60
9.0	-8.5	16.19	15.49	15.46	15.74	16.03	16.17	15.87	15.78	15.85
10.0	-9.5	16.17	15.36	15.45	15.73	15.71	15.95	15.54	15.55	15.55

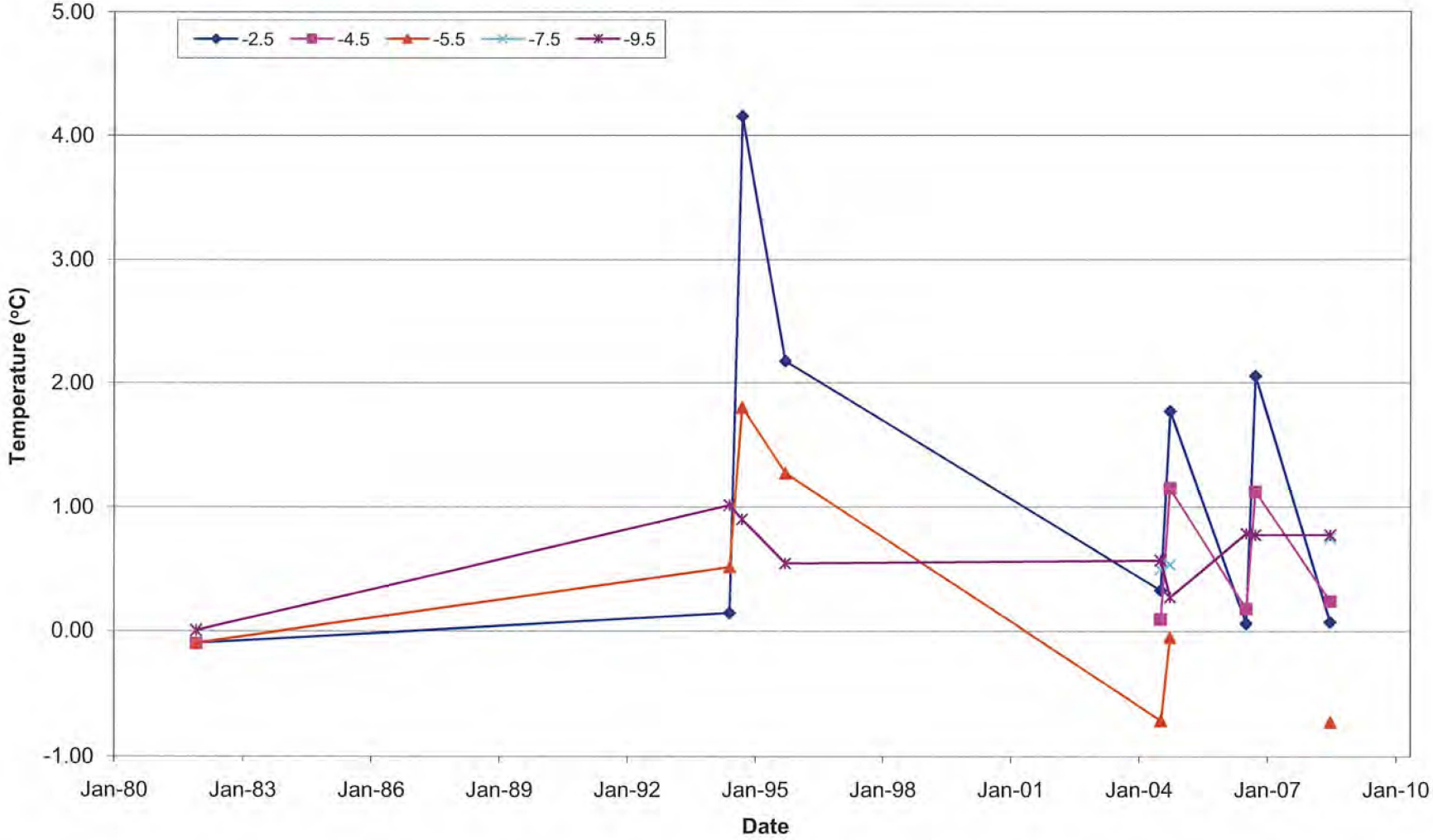
Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	02-Jun-94	15-Sep-94	21-Sep-95	07-Jul-04	23-Sep-04	06-Jul-06	20-Sep-06	20-Jun-08
1.0	-0.5	-0.20	0.21	4.52	2.43	0.32	1.21	-1.50	2.09	-0.47
2.0	-1.5	-0.10	-0.16	4.57	2.09	-0.17	0.33	-0.93		-1.05
3.0	-2.5	-0.10	0.15	4.16	2.17	0.33	1.77	0.06	2.05	0.07
4.0	-3.5	0.00			2.02	0.14	1.57	0.09	1.72	0.09
5.0	-4.5	-0.10				0.09	1.15	0.18	1.12	0.24
6.0	-5.5	-0.10	0.52	1.80	1.27	-0.71	-0.05			-0.73
7.0	-6.5	0.00	0.75	1.48	1.11	0.19	0.51	0.06	0.59	0.00
8.0	-7.5	0.00				0.50	0.54			0.75
9.0	-8.5	0.00	0.87	0.91	0.55	0.19	0.02	0.39	0.50	0.42
10.0	-9.5	0.00	1.01	0.90	0.55	0.57	0.27	0.78	0.77	0.77

* The initial reading (Nov 15/81) is excluded from the data set because post-installation temperature equilibruim may not have been complete.

DIVERSION CANAL BACKSLOPE
Geothermal Monitoring
BS-12

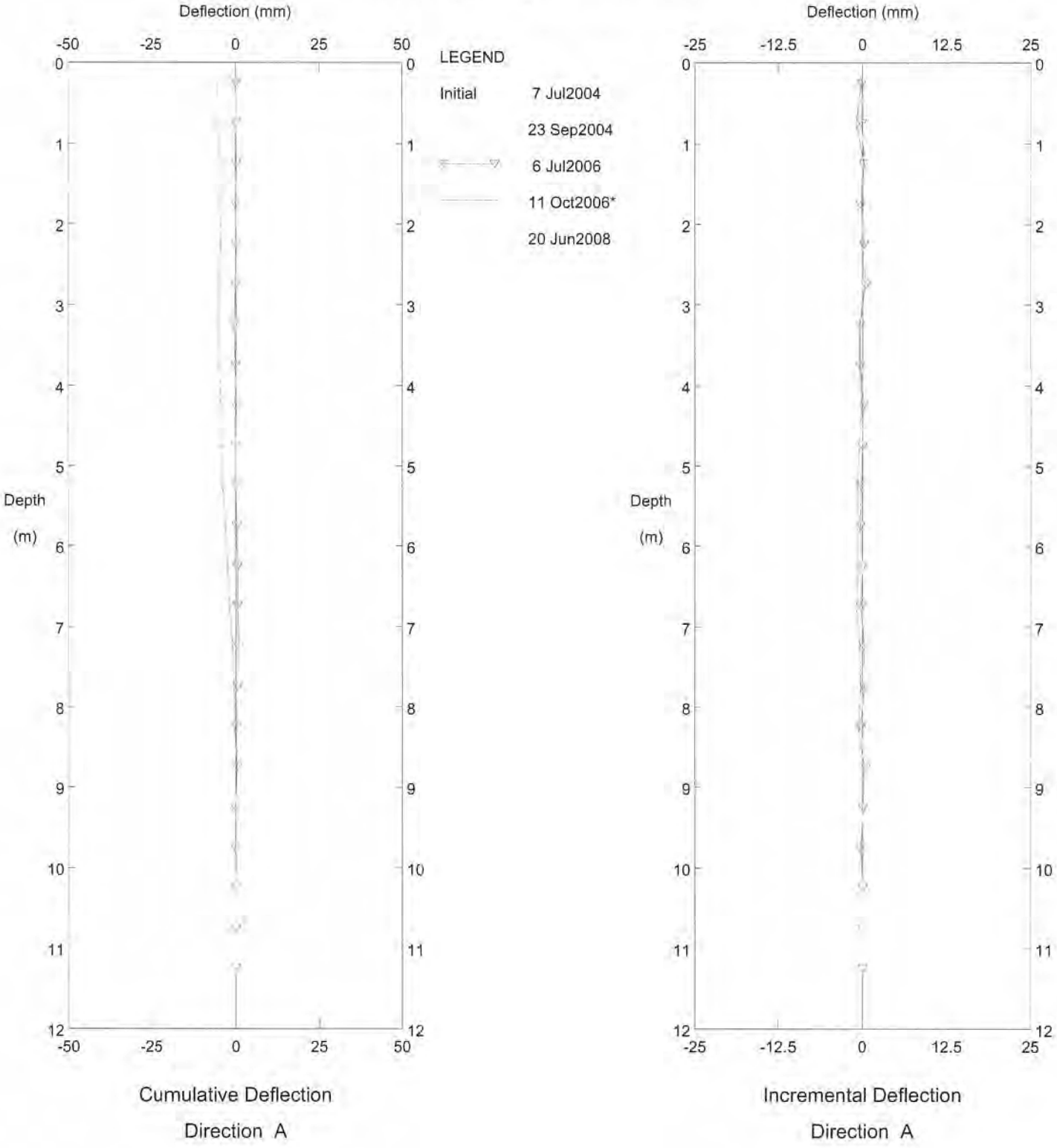


Diversion Canal Backslope
Geothermal Monitoring
Long Term Monitoring for Nodes in BS-12



SLOPE INDICATORS

BGC Engineering Inc. - Vancouver, BC



Cumulative Deflection

Direction A

Incremental Deflection

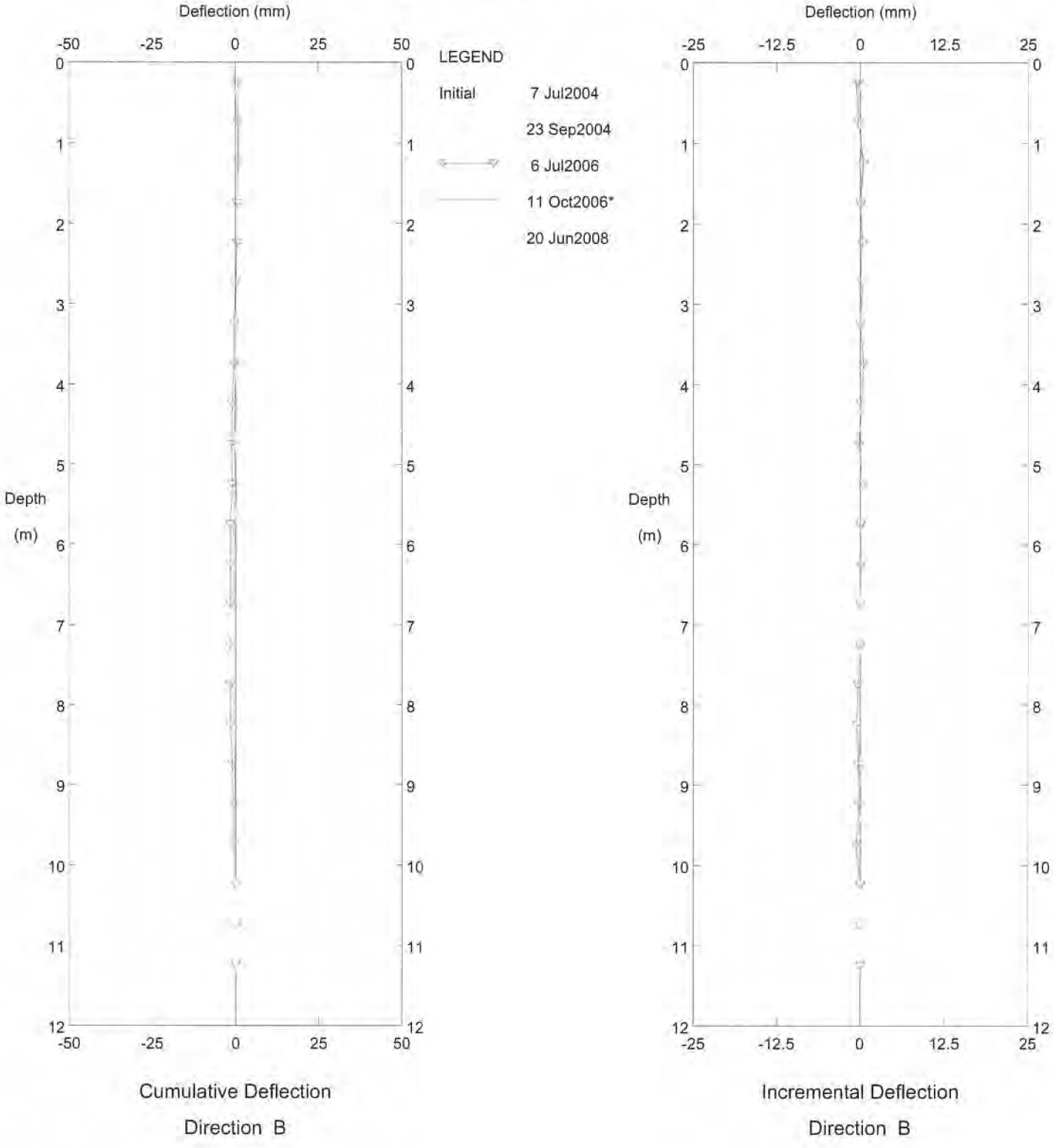
Direction A

Faro, Inclinometer BS-5

Deloitte and Touche

Sets marked * include zero shift and/or rotation corrections.

BGC Engineering Inc. - Vancouver, BC

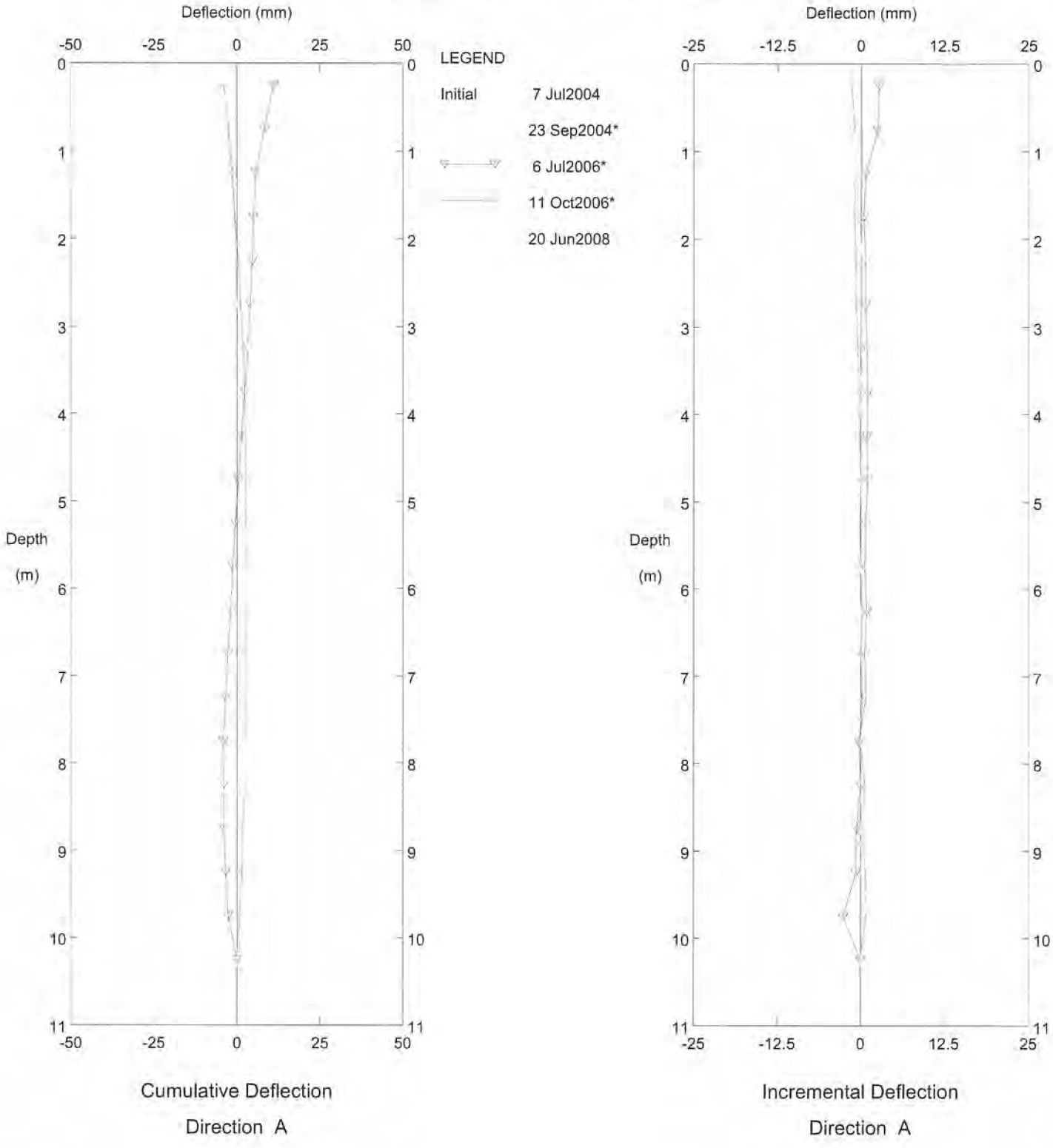


Faro, Inclinometer BS-5

Deloitte and Touche

Sets marked * include zero shift and/or rotation corrections.

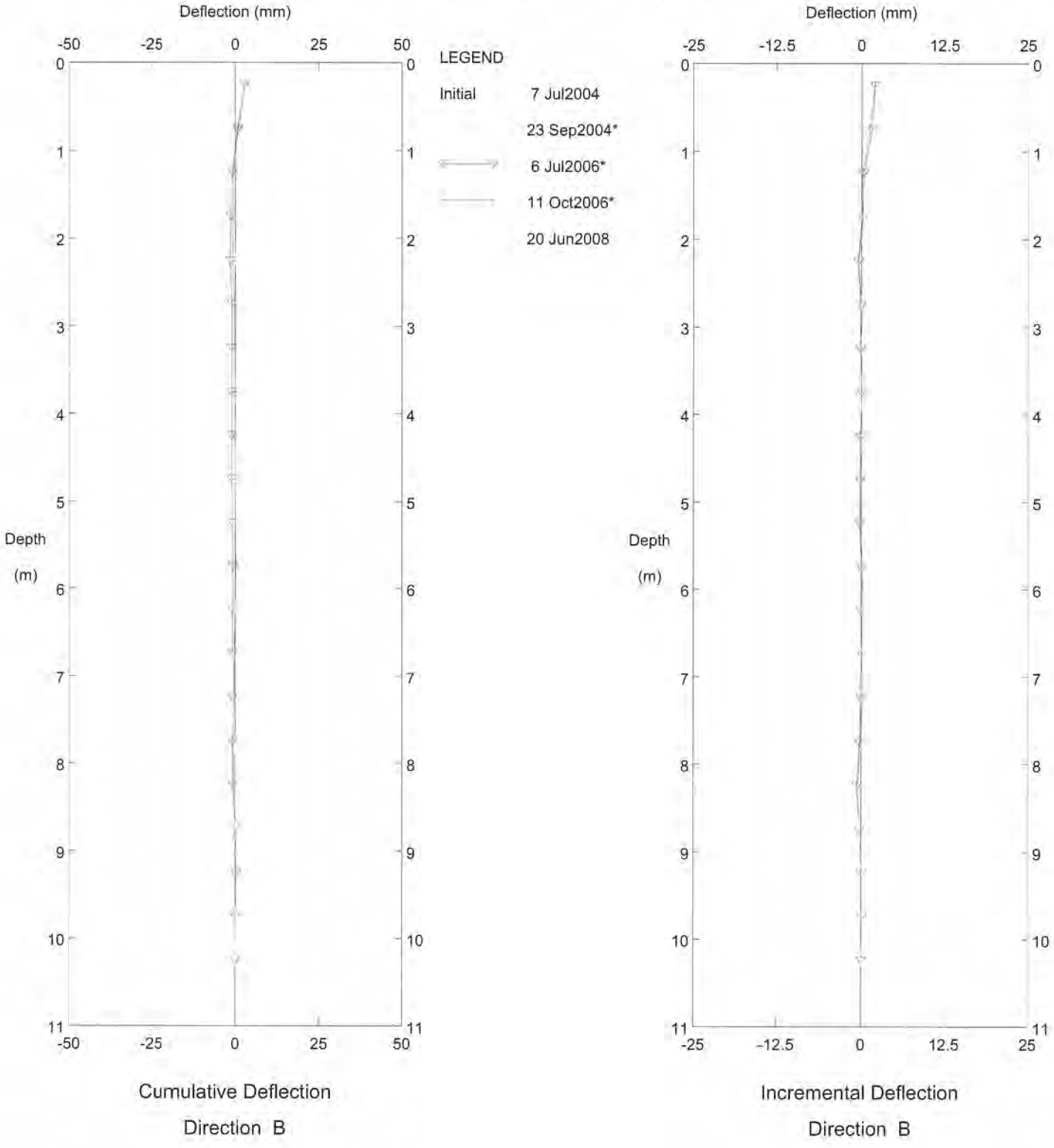
BGC Engineering Inc. - Vancouver, BC



BS-9, Inclinometer 1+530

Sets marked * include zero shift and/or rotation corrections.

BGC Engineering Inc. - Vancouver, BC



BS-9, Inclinometer 1+530

Sets marked * include zero shift and/or rotation corrections.

INTERMEDIATE DAM

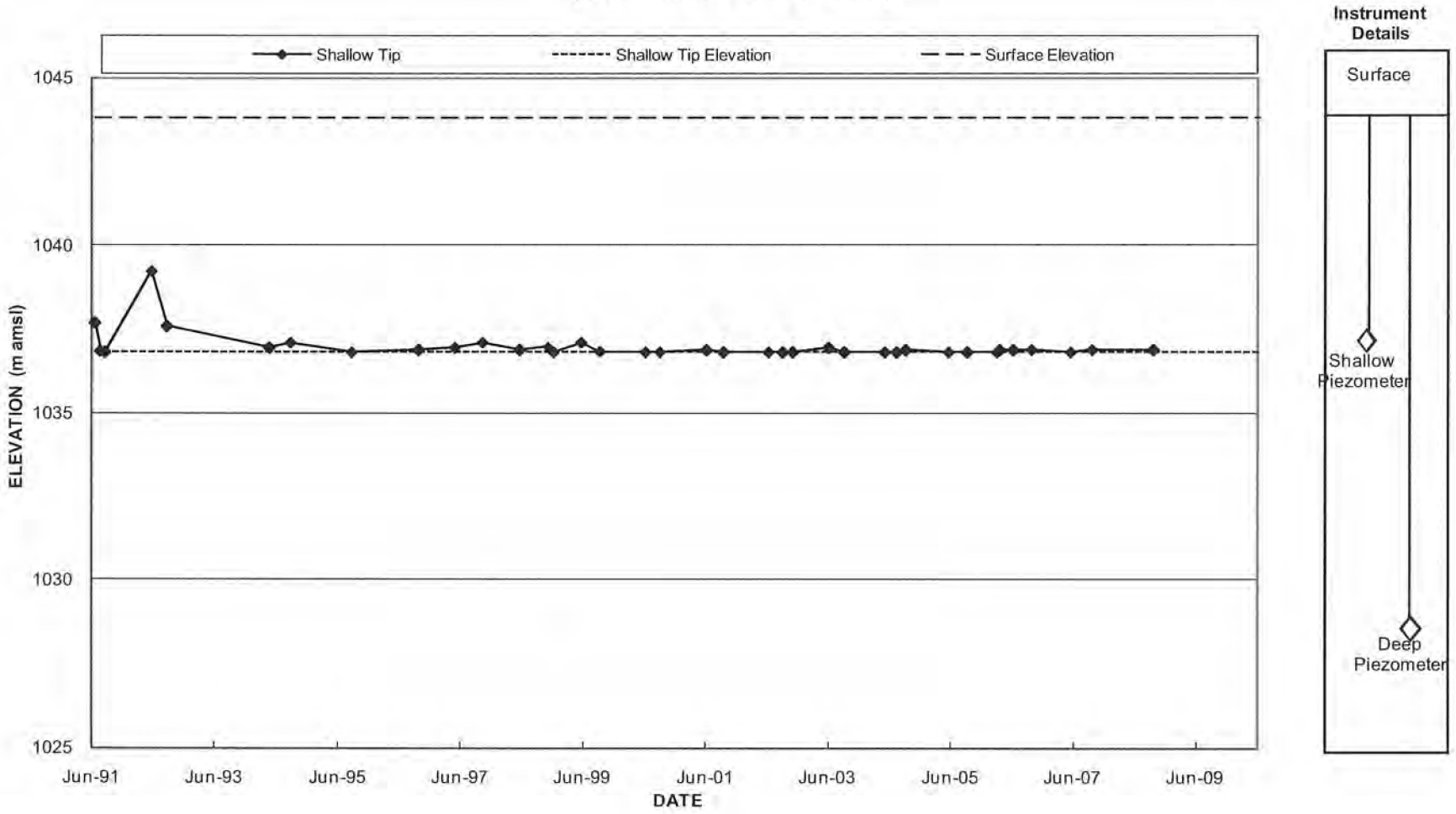
PIEZOMETERS

Faro Mine Instrumentation - Intermediate Dam

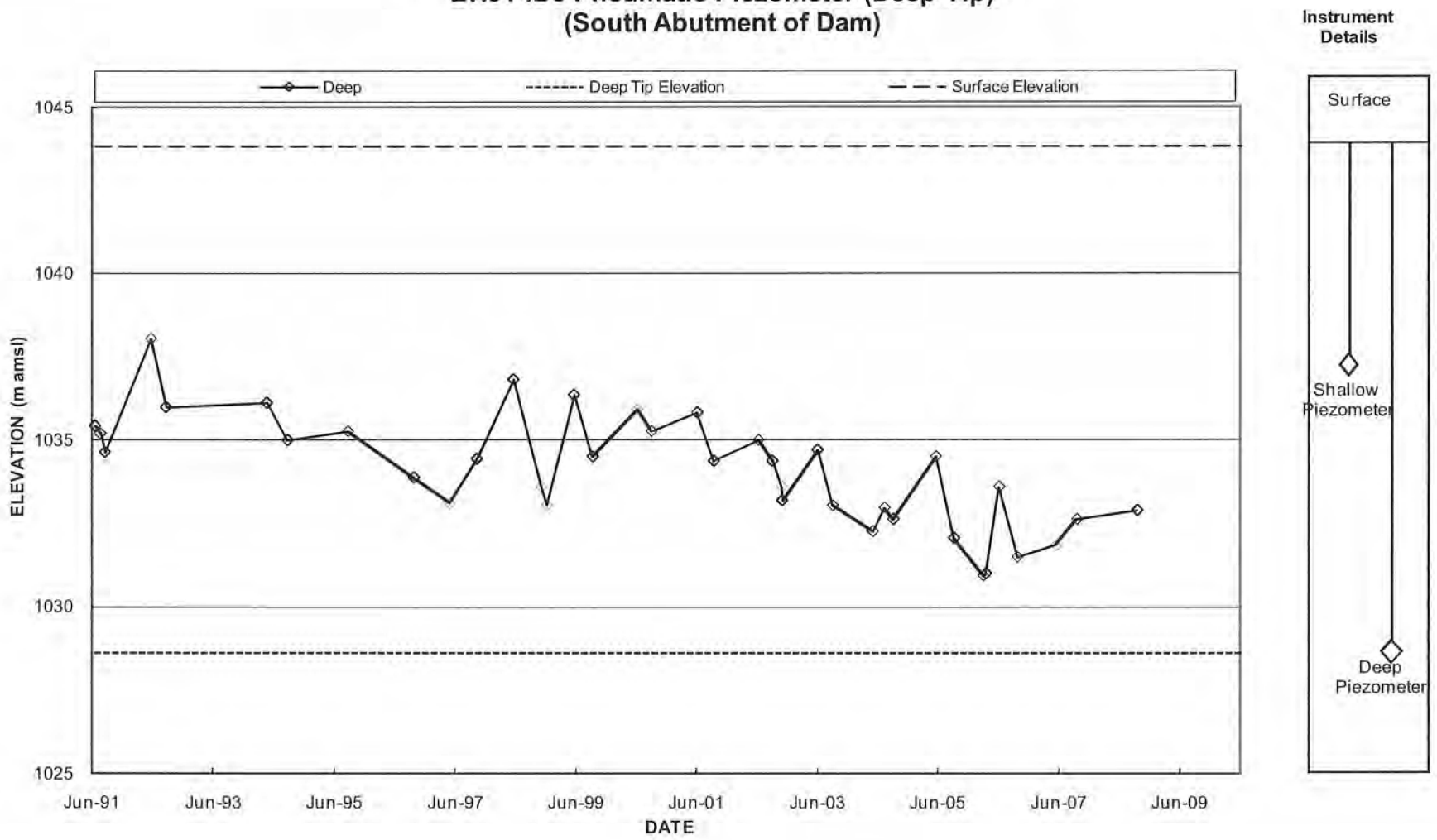
BH91-ID3		Location:	Intermediate Dam South Abutment @ Stn. 0+810	Shallow Tip Elevation (m amsl):	1036.82
		Coordinates:	8V580359 6913723	Deep Tip Elevation (m amsl):	1028.62
Surface Protector:	yes	Date Installed:	1991	2004 Surface Elevation (m amsl):	1043.82

	Reading (psi)		Piezometric Elevation (m amsl)			
Date	Shallow	Deep	Shallow	Deep	Pond El. (m amsl)	Comments
Jul-91	1.23	9.71	1037.68	1035.42	1042.2	
Aug-91	0.04	9.40	1036.85	1035.2	1042.2	
Sep-91		8.60	1036.82	1034.64	1042.2	
Feb-92						
Apr-92						
Jun-92	3.44	13.46	1039.23	1038.04	1047.7	
Sep-92	1.10	10.51	1037.59	1035.98	1047.7	
May-94	0.20	10.70	1036.96	1036.11	1047.7	
Sep-94	0.40	9.10	1037.1	1034.99	1047.7	
Sep-95	0.00	9.50	1036.82	1035.27	1047.7	
Oct-96	0.1	7.5	1036.89	1033.87	1048.1	
7-May-97	0.2	6.4	1036.96	1033.1		
17-Oct-97	0.40	8.31	1037.1	1034.437		
27-May-98	0.10	11.70	1036.89	1036.81	1048.1	
12-Nov-98	0.22	7.10	1036.974	1033.59	1047.8	
16-Dec-98	0.0	6.3	1036.82	1033.03	1047.8	
29-May-99	0.40	11.05	1037.1	1036.355	1048	
16-Sep-99	0.02	8.4	1036.834	1034.5	1047.7	
14-Jun-00	0.01	10.4	1036.827	1035.907	1047.6	
9-Sep-00	0.00	9.5	1036.82	1035.27		
10-Jun-01	0.10	10.3	1036.89	1035.83		
20-Sep-01	0.01	8.2	1036.827	1034.36		
18-Jun-02	0.00	9.1	1036.82	1034.99		
10-Sep-02	0.00	8.20	1036.82	1034.36		
4-Nov-02	0.00	7.10	1036.82	1033.59		
10-Nov-02	0.00	6.50	1036.82	1033.17		
11-Jun-03	0.20	8.70	1036.96	1034.71		*have to continue using old piezometer, tips are too big
10-Sep-03	0.00	6.30	1036.82	1033.03		* Installed new tips, now using new box
10-May-04	0	5.2	1036.82	1032.26		2004 survey data used from this point on
19-Jul-04	0	6.2	1036.82	1032.96		
9-Sep-04	0.1	5.7	1036.89	1032.61		
26-May-05	0	8.4	1036.82	1034.5		
14-Sep-05	0	4.9	1036.82	1032.05		
09-Mar-06	0	3.3	1036.82	1030.93		
27-Mar-06	0.1	3.4	1036.89	1031		
14-Jun-06	0.1	7.1	1036.89	1033.59		
02-Oct-06	0.1	4.1	1036.89	1031.49		
22-May-07	0	4.6	1036.82	1031.84	1046.781	Good Flow
26-Sep-07	0.1	5.7	1036.89	1032.61		
24-Sep-08	0.1	6.1	1036.89	1032.89	1046.197	

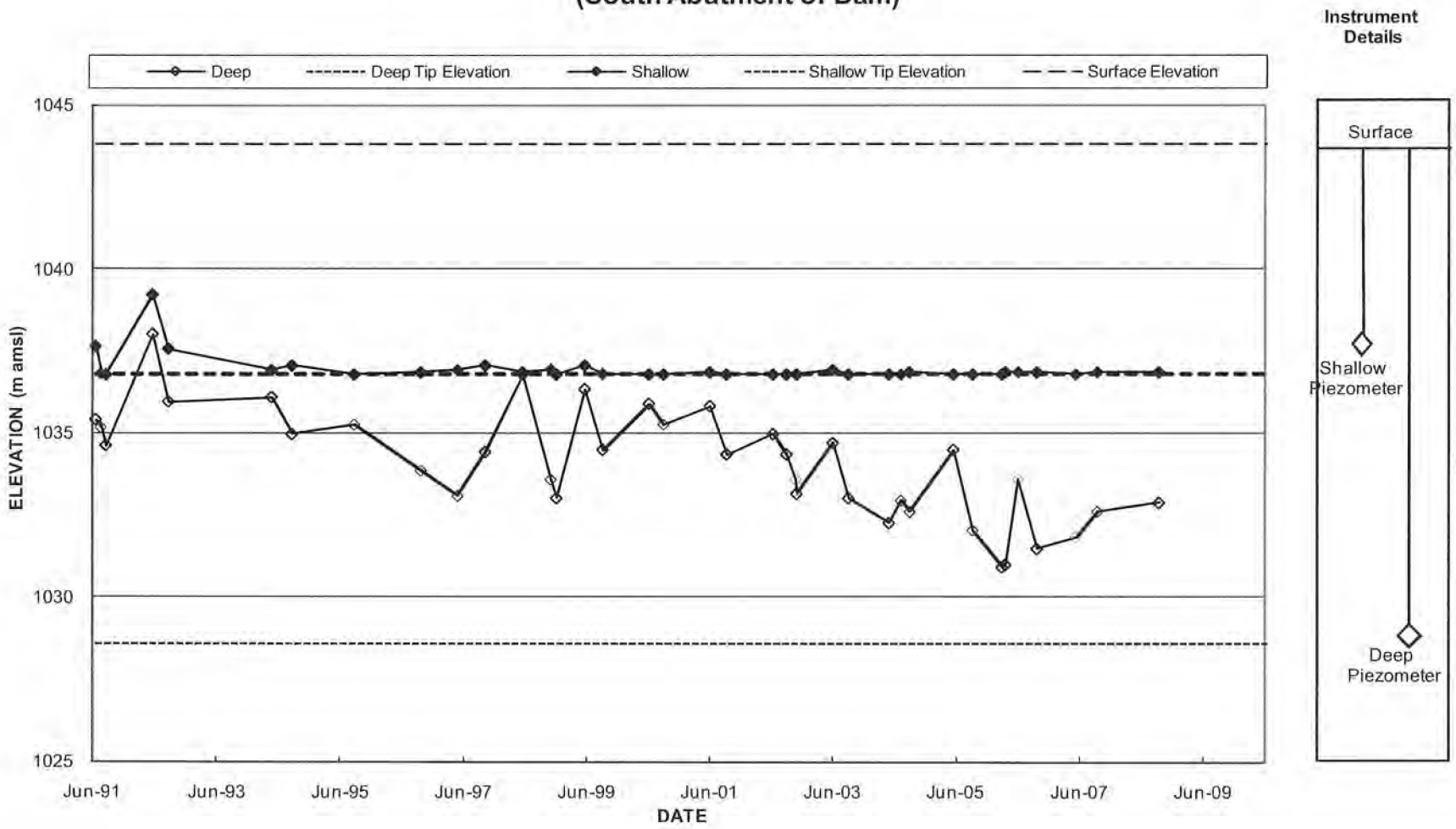
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID3 Pneumatic Piezometer (Shallow Tip)
(South Abutment of Dam)



INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID3 Pneumatic Piezometer (Deep Tip)
(South Abutment of Dam)



INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID3 Pneumatic Piezometer (Both Tips)
(South Abutment of Dam)

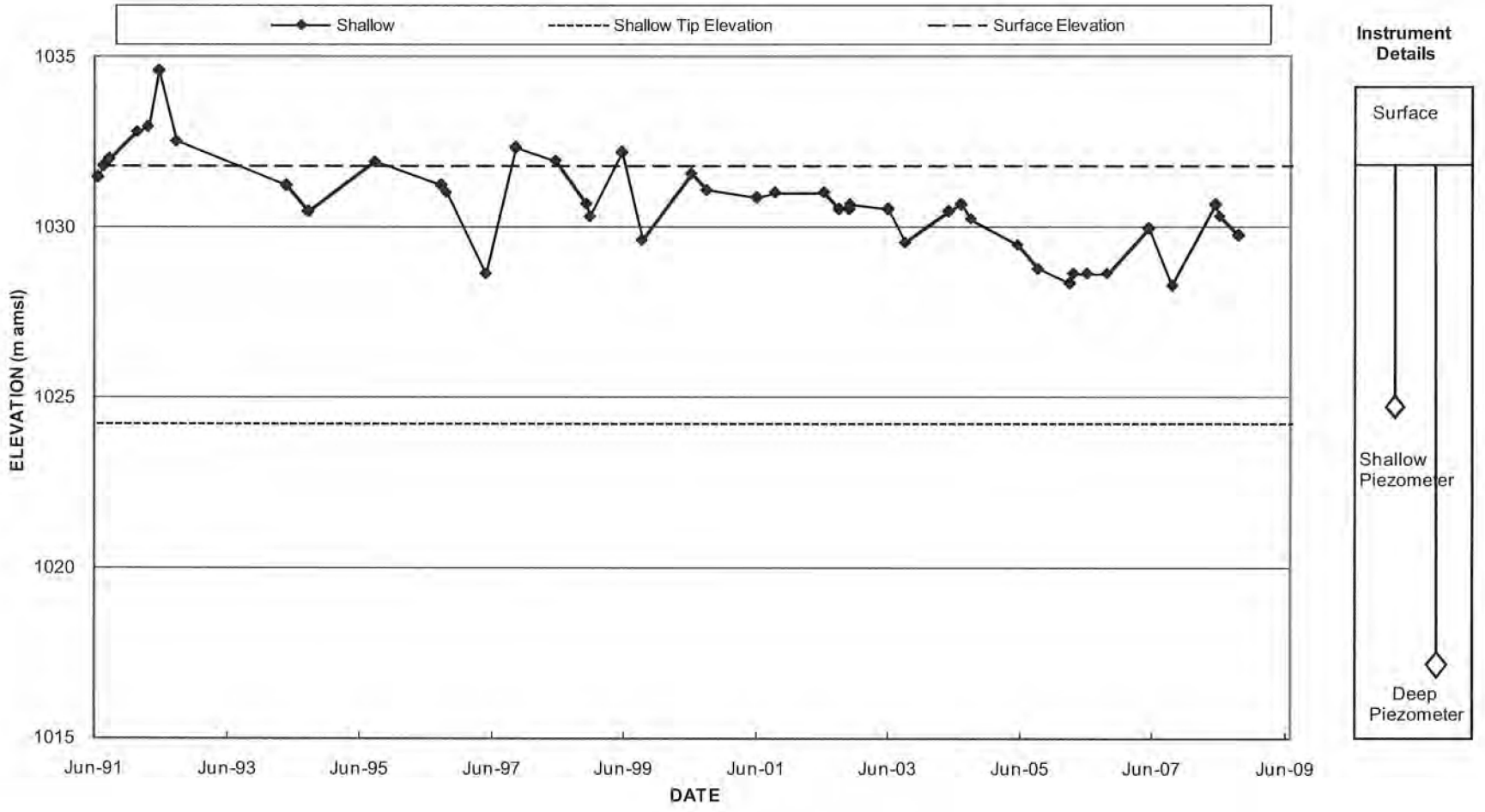


Faro Mine Instrumentation - Intermediate Dam

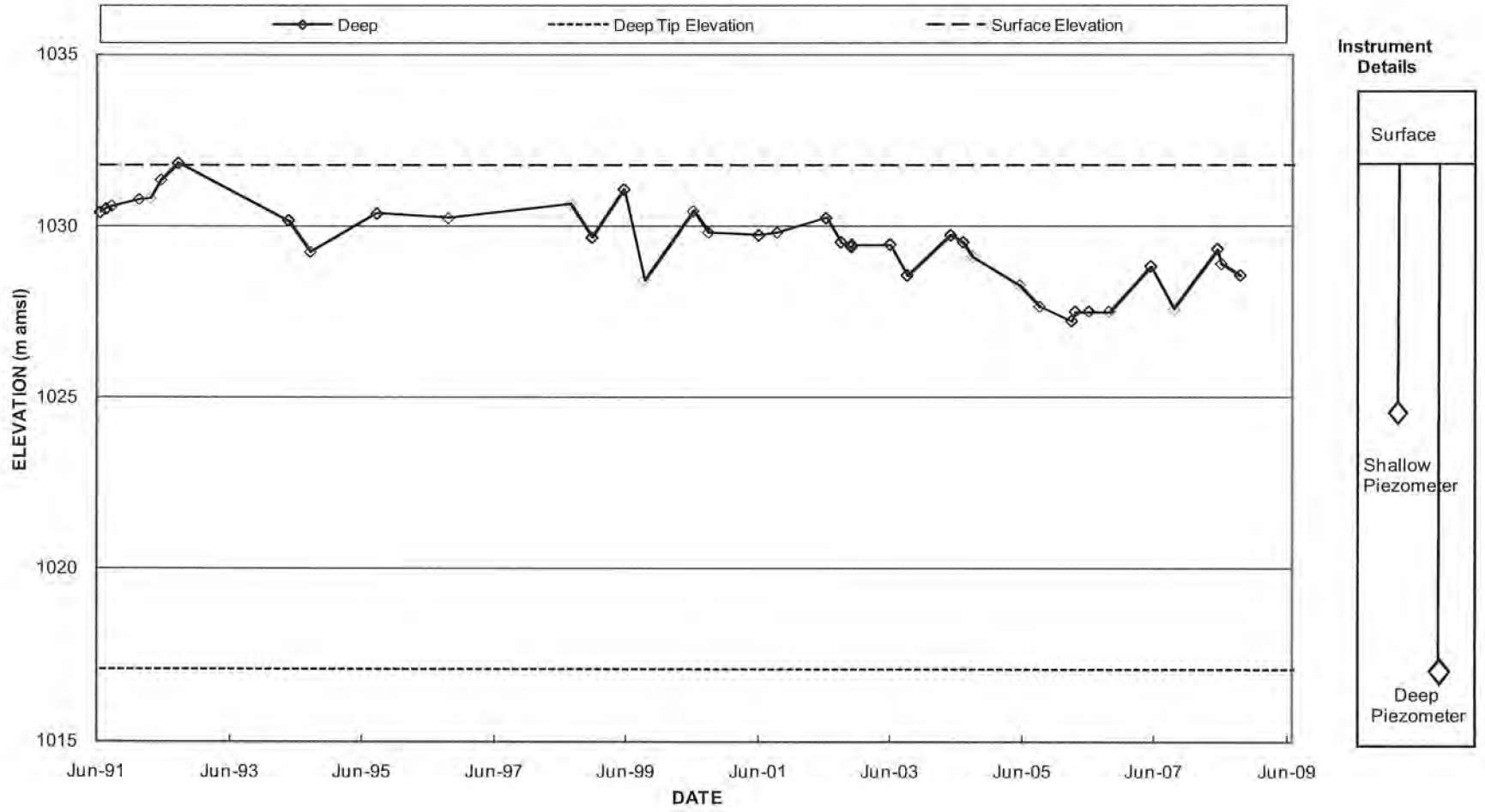
BH91-ID4		Location:	Intermediate Dam Toe @St.0+567	Shallow Tip Elevation (m amsl):	1024.22
		Coordinates:	8V580517 6913926	Deep Tip Elevation (m amsl):	1017.08
Surface Protector:	yes	Date Installed:	1991	*Surface Elevation (m amsl):	1031.80

	Reading (psi)		Piezometric Elevation (m amsl)			
Date	Shallow (upper)	Deep (lower)	Shallow (upper)	Deep (lower)	Pond El. (m amsl)	Comments
Jul-91	10.34	19.06	1031.46	1030.42	1042.2	
Aug-91	10.81	19.20	1031.79	1030.52	1042.2	
Sep-91	11.10	19.30	1031.99	1030.59	1042.2	
Feb-92	12.24	19.59	1032.79	1030.79	1047.7	
Apr-92	12.44	19.64	1032.93	1030.83	1047.7	
Jun-92	14.80	20.40	1034.58	1031.36	1047.7	
Sep-92	11.86	21.10	1032.52	1031.85	1047.7	
May-94	10.00	18.70	1031.22	1030.17	1047.7	
Sep-94	8.90	17.40	1030.45	1029.26	1047.7	
Sep-95	11.00	19.00	1031.92	1030.38	1047.7	
Sep-96	10.00		1031.22		1048.1	
Oct-96	9.7	18.8	1031.01	1030.24		
7-May-97	6.3		1028.63			
17-Oct-97	11.58		1032.33			
27-May-98	11.04		1031.95		1048.1	
7-Aug-98		19.4		1030.66	1048.1	
12-Nov-98	9.22		1030.67		1047.8	
4-Dec-98	8.7	18.0	1030.31	1029.68	1047.8	
29-May-99	11.40	20.00	1032.20	1031.08	1048	
16-Sep-99	7.7	16.2	1029.61	1028.42	1047.7	
14-Jun-00	10.5	19.1	1031.57	1030.45	1047.6	
9-Sep-00	9.8	18.2	1031.08	1029.82		
10-Jun-01	9.50	18.1	1030.87	1029.75		
20-Sep-01	9.70	18.2	1031.01	1029.82		
18-Jun-02	9.70	18.80	1031.01	1030.24		
10-Sep-02	9.00	17.80	1030.52	1029.54		
4-Nov-02	9.00	17.60	1030.52	1029.40		
10-Nov-02	9.20	17.7	1030.66	1029.47		
11-Jun-03	9.00	17.7	1030.52	1029.47		*New piezometer readout used
10-Sep-03	7.60	16.4	1029.54	1028.56		
10-May-04	8.9	18.1	1030.45	1029.75		No 2004 elevation data
19-Jul-04	9.2	17.8	1030.66	1029.54		
9-Sep-04	8.6	17.2	1030.24	1029.12		
26-May-05	7.5	16	1029.47	1028.28		
14-Sep-05	6.5	15.1	1028.77	1027.65		
09-Mar-06	5.9	14.5	1028.35	1027.23		
27-Mar-06	6.3	14.9	1028.63	1027.51		
14-Jun-06	6.3	14.9	1028.63	1027.51		
02-Oct-06	6.3	14.9	1028.63	1027.51		
22-May-07	8.2	16.8	1029.96	1028.84	1046.781	Good Flow
26-Sep-07	5.8	15	1028.28	1027.58		
20-May-08	9.2	17.5	1030.66	1029.33		
11-Jun-08	8.7	16.9	1030.31	1028.91		
24-Sep-08	7.9	16.4	1029.75	1028.56	1046.197	

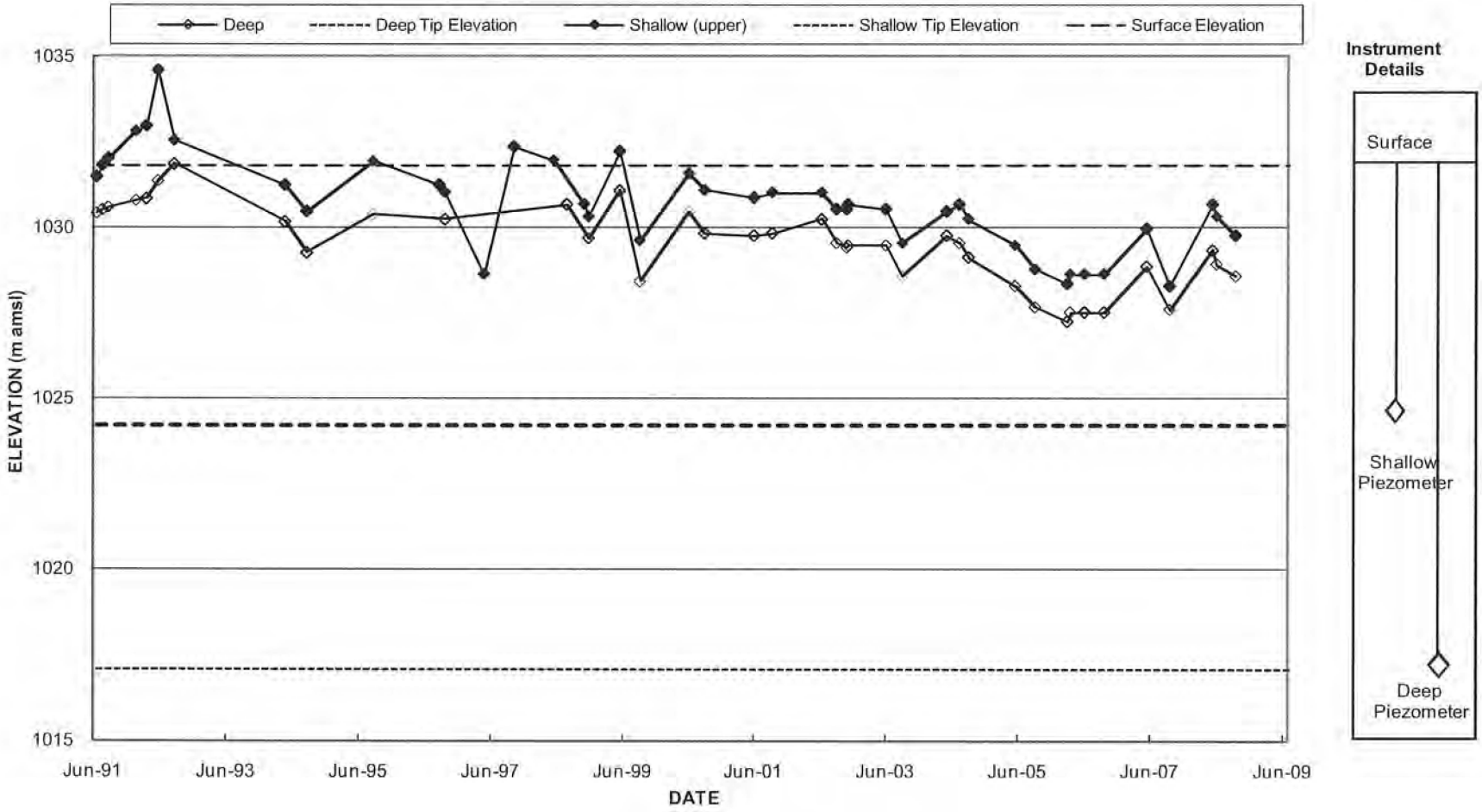
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID4 Pneumatic Piezometer (Shallow Tip)
(Toe of Dam)



INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID4 Pneumatic Piezometer (Deep Tip)
(Toe of Dam)



INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID4 Pneumatic Piezometer (Both Tips)
(Toe of Dam)



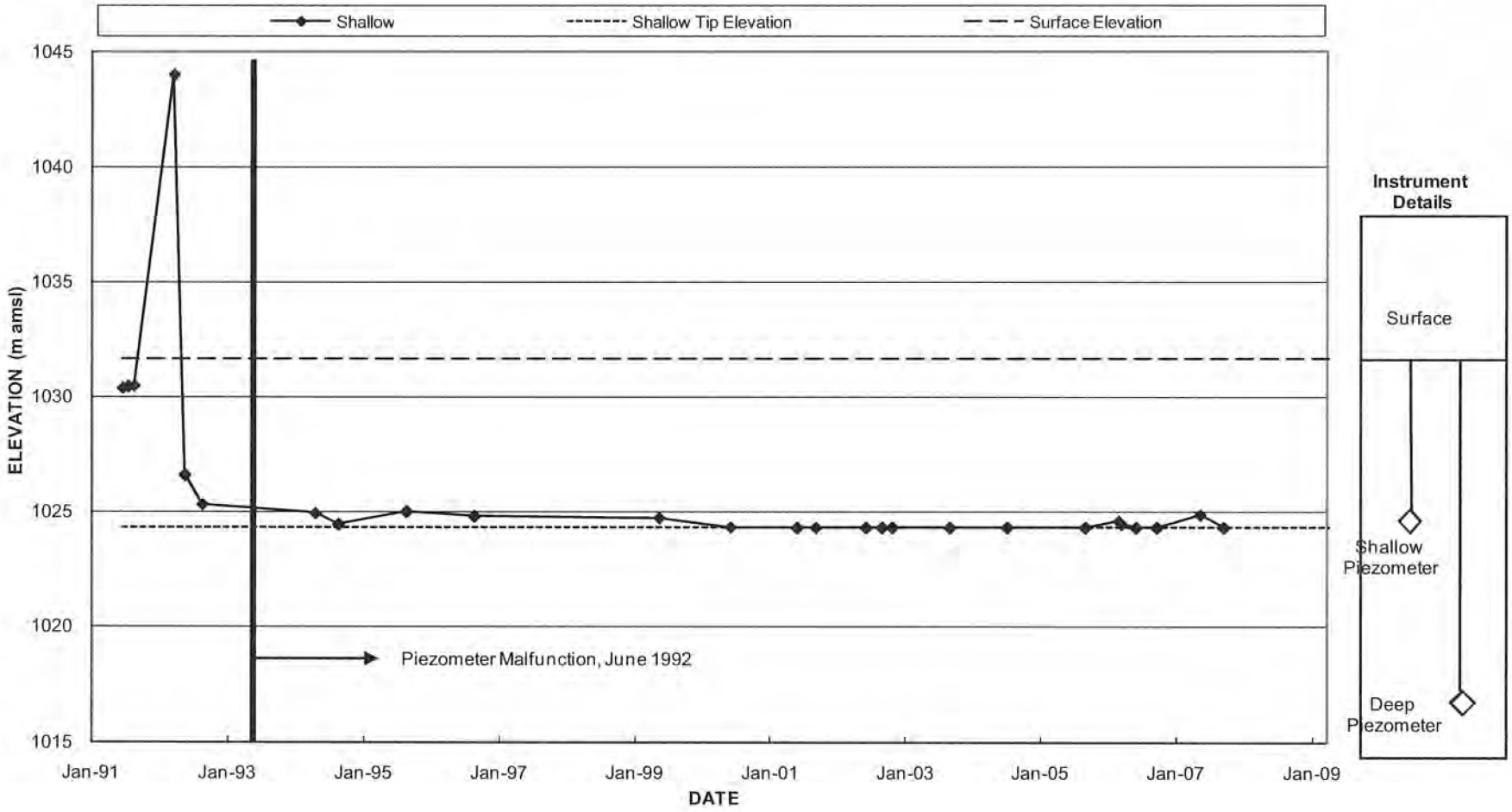
Faro Mine Instrumentation - Intermediate Dam

BH91-ID5		Location:	Intermediate Dam Toe @ St.0+625	Shallow Tip Elevation (m amsl):	1024.30
		Coordinates:	8V580472 6913862	Deep Tip Elevation (m amsl):	1017.08
Surface Protector:	yes	Date Installed:	1991	2004 Surface Elevation (m amsl):	1031.64

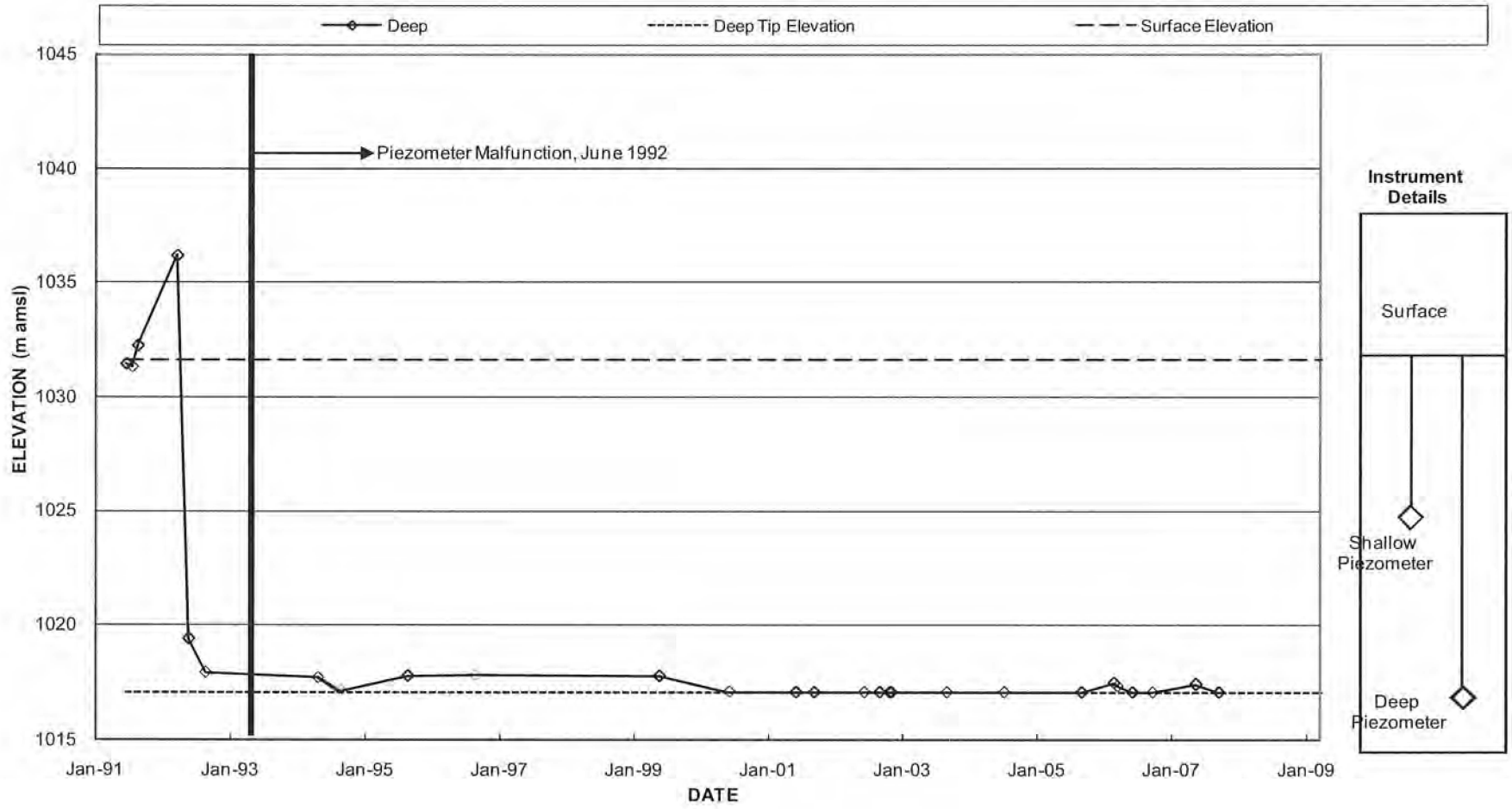
Date		Reading (psi) Shallow (upper)	Reading (psi) Deep (lower)	Piezometric Elevation (m amsl) Shallow (upper)	Piezometric Elevation (m amsl) Deep (lower)	Pond El. (m amsl)	Comments
Jul-91		8.67	20.54	1030.37	1031.46	1042.2	
Aug-91		8.76	20.36	1030.43	1031.33	1042.2	
Sep-91		8.80	21.70	1030.46	1032.27	1042.2	
Feb-92							
Apr-92		28.10	27.30	1043.97	1036.19	1047.7	
Jun-92		3.30	3.30	1026.61	1019.39	1047.7	
Sep-92		1.46	1.20	1025.32	1017.92	1047.7	
May-94		0.90	0.90	1024.93	1017.71	1047.7	
Sep-94		0.20	0.10	1024.44	1017.15	1047.7	
Sep-95		1.00	1.00	1025	1017.78	1047.7	
Sep-96		0.7	1.05	1024.79	1017.815	1048.1	
07-May-97		no reading					
17-Oct-97		no reading					
27-May-98		no reading					
29-May-99		0.60	1.00	1024.72	1017.78	1048	
16-Sep-99		no reading; no bubbles					
14-Jun-00		0.03	0.03	1024.321	1017.101	1047.6	
10-Jun-01		0.00	0	1024.3	1017.08		
20-Sep-01		0.00	0.00	1024.3	1017.08		
18-Jun-02		0.00	0	1024.3	1017.08		
10-Sep-02		0.00	0	1024.3	1017.08		
04-Nov-02		0.00	0	1024.3	1017.08		
10-Nov-02		0.00	0	1024.3	1017.08		
10-Sep-03		0.00	0	1024.3	1017.08		
19-Jul-04		0.00	0	1024.30	1017.08		2004 survey data used from here on
Sep-05		0.00	0	1024.3	1017.08		
09-Mar-06		0.4	0.6	1024.58	1017.5		
27-Mar-06		0.2	0.4	1024.44	1017.36		no bubbles
14-Jun-06		0	0	1024.3	1017.08		
02-Oct-06		0	0	1024.3	1017.08		
22-May-07		0.8	0.5	1024.86	1017.43	1046.781	lower won't stabilize
26-Sep-07		0	0	1024.3	1017.08		No bubbles

Both tips have leaking leads as of June, 1992

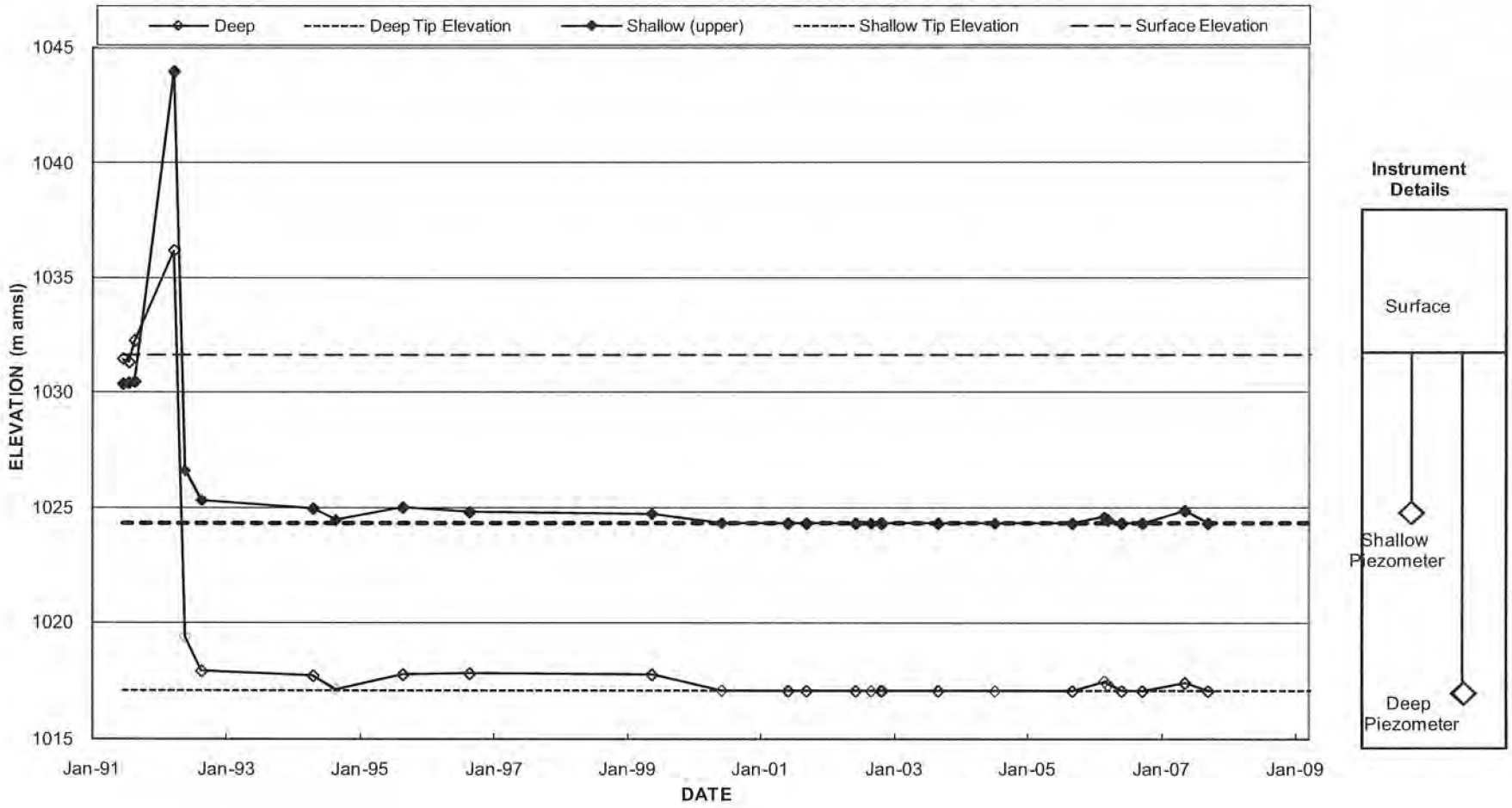
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID5 Pneumatic Piezometer (Shallow Tip)
(Toe of Dam)



INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID5 Pneumatic Piezometer (Deep Tip)
(Toe of Dam)



INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID5 Pneumatic Piezometer (Both Tips)
(Toe of Dam)

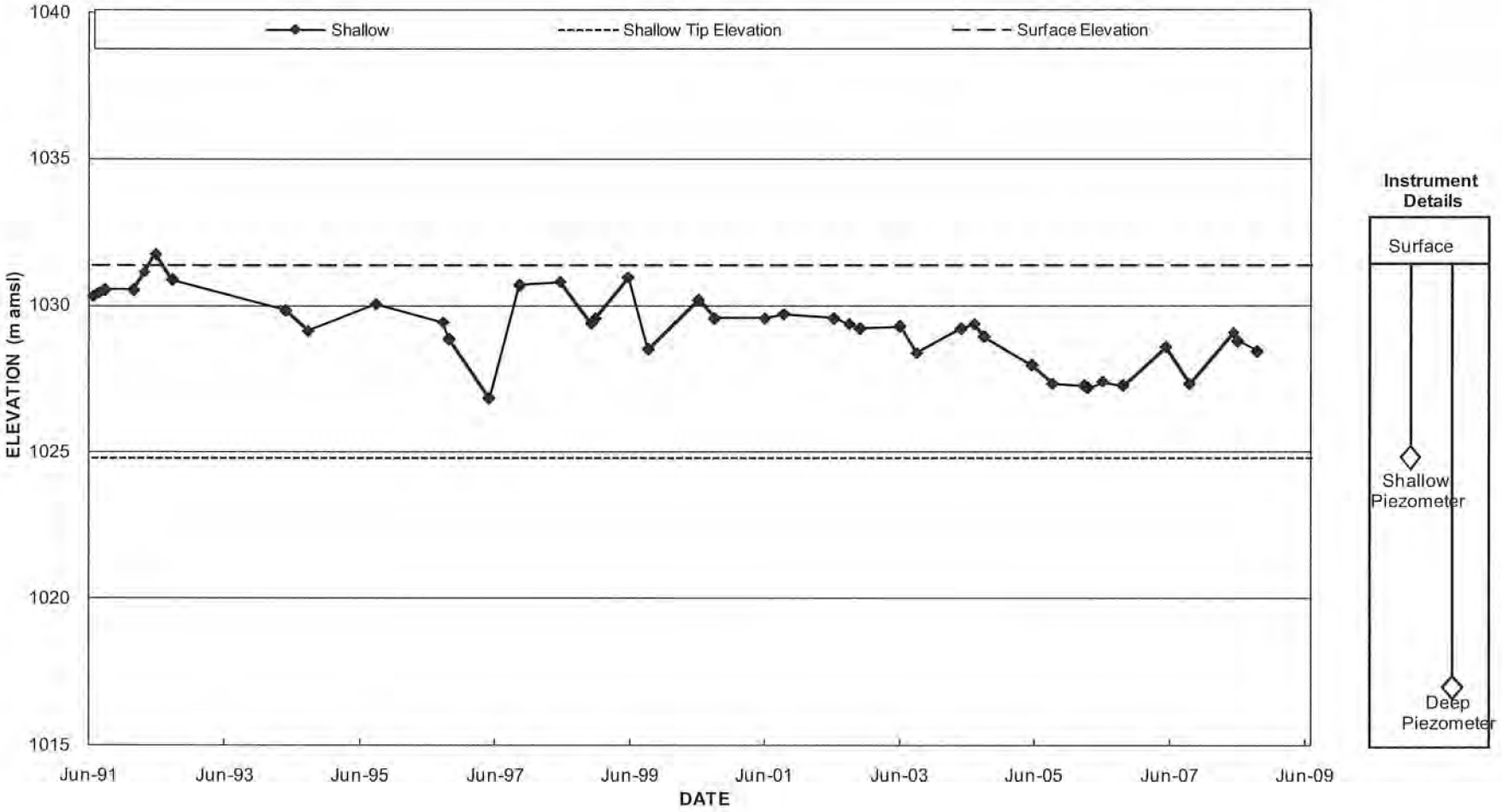


Faro Mine Instrumentation - Intermediate Dam

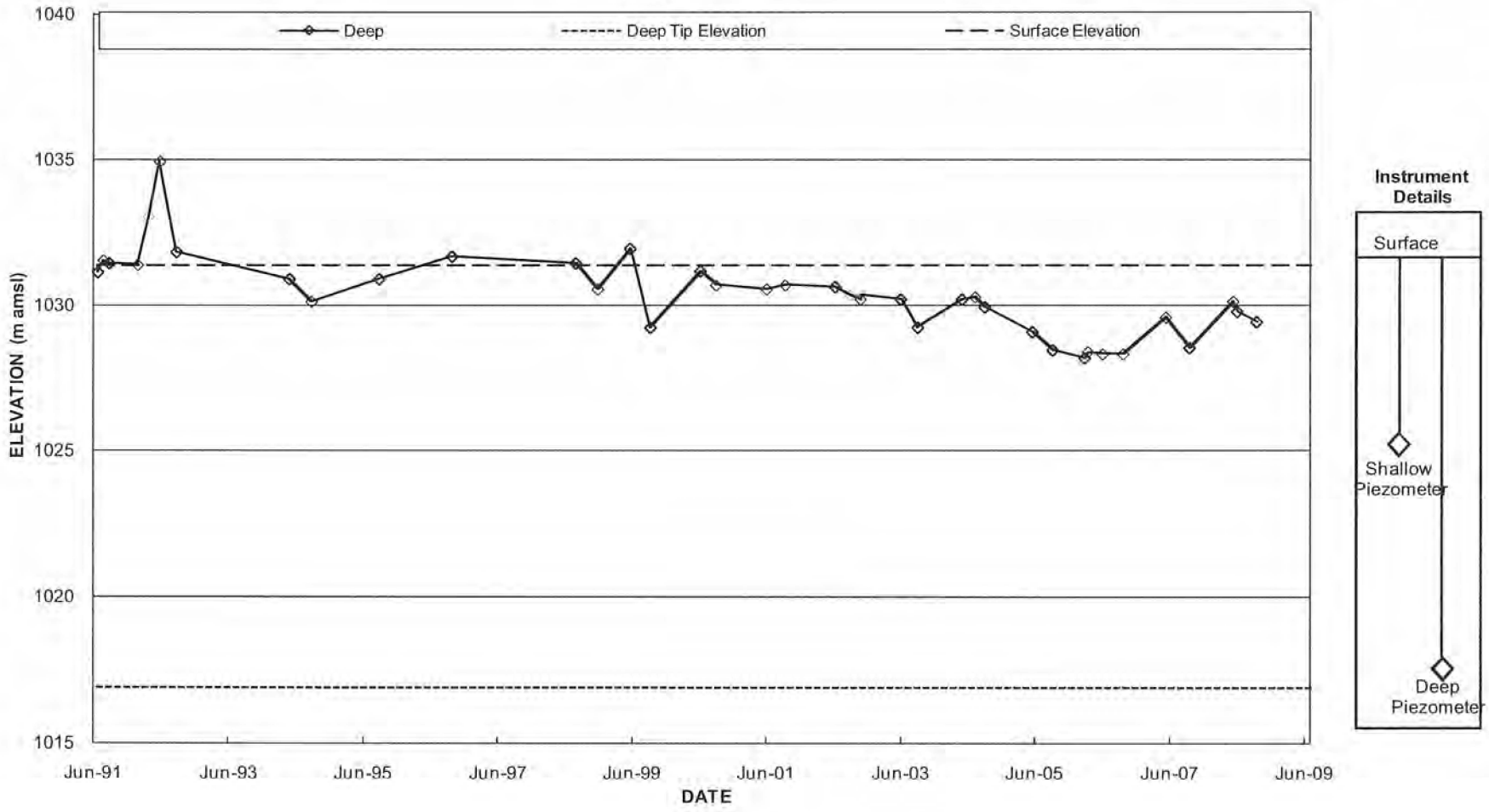
BH91-ID6		Location:	Intermediate Dam Toe @St.0+630		Shallow Tip Elevation (m amsl):	1024.80
		Coordinates:	8V580475 6913866		Deep Tip Elevation (m amsl):	1016.90
Surface Protector:	yes	Date Installed:	1991		2004 Surface Elevation (m amsl):	1031.36

		Reading (psi)		Piezometric Elevation (m amsl)			
Date		Shallow (upper)	Deep (lower)	Shallow (upper)	Deep (lower)	Pond El. (m amsl)	Comments
Jul-91		7.89	20.33	1030.32	1031.13	1042.2	
Aug-91		8.06	20.91	1030.44	1031.54	1042.2	
Sep-91		8.20	20.80	1030.54	1031.46	1042.2	
Feb-92		8.20	20.70	1030.54	1031.39	1047.7	
Apr-92		9.06	23.10	1031.14	1033.07	1047.7	
Jun-92		9.91	25.80	1031.74	1034.96	1047.7	
Sep-92		8.67	21.36	1030.87	1031.85	1047.7	
May-94		7.20	20.00	1029.84	1030.9	1047.7	
Sep-94		6.20	18.90	1029.14	1030.13	1047.7	
Sep-95		7.50	20.00	1030.05	1030.9	1047.7	
Sep-96		6.6		1029.42		1048.1	
Oct-96		5.8	21.1	1028.86	1031.67		
7-May-97		2.9		1026.83			
17-Oct-97		8.41		1030.687			
27-May-98		8.56		1030.792		1048.1	
7-Aug-98			20.8		1031.46	1048.1	
12-Nov-98		6.57		1029.399		1047.8	
4-Dec-98		6.8	19.5	1029.56	1030.55	1047.8	
29-May-99		8.78	21.50	1030.946	1031.95	1048	
16-Sep-99		5.3	17.60	1028.51	1029.22	1047.7	
14-Jun-00		7.7	20.41	1030.19	1031.187	1047.6	
9-Sep-00		6.8	19.70	1029.56	1030.69		
10-Jun-01		6.80	19.50	1029.56	1030.55		
20-Sep-01		7.00	19.70	1029.7	1030.69		
18-Jun-02		6.80	19.60	1029.56	1030.62		
10-Sep-02		6.50	19.20	1029.35	1030.34		
4-Nov-02		6.30	19.00	1029.21	1030.2		
10-Nov-02		6.30	19.2	1029.21	1030.34		
11-Jun-03		6.40	19	1029.28	1030.2		*New piezometer started use here
10-Sep-03		5.10	17.6	1028.37	1029.22		
10-May-04		6.3	19	1029.21	1030.2		2004 survey data used from this point on
19-Jul-04		6.5	19.1	1029.35	1030.27		
9-Sep-04		5.9	18.6	1028.93	1029.92		
26-May-05		4.5	17.4	1027.95	1029.08		
14-Sep-05		3.6	16.5	1027.32	1028.45		
09-Mar-06		3.5	16.1	1027.25	1028.17		
27-Mar-06		3.4	16.4	1027.18	1028.38		3.4/3.5 won't stabilize
14-Jun-06		3.7	16.3	1027.39	1028.31		
02-Oct-06		3.5	16.3	1027.25	1028.31		
22-May-07		5.4	18.1	1028.58	1029.57	1046.781	Good flow
26-Sep-07		3.6	16.6	1027.32	1028.52		
20-May-08		6.1	18.9	1029.07	1030.13		
11-Jun-08		5.7	18.4	1028.79	1029.78		
24-Sep-08		5.2	17.9	1028.44	1029.43	1046.197	

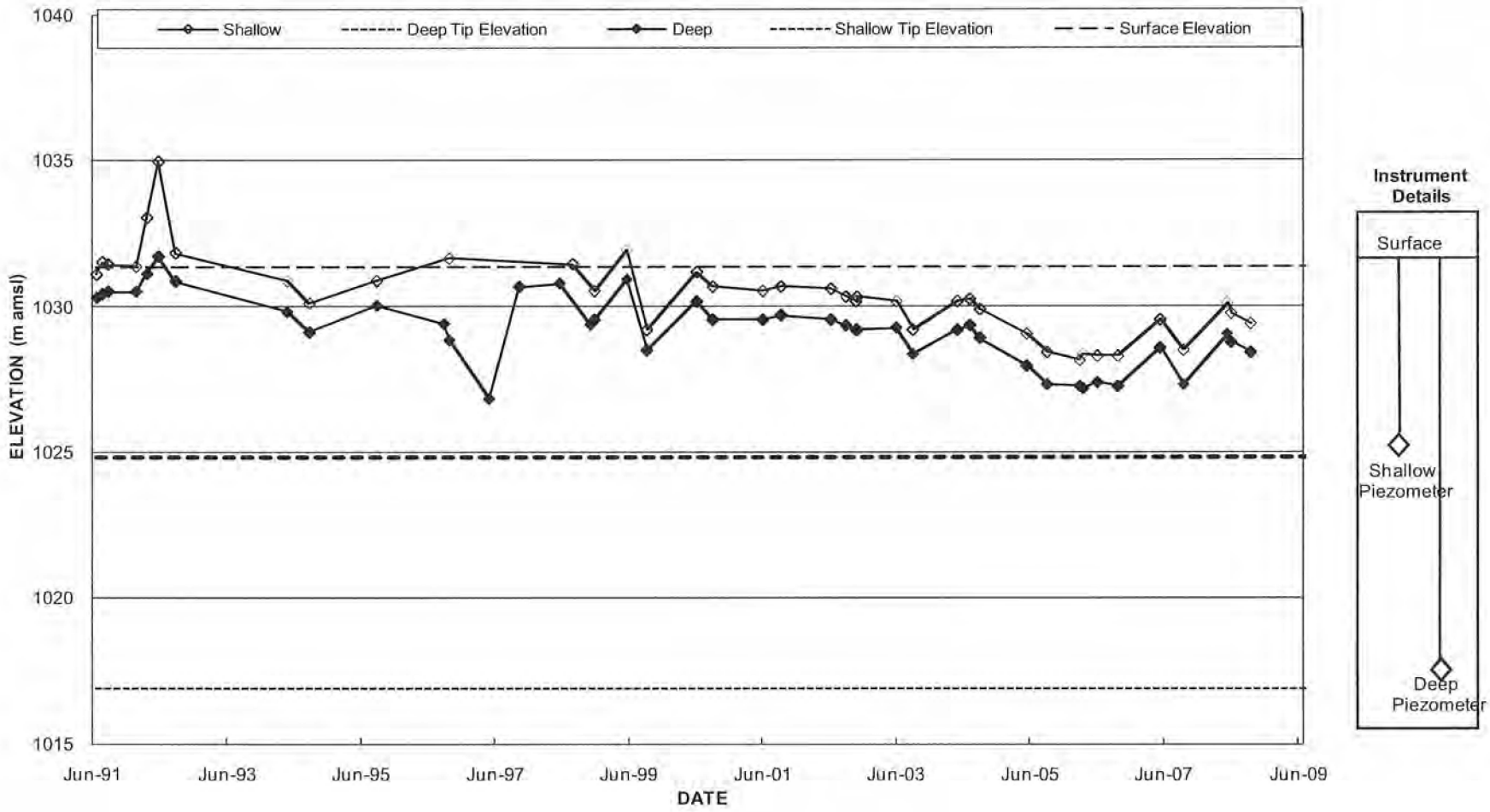
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID6 Pneumatic Piezometer (Shallow Tip)
(Toe of Dam)



INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID6 Pneumatic Piezometer (Deep Tip)
(Toe of Dam)



INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID6 Pneumatic Piezometer (Both Tips)
(Toe of Dam)

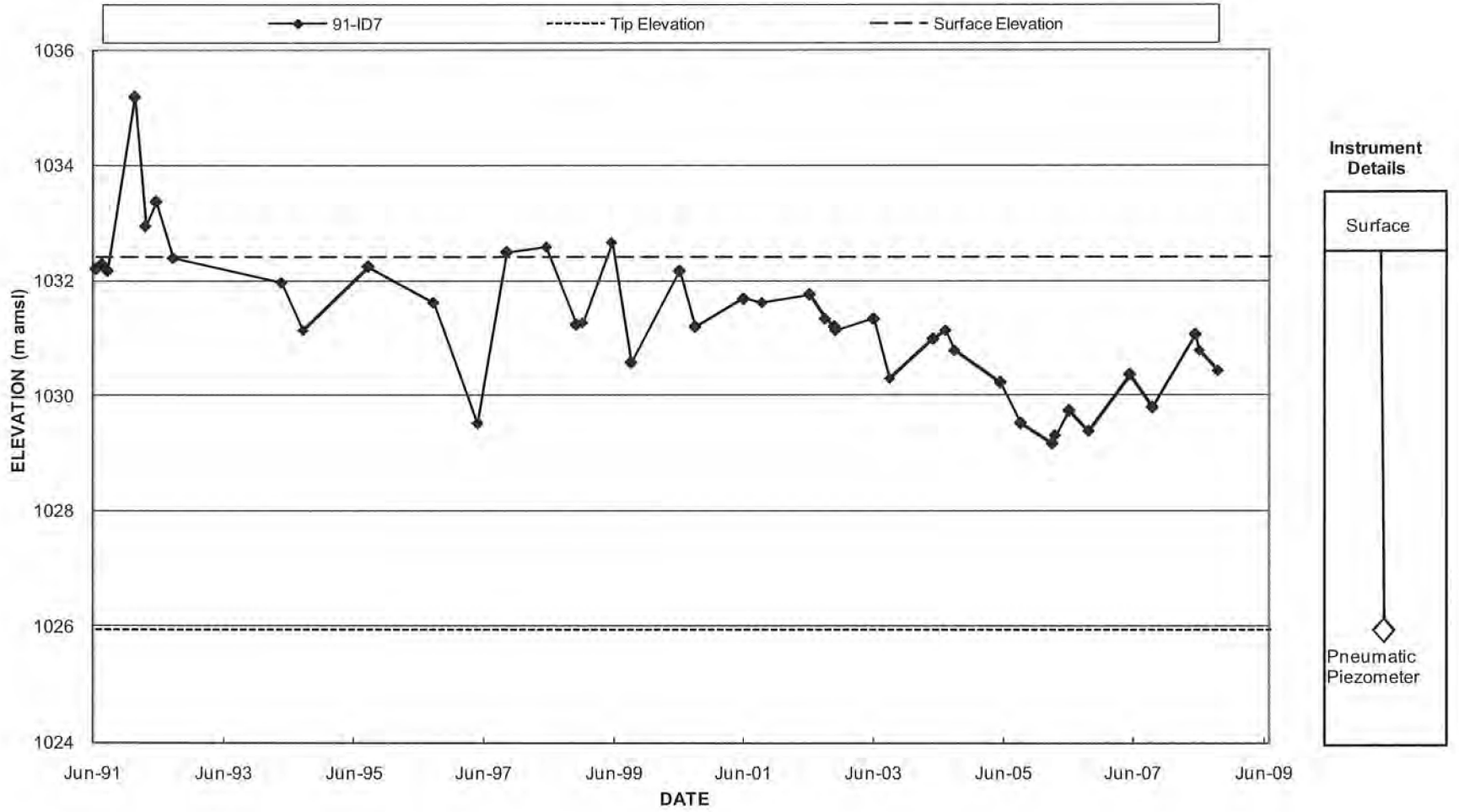


Faro Mine Instrumentation - Intermediate Dam

BH91-ID7		Location:	Intermediate Dam Toe @St.0+759		
		Coordinates:	8V580377 6913751	Tip Elevation (m amsl):	1025.95
Surface Protector:	yes	Date Installed:	1991	2004 Ground Elevation (amsl):	1032.42

Date		Reading (psi)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
Jul-91		8.94	1032.21	1042.2	
Aug-91		9.06	1032.29	1042.2	
Sep-91		8.90	1032.18	1042.2	
Feb-92		13.21	1035.2	1047.7	
Apr-92		10.01	1032.96	1047.7	
Jun-92		10.61	1033.38	1047.7	
Sep-92		9.21	1032.4	1047.7	
May-94		8.60	1031.97	1047.7	
Sep-94		7.40	1031.13	1047.7	
Sep-95		9.00	1032.25	1047.7	
Sep-96		8.1	1031.62	1048.1	
7-May-97		5.1	1029.52		
17-Oct-97		9.36	1032.502		
27-May-98		9.49	1032.593	1048.1	
12-Nov-98		7.56	1031.242	1047.8	
16-Dec-98		7.6	1031.27	1047.8	
29-May-99		9.60	1032.67	1048	
16-Sep-99		6.6	1030.57	1047.7	
14-Jun-00		8.9	1032.18	1047.6	
9-Sep-00		7.5	1031.2		
10-Jun-01		8.20	1031.69		
20-Sep-01		8.10	1031.62		
18-Jun-02		8.30	1031.76		
10-Sep-02		7.70	1031.34		
4-Nov-02		7.50	1031.2		
10-Nov-02		7.40	1031.13		
11-Jun-03		7.70	1031.34		*New piezometer started use here
10-Sep-03		6.20	1030.29		
10-May-04		7.20	1030.99		2004 survey data used from here on
19-Jul-04		7.40	1031.13		
9-Sep-04		6.90	1030.78		
26-May-05		6.1	1030.22		
14-Sep-05		5.1	1029.52		
09-Mar-06		4.6	1029.17		
27-Mar-06		4.8	1029.31		
14-Jun-06		5.4	1029.73		
02-Oct-06		4.9	1029.38		
22-May-07		6.3	1030.36	1046.781	Good Flow
26-Sep-07		5.5	1029.8		
20-May-08		7.3	1031.06		
11-Jun-08		6.9	1030.78		
24-Sep-08		6.4	1030.43	1046.197	

INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID7 Pneumatic Piezometer
(Toe of Dam)

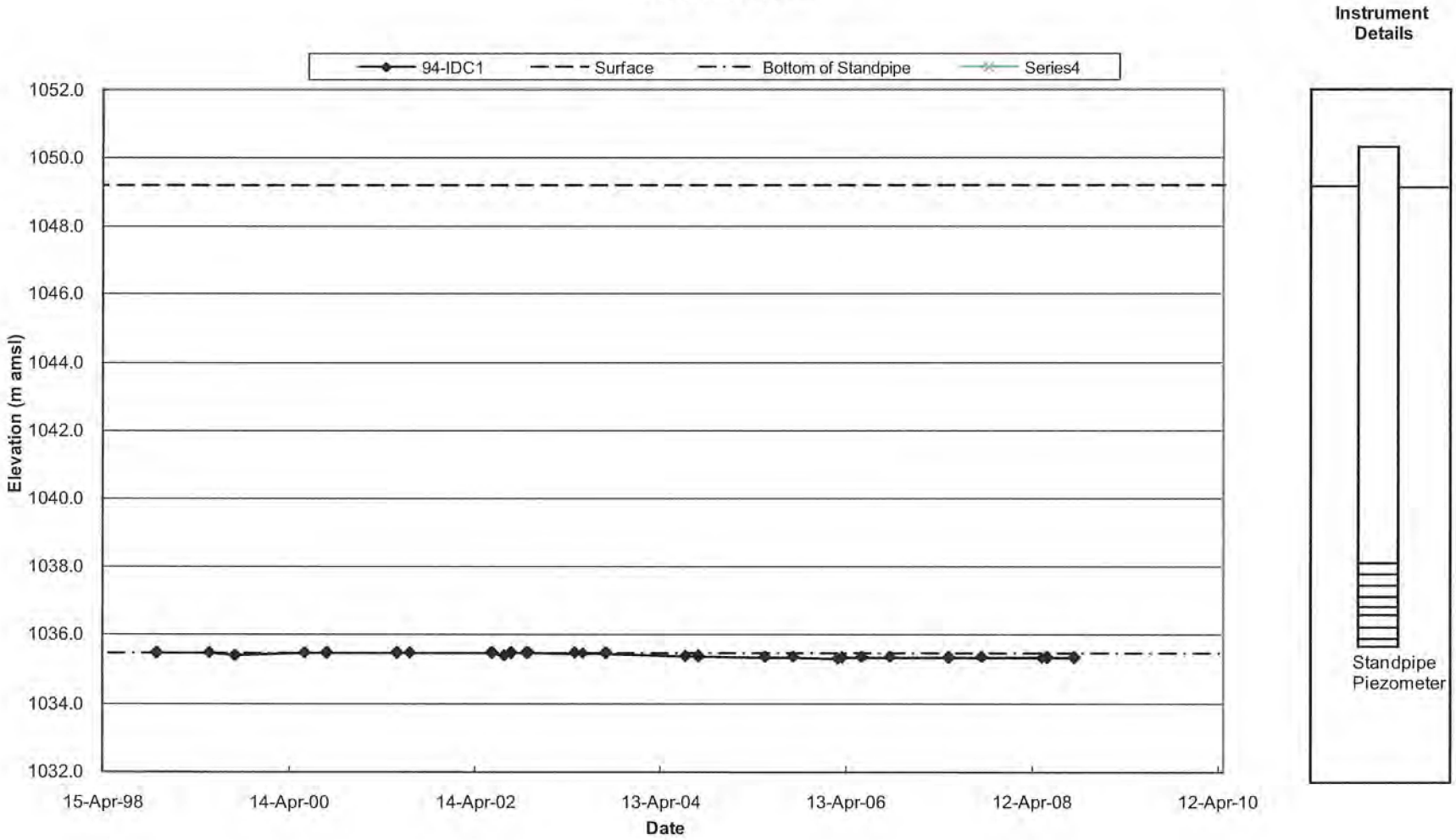


Faro Mine Instrumentation - Intermediate Dam

BH94-IDC-1		Location:	Intermediate Dam Crest	2004 Stick Up (m):	0.27
		Coordinates:	8V580605 6913969	2004 Surface Elevation (m amsl):	1049.21
Surface Protector:	Yes	Date Installed:	1994	Tip Elevation:	N/A

Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
2-Jun-94				1047.7	dry
16-Sep-94				1047.7	dry
22-Sep-95				1047.7	dry
25-Sep-96				1048.1	dry
28-May-98				1048.1	dry
13-Nov-98		14.10	1035.48	1047.8	dry
8-Jun-99		14.10	1035.48	1047.8	dry
16-Sep-99		14.18	1035.40	1047.7	dry
14-Jun-00		14.11	1035.47	1047.6	dry
9-Sep-00		14.11	1035.47	1047.6	H2O
10-Jun-01		14.11	1035.47	1047.6	
1-Aug-01		14.11	1035.47	1047.6	dry
18-Jun-02		14.11	1035.47		dry
5-Aug-02		14.19	1035.40		dry
2-Sep-02		14.11	1035.47		dry
2-Nov-02		14.11	1035.47		dry
10-Nov-02		14.11	1035.47		dry
11-Jun-03		14.12	1035.46		dry
10-Sep-03		14.11	1035.47		dry
10-May-03		14.11	1035.47		dry
19-Jul-04		14.11	1035.37		dry
9-Sep-04		14.11	1035.37		dry
26-May-05		14.12	1035.36		bottom
14-Sep-05		14.12	1035.36		bottom
09-Mar-06		14.17	1035.31		
27-Mar-06		14.13	1035.35		no beep, ice crystals
14-Jun-06		14.125	1035.355		bottom
02-Oct-06		14.12	1035.36		
22-May-07		14.135	1035.345	1046.781	bottom and beep
26-Sep-07		14.125	1035.355		no beep
20-May-08		14.15	1035.33		no beep
11-Jun-08		14.14	1035.34		no beep
24-Sep-08		14.14	1035.34	1046.197	no beep

INTERMEDIATE DAM
Piezometric Monitoring
BH94-IDC-1 Standpipe Piezometer
Crest of Dam

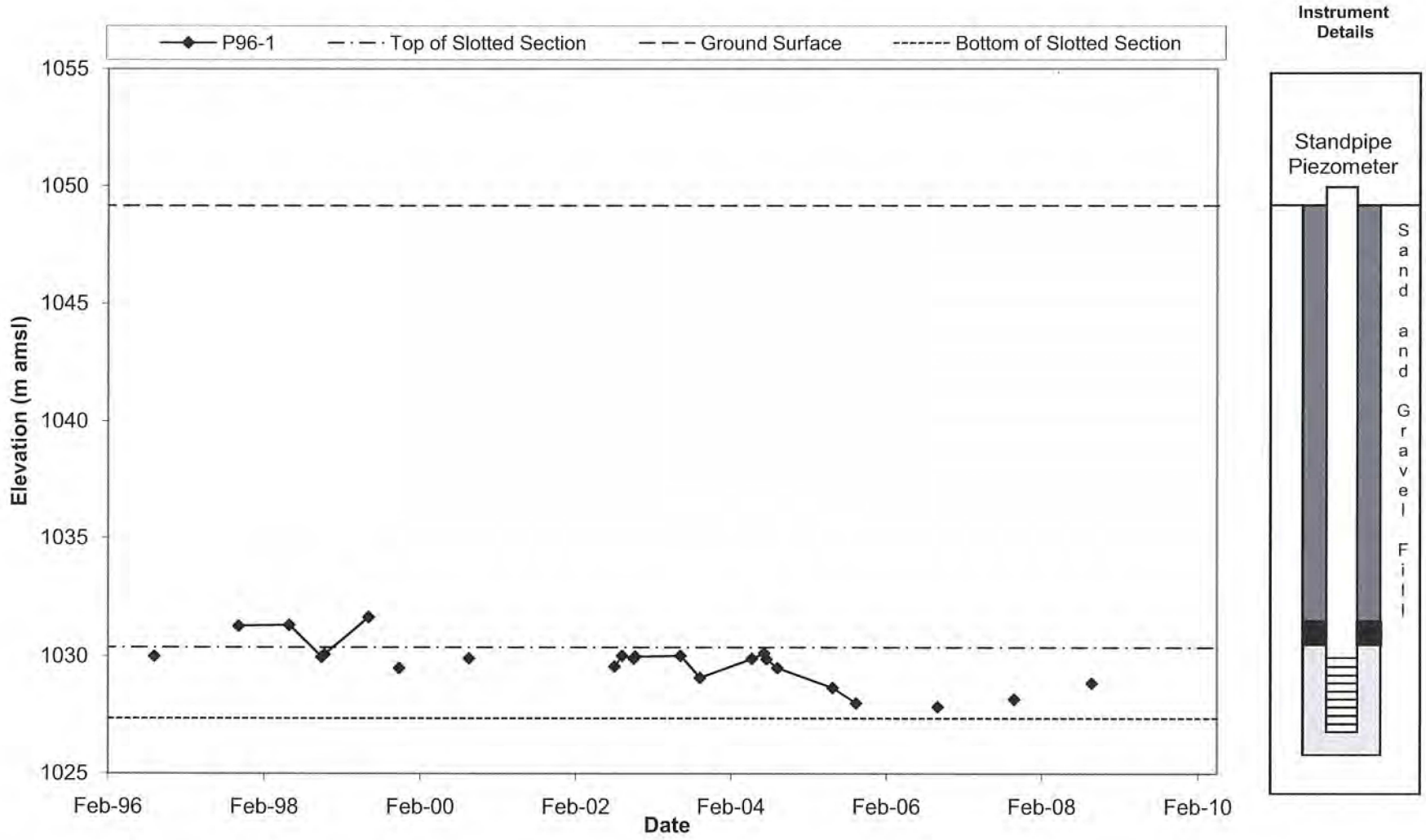


Faro Mine Instrumentation - Intermediate Dam

BH96-1		Location:	Intermediate Dam Crest		
		Coordinates:	8V580563 6913908	2004 Stick Up:	0.68
Surface Protector:	yes	Date Installed:	1996	2004 Surface Elevation (m amsl):	1049.15
		Screened Interval (m bgs):	18.77 - 21.80	Tip Elevation (m amsl):	1027.35

Date		Water level from top of pipe (m)		Piezometric Elevation (m amsl)	Comments
8-Sep-96		20.06		1029.99	
26-Sep-96					
27-Sep-96					
13-May-97					
6-Jun-97					
11-Jul-97					
7-Oct-97		18.77		1031.28	
1-Jun-98		18.73		1031.32	
31-Oct-98		20.08		1029.97	
13-Nov-98		19.97		1030.08	
8-Jun-99		18.4		1031.65	
19-Jun-99					
3-Jul-99					
29-Oct-99		20.55		1029.50	
31-Oct-99					
31-May-00					
27-Jun-00					
25-Jul-00					
21-Sep-00		20.13		1029.92	
10-Oct-00					
6-Jun-01					
15-Jul-01					
5-Sep-01					
18-Jun-02					
5-Aug-02		20.48		1029.57	
10-Sep-02		20.02		1030.03	
4-Nov-02		20.14		1029.91	
10-Nov-02		20.06		1029.99	
11-Jun-03		20.025		1030.03	
10-Sep-03		20.96		1029.09	
12-May-04		19.925		1029.91	2004 survey data used from here on
8-Jul-04		19.695		1030.14	
19-Jul-04		19.945		1029.89	
9-Sep-04		20.325		1029.51	clear
26-May-05		21.17		1028.66	ice
14-Sep-05		21.82		1028.01	
09-Mar-06					
27-Mar-06					no read, frozen
14-Jun-06		2.27			likely a mistake
02-Oct-06		21.98		1027.85	
22-May-07					no read, frozen
26-Sep-07		21.655		1028.18	
20-May-08		1.22			no beep, frozen
11-Jun-08		1.2			no beep, frozen
24-Sep-08		20.97		1028.86	

INTERMEDIATE DAM
Piezometric Monitoring
P96-1 Monitoring Well (Robertson, 1996)
(Dam Crest)

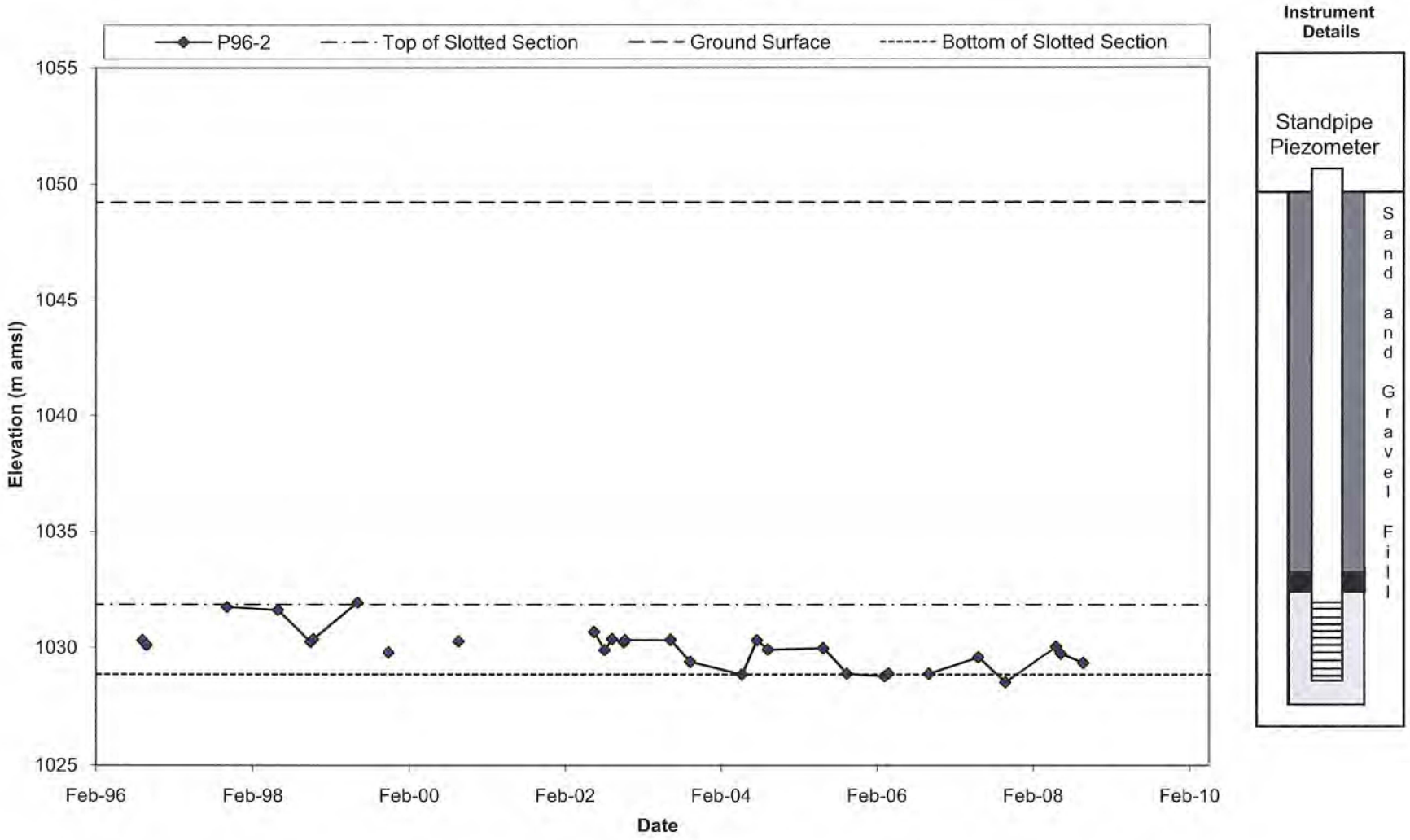


Faro Mine Instrumentation - Intermediate Dam

BH96-2		Location:	Intermediate Dam Crest		
		Coordinates:	8V580696 6914096	Tip Elevation (m amsl):	1028.87
Surface Protector:	yes	Date Installed:	1996	2004 Surface Elevation: (m amsl)	1049.22
		Screened Interval (m bgs):	17.13 - 20.12	2004 Stick Up (m):	0.72

Date		Water level from top of pipe (m)		Piezometric Elevation (m amsl)	Comments
8-Sep-96		19.74		1030.31	
26-Sep-96					
27-Sep-96		19.94		1030.11	
13-May-97					
6-Jun-97					
11-Jul-97					
7-Oct-97		18.3		1031.75	
1-Jun-98		18.44		1031.61	
31-Oct-98		19.8		1030.25	
13-Nov-98		19.69		1030.36	
8-Jun-99		18.11		1031.94	
19-Jun-99					
3-Jul-99					
29-Oct-99		20.25		1029.80	
31-Oct-99					
31-May-00					
27-Jun-00					
25-Jul-00					
21-Sep-00		19.78		1030.27	
10-Oct-00					
6-Jun-01					
15-Jul-01					
5-Sep-01					
18-Jun-02		19.375		1030.68	
5-Aug-02		20.15		1029.90	
10-Sep-02		19.68		1030.37	
4-Nov-02		19.815		1030.24	
10-Nov-02		19.73		1030.32	
11-Jun-03		19.71		1030.34	
10-Sep-03		20.65		1029.40	
10-May-04		21.07		1028.87	Dry reading, 2004 survey data used from here on
19-Jul-04		19.615		1030.33	
9-Sep-04		20.02		1029.92	
26-May-05		19.95		1029.99	
14-Sep-05		21.04		1028.90	bottom iron mud on probe
09-Mar-06		21.15		1028.79	
27-Mar-06		21.03		1028.91	no beep, mud on probe
14-Jun-06		13.05			
02-Oct-06		21.04		1028.90	
22-May-07		20.34		1029.60	no beep, dry
26-Sep-07		21.4		1028.54	
20-May-08		19.885		1030.06	
11-Jun-08		20.19		1029.75	
24-Sep-08		20.58		1029.36	

Intermediate Dam
Piezometric Monitoring
P96-2 Monitoring Well (Robertson, 1996)
(Dam Crest)

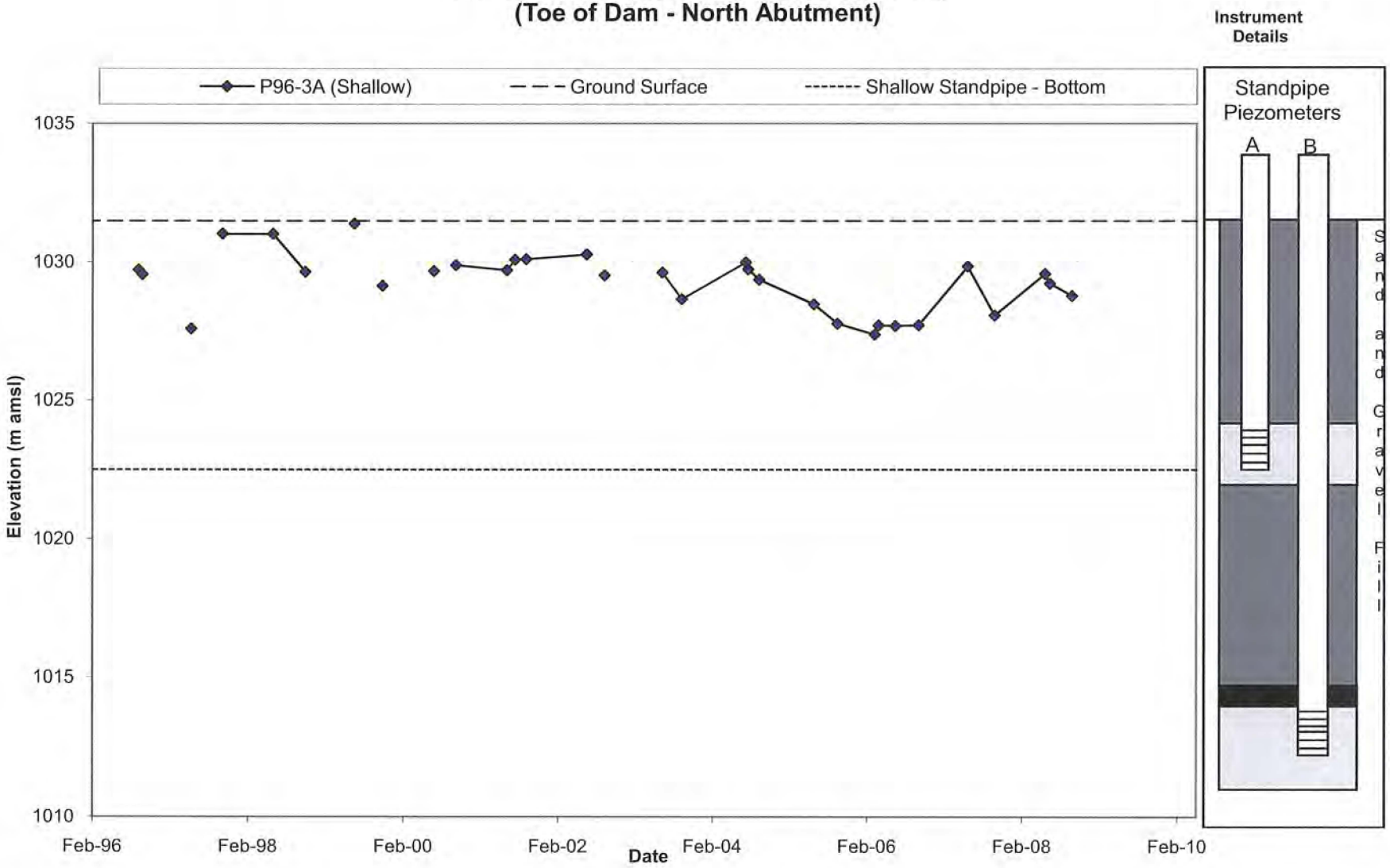


Faro Mine Instrumentation - Intermediate Dam

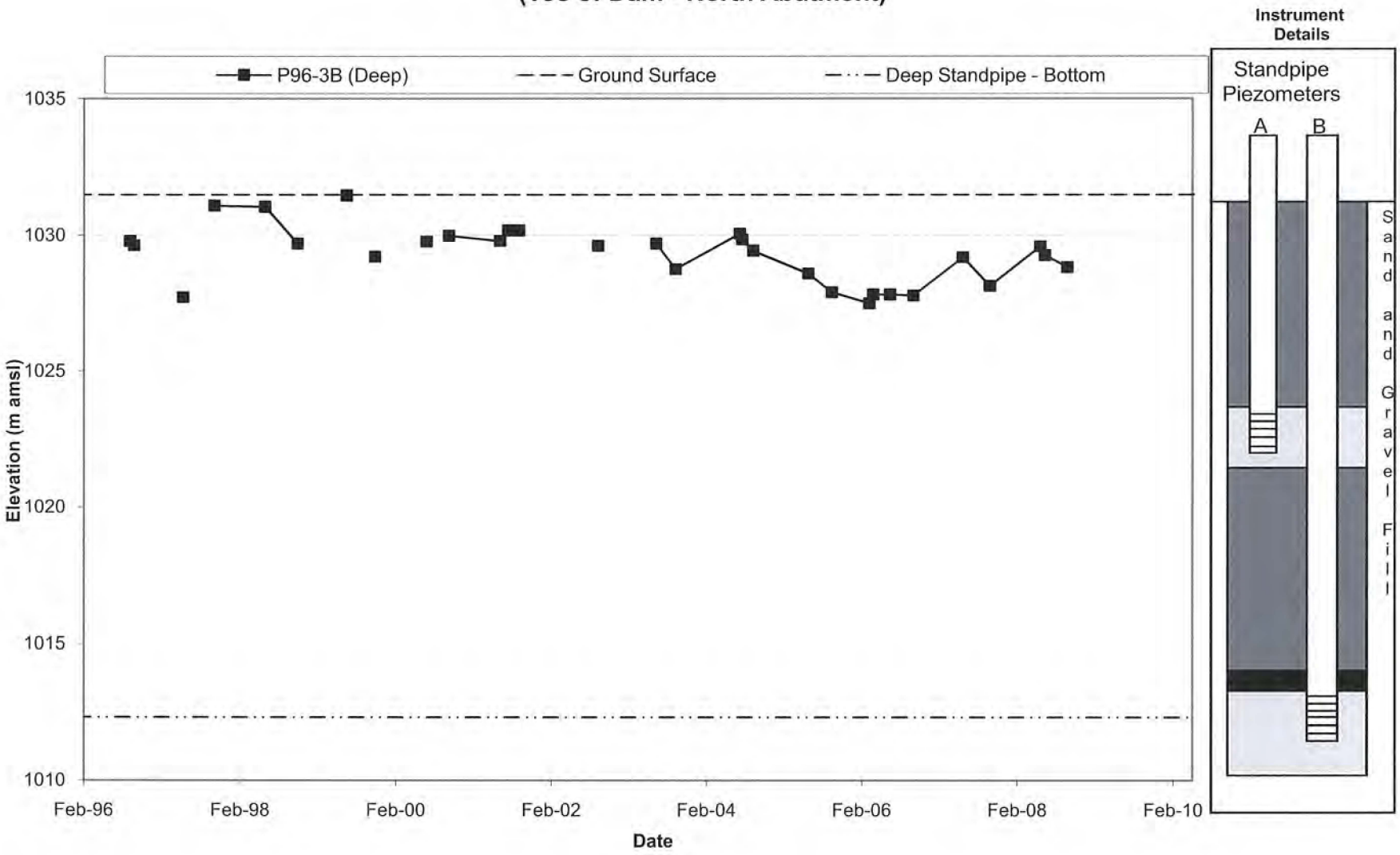
BH96-3		Location:	Intermediate Dam Toe, near the North Abutment	2004 Stick Up - A (m):	0.65
		Coordinates:	8V580529 6913934	2004 Stick Up - B (m):	0.59
Surface Protector:	yes	Date Installed:	1996	2004 Surface Elevation (m amsl):	1031.48
		Tip Elevation - A (m amsl):	1022.43	Screened Interval - A (m bgs):	7.44 - 8.97
		Tip Elevation - B (m amsl):	1012.23	Screened Interval - B (m bgs):	17.7 - 19.17

Date	Water level from top of pipe (m)		Piezometric Elevation (m amsl)		Comments
	A	B	96-3A (Shallow)	96-3B (Deep)	
08-Sep-96	2.37	2.25	1029.71	1029.78	
26-Sep-96	2.53	2.4	1029.55	1029.63	
27-Sep-96					
13-May-97	4.5	4.32	1027.58	1027.71	
06-Jun-97					
11-Jul-97					
07-Oct-97	1.06	0.95	1031.02	1031.08	
01-Jun-98	1.07	0.99	1031.01	1031.04	
31-Oct-98	2.44	2.34	1029.64	1029.69	
13-Nov-98					
08-Jun-99					
19-Jun-99	0.7	0.58	1031.38	1031.45	
03-Jul-99					
29-Oct-99	2.94	2.82	1029.14	1029.21	
31-Oct-99					
31-May-00					
27-Jun-00	2.41	2.26	1029.67	1029.77	
25-Jul-00					
21-Sep-00					
10-Oct-00	2.2	2.05	1029.88	1029.98	
06-Jun-01	2.38	2.24	1029.70	1029.79	
15-Jul-01	2.00	1.86	1030.08	1030.17	
05-Sep-01	1.98	1.86	1030.10	1030.17	
18-Jun-02	1.81		1030.27		
05-Aug-02					
10-Sep-02	2.565	2.42	1029.52	1029.61	
04-Nov-02					
10-Nov-02					
11-Jun-03	2.47	2.34	1029.61	1029.69	
10-Sep-03	3.43	3.28	1028.65	1028.75	
08-Jul-04	2.15	2.01	1029.98	1030.06	2004 survey data used from here on
19-Jul-04	2.4	2.225	1029.73	1029.85	
09-Sep-04	2.77	2.645	1029.36	1029.43	clear, sulphur smell
26-May-05	3.66	3.49	1028.47	1028.58	
14-Sep-05	4.365	4.18	1027.77	1027.89	
09-Mar-06	4.76	4.59	1027.37	1027.48	
27-Mar-06	4.43	4.26	1027.70	1027.81	
14-Jun-06	4.45	4.26	1027.68	1027.81	
2-Oct-06	4.42	4.3	1027.71	1027.77	
22-May-07	2.29	2.88	1029.84	1029.19	a- frozen no beep
26-Sep-07	4.06	3.94	1028.07	1028.13	
20-May-08	2.56	2.48	1029.57	1029.59	
11-Jun-08	2.91	2.81	1029.22	1029.26	
24-Sep-08	3.36	3.25	1028.77	1028.82	

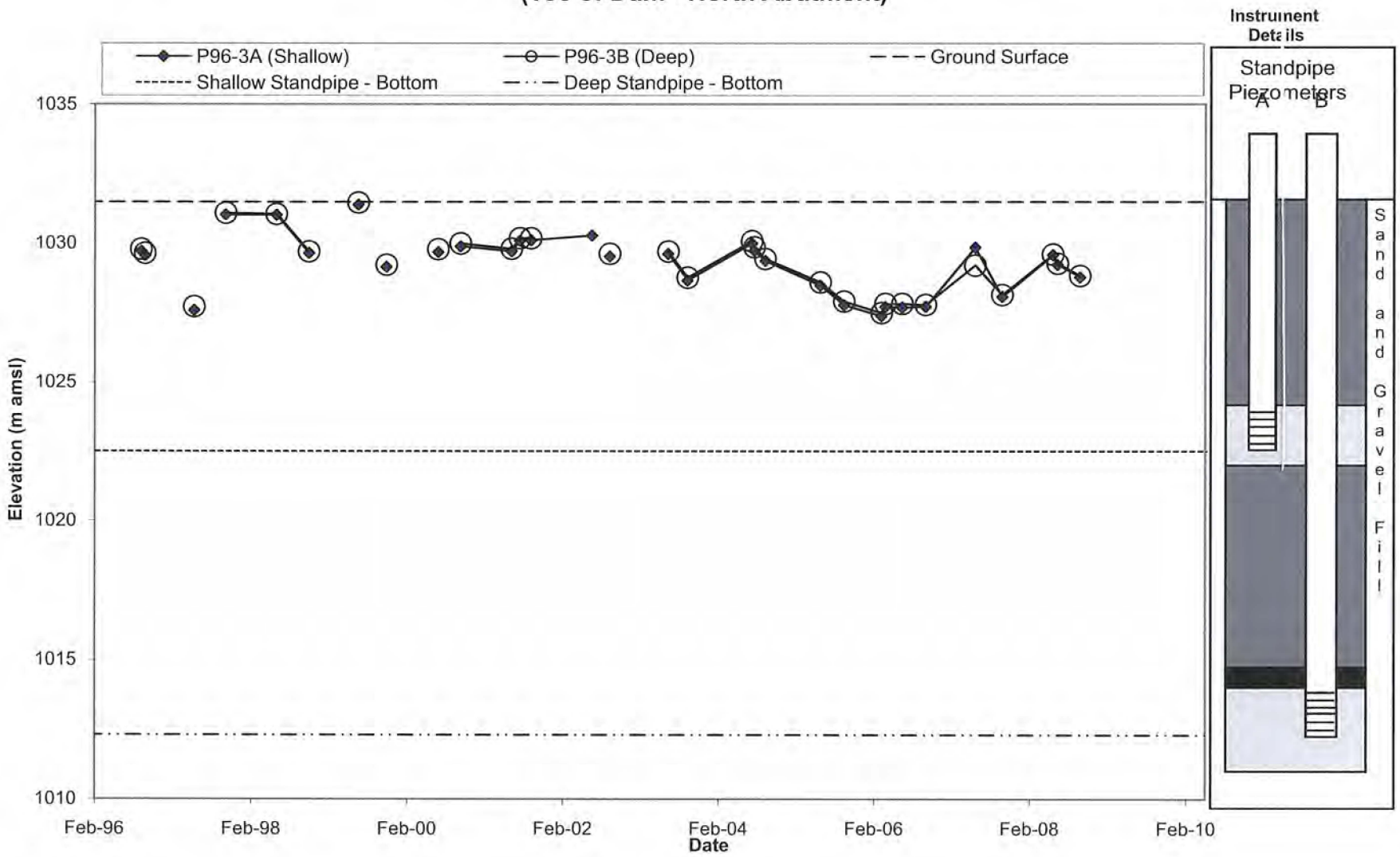
INTERMEDIATE DAM
Piezometric Monitoring
P96-3A Monitoring Well (Robertson, 1996)
(Toe of Dam - North Abutment)



INTERMEDIATE DAM
Piezometric Monitoring
P96-3B Monitoring Well (Robertson, 1996)
(Toe of Dam - North Abutment)



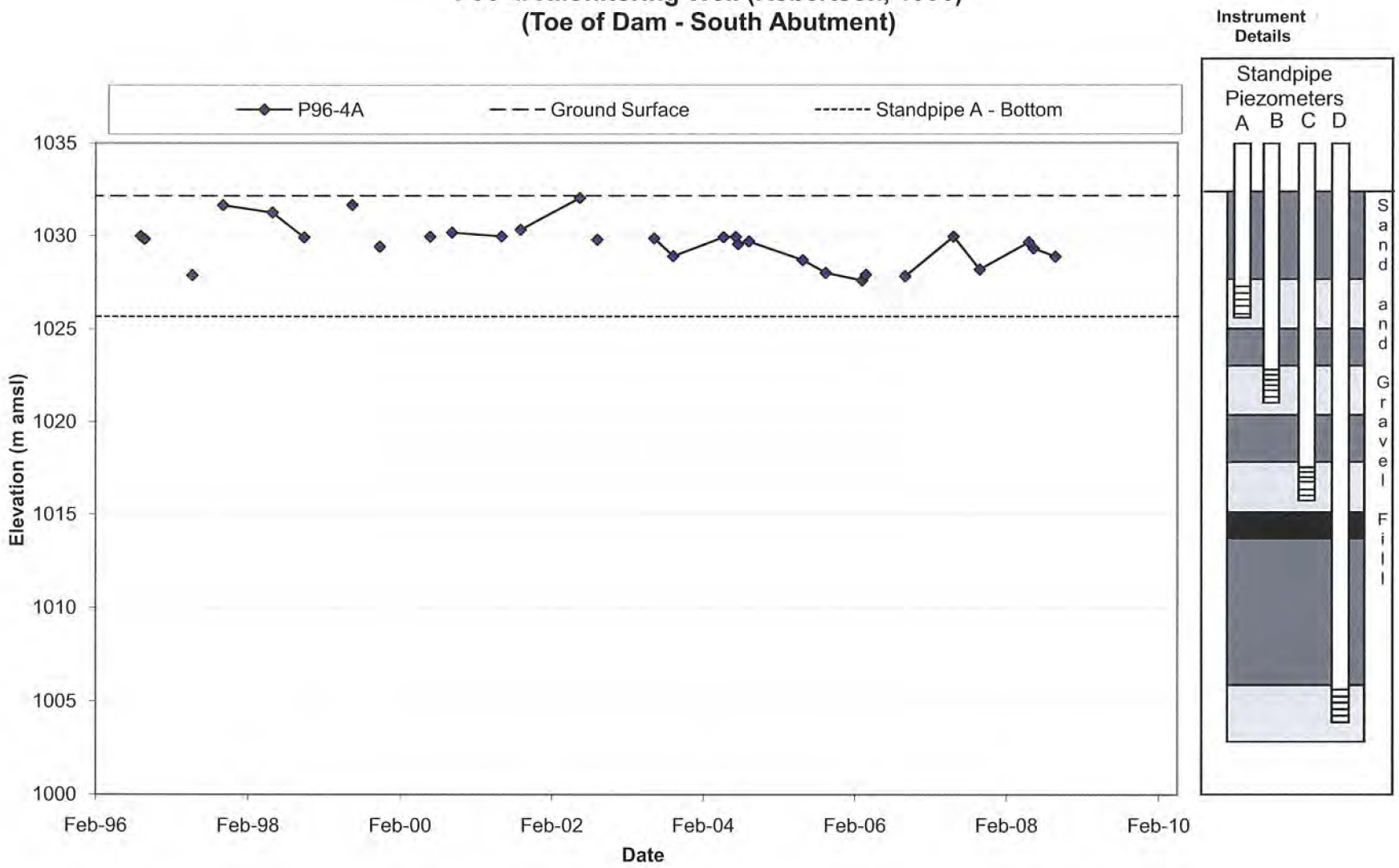
INTERMEDIATE DAM
Piezometric Monitoring
P96-3 Monitoring Well (Robertson, 1996)
(Toe of Dam - North Abutment)



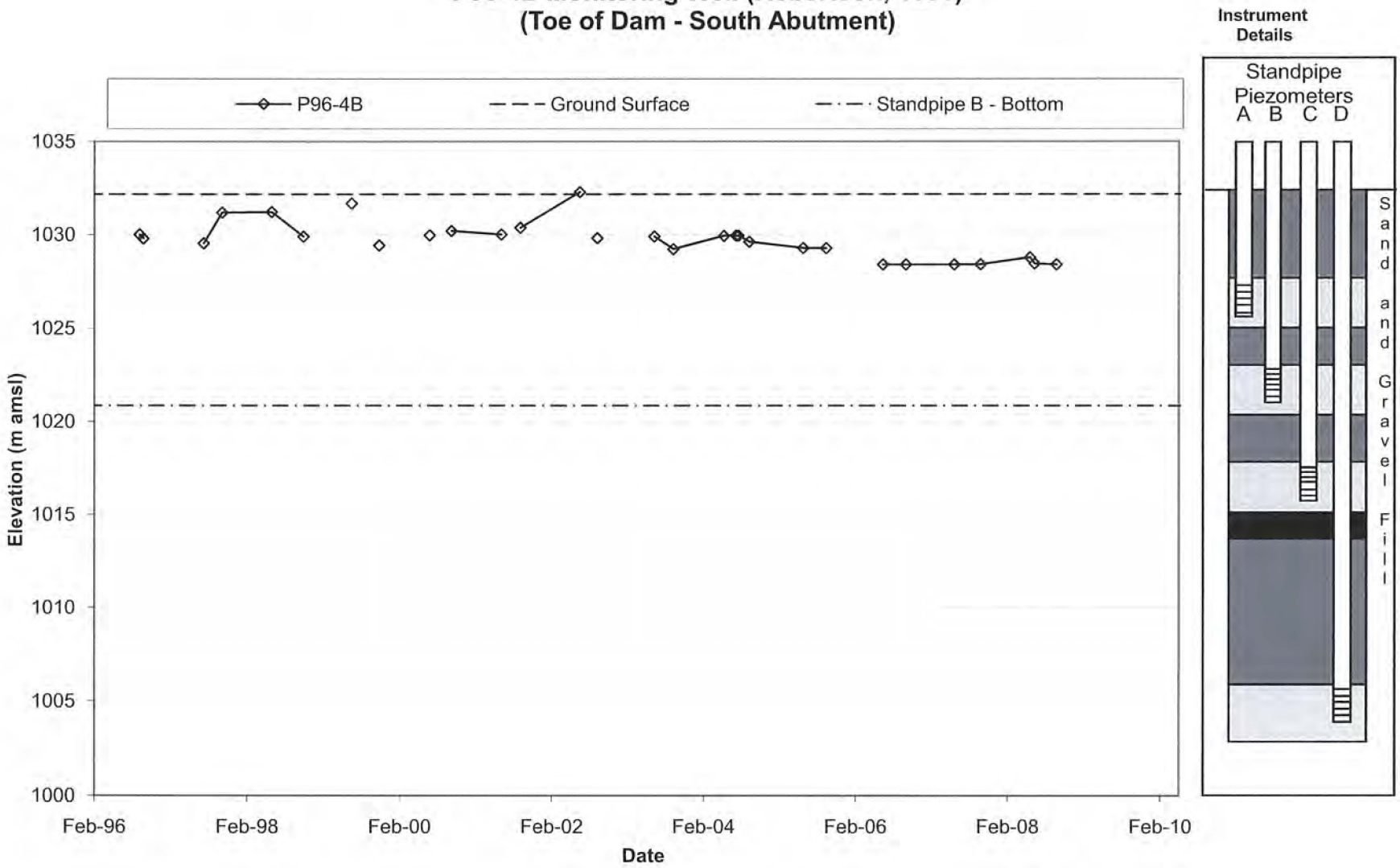
BH96-4		Location:	Intermediate Dam Toe, near South Abutment	2004 Stick Up - A (m):	0.95
		Coordinates:	8V580669 6914113	2004 Stick Up - B (m):	0.87
Surface Protector:	N/A	Date Installed:	1996	2004 Stick Up - C (m):	0.91
Screened Interval - A (m bgs):	5.7-6.48	Screened Interval - C (m bgs):	14.97-16.47	2004 Stick Up - D (m):	0.88
Screened Interval - B (m bgs):	9.8-11.3	Screened Interval - D (m bgs):	26.84-28.34	2004 Surface Elevation (m amsl):	1032.16

Date	Water level from top of pipe (m)				Piezometric Elevation (m amsl)				Comments
	A	B	C	D	A	B	C	D	
08-Sep-96	3.11	3.04	2.98	2.88	1029.99	1030.01	1030.02	1030.12	
26-Sep-96	3.27	3.25	3.12	3.05	1029.83	1029.80	1029.88	1029.95	
27-Sep-96									
13-May-97	5.21		4.85		1027.89		1028.15		
06-Jun-97									
11-Jul-97		3.51				1029.54			
07-Oct-97	1.45	1.87	1.82		1031.65	1031.18	1031.18		
01-Jun-98	1.84	1.84	1.83	1.62	1031.26	1031.21	1031.17	1031.38	
31-Oct-98	3.18	3.15	3.09	3.01	1029.92	1029.90	1029.91	1029.99	
13-Nov-98									
08-Jun-99									
19-Jun-99	1.43	1.38	1.36	1.25	1031.67	1031.67	1031.64	1031.75	
03-Jul-99									
29-Oct-99	3.68	3.62	3.60	3.48	1029.42	1029.43	1029.40	1029.52	
31-Oct-99									
31-May-00									
27-Jun-00	3.14	3.08	3.07	2.93	1029.96	1029.97	1029.93	1030.07	
25-Jul-00			2.84				1030.16		
21-Sep-00									
10-Oct-00	2.92	2.85	2.83	2.71	1030.18	1030.20	1030.17	1030.29	
06-Jun-01	3.13	3.04	3.06	2.94	1029.97	1030.01	1029.94	1030.06	
15-Jul-01									
05-Sep-01	2.77	2.68	2.71	2.57	1030.33	1030.37	1030.29	1030.43	
18-Jun-02	1.06	0.77			1032.04	1032.28			
05-Aug-02									
10-Sep-02	3.31	3.24	3.25	3.11	1029.80	1029.82	1029.75	1029.90	
04-Nov-02									
10-Nov-02									
11-Jun-03	3.24	3.15	3.21	3.06	1029.86	1029.90	1029.79	1029.94	
10-Sep-03	4.19	3.82	4.15	3.99	1028.91	1029.23	1028.85	1029.01	
10-May-04	3.18	3.10	3.14	3.01	1029.93	1029.94	1029.93	1030.03	2004 survey info used from here on
08-Jul-04	3.16	3.09	3.12	2.99	1029.95	1029.94	1029.96	1030.06	
19-Jul-04	3.56	3.09	3.12	2.99	1029.55	1029.94	1029.96	1030.06	
09-Sep-04	3.41	3.41	3.50	3.38	1029.70	1029.62	1029.57	1029.67	a, b and c - dirty; d - clear; a and d - sulphur smell
26-May-05	4.415	3.74		4.22	1028.70	1029.29		1028.83	coarse sand frozen
14-Sep-05	5.1	3.75	5.25	4.89	1028.01	1029.28	1027.82	1028.15	b- bottom blocked
09-Mar-06	5.50	blocked	5.33	5.31	1027.61		1027.74	1027.73	b- bottom blocked
27-Mar-06	5.19	blocked	5.12	4.99	1027.92		1027.96	1028.05	b- bottom blocked, ice crystals on probe
14-Jun-06	2.66	3.75	0.40	4.98		1028.41		1028.06	b-bottom. C-bottom fine sand
02-Oct-06	5.28	3.75	5.20	5.07	1027.83	1028.41	1027.87	1027.97	
22-May-07	3.15	3.75	1.52	3.11	1029.96	1028.41	1031.55	1029.93	a, b and d- frozen no beep
26-Sep-07	4.92	3.74	4.84	4.71	1028.20	1028.42	1028.23	1028.34	b: dry
20-May-08	3.46	3.37	3.39	2.60	1029.65	1028.79	1029.68	1030.44	
11-Jun-08	3.79	3.70	3.72	3.60	1029.32	1028.46	1029.35	1029.44	
24-Sep-08	4.23	3.75	4.15	4.01	1028.88	1028.41	1028.92	1029.03	b: dry

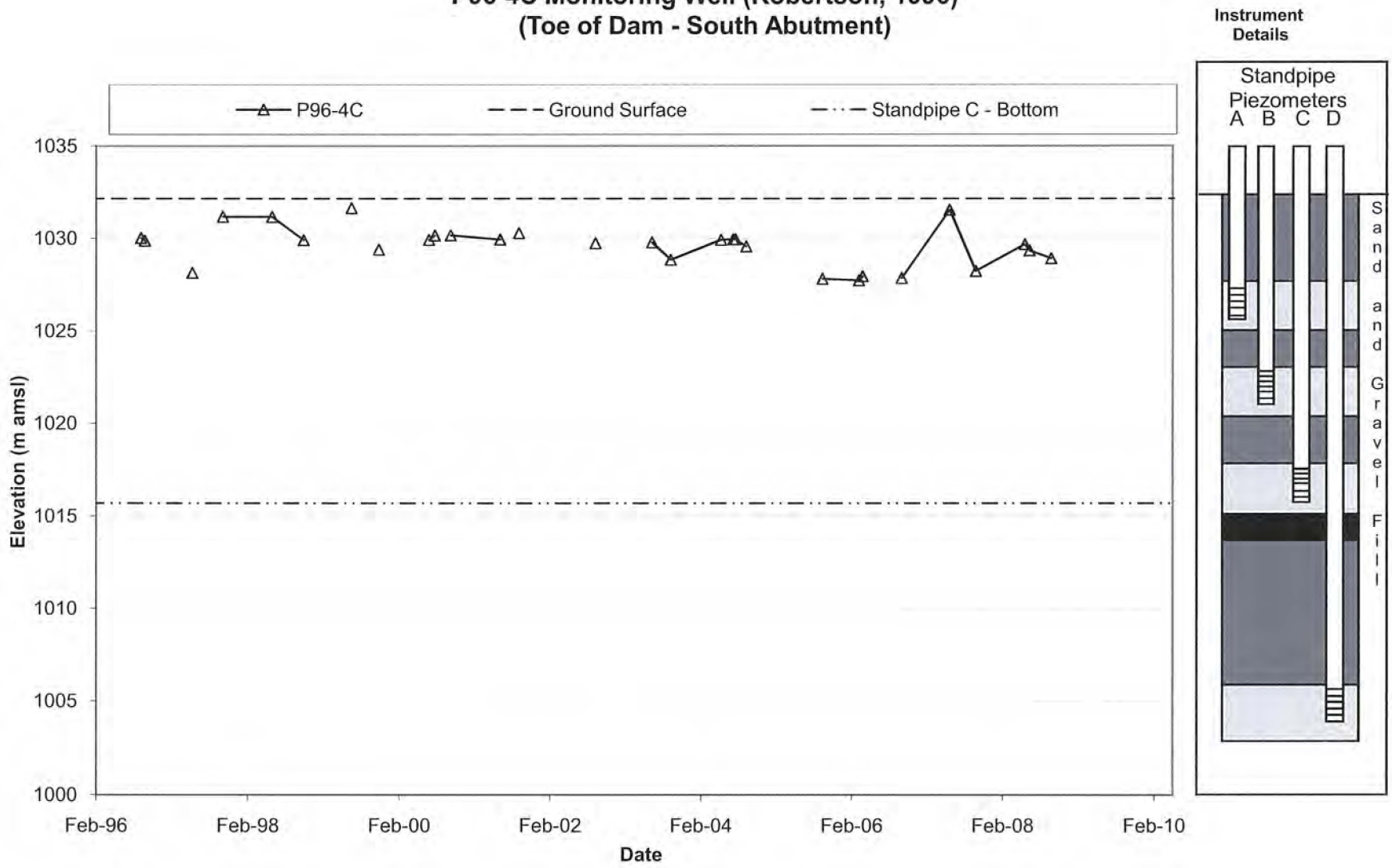
INTERMEDIATE DAM
Piezometric Monitoring
P96-4A Monitoring Well (Robertson, 1996)
(Toe of Dam - South Abutment)



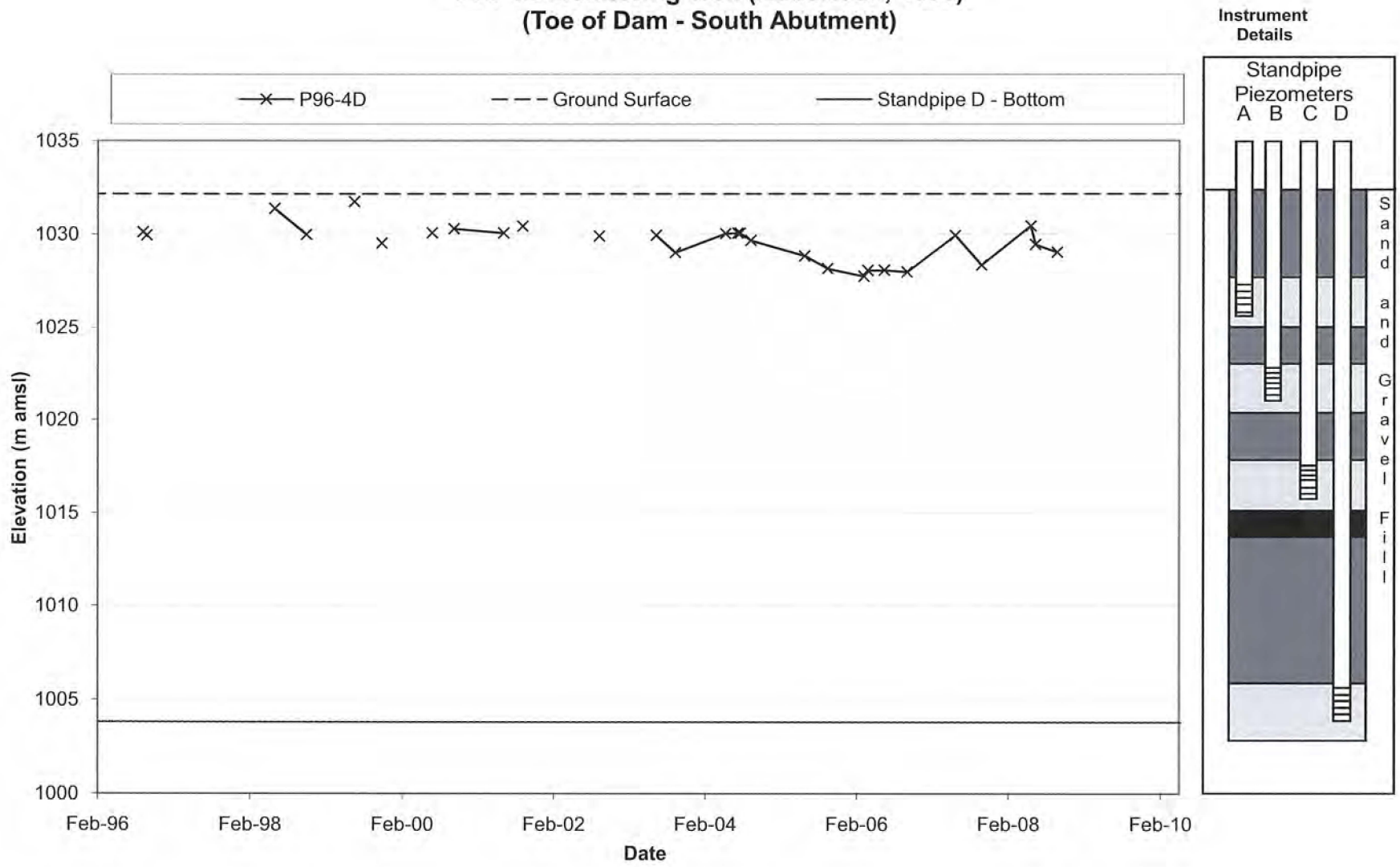
INTERMEDIATE DAM
Piezometric Monitoring
P96-4B Monitoring Well (Robertson, 1996)
(Toe of Dam - South Abutment)



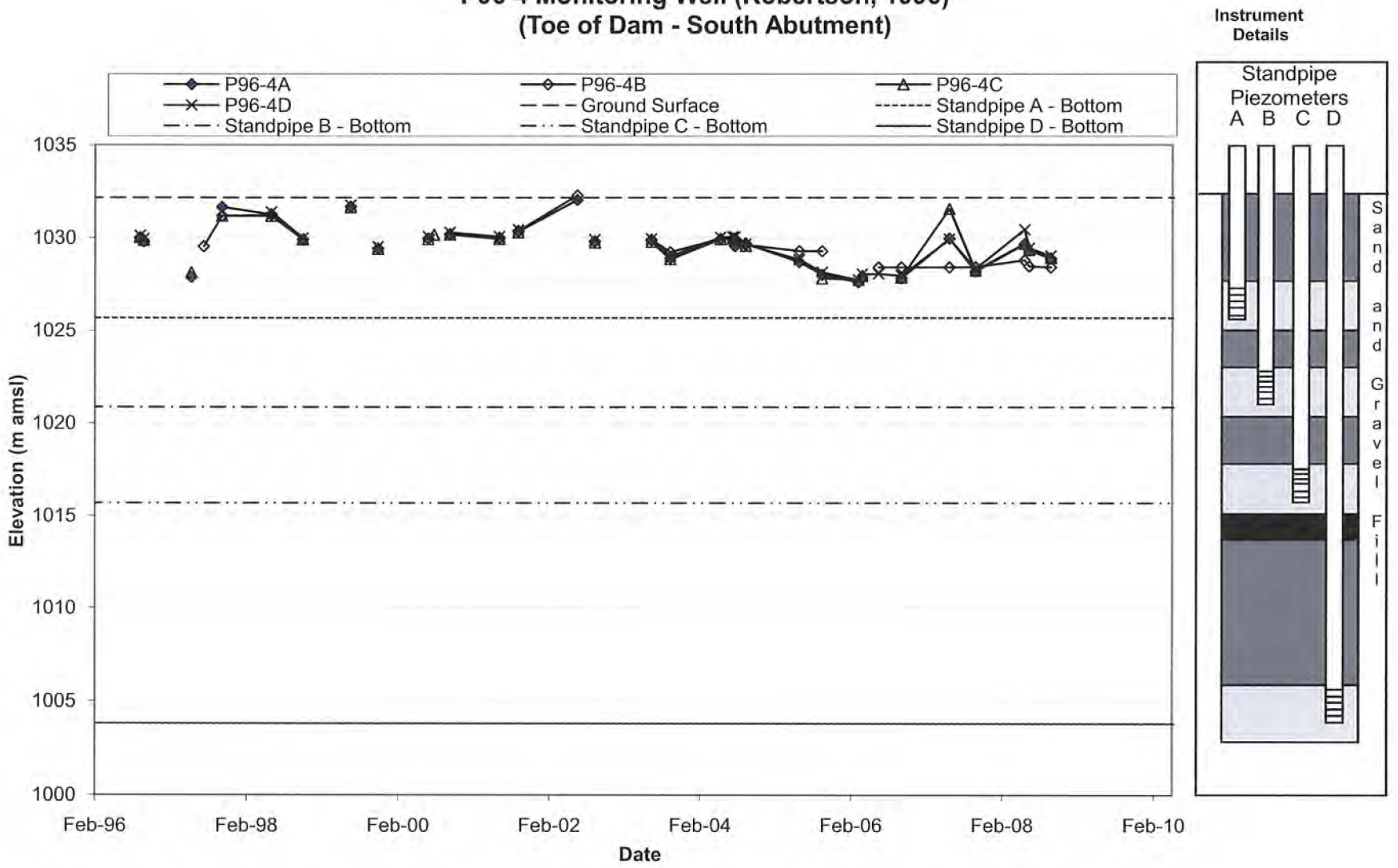
INTERMEDIATE DAM
Piezometric Monitoring
P96-4C Monitoring Well (Robertson, 1996)
(Toe of Dam - South Abutment)



INTERMEDIATE DAM
Piezometric Monitoring
P96-4D Monitoring Well (Robertson, 1996)
(Toe of Dam - South Abutment)



INTERMEDIATE DAM
Piezometric Monitoring
P96-4 Monitoring Well (Robertson, 1996)
(Toe of Dam - South Abutment)

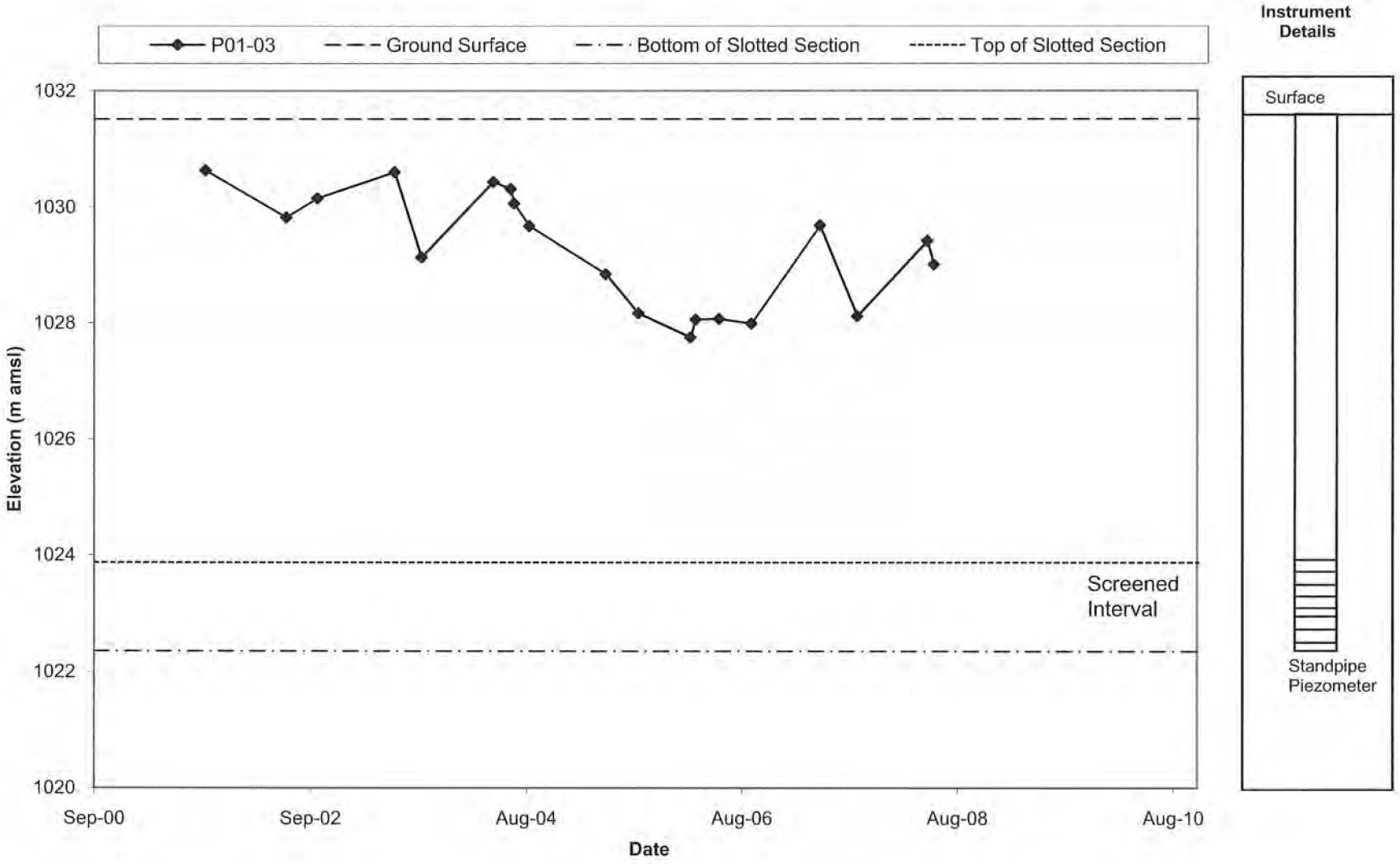


Faro Mine Instrumentation Intermediate Dam

P01-03		Location:	Intermediate Dam Toe	2004 Stick-Up (m):	0.61
		Coordinates:	8V580636 6914064	2004 Surface Elevation (m amsl):	1031.52
Surface Protector:	yes	Date Installed:	1996	Tip Elevation (m amsl):	1022.35
				Screened Interval (m bgs):	7.78 - 9.30

Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
11-Sep-01		1.58	1030.63		
10-Jun-02		2.39	1029.82		
23-Sep-02		2.06	1030.15	1047.2	
11-Jun-03		1.61	1030.60		
10-Sep-03		3.075	1029.14		
10-May-04		1.7	1030.43		2004 survey info used from here on
08-Jul-04		1.82	1030.31		
19-Jul-04		2.07	1030.06		
09-Sep-04		2.455	1029.68		Dirty, strong sulphur smell
26-May-05		3.285	1028.85		ph=6.7, temp=9.0C
14-Sep-05		3.96	1028.17		ph=6.8, temp=6.4C
09-Mar-06		4.38	1027.75		
27-Mar-06		4.07	1028.06		
14-Jun-06		4.06	1028.07		
02-Oct-06		4.14	1027.99		
22-May-07		2.445	1029.69	1046.781	No Beep, frozen
26-Sep-07		4.01	1028.12	1047.781	
20-May-08		1.85	1030.28		No Beep, frozen
11-Jun-08		2.71	1029.42		
24-Sep-08		3.115	1029.02		

INTERMEDIATE DAM
Piezometric Monitoring
P01-03 (2001 GLL Monitoring Well)

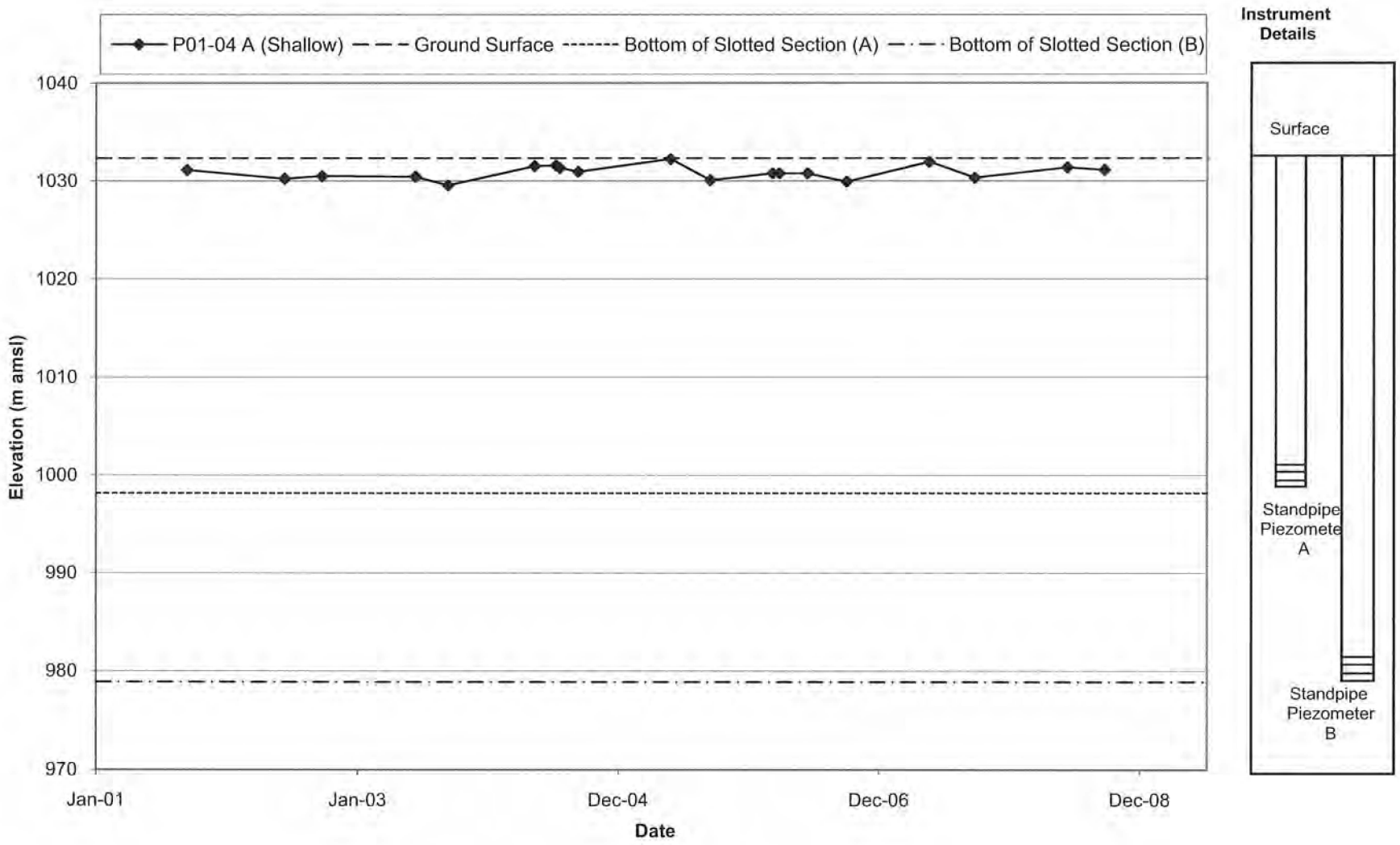


Faro Mine Instrumentation - Intermediate Dam

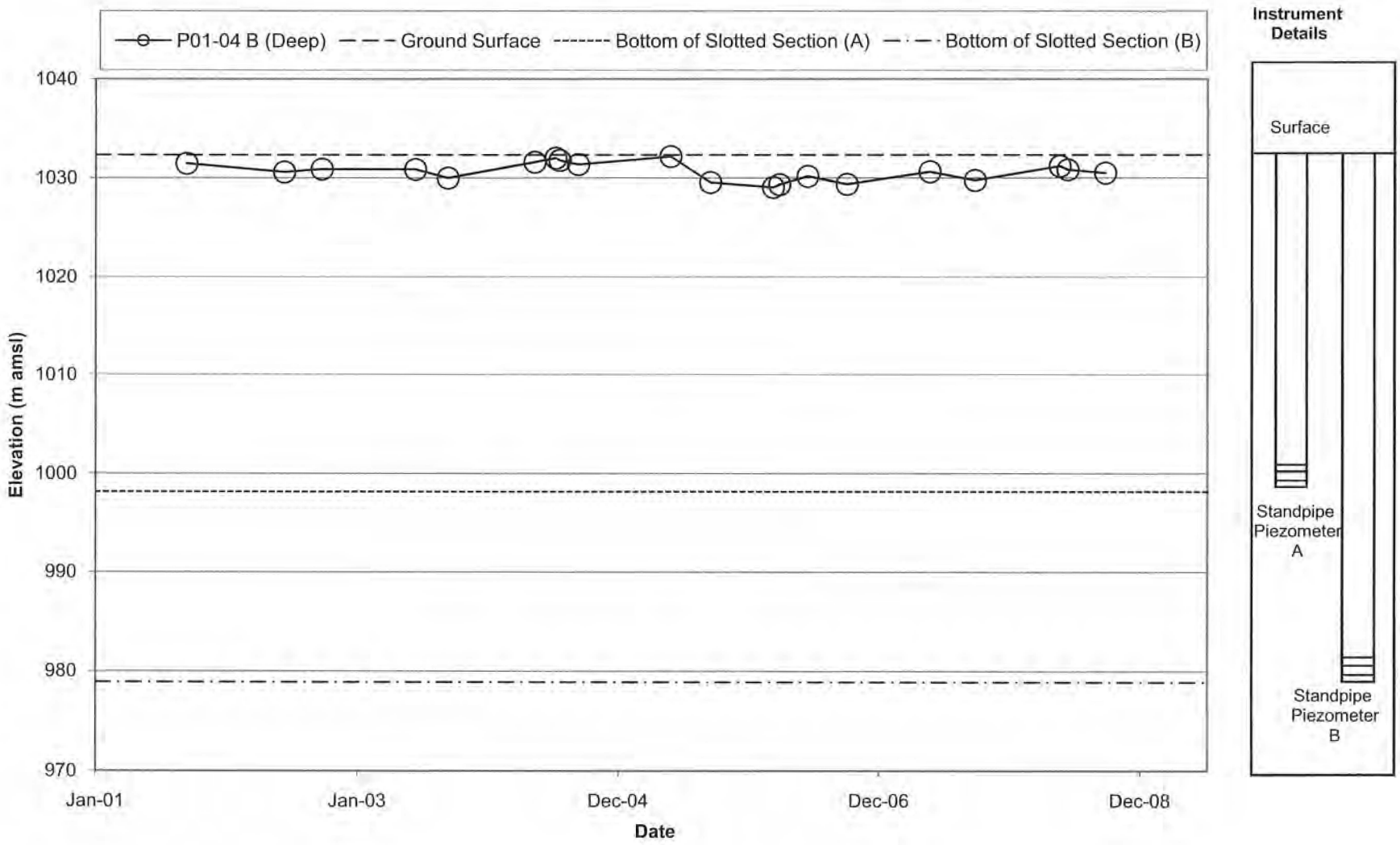
P01-04		Location:	Intermediate Dam Toe	2004 Stick Up - A (m):	0.45
		Coordinates:	8V580489 6913888	2004 Stick Up -B (m):	0.45
Surface Protector:	yes	Date Installed:	1996	2004 Surface Elevation (m amsl):	1032.32
		Screened Interval -A (m bgs):	31.7 - 33.22	Tip Elevation - A (m amsl):	998.17
		Screened Interval - B (m bgs):	51.0 - 52.5	Tip Elevation - B (m amsl):	978.89

Date	Water level from top of pipe (m)		Piezometric Elevation (m amsl)		Comments
	A	B	A	B	
11-Sep-01	0.78	0.43	1031.12	1031.46	
10-Jun-02	1.67	1.29	1030.23	1030.60	
23-Sep-02	1.39	1.00	1030.51	1030.89	
11-Jun-03	1.45	1.03	1030.45	1030.86	
10-Sep-03	2.35	1.90	1029.55	1029.99	
10-May-04	1.25	1.17	1031.52	1031.60	2004 survey info used from this point on
08-Jul-04	1.18	0.755	1031.59	1032.02	
19-Jul-04	1.42	0.99	1031.35	1031.78	
09-Sep-04	1.825	1.4	1030.95	1031.37	
26-May-05	0.53	0.6	1032.24	1032.17	bottom, no beep
14-Sep-05	2.69	3.215	1030.08	1029.56	
09-Mar-06	1.99	3.71	1030.78	1029.06	
27-Mar-06	1.99	3.42	1030.78	1029.35	bottom
14-Jun-06	1.985	2.595	1030.79	1030.18	bottom
02-Oct-06	2.85	3.4	1029.92	1029.37	
22-May-07	0.82	2.13	1031.95	1030.64	a-beep, b-frozen no beep
26-Sep-07	2.445	3	1030.33	1029.77	
20-May-08	0.685	1.56	1032.09	1031.21	b-no beep, frozen
11-Jun-08	1.39	1.93	1031.38	1030.84	
24-Sep-08	1.645	2.26	1031.13	1030.51	

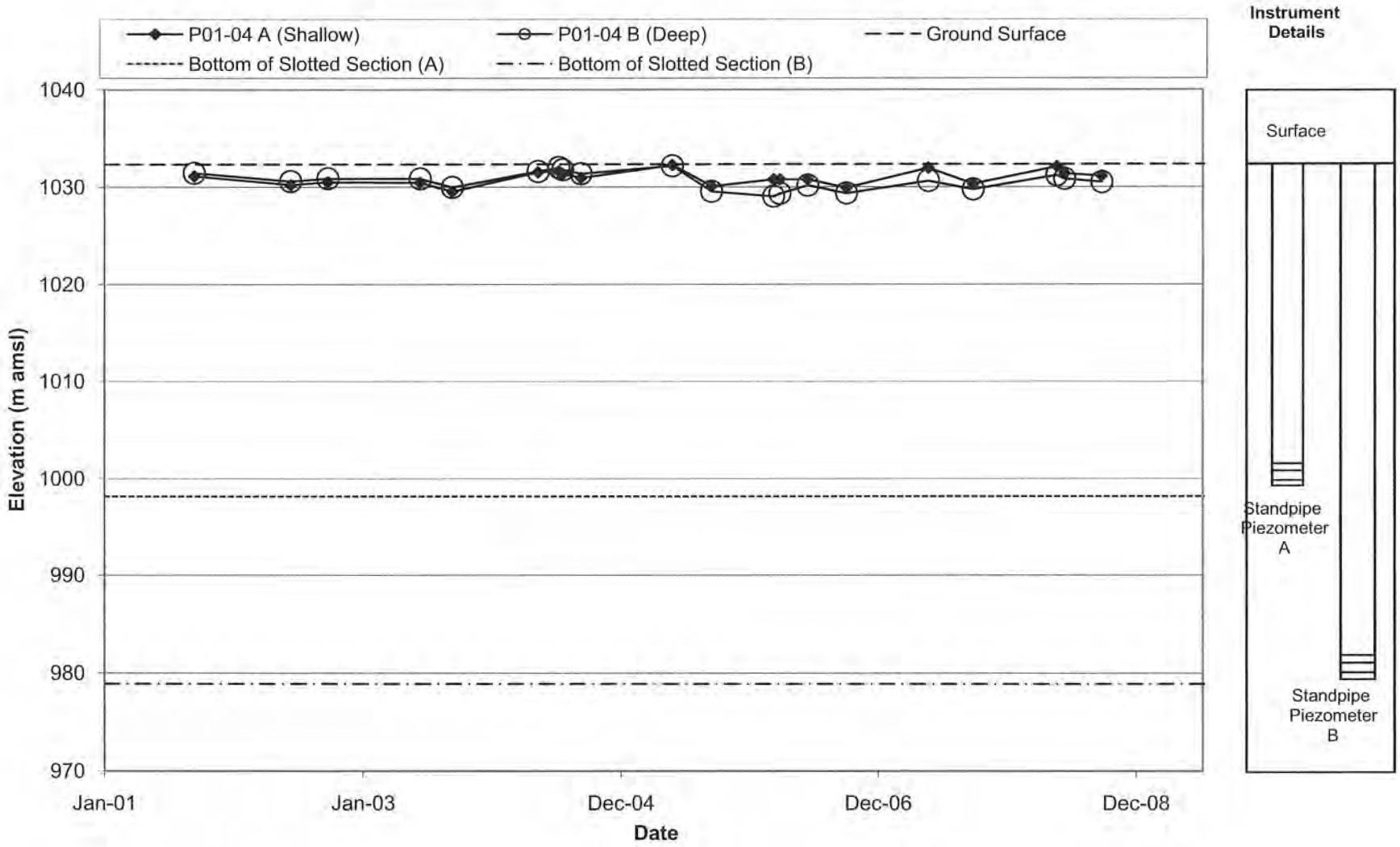
INTERMEDIATE DAM
Piezometric Monitoring
P01-04A (2001 - GLL Monitoring Well)



INTERMEDIATE DAM
Piezometric Monitoring
P01-04B (2001 - GLL Monitoring Well)



INTERMEDIATE DAM
Piezometric Monitoring
P01-04 (2001 - GLL Monitoring Well)

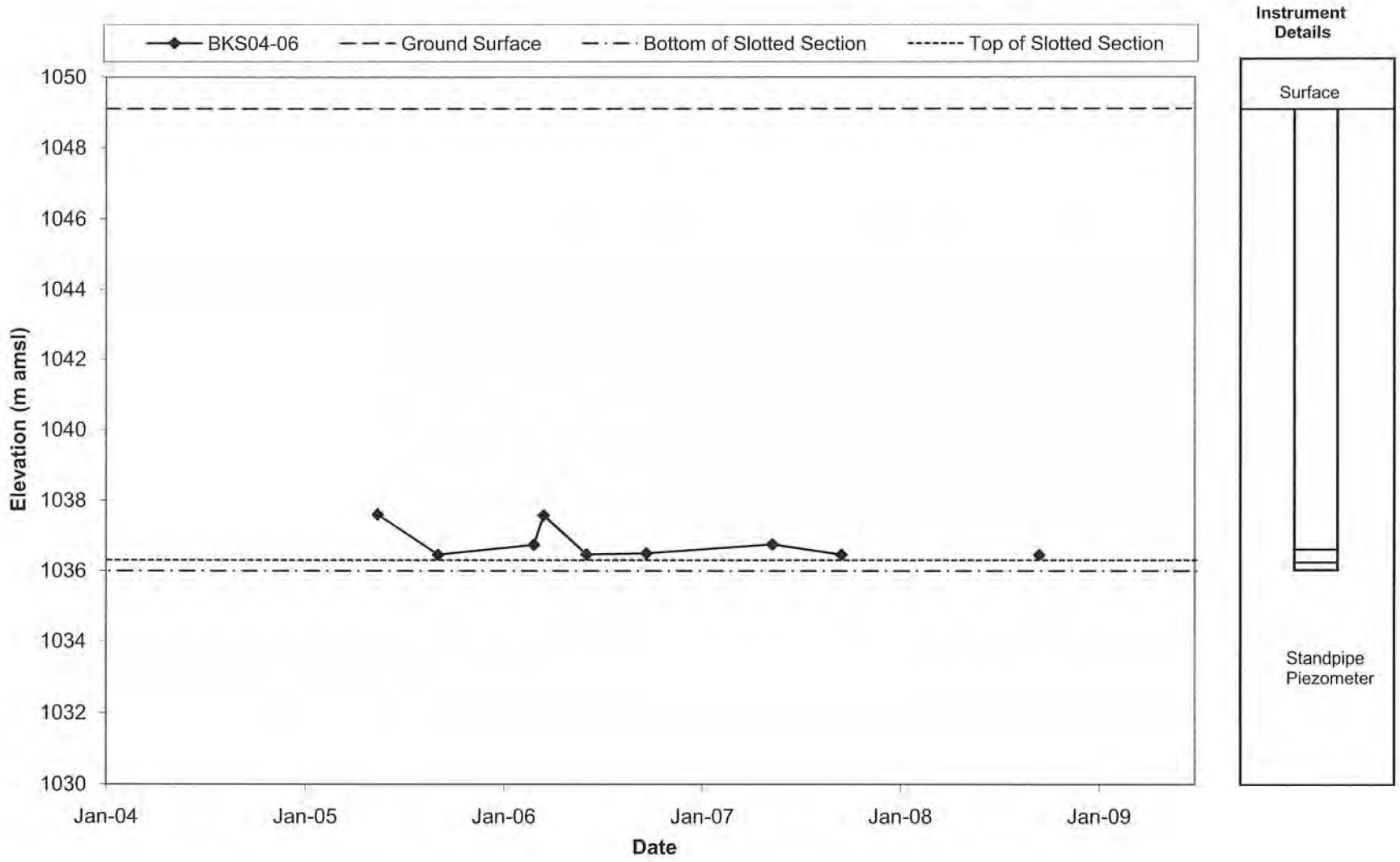


Faro Mine Instrumentation - Intermediate Dam

BKS04-06		Location:	Intermediate Dam South Abutment	2004 Stick-Up (m):	1.51
		Coordinates:	N 6913803 E 580454.9	Tip Elevation (m amsl):	1036.00
Surface Protector:	yes	Date Installed:	1996	2004 Surface Elevation (m amsl):	1049.1
				Screened Interval (m bgs):	12.8 - 13.1

Date	Water level from top of pipe (m)		Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
26-May-05	13.01		1037.60		
14-Sep-05	14.15		1036.46		bottom - no beep
09-Mar-06	13.87		1036.74		
27-Mar-06	13.035		1037.57		no beep
14-Jun-06	14.14		1036.47		sticky at 11.0m
02-Oct-06	14.11		1036.50		
22-May-07	13.855		1036.75	1046.781	Bottom no beep
26-Sep-07	14.15		1036.46		no beep
20-May-08	1.82				no beep
11-Jun-08	1.79				no beep
24-Sep-08	14.16		1036.45		no beep

INTERMEDIATE DAM
Piezometric Monitoring
BKS04-06 (2004 Klohn-Crippen Monitoring Well)

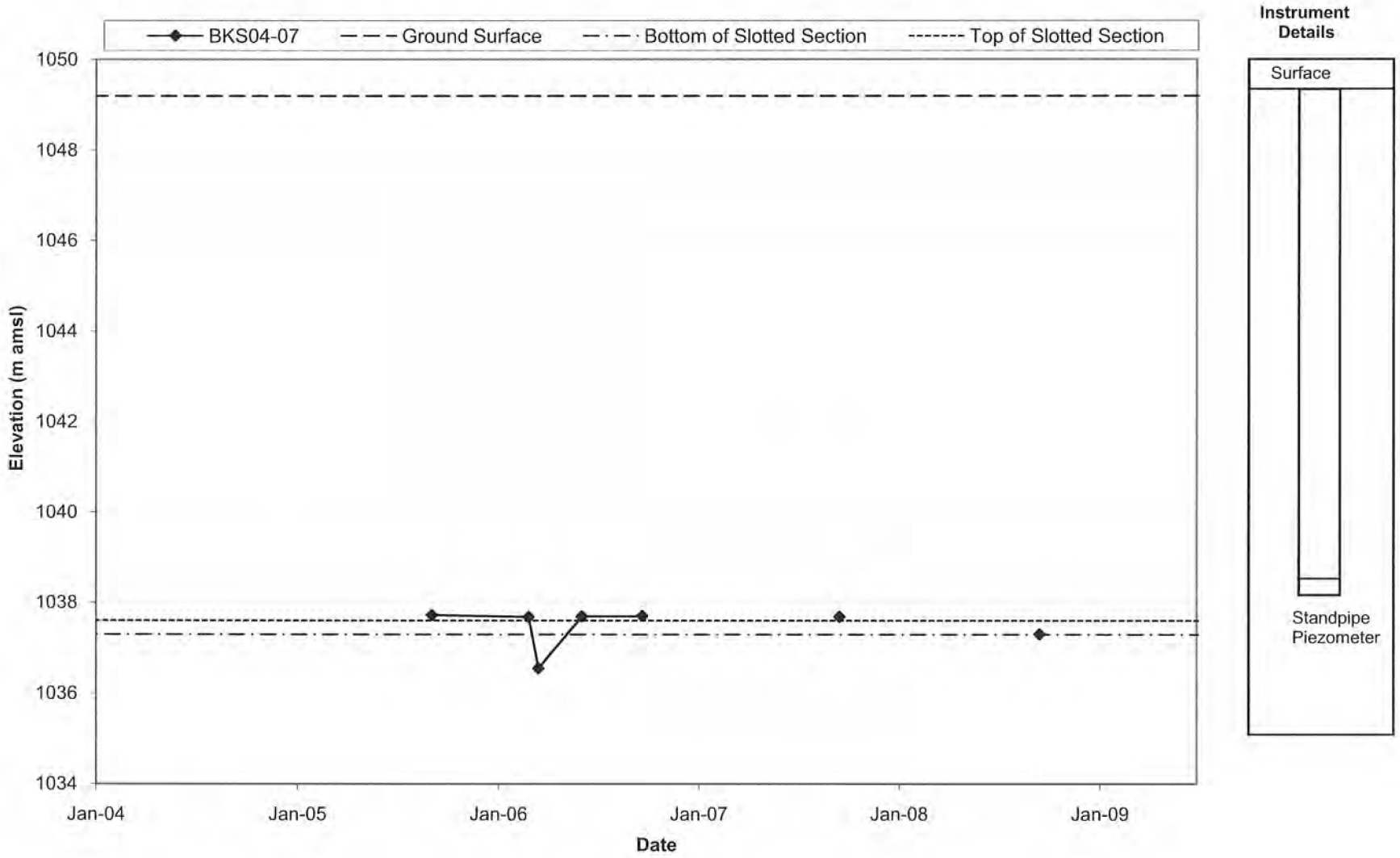


Faro Mine Instrumentation - Intermediate Dam

BKS04-07		Location:	Intermediate Dam South Abutment	2004 Stick-Up (m):	1.51
		Coordinates:	N 6913747 E 580407.6	Tip Elevation (m amsl):	1037.29
Surface Protector:	yes	Date Installed:	1996	2004 Surface Elevation (m amsl):	1049.2
				Screened Interval (m bgs):	11.5 - 11.81

Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
26-May-05		14.155			Impossible reading
14-Sep-05		12.99	1037.72		
09-Mar-06		13.03	1037.68		
27-Mar-06		14.16	1036.55		no beep
14-Jun-06		13.02	1037.69		sticky at 12.7 m
02-Oct-06		13.01	1037.70		
22-May-07		2.03		1046.781	no beep, frozen
26-Sep-07		13.025	1037.69	1047.781	
20-May-08		1.99			no beep
11-Jun-08		2.89			no beep
24-Sep-08		13.405	1037.31		

INTERMEDIATE DAM
Piezometric Monitoring
BKS04-07 (2004 Klohn-Crippen Monitoring Well)



CROSS VALLEY DAM

PIEZOMETERS

Faro Mine Instrumentation - Cross Valley Dam

CVDC-4		Location:	Cross Valley Dam Crest Stn. 0+215	2004 Ground Elevation (m amsl):	1033.3		
		Coordinates:	8V580266 6914331	Shallow Tip Elevation (m amsl):	1007.9	2004 Shallow stick-up 2004 (m):	0.11
Surface Protector:	yes	Date Installed:	1981	Deep Tip Elevation (m amsl):	999.7	2004 Deep stick-up (m):	0.3

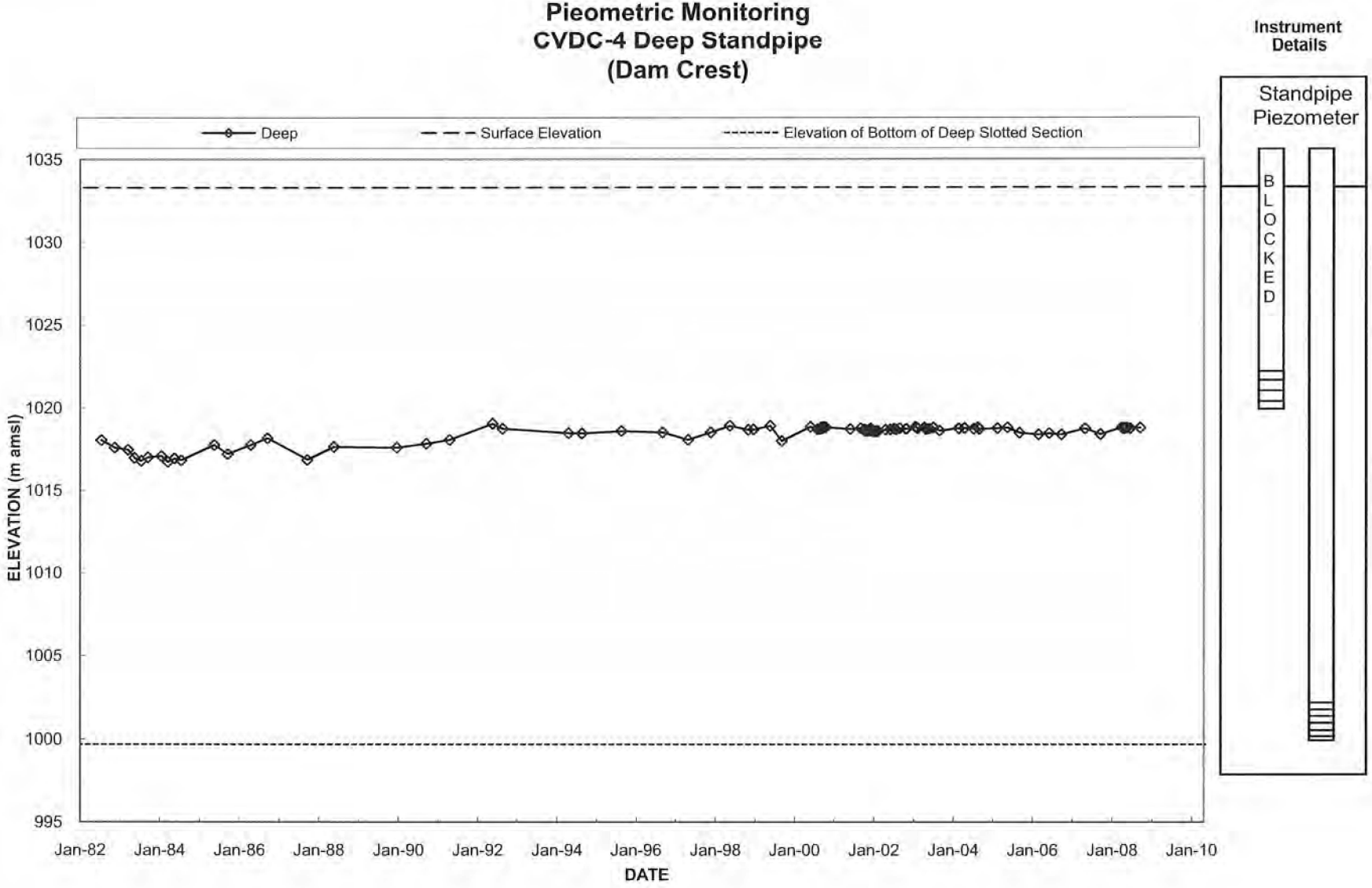
Date		Water Level from top of pipe (m)		Piezometric Elevation (m amsl)		Pond Elevation (m amsl)	Comments
		Shallow	Deep	Shallow	Deep		
Aug-82		15.10	15.26	1018.33	1018.04		
Dec-82		15.82	15.71	1017.61	1017.59		
Apr-83		15.71	15.84	1017.72	1017.46	1029.33	
Jun-83		16.54	16.33	1016.89	1016.97	1025.88	
Aug-83		16.57	16.52	1016.86	1016.78		
Oct-83		16.34	16.30	1017.09	1017.00		
Feb-84		16.21	16.22	1017.22	1017.08		
Mar-84						1030.60	
Apr-84		16.75	16.58	1016.68	1016.72		
Jun-84		16.40	16.37	1017.03	1016.93	1026.80	
Aug-84		16.50	16.48	1016.93	1016.82		
Jun-85		15.50	15.55	1017.93	1017.75	1031.20	
Oct-85		16.00	16.10	1017.43	1017.20		
May-86		15.58	15.54	1017.85	1017.76	1030.70	
Oct-86		14.99	15.14	1018.44	1018.16	1030.90	
Oct-87		15.42	16.45	1018.01	1016.85		
Jun-88			15.67		1017.63		
Jan-90			15.78		1017.59		
Oct-90			15.54		1017.83		
May-91			15.31		1018.06		
Jun-92			14.32		1019.05		
Sep-92			14.63		1018.74		
May-94			14.93		1018.47		
Sep-94			14.95		1018.45		
Sep-95			14.80		1018.60		
13-Sep-96			14.89		1018.51	1029.915	
7-May-97			15.34		1018.06		
2-Dec-97			14.89		1018.51		shallow standpipe - dry
26-May-98			14.66		1018.92	1031.2	
13-Nov-98			14.91		1018.67	1029.8	
29-Dec-98			14.89		1018.69	1029.8	
3-Jun-99			14.671		1018.91	1031.4	
18-Sep-99			15.60		1017.98	~1029.2	
8-Jun-00			14.73		1018.85	~1030.2	
14-Aug-00			14.88		1018.70		
31-Aug-00			14.86		1018.72		
7-Sep-00			14.83		1018.75		
14-Sep-00			14.76		1018.82		
21-Sep-00			14.84		1018.74		shallow standpipe - plugged
28-Sep-00			14.79		1018.79		shallow standpipe - plugged
6-Oct-00			14.75		1018.83		shallow standpipe - n.r.
12-Oct-00			14.76		1018.82		shallow standpipe - n.r.
20-Oct-00			14.74		1018.84		blocked @ 1.25m
27-Oct-00			14.76		1018.82		shallow standpipe - blocked @ 7.60m
10-Jun-01		7.67	14.87		1018.71		shallow standpipe - blocked @ 7.61m
14-Sep-01		7.61	14.82		1018.76		shallow standpipe - blocked @ 7.61m
16-Oct-01		7.61	14.90		1018.68		shallow standpipe - blocked @ 7.62m
18-Oct-01		7.61	14.93		1018.65		shallow standpipe - blocked @ 7.61m
19-Oct-01		7.61	14.95		1018.63		shallow standpipe - blocked @ 7.61m
20-Oct-01		7.61	14.96		1018.62		shallow standpipe - blocked @ 7.61m
21-Oct-01		7.61	14.97		1018.61		shallow standpipe - blocked @ 7.61m
22-Oct-01		7.61	14.98		1018.60		shallow standpipe - blocked @ 7.61m
25-Oct-01		7.61	14.98		1018.60		shallow standpipe - blocked @ 7.61m
29-Oct-01		7.61	14.98		1018.60		shallow standpipe - blocked @ 7.61m
1-Nov-01		7.61	14.975		1018.61		shallow standpipe - blocked @ 7.61m
5-Nov-01		7.61	14.97		1018.61		
6-Nov-01		7.61	14.97		1018.61		
8-Nov-01		7.61	14.965		1018.62		
12-Nov-01		7.61	14.96		1018.62		
15-Nov-01		7.61	14.95		1018.63		
19-Nov-01		7.61	14.95		1018.63		
21-Nov-01		7.61	14.95		1018.63		
23-Nov-01		7.61	14.94		1018.64		pond elev approx - 8 ft.
26-Nov-01		7.61	14.95		1018.63		daytime temp -34 C
28-Nov-01		7.61	14.94		1018.64		
30-Nov-01		7.61	14.94		1018.64		
3-Dec-01		7.61	14.96		1018.62		
5-Dec-01		7.61	14.97		1018.61		
12-Dec-01		7.61	14.94		1018.64		
14-Dec-01		7.61	14.82		1018.76		
15-Dec-01		7.61	14.84		1018.74		
16-Dec-01		7.61	14.87		1018.71		
17-Dec-01		7.61	14.9		1018.68		

Faro Mine Instrumentation - Cross Valley Dam

CVDC-4		Location:	Cross Valley Dam Crest Stn. 0+215	2004 Ground Elevation (m amsl):	1033.3		
		Coordinates:	8V580266 6914331	Shallow Tip Elevation (m amsl):	1007.9	2004 Shallow stick-up 2004 (m):	0.11
Surface Protector:	yes	Date Installed:	1981	Deep Tip Elevation (m amsl):	999.7	2004 Deep stick-up (m):	0.3

Date		Water Level from top of pipe (m)		Piezometric Elevation (m amsl)		Pond Elevation (m amsl)	Comments
		Shallow	Deep	Shallow	Deep		
18-Dec-01		7.61	14.92		1018.66		
19-Dec-01		7.61	14.94		1018.64		
26-Dec-01		7.61	14.96		1018.62		
2-Jan-02		7.61	14.94		1018.64		
9-Jan-02		7.61	14.99		1018.59		
16-Jan-02		7.61	15.04		1018.54		
23-Jan-02		7.61	15.02		1018.56		
30-Jan-02		7.61	15.02		1018.56		
6-Feb-02		7.61	15.00		1018.58		
13-Feb-02		7.61	15		1018.58		
20-Feb-02		7.61	14.99		1018.59		
1-May-02		7.61	14.915		1018.67		
12-Jun-02		7.61	14.895		1018.69		
17-Jul-02		7.61	14.845		1018.74		
7-Aug-02		7.61	14.895		1018.69		
9-Sep-02		7.61	14.82		1018.76		
4-Nov-02		7.61	14.86		1018.72		
10-Nov-02		7.61	14.85		1018.73		
30-Jan-03		7.61	14.75		1018.83		
9-Feb-03		7.61	14.755		1018.83		start siphon
11-Feb-03		7.61	14.765		1018.82		
13-Feb-03		7.61	14.78		1018.80		
18-Feb-03		7.61	14.8		1018.78		
21-Feb-03		7.61	14.83		1018.75	1026.18	
23-Apr-03		7.61	14.78		1018.80		
7-May-03		7.61	14.875		1018.71		
16-May-03		7.61	14.87		1018.71		
11-Jun-03		7.61	14.85		1018.73		
15-Jul-03		7.61	14.78		1018.80		
10-Sep-03		7.61	14.965		1018.62		
4-Mar-04		7.61	14.84		1018.76		2004 Survey data used from here on
8-Mar-04		7.61	14.86		1018.74		
26-Apr-04		7.61	14.83		1018.77		
19-Jul-04		7.61	14.875		1018.725		
26-Aug-04		7.61	14.775		1018.825		
9-Sep-04		7.61	14.89		1018.71		
22-Feb-05		7.61	14.84		1018.76		
23-Feb-05		7.61	14.84		1018.76		
24-Feb-05		7.61	14.845		1018.76		
26-May-05		7.61	14.79		1018.81		
14-Sep-05		7.61	15.12		1018.48		
9-Mar-06		7.61	15.225		1018.38		
14-Jun-06		7.61	15.14		1018.46		
4-Oct-06		7.61	15.225		1018.38	1027.468	
9-May-07		7.61	14.855		1018.75	1029.295	
24-Sep-07		7.61	15.21		1018.39	1030.295	
25-Sep-07		7.61	15.21		1018.39	1031.295	
9-Apr-08		7.61	14.79		1018.81	1030.300	
14-Apr-08		7.61	14.82		1018.78	1029.930	
21-Apr-08		7.61	14.85		1018.75	1029.625	
28-Apr-08		7.61	14.86		1018.74	1029.250	
5-May-08		7.61	14.86		1018.74	1029.433	
12-May-08		7.61	14.83		1018.77	1029.362	
20-May-08		7.61	14.825		1018.78	1029.340	
26-May-08		7.61	14.81		1018.79	1029.276	
24-Jun-08		7.61	14.85		1018.75	1028.638	
24-Sep-08		7.61	14.815		1018.79	1028.504	

CROSS VALLEY DAM
Pieometric Monitoring
CVDC-4 Deep Standpipe
(Dam Crest)



Faro Mine Instrumentation - Cross Valley Dam

CVDC-7		Location:	Cross Valley Dam Crest St.0+450	2004 Ground Elevation (m amsl):	1033.24		
		Coordinates:	8V580158 6914127	2004 Shallow Tip Elevation (m amsl):	1007.80	2004 Shallow stick-up (m):	0.31
Surface Protector:	yes	Date Installed:	1981	Deep Tip Elevation (m amsl):	1002.90	2004 Deep stick-up (m):	0.23

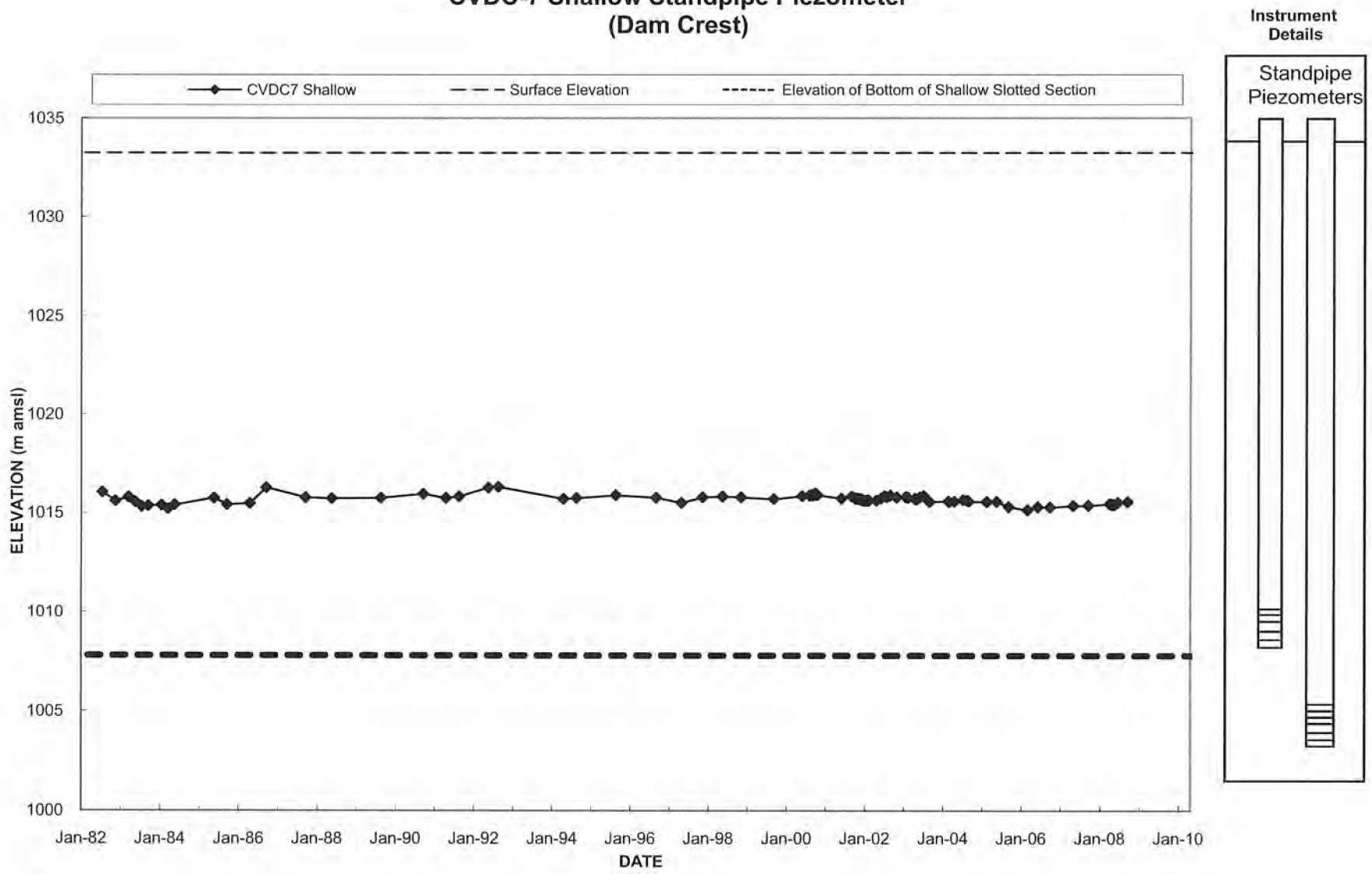
Date		Water Level from top of pipe (m)		Piezometric Elevation (m amsl)		Pond Elevation (m amsl)	Comments
		Shallow	Deep	Shallow	Deep		
Aug-82		17.58	14.44	1016.04	1019.09		
Dec-82		18.02	15.10	1015.60	1018.43		
Apr-83		17.83	15.24	1015.79	1018.29	1029.33	
Jun-83		18.06	14.88	1015.56	1018.65	1025.88	
Aug-83		18.30	16.24	1015.32	1017.29		
Oct-83		18.26	16.01	1015.36	1017.52		
Feb-84		18.24	15.92	1015.38	1017.61		
Mar-84						1030.60	
Apr-84		18.41	16.36	1015.21	1017.17		
Jun-84		18.22	16.06	1015.40	1017.47	1026.80	
Jun-85		17.87	16.06	1015.75	1017.47	1031.20	
Oct-85		18.20	15.55	1015.42	1017.98		
May-86		18.14	15.14	1015.48	1018.39	1030.70	
Oct-86		17.35	14.40	1016.27	1019.13	1030.90	
Oct-87		17.85	14.85	1015.77	1018.68		
Jun-88		17.90	15.10	1015.73	1018.59		
Sep-89		17.88	15.03	1015.75	1018.66		
Oct-90		17.68	15.03	1015.95	1018.66		
May-91		17.89	15.36	1015.74	1018.33		
Sep-91		17.81		1015.82			
Jun-92		17.37	14.48	1016.26	1019.21		
Sep-92		17.33	14.66	1016.30	1019.03		
May-94		17.99	15.50	1015.70	1018.16		
Sep-94		17.95	15.47	1015.74	1018.19		
Sep-95		17.81	15.08	1015.88	1018.58		
13-Sep-96		17.93	15.34	1015.76	1018.32	1029.915	
7-May-97		18.19	16.07	1015.50	1017.59		
20-Nov-97		17.91	15.29	1015.78	1018.37		
26-May-98		17.87	15.12	1015.82	1018.54	1031.2	
15-Nov-98		17.91	15.38	1015.78	1018.28	1029.8	
3-Jun-99		n.r.	15.10		1018.56	1031.4	
18-Sep-99		18.00	15.59	1015.69	1018.07	~1029.2	
8-Jun-00		17.85	15.08	1015.84	1018.58	~1030.2	
14-Aug-00		17.82	15.10	1015.87	1018.56		
31-Aug-00		17.80	15.16	1015.89	1018.50		
7-Sep-00		17.78	15.09	1015.91	1018.57		
14-Sep-00		17.78	15.80	1015.91	1017.86		
19-Sep-00		17.82	15.19	1015.87	1018.47		
21-Sep-00		17.82	15.16	1015.87	1018.50		
28-Sep-00		17.77	15.60	1015.92	1018.06		
6-Oct-00		17.71	14.96	1015.98	1018.70		
12-Oct-00		17.75	15.03	1015.94	1018.63		
20-Oct-00		17.76	15.00	1015.93	1018.66		
27-Oct-00		17.80	15.08	1015.89	1018.58		
10-Jun-01		17.97	15.39	1015.72	1018.27		
14-Sep-01		17.86	15.16	1015.83	1018.50		
16-Oct-01		17.95	15.43	1015.74	1018.23		
18-Oct-01		17.97	15.48	1015.72	1018.18		
19-Oct-01		17.98	15.49	1015.71	1018.17		
20-Oct-01		17.98	15.49	1015.71	1018.17		
21-Oct-01		17.98	15.49	1015.71	1018.17		
22-Oct-01		17.98	15.5	1015.71	1018.16		
25-Oct-01		17.99	15.51	1015.70	1018.15		
29-Oct-01		17.99	15.51	1015.70	1018.15		
1-Nov-01		17.985	15.495	1015.71	1018.17		
5-Nov-01		17.99	15.505	1015.70	1018.16		
6-Nov-01		17.99	15.505	1015.70	1018.16		
8-Nov-01		17.99	15.51	1015.70	1018.15		
12-Nov-01		18	15.51	1015.69	1018.15		
15-Nov-01		18	15.51	1015.69	1018.15		
19-Nov-01		18	15.51	1015.69	1018.15		
21-Nov-01		17.99	15.495	1015.70	1018.17		
23-Nov-01		17.99	15.495	1015.70	1018.17		pond elev approx - 8 ft.
26-Nov-01		18	15.495	1015.69	1018.17		daytime temp -34 C
28-Nov-01		18	15.5	1015.69	1018.16		
30-Nov-01		18.01	15.5	1015.68	1018.16		
3-Dec-01		18.01	15.51	1015.68	1018.15		
5-Dec-01		18.01	15.52	1015.68	1018.14		
12-Dec-01		18.01	15.52	1015.68	1018.14		
14-Dec-01		18.01	15.5	1015.68	1018.16		
15-Dec-01		18.02	15.54	1015.67	1018.12		
16-Dec-01		18.03	15.58	1015.66	1018.08		
17-Dec-01		18.04	15.61	1015.65	1018.05		

Faro Mine Instrumentation - Cross Valley Dam

CVDC-7		Location:	Cross Valley Dam Crest St.0+450	2004 Ground Elevation (m amsl):	1033.24		
		Coordinates:	8V580158 6914127	2004 Shallow Tip Elevation (m amsl):	1007.80	2004 Shallow stick-up (m):	0.31
Surface Protector:	yes	Date Installed:	1981	Deep Tip Elevation (m amsl):	1002.90	2004 Deep stick-up (m):	0.23

Date		Water Level from top of pipe (m)		Piezometric Elevation (m amsl)		Pond Elevation (m amsl)	Comments
		Shallow	Deep	Shallow	Deep		
18-Dec-01		18.05	15.63	1015.64	1018.03		
19-Dec-01		18.06	15.65	1015.63	1018.01		
26-Dec-01		18.07	15.66	1015.62	1018.00		
2-Jan-02		18.07	15.65	1015.62	1018.01		
9-Jan-02		18.08	15.66	1015.61	1018.00		
16-Jan-02		18.08	15.65	1015.61	1018.01		
23-Jan-02		18.07	15.63	1015.62	1018.03		
30-Jan-02		18.08	15.63	1015.61	1018.03		
6-Feb-02		18.075	15.62	1015.62	1018.04		
13-Feb-02		18.07	15.6	1015.62	1018.06		
20-Feb-02		18.075	15.6	1015.62	1018.06		
1-May-02		18.07	15.6	1015.62	1018.06		Water being discharged from the polishing pond
12-Jun-02		17.975	15.35	1015.72	1018.31		
17-Jul-02		17.85	15.225	1015.84	1018.44		
7-Aug-02		17.9	15.35	1015.79	1018.31		
9-Sep-02		17.815	15.17	1015.88	1018.49		
4-Nov-02		17.91	15.36	1015.78	1018.30		
10-Nov-02		17.91	15.355	1015.78	1018.31		
30-Jan-03		17.895	15.235	1015.80	1018.43		
9-Feb-03		17.9	15.245	1015.79	1018.42		start siphon
11-Feb-03		17.905	15.256	1015.79	1018.40		
13-Feb-03		17.91	15.28	1015.78	1018.38		
18-Feb-03		17.925	15.31	1015.77	1018.35		
21-Feb-03		17.93	15.32	1015.76	1018.34	1026.18	
23-Apr-03		17.98	15.37	1015.71	1018.29		
7-May-03		18.01	15.47	1015.68	1018.19		
16-May-03		18.01	15.455	1015.68	1018.21		
11-Jun-03		17.91	15.33	1015.78	1018.33		
15-Jul-03		17.84	15.205	1015.85	1018.46		
10-Sep-03		18	15.585	1015.55	1017.88		
4-Mar-04		17.97	15.39	1015.58	1018.08		2004 Survey data used from here on
8-Mar-04		18	15.46	1015.55	1018.01		
26-Apr-04		17.98	15.4	1015.57	1018.07		
19-Jul-04		17.91	15.33	1015.64	1018.14		
26-Aug-04		17.93	15.34	1015.619	1018.129		
9-Sep-04		17.985	15.5	1015.564	1017.97		
22-Feb-05		17.995	15.43	1015.554	1018.039		
23-Feb-05		18	15.45	1015.549	1018.019		smells like old oil
24-Feb-05		18	15.48	1015.549	1017.989		
26-May-05		17.99	15.575	1015.559	1017.894		milky on probe
14-Sep-05		18.25	16.04	1015.299	1017.429		
9-Mar-06		18.41	16.3	1015.14	1017.17		
14-Jun-06		18.255	16.03	1015.29	1017.44		
4-Oct-06		18.27	16.095	1015.28	1017.37	1027.47	
9-May-07		18.2	15.8	1015.35	1017.67	1029.295	
24-Sep-07		18.185	15.965	1015.36	1017.50	1030.295	
9-Apr-08		18.11	15.545	1015.44	1017.92	1030.300	
14-Apr-08		18.105	15.605	1015.44	1017.86	1029.930	
21-Apr-08		18.115	15.7	1015.43	1017.77	1029.625	
28-Apr-08		18.125	15.755	1015.42	1017.71	1029.250	
5-May-08		18.14	15.72	1015.41	1017.75	1029.433	
12-May-08		18.14	15.71	1015.41	1017.76	1029.362	
20-May-08		18.14	15.745	1015.41	1017.72	1029.340	
26-May-08		18.145	15.755	1015.40	1017.71	1029.276	
24-Jun-08		18.03	15.6	1015.52	1017.87	1028.638	
24-Sep-08		18	15.645	1015.55	1017.82	1028.504	

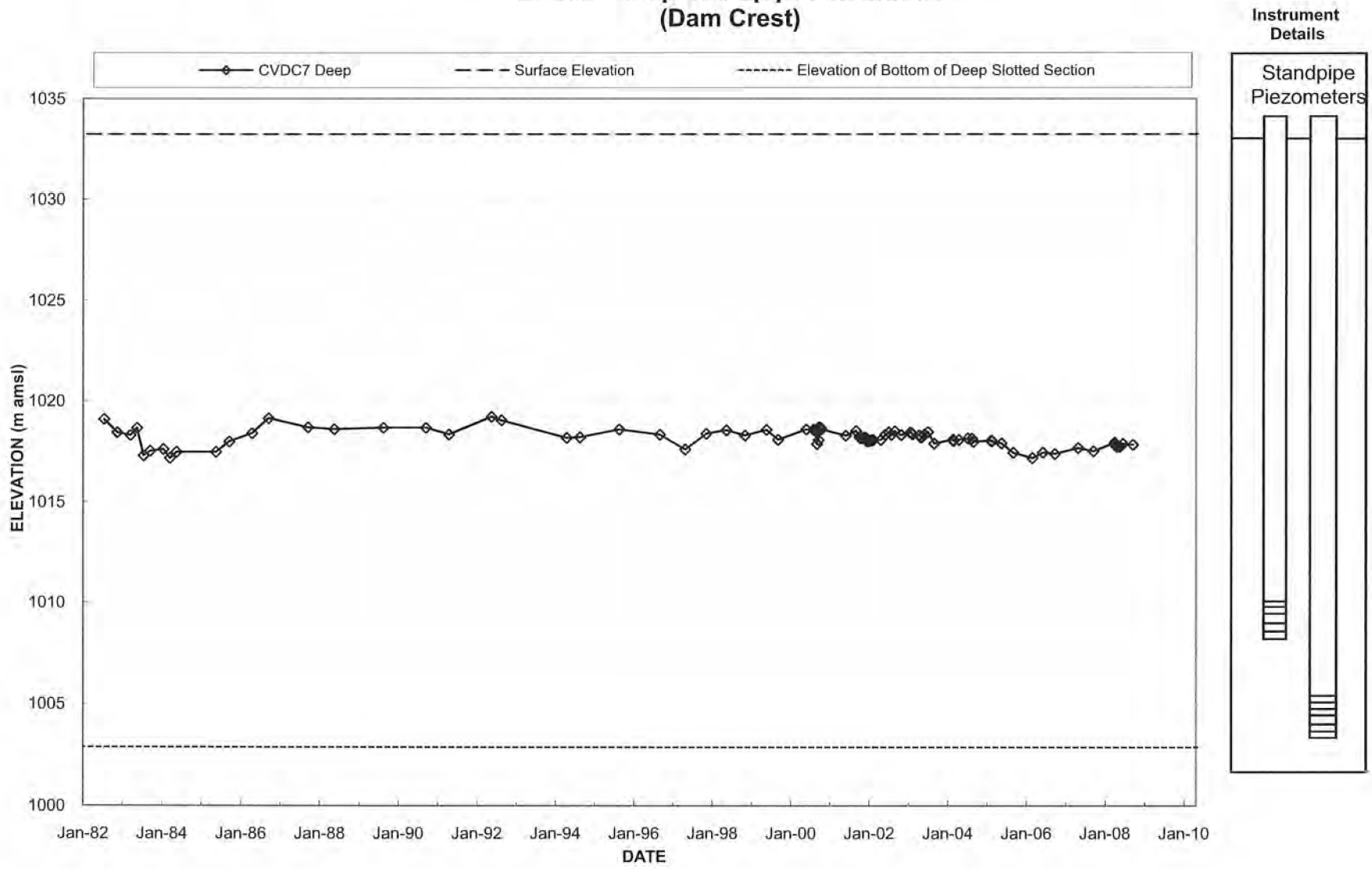
CROSS VALLEY DAM
Piezometric Monitoring
CVDC-7 Shallow Standpipe Piezometer
(Dam Crest)



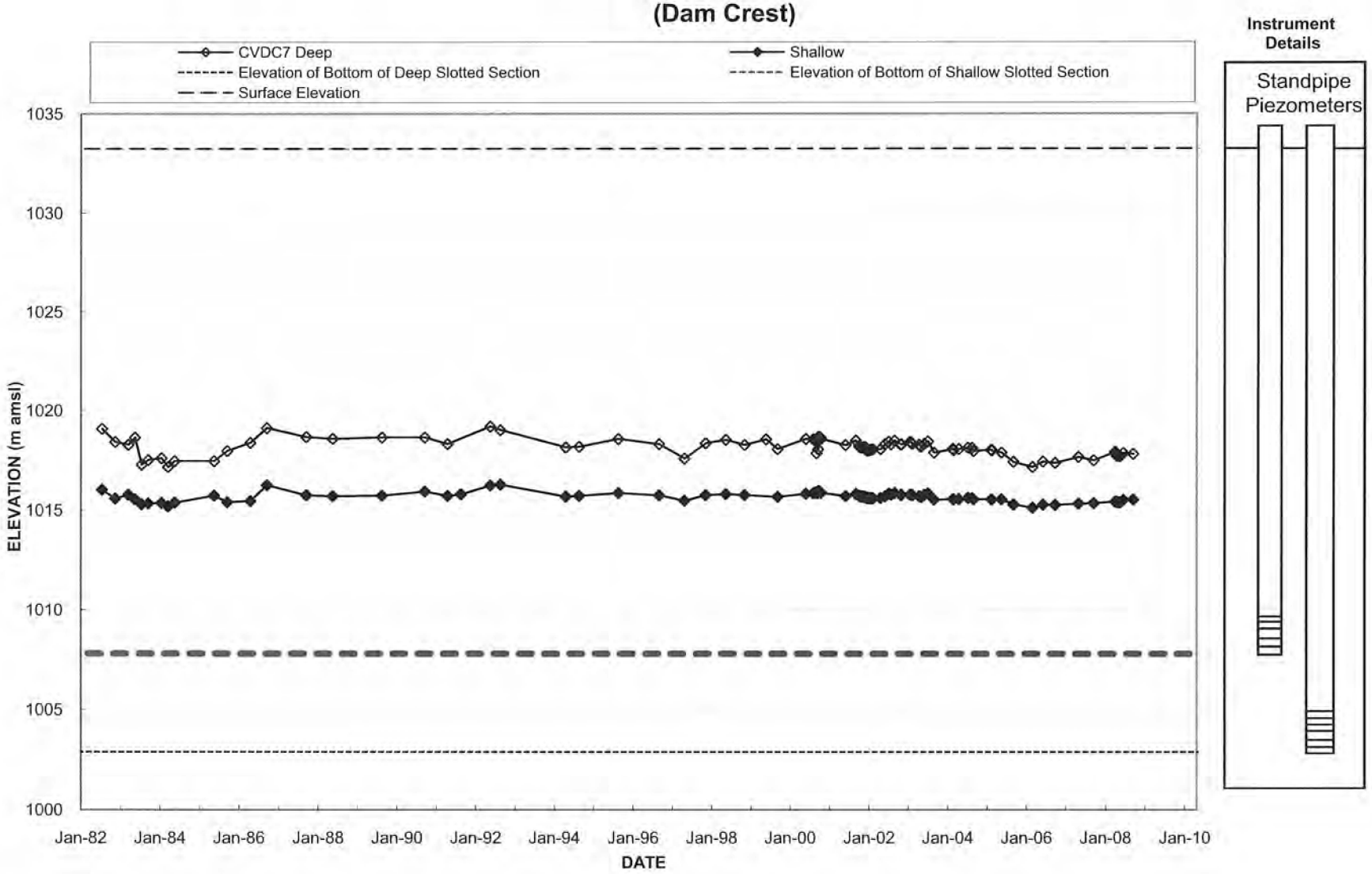
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CVDC7 chart (sh)

BGC Engineering Inc.

CROSS VALLEY DAM
Piezometric Monitoring
CVDC-7 Deep Standpipe Piezometer
(Dam Crest)



CROSS VALLEY DAM
Piezometric Monitoring
CVDC-7 Standpipe Piezometers
(Dam Crest)



Cvdpiez_updated_2008.xls
CVDC7 chart (both)

BGC Engineering Inc.

Faro Mine Instrumentation - Cross Valley Dam

CVDC-9		Location:	Cross Valley Dam Crest St.0+565	2004 Ground Elevation (m amsl):	1033.28		
		Coordinates:	8V580096 6913998	2004 Shallow Tip Elevation (m amsl)	1007.70	2004 Shallow stick-up (m):	0.27
Surface Protector:	yes	Date Installed:	1981	2004 Deep Tip Elevation (m amsl):	1000.70	2004 Deep stick-up (m):	0.19

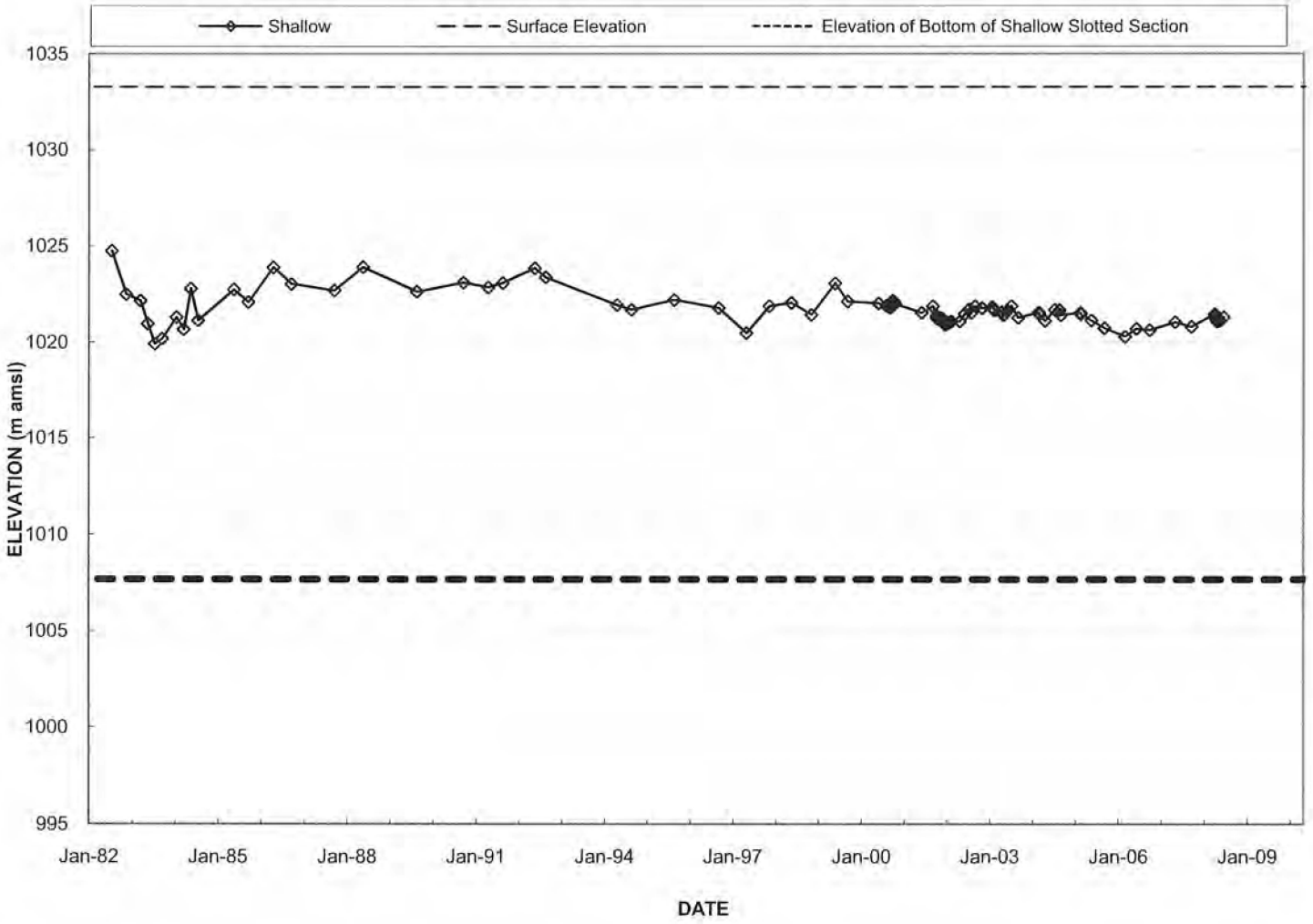
Date		Water Level below top of pipe (m)	Water Level below top of pipe (m)	Piezometric Elevation (m amsl)		Pond Elevation (m amsl)	Comments
		Shallow	Deep	Shallow	Deep		
1-Aug-82		8.80	8.85	1024.74	1024.61		
1-Dec-82		11.04	9.00	1022.50	1024.46		
1-Apr-83		11.38	9.81	1022.16	1023.65	1029.33	
1-Jun-83		12.58	10.74	1020.96	1022.72	1025.88	
1-Aug-83		13.63	11.90	1019.91	1021.56		
1-Oct-83		13.36	11.13	1020.18	1022.33		
1-Feb-84		12.24	10.67	1021.30	1022.79		
1-Mar-84						1030.60	
1-Apr-84		12.87	11.65	1020.67	1021.81		
1-Jun-84		10.75	12.28	1022.79	1021.18	1026.80	
1-Aug-84		12.41	11.05	1021.13	1022.41		
1-Jun-85		10.80	8.98	1022.74	1024.48	1031.20	
1-Oct-85		11.45	8.25	1022.09	1025.21		
1-May-86		9.65	11.18	1023.89	1022.28	1030.70	
1-Oct-86		10.51	8.79	1023.03	1024.67	1030.90	
1-Oct-87		10.85	9.10	1022.69	1024.36		
1-Jun-88		9.74	9.42	1023.90	1024.11		
1-Sep-89		11.01	9.07	1022.63	1024.46		
1-Oct-90		10.54	8.83	1023.10	1024.70		
1-May-91		10.79	9.14	1022.85	1024.39		
1-Sep-91		10.56		1023.08			
1-Jun-92		9.79	7.92	1023.85	1025.61		
1-Sep-92		10.27	8.29	1023.37	1025.24		
1-May-94		11.68	9.49	1021.94	1024.06		
1-Sep-94		11.93	9.82	1021.69	1023.73		
1-Sep-95		11.42	8.86	1022.20	1024.69		
13-Sep-96		11.84	9.52	1021.78	1024.03	1029.915	
7-May-97		13.15	11.57	1020.48	1021.99		
20-Nov-97		11.74	9.58	1021.88	1023.97		
26-May-98		11.57	9.11	1022.05	1024.44	1031.2	
13-Nov-98		12.19	9.90	1021.43	1023.65	1029.8	
3-Jun-99		10.560	8.868	1023.06	1024.68	1031.4	
18-Sep-99		11.50	10.25	1022.12	1023.30	~1029.2	
8-Jun-00		11.60	8.90	1022.02	1024.65	~1030.2	
14-Aug-00		11.73	9.19	1021.89	1024.36		
31-Aug-00		11.77	9.30	1021.85	1024.25		
7-Sep-00		11.66	9.12	1021.96	1024.43		
14-Sep-00		11.65	9.30	1021.97	1024.25		
19-Sep-00		11.83	9.34	1021.79	1024.21		
21-Sep-00		11.78	9.28	1021.84	1024.27		
28-Sep-00		11.61	9.40	1022.01	1024.15		
6-Oct-00		11.46	8.89	1022.16	1024.66		
12-Oct-00		11.57	9.00	1022.05	1024.55		
20-Oct-00		11.53	8.91	1022.09	1024.64		
27-Oct-00		11.62	9.03	1022.00	1024.52		
10-Jun-01		12.09	9.63	1021.53	1023.92		
14-Sep-01		11.75	9.67	1021.87	1023.88		
16-Oct-01		12.24	10.2	1021.38	1023.35		
18-Oct-01		12.35	10.33	1021.27	1023.22		
19-Oct-01		12.37	10.36	1021.25	1023.19		
20-Oct-01		12.38	10.37	1021.24	1023.18		
21-Oct-01		12.39	10.38	1021.23	1023.17		
22-Oct-01		12.40	10.39	1021.22	1023.16		
25-Oct-01		12.42	10.39	1021.20	1023.16		
29-Oct-01		12.405	10.34	1021.22	1023.21		
1-Nov-01		12.395	10.315	1021.23	1023.24		
5-Nov-01		12.41	10.31	1021.21	1023.24		
6-Nov-01		12.41	10.31	1021.21	1023.24		
8-Nov-01		12.41	10.3	1021.21	1023.25		
12-Nov-01		12.42	10.295	1021.20	1023.26		
15-Nov-01		12.42	10.285	1021.20	1023.27		
19-Nov-01		12.39	10.22	1021.23	1023.33		
21-Nov-01		12.37	10.19	1021.25	1023.36		
23-Nov-01		12.37	10.17	1021.25	1023.38		pond elev approx - 8 ft.
26-Nov-01		12.37	10.17	1021.25	1023.38		daytime temp -34 C
28-Nov-01		12.38	10.16	1021.24	1023.39		
30-Nov-01		12.385	10.17	1021.24	1023.38		
3-Dec-01		12.4	10.19	1021.22	1023.36		
5-Dec-01		12.42	10.2	1021.20	1023.35		
12-Dec-01		12.435	10.2	1021.19	1023.35		
14-Dec-01		12.47	10.25	1021.15	1023.30		
15-Dec-01		12.52	10.31	1021.10	1023.24		
16-Dec-01		12.57	10.38	1021.05	1023.17		

Faro Mine Instrumentation - Cross Valley Dam

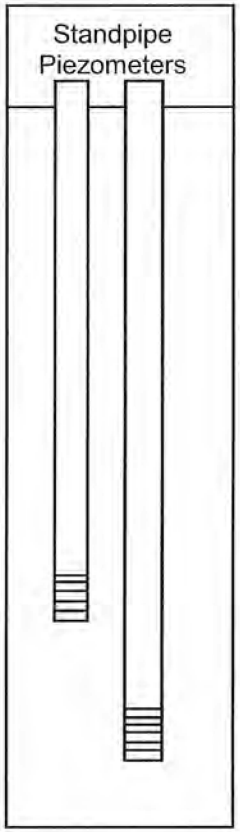
CVDC-9		Location:	Crest St.0+565	2004 Ground Elevation (m amsl):	1033.28		
		Coordinates:	8V580096 6913998	2004 Shallow Tip Elevation (m amsl)	1007.70	2004 Shallow stick-up (m):	0.27
Surface Protector:	yes	Date Installed:	1981	2004 Deep Tip Elevation (m amsl):	1000.70	2004 Deep stick-up (m):	0.19

Date		Water Level below top of pipe (m)	Water Level below top of pipe (m)	Piezometric Elevation (m amsl)		Pond Elevation (m amsl)	Comments
		Shallow	Deep	Shallow	Deep		
17-Dec-01		12.62	10.43	1021.00	1023.12		
18-Dec-01		12.66	10.48	1020.96	1023.07		
19-Dec-01		12.68	10.51	1020.94	1023.04		
26-Dec-01		12.72	10.53	1020.90	1023.02		
2-Jan-02		12.7	10.49	1020.92	1023.06		
9-Jan-02		12.68	10.45	1020.94	1023.10		
16-Jan-02		12.65	10.41	1020.97	1023.14		
23-Jan-02		12.62	10.36	1021.00	1023.19		
30-Jan-02		12.6	10.33	1021.02	1023.22		
6-Feb-02		12.585	10.31	1021.04	1023.24		
13-Feb-02		12.55	10.26	1021.07	1023.29		
20-Feb-02		12.55	10.25	1021.07	1023.30		
1-May-02		12.55	10.27	1021.07	1023.28		
12-Jun-02		12.155	9.77	1021.47	1023.78		
17-Jul-02		11.91	9.465	1021.71	1024.09		
7-Aug-02		12.1	9.705	1021.52	1023.85		
9-Sep-02		11.75	9.24	1021.87	1024.31		
4-Nov-02		11.85	9.64	1021.77	1023.91		
10-Nov-02		11.86	9.665	1021.76	1023.89		
30-Jan-03		11.805	9.395	1021.82	1024.16		
9-Feb-03		11.84	9.42	1021.78	1024.13		start siphon
11-Feb-03		11.87	9.455	1021.75	1024.10		
13-Feb-03		11.91	9.5	1021.71	1024.05		
18-Feb-03		11.96	9.55	1021.66	1024.00		
21-Feb-03		11.97	9.56	1021.65	1023.99	1026.18	
23-Apr-03		12.055	9.565	1021.57	1023.99		
7-May-03		12.21	9.78	1021.41	1023.77		
16-May-03		12.175	9.7	1021.45	1023.85		
11-Jun-03		11.99	9.46	1021.63	1024.09		
15-Jul-03		11.74	9.13	1021.88	1024.42		
10-Sep-03		12.355	9.95	1021.27	1023.60		
4-Mar-04		12.01	9.52	1021.54	1023.95		2004 Survey data used from here on
8-Mar-04		12.11	9.65	1021.44	1023.82		
26-Apr-04		12.45	9.5	1021.10	1023.97		
19-Jul-04		11.87	9.28	1021.68	1024.19		
26-Aug-04		11.88	9.28	1021.67	1024.19		
9-Sep-04		12.15	9.64	1021.40	1023.83		
22-Feb-05		12.02	9.44	1021.53	1024.03		
23-Feb-05		12.06	9.485	1021.49	1023.985		
24-Feb-05		12.11	9.555	1021.44	1023.915		
26-May-05		12.43	9.95	1021.12	1023.52		
14-Sep-05		12.83	10.385	1020.72	1023.085		
9-Mar-06		13.27	10.93	1020.28	1022.54		
14-Jun-06		12.86	10.4	1020.69	1023.07		
4-Oct-06		12.935	10.455	1020.62	1023.015	1027.468	
9-May-07		12.52	9.83	1021.03	1023.64	1029.295	
24-Sep-07		12.76	10.15	1020.79	1023.32	1030.295	
9-Apr-08		12.1	9.18	1021.45	1024.29	1030.300	
14-Apr-08		12.19	9.325	1021.36	1024.15	1029.930	
21-Apr-08		12.37	9.57	1021.18	1023.90	1029.625	
28-Apr-08		12.49	9.725	1021.06	1023.75	1029.250	
5-May-08		12.44	9.66	1021.11	1023.81	1029.433	
12-May-08		12.435	9.74	1021.12	1023.73	1029.362	
20-May-08		12.445	9.635	1021.11	1023.84	1029.340	
26-May-08		12.44	9.585	1021.11	1023.89	1029.276	
24-Jun-08		12.26	9.455	1021.29	1024.02	1028.638	
24-Sep-08		12.26	9.435	1021.29	1024.04	1028.504	

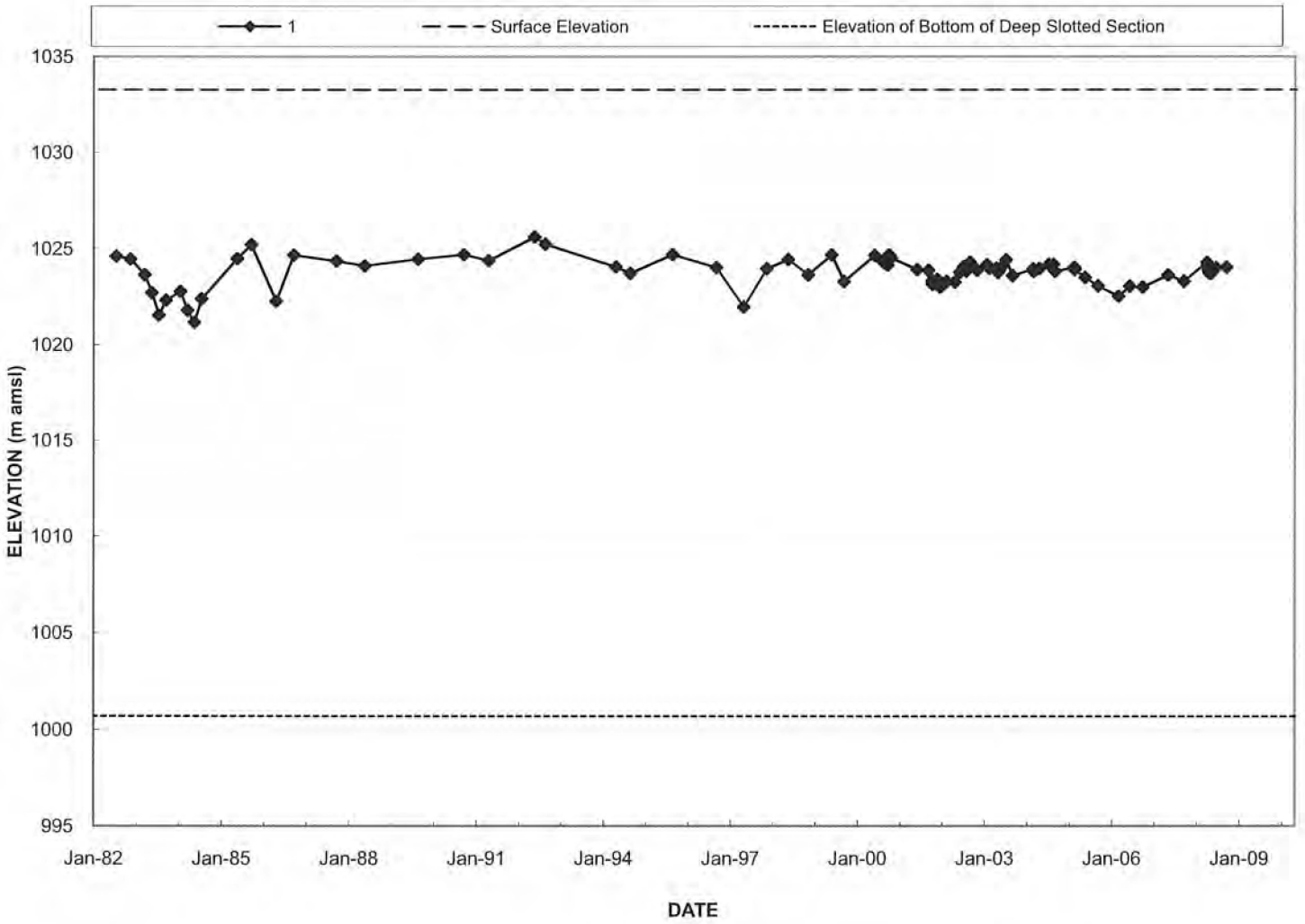
CROSS VALLEY DAM
Piezometric Monitoring
CVDC-9 Shallow Standpipe Piezometer
(Dam Crest)



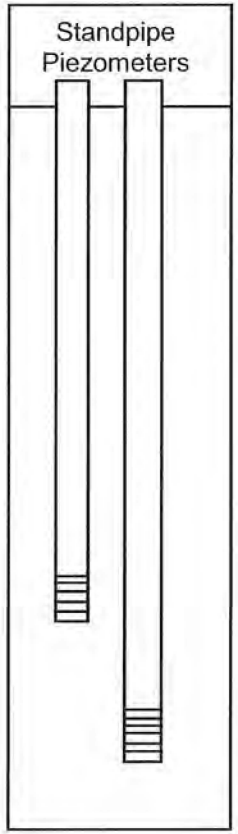
Instrument Details



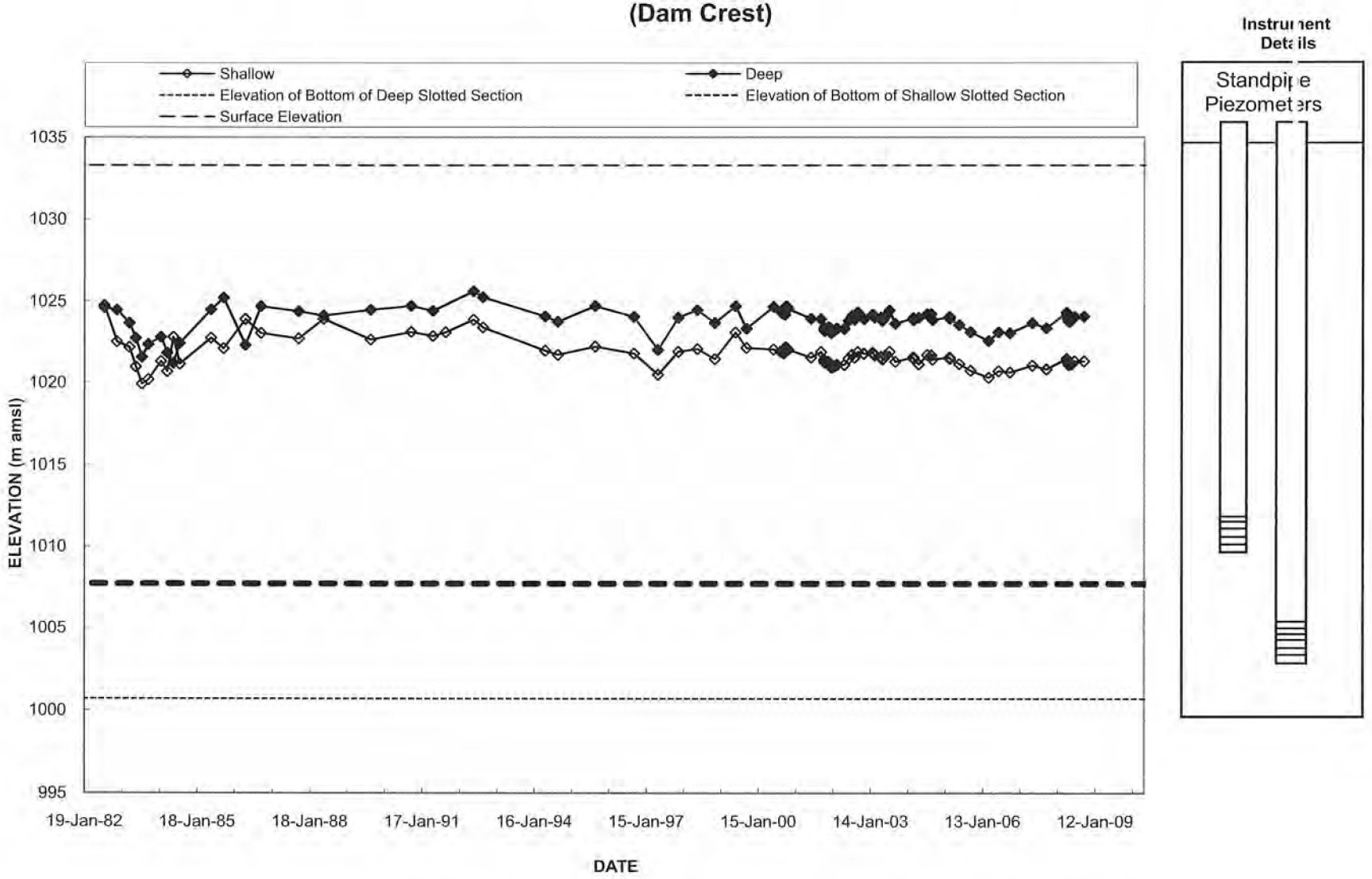
CROSS VALLEY DAM
Piezometric Monitoring
CVDC-9 Deep Standpipe Piezometer
(Dam Crest)



Instrument Details



CROSS VALLEY DAM
Piezometric Monitoring
CVDC-9 Standpipe Piezometers
(Dam Crest)

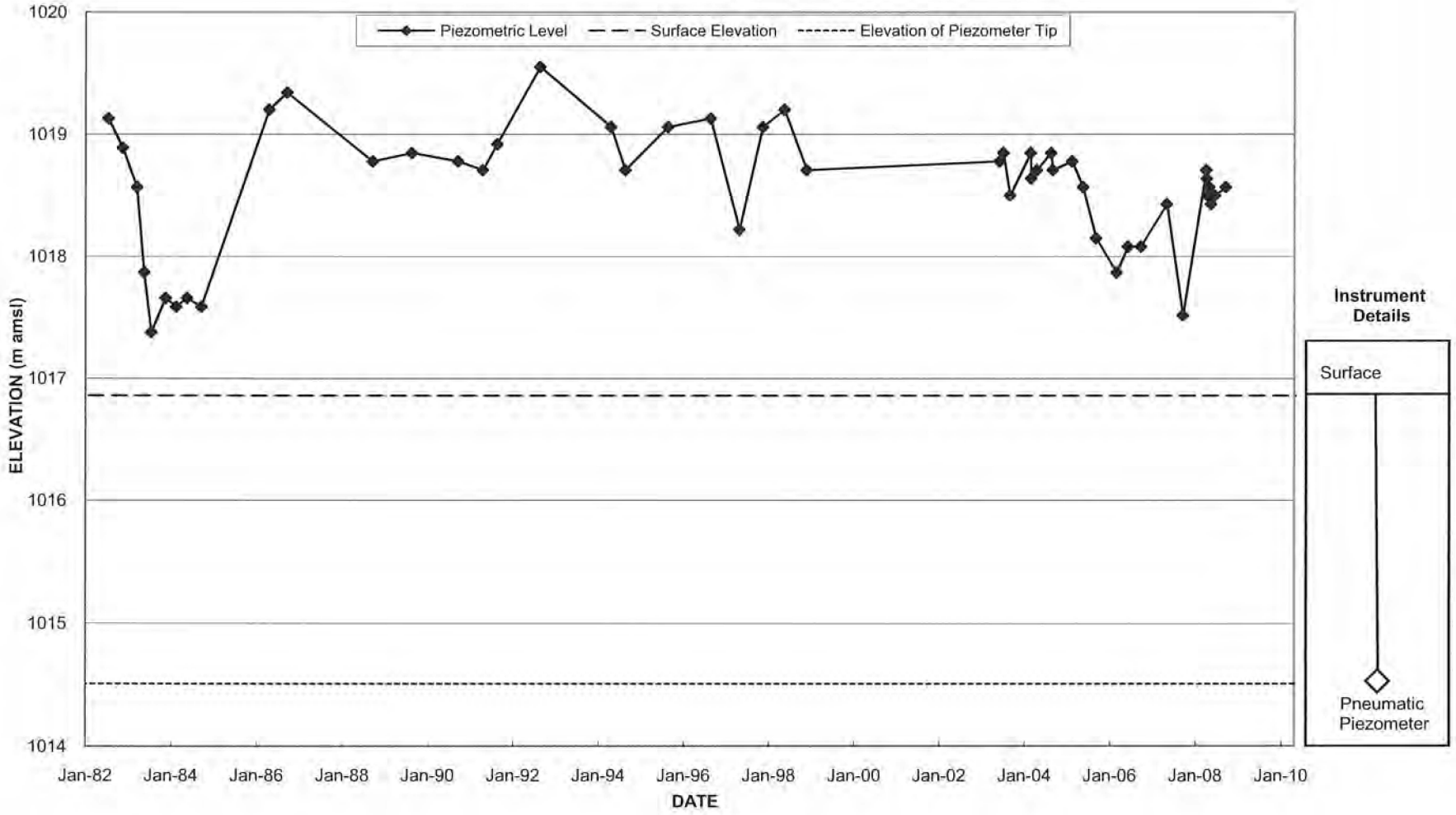


Faro Mine Instrumentation - Cross Valley Dam

CVDP-1		Location:	20m u/s of CL, Stn.0+450		
		Coordinates:	8V580128 6914135	2004 Ground Elevation (m amsl):	1016.86
Surface Protector:	yes	Date Installed:	1982	Tip Elevation (m amsl):	1014.51

Date		Reading (psi)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
Aug-82		6.60	1019.13		
Dec-82		6.26	1018.89		
Apr-83		5.80	1018.57	1029.33	
Jun-83		4.80	1017.87	1025.88	
Aug-83		4.10	1017.38		
Dec-83		4.50	1017.66		
Mar-84		4.40	1017.59	1029.71	
Jun-84		4.50	1017.66	1026.80	
Oct-84		4.40	1017.59		
May-86		6.70	1019.20	1030.70	
Oct-86		6.90	1019.34	1030.90	
Oct-88		6.10	1018.78		
Sep-89		6.20	1018.85		
Oct-90		6.10	1018.78		
May-91		6.00	1018.71		
Sep-91		6.30	1018.92		
Sep-92		7.20	1019.55		
May-94		6.50	1019.06		
Sep-94		6.00	1018.71		
Sep-95		6.50	1019.06		
Sep-96		6.60	1019.13	1029.915	
6-May-97		5.30	1018.22		
21-Nov-97		6.50	1019.06		
27-May-98		6.70	1019.20	1031.2	
12-Nov-98					no air bubbles returned
4-Dec-98		6.0	1018.71	1029.8	
16-Dec-98				1029.8	black tube broken at connector
11-Jun-03		6.1	1018.78		new piezometer
15-Jul-03		6.2	1018.85		
10-Sep-03		5.7	1018.50		
4-Mar-04		6.2	1018.85		2004 Survey data used from here on
8-Mar-04		5.9	1018.64		
26-Apr-04		6	1018.71		
26-Aug-04		6.2	1018.85		
9-Sep-04		6	1018.71		
22-Feb-05		6.1	1018.78		
24-Feb-05		3.5			
26-May-05		5.8	1018.57		
14-Sep-05		5.2	1018.15		
9-Mar-06		4.8	1017.87		
14-Jun-06		5.1	1018.08		
2-Oct-06		5.1	1018.08	1027.468	
9-May-07		5.6	1018.43	1029.295	Good return
24-Sep-07		4.3	1017.52	1030.295	
9-Apr-08		6	1018.71	1030.300	
14-Apr-08		5.9	1018.64	1029.930	
21-Apr-08		5.7	1018.5	1029.625	
28-Apr-08		5.7	1018.5	1029.250	
5-May-08		5.8	1018.57	1029.433	
12-May-08		5.7	1018.5	1029.362	
20-May-08		5.6	1018.43	1029.340	
26-May-08		5.7	1018.5	1029.276	
24-Jun-08		5.7	1018.5	1028.638	
24-Sep-08		5.8	1018.57	1028.504	

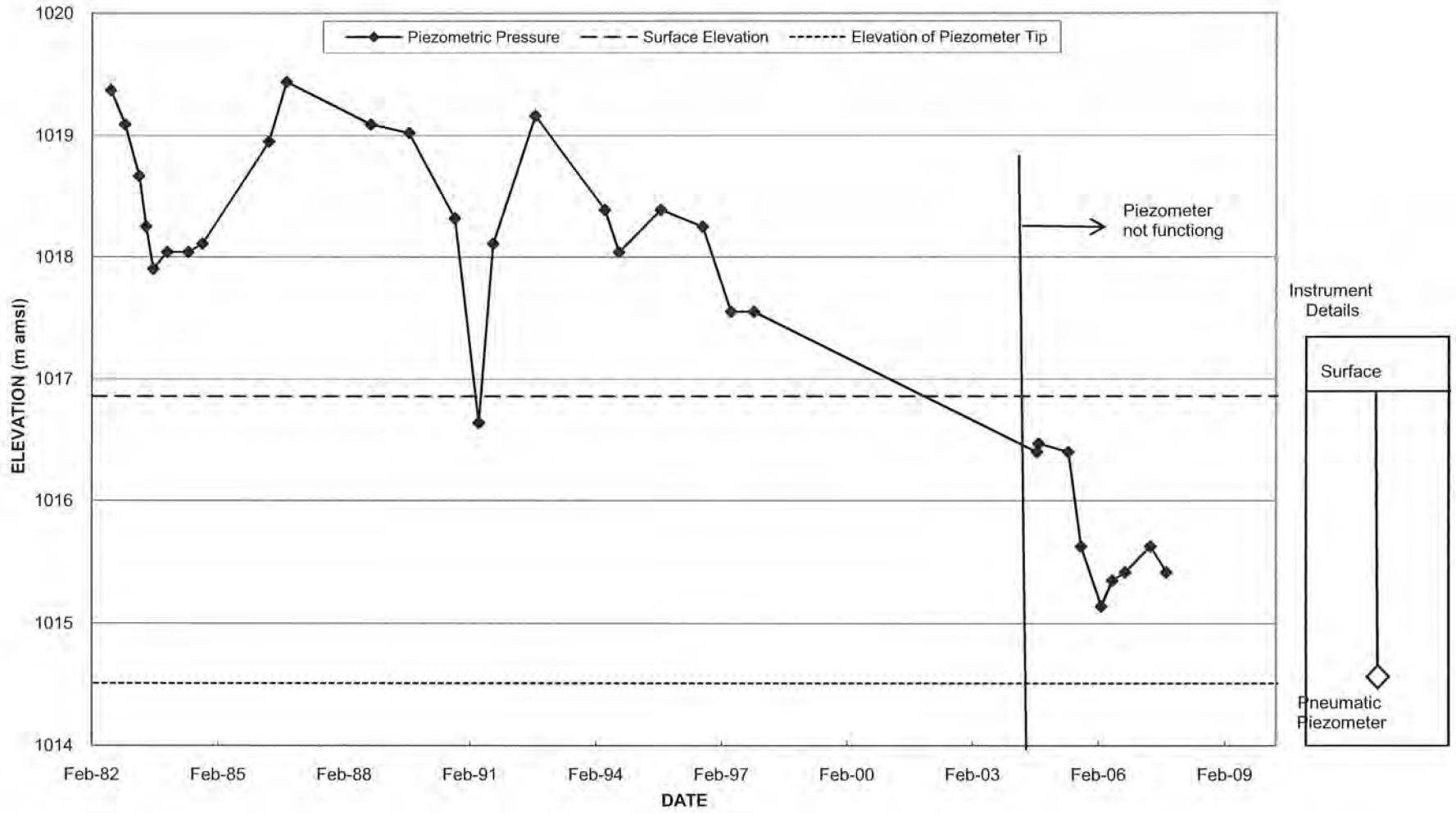
CROSS VALLEY DAM
Pieometric Monitoring
CVDP-1 Pneumatic Piezometer
(Toe of Dam)



Faro Mine Instrumentation - Cross Valley Dam

CVDP-2		Location:	Cross Valley Dam St.0+450 5m u/s of CL.		
		Coordinates:	8V580128 6914135	Ground Elevation (m amsl):	1016.86
Surface Protector:	yes	Date Installed:	1982	Tip Elevation (m amsl):	1014.51
Date		Reading (psi)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
Aug-82		6.90	1019.37		
Dec-82		6.50	1019.09		
Apr-83		5.90	1018.67	1029.33	
Jun-83		5.30	1018.25	1025.88	
Aug-83		4.80	1017.90		
Dec-83		5.00	1018.04		
Mar-84				1029.71	
Jun-84		5.00	1018.04	1026.80	
Oct-84		5.10	1018.11		
May-86		6.30	1018.95	1030.70	
Oct-86		7.00	1019.44	1030.90	
Oct-88		6.50	1019.09		
Sep-89		6.40	1019.02		
Oct-90		5.40	1018.32		
May-91		3.00	1016.64		
Sep-91		5.10	1018.11		
Sep-92		6.60	1019.16		
May-94		5.50	1018.39		
Sep-94		5.00	1018.04		
Sep-95		5.50	1018.39		
Sep-96		5.30	1018.25	1029.915	
6-May-97		4.30	1017.55		
21-Nov-97			1017.55		Broken
10-Sep-03		16.90			Broken
4-Mar-04					Frozen
8-Mar-04		19.20			Broken
26-Aug-04		2.70	1016.40		Broken
9-Sep-04		2.80	1016.47		Broken
22-Feb-05		11.5			no bubbles, keeps rising
24-Feb-05		16			no bubbles, keeps rising
26-May-05		2.7	1016.40		
14-Sep-05		1.6	1015.63		
09-Mar-06		0.9	1015.14		
14-Jun-06		1.2	1015.35		
02-Oct-06		1.3	1015.42	1027.468	
09-May-07		1.6	1015.63	1029.295	Good Return
24-Sep-07		1.3	1015.42	1030.295	
09-Apr-08					stopped at 13.1 psi, no bubbles
14-Apr-08					not working

CROSS VALLEY DAM
Pieometric Monitoring
CVDP-2 Pneumatic Piezometer
(Toe of Dam)



Faro Mine Instrumentation - Cross Valley Dam

CVDP-3		Location:	St.0+450 7m d/s of CL.		
		Coordinates:	8V580128 6914135	2004 Ground Elevation (m amsl):	1016.86
Surface Protector:	yes	Date Installed:	1982	Tip Elevation (m amsl):	1014.71

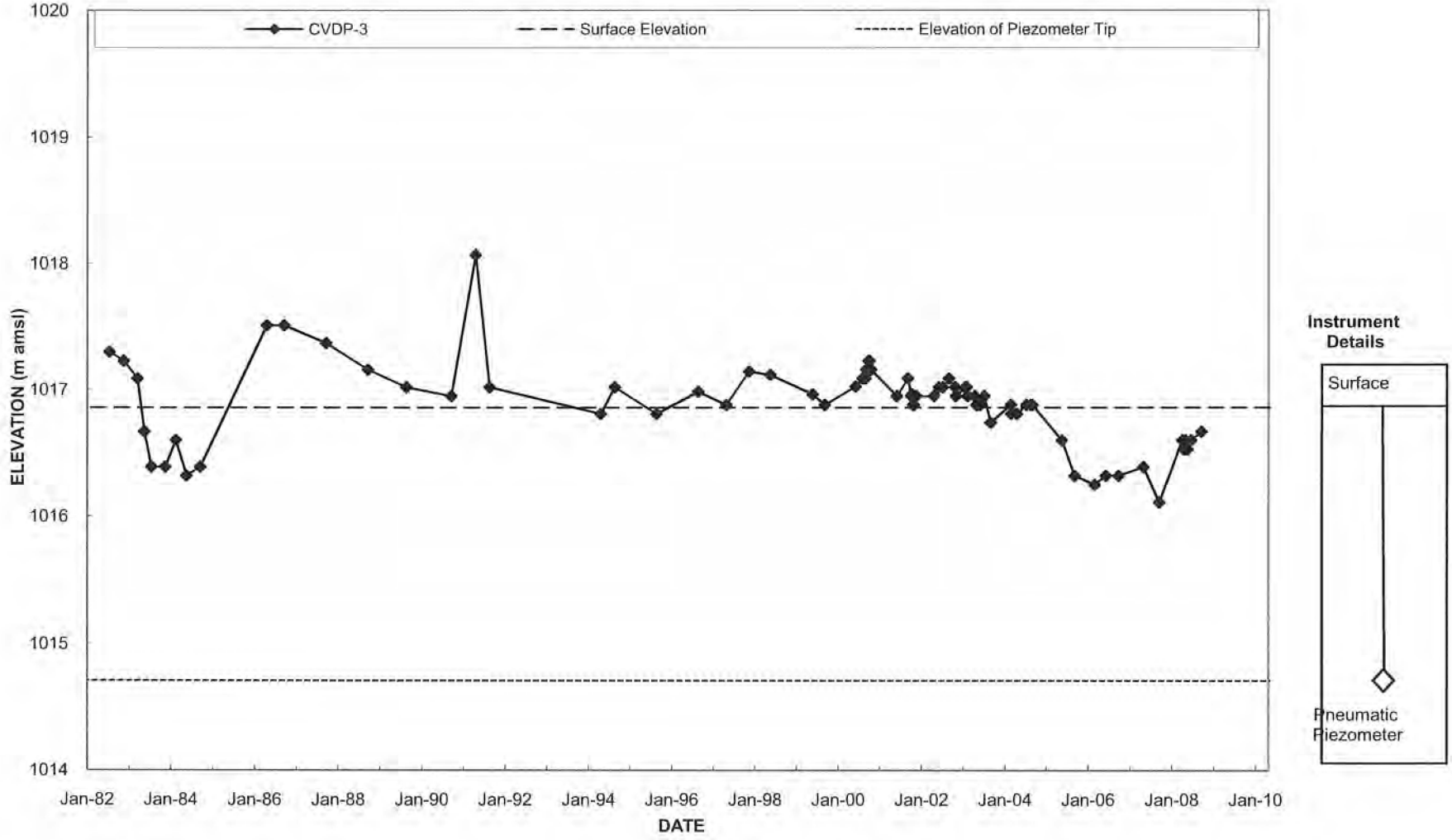
Date		Reading (psi)	Piezometric Elevation 2004 (m amsl)	Pond Elevation (m amsl)	Comments
Aug-82		3.70	1017.30		
Dec-82		3.60	1017.23		
Apr-83		3.40	1017.09	1029.33	
Jun-83		2.80	1016.67	1025.88	
Aug-83		2.40	1016.39		
Dec-83		2.40	1016.39		
Mar-84		2.70	1016.60	1029.71	
Jun-84		2.30	1016.32	1026.80	
Oct-84		2.40	1016.39		
May-86		4.00	1017.51	1030.70	
Oct-86		4.00	1017.51	1030.90	
Oct-87		3.80	1017.37		
Oct-88		3.50	1017.16		
Sep-89		3.30	1017.02		
Oct-90		3.20	1016.95		
May-91		4.80	1018.07		
Sep-91		3.30	1017.02		
Sep-92		0.40			likely erroneous reading
May-94		3.00	1016.81		
Sep-94		3.30	1017.02		
Sep-95		3.00	1016.81		
Sep-96		3.25	1016.99	1029.915	
6-May-97		3.10	1016.88		
21-Nov-97		3.48	1017.15		
27-May-98		3.44	1017.12	1031.2	
12-Nov-98		n.r.			no air bubbles returned
4-Dec-98		n.r.			no air bubbles returned
3-Jun-99		3.22	1016.96		
18-Sep-99		3.10	1016.88	1029.2	very slow
14-Jun-00		3.31	1017.03	1030.2	
14-Aug-00		3.40	1017.09		
31-Aug-00		3.40	1017.09		
7-Sep-00		3.40	1017.09		
14-Sep-00		3.50	1017.16		
21-Sep-00		3.50	1017.16		
28-Sep-00		3.50	1017.16		
6-Oct-00		3.60	1017.23		
12-Oct-00		3.60	1017.23		
20-Oct-00		3.50	1017.16		
27-Oct-00		3.50	1017.16		
10-Jun-01		3.20	1016.95		
14-Sep-01		3.40	1017.09		
16-Oct-01		3.2	1016.95		
18-Oct-01		3.2	1016.95		
19-Oct-01		3.2	1016.95		
20-Oct-01		3.22	1016.96		
21-Oct-01		3.21	1016.96		
22-Oct-01		3.2	1016.95		
25-Oct-01		3.2	1016.95		
29-Oct-01		3.1	1016.88		
1-Nov-01		3.2	1016.95		
5-Nov-01		3.1	1016.88		
6-Nov-01		3.1	1016.88		
8-Nov-01		3.2	1016.95		
12-Nov-01		3.2	1016.95		
15-Nov-01		3.2	1016.95		
19-Nov-01		3.2	1016.95		
21-Nov-01		3.2	1016.95		
23-Nov-01		3.2	1016.95		pond elev approx - 8 ft.
26-Nov-01		3.2	1016.95		daytime temp -34 C

Faro Mine Instrumentation - Cross Valley Dam

CVDP-3		Location:	St.0+450 7m d/s of CL.		
		Coordinates:	8V580128 6914135	2004 Ground Elevation (m amsl):	1016.86
Surface Protector:	yes	Date Installed:	1982	Tip Elevation (m amsl):	1014.71

Date		Reading (psi)	Piezometric Elevation 2004 (m amsl)	Pond Elevation (m amsl)	Comments
28-Nov-01					not read, low pressure in box
30-Nov-01					instrument broken from Nov 01 to Feb 02
1-May-02		3.2	1016.95		instrument fixed
12-Jun-02		3.3	1017.02		
17-Jul-02		3.3	1017.02		
7-Aug-02					not read
9-Sep-02		3.4	1017.09		
4-Nov-02		3.3	1017.02		
10-Nov-02		3.2	1016.95		
30-Jan-03		3.3	1017.02		
9-Feb-03		3.3	1017.02		start siphon
11-Feb-03		3.3	1017.02		
13-Feb-03		3.3	1017.02		
18-Feb-03		3.2	1016.95		
21-Feb-03		3.2	1016.95	1026.18	
23-Apr-03		3.2	1016.95		
7-May-03		3.1	1016.88		
16-May-03		3.1	1016.88		
11-Jun-03		3.1	1016.88		*new piezometer readout
15-Jul-03		3.2	1016.95		
10-Sep-03		2.9	1016.74		
4-Mar-04		3.1	1016.88		2004 Survey data used from here on
8-Mar-04		3	1016.81		
26-Apr-04		3	1016.81		
19-Jul-04		3.1	1016.88		
26-Aug-04		3.1	1016.88		
9-Sep-04		3.1	1016.88		
22-Feb-05		14			no bubbles, keeps rising
24-Feb-05		16			no bubbles, keeps rising
26-May-05		2.7	1016.60		
14-Sep-05		2.3	1016.32		
9-Mar-06		2.2	1016.25		
14-Jun-06		2.3	1016.32		
2-Oct-06		2.3	1016.32	1027.47	
9-May-07		2.4	1016.39	1029.295	Good Return
24-Sep-07		2	1016.11	1030.295	
9-Apr-08		2.7	1016.60	1030.300	
14-Apr-08		2.7	1016.60	1029.930	
21-Apr-08		2.6	1016.53	1029.625	
28-Apr-08		2.6	1016.53	1029.250	
5-May-08		2.6	1016.53	1029.433	
12-May-08		2.7	1016.60	1029.362	
20-May-08		2.6	1016.53	1029.340	
26-May-08		2.6	1016.53	1029.276	
24-Jun-08		2.7	1016.60	1028.638	
24-Sep-08		2.8	1016.67	1028.504	

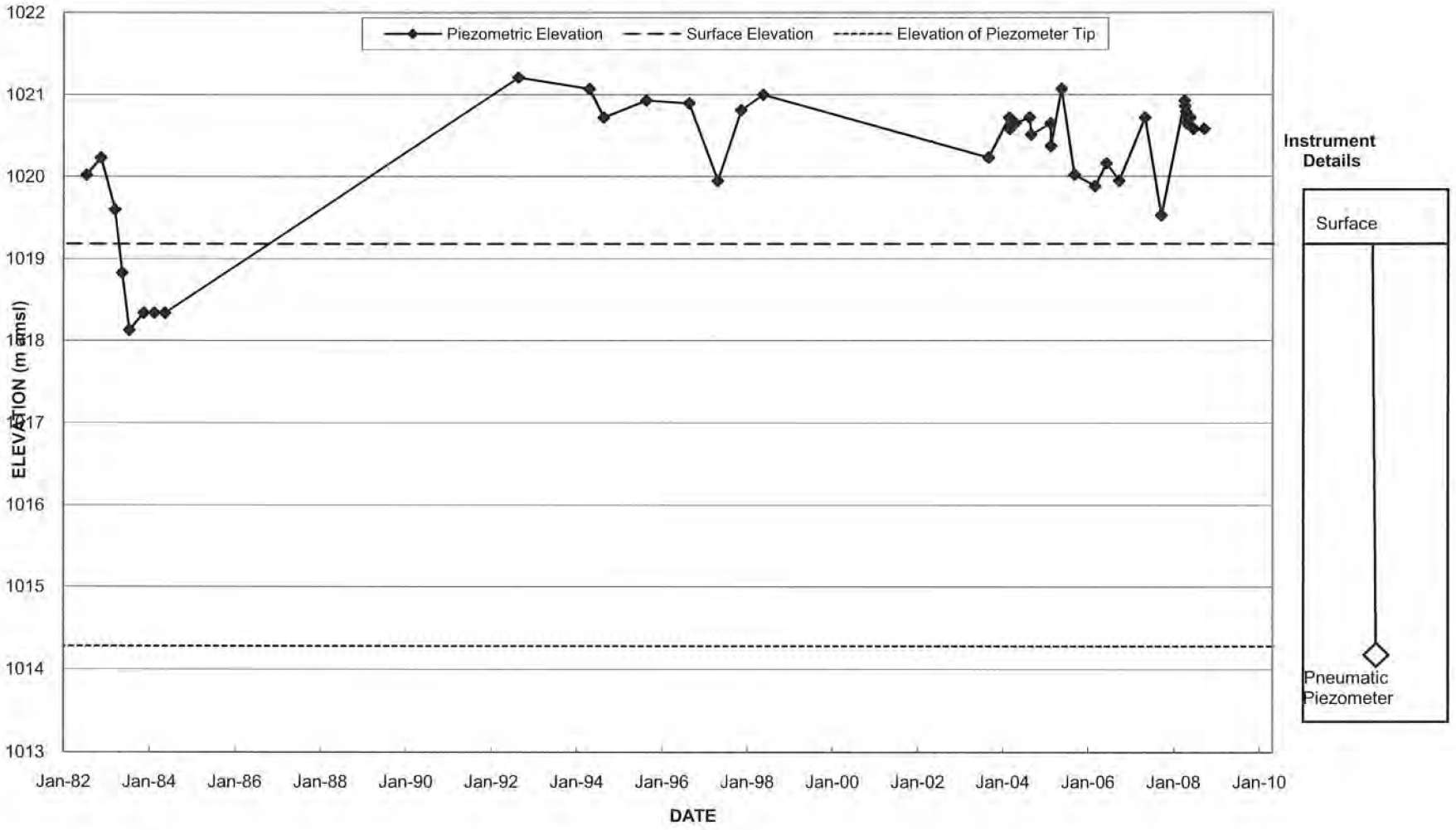
CROSS VALLEY DAM
Piezometric Monitoring
CVDP-3 Pneumatic Piezometer
(Toe of Dam)



Faro Mine Instrumentation - Cross Valley Dam

CVDP-5		Location:	Cross Valley Dam St.0+210 9m u/s of CL.		
		Coordinates:	8V580239 6914346	2004 Ground Elevation (m amsl):	1019.18
Surface Protector:	yes	Date Installed:	1982	Tip Elevation (m amsl):	1014.28
Date		Reading (psi)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
Aug-82		8.20	1020.02		
Dec-82		8.50	1020.23		
Apr-83		7.60	1019.60	1029.33	
Jun-83		6.50	1018.83	1025.88	
Aug-83		5.50	1018.13		
Dec-83		5.80	1018.34		
Mar-84		5.80	1018.34	1029.71	
Jun-84		5.80	1018.34	1026.80	
May-86				1030.70	
Oct-86				1030.90	
Sep-92		9.90	1021.21		
May-94		9.70	1021.07		
Sep-94		9.20	1020.72		
Sep-95		9.50	1020.93		
Sep-96		9.45	1020.90	1029.915	
6-May-97		8.10	1019.95		
21-Nov-97		9.33	1020.81		
27-May-98		9.60	1021.00		
12-Nov-98					black air tube broken at connector
10-Sep-03		8.50	1020.23		
4-Mar-04		9.20	1020.72		2004 Survey data used from here on
8-Mar-04		9.00	1020.58		
26-Apr-04		9.10	1020.65		
26-Aug-04		9.20	1020.72		
9-Sep-04		8.90	1020.51		
22-Feb-05		9.1	1020.65		
24-Feb-05		8.7	1020.37		
26-May-05		9.7	1021.07		
14-Sep-05		8.2	1020.02		
9-Mar-06		8.0	1019.88		
14-Jun-06		8.4	1020.16		
2-Oct-06		8.1	1019.95	1027.468	
9-May-07		9.2	1020.72	1029.295	Good Return
24-Sep-07		7.5	1019.53	1030.295	
9-Apr-08		9.5	1020.93	1030.300	
14-Apr-08		9.4	1020.86	1029.930	
21-Apr-08		9.3	1020.79	1029.625	
28-Apr-08		9.1	1020.65	1029.250	
5-May-08		9.2	1020.72	1029.433	
12-May-08		9.2	1020.72	1029.362	
20-May-08		9.2	1020.72	1029.340	
26-May-08		9.2	1020.72	1029.276	
24-Jun-08		9	1020.58	1028.638	
24-Sep-08		9	1020.58	1028.504	

CROSS VALLEY DAM
Pieometric Monitoring
CVDP-5 Pneumatic Piezometer
(Toe of Dam)



Faro Mine Instrumentation - Cross Valley Dam

CVDP-6		Location:	St.0+210 5m d/s of CL.		
		Coordinates:	8V580239 6914346	2004 Ground Elevation (m amsl):	1019.18
Surface Protector:	yes	Date Installed:	1982	Tip Elevation (m amsl):	1014.37

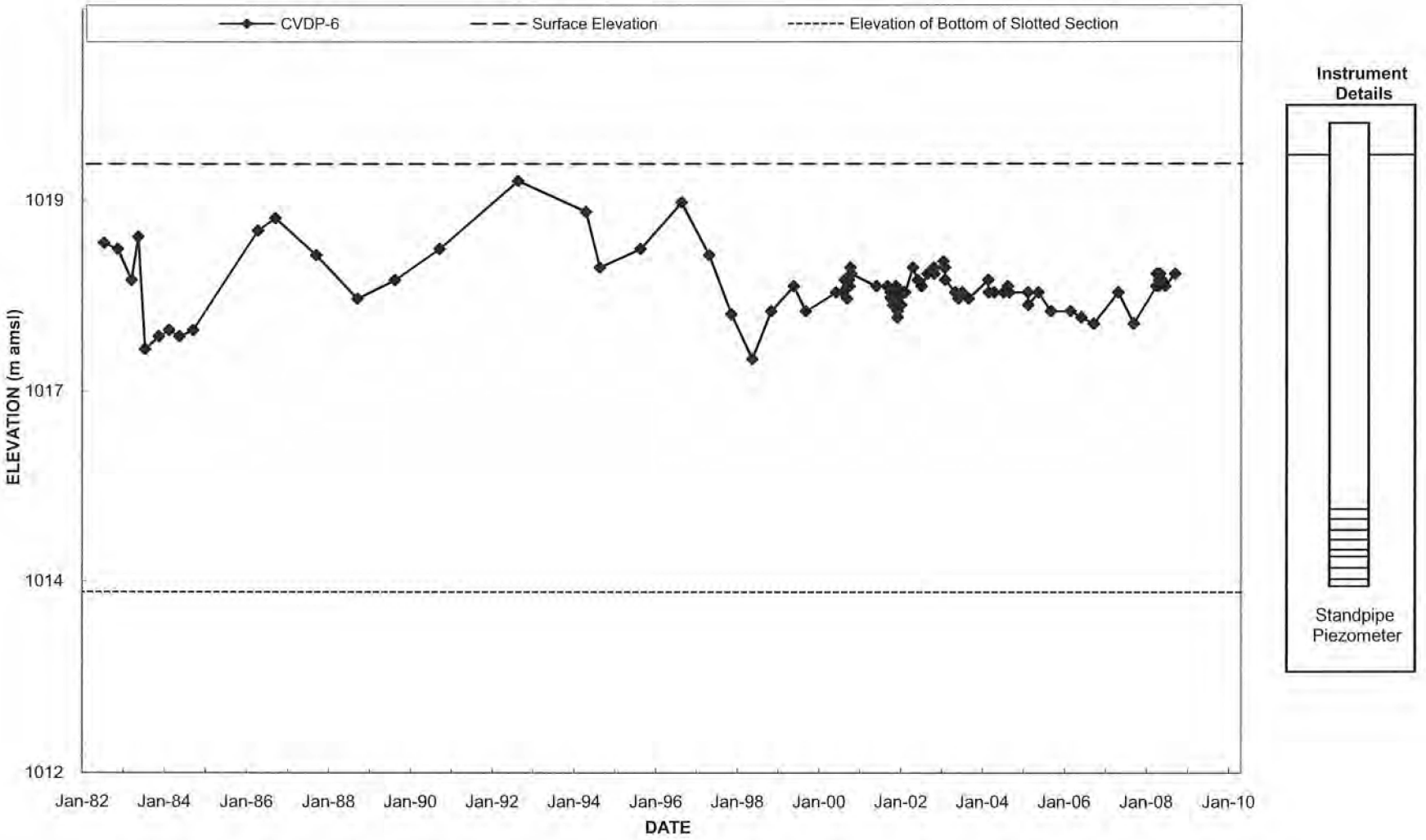
Date		Reading (psi)	Piezometric Elevation 2004 (m amsl)	Pond Elevation (m amsl)	Comments
Aug-82		5.60	1018.29		
Dec-82		5.50	1018.22		
Apr-83		5.00	1017.87	1029.33	
Jun-83		5.70	1018.36	1025.88	
Aug-83		3.90	1017.1		
Dec-83		4.10	1017.24		
Mar-84		4.20	1017.31	1029.71	
Jun-84		4.10	1017.24	1026.80	
Oct-84		4.20	1017.31		
May-86		5.80	1018.43	1030.70	
Oct-86		6.00	1018.57	1030.90	
Oct-87		5.40	1018.15		
Oct-88		4.70	1017.66		
Sep-89		5.00	1017.87		
Oct-90		5.50	1018.22		
Sep-92		6.60	1018.99		
May-94		6.10	1018.64		
Sep-94		5.20	1018.01		
Sep-95		5.50	1018.22		
Sep-96		6.25	1018.745	1029.915	
6-May-97		5.40	1018.15		
21-Nov-97		4.45	1017.485		
27-May-98		3.74	1016.988	1031.2	
12-Nov-98		4.50	1017.52	1029.8	
3-Jun-99		4.90	1017.8	1031.4	
18-Sep-99		4.50	1017.52		
14-Jun-00		4.80	1017.73	1030.2	
14-Aug-00		4.80	1017.73		
31-Aug-00		5.00	1017.87		return bubbles "sputtering"
7-Sep-00		5.00	1017.87		
14-Sep-00		5.00	1017.87		
21-Sep-00		4.70	1017.66		
28-Sep-00		4.90	1017.8		
6-Oct-00		5.00	1017.87		
12-Oct-00		4.90	1017.8		
20-Oct-00		5.20	1018.01		
27-Oct-00		5.10	1017.94		
10-Jun-01		4.90	1017.8		
14-Sep-01		4.9	1017.8		
16-Oct-01		4.8	1017.73		
18-Oct-01		4.72	1017.674		
19-Oct-01		4.7	1017.66		
20-Oct-01		4.7	1017.66		
21-Oct-01		4.7	1017.66		
22-Oct-01		4.7	1017.66		
25-Oct-01		4.70	1017.66		
29-Oct-01		4.7	1017.66		
1-Nov-01		4.7	1017.66		
5-Nov-01		4.6	1017.59		
6-Nov-01		4.6	1017.59		
8-Nov-01		4.7	1017.66		
12-Nov-01		4.7	1017.66		
15-Nov-01		4.7	1017.66		
19-Nov-01		4.8	1017.73		
21-Nov-01		4.7	1017.66		
23-Nov-01		4.7	1017.66		pond elev approx - 8 ft.
26-Nov-01		-			not read
28-Nov-01		-			not read, low pressure in box
30-Nov-01		4.9	1017.8		
3-Dec-01		4.7	1017.66		
5-Dec-01		4.7	1017.66		
12-Dec-01		4.7	1017.66		
14-Dec-01		4.8	1017.73		
15-Dec-01		4.4	1017.45		
16-Dec-01		4.8	1017.73		
17-Dec-01		4.8	1017.73		
18-Dec-01		4.5	1017.52		
19-Dec-01		4.8	1017.73		
26-Dec-01		4.6	1017.59		

Faro Mine Instrumentation - Cross Valley Dam

CVDP-6		Location:	St.0+210 5m d/s of CL.		
		Coordinates:	8V580239 6914346	2004 Ground Elevation (m amsl):	1019.18
Surface Protector:	yes	Date Installed:	1982	Tip Elevation (m amsl):	1014.37

Date		Reading (psi)	Piezometric Elevation 2004 (m amsl)	Pond Elevation (m amsl)	Comments
2-Jan-02		4.8	1017.73		
9-Jan-02		4.6	1017.59		
16-Jan-02		4.6	1017.59		
23-Jan-02		4.8	1017.73		
30-Jan-02		4.8	1017.73		
6-Feb-02		4.8	1017.73		
13-Feb-02		4.8	1017.73		
20-Feb-02		4.8	1017.73		
1-May-02		5.2	1018.01		
12-Jun-02		5.0	1017.87		
17-Jul-02		4.9	1017.8		
7-Aug-02					not read
9-Sep-02		5.1	1017.94		
4-Nov-02		5.2	1018.01		
10-Nov-02		5.1	1017.94		
30-Jan-03		5.3	1018.08		
9-Feb-03		5.2	1018.01		start siphon
11-Feb-03		5.2	1018.01		
13-Feb-03		5	1017.87		
18-Feb-03					*Piezometer tip broken (-35 oC)
21-Feb-03				1026.18	
23-Apr-03					
7-May-03					
16-May-03		4.8	1017.73		*piezometer tip repaired
11-Jun-03		4.7	1017.66		*new piezometer readout
15-Jul-03		4.8	1017.73		
10-Sep-03		4.7	1017.66		
4-Mar-04		5	1017.87		2004 Survey data used from here on
8-Mar-04		4.8	1017.73		
26-Apr-04		4.8	1017.73		
19-Jul-04		4.8	1017.73		
26-Aug-04		4.9	1017.80		
9-Sep-04		4.8	1017.73		
22-Feb-05		4.8	1017.73		
24-Feb-05		4.6	1017.59		
24-Feb-05		4.6	1017.59		
26-May-05		4.8	1017.73		
14-Sep-05		4.5	1017.52		
09-Mar-06		4.5	1017.52		
14-Jun-06		4.4	1017.45		
02-Oct-06		4.3	1017.38	1027.468	
09-May-07		4.8	1017.73	1029.295	Good Return
24-Sep-07		4.3	1017.38	1030.295	
09-Apr-08		4.9	1017.8	1030.300	
14-Apr-08		5.1	1017.94	1029.930	
21-Apr-08		5.1	1017.94	1029.625	
28-Apr-08		4.9	1017.8	1029.250	
05-May-08		5	1017.87	1029.433	
12-May-08		5.1	1017.94	1029.362	
20-May-08		5	1017.87	1029.340	
26-May-08		5	1017.87	1029.276	
24-Jun-08		4.9	1017.8	1028.638	
24-Sep-08		5.1	1017.94	1028.504	

CROSS VALLEY DAM
Piezometric Monitoring
CVDP-6 Pneumatic Piezometer
(Toe of Dam)



Faro Mine Instrumentation - Cross Valley Dam

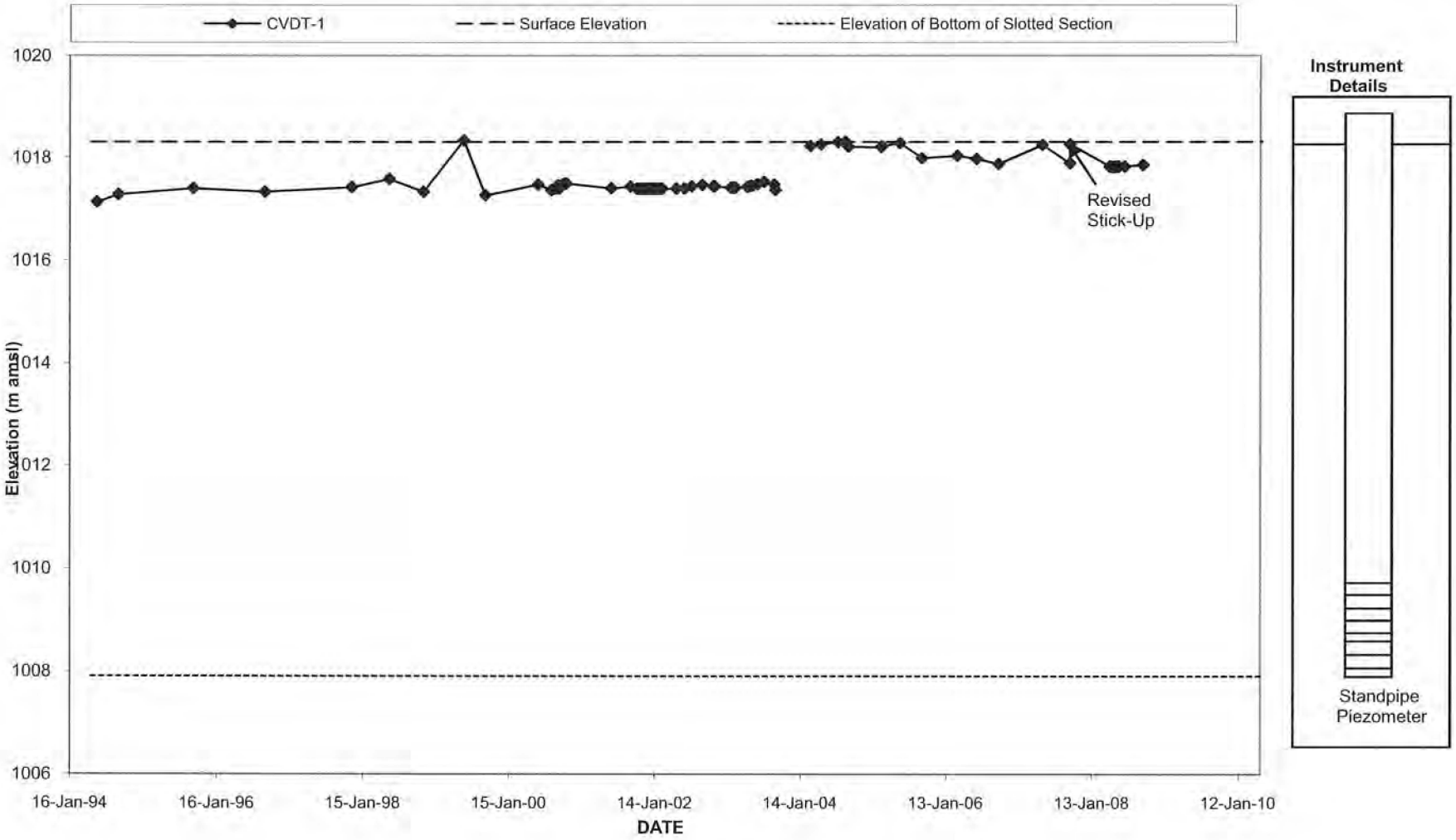
CVDT-1		Location:	Cross Valley Dam Toe, black PVC adj. to X11 channel	2004 Stick-up (m):	0.27
		Coordinates:	8V580219 6914353	2004 Ground Elevation (m amsl):	1018.30
Surface Protector:	N/A	Date Installed:	1994	2004 Tip Elevation (m amsl):	1007.90

Date		Water Level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
31-May-94		-2.07	1017.13		
15-Sep-94		-1.92	1017.28		
22-Sep-95		-1.80	1017.40		
13-Sep-96		-1.87	1017.33	1029.915	
20-Nov-97		-1.78	1017.42		
26-May-98		-1.62	1017.58	1031.20	
13-Nov-98		-1.87	1017.33	1029.80	
3-Jun-99		-0.868	1018.33	1031.40	
18-Sep-99		-1.940	1017.26	~1029.2	
8-Jun-00		-1.73	1017.47	~1030.2	
14-Aug-00		-1.84	1017.36		
31-Aug-00		-1.81	1017.39		
7-Sep-00		-1.80	1017.40		
14-Sep-00		-1.75	1017.45		
21-Sep-00		-1.81	1017.39		
28-Sep-00		-1.76	1017.44		
6-Oct-00		-1.73	1017.47		
12-Oct-00		-1.73	1017.47		
20-Oct-00		-1.71	1017.49		
27-Oct-00		-1.71	1017.49		
10-Jun-01		-1.80	1017.40		
14-Sep-01		-1.77	1017.43		
16-Oct-01		-1.81	1017.39		
18-Oct-01		-1.81	1017.39		
19-Oct-01		-1.81	1017.39		
20-Oct-01		-1.81	1017.39		
21-Oct-01		-1.81	1017.39		
22-Oct-01		-1.81	1017.39		
25-Oct-01		-1.81	1017.39		
29-Oct-01		-1.81	1017.39		
1-Nov-01		-1.81	1017.39		
5-Nov-01		-1.81	1017.39		
6-Nov-01		-0.44	1017.39		Stick up changed
8-Nov-01		-0.44	1017.39		
12-Nov-01		-0.44	1017.39		
15-Nov-01		-0.44	1017.39		
19-Nov-01		-0.44	1017.39		
21-Nov-01		-0.44	1017.39		
23-Nov-01		-0.44	1017.39		pond elev approx - 8 ft.
26-Nov-01		-0.44	1017.39		daytime temp -34 C
28-Nov-01		-0.44	1017.39		
30-Nov-01		-0.44	1017.39		
3-Dec-01		-0.44	1017.39		
5-Dec-01		-0.44	1017.39		
12-Dec-01		-0.44	1017.39		
14-Dec-01		-0.44	1017.39		
15-Dec-01		-0.44	1017.39		
16-Dec-01		-0.44	1017.39		
17-Dec-01		-0.44	1017.39		
18-Dec-01		-0.44	1017.39		
19-Dec-01		-0.44	1017.39		
26-Dec-01		-0.44	1017.39		
2-Jan-02		-0.44	1017.39		
9-Jan-02		-0.44	1017.39		
16-Jan-02		-0.44	1017.39		
23-Jan-02		-0.44	1017.39		
30-Jan-02		-0.44	1017.39		
6-Feb-02		-0.44	1017.39		
13-Feb-02		-0.44	1017.39		

Faro Mine Instrumentation - Cross Valley Dam

CVDT-1		Location:	Cross Valley Dam Toe, black PVC adj. to X11 channel	2004 Stick-up (m):	0.27
		Coordinates:	8V580219 6914353	2004 Ground Elevation (m amsl):	1018.30
Surface Protector:	N/A	Date Installed:	1994	2004 Tip Elevation (m amsl):	1007.90
Date		Water Level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
20-Feb-02		-0.44	1017.39		
1-May-02		-0.44	1017.39		
12-Jun-02		-0.435	1017.40		
17-Jul-02		-0.395	1017.44		
7-Aug-02					not read
9-Sep-02		-0.37	1017.46		
4-Nov-02		-0.395	1017.44		
10-Nov-02		-0.395	1017.44		
30-Jan-03		-0.42	1017.41		
9-Feb-03		-0.42	1017.41	1058.60	start siphon
11-Feb-03		-0.42	1017.41	1058.50	
13-Feb-03		-0.42	1017.41	1058.50	
18-Feb-03		-0.42	1017.41		
21-Feb-03		-0.42	1017.41	1058.48	
23-Apr-03		-0.405	1017.43	1030.14	
7-May-03		-0.39	1017.44		
16-May-03		-0.385	1017.45		
11-Jun-03		-0.355	1017.48		
15-Jul-03		-0.305	1017.53		
4-Sep-03		-0.36	1017.47		
10-Sep-03		-0.465	1017.37	996.28	
4-Mar-04		-0.345	1018.23		2004 survey data use from here on
8-Mar-04					Pulled ice and snow
26-Apr-04		-0.315	1018.26	997.85	
19-Jul-04		-0.27	1018.30		
26-Aug-04		-0.26	1018.31		
9-Sep-04		-0.36	1018.21		
22-Feb-05		-0.37	1018.20		Frozen
24-Feb-05		-0.35	1018.22		Frozen
26-May-05		-0.29	1018.28		
14-Sep-05		-0.585	1017.99		
9-Mar-06		-0.54	1018.03		no beep
14-Jun-06		-0.6	1017.97		
2-Oct-06		-0.7	1017.87	1027.468	
9-May-07		-0.325	1018.25	1029.295	
24-Sep-07		-0.685	1017.89	1030.295	
25-Sep-07		-0.315	1018.26	1031.295	
9-Apr-08		-0.75	1017.82	1030.300	
14-Apr-08		-0.75	1017.82	1029.930	
21-Apr-08		-0.755	1017.82	1029.625	
28-Apr-08		-0.755	1017.82	1029.250	
5-May-08		-0.755	1017.82	1029.433	
12-May-08		-0.755	1017.82	1029.362	
20-May-08		-0.75	1017.82	1029.340	
26-May-08		-0.75	1017.82	1029.276	
24-Jun-08		-0.75	1017.82	1028.638	
24-Sep-08		-0.72	1017.85	1028.504	

CROSS VALLEY DAM
Piezometric Monitoring
CVDT-1 Standpipe Piezometer
(Toe of Dam)



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CVDT-1 chart

BGC Engineering Inc.

Faro Mine Instrumentation - Cross Valley Dam

CVDT-2		Location:	Cross Valley Dam Toe black PVC adj. to W3 channel	Stick up:	1.52m/ 0.38m
		Coordinates:	N/A	Ground Elevation (m amsl):	1019.50
Surface Protector:	N/A	Date Installed:	1994	Tip Elevation (m amsl):	1006.20

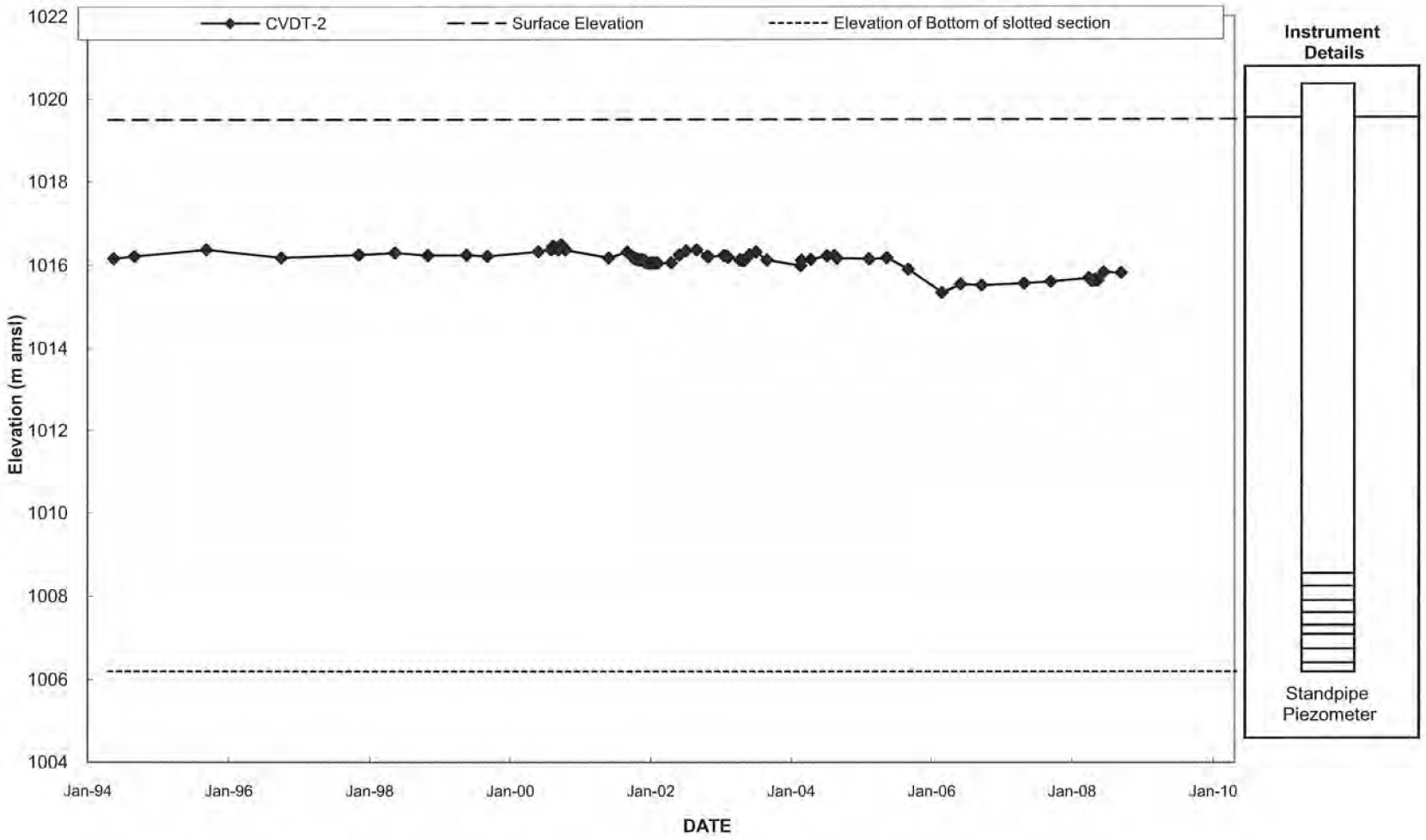
Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
31-May-94		-4.86	1016.16		
15-Sep-94		-4.81	1016.21		
21-Sep-95		-4.65	1016.37		
15-Oct-96		-4.84	1016.18	1029.915	
20-Nov-97		-4.78	1016.24		
26-May-98		-4.73	1016.29	1031.20	
13-Nov-98		-4.79	1016.23	1029.80	
3-Jun-99		-4.784	1016.24	1031.40	
18-Sep-99		-4.81	1016.21	~1029.2	
8-Jun-00		-4.70	1016.32	~1030.2	
14-Aug-00		-4.65	1016.37		
24-Aug-00		-4.57	1016.45		
31-Aug-00		-4.62	1016.40		
7-Sep-00		-4.60	1016.42		
14-Sep-00		-4.61	1016.41		
21-Sep-00		-4.65	1016.37		
28-Sep-00		-4.60	1016.42		
6-Oct-00		-4.53	1016.49		
12-Oct-00		-4.59	1016.43		
20-Oct-00		-4.61	1016.41		
27-Oct-00		-4.66	1016.36		
10-Jun-01		-4.85	1016.17		
14-Sep-01		-4.71	1016.31		
16-Oct-01		-4.83	1016.19		
18-Oct-01		-4.85	1016.17		
19-Oct-01		-4.86	1016.16		
20-Oct-01		-4.86	1016.16		
21-Oct-01		-4.86	1016.16		
22-Oct-01		-4.86	1016.16		
25-Oct-01		-4.87	1016.15		
29-Oct-01		-4.87	1016.15		
1-Nov-01		-4.875	1016.15		
5-Nov-01		-4.88	1016.14		
6-Nov-01		-3.74	1016.14		New stick-up of 0.38 m
8-Nov-01		-3.74	1016.14		
12-Nov-01		-3.76	1016.12		
15-Nov-01		-3.76	1016.12		
19-Nov-01		-3.755	1016.13		
21-Nov-01		-3.75	1016.13		
23-Nov-01		-3.75	1016.13		pond elev approx - 8 ft.
26-Nov-01		-3.75	1016.13		daytime temp -34 C
28-Nov-01		-3.76	1016.12		
30-Nov-01		-3.76	1016.12		
3-Dec-01		-3.76	1016.12		
5-Dec-01		-3.775	1016.11		
12-Dec-01		-3.775	1016.11		
14-Dec-01		-3.775	1016.11		
15-Dec-01		-3.8	1016.08		
16-Dec-01		-3.79	1016.09		
17-Dec-01		-3.81	1016.07		
18-Dec-01		-3.815	1016.07		
19-Dec-01		-3.82	1016.06		
26-Dec-01		-3.84	1016.04		
2-Jan-02		-3.84	1016.04		
9-Jan-02		-3.835	1016.05		
16-Jan-02		-3.84	1016.04		
23-Jan-02		-3.83	1016.05		
30-Jan-02		-3.84	1016.04		
6-Feb-02		-3.84	1016.04		
13-Feb-02		-3.83	1016.05		

Faro Mine Instrumentation - Cross Valley Dam

CVDT-2		Location:	Cross Valley Dam Toe black PVC adj. to W3 channel	Stick up:	1.52m/ 0.38m
		Coordinates:	N/A	Ground Elevation (m amsl):	1019.50
Surface Protector:	N/A	Date Installed:	1994	Tip Elevation (m amsl):	1006.20

Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
20-Feb-02		-3.84	1016.04		
1-May-02		-3.83	1016.05		
12-Jun-02		-3.64	1016.24		
17-Jul-02		-3.545	1016.34		
7-Aug-02					not read
9-Sep-02		-3.52	1016.36		
4-Nov-02		-3.67	1016.21		
10-Nov-02		-3.68	1016.20		
30-Jan-03		-3.655	1016.23		
9-Feb-03		-3.66	1016.22	1058.60	start siphon
11-Feb-03		-3.665	1016.22	1058.50	
13-Feb-03		-3.675	1016.21	1058.50	
18-Feb-03		-3.69	1016.19		
21-Feb-03		-3.695	1016.19	1026.18	
23-Apr-03		-3.76	1016.12	997.84	
7-May-03		-3.775	1016.11		
16-May-03		-3.775	1016.11		
11-Jun-03		-3.64	1016.24		
15-Jul-03		-3.57	1016.31		
10-Sep-03		-3.76	1016.12		
4-Mar-04		-3.9	1015.98		No 2004 survey data available
8-Mar-04		-3.77	1016.11		
26-Apr-04		-3.75	1016.13		
19-Jul-04		-3.665	1016.215		
26-Aug-04		-3.655	1016.225		
9-Sep-04		-3.72	1016.16		
22-Feb-05		-3.735	1016.145		
24-Feb-05		-3.745	1016.135		
26-May-05		-3.71	1016.17		
14-Sep-05		-3.99	1015.89		
9-Mar-06		-4.17	1015.33		
14-Jun-06		-3.965	1015.54		
2-Oct-06		-3.99	1015.51	1027.47	
9-May-07		-3.945	1015.56	1029.295	
24-Sep-07		-3.905	1015.60	1030.295	
9-Apr-08		-3.82	1015.68	1030.300	
14-Apr-08		-3.84	1015.66	1029.930	
21-Apr-08		-3.875	1015.625	1029.625	
28-Apr-08		-3.89	1015.61	1029.250	
5-May-08		-3.87	1015.63	1029.433	
12-May-08		-3.85	1015.65	1029.362	
20-May-08		-3.88	1015.62	1029.340	
26-May-08		-3.88	1015.62	1029.276	
24-Jun-08		-3.68	1015.82	1028.638	
24-Sep-08		-3.695	1015.81	1028.504	

CROSS VALLEY DAM
Piezometric Monitoring
CVDT-2 Standpipe Piezometer
(Toe of Dam)



Faro Mine Instrumentation - Cross Valley Dam

94CVDC-1		Location:	Cross Valley Dam Crest Stn. 0+215	2004 Stick-up (m):	0.64
		Coordinates:	8V580263 6914326	2004 Ground Elevation (m amsl):	1033.38
Surface Protector:	yes	Date Installed:	1994	2004 Tip Elevation (m amsl):	1020.4

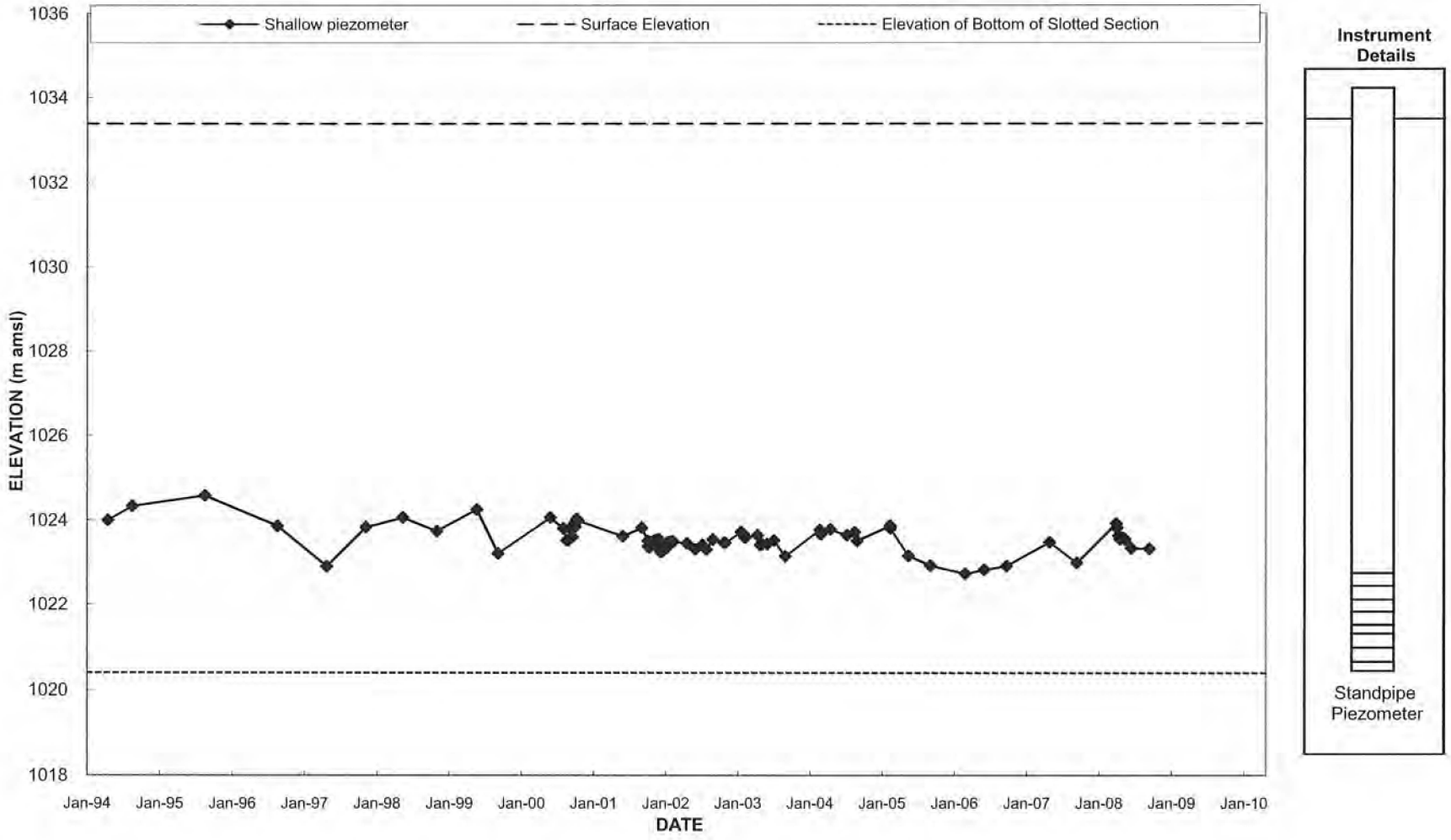
Date		Water Level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
May-94		9.90	1024.00		
Sep-94		9.57	1024.33		
Sep-95		9.32	1024.58		
Sep-96		10.04	1023.86	1029.915	
7-May-97		11.00	1022.91		
20-Nov-97		10.07	1023.83		
26-May-98		9.84	1024.06	1031.2	
13-Nov-98		10.16	1023.74	1029.8	
3-Jun-99		9.650	1024.25	1031.4	
18-Sep-99		10.69	1023.21	~1029.2	
8-Jun-00		9.84	1024.06	~1030.2	
14-Aug-00		10.10	1023.80		
31-Aug-00		10.38	1023.52		
7-Sep-00		10.38	1023.52		
14-Sep-00		10.10	1023.80		
21-Sep-00		13.61			frozen?
28-Sep-00		10.30	1023.60		
6-Oct-00		9.99	1023.91		
12-Oct-00		10.06	1023.84		
20-Oct-00		9.87	1024.03		
27-Oct-00		9.91	1023.99		
10-Jun-01		10.28	1023.62		
14-Sep-01		10.08	1023.82		
16-Oct-01		10.39	1023.51		
18-Oct-01		10.51	1023.39		
19-Oct-01		10.53	1023.37		
20-Oct-01		10.54	1023.36		
21-Oct-01		10.55	1023.35		
22-Oct-01		10.53	1023.37		
25-Oct-01		10.53	1023.37		
29-Oct-01		10.44	1023.46		
1-Nov-01		10.425	1023.48		
5-Nov-01		10.485	1023.42		
6-Nov-01		10.485	1023.42		
8-Nov-01		10.41	1023.49		
12-Nov-01		10.41	1023.49		
15-Nov-01		10.39	1023.51		
19-Nov-01		10.38	1023.52		
21-Nov-01		10.375	1023.53		
23-Nov-01		10.42	1023.48		pond elev approx - 8 ft.
26-Nov-01		10.42	1023.48		daytime temp -34 C
28-Nov-01		10.39	1023.51		
30-Nov-01		10.37	1023.53		
3-Dec-01		10.37	1023.53		
5-Dec-01		10.365	1023.54		
12-Dec-01		10.36	1023.54		
14-Dec-01		10.42	1023.48		
15-Dec-01		10.48	1023.42		
16-Dec-01		10.53	1023.37		
17-Dec-01		10.59	1023.31		
18-Dec-01		10.62	1023.28		
19-Dec-01		10.65	1023.25		
26-Dec-01		10.64	1023.26		
2-Jan-02		10.56	1023.34		
9-Jan-02		10.57	1023.33		
16-Jan-02		10.56	1023.34		
23-Jan-02		10.43	1023.47		
30-Jan-02		10.42	1023.48		

Faro Mine Instrumentation - Cross Valley Dam

94CVDC-1		Location:	Cross Valley Dam Crest Stn. 0+215	2004 Stick-up (m):	0.64
		Coordinates:	8V580263 6914326	2004 Ground Elevation (m amsl):	1033.38
Surface Protector:	yes	Date Installed:	1994	2004 Tip Elevation (m amsl):	1020.4

Date		Water Level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond Elevation (m amsl)	Comments
6-Feb-02		10.42	1023.48		
13-Feb-02		10.41	1023.49		
20-Feb-02		10.41	1023.49		
1-May-02		10.45	1023.45		
12-Jun-02		10.59	1023.31		
17-Jul-02		10.485	1023.42		
7-Aug-02		10.595	1023.31		
9-Sep-02		10.36	1023.54		
4-Nov-02		10.435	1023.47		
10-Nov-02		10.44	1023.46		
30-Jan-03		10.18	1023.72		
9-Feb-03		10.235	1023.67		start siphon
11-Feb-03		10.235	1023.67		
13-Feb-03		10.275	1023.63		
18-Feb-03		10.31	1023.59		
21-Feb-03		10.31	1023.59	1026.18	
23-Apr-03		10.26	1023.64		
7-May-03		10.485	1023.42		
16-May-03		10.47	1023.43		
11-Jun-03		10.465	1023.44		
15-Jul-03		10.38	1023.52		
10-Sep-03		10.755	1023.15		
4-Mar-04		10.25	1023.77		2004 Survey data used from here on.
8-Mar-04		10.355	1023.67		
26-Apr-04		10.24	1023.78		
19-Jul-04		10.38	1023.64		
26-Aug-04		10.305	1023.72		
9-Sep-04		10.51	1023.51		
22-Feb-05		10.15	1023.87		
23-Feb-05		10.175	1023.85		
24-Feb-05		10.215	1023.81		
26-May-05		10.865	1023.16		dirty
14-Sep-05		11.095	1022.93		
9-Mar-06		11.29	1022.73		
14-Jun-06		11.195	1022.83		
4-Oct-06		11.105	1022.92	1027.47	
9-May-07		10.54	1023.48	1029.295	
24-Sep-07		11.03	1022.99	1030.295	
9-Apr-08		10.1	1023.92	1030.300	
14-Apr-08		10.2	1023.82	1029.930	
21-Apr-08		10.385	1023.64	1029.625	
28-Apr-08		10.47	1023.55	1029.250	
5-May-08		10.44	1023.58	1029.433	
12-May-08		10.43	1023.59	1029.362	
20-May-08		10.46	1023.56	1029.340	
26-May-08		10.48	1023.54	1029.276	
24-Jun-08		10.685	1023.34	1028.638	
24-Sep-08		10.695	1023.33	1028.504	

CROSS VALLEY DAM
Piezometric Monitoring
BH94 CVDC-1 Standpipe Piezometer
(Dam Crest)



Cvdpiez_updated_2008.xls
94CVDC1 chart

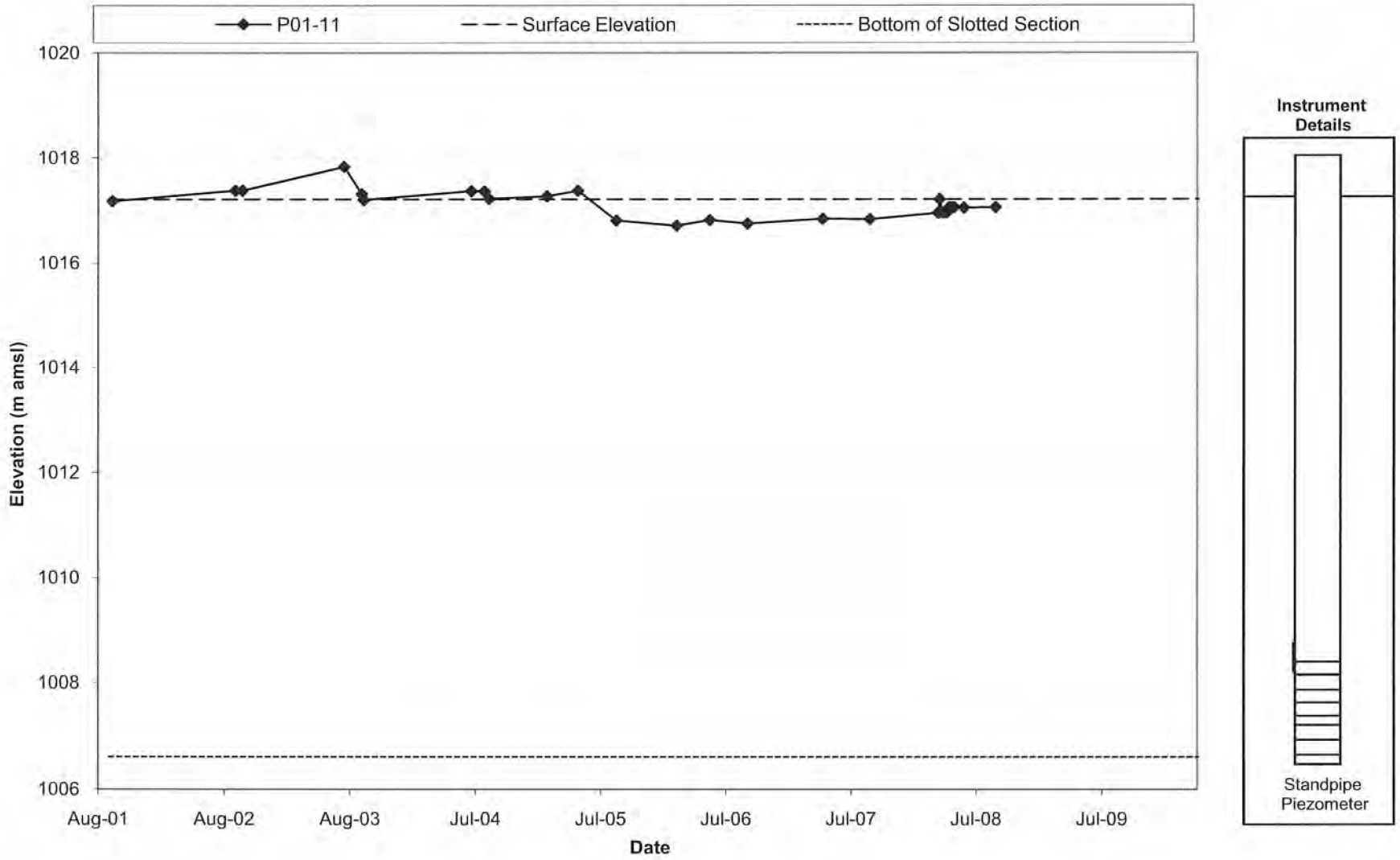
BGC Engineering Inc.

Faro Mine Instrumentation - Cross Valley Dam

P01-11		Location:	Cross Valley Dam Toe	2004 Stick-Up (m):	0.66
		Coordinates:	8V580208 6914301	2004 Surface Elevation (m amsl):	1017.21
Surface Protector:	yes	Date Installed:	2001	Tip Elevation (m amsl):	1006.61
				Screened Interval (m bgs):	9.15 - 10.67

Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)		Comments
11-Sep-01		0.65	1017.18		
3-Sep-02		0.45	1017.38		
23-Sep-02		0.45	1017.38		
15-Jul-03		0.00	1017.83		*whole casing filled with water
4-Sep-03		0.52	1017.31		* Rhonda noted: 'water in casing'
10-Sep-03		0.63	1017.20		
19-Jul-04		0.505	1017.37		2004 survey data used from here on
26-Aug-04		0.51	1017.36		
9-Sep-04		0.65	1017.22		Ice in tubing, sulphur smell
24-Feb-05		0.6	1017.27		Frozen
26-May-05		0.5	1017.37		
14-Sep-05		1.06	1016.81		
9-Mar-06		1.16	1016.71		
14-Jun-06		1.05	1016.82		Water in casing
2-Oct-06		1.12	1016.75		
9-May-07		1.03	1016.84		Good Return
24-Sep-07		1.035	1016.84		
9-Apr-08		0.92	1016.95		frozen
14-Apr-08		0.66	1017.21		frozen
21-Apr-08		0.91	1016.96		frozen
28-Apr-08		0.91	1016.96		frozen
5-May-08		0.91	1016.96		frozen
12-May-08		0.81	1017.06		
20-May-08		0.815	1017.06		
26-May-08		0.81	1017.06		
24-Jun-08		0.82	1017.05		
24-Sep-08		0.81	1017.06		

CROSS VALLEY DAM
Piezometric Monitoring
P01-11 (2001 - GLL Monitoring Well)



THERMISTORS

Faro Mine Instrumentation
Cross Valley Dam

CVDC-6		Location:	Stn 0+340, Cross Valley Dam Crest	Elevation (m amsl):	1033.3	Coordinates:	2182.1 m N 4.7 m E	8V580210 6914218	
		Date Installed:	1981	Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration	applied	Surface Protector:	yes
Thermistor String #32		Depth Correction:	0						

Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	09-Dec-81	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	20-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	14-Sep-01	16-Oct-01	18-Oct-01	01-May-02
15.0	-15.0	11.05	13.87	14.23	15.64	All readings	14.22	14.27	14.55	14.61	14.63	16.26	14.11	14.26
17.0	-17.0	11.70	13.95	15.22	15.74	fluctuating		14.54	14.79	14.82	14.91	16.48	14.94	14.54
19.0	-19.0	12.59	13.81	14.63	15.59		14.01	14.29	14.50	14.49	14.60	16.12	14.57	14.18
21.0	-21.0	13.48	18.73	19.53	20.59		21.25	22.11	22.55	22.63	22.75	24.31	22.82	22.39
23.0	-23.0	14.16	13.80	14.26	14.97		14.00	14.31	14.54	14.16	14.18	15.02	14.17	13.69
25.0	-25.0	15.37	13.96	14.42	14.97		14.21	14.45	14.62	14.19	14.27	15.09	14.28	13.70
27.0	-27.0	15.42	14.26	14.91	15.29		14.55	14.80	14.96	14.96	14.97	15.81	15.00	14.69
29.0	-29.0	15.35	14.46	14.14	15.44		14.86	15.12	15.22	16.01	16.15	17.05	16.25	16.33

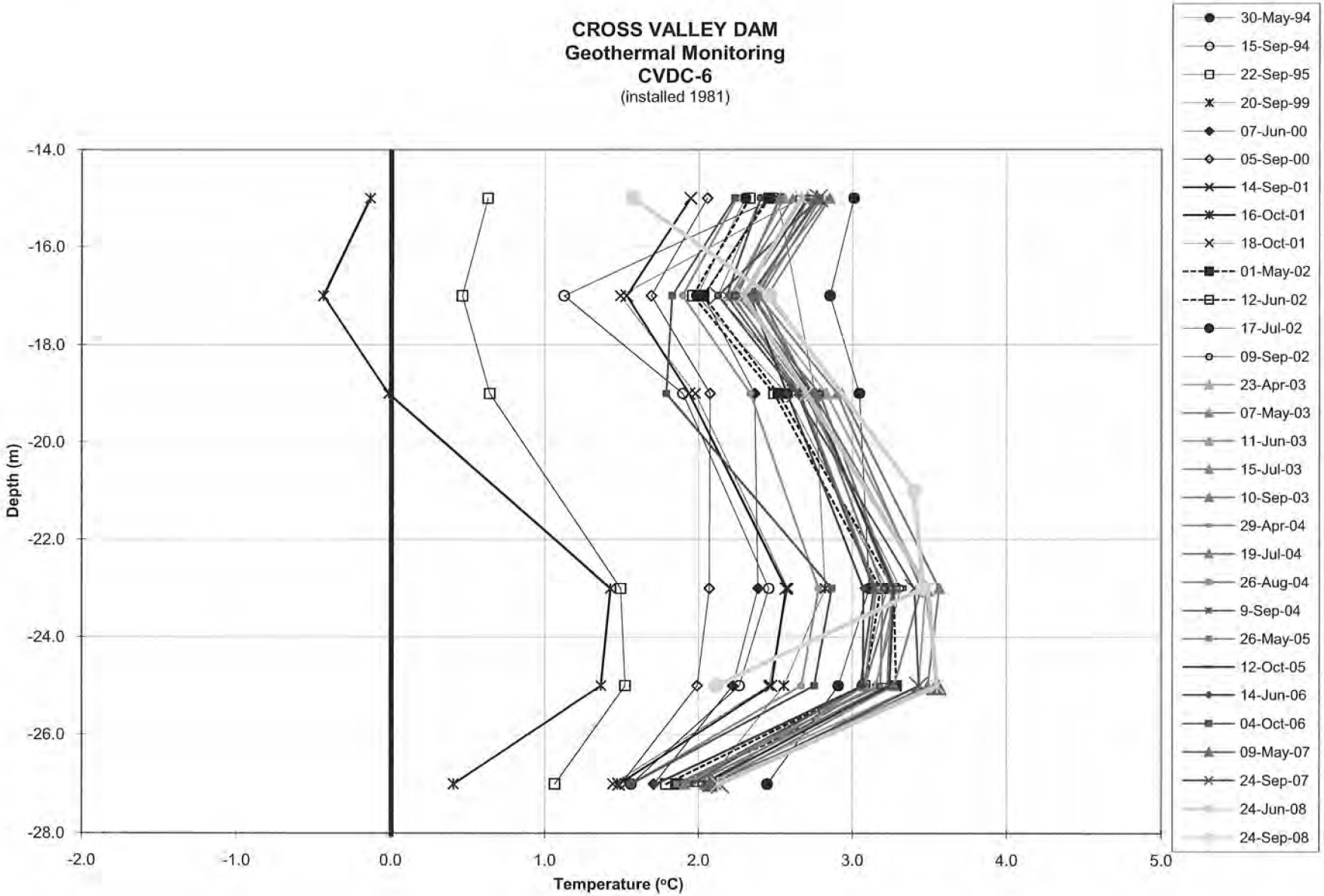
* The initial reading (Nov 15/81) is excluded from data set because post-installation equilibrium may not have been complete.

Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	09-Dec-81	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	20-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	14-Sep-01	16-Oct-01	18-Oct-01	01-May-02
15.0	-15.0	7.60	3.01	2.50	0.63		2.51	2.44	2.06	1.97	1.95	-0.13	2.67	2.46
17.0	-17.0	6.40	2.85	1.12	0.46			2.03	1.69	1.65	1.53	-0.44	1.49	2.03
19.0	-19.0	4.90	3.04	1.90	0.64		2.76	2.36	2.07	2.09	1.94	-0.02	1.98	2.52
21.0	-21.0													
23.0	-23.0	2.60	3.11	2.46	1.49		2.82	2.39	2.07	2.60	2.57	1.43	2.58	3.27
25.0	-25.0	1.00	2.91	2.26	1.52		2.56	2.22	1.99	2.58	2.47	1.36	2.46	3.28
27.0	-27.0	0.90	2.45	1.56	1.06		2.05	1.71	1.50	1.50	1.48	0.41	1.44	1.86
29.0	-29.0													

The -21 and -29 metre depth tips are suspect

Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
12-Jun-02	17-Jul-02	09-Sep-02	23-Apr-03	07-May-03	11-Jun-03	15-Jul-03	10-Sep-03	29-Apr-04	19-Jul-04	26-Aug-04	09-Sep-04	26-May-05	12-Oct-05	14-Jun-06	04-Oct-06	09-May-07	24-Sep-07	24-Jun-08	24-Sep-08
14.35	14.37	14.30	14.03	13.98	14.19	14.08	14.21	13.99	14.15	14.41	14.30	14.02	14.08	14.03	14.42	14.04	14.03	14.11	14.29
14.59	14.57	14.47	14.31	14.24	14.41	14.28	14.38	14.30	14.40	14.64	14.43	14.27	14.35	14.32	14.69	14.31	14.47	14.35	14.88
14.20	14.14	14.06	13.96	13.89	14.05	13.91	13.99	14.02	14.08	14.31	14.09	14.03	14.03	14.14	14.71	14.02	14.1	14.05	14.22
22.43	22.43	22.44	22.74	22.70	22.29	22.98	23.29	24.02	24.55	24.98	24.81	26.06	26.70	28.20	30.07	33.33	36.1	41.1	42.5
13.75	13.72	13.66	13.55	13.49	13.68	13.57	13.69	13.70	13.77	14.03	13.78	13.74	13.69	13.83	13.97	13.55	13.6	13.54	13.6
13.84	13.85	13.79	13.60	13.56	13.79	13.71	13.84	13.74	13.84	14.13	13.86	13.77	13.73	13.85	14.07	13.52	13.6	13.52	13.58
14.74	14.67	14.57	14.56	14.49	14.65	14.51	14.55	14.61	14.65	14.91	14.62	14.69	14.56	14.79	14.91	14.53	14.48	14.49	14.5
16.37	16.28	16.16	17.97	18.01	18.44	18.53	19.06	20.24	20.55	20.93	20.69	21.77	21.15	23.59	24.08	25.11	25.75	27.17	27.57

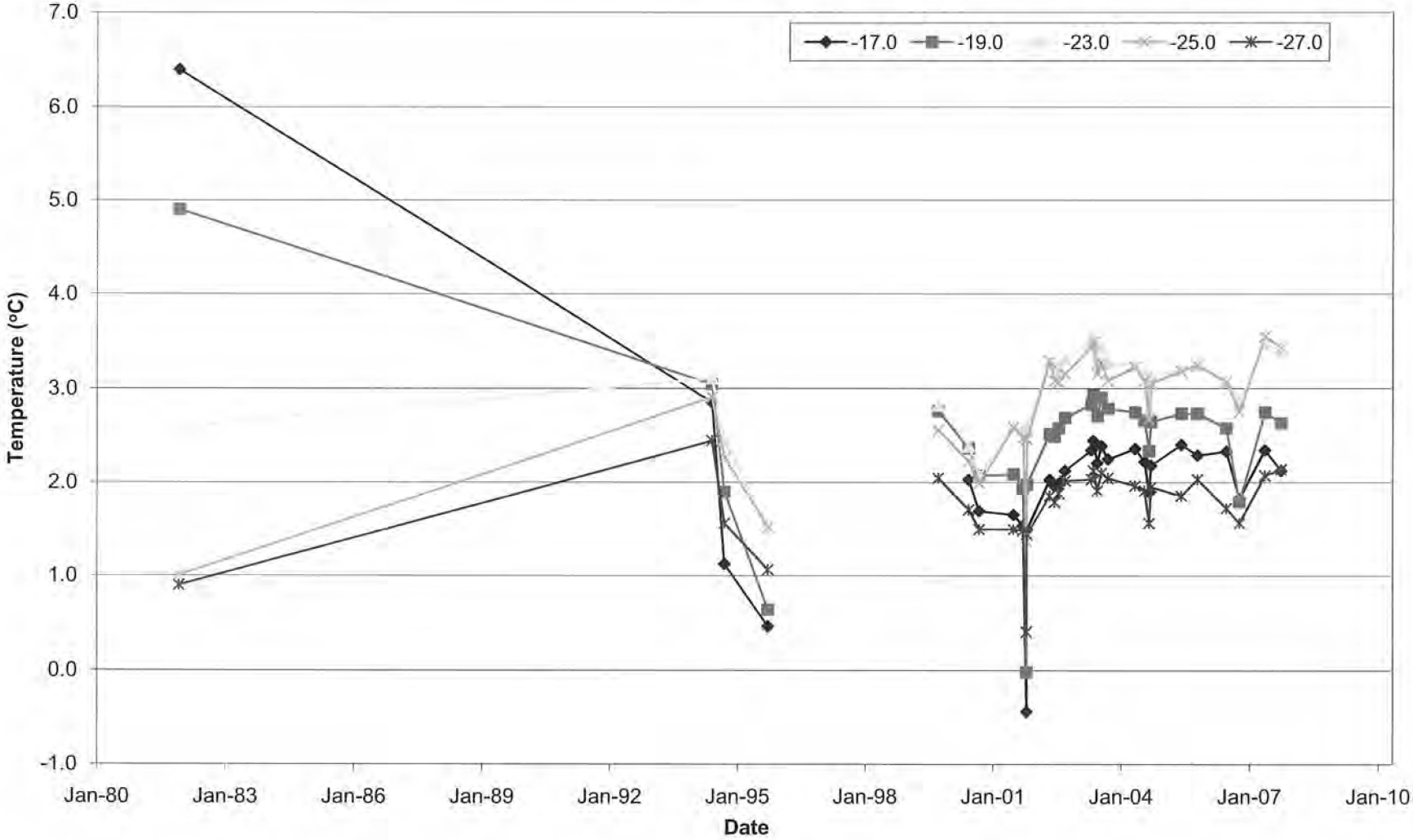
Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
12-Jun-02	17-Jul-02	09-Sep-02	23-Apr-03	07-May-03	11-Jun-03	15-Jul-03	10-Sep-03	29-Apr-04	19-Jul-04	26-Aug-04	09-Sep-04	26-May-05	12-Oct-05	14-Jun-06	04-Oct-06	09-May-07	24-Sep-07	24-Jun-08	24-Sep-08
2.33	2.30	2.40	2.78	2.85	2.55	2.71	2.53	2.84	2.61	2.25	2.40	2.79	2.71	2.78	2.23	2.76	2.78	2.67	2.41
1.96	1.99	2.12	2.35	2.44	2.21	2.39	2.25	2.36	2.22	1.89	2.18	2.40	2.29	2.33	1.83	2.35	2.12	2.29	1.57
2.49	2.57	2.69	2.83	2.93	2.70	2.90	2.79	2.74	2.66	2.34	2.64	2.73	2.73	2.57	1.79	2.74	2.63	2.70	2.46
3.18	3.22	3.31	3.47	3.56	3.28	3.44	3.27	3.25	3.15	2.78	3.14	3.20	3.27	3.07	2.86	3.47	3.40	3.49	3.40
3.08	3.07	3.15	3.43	3.49	3.15	3.27	3.08	3.23	3.08	2.67	3.05	3.18	3.24	3.07	2.75	3.55	3.43	3.55	3.46
1.79	1.88	2.02	2.03	2.13	1.91	2.10	2.05	1.96	1.91	1.56	1.95	1.86	2.03	1.72	1.56	2.07	2.14	2.13	2.11



Cvdtherm_2008.xls
CVDC-6 (without error) all

BGC Engineering Inc.

Cross Valley Dam
Geothermal Monitoring
Long Term Monitoring for Nodes in CVDC-6



Cvdtherm_2008.xls
CVDC-6 Depth chart

BGC Engineering Inc.

BH 88-4		Location:	0+450, Cross Valley Dam Crest		Elevation (m amsl):	1033.4	Coordinates:	2018.3 m N, 76.8 m W #V580127 6914054		
		Date Installed:	1988		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	no	Surface Protector:	Yes
		Depth Correction:	0							

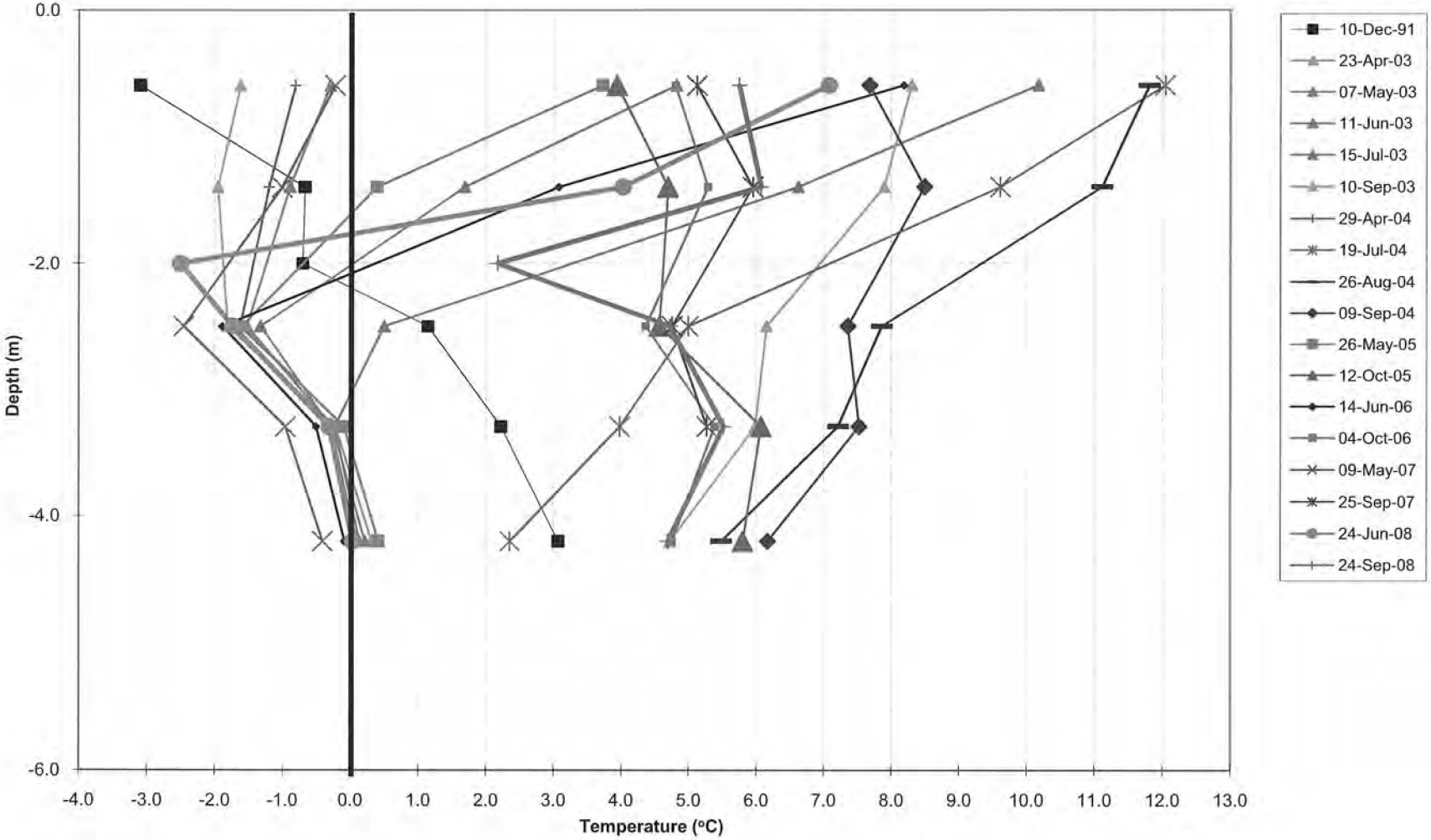
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	10-Dec-91	24-Jan-92	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	05-May-97	20-Nov-97	26-May-98	12-Nov-98	28-May-99	20-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	14-Sep-01	18-Oct-01	01-May-02	12-Jun-02	17-Jul-02
0.6	-0.6	19.03	20.60	13.87	11.01	11.17	11.26	16.59	16.64	14.19	16.18	14.78	11.07	12.85	11.74	11.86	11.27	14.42	17.61	12.21	9.89
1.4	-1.4	16.72	18.54	15.54	10.52	11.32	11.43	17.14	15.88	16.51	15.71	16.52	11.25	15.73	11.74	13.71	11.26	13.61	18.17	14.42	11.52
2.0	-2.0	16.81	17.93	18.04	11.27	12.45	13.01	19.84	17.50	16.19	17.30	19.78	13.61	19.90	14.13	19.22	13.48	15.59	21.52	19.89	15.78
2.5	-2.5	15.25	16.14	16.60	10.37	11.54	11.91	17.47	14.86	16.70	14.19	16.76	11.64	16.73	12.06	16.67	11.50	12.85	17.89	17.08	15.04
3.3	-3.3	14.45	15.36	16.31	10.79	11.91	12.48	17.17	14.25	16.40	13.47	16.53	12.09	16.51	12.59	16.33	11.87	12.50	16.54	16.55	16.51
4.2	-4.2	13.62	14.69	15.67	11.52	12.41	13.19	16.52	13.82	15.98	13.03	16.11	12.72	16.14	13.30	16.03	12.60	12.59	16.04	16.19	16.17

Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	10-Dec-91	24-Jan-92	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	05-May-97	20-Nov-97	26-May-98	12-Nov-98	28-May-99	20-Sep-99	07-Jun-00	05-Sep-00	26-Jun-01	14-Sep-01	18-Oct-01	01-May-02	12-Jun-02	17-Jul-02
0.6	-0.6	-3.16	-4.61	3.10	7.77	7.47	7.27	-0.44	-0.50	2.64	-2.22	1.83	7.66	4.47	6.46	6.25	7.29	2.32	-1.60	5.86	9.77
1.4	-1.4	-0.67	-2.67	0.76	8.62	7.12	6.92	-1.15	0.34	-0.42	0.55	-0.43	7.25	0.53	6.38	3.25	7.23	3.40	-2.28	2.24	6.76
2.0	-2.0	-0.70	-1.86	-2.08	7.26	5.26	4.37	-3.97	-1.56	-3.34	-1.33	-3.92	3.40	-4.03	2.85	-3.37	3.57	0.70	-5.52	-4.02	0.46
2.5	-2.5	1.15	0.03	-0.52	8.93	6.74	6.09	-1.52	1.65	-0.65	2.56	-0.72	6.55	-0.68	5.85	-0.61	6.80	4.55	-1.98	-1.06	1.41
3.3	-3.3	2.22	1.01	-0.16	8.12	6.10	5.16	-1.19	2.48	-0.29	3.60	-0.45	5.78	-0.42	4.96	-0.21	6.15	5.11	-0.46	-0.47	-0.42
4.2	-4.2	3.07	1.86	0.33	6.74	5.23	4.00	-0.43	3.09	0.22	4.27	0.06	4.75	0.02	3.86	0.15	4.94	4.96	0.14	-0.04	-0.02

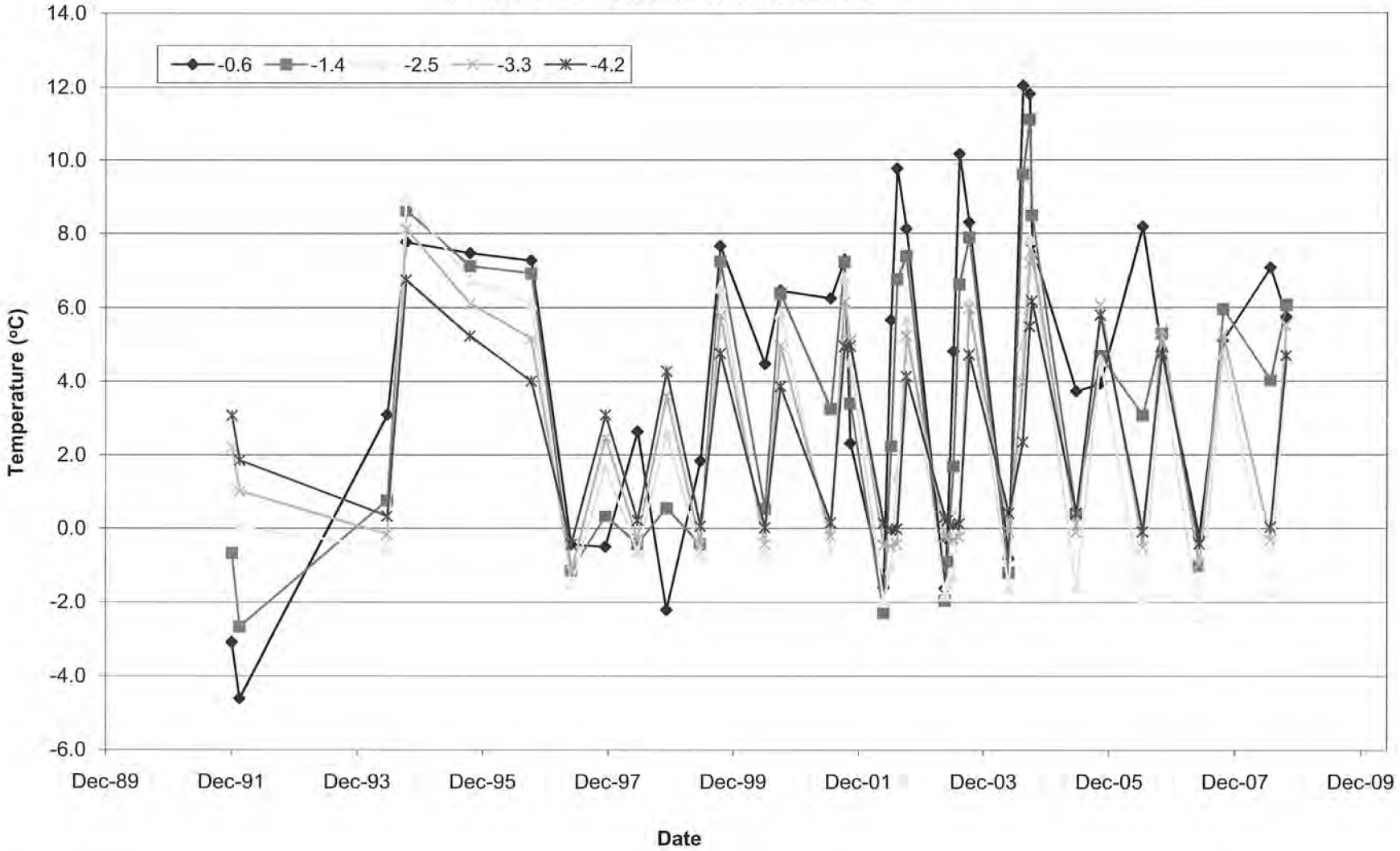
Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
09-Sep-02	23-Apr-03	07-May-03	11-Jun-03	15-Jul-03	10-Sep-03	29-Apr-04	19-Jul-04	26-Aug-04	09-Sep-04	26-May-05	12-Oct-05	14-Jun-06	04-Oct-06	09-May-07	24-Sep-07	24-Jun-08	24-Sep-08	
10.82	17.63	16.47	12.73	9.80	10.73	16.91	8.96	9.06	11.06	13.44	13.30	10.79	12.74	16.41	12.54	11.39	12.16	
11.18	17.86	16.91	14.83	11.60	10.90	17.18	10.03	9.33	10.59	15.84	12.76	13.83	12.39	17.01	11.99	13.19	11.92	
13.85	21.06	20.35	19.94	16.22	13.38	20.44	13.37	11.68	12.67	20.04	14.92	20.09	14.82	20.83	14.37	18.38	14.47	
12.16	17.73	17.47	17.29	15.75	11.87	17.56	12.57	10.92	11.19	17.54	12.84	17.80	12.97	18.33	12.72	17.66	12.74	
12.42	16.34	16.36	16.40	16.35	11.97	16.23	13.22	11.27	11.10	16.24	11.92	16.58	12.33	16.97	12.40	16.42	12.25	
13.12	15.90	15.98	16.08	16.05	12.74	15.82	14.34	12.27	11.86	15.82	12.06	16.23	12.72	16.50		16.13	12.76	

Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
09-Sep-02	23-Apr-03	07-May-03	11-Jun-03	15-Jul-03	10-Sep-03	29-Apr-04	19-Jul-04	26-Aug-04	09-Sep-04	26-May-05	12-Oct-05	14-Jun-06	04-Oct-06	09-May-07	24-Sep-07	24-Jun-08	24-Sep-08	
8.13	-1.62	-0.30	4.82	10.17	8.30	-0.81	12.04	11.81	7.68	3.73	3.94	8.18	4.80	-0.22	5.12	7.07	5.74	
7.37	-1.95	-0.89	1.69	6.62	7.86	-1.20	9.61	11.12	8.49	0.39	4.69	3.08	5.28	-1.00	5.95	4.02	6.07	
3.05	-5.11	-4.46	-4.07	-0.08	3.74	-4.54	3.75	6.14	4.83	-4.17	1.57	-4.21	1.70	-4.90	2.31	-2.51	2.17	
5.66	-1.81	-1.52	-1.32	0.50	6.15	-1.62	4.99	7.86	7.36	-1.60	4.56	-1.89	4.36	-2.45	4.75	-1.73	4.72	
5.24	-0.22	-0.27	-0.29	-0.23	5.98	-0.09	3.98	7.21	7.52	-0.10	6.07	-0.51	5.38	-0.96	5.27	-0.32	5.51	
4.13	0.31	0.22	0.09	0.13	4.72	0.41	2.35	5.48	6.17	0.41	5.80	-0.09	4.75	-0.41		0.03	4.69	

CROSS VALLEY DAM
Geothermal Monitoring
88-4



Cross Valley Dam
Geothermal Monitoring
Long Term Monitoring for Nodes in 88-4-4T



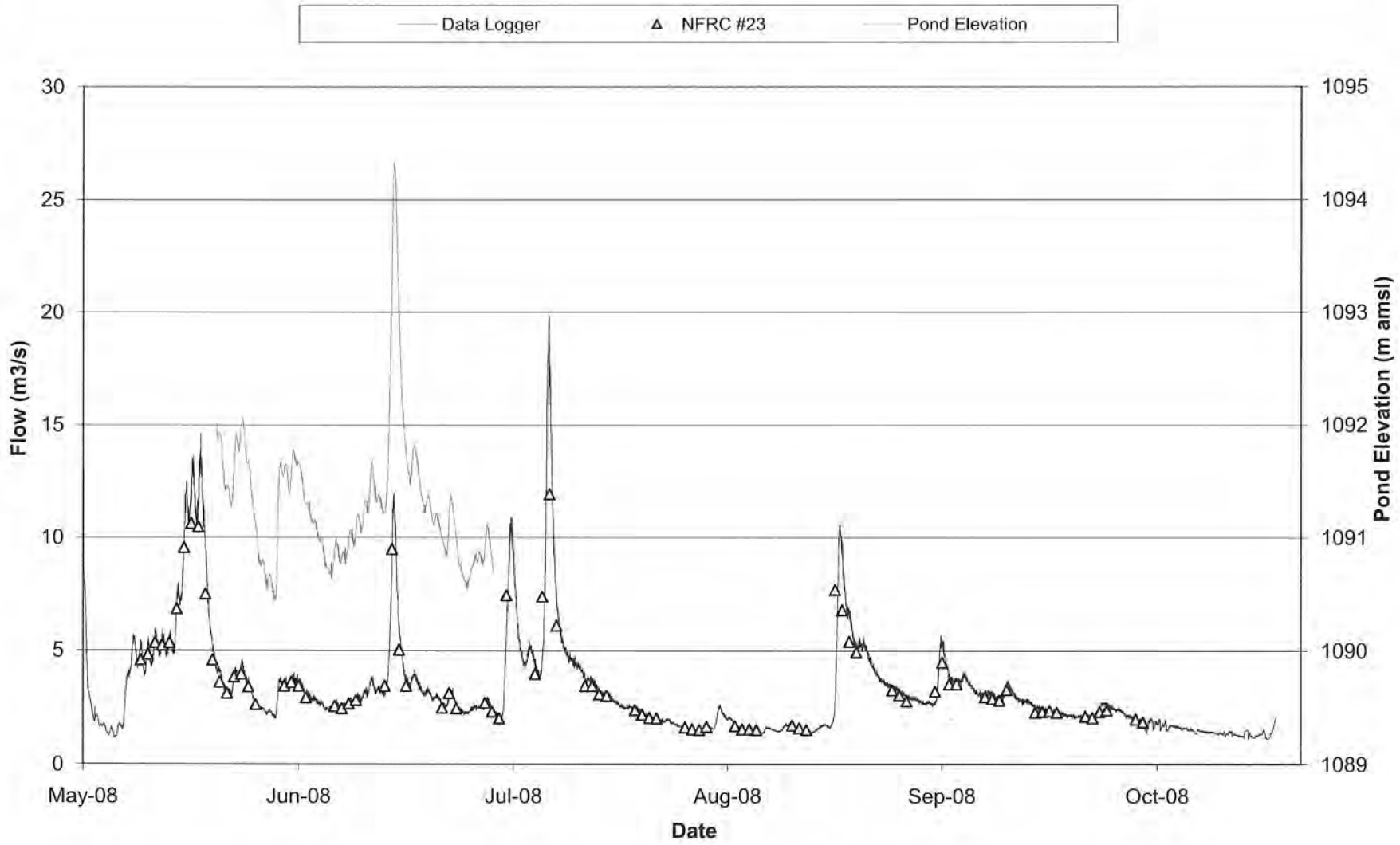
NORTH FORK ROCK DRAIN (NFRD)

POND ELEVATION AND CREEK FLOWS

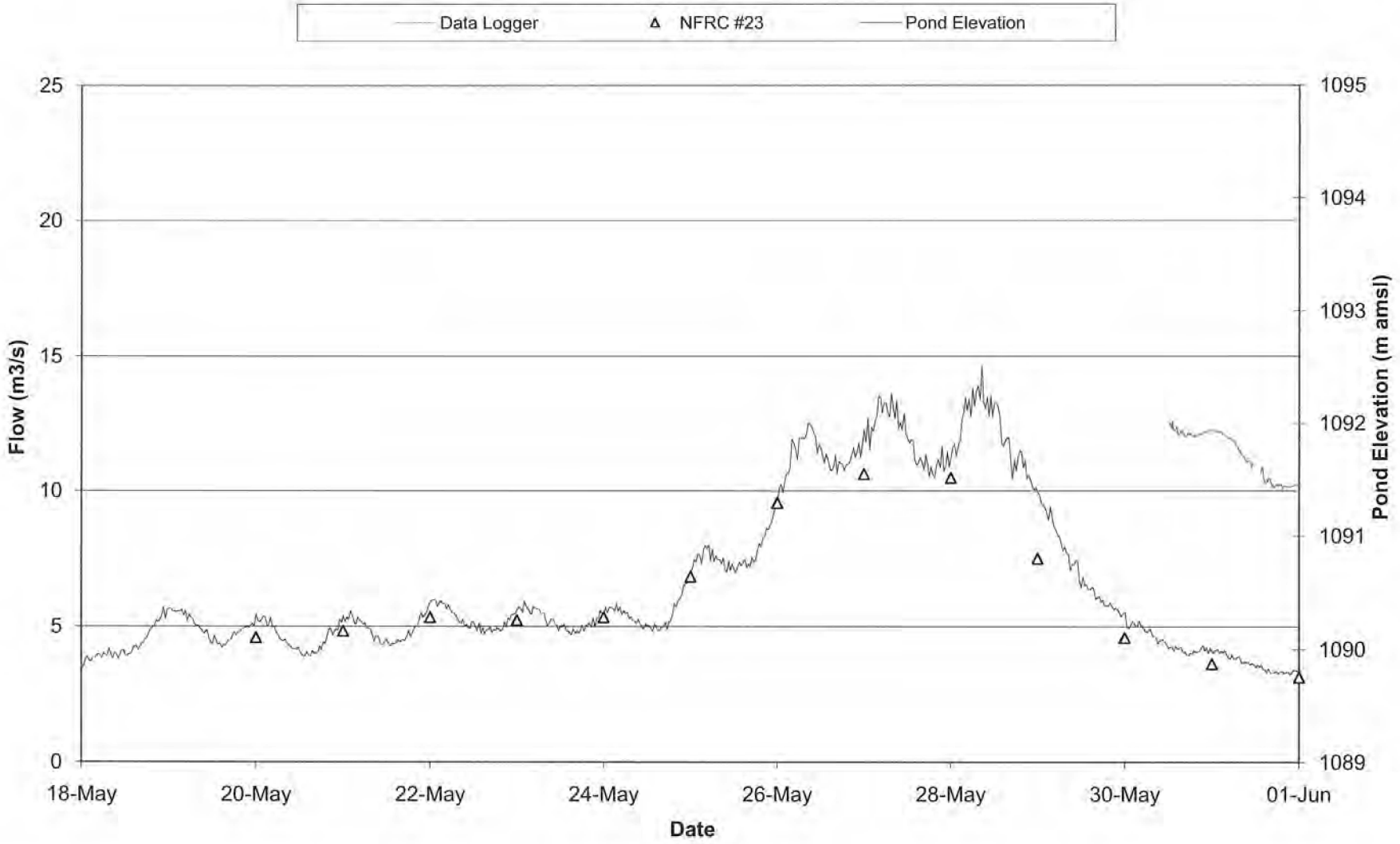
Calculations of the hydraulic gradient through the rock drain

Date	Toe Elevation (m amsl)	Pond Elevation (m amsl)	Head Difference (m)	Gradient
26-May-05	1086.84	1092.43	5.59	0.0278
28-May-05	1086.94	1092.88	5.94	0.0295
30-May-05	1086.69	1092.24	5.55	0.0276
02-Jun-05	1086.67	1091.82	5.15	0.0256
06-Jun-05	1086.46	1091.23	4.77	0.0237
09-Jun-05	1086.46	1091.09	4.62	0.0230
15-Jun-05	1086.57	1091.15	4.57	0.0227
20-Jun-05	1086.43	1090.39	3.96	0.0197
23-Jun-05	1086.30	1090.17	3.88	0.0193
21-Jul-05	1086.43	1090.38	3.95	0.0196
16-Aug-05	1086.22	1089.51	3.28	0.0163
19-Jul-06	1086.51	1090.19	3.68	0.0183
20-Jul-06	1086.43	1089.57	3.14	0.0156
07-Jun-06	1086.54	1090.58	4.04	0.0201
03-Aug-06	1086.38	1089.72	3.34	0.0166
22-Aug-05	1086.39	1089.54	3.15	0.0156
26-Aug-06	1086.36	1089.75	3.39	0.0168
28-Sep-06	1086.23	1089.31	3.08	0.0153
28-May-07	1086.88	1092.58	5.70	0.0283
13-Jun-07	1086.79	1092.04	5.25	0.0261
27-Jun-07	1086.46	1090.14	3.68	0.0183
11-Jul-07	1086.32	1089.59	3.26	0.0162
18-Jul-07	1086.44	1089.94	3.50	0.0174
01-Aug-07	1086.32	1089.49	3.17	0.0157
26-Jun-08	1086.73	1091.63	4.90	0.0243
14-Jul-08	1086.75	1092.39	5.64	0.0280
29-Jul-08	1086.45	1090.39	3.95	0.0196
6-Aug-08	1086.41	1089.90	3.49	0.0173
12-Aug-08	1086.40	1089.98	3.58	0.0178

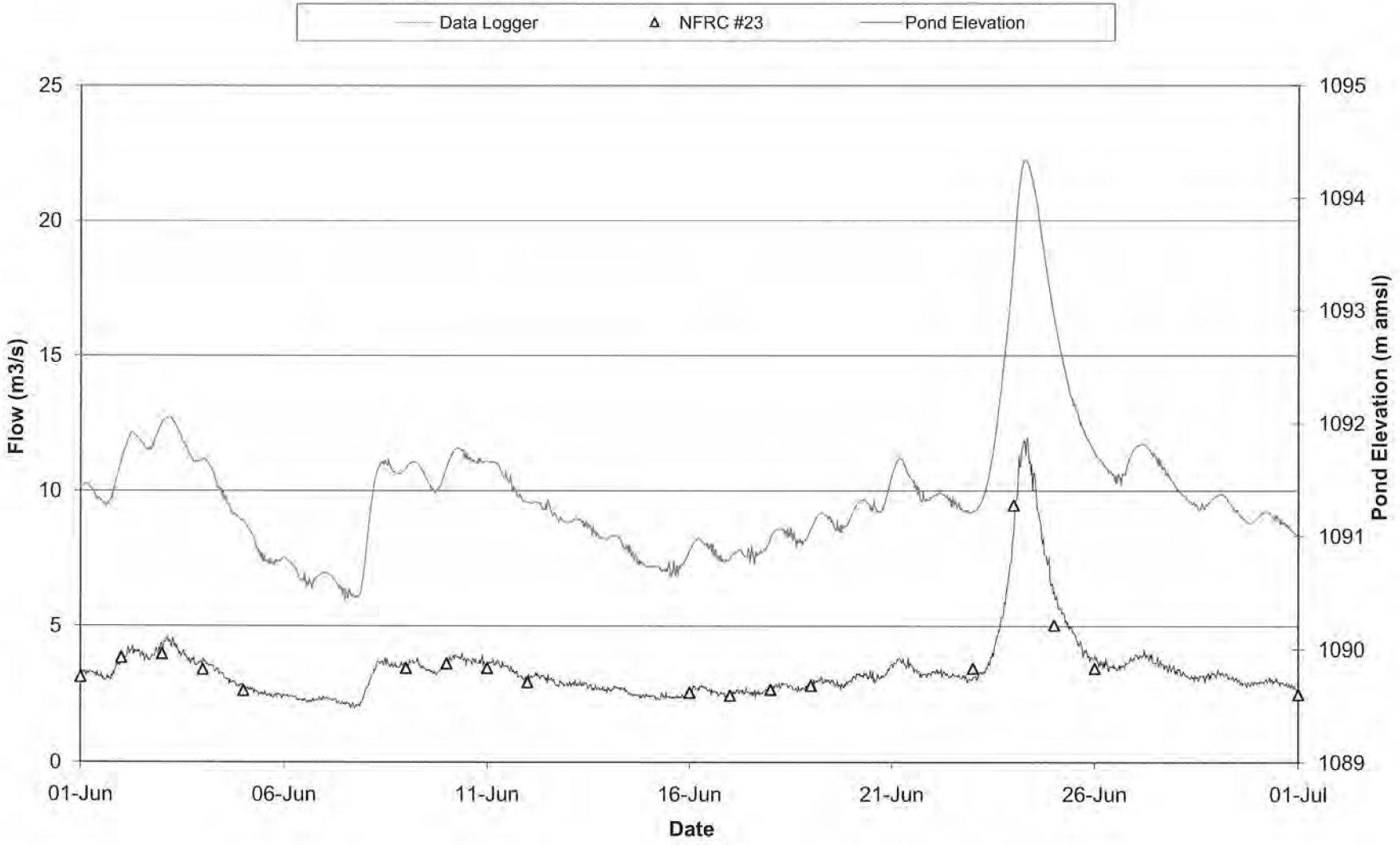
Pond Elevation and Flow downstream of NFRD - May to Oct 2008



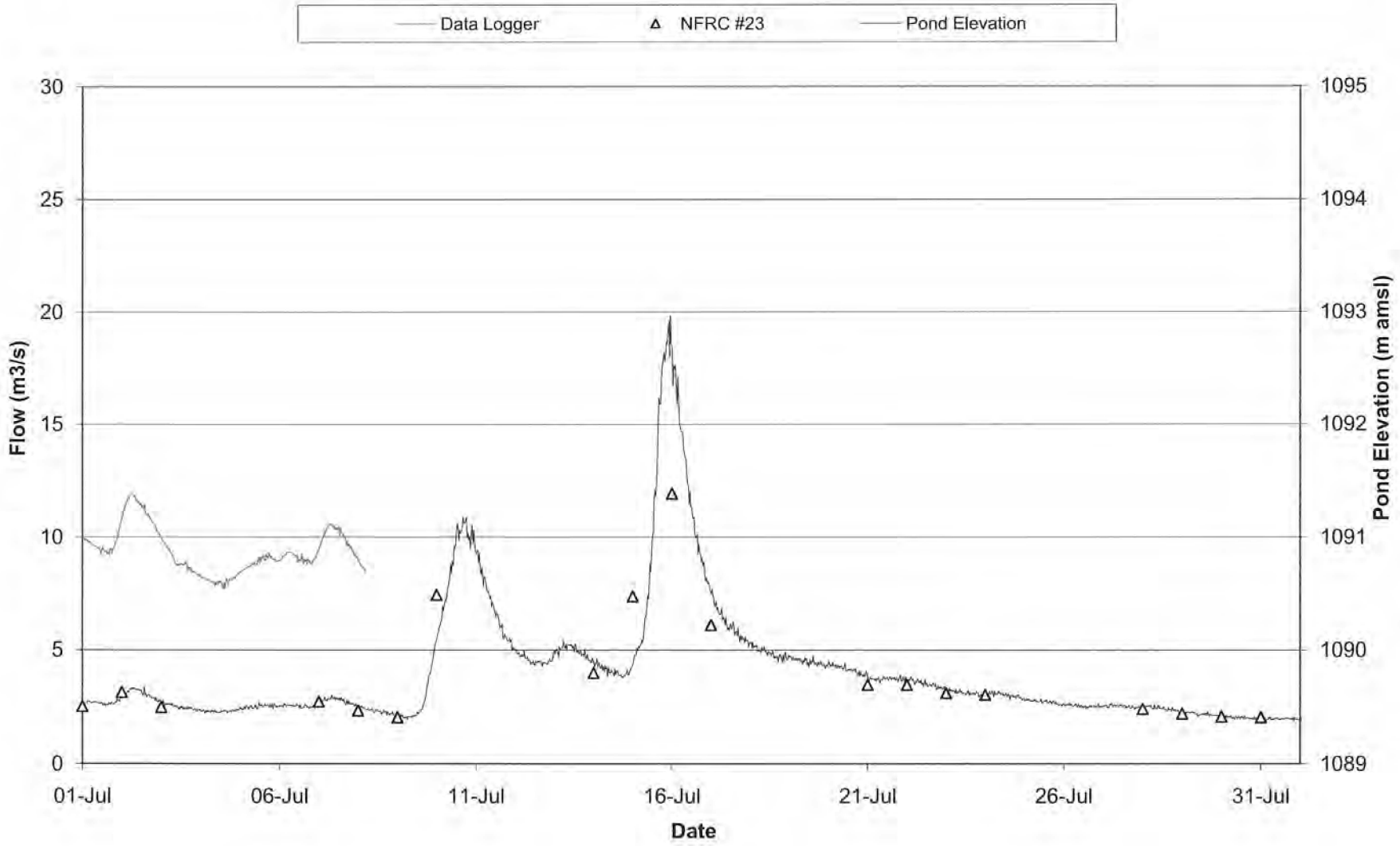
Pond Elevation and Flow downstream of NFRD - May 2008



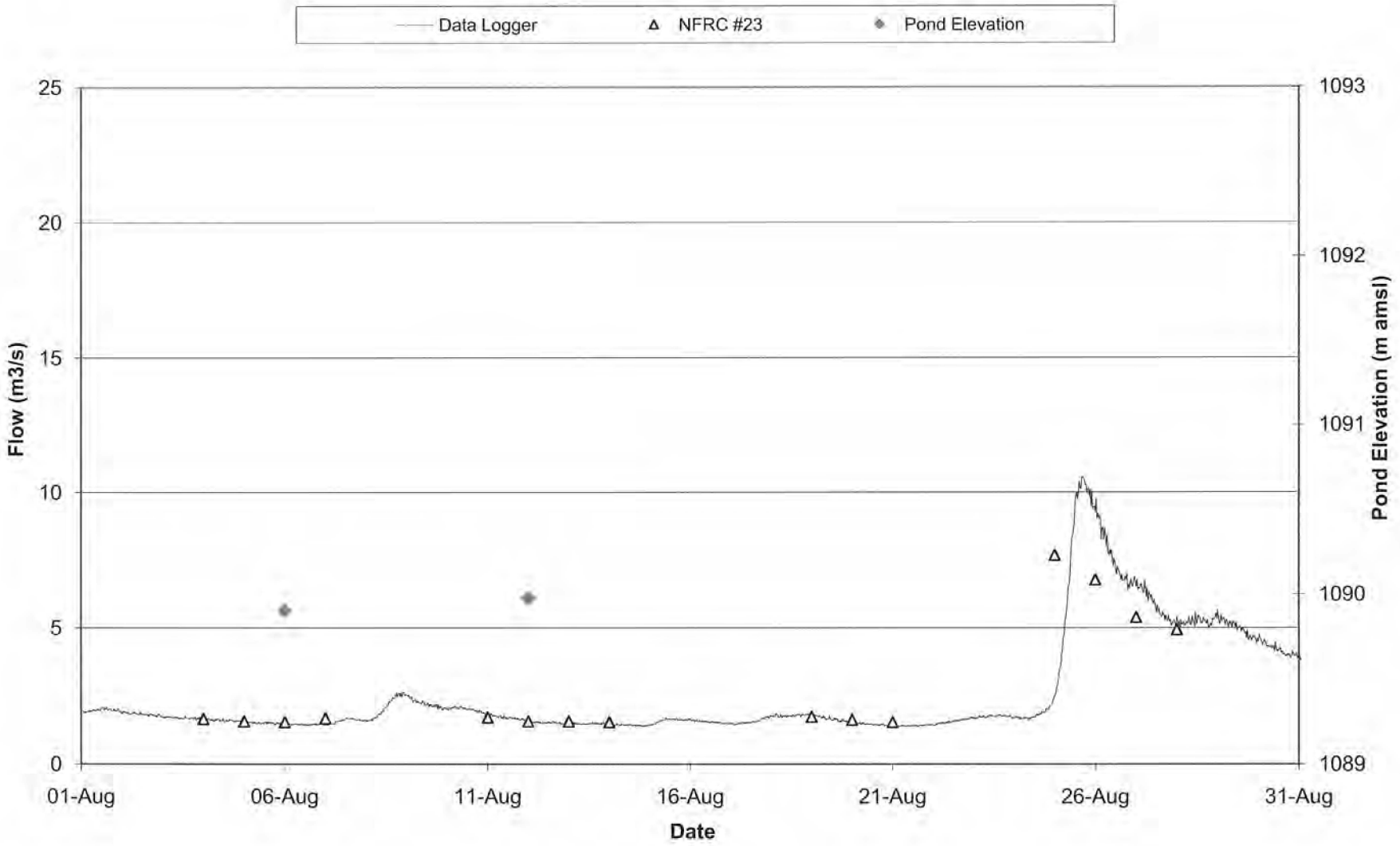
Pond Elevation and Flow downstream of NFRD - June 2008



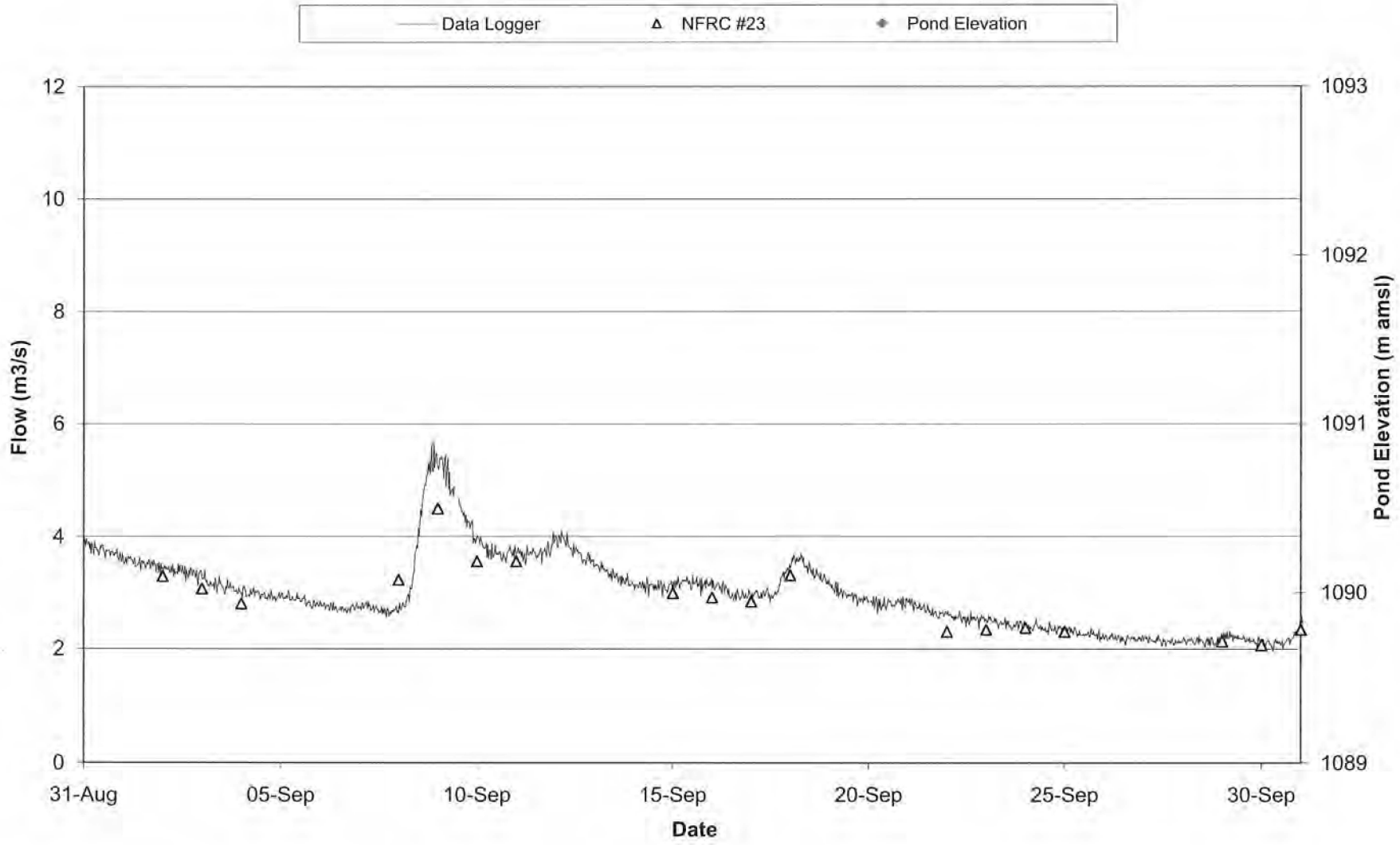
Pond Elevation and Flow downstream of NFRD - July 2008



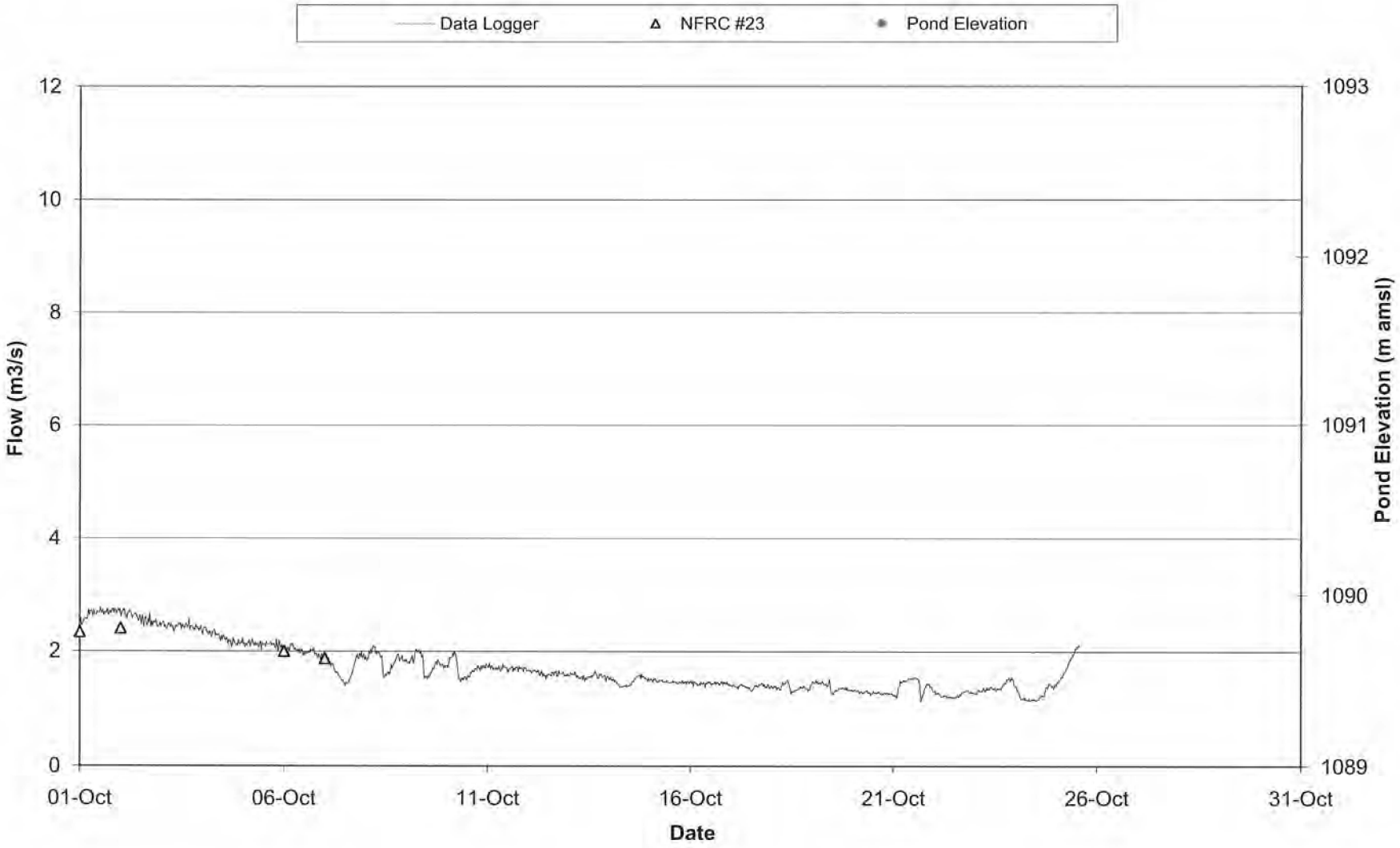
Pond Elevation and Flow downstream of NFRD - August 2008



Pond Elevation and Flow downstream of NFRD - September 2008



Pond Elevation and Flow downstream of NFRD - October 2008



FARO CREEK
DIVERSION CANAL

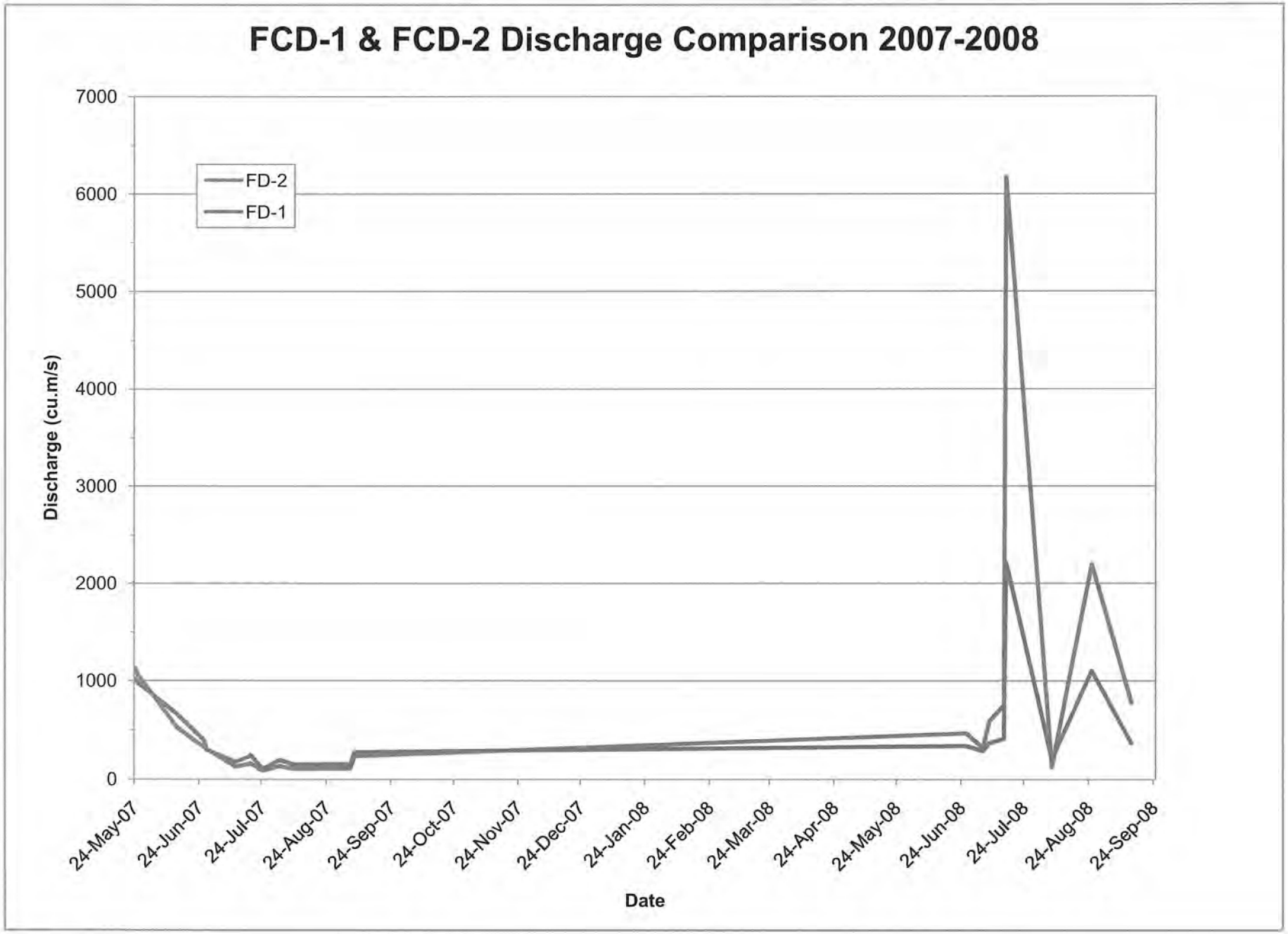
STAFF GAUGES

FCD-1 Gauge

Date	Time (PST)	Reading (m)	Discharge (Lps)	Comment
24-May-07	19:50:00	0.480	1022	newly installed
25-May-07	09:40:00	0.412	984.0	
13-Jun-07	15:20:00	0.300	662	
26-Jun-07	15:10:00	0.215	395	
27-Jun-07	09:30:00	0.218	302.5	tail end of thundershower
11-Jul-07	13:30:00	0.175	179	
18-Jul-07	14:00:00	0.200	236	
18-Jul-07	12:40:00	0.200	249.0	
24-Jul-07		0.153	107.2	
1-Aug-07	11:50:00	0.170	198	
8-Aug-07	15:20:00	0.172	151.9	LES survey, conclude gauge zero is 97.677 (average of 4 trials)
4-Sep-07	15:40:00		155.0	
6-Sep-07		0.220	277.0	
26-Jun-08	08:00:00	0.240	342	
4-Jul-08	10:40:00	0.220	289	
7-Jul-08	11:40:00	0.250	371	
14-Jul-08	11:00:00	0.265	415	
15-Jul-08	10:40:00	0.630	2213	Heavy Rain - Last 24hrs
6-Aug-08	11:00:00	0.185	207	
25-Aug-08	12:55:00	0.440	1105	
13-Sep-08	08:15:00	0.250	371	

FCD-2 Gauge

Date	Time (PST)	Reading (m)	Discharge (Lps)	Comment
24-May-07	18:30:00	0.460	1133	lots of shore ice rapidly melting: gain is invalid
25-May-07	11:40:00	0.475	1069	newly installed gauge. Gain is invlaid due to heavy melting on banks
13-Jun-07	16:05:00	0.340	525	Avil Lab checked survey = OK
26-Jun-07	15:30:00	0.255	326	
27-Jun-07	12:30:00	0.247	308.3	tail end of thundershower, invalid
11-Jul-07	14:30:00	0.195	130	
18-Jul-07	14:20:00	0.210	158	
18-Jul-07	11:30:00	0.210	165.0	Good check Anvil Lab vs LES flows
24-Jul-07	17:00:00	0.185	87.9	rainfall affected
1-Aug-07	12:25:00	0.195	133	
8-Aug-07	14:40:00	0.200	106.3	
4-Sep-07	15:10:00	0.202	112.1	
6-Sep-07	PM	0.241	235.0	affected by construction
26-Jun-08	08:00:00	0.325	470	
4-Jul-08	10:40:00	0.280	320	
7-Jul-08	11:40:00	0.355	591	
14-Jul-08	11:00:00	0.390	753	
15-Jul-08	10:40:00	0.880	6178	Heavy Rain - Last 24hrs
6-Aug-08	11:00:00	0.195	126	
25-Aug-08	12:55:00	0.590	2197	
13-Sep-08	08:15:00	0.395	779	


FCD-1 & FCD-2 Discharge Comparison 2007-2008
FD-2
FD-1
Discharge (cu.m/s)
7000
6000
5000
4000
3000
2000
1000
0
24-May-07
24-Jun-07
24-Jul-07
24-Aug-07
24-Sep-07
24-Oct-07
24-Nov-07
24-Dec-07
24-Jan-08
24-Feb-08
24-Mar-08
24-Apr-08
24-May-08
24-Jun-08
24-Jul-08
24-Aug-08
24-Sep-08
Date

FCD-3 Gauge

Date	Time (PST)	Reading (m)	Discharge (Lps)	Comment
26-Jun-08	08:00:00	0.250	na	Previously called FD-1A
4-Jul-08	10:40:00	0.230	na	
7-Jul-08	11:40:00	0.270	na	
14-Jul-08	11:00:00	0.285	na	
15-Jul-08	10:40:00	0.640	na	Heavy Rain - Last 24hrs
6-Aug-08	11:00:00	0.190	na	
25-Aug-08	12:55:00	0.400	na	
13-Sep-08	08:15:00	0.290	na	

*Rating curve is needed for this instrument

FCD-4 Gauge

Date	Time (PST)	Reading (m)	Discharge (Lps)	Comment
26-Jun-08	08:00:00	0.250	na	Previously called FD-1B
4-Jul-08	10:40:00	0.270	na	
7-Jul-08	11:40:00	0.270	na	
14-Jul-08	11:00:00	0.290	na	
15-Jul-08	10:40:00	0.540	na	Heavy Rain - Last 24hrs
6-Aug-08	11:00:00	0.195	na	
25-Aug-08	12:55:00	0.405	na	
13-Sep-08	08:15:00	0.285	na	

*Rating curve is needed for this instrument

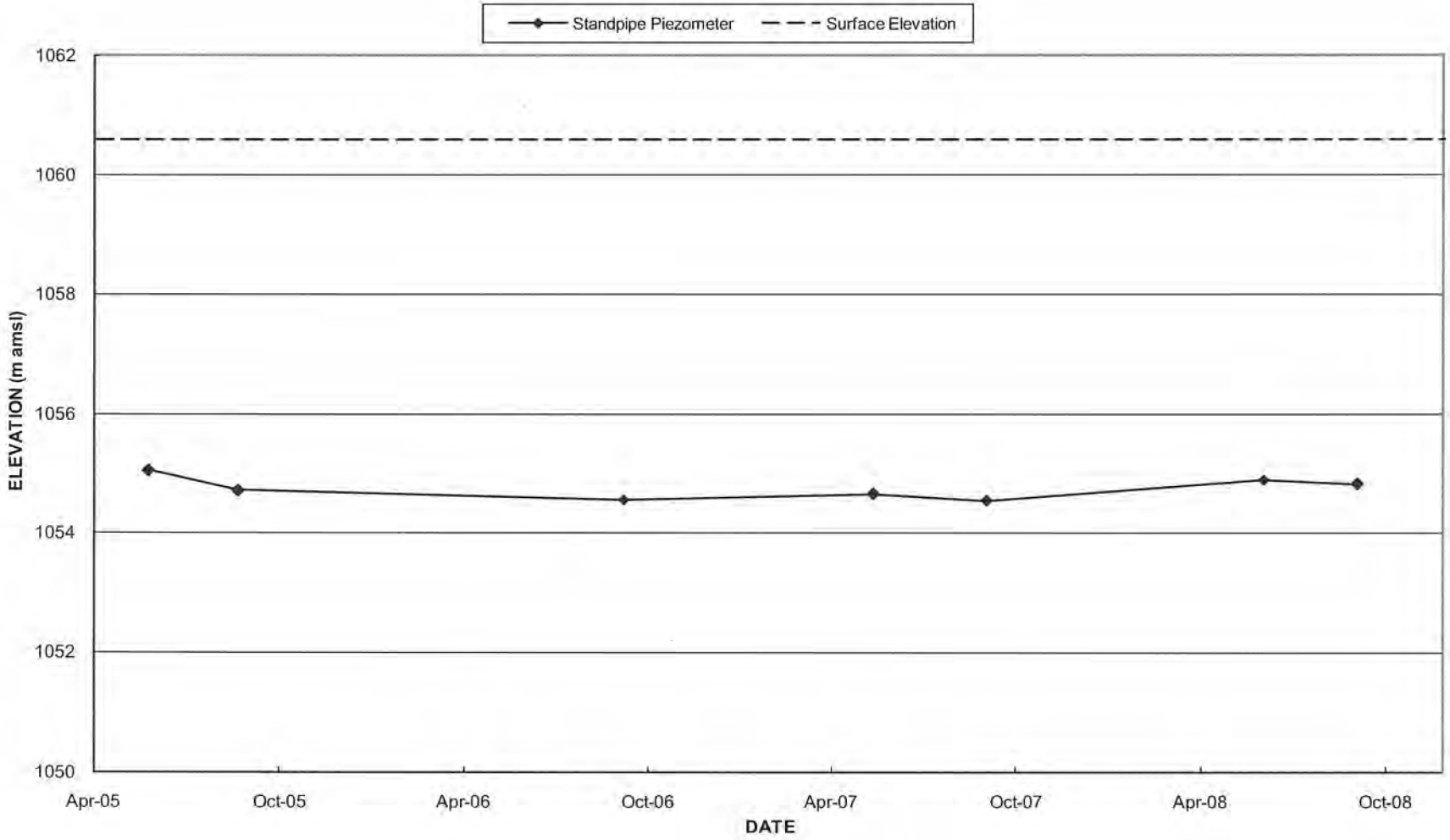
SECONDARY DAM

PIEZOMETERS

Faro Mine Instrumentation - Secondary Dam

P03-01		Location:	Secondary Impoundment Tailings	2004 Stick-Up (m):	0.53
		Coordinates:		2004 Surface Elevation (m amsl):	1060.581
Surface Protector:	?	Date Installed:	2003	Tip Elevation (m amsl):	?
				Screened Interval (m bgs):	?
Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
20-Jun-05		6.055	1055.06		
16-Sep-05		6.395	1054.72		
02-Oct-06		6.56	1054.55		
06-Jun-07		6.455	1054.66		Gartner Lee did the wells already
26-Sep-07		6.57	1054.54		Beep
25-Jun-08		6.215	1054.90		
25-Sep-08		6.285	1054.83		

SECONDARY DAM
Piezometric Monitoring
P03-01 Standpipe Piezometer



Faro Mine Instrumentation - Secondary Dam

P03-02		Location:	Secondary Impoundment Tailings	2004 Stick-Up (m):	0.69
		Coordinates:		2004 Surface Elevation (m amsl):	1059.9
Surface Protector:	?	Date Installed:	2003	Tip Elevation (m amsl):	?
				Screened Interval (m bgs):	?
Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
20-Jun-05		5.745	1054.85		
16-Sep-05		5.77	1054.82		
02-Oct-06		5.87	1054.72		
06-Jun-07		2.24	1058.35		No beep, bottom
26-Sep-07		5.955	1054.64		Beep
25-Jun-08		5.89	1054.70		
25-Sep-08		5.755	1054.84		

Faro Mine Instrumentation - Secondary Dam

P03-03		Location:	Secondary Impoundment Tailings	2004 Stick-Up (m):	0.82
		Coordinates:		2004 Surface Elevation (m amsl):	1060.67
Surface Protector:	?	Date Installed:	2003	Tip Elevation (m amsl):	?
				Screened Interval (m bgs):	?
Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
20-Jun-05		4.01	1057.48		
16-Sep-05		4.125	1057.37		
02-Oct-06		4.2	1057.29		
06-Jun-07		1.22	1060.27		
26-Sep-07		1.22	1060.27		No Beep - Bottom
25-Jun-08		6.95	1054.54		
25-Sep-08		5.475	1056.02		

Faro Mine Instrumentation - Secondary Dam

P03-04		Location:	Secondary Impoundment Tailings	2004 Stick-Up (m):	0.74
		Coordinates:		2004 Surface Elevation (m amsl):	1060.43
Surface Protector:	Yes	Date Installed:	2003	Tip Elevation (m amsl):	?
				Screened Interval (m bgs):	?
Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
20-Jun-05		1.62	1059.55		
29-Sep-05		2.21	1058.96		
02-Oct-06		3.305	1057.87		
06-Jun-07		3.7	1057.47		no beep, bottom
26-Sep-07		3.7	1057.47		no beep, bottom
25-Jun-08		5.21	1055.96		
25-Sep-08		5.475	1055.70		

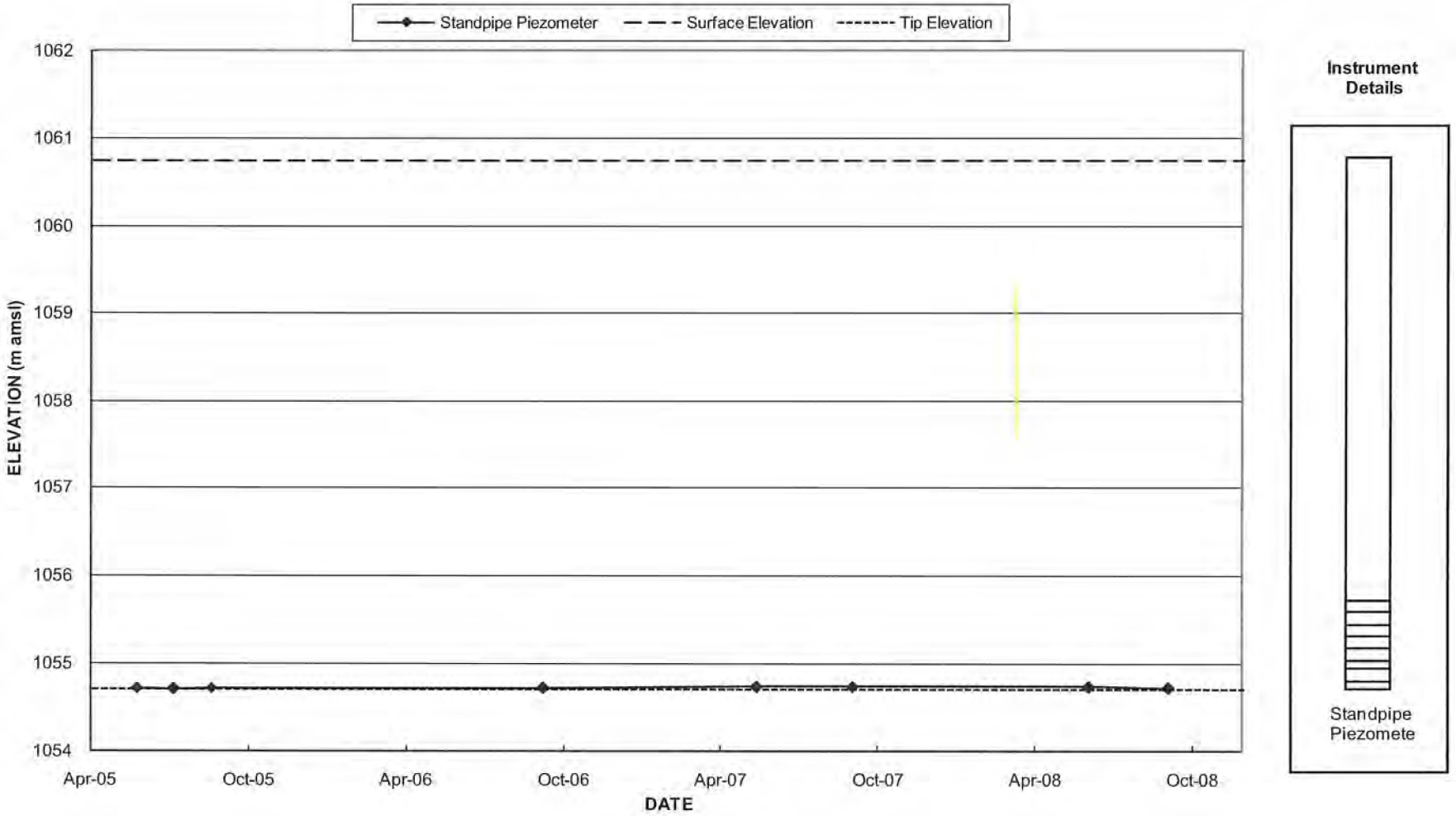
Faro Mine Instrumentation - Secondary Dam

P81-06		Location:	Secondary Dam	2004 Stick-Up (m):	0.13
		Coordinates:	8V582791 6912684	2004 Surface Elevation (m amsl):	1060.74
Surface Protector:	N/A	Date Installed:	1981	Tip Elevation (m amsl):	1054.71
				Screened Interval (m bgs):	Unknown

Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
20-Jun-05		6.81	1054.72		
1-Aug-05		6.16	1054.71		
14-Sep-05		6.81	1054.72		
02-Oct-06		6.805	1054.73		
06-Jun-07		6.79	1054.74		no beep, bottom
26-Sep-07		6.79	1054.74		no beep, bottom
25-Jun-08		6.79	1054.74		no beep, bottom
25-Sep-08		6.805	1054.73		

Note: Water levels should be read from top of lower section of pipe (5" stick-up), not from the 26" broken piece on top.

SECONDARY DAM
Piezometric Monitoring
P81-06 Standpipe Piezometer

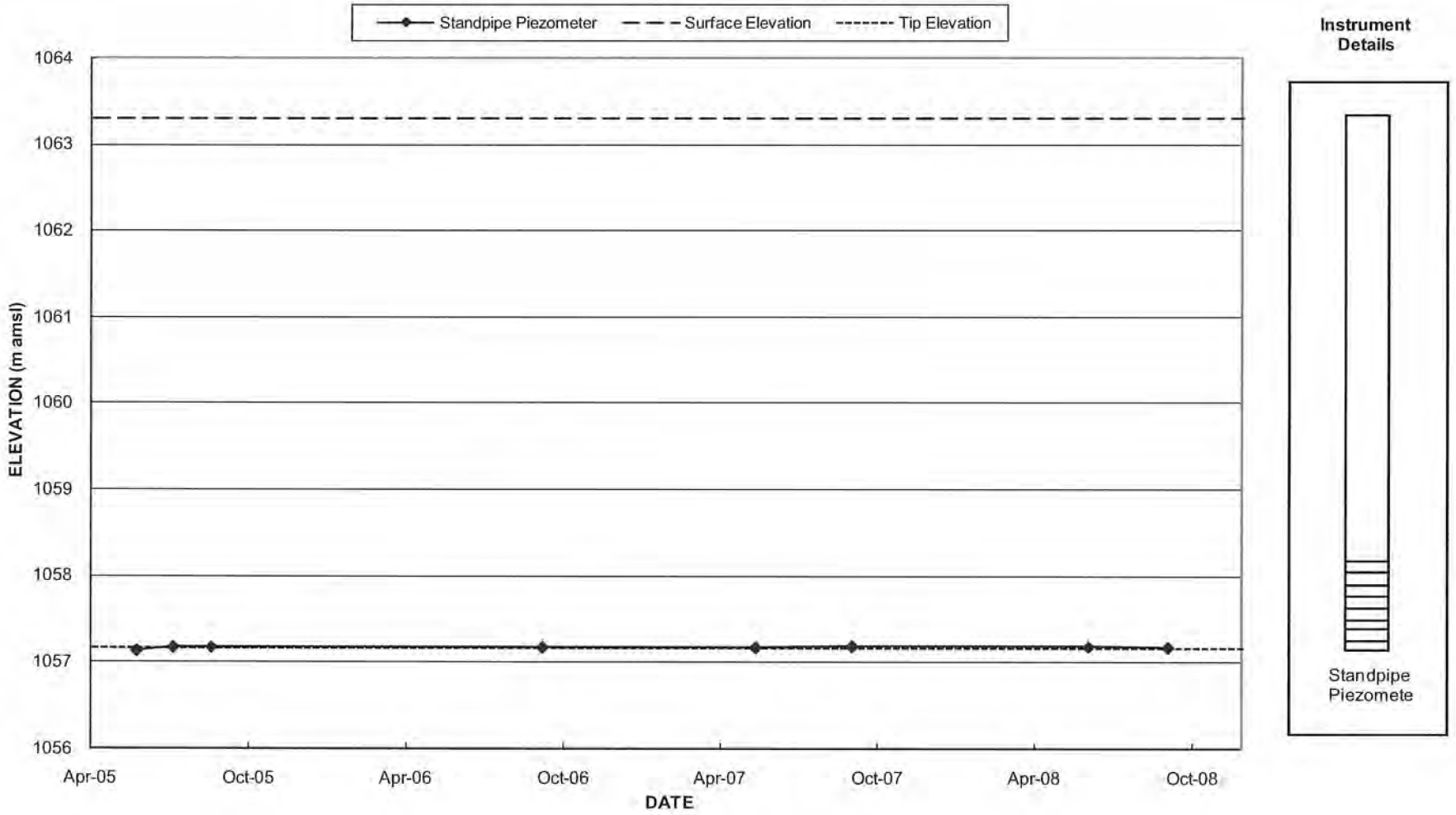


Faro Mine Instrumentation - Secondary Dam

P81-07		Location:	Secondary Dam	2004 Stick-Up (m):	0.77
		Coordinates:	8V583222 6912420	2004 Surface Elevation (m amsl):	1063.31
Surface Protector:	N/A	Date Installed:	1981	Tip Elevation (m amsl):	1057.17
				Screened Interval (m bgs):	Unknown

Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
20-Jun-05		6.95	1057.13		
1-Aug-05		6.91	1057.17		
14-Sep-05		6.91	1057.17		
02-Oct-06		6.91	1057.17		
06-Jun-07		6.91	1057.17		
26-Sep-07		6.9	1057.18		Beep
25-Jun-08		6.905	1057.18		
25-Sep-08		6.91	1057.17		

SECONDARY DAM
Piezometric Monitoring
P81-07 Standpipe Piezometer

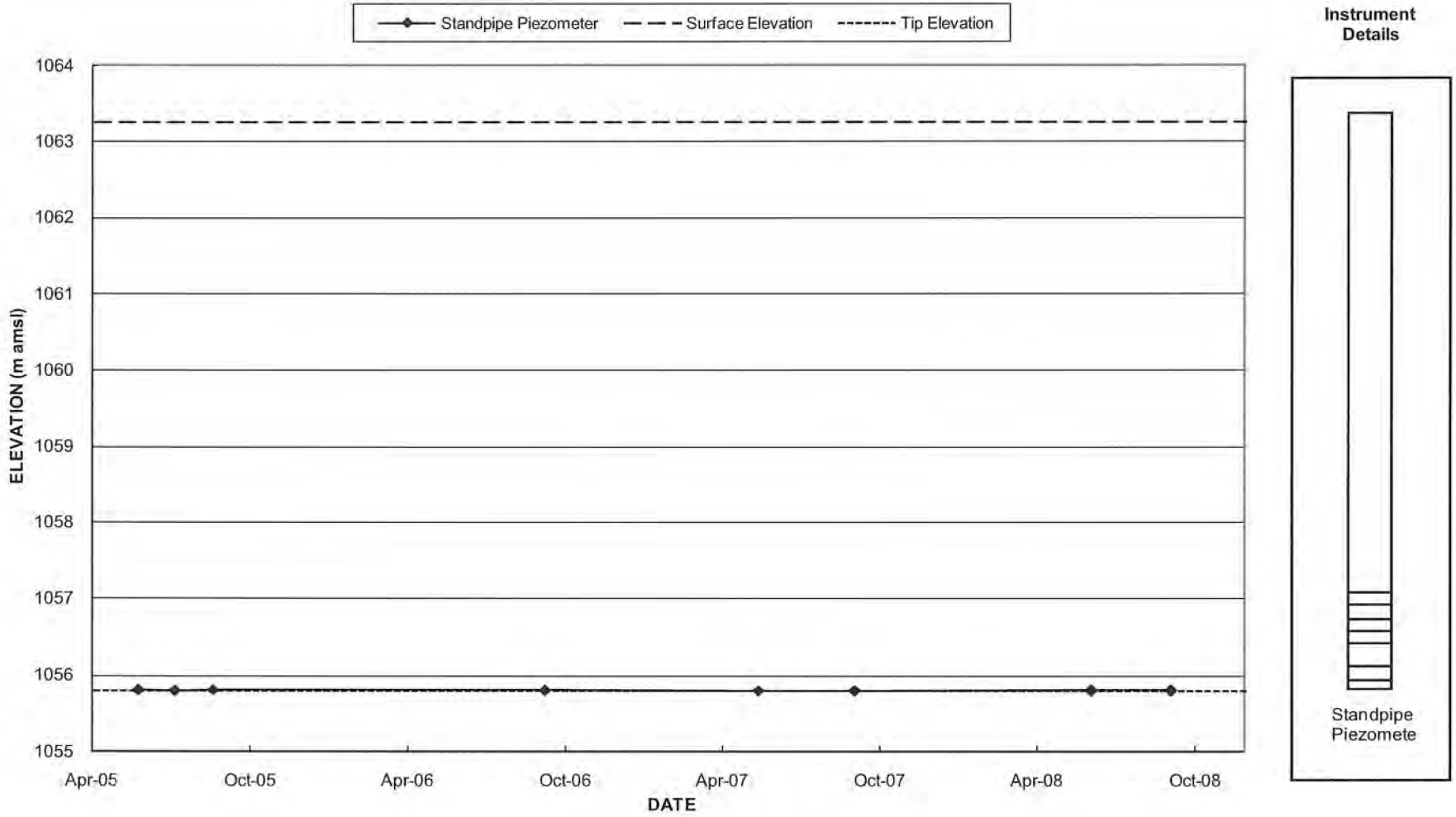


Faro Mine Instrumentation - Secondary Dam

P81-08		Location:	Secondary Dam	2004 Stick-Up (m):	0.74
		Coordinates:	8V583322 6912403	2004 Surface Elevation (m amsl):	1063.26
Surface Protector:	N/A	Date Installed:	1981	Tip Elevation (m amsl):	1055.80
				Screened Interval (m bgs):	Unknown

Date		Water level from top of pipe (m)	Piezometric Elevation (m amsl)	Pond El. (m amsl)	Comments
20-Jun-05		8.19	1055.81		
1-Aug-05		8.2	1055.80		Dry
14-Sep-05		8.19	1055.81		
02-Oct-06		8.195	1055.81		Dry
06-Jun-07		8.2	1055.80		no beep, bottom
26-Sep-07		8.2	1055.80		no beep, bottom
25-Jun-08		8.195	1055.81		no beep, bottom
25-Sep-08		8.195	1055.81		no beep, bottom

SECONDARY DAM
Piezometric Monitoring
P81-08 Standpipe Piezometer



APPENDIX IV
LETTER CONCERNING 2008 RCDC INSTRUMENT READINGS

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
200, 1121 Centre Street NW
Calgary, Alberta
Canada T2E 7K6
Tel: (403) 250-5185
Fax: (403-250-5330

November 20, 2008
Project No. 0257-051-05

Mr. Dana Haggar
Anvil Range Mining Corporation
P.O. Bag 1000
Faro, Yukon
Y0B 1K0

RE: 2008 INSTRUMENT MONITORING BACKSLOPE OF THE CANAL DIKE, FARO MINE, FARO, YT

Dear Mr. Haggar:

In the 2007 Annual geotechnical inspection report prepared for the Faro Mine, BGC Engineering Inc. recommended that a select number of instruments on the Back Slope of the Rose Creek Diversion Canal be monitored in 2008. It was recommended that the instruments be monitored in June and September, 2008. These instruments have been monitored in June and September on a regular basis since they were installed in 1981. Over the past few years, these instruments on the Back Slope have been monitored only every second year, as the monitoring of these areas has become less critical to the performance of the Rose Creek Diversion Canal.

A full set of data was collected from the backslope in 2006, no readings were collected in 2007 and it was planned that data would be collected in 2008. Site staff, who are responsible for collecting readings from these instruments, were able to complete the June readings, but due to safety concerns about crossing the diversion (due to high water in the fall) were not able to complete the September set of readings. The next opportunity for collecting data on the back slope was at the end of October/beginning of November. Site staff sought the advice of BGC Engineering on the usefulness of performing monitoring at this time period. Given some safety concerns about crossing the diversion, the relative importance of the data and especially the timing of the data collection (reading are collected in the same period each year to allow for year on year comparison), it was decided not to collect data from the backslope in the fall of 2008.

A full review of the data collected from the site is currently underway, and will be reported in the 2008 Annual geotechnical inspection report. During this assessment of the performance a recommendation will be developed as to whether reading should be collected from the back slope sites in 2009 or if the next monitoring event should occur in 2010 as is current schedule.

Sincerest regards,
BGC ENGINEERING INC.
PER

original signed by

Gerry Ferris, M.Sc., P.Eng.
Geotechnical Engineer

cc.: Doug Sedgwick

GWF/sf

APPENDIX V
CORRESPONDANCE FROM LABERGE CONCERNING CVD WEIR CHECKS

From: laberge [Laberge@northwestel.net]
Sent: Tuesday, December 16, 2008 1:16 PM
To: Gerry Ferris
Cc: Bill Slater; Chad Gubala; Leslie Gomm; anvillab
Subject: X-valley weirs
Attachments: X-valley Weirs.xls

Hi Gerry.

We surveyed the weirs below the cross valley dam twice this season. In May we used two methods for X-11 and X-13 which agreed fairly well. In October we measured the weirs again, and are confident in those numbers as well, except for the channel between X-12 and X-13. We replaced a staff gauge at X-11 but otherwise there was little maintenance needed as all weirs were is good shape.

Both times there was a gain of between 8 and 10 L/sec between the upstream weirs and X-13 (which is the sum of all weirs...). In October we measured the channel between X-12 and X-13 and got a paltry 2 L/sec so it doesn't account for all of the gain, albeit the measurement was suspect due to algae in the meter cups. I think it is fair to say that significant seepage reports to X-13 from the direction of X-12 and to a lesser extent from Weir#3. If it is important to know this seepage gain could be accurately quantified by installing an additional measurement device upstream of X-13. (There won't be any charge to BGC for this task because we did the surveys at the same time as other hydrology tasks, and it didn't take very long anyway).

Regards,

Ken Nordin AScT, CCEP
Laberge Environmental Services
Whitehorse, Yukon
phone 867 668 6838

APPENDIX VI
GOLDER ASSOCIATES 2008 REPORT ON FARO PIT SLOPE MOVEMENT MONITORING

Golder Associates

E/08/2557
December 10, 2008 05-1413-044A

Deloitte and Touche Inc.
30 Wellington Street West
P.O. Box 400, Stn. Commerce Court
Toronto, Ontario
M5L 1B1

Attention: Mr. Doug Sedgwick

RE: 2008 FARO PIT SLOPE MOVEMENT MONITORING

Dear Mr. Sedgwick:

This letter report presents the results of an assessment of slope movement of the east wall of the Faro Pit, in the area of the Faro Creek Diversion Channel (FCDC), located in the central Yukon Territories. A site visit for geotechnical inspection of the east wall was carried out by our Mr. L. Pohl on July 3 and 4, 2008.

The stability conditions of the east wall were previously assessed by Golder Associates Ltd. in September 2002 and August 2005 (References 1 and 2). The latter assessment provided recommendations for a slope monitoring program. A slope monitoring program has been carried out since 2006 by the mine site staff. The review of the 2006 and 2007 monitoring data were previously carried out by Golder (References 3 and 4).

The east wall stability performance is discussed based upon current field observations and a review of the 2008 pit slope monitoring data. The review of the 2008 monitoring data is presented in a similar format as the previous monitoring data review. An updated photographic record is provided. Possible slope movement and crest recession are evaluated. Recommendations are provided regarding the continuation of the monitoring program.

50 BEST EMPLOYERS IN CANADA 2008

BEST MANAGED COMPANIES

Golder Associates Ltd.
500 - 4260 Still Creek Drive, Burnaby, British Columbia Canada V5C 6C6
Tel: (604) 296 4200 Fax: (604) 298 5253 www.golder.com

Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

1.0 FARO PIT STATUS

A summary of background information on the Faro Pit and the Faro Creek Diversion Channel (FCDC) and their current status are presented below.

1.1 Faro Pit

The Faro Pit is an inactive open pit mine, roughly elliptical-shaped with the major axis striking northwest/southeast, as shown in Figure 1. The mined-out ore body encompassed en-echelon sulphide lenses striking northwest/southeast and dipping moderately toward the southwest.

Mining of the Faro Pit was completed in 1991. The east and north walls represent the main slopes in terms of ultimate height, with the east wall being the highest and longest wall, and are aligned with the major axis of the elliptical-shaped pit. The crest and toe of the east wall were located at approximately the 4,430 and 3,200 ft elevations, respectively. The height of the wall was approximately 1,230 ft.

According to previous information, in 1992 approximately 3.4 million cubic meters of waste rock were disposed below the 3,650 ft bench, from underground mining operations. The location and the extent of the underground mining beneath the east wall are not known as as-built maps of this development were not available.

Since mining operations were discontinued, a pit lake has accumulated at the bottom of the pit. Water pumping and treatment facilities operated at the site control the water elevation in the pit. At the time of the site visit on July 2008, the water level was at about the 3,856 ft elevation.

1.2 Faro Creek Diversion Channel (FCDC)

The Faro Creek Diversion Channel (FCDC) and Faro Valley Interceptor (FVI) were originally built as part of the mine development to divert the Faro Creek and surface runoff water from north of the pit area around the Faro Pit and mill site, shown in Figure 1. The diversion channel and valley interceptor collect water from upstream of the waste dumps and the Faro Pit and direct it in a southeasterly direction to the North Fork of Rose Creek.

The Faro Creek Diversion Channel (FCDC) was built as a cut/fill section, excavated in both overburden soil and rock, and is located behind the crest of the East Wall of pit.

In 2003, remedial works were carried out on the FCDC in an effort to reduce seepage losses, and the channel geometry had some cross-section adjustments. The road located behind the east wall crest and along the FCDC was also adjusted and levelled, and a safety berm was constructed along the road.

The integrity of the FCDC could be at risk from potential slope instabilities of the east wall, where the distance between the channel and the slope crest varies from about 18 meters at the north upstream portion of the channel to about 100 meters at the south downstream portion.

The stability conditions of the east wall affecting the FCDC are discussed in the following sections.

2.0 EAST WALL STABILITY CONDITIONS

The engineering geology and pit wall stability conditions of the east wall are discussed below. Photographs are shown in Appendix I.

2.1 East Wall Engineering Geology

The mined-out orebody in the Faro Pit consists of sulphide lenses contained within metamorphosed, interbedded, non-calcareous phyllites, schist and calc-silicate rocks. Rocks immediately adjacent to the sulphide lenses have undergone intensive alteration, and are essentially, massive, featureless muscovite/kaolinite clay envelopes. The east wall was excavated along the footwall of the sulphide lenses, *i.e.*, the ore body. The following rock types were exposed on the east wall:

- Westerly dipping biotite-muscovite schist;
- Diorite intrusive in the upper wall;
- North/south trending calc-silicate band in the central portion of the wall; and
- Quartzite at the upper end of the south wall.

A previous review of geologic cross sections indicated shallow to moderate westerly dipping strata, and westerly dipping faults that are inclined at approximately 60 degrees.

The Big Indian Fault is the most dominant structural feature observed in the east wall. This fault strikes roughly North/South and dips toward the west at an inclination of approximately 60 degrees. The east boundary of the North/South trending band of calc-silicate rock in the east wall is defined by the Big Indian Fault.

Other westerly dipping faults have also been interpreted to exist. Also smaller, East/West trending faults were noted on geologic plans.

2.2 East Wall Instability Zones

The previous stability assessments of the east wall indicated two separate instability areas, referred as the North and South Instability zones, apparently separated by the North/South trending band of calc-silicate rock. Photographs are presented in Appendix I.

Instability along the east wall has been interpreted to have resulted from the following failure mechanisms during mining operation.

- Planar failure of the individual benches along a variety of westerly dipping structures that were undercut by the steep bench faces, resulting in the loss of catchment and accumulation of ravel debris on the slope. Ultimately, the wall would resemble an unbenched talus slope.

- As the wall height increased with mining, the slope continued to deteriorate, and deeper-seated instability would develop, as the accumulated failure debris would slide down the face along the underlying westerly dipping structures. The material in the upper portion of the failure zone would push and plough under the material in the lower slope, forming obsequent ridges and graben like features. Displacement rates increased with the mining of each bench, and would subsequently decrease to background rates of less than 5 mm/day soon after the removal of each bench. During the operating life of the mine, instability continued to creep in a progressive and predictable manner, without the development a catastrophic failure.

The North Instability consists of much finer-grained and more bleached and altered failure debris at the base of the slope than the debris in the South Instability zone. A steep backscarp has formed in more competent rock at the crest of the slope, defined by the Big Indian Fault. The north side of the North Instability zone appears to be defined by a steep, south to southwesterly dipping diorite dyke. The south side of the North Instability is delineated by the calc-silicate band area that separates the North and South zones. In addition, a steep scarp also exists in the overburden deposits at the crest of the slope, unlike the South instability.

The calc-silicate band separating the South and North instabilities represents an area of improved stability relative to the instabilities in the schist to the north and south, and might be acting as a buttress on the north side of the South Instability.

The South Instability is formed by highly blocky failure debris at the base of the slope, forming variable thickness talus that has undergone large displacement. The failure material had dropped downward along a westerly sloping backscarp that was formed by moderate to steep westerly dipping faults and joint sets. Generally massive rock mass outcrops behind the backscarp. Raveling has affected the steep back scarp.

2.3 East Wall Slope Movement and Crest Recession

Previous field assessments of crest retreat and stability of the East Wall were carried out by Golder Associates Ltd. in 2002 and 2005 (References 1 and 2).

The minimum distance between the crest of the East Wall to the FCDC is located above the North Instability zone. At this location, the crest of the pit wall exhibits a steep overburden face, with about 5 to 6 meters of overburden soils capping the bedrock. In addition, seepage was observed emanating from the overburden/bedrock contact, causing erosion in the bedrock and debris to accumulate downslope.

The following conditions were observed in the 2005 pit wall inspection, which was carried out after the 2003 remedial construction works of the FCDC.

- Above the North Instability zone, the minimum distance measured between the crest of the wall and the FCDC was about 18.5 meters. To the north of the minimum distance location, a steep overburden scarp had also exhibited on-going recession due to ravelling. The distance from that overburden scarp crest to the FCDC was about 35 meters.

- Above the South Instability zone, the minimum distance measured between the backscarp crest of the wall and the FCDC was about 93 meters.

The 2005 assessment indicated that the North and South Instability zones had not significantly changed since the 2002 inspection. Minimum crest distances to the FCDC measured at both North and South Instability zones were on the same order as the 2002 inspection.

Overall, these observations corroborated the understanding that catastrophic failure of the bedrock and overburden slopes at the backscarps did not appear to be likely to occur within the near future. However, limited erosion and raveling instability would likely continue to develop slowly at the crest of the wall due to sloughing or ravelling in the steep overburden face, and to seepage erosion of the underlying bedrock, which undercuts the overburden slope. Since this process could likely be more active at the North Instability zone, it is considered to remain a threat to the FCDC over the long-term, while the South Instability would not likely undermine the FCDC for many years.

3.0 2008 SITE INSPECTION

A site visit for geotechnical inspection of the east wall was carried out by our Mr. L. Pohl on July 3, 2008 and July 4, 2008, as part of the present assessment. In addition to the inspection of the pit wall, the existing pit wall stability monitoring array and monitoring procedures were reviewed with the mine staff and YES (Yukon Engineering Services Inc.) in order to address deficiencies and uncertainties previously identified in both 2006 and 2007 monitoring reviews. The monitoring program is discussed in the following sections of this report.

The pit wall inspection focused on obtaining visual observations for comparison with the findings of the previous inspections. Photographs are presented in Appendix I.

The east wall instability is still characterized by two failures zones, as the North and South instabilities which are separated by the calc-silicate band zone, as shown on Photographs 1 and 2. The geotechnical inspection of the east wall indicated that the instability has not progressed significantly, as major changes or increases in displacements are not apparent.

3.1 North Instability

Comparison with the records from the previous inspection of the North instability zone which were carried out in 2005 indicated the following.

- The south boundary of the North instability zone, *i.e.*, along the north side of the calc-silicate band, appears to have not changed significantly since the previous assessment.

- The north boundary of the North instability zone appears to have not changed perceptibly since the previous assessment from a visual inspection perspective, and any down slope displacement of the failure debris appears to have been limited. The previously existing erosion gully has not increased significantly on the debris at the lower slope.

- The crest and the backscarp of the North instability zone do not exhibit signs of perceptible recession or significant degradation since 2005.

- The minimum distance between the crest of the east wall instability and the FCDC remains in the middle of the North failure zone, as shown in photographs in Appendix I. Crest recession at that location has not been sufficient to significantly reduce the minimum distance, and the actual distance remains in the same order as observed in the previous 2005 inspection, *i.e.*, about 18 metres. Groundwater seepage is still observed at the minimum distance location, and is emanating from the overburden/bedrock contact.

- The site reconnaissance inspection showed that there is no evidence of tension cracks behind the crest in the area of the North instability. Also, there is no evidence of instability behind the crest of the slope, and the rock at the backscarp appears to be stable.

3.2 South Instability

Comparison with records of the previous inspection of the South instability zone that was carried out in 2005 indicated the following.

- The north boundary of the South instability zone has not significantly changed since the previous assessment, from a visual inspection perspective. The backscarp at the north end does not show any significant recession or degradation. Only some limited settlement and downward displacement might have occurred on the accumulated debris.

- The crest at the South instability zone has not changed perceptibly since the previous assessment, from a visual inspection perspective. The crest at backscarp does not show any significant recession or degradation. Tension cracks behind the crest of the pit wall were not observed during the recent inspection.

- As previously assessed, seepage into the South instability zone is occurring along a creek located in the north portion of the area. Water flows on the surface along the backscarp crest at the north side of the South instability are resulting in saturation of the ground adjacent to the backscarp. However, no evidence was observed that would indicate that the widths of the previous existing tension cracks have increased. There was no evidence of other tension cracks behind this saturated area, or behind the backscarp crest outside this saturated area.

- The south boundary of the South instability zone has not changed significantly since the previous assessment in 2005. However, it is apparent that some settlement and raveling has occurred that is affecting a limited portion of the failure debris talus in the southern portion of the instability area, as indicated in Photograph 7.

- In addition, surface water from an existing creek is observed to infiltrate into the failure zone, which might have contributed to the limited, but on-going deformation in that portion of the pit wall. However, in contrast of what has been observed on the North instability zone, an erosion gully has not developed within the coarser grained debris of the South instability zone. Consequently, surface water flowing from the ground behind the crest of the backscarp of the South instability is observed to infiltrate the talus debris.

- The minimum distance between the pit wall crest to the FCDC in the area of the South instability zone has not changed significantly since the last inspection in 2005. The distance is on the same order as the previous assessment, *i.e.*, about 90 metres.

4.0 SLOPE MONITORING PROGRAM

Due to the on-going, long-term potential threat to the FCDC, it was recommended that a slope stability monitoring program should be initiated. The recommended monitoring program was presented and discussed in the report following the 2005 site inspection (Reference 2). The recommended monitoring procedures and objectives are summarized in Table 1.

TABLE 1: Recommended Monitoring Program Summary (Reference 2)

Monitoring Method	Objective	Main Tasks	Frequency
Visual Inspection	• Crest recession • Stability of the crest of the backscarp • Advance Warning of FCDC failure	Monitoring based on routine walk over and visual inspection on the most critical areas at the crest of the North and South instabilities and FCDC.	Weekly during spring, fall. Every second week during summer.
Distance Measurement	• Measure crest recession rate	Measurement of the shortest distance from reference bars to the crest of the slope.	Each spring and fall.
Survey Monitoring Prisms	• Monitor stability of the overall rock mass at the crest of the East Wall	Survey of ground reference prisms.	Each spring and fall.

In 2006, a slope monitoring program was put in place at the Faro Pit, coordinated by the mine site staff and carried out by YES Inc., and includes the following components.

- Slope Movement Observations Points – Reference Bars: Reference bars were installed behind the crest of the East Wall along the FCDC in order to provide fixed reference points for measurement of the shortest distance to the crest of the wall. The periodic measurement of distances can provide an assessment of crest recession rates.

- Monitoring Points: Survey monitoring points were established closer to the crest of the East Wall in order to provide monitoring of coordinates of fixed points to allow assessment of displacement and ground movements in the area of greater potential for deformation. In addition, survey monitoring points were also installed uphill beyond the FCDC in the natural ground area. The periodic monitoring of survey points can provide indications of overall stability conditions.

A review of the 2006 monitoring data was carried out early in 2007 by Golder Associates Ltd. (Reference 3). At that time, the monitoring data of observation points (reference bars) **did not** allow an assessment of crest retreat, since only the initial installation readings were available. The monitoring data of survey points indicated that most survey points were not showing actual movement, and that "apparent" displacements were low and probably within the monitoring system accuracy.

A review of the 2007 monitoring data was also carried out early in 2008 by Golder Associates Ltd. (Reference 4). At that time, the available monitoring data from most of the reference bars **did not allow a comprehensive assessment** of the progress and rates of crest retreat at the North or South Instability zones. Only the data obtained from a few reference bars could provide a possible indication that no significant changes or advance of the crest retreat process had occurred at those locations above the North Instability zone. The monitoring data of survey prisms indicate that most of the survey prisms did not appear to exhibit actual displacement, and that "apparent" displacements were low and probably within the monitoring system accuracy.

Consequently, the 2006 and 2007 monitoring review of survey prisms had indicated that large scale deformation associated with major instability of the East Wall was not occurring.

In both of the 2006 and 2007 monitoring reviews, several recommendations were provided in order to address the deficiencies identified regarding the monitoring program (References 3 and 4). As a result, during the recent site inspection carried out in July 2008, the existing monitoring array and procedures were reviewed with the mine staff and YES - Yukon Engineering Services Inc in order to address those deficiencies and to clarify uncertainties previously identified.

The review of the 2008 monitoring data is presented in the following section.

5.0 REVIEW OF 2008 SLOPE MONITORING DATA

The present review of available monitoring data includes the following data:

- Slope Movement Observations Points – Reference Bars; and
- Monitoring Survey Points.

5.1 Slope Movement Observations Points – Reference Bars

The purpose of the reference bars is to physically measure the rate of erosion or retreat of the crest of the wall, in order to determine if and when the FCDC may be undercut. This is done by installing a series of pins just behind the crest of the slope, and regularly measuring the distance from the pins to the crest.

Reference bars were initially installed in August 2006. However, the 2006 and 2007 monitoring data reviews (References 3 and 4) indicated uncertainties and deficiencies regarding the location of the reference bars and measurement procedures. Consequently, it was not possible to use and interpret the previous monitoring data of the reference bars.

Consequently, the original array of reference bars has been discontinued and new reference bar locations were established during the site visit in July 2008. The location coordinates of the current reference bars were surveyed by YES during the site visit inspection in order to ensure that previous uncertainties could be eliminated. Furthermore, the measurement procedures were discussed with the mine staff, and actual readings were undertaken during the site inspection.

The current location of the reference bars are shown in Figures 1 and 2, and presented in Table 2.

TABLE 2: Reference Bars

Reference Bar Number	Installation Coordinates		Bearing of Distance Measurements (Azimuth)	Initial Distance Measurements (metres) (July, 2008)
	Northing	Easting		
15351	6,914,799.449	585,229.770	235°	11.19
15352	6,914,849.439	585,204.524	245°	11.25
15353	6,915,216.929	585,064.654	240°	17.41
15354	6,915,241.231	585,025.422	235°	8.06
15355	6,915,292.340	584,978.739	220°	5.59
15356	6,915,336.758	584,936.761	225°	17.55

Since the initial readings following the installation of the new reference bars, distance measurements were subsequently carried out on August and September 2008 by the mine staff. The monitoring data is presented in Appendix II. Summary of readings are presented in Table 3.

TABLE 3: Reference Bars

Reference Bar Number	Horizontal Distance (metres)		Cumulative Change (metres)
	July 2008	September 2008	
15351	11.19	11.18	-0.01
15352	11.25	11.25	0.00
15353	17.41	17.39	-0.02
15354	8.06	8.01	-0.05
15355	5.59	5.58	-0.01
15356	17.55	17.55	0.00

Figure 2 shows the locations of reference bars and the respective measured distances. The measured distances were plotted based on the azimuth and distance information provided in the most recent data.

The cumulative changes of distance measurements over the period of July to September 2008 does not indicate any significant changes or advance of the crest erosion or recession process at the monitoring locations above the North and South Instability zones. Minor changes indicated by these readings are probably within the accuracy of the monitoring procedure. Reference bar 15354 has indicated about five centimeters of distance change during that period, which, according to the observations of the mine staff, is attributed to minor localized erosion due to water surface run-off.

5.2 Monitoring Survey Prisms

The location of the monitoring survey prisms is also shown on Figure 1. The most recent monitoring data is presented in Appendix III.

The location of the existing monitoring survey prisms appears to be appropriate. Most of the survey prisms (7 prisms) were originally established behind the crest of the East Wall, and monitoring displacement in the area of greater potential for ground deformation. In addition, 2 survey monitoring prisms were installed uphill beyond the FCDC in the natural ground area. These latter prisms are located in an area not expected to exhibit deformation, and can be used to determine the accuracy of the monitoring system. The periodic monitoring of these survey prisms is expected to provide indications of overall stability conditions and of the accuracy of the monitoring system.

Monitoring survey prisms were installed in August 2006, when initial readings were taken. Since the initial installation of survey prisms, no additional survey prisms were installed. Subsequent monitoring of surveys prisms were carried out in 2006, 2007 and 2008. All existing monitoring prisms have been recently surveyed in July and October 2008. Table 4 presents a summary of cumulative coordinate changes based on the most recent monitoring data.

TABLE 4: Monitoring of Survey Prisms – August 2006 and October 2008 (Most Recent Survey)

Survey Prism	Initial Installation Coordinates			Cumulative Changes Between August 2006 and October 2008 (metres)		
	Northing	Easting	Elevation	Northing	Easting	Elevation
13872	6915376.00	584838.73	1289.09	0.0020	-0.0120	-0.0040
13873	6915330.14	584922.20	1298.26	0.0090	-0.0050	0.0160
13874	6915302.30	584972.86	1297.44	0.0010	-0.0110	-0.0010
13875	6915262.94	585078.53	1303.92	-0.0030	-0.0360	-0.0220
13876	6915108.37	585074.49	1281.13	-0.0060	-0.0040	-0.0550
13877	6915066.79	585200.63	1300.46	0.0080	-0.0140	0.0340
13878	6915002.33	585128.77	1280.65	0.0270	-0.0180	0.0530
13879	6914854.63	585228.55	1275.00	0.0210	-0.0100	0.0090
13880	6914786.53	585240.53	1269.17	0.0220	-0.0070	0.0140

Table 5 presents the resulting vectors of cumulative apparent displacements based on the changes of monitoring survey prisms between August 2006 and October 2008.

TABLE 5: Apparent Movement of Monitoring Survey Prisms – August 2006 and October 2008 (Most Recent Survey)

Survey Prism	Total Vector – Changes Between August 2006 and October 2008		
	Total Cumulative Displacement (meter)	Trend (Azimuth Degree)	Plunge (Degree) [1]
13872	0.0128	279	-18
13873	0.0190	331	57
13874	0.0111	275	-5
13875	0.0423	265	-31
13876	0.0555	214	-83
13877	0.0376	300	65
13878	0.0621	326	59
13879	0.0249	335	21
13880	0.0270	342	31

Notes: Negative plunge = downward direction; Positive plunge = Upward direction.

Figure 3 presents a detailed assessment of changes, cumulative total displacements and displacement vectors from each survey carried out since initial installation of the monitoring survey prisms. In addition, a plot of cumulative displacement over time is also presented for each survey prism.

Table 6 presents a summary interpretation of each survey prism based on the monitoring results.

TABLE 6: Survey Prisms – Interpretation of Monitoring Points

Survey Prism	Monitoring Interpretation of "Changes" Between August 2006 and October 2008
13872	Located above the North Instability zone. Low total "apparent" displacement since installation (0.0128 meters) with displacement vector indicating downward plunge (-18 degrees) and trending west (279° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.
13873	Located above the North Instability zone. Low total "apparent" displacement since installation (0.0190 meters) with displacement vector indicating upward plunge (57 degrees) and trending northwest (331° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.
13874	Located above the North Instability zone. Low total "apparent" displacement since installation (0.0111 meters) with displacement vector indicating downward plunge (-5 degrees) and trending west (275° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.
13875	Located above North Instability zone, uphill beyond the FCDC. Low total "apparent" displacement since installation (0.0423 meters) with displacement vector indicating downward plunge (-31 degrees) and trending west (265° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.

Survey Prism	Monitoring Interpretation of "Changes" Between August 2006 and October 2008
13876	Located above the North Instability zone. Low total "apparent" displacement since installation (0.0555 meters) with displacement vector indicating downward plunge (-83 degrees) and trending southwest (214° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.
13877	Located between the North and South Instability zones, uphill beyond the FCDC. Low total "apparent" displacement since installation (0.0376 meters) with displacement vector indicating upward plunge (65 degrees) and trending northwest (300° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.
13878	Located between the North and South Instability zones. Low total "apparent" displacement since installation (0.0621 meters) with displacement vector indicating upward plunge (59 degrees) and trending northwest (326° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.
13879	Located above the South Instability zone. Low total "apparent" displacement since installation (0.0249 meters) with displacement vector indicating upward plunge (21 degrees) and trending northwest (335° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.
13880	Located above the South Instability zone. Low total "apparent" displacement since installation (0.0270 meters) with displacement vector indicating upward plunge (31 degrees) and trending northwest (342° azimuth). Fluctuation of monitoring data between different readings indicates that measured displacements are within the monitoring system accuracy. Not exhibiting actual movement and possibly within the monitoring system accuracy.

The monitoring data indicates that survey prisms are not likely exhibiting actual movement, and that "apparent" displacements are probably within the monitoring system accuracy. Furthermore, all survey prisms were installed behind the crest of the wall, where one would expect that any actual movement or deformation would exhibit downward displacement, *i.e.*, downward plunge. However, five survey points are exhibiting "upward plunge", which indicates these apparent displacements are not likely actual movement of the slope, but just reflect the monitoring system accuracy.

The accuracy of the monitoring system appears to be within the order of +/- 5 cm, which is common for large shot distances, and is usually appropriate for the large scale deformations that the monitoring of survey points are intended to detect. According to information provided previously by YES (Reference 3), the monitoring survey prisms have been surveyed from three "observation (control) points" at fixed locations located on the west side of the pit, as shown in Figure 1. Distances across the pit from location of the "control" stations to the monitoring survey prisms are on the order of 800 to 1,400 meters.

Consequently, the monitoring of survey prisms indicates that on-going, large scale deformation associated with major pit wall instability does not appear to be occurring on the east wall.

6.0 FINAL CONSIDERATIONS AND RECOMMENDATIONS

This letter report has presented the results of the geotechnical inspection and review of the 2008 slope movement of the east wall of the Faro Pit.

The review of the 2008 monitoring data has indicated the following.

- **Monitoring of Reference Bars** – The cumulative changes of distance measurements taken since the reference bars were reinstalled during the site inspection in July 2008, do not indicate any significant changes or recession of the east wall crest at the locations where the reference bars have been installed above the North and South Instability zones.

- **Monitoring of Survey Prisms** – The review of the 2008 monitoring data indicates that survey prisms are likely not exhibiting actual movement, and that "apparent" displacements are low and probably within the monitoring system accuracy. Consequently, the monitoring of survey prisms indicates that on-going, large scale deformation associated with major pit wall instability does not appear to be occurring on the east wall.

In regard to the stability condition and crest recession on the East Wall, the results of the geotechnical inspection and review of the monitoring data provided the following conclusions.

- **Crest Recession** – No significant changes or recession of the crest appears to have occurred above the North Instability and South Instability zones since the last geotechnical inspection carried out in 2005. The crest recession appears to be evolving on a slower rate than originally anticipated in 2002 based on historical site information. However, due to the unpredictable nature of these erosion processes, the potential threat to the FCDC still remains for the long term.

- **Overall Stability Conditions** - The absence of significant increase of instability on the backscarps of the North Instability and South Instability zones, and no evidence of the development of tension cracks behind the crest of the pit wall indicate that large scale deformation associated with major instability of the east wall does not appear to be occurring. This understanding is also corroborated by the available monitoring data that indicates that on-going movement of the monitoring prisms that would be expected to accompany large scale deformation associated with major pit wall instability is also not occurring on the east wall. Currently, instability along the east wall appears to be limited to minor raveling of the slope, largely due to surface erosion where surface water or groundwater seepage flows over the overburden and rock slope.

The reader is referred to the "Important Information and Limitations of This Report" which follows the text but forms an integral part of this document.

We trust this summary satisfies your current requirements. If you have any questions or require further assistance, please do not hesitate to contact us.

Yours very truly,

GOLDER ASSOCIATES LTD.

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A.V. Chance, P.Eng. (BC, AB)
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LP/AVC/rs/mrb
Attachments: Figures 1 to 3
Appendix I: Photographs
Appendix II: Slope Movement Observations – Reference Bars
Appendix III: Slope Monitoring Survey Prisms YES –
(Yukon Engineering Services Inc.)

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Golder Associates Ltd. – Report "Review of 2006 Pit Slope Monitoring Data, Faro Pit". April 24, 2007.

Golder Associates Ltd. – Report "Review of 2007 Pit Slope Monitoring Data, Faro Pit". March 14, 2007.

Faro Mine, Yukon – Topographic Map, 1:20,000. Compiled by The Orthoshop, Calgary. September, 2003.

IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

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Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of test holes, necessary to determine all of the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, and safety and equipment capabilities.

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Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic,

excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

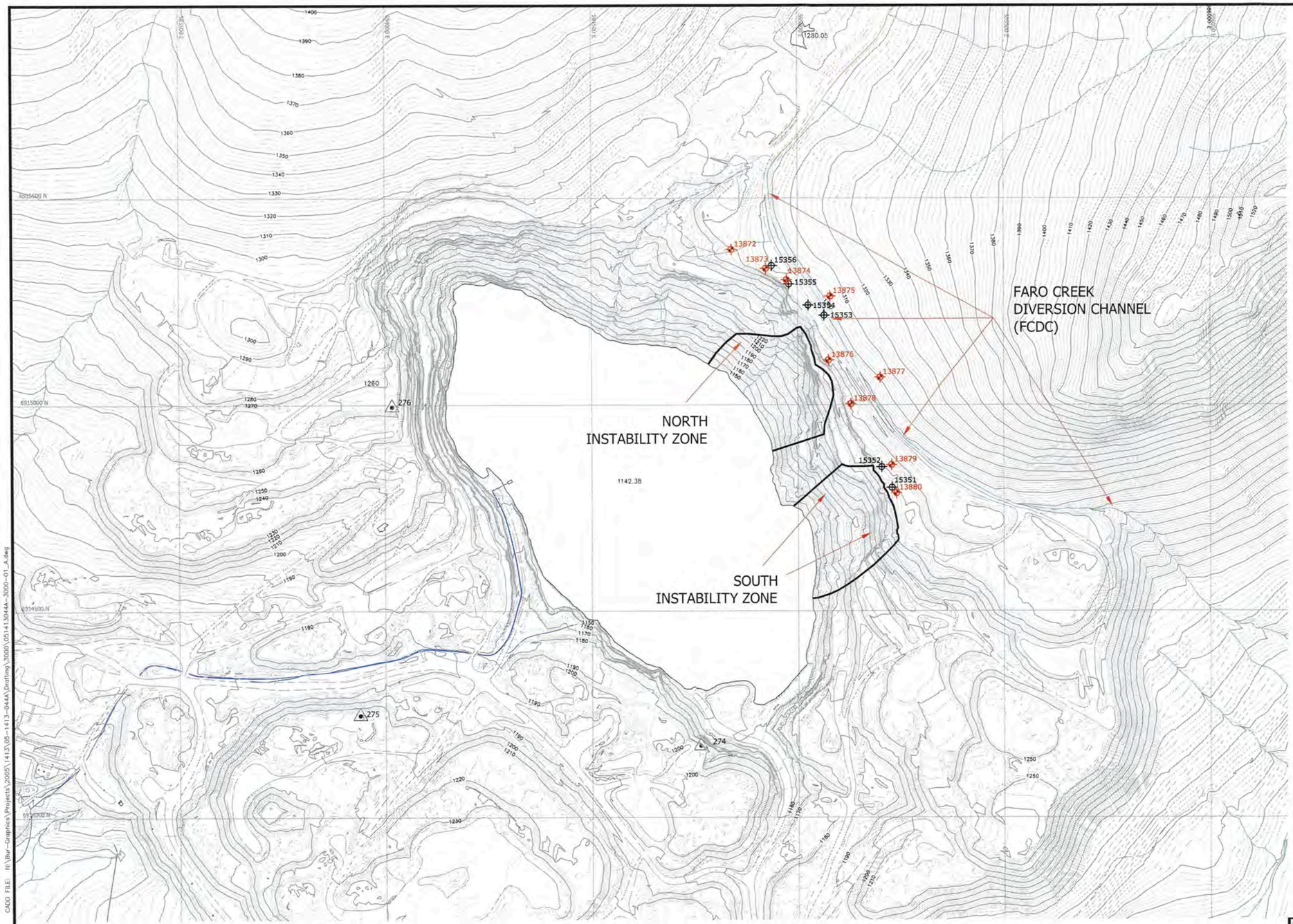
Sample Disposal: Golder will dispose of all uncontaminated soil and/or rock samples 90 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.

Follow-Up and Construction Services: All details of the design were not known at the time of submission of Golder's report. Golder should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of Golder's report.

During construction, Golder should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Golder's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Golder's report. Adequate field review, observation and testing during construction are necessary for Golder to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Golder's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

Changed Conditions and Drainage: Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Golder be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that Golder be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Golder takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.



NOTES:

1) ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.

LEGEND:

13878 — MONITORING SURVEY PRISMS

13912 — SLOPE MOVEMENT OBSERVATIONS - REFERENCE BARS

274 — OBSERVATION POINTS-FIXED LOCATION

0 50 100 150 200 250
Scale in Meters

PROJECT
DELOITTE & TOUCHE INC.
FARO PIT, YUKON

TITLE
REVIEW OF PIT SLOPE MONITORING DATA
SITE PLAN

Golder Associates

PROJECT No.		05-1413-044A	FILE No.	051413044A-3000-01_A	
DESIGN	LP	29OCT08	SCALE	AS SHOWN	REV. -
CADD	LP	29OCT08			
CHECK	LP	29OCT08			
REVIEW	AVC	29OCT08			

FIGURE 1

STAMP

DRAWING NO.	REFERENCES

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
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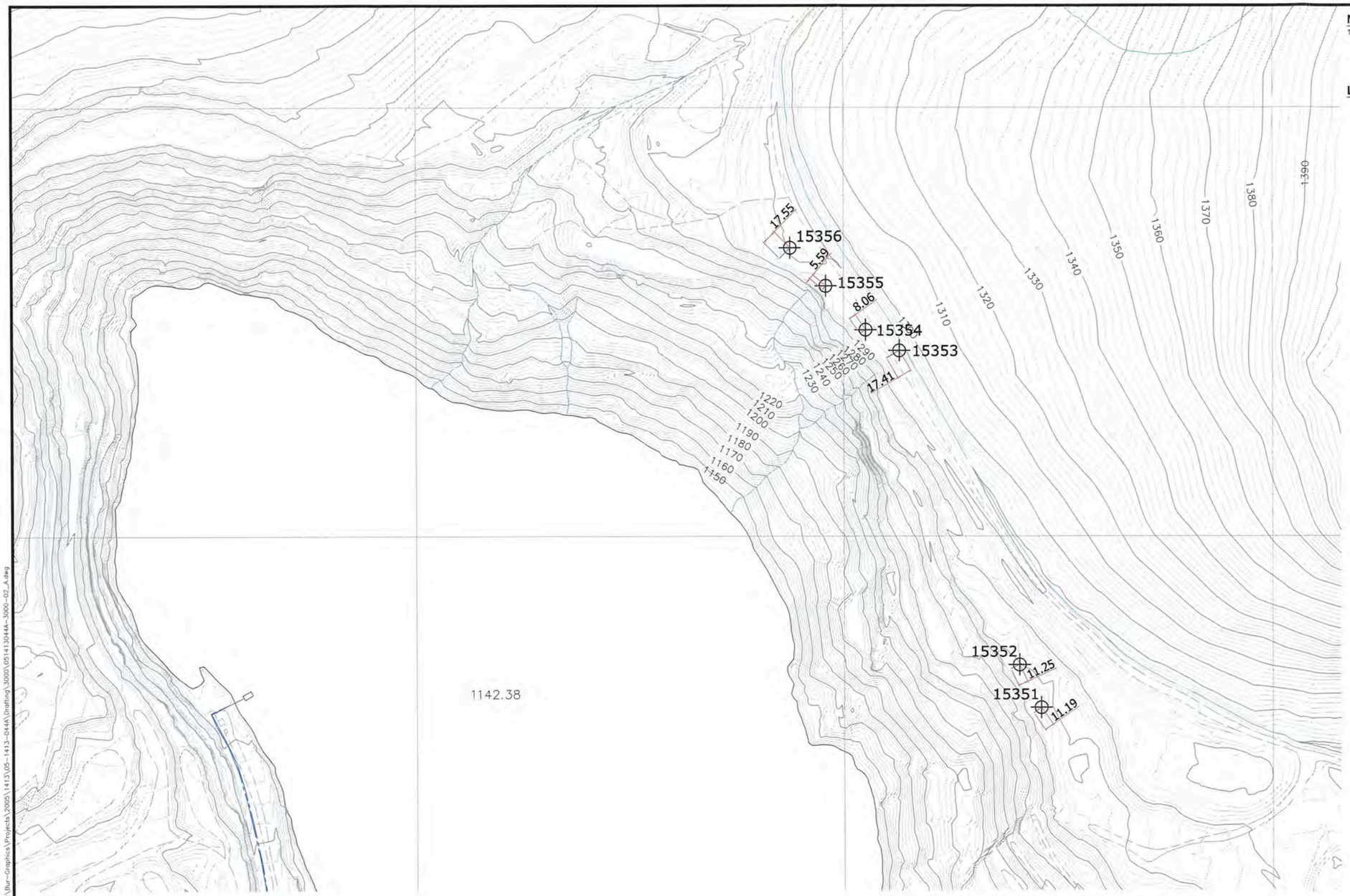
REVISION DATE: 09/12/01 02:38PM By: MFinlay
CADD FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-01_A.dwg

NOTES:

1) ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.

LEGEND:

13912 ⊕ SLOPE MOVEMENT OBSERVATIONS - LOCATION OF REFERENCE BARS AND MEASURED DISTANCES



0 25 50 75 100 125
Scale in Meters

PROJECT
DELOITTE & TOUCHE INC.
FARO PIT, YUKON

TITLE
LOCATION OF PIT SLOPE MONITORING REFERENCE BARS

DRAWING NO.	REFERENCES

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
1	-	-	-	-	-	-

STAMP

Golder Associates

PROJECT No.		05-1413-044A	FILE No.	051413044A-3000-02_A	
DESIGN	LP	OCT2008	SCALE	AS SHOWN	REV.
CADD	LP	OCT2008	FIGURE 2		
CHECK	LP	OCT2008			
REVIEW	AVC	OCT2008			

REVISION DATE: 08/12/01 02:26PM By: Mikintoy CADD FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-02_A.dwg

Drawing File: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-03_A.dwg November 13, 2008 10:40:42 AM By: MHinton

Monitoring Data Review

Changes Between Original Coordinates and October 2006

Point #	Δ_N(m)	Δ_E(m)	Δ_Z(m)	Δ_{NxE}(m)
13872	0.0044	-0.0186	-0.0106	0.0191
13873	0.0057	-0.0160	0.0583	0.0170
13874	0.0105	-0.0215	0.0256	0.0239
13875	0.0107	-0.0268	-0.0004	0.0289
13876	0.0011	-0.0140	-0.0506	0.0140
13877	0.0047	-0.0174	-0.0007	0.0180
13878	0.0212	-0.0213	0.0801	0.0301
13879	0.0212	-0.0184	0.0072	0.0281
13880	0.0184	-0.0132	-0.0307	0.0226

Point #	Total Displacement (m)	Trend (deg)	Plunge (deg)
13872	0.0219	283	-29
13873	0.0607	290	74
13874	0.0350	296	47
13875	0.0289	292	-1
13876	0.0525	274	-74
13877	0.0180	285	-2
13878	0.0856	315	69
13879	0.0290	319	14
13880	0.0381	324	-54

Changes Between Original Coordinates and June 2007

Point #	Δ_N(m)	Δ_E(m)	Δ_Z(m)	Δ_{NxE}(m)
13872	0.0111	-0.0209	-0.0189	0.0237
13873	0.0039	-0.0106	0.0214	0.0113
13874	0.0067	-0.0207	-0.0231	0.0218
13875	-0.0007	-0.0210	-0.0042	0.0210
13876	0.0095	-0.0124	-0.0722	0.0156
13877	0.0073	-0.0177	0.0226	0.0191
13878	0.0156	-0.0105	0.0555	0.0188
13879	0.0093	-0.0245	0.0125	0.0262
13880	0.0079	-0.0106	0.0089	0.0132

Point #	Total Displacement (m)	Trend (deg)	Plunge (deg)
13872	0.0303	298	-39
13873	0.0242	290	62
13874	0.0317	288	-47
13875	0.0214	268	-11
13876	0.0739	307	-78
13877	0.0296	292	50
13878	0.0586	326	71
13879	0.0290	291	26
13880	0.0159	307	34

Changes Between Original Coordinates and October 2007

Point #	Δ_N(m)	Δ_E(m)	Δ_Z(m)	Δ_{NxE}(m)
13872	-0.0049	-0.0327	-0.0309	0.0331
13873	-0.0128	-0.0165	-0.0179	0.0209
13874	-0.0119	-0.0305	-0.0251	0.0327
13875	-0.0188	-0.0370	0.0078	0.0415
13877	-0.0019	-0.0402	0.0395	0.0402
13878	0.0035	-0.0279	0.0986	0.0281
13879	0.0084	-0.0348	0.0130	0.0358
13880	0.0410	-0.0301	0.0047	0.0509

Point #	Total Displacement (m)	Trend (deg)	Plunge (deg)
13872	0.0453	261	-43
13873	0.0275	232	-41
13874	0.0413	249	-37
13875	0.0422	243	11
13877	0.0564	267	44
13878	0.1025	277	74
13879	0.0381	284	20
13880	0.0511	324	5

Changes Between Original Coordinates and July 2008

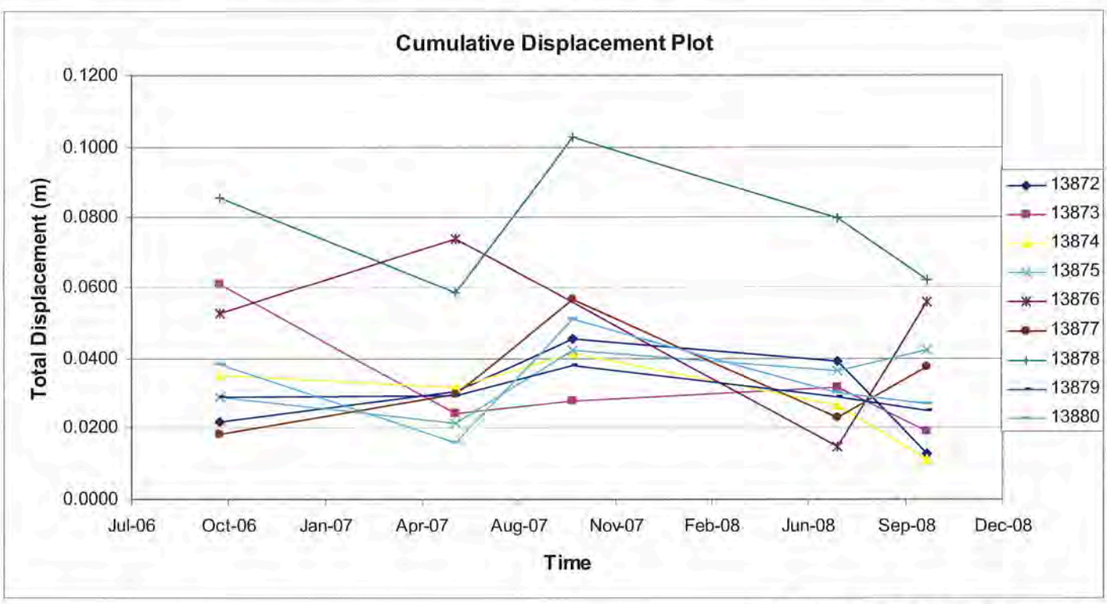
Point #	Δ_N(m)	Δ_E(m)	Δ_Z(m)	Δ_{NxE}(m)
13872	0.0163	-0.0161	0.0319	0.0229
13873	0.0061	-0.0016	-0.0308	0.0063
13874	0.0139	-0.0213	-0.0066	0.0254
13875	0.0168	-0.0300	-0.0112	0.0344
13876	0.0132	-0.0029	-0.0060	0.0135
13877	0.0129	-0.0072	-0.0174	0.0148
13878	0.0286	-0.0072	0.0741	0.0295
13879	0.0251	-0.0078	-0.0115	0.0263
13880	0.0248	-0.0044	-0.0161	0.0252

Point #	Total Displacement (m)	Trend (deg)	Plunge (deg)
13872	0.0393	315	54
13873	0.0314	345	-78
13874	0.0263	303	-15
13875	0.0362	299	-18
13876	0.0148	348	-24
13877	0.0228	331	-50
13878	0.0798	346	68
13879	0.0287	343	-24
13880	0.0299	350	-33

Changes Between Original Coordinates and October 2008

Point #	Δ_N(m)	Δ_E(m)	Δ_Z(m)	Δ_{NxE}(m)
13872	0.0020	-0.0120	-0.0040	0.0122
13873	0.0090	-0.0050	0.0160	0.0103
13874	0.0010	-0.0110	-0.0010	0.0110
13875	-0.0030	-0.0360	-0.0220	0.0361
13876	-0.0060	-0.0040	-0.0550	0.0072
13877	0.0080	-0.0140	0.0340	0.0161
13878	0.0270	-0.0180	0.0530	0.0324
13879	0.0210	-0.0100	0.0090	0.0233
13880	0.0220	-0.0070	0.0140	0.0231

Point #	Total Displacement (m)	Trend (deg)	Plunge (deg)
13872	0.0128	279	-18
13873	0.0190	331	57
13874	0.0111	275	-5
13875	0.0423	265	-31
13876	0.0555	214	-83
13877	0.0376	300	65
13878	0.0621	326	59
13879	0.0249	335	21
13880	0.0270	342	31



PROJECT: **DELOITTE & TOUCHE INC.**
FARO PIT, YUKON

TITLE: **REVIEW OF PIT SLOPE MONITORING SURVEY PRISMS**

Golder Associates

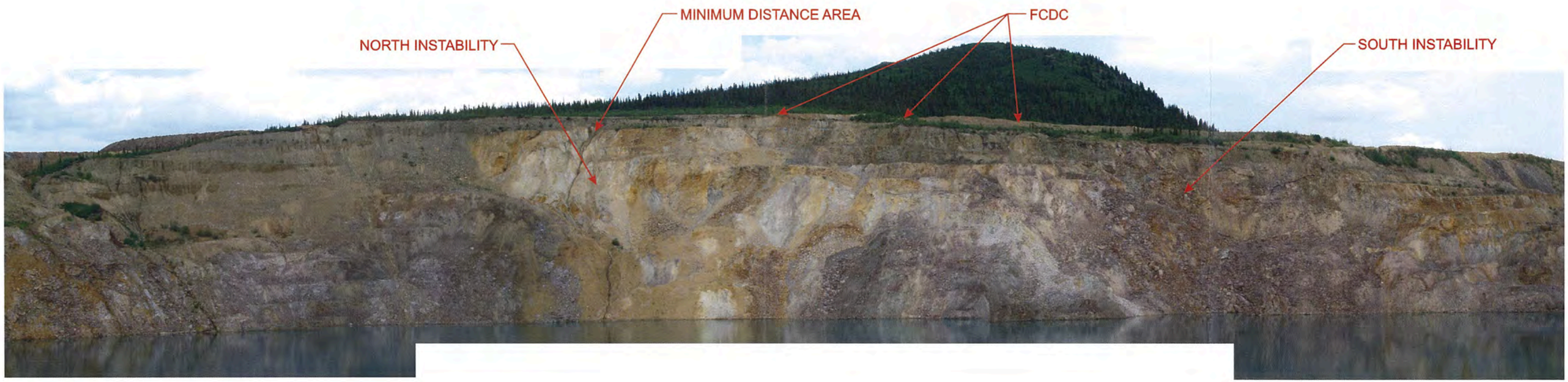
PROJECT No.		05-1413-044A	PHASE No.	051413044A-3000-03_A	
DESIGN	LP	13NOV08	SCALE	NTS	REV. -
CADD	MJH	13NOV08			
CHECK					
REVIEW					

FIGURE 3

APPENDIX I

PHOTOGRAPHS

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-01_A.cdr



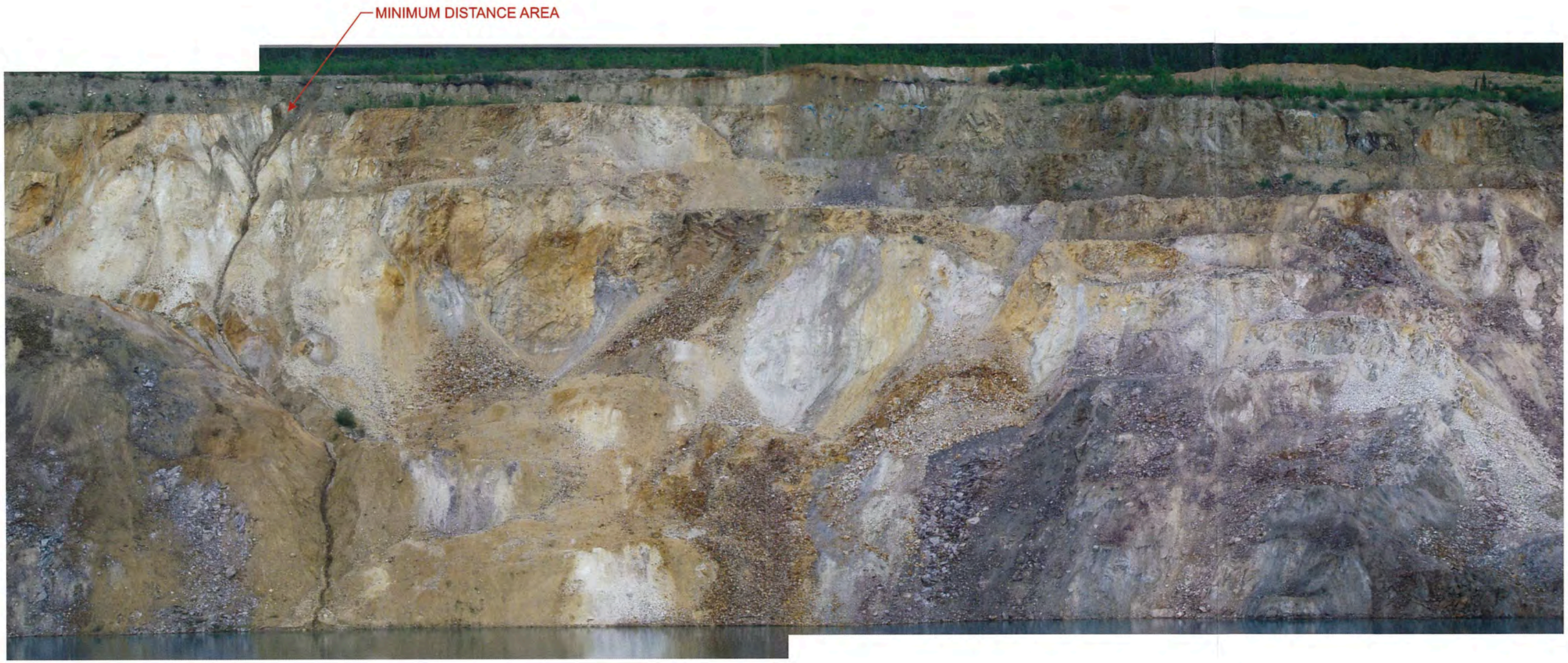
Photograph #1 : Panoramic view of the East Wall (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-02_A.cdr



Photograph #2 : Panoramic view of the East Wall (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-03_A.cdr



Photograph #3 : North Instability Zone (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-04_A.cdr



Photograph #4 : North Instability Zone. View of the crest of the pit wall (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-05_A.cdr



Photograph #5 : North Instability Zone. Minimum distance area (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-06_A.cdr



Photograph #6 : North Instability Zone. Minimum distance area (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-07_A.cdr



Photograph #7 : South Instability Zone (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-08_A.cdr



Photograph #8 : South Instability Zone. View of the crest of the pit wall (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-09_A.cdr



Photograph #9 : South Instability Zone. View of the area behind the crest of the pit wall (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-10_A.cdr



Photograph #10 : South Instability Zone. Looking south (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-11_A.cdr



Photograph #11 : South Instability Zone. Creek flowing into the instability area (July, 2008)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-12_A.cdr



Photograph #12 : Example of reference bar (Reference Bar 15355)

DRAWING DATE: 31-Oct-08 COREL FILE: N:\Bur-Graphics\Projects\2005\1413\05-1413-044A\Drafting\3000\051413044A-3000-13_A.cdr



Photograph #13 : Example of monitoring survey point (Prism 13878)

APPENDIX II

SLOPE MOVEMENT OBSERVATIONS – REFERENCE BARS

Slope Movement Observations
Reference Bars

2008 Faro Pit Wall Crest Recession

Date	Old Pin #er	New Pin #er	Distance (m)	Notes
July 8, 2008	13911	15356	17.55	
July 8, 2008	13909	15355	5.59	
July 8, 2008	13910	15354	8.06	
July 8, 2008	13908	15353	17.41	
July 8, 2008	13912	15352	11.25	
July 8, 2008	N/A	15351	11.19	New Pin

Date	Old Pin #er	New Pin #er	Distance (m)	Notes
August 20, 2008	13911	15356	17.55	
August 20, 2008	13909	15355	5.58	
August 20, 2008	13910	15354	8.04	Some minor rain erosion
August 20, 2008	13908	15353	17.40	
August 20, 2008	13912	15352	11.25	
August 20, 2008	N/A	15351	11.19	New Pin

Date	Old Pin #er	New Pin #er	Distance (m)	Notes
September 22, 2008	13911	15356	17.55	
September 22, 2008	13909	15355	5.58	
September 22, 2008	13910	15354	8.01	Some minor rain erosion
September 22, 2008	13908	15353	17.39	
September 22, 2008	13912	15352	11.25	
September 22, 2008	N/A	15351	11.18	New Pin

APPENDIX III

SLOPE MONITORING SURVEY PRISMS
YES – (YUKON ENGINEERING SERVICES INC.)

Slope Monitoring Survey Prisms
YES - (Yukon Engineering Services Inc.)

Datum: NAD27
Geoid Model: GSD95
Date: October 17-18,2007
File: July08.dat

Observation Points (Control) - Fixed Location

Point #	Northing	Easting	Elev.
274	6914173.162	584763.276	1195.519
275	6914246.141	583937.823	1208.705
276	6914995.038	584016.996	1255.410

Standard Deviations @ 95th Percentile

σ_N (mm)	σ_E (mm)	σ_Z (mm)
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0

Original Coordinates (Monitoring Points) August 2006

Point #	Northing	Easting	Elevation	σ_N (mm)	σ_E (mm)	σ_Z (mm)
13872	6915376.00	584838.73	1289.09	5.5	5.8	14.8
13873	6915330.14	584922.20	1298.26	5.3	5.5	14.6
13874	6915302.30	584972.86	1297.44	6.1	6.0	15.9
13875	6915262.94	585078.53	1303.92	7.1	6.7	18.7
13876	6915108.37	585074.49	1281.13	7.1	6.3	19.5
13877	6915066.79	585200.63	1300.46	7.6	6.3	19.9
13878	6915002.33	585128.77	1280.65	7.0	5.7	17.1
13879	6914854.63	585228.55	1275.00	7.3	5.3	18.5
13880	6914786.53	585240.53	1269.17	7.7	5.4	19.4

Coordinates (Monitoring Points) October 2006

Point #	Northing	Easting	Elevation	σ_N (mm)	σ_E (mm)	σ_Z (mm)
13872	6915376.01	584838.71	1289.08	6.3	6.9	33.3
13873	6915330.15	584922.18	1298.32	8.0	1.1	47.0
13874	6915302.31	584972.83	1297.46	7.0	7.0	34.5
13875	6915262.95	585078.50	1303.92	7.3	6.6	35.8
13876	6915108.37	585074.48	1281.08	7.0	5.9	33.1
13877	6915066.79	585200.61	1300.46	7.7	6.0	34.7
13878	6915002.36	585128.75	1280.73	7.2	5.6	32.2
13879	6914854.65	585228.53	1275.01	7.6	5.3	31.6
13880	6914786.55	585240.51	1269.13	7.6	5.1	30.6

Coordinates (Monitoring Points) June 2007

Point #	Northing	Easting	Elevation	σ_N (mm)	σ_E (mm)	σ_Z (mm)
13872	6915376.01	584838.71	1289.07	6.1	6.9	11.5
13873	6915330.14	584922.19	1298.28	6.3	6.7	11.8
13874	6915302.31	584972.84	1297.41	6.5	6.6	11.9
13875	6915262.94	585078.51	1303.92	6.9	6.6	12.4
13876	6915108.38	585074.48	1281.06	6.7	5.9	11.5
13877	6915066.79	585200.61	1300.48	7.3	5.9	12.0
13878	6915002.35	585128.76	1280.71	6.9	5.6	11.2
13879	6914854.64	585228.52	1275.01	7.3	5.2	11.0
13880	6914786.53	585240.51	1269.17	7.4	5.1	10.7

Coordinates (Monitoring Points) Ocotber 2007

Point #	Northing	Easting	Elevation	σ_N (mm)	σ_E (mm)	σ_Z (mm)
13872	6915376.00	584838.70	1289.06	6.1	6.9	11.5
13873	6915330.13	584922.18	1298.24	6.3	6.7	11.8
13874	6915302.29	584972.83	1297.41	6.5	6.6	11.9
13875	6915262.92	585078.49	1303.93	6.9	6.6	12.4
13877	6915066.78	585200.58	1300.50	7.3	5.9	12.0
13878	6915002.34	585128.74	1280.75	6.9	5.6	11.2
13879	6914854.63	585228.51	1275.01	7.3	5.2	11.0
13880	6914786.57	585240.49	1269.17	7.4	5.1	10.7

Coordinates (Monitoring Points) July 2008

Point #	Northing	Easting	Elevation	σ_N (mm)	σ_E (mm)	σ_Z (mm)
13872	6915376.02	584838.71	1289.12	6.2	6.9	22.3
13873	6915330.15	584922.20	1298.23	6.5	6.8	22.9
13874	6915302.31	584972.83	1297.43	6.7	6.7	23.2
13875	6915262.95	585078.50	1303.91	7.1	6.6	24.1
13876	6915108.39	585074.49	1281.12	6.8	5.9	22.2
13877	6915066.80	585200.62	1300.44	7.5	5.9	23.4
13878	6915002.36	585128.76	1280.72	7.0	5.6	21.7
13879	6914854.65	585228.54	1274.99	7.4	5.3	21.3
13880	6914786.55	585240.52	1269.15	7.5	5.1	20.6

New Coordinates (Monitoring Points) October 2008

Point #	Northing	Easting	Elevation	σ_N (mm)	σ_E (mm)	σ_Z (mm)
13872	6915376.00	584838.72	1289.09	8.7	9.8	31.6
13873	6915330.15	584922.19	1298.28	9.2	9.6	32.3
13874	6915302.30	584972.85	1297.44	9.4	9.4	32.8
13875	6915262.93	585078.49	1303.90	10.0	9.3	34.1
13876	6915108.37	585074.49	1281.07	9.7	8.4	31.4
13877	6915066.79	585200.61	1300.49	10.6	8.4	33.1
13878	6915002.36	585128.75	1280.70	9.9	8.0	30.7
13879	6914854.65	585228.54	1275.01	10.5	7.4	30.1
13880	6914786.55	585240.52	1269.18	10.6	7.2	29.2