BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY

DELOITTE & TOUCHE INC.

2002 ANNUAL GEOTECHNICAL EVALUATION AND INSTRUMENT REVIEW

VARIOUS FACILITIES AT FARO MINE, YUKON

FINAL

PROJECT NO.: 0257-013-04
DATE: FEBRUARY 2003

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February 24, 2003

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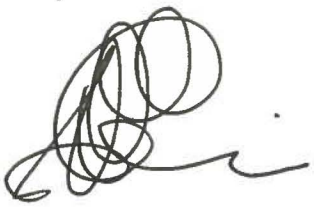
Re: 2002 Annual Geotechnical Evaluation and Instrument Review
Various Mine Waste Facilities at Faro Mine, Yukon

Dear Mr. Sedgwick:

Please find attached our final report on the Annual Geotechnical Evaluation of various mine waste facilities at Faro Mine. The final version incorporates comments made on the draft version forwarded on February 4, 2003. In addition to the one copy sent to you, copies have been forwarded to the distribution list on the report cover page.

If there are any questions regarding this report, or require any other services, please contact the undersigned at your convenience.

Yours truly,
BGC Engineering Inc.
per:



James W. Cassie, M.Sc., P.Eng.
Specialist Geotechnical Engineer

encl.: Final report
JWC/sf

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LIMITATIONS OF REPORT

This report was prepared by BGC Engineering Inc. (BGC) for the account of Deloitte & Touche Inc. The material in it reflects the judgement 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 Engineering Inc. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

As a mutual protection to our client, the public, and ourselves, all reports and drawings are submitted for the confidential information of our client for a specific project and authorization for use and/or publication of data, statements, conclusions or abstracts from or regarding our reports and drawings is reserved pending written approval by BGC.

1.0 INTRODUCTION

1.1 Scope of Services

BGC Engineering Inc. (BGC) provided a proposal (No. 02-040) for the annual geotechnical inspection and instrumentation review work at Faro Mine, dated May 13, 2002, to Mr. Doug Sedgwick of Deloitte & Touche Inc. (interim Receiver for Anvil Range Mining Corporation). The scope of work detailed in that proposal comprised the following:

a) Field geotechnical inspection, review of relevant instrumentation data and preparation of maintenance recommendations concerning the following structures:
   - Down Valley Tailings Facility components comprising:
     - Cross Valley Dam and emergency spillway
     - Intermediate Dam and emergency spillway
     - Rose Creek Diversion Channel dike top, top of backslope and toe of slope
     - North Valley Wall Interceptor Ditch
   - North-Fork Rose Creek flow-through rock drain;
   - Selected Faro Waste Dumps;
   - Faro Creek Diversion Channel above the Faro Pit; and
   - the Fresh Water Supply (FWS) Dam and spillway.

b) Synthesis and interpretation of field instrumentation data (collected by site staff).

e) Preparation of a compilation report that provides interpretation and recommendations resulting from the instrumentation data and field inspection and provides a compendium of all relevant instrumentation data and plots.

In addition to the annual inspection and performance assessment work, BGC was responsible for the preparation of a 3-hour training seminar for site staff. The objective of this seminar was to provide site staff with continued training related to geotechnical, hydrotechnical and dam safety issues so they could understand the importance of their site monitoring work.

Authorization to proceed with the work was provided in a letter dated May 24, 2002 by Mr. Doug Sedgwick.

In addition to the typical schedule of work noted above, a proposal and budget was prepared on May 29, 2002 for a June site visit. Verbal authorization to proceed with this additional task was provided on May 30, 2002.

1.2 General Background Relating to Inspection and Instrumentation

Golder Geotechnical Consultants (1980) provided the design recommendations for the Down Valley Tailings Disposal Project. Following the subsequent construction of the facilities, an extensive geotechnical monitoring program was initiated in December, 1981 that is continuing to-date. As a result, Golder Associates was responsible for the annual inspection and instrumentation review of the Down Valley Tailings project since that initial construction period. Beginning in 2000, BGC has conducted the annual inspection and instrumentation data assessment duties.

The report provided herein presents an assessment of the monitoring data collected in 2002. Monitoring data from piezometers, slope inclinometers, thermistors and seepage weirs, is collected by staff at site. The data is forwarded to BGC for review and inclusion in this report. In addition to reviewing the instrumentation data, a visual inspection of the various facilities was also undertaken by BGC. This report compiles and reviews the instrumentation and inspection components in order to assess the physical performance of the structures.

The Down Valley Tailings Project and FWS Dam - The Down Valley Tailings Project comprises three major components; the Rose Creek Diversion Canal, the Intermediate Dam and the Cross Valley Dam, as shown in Figures 1 and 2. This report also documents an evaluation of the FWS Dam, which is located on south fork of Rose Creek, upstream from the Down Valley Tailings Project. Instrumentation locations for the Down Valley Tailings Project and for the FWS Dam are shown on Figures 1, 2 and 3, respectively.

Faro Pit Waste Rock Dumps - Selected waste rock dumps have been inspected for face stability on several previous occasions for the previous operator, and, beginning in 1995, for Anvil Range Mining. Golder Associates (1991) undertook a stability evaluation of the Faro Mine waste rock dumps and concluded "these dumps are stable and can be expected to remain so". Inspection emphasis has been placed on those dumps for which failure might compromise environmental performance of the facility, particularly with reference to those for which failure might possibly block the natural channel of the North Fork Rose Creek.

North-Fork Rose Creek Flow-Through Causeway - The causeway was built of waste rock during 1987. The causeway was advanced by dumping waste from causeway grade to provide a zone of preferentially larger particles in the lower portion of the fill. This zone conveys creek flows through the structure; the driving head being provided by some ponding of water on the upstream side of the causeway. Golder Associates (1988) provided an early assessment of the performance of the rock drain. Inspections have concentrated on hydraulic performance of the causeway. Pond level and creek flow data accumulated by the operator were analyzed for the 1992 annual inspection report and an expression was developed the prediction of head pond level for high rates of flow. No pond level data has been obtained since 1992.

Faro Creek Diversion Canal and East Wall of Faro Pit – Mining began at the Faro Pit in 1969. Faro Creek was diverted around the top of the Faro Pit through the construction of a diversion channel. The stability of the east wall of the Faro pit has been a concern throughout the lifetime of the pit operation. A number of structural discontinuities within the east pit wall, coupled with seepage from the Faro Creek diversion channel along the top of this pit wall, contribute to the slope instability that has occurred along this pit wall. A visual inspection along the diversion channel was initiated in 2000 to assess the concern that instability of the East Pit Wall could lead to the potential loss of the diversion channel.

1.3 Additional Relevant Studies

In addition to instrumentation monitoring and visual inspections, Deloitte is undertaking a number of assessment studies relevant to structures and facilities at Faro mine and the Down Valley specifically. These additional studies are documented in the following reports:

1. Klohn (2002) provides dam safety reviews for the Intermediate, Cross Valley and Fresh Water Supply Dams at Faro Mine.
2. Golder (2002a) was retained to provide an assessment of alternatives for the relocation Faro Creek Diversion along the top of the Faro pit. As part of that assessment, Golder (2002b) undertook an assessment of the northeast wall of the Faro pit.
3. SRK (2002) has undertaken dam-break analyses and risk assessment regarding the likelihood and consequences of the failure of the FWS dam.
4. Klohn (2003) provides an assessment of the low level pipe running through the FWS Dam.

These reports should be reviewed in conjunction with the assessment provided herein. Each report provides conclusions and recommendations that are relevant to structures and facilities at Faro Mine and the Down Valley tailings project.

Following from this work (and other work done at site), Fisheries and Oceans Canada (DFO) forwarded a letter on November 15, 2002 requiring that Deloitte provide an engineering design for the complete breach of the FWS Dam. As such, Deloitte submitted a preliminary design on February 3, 2003 for this work, as summarized in SRK et. al. (2003). Following the receipt of required approvals, work on the reservoir lowering and dam breaching would begin Fall 2003. As such, some of the recommendations noted herein may not be required when the full breach of the FWS Dam occurs.

1.4 Clarifications on Last Year's Report

In response to some questions asked with respect to the 2001 annual inspection report by BGC, the following clarifications are provided:

Section 5.4 Instrumentation on Page 31
A clarification was requested relative to the two columns of information provided in the table on that page; i.e. why are only 49 out 122 instruments (or 44%) currently monitored? To clarify, site staff monitors instruments at the request of BGC. Hence, the 49 selected instruments are those deemed to be working (numerous instruments are now inaccessible or inoperable) and providing useful, non-redundant data.

Section 6.3 Routine Inspections on Pages 33 and 34
In Sections 6.3.1 and 6.3.2, it was recommended that routine inspections be made by "...responsible and routinely available personnel (that has been suitably trained)...". As noted in Section 4.6 of the 2001 report, it should be stated that four site staff members were trained in the basics of geotechnical and hydrotechnical concerns regarding dams and diversions. As such, BGC considers that these four personnel are suitably trained to undertake the work noted in Section 6.3.

Section 7.1 on Page 36
The commentary regarding "...unfortunate interruptions in data gathering have occurred while Faro Mine has been inoperative..." did not specifically apply to any conditions that occurred this year at site. The comment was derived from the loss of data during 1994 when the mine was transitioning into another receivership status.

As such, it is hoped that these comments serve to clarify the questions that were previously raised.

2.0 2002 MONITORING PROGRAM

2.1 Introduction

Historically, the monitoring program has been comprised of a specific schedule for reading the instrumentation, which depended on the type of instrument, its location and the performance trend indicated by the accumulated data. As good performance of the structures became better demonstrated over time, the frequency of readings was reduced for reasons of economy or irrelevance of additional data, or because the installations became non-functional. Conversely, there have been some instances where instrumentation and visual observation justified more frequent readings and installation of additional instrumentation. A recommended instrumentation monitoring schedule for 2002 was provided as Figure 22 in BGC (2002).

Instruments in the Diversion Canal Dike, Diversion Canal (Backslope, Diversion Canal and Spoil Piles) and Intermediate Dam were monitored in June and September 2002, as requested. Additional data was collected from the instrumentation in the Intermediate Dam in August.

Instruments in the Cross Valley Dam were monitored weekly in January and February and once in each of May, June, July, August and September. The increased monitoring frequency in January and February was done in response to the polishing pond lowering activities of winter 2001/ 2002. The monitoring data was used to aid in assessing the effects of the drawdown of the pond on the stability of the upstream face of the Cross Valley Dam.

Instruments in the FWS Dam were monitored one to three times weekly in 2002. Drawdown of the reservoir behind the FWS Dam commenced in October 2001 to lower the water pressure acting on the low level pipe. Drawdown activities were continued throughout the remainder of winter 2001/ 2002 in preparation for the possible construction of a new spillway. In order to assess the effects of the drawdown on the stability of the upstream face of the dam, the monitoring frequency of the instruments at the FWS Dam was increased. This monitoring frequency was continued in 2002.

Additional piezometric monitoring and visual inspections (by site staff) of the Cross Valley, Intermediate and FWS Dams was conducted in November 2002 after two significant seismic events in the region. The first seismic event occurred on November 3, 2002 when a magnitude 7.9 earthquake occurred approximately 120 km south of Fairbanks, Alaska. A second seismic event occurred on November 5, 2002 when a magnitude 4.6 earthquake occurred approximately 50 km south of Faro, Yukon. Both events were felt by the mine staff at Faro, and it was noted that numerous aftershocks associated with both events could be felt in Faro. After each of these seismic events, the piezometers in each of the dams were monitored and a visual inspection of each dam was conducted to inspect for visible damage. The results of post seismic event monitoring and visual inspections are discussed further in Section 3.0.

Site staff at the mine site performed all of the instrument monitoring activities. The data was forwarded to BGC staff that reduced and plotted the instrumentation data. Further details of the instrumentation-monitoring program are provided in Section 3.0.

As a complement to the instrumentation data obtained, various components of the Faro Mine were visually inspected by BGC during the period between June 11 and 12 and again, between September 28 and 29, 2002. The June inspection was requested due to the FWS Dam reservoir lowering operation that had occurred during the previous winter. Details of the visual inspection are discussed in Section 4.0.

2.2 Elevations within the Down Valley

Most elevations within the Down Valley project area have been documented with-respect-to the Down Valley Project Datum (dvpd). The dvpd is 32.3 m above mean sea level (msl). Crest and instrument collar elevations for the Diversion Canal (Canal Dike, Back Slope, and Spoil Piles), Cross Valley Dam and Intermediate Dam are presented in the dvpd. In 2002, a geodetic survey of the Fresh Water Supply Dam was conducted. Therefore, all elevations documented concerning the FWS Dam, including instrumentation, are reported with respect to msl. Since the majority of the elevations included within this report are with respect to dvpd, only elevations with respect to msl are specified as such.

When additional surveys of all the relevant Down Valley Structures are carried out, it is recommended that all instruments be referenced to the msl datum.

2.3 2002 Water Management

Water pumped from the Faro pit passes through the mill water treatment plant and then flows in a pipe located in the spillway of the Intermediate Dam. After discharge, the water flows down to the polishing pond behind the Cross Valley Dam. Decant siphons are used to convey any retained water from the Intermediate pond over the Intermediate Dam. Water from the polishing pond is then discharged to the environment over the Cross Valley Dam, generally by siphon pipes.

Figures 4, 5 and 6 provide a summary of the CV Pond, Intermediate Pond and Fresh Water Reservoir water levels throughout the year. Table 1 also contains the water level data from the Intermediate and CV Ponds in tabular format. The water level information is used to aid in the interpretation of the instrumentation response in the following sections. The Intermediate and CV Pond water levels are measured with respect to msl using a staff gauge in each pond. The data is converted to the reference dvpd, for comparison purposes, by adding 32.3 m. The graphs of water levels in Figures 4 and 5 are shown with respect to dvpd. The Fresh Water Reservoir is surveyed and reported with respect to msl.

The CV Pond fluctuated from a high of 1063.51 m on September 16 down to a low of less than 1062.81 m (the bottom reading on the staff gauge) at various times throughout the year when the water level fell below the monitoring staff gauge. The Intermediate pond level ranged from approximately 1080.24 m in November to less than 1079.62 m (the base of the staff gauge) prior to August 19 and between September 1 and September 27 when the water level fell below the monitoring staff gauge. It should also be noted that small soil berm at the entrance to the Intermediate Dam emergency spillway allows the retained water level to rise above the design inlet elevation of 1080.0 m. The Fresh Water Reservoir fluctuated between a high of 1096.1 m amsl in May and June to 1090.04 m amsl on March 1. The large fluctuation of the reservoir level is a reflection of the reservoir lowering activities in 2001 and 2002. As reviewed in Section 2.4, total precipitation in 2002 was the lowest annual precipitation recorded since 1998.

2.4 Precipitation Information

Yearly climatic conditions significantly affect the performance of water retaining and water conveying earth structures. Table 2 provides a summary, on a month-by-month basis, of the total precipitation at the Faro airport from 1978 to 2002. At the bottom of the table, the minimum, mean and maximum monthly precipitation values are also provided. The year 2002 was a below average year with respect to precipitation. The total annual precipitation was 245 mm, 56 mm below the mean annual value of 301 mm.

3.0 HISTORICAL RECORD AND 2002 MONITORING RESULTS

3.1 Diversion Canal – Canal Dike

3.1.1 Facility Overview

The Canal Dike separates the diversion canal from the Polishing Pond and the Intermediate Dam pond and tailings deposit. The Canal Dike is approximately 3800 m long and has a crest width of approximately 5 m.

The dike is instrumented with piezometers, thermistors and slope indicators. The instrumentation was installed with the purpose of monitoring subsurface conditions within the dike and ensures failure of the dike does not occur. Failure of the dike, depending on location and magnitude, could result in the water from the diversion canal being directed into the tailings containment facilities.

3.1.2 2002 Data Collection

Readings of the Canal Dike instruments for 2002 were obtained in June and September. Tabulated data and plotted records are presented in Appendix II and summarised in Tables 3, 4 and 5.

3.1.3 Instrumentation

Piezometers:

Readings from piezometers in 2002 were obtained twice during the monitoring period. Tabulated data is included in Appendix II and summarised in Table 3.

BH88-11

This nested pneumatic piezometer was installed in 1988. The instrument is approximately located at Station 2+160 on the Canal Dike, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at an elevation of 1078.90 m (shallow tip) and 1072.30 m (deep tip).

Data collected from this instrument historically has indicated that the piezometric surface fluctuates very little seasonally. The historical maximum piezometric surface measured at this location is 1086.74 and 1080.39 m, as measured in September 1999 and June 1992 at the shallow and deep tips, respectively. Historically, this instrument has indicated a downward hydraulic gradient at this location and in 2002, a downward gradient was again observed.

In 2002, 2 readings were collected from this instrument in June and September. The deep pneumatic piezometer was malfunctioning for both readings. Both readings acquired from the shallow piezometer were higher than the readings acquired during 2001, but were much lower than the pre-2001 average. Since 2000, a significant reduction in pore pressures has been measured at both the shallow and deep piezometers. This may be related to a slight warming of ground temperatures observed at the thermistor in this location. The lower pore pressures may be an indication that subsurface drainage is improving.

BH88-7

This nested pneumatic piezometer was installed in 1988. The instrument is approximately located at Station 2+120 on the Canal Dike, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at an elevation of 1078.60 m (shallow tip) and 1071.40 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates very little seasonally. The historical maximum piezometric surface measured at this location is 1094.63 and 1081.48 m, as measured in August 1998 and June 1992 at the shallow and deep tips, respectively. Historically, this instrument has indicated a downward hydraulic gradient between these two elevations at this location. The shallow piezometer has indicated artesian pore pressures since June 1992. The high pore pressures, in the shallow tip, may be related to the permafrost recorded in nearby thermistors (88-7 and 88-11), as the permafrost could be inhibiting drainage. Both the shallow and deep piezometers have indicated a downward trend in pore pressures since 1996.

In 2002, 2 readings were collected from this instrument in June and September. Readings collected from the shallow piezometer were similar to those collected in 2001. The readings collected from the deep piezometer were lower than those collected in 2001. The downward trend in pore pressures observed since 1996 was continued in 2002. The lower pore pressures may be an indication that subsurface drainage capabilities may be improving.

CD-26

This nested pneumatic piezometer was installed in 1981. The instrument is approximately located at Station 2+600 on the Canal Dike, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at elevations of 1080.50 m (shallow tip) and 1074.30 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates very little seasonally. The historical maximum piezometric surface measured at this location is 1082.11 and 1075.91 m, measured in July 1988, at the shallow and deep tips, respectively. Historically, this instrument has indicated a downward hydraulic gradient between these two elevations. A review of the historical data indicates that no overall trends are indicated by the data and pore pressures within the dike at this location are low.

In 2002, 2 readings were collected from this instrument, in June and September. Readings collected from the shallow piezometer were slightly higher than those collected in 2001. The readings collected from the deep piezometer were slightly lower than those collected in 2001. The low pore pressures indicate that the subsurface at this location is essentially free draining.

CD-21

This nested pneumatic piezometer was installed in 1981. The instrument is approximately located at Station 2+100 on the Canal Dike, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at an elevation of 1079.80 m (shallow tip) and 1074.30 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface has fluctuated very little seasonally over the last several years. The historical maximum piezometric surface measured at this location is 1084.56 and 1079.81 m, as measured in June 1992, at the shallow and deep tips, respectively. Historically, this instrument has indicated a downward hydraulic gradient between these two elevations and, based on the 2002 data, this trend continues. A review of the historical data indicates that the pore pressures measured by the shallow piezometer have been indicating a steady decline since 1997. Data collected from the deep piezometer indicate only minor fluctuation in pore pressures since 1998.

In 2002, 2 readings were collected from this instrument, in June and September. Readings collected from the shallow piezometer were lower than those collected in 2001, continuing the downward trend mentioned previously. The readings collected from the deep piezometer were similar to those collect in 2001. The downward trend in the pore pressures measured at the shallow piezometer may be an indication that the drainage capabilities at this depth may be improving. The low pore pressures recorded by the deep piezometer indicate appropriate drainage at depth.

CD-19

This nested pneumatic piezometer was installed in 1981. The instrument is approximately located at Station 1+900 on the Canal Dike, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at an elevation of 1081.00 m (shallow tip) and 1077.30 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates seasonally. The historical maximum piezometric surface measured at this location is 1091.43 and 1083.39 m, as measured in June 1992, at the shallow and deep tips, respectively. Historically, this instrument has indicated a downward hydraulic gradient between these two elevations at this location and, based on the 2002 data, this continues. A review of the historical data indicates that the pore pressures measured by the shallow piezometer have been indicating a trend of steady increase since 1995. Pore pressures measured by the deep piezometer, over the same time period, have been relatively steady.

In 2002, 2 readings were collected from this instrument in June and September. Readings collected from the shallow piezometer were higher than those collected in 2001. The readings collected from the deep piezometer were also slightly higher than those collected in 2001. The pore pressures recorded at the shallow tip continued the upward trend in 2002 that has been observed since 1995. The low pore pressures recorded by the deep piezometer indicates drainage at depth.

CD-15

This nested pneumatic piezometer was installed in 1981. The instrument is approximately located at Station 1+530 on the Canal Dike, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at an elevation of 1080.40 m (shallow tip) and 1075.60 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates very little seasonally. The historical maximum piezometric surface measured at this location is 1083.55 and 1083.27 m, as measured in October 1985 and September 19, 2000, at the shallow and deep tips, respectively. Historically, this instrument has indicated that, generally, an upward hydraulic gradient exists between these two elevations at this location. On occasion, a downward hydraulic gradient has been indicated by the data. The last reading taken, in September 2002, indicated an upward hydraulic gradient.

In 2002, 2 readings were collected from this instrument in June and September. Readings collected from both the shallow and deep piezometers were within the normal range of data collected previously from these instruments. High pore pressures measured in the fall months may be related to subzero temperatures at depth as observed in the thermistor installation at this location.

CD-13

This nested pneumatic piezometer was installed in 1981. The instrument is approximately located at Station 1+350 on the Canal Dike, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at an elevation of 1081.00 m (shallow tip) and 1077.00 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates very little seasonally. The historical maximum piezometric surface measured at this location is 1083.94 and 1083.37 m, as measured on June 14, 2000, at the shallow and deep tips, respectively. Historically, this instrument has indicated that a downward hydraulic gradient exists between these two elevations at this location.

In 2002, 2 readings were collected from this instrument in June and September. Readings collected from the shallow piezometer were lower than those collected in 2001. The readings collected from the deep piezometer were similar to those collect in 2001. The piezometric data collected in 2002 indicates an upward hydraulic gradient at this location, which is opposite of historical performance.

General Piezometric Observations:

Over the period of record, the water level in the tailings pond retained by the Intermediate Dam has been raised several times; its current Full Supply Level (F.S.L.) is 1080.25 m. The Diversion Canal crest elevation opposite the south abutment of the Intermediate Dam is approximately 1085.2 m and the invert of the 0.6 m deep pilot channel (of the diversion channel) is at approximately 1081.2 m. Fall flows typically just inundate the bench adjacent to the pilot channel, suggesting a diversion channel water surface elevation of about 1081.9 to 1082.0 m, i.e., an elevation approximately two metres above the level of the tailings pond at the Intermediate Dam. The gradient of the Diversion Canal is 0.19%. The tails beach limit, when the pond is at its full supply level, is about 1100 m upstream of the Intermediate Dam. In addition, higher spring and summer flows in the channel will produce a higher driving head for potential seepage.

Based on the above, the difference in elevation between the surface of the water in the Diversion Canal and the base level (water or tailings) upstream of the Intermediate Dam ranges from about 2 m at the Intermediate Dam to approximately 4 m at the beach limit. Upstream of the beach limit the difference in elevation is about 4 m. Under these conditions and a uniform head loss between the Diversion Canal and the tailings pond, piezometric levels recorded by piezometers installed in the Canal Dike should range from about 1081.5 m just upstream of the Intermediate Dam, to about 1083.5 m at the limit of the tailings beach. The geometry and piezometric assumptions mentioned above are conceptually illustrated on Figure 7.

The observed piezometric pressures generally reflect the anticipated conditions as explained above. An exception to that general relationship was noted in Piezometer 88-7, where higher than expected piezometric levels were measured in the shallow (approximately 8 m bgs) tip. Figure 8 provides a longitudinal section of the piezometric conditions observed within the canal dike observed during 2002.

Additional general observations about the 2002 piezometric monitoring data include the following:

- All the double piezometers, except for CD-15 and CD-13, indicate a downward hydraulic gradient. The high pore pressures measured at CD-15 in September may be a result of the subzero temperatures at depth as indicated by the thermistor at CD-15. Data collected from CD-13 indicates piezometric conditions are near hydrostatic.
- Some of the deep piezometers at locations CD-19, CD-21, and 88-11 continue to indicate piezometric pressures that are 3 to 7 m lower than the full supply level (fsl) elevation of the adjacent tailings pond, in spite of their locations being between 300 m and 600 m upstream of the Intermediate Dam.
- Downstream of the Intermediate Dam, Piezometer CD-26 at Station 2+600 indicates essentially free drainage at depth. The lower piezometer, although some 70 m southwest of the pond shoreline, indicates a water level approximately 11.5 m above the full supply elevation of the polishing pond (1063.5 m). This is thought to be due to the influence of the upstream reservoir and the water level in the diversion canal.

Thermistors:

Readings from thermistors in 2002 were obtained twice during the monitoring period, with the exception of BGC01-02 that was read an additional four times in April. Tabulated data is included in Appendix II and summarised in Table 4.

CD-10

This thermistor was installed in 1981. The location of the instrument is in the canal dike at approximately Station 0+990, as illustrated on Figure 1. The installation is composed of a thermistor string with 10 thermistor nodes. The thermistor nodes are located at 0.9, 1.9, 2.9, 3.9, 4.9, 5.9, 6.9, 7.9, 8.9 and 9.9 m below ground surface (bgs). All nodes, with the exception of the 4.9 m node, provide data. The 5.9 m node is considered to be malfunctioning.

The thermistor was monitored twice in 2002, the first readings since September 2000. The data collected from this thermistor indicates that no permafrost remains within the instrument profile. Temperatures recorded at depth in September 2002 are higher than those recorded in September 2000. A review of historical data collected from this instrument indicates temperatures at depth appear to be warming.

CD-15

This thermistor was installed in 1981. The location of the instrument is in the canal dike at approximately Station 1+530, as illustrated on Figure 1. The installation is composed of a thermistor string with 10 nodes. The nodes are located at 1.1, 2.1, 3.1, 4.1, 5.1, 6.1, 7.1, 8.1, 9.1, and 10.1 m below ground surface. All nodes are currently working, although the data collected from the 3.1 m node is considered erroneous.

The thermistor was monitored twice in 2002. The data collected from this thermistor indicates that permafrost conditions exist below 9.5 m. Temperatures recorded at the 5.1 m node and below have indicated a general cooling trend since 2000. The cooling trend below 5.1 m continued in 2002. Winter frost penetration was observed to a depth of approximately 5.1 m bgs.

CD-19

This thermistor was installed in 1981. The location of the instrument is in the canal dike at approximately Station 1+900, as illustrated on Figure 1. The installation is composed of a thermistor string with 10 nodes. The nodes are located at 0.0, 0.8, 1.8, 2.8, 3.8, 4.8, 5.8, 6.8, 7.8 and 8.8 m bgs. All nodes are currently monitored, although the nodes at 5.8, 7.8 and 8.8 m bgs appear to be malfunctioning.

The thermistor was monitored twice in 2002, the first readings since September 1999. The data collected from this thermistor indicates that permafrost conditions do not exist at this location. Although no long-term trends are readily apparent, temperatures recorded at the 2.8, 3.8, 4.8 and 6.8 m bgs nodes have warmed slightly in comparison with readings taken in 1999.

CD-21

This thermistor was installed in 1981. The location of the instrument is in the canal dike at approximately Station 2+100, as illustrated on Figure 1. The installation is composed of a thermistor string with 5 nodes. The nodes are located at 3.0, 5.0, 8.0, 11.0 and 13.0 m below ground surface. All nodes are currently monitored.

The thermistor was monitored twice in 2002. The data collected from this thermistor indicates that permafrost conditions do not exist at this location. The data collected in June 2002 indicates that winter frost penetration was to a depth of approximately 6 m. The data collected from the 11.0 and 13.0 m nodes indicates warming since 1997.

BH88-7

This thermistor was installed in 1988. The location of the instrument is in the canal dike at approximately Station 2+115, as illustrated on Figure 1. The installation is composed of a thermistor string with 9 thermistor nodes. The nodes are located at 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0, 13.0 and 14.9 m below ground surface. All nodes are currently monitored.

The thermistor was monitored twice in 2002. The data collected from this thermistor indicates that permafrost conditions exist at this location, below a depth of about 6 m. No indications of warming or cooling at depth are apparent upon review of available data.

BH88-11

This thermistor was installed in 1988. The location of the instrument is in the canal dike at approximately Station 2+160, as illustrated on Figure 1. The installation is composed of a thermistor string with 9 nodes. The thermistor nodes are located at 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0, 13.0 and 13.9 m below ground surface. All nodes are currently monitored.

The thermistor was monitored twice in 2002. The data collected from this thermistor indicate permafrost conditions do exist at this location, below a depth of about 6.0 m. Data collected from the 13.0 and 13.9 m nodes may indicate slight warming at depth.

BGC01-02

This thermistor was installed in 2001 to verify the permafrost conditions indicated by instruments 88-11 and 88-7. The location of the instrument is in the canal dike at approximately Station 2+160, as illustrated on Figure 1. The installation is composed of a thermistor string with 9 thermistor nodes. The thermistor nodes are located at 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0, 13.0 and 13.9 m below ground surface. Only the nodes located at 4.0, 6.0, 8.0, 10.0 and 13.0 m are currently monitored. The remaining nodes appear to be malfunctioning.

The thermistor was monitored six times in 2002. The data collected from this thermistor indicates that permafrost conditions exist at this location, below a depth of about 10 m.

CD-26

This thermistor was installed in 1981. The location of the instrument is in the canal dike at approximately Station 2+600, as illustrated on Figure 1. The installation is composed of a thermistor string with 10 thermistor nodes. The thermistor nodes are located at 0.6, 1.6, 2.6, 3.6, 4.6, 5.6, 6.6, 7.6, 8.6 and 9.6 m below ground surface. All nodes are currently monitored, although the 5.6 m node appears to be malfunctioning.

The thermistor was monitored twice in 2002, the first readings since 1999. The data collected from this thermistor indicates that permafrost conditions do not exist at this location. In comparison with data collected in 1999, the 2002 data appears to indicate that cooling has occurred at this location.

General Geothermal Observations:

A general warming trend in the foundations along the canal dike has occurred since thermistors have been installed (although the ground temperatures appeared to have stabilized over the past few years). Trend interruptions that have been recorded likely reflect variations such as the timing of the readings or annual climatic effects. The warming has consumed virtually all of the permafrost that was initially present, prior to construction.

The installation at site CD-21, an area where surficial indications of settlement had been observed in recent years, indicates a fully thawed profile occurred in 2002. The thermistor string at site CD-15 indicates some cold ground remains at depth. The locations with a slower warming trend are inferred by BGC to be representative of areas with greater amounts of excess ice in the soil. Relatively more total settlement would be expected at those locations as the excess ice melts. This has been verified by the observation of settlement in the area of the canal dike near installation CD-21.

Additional general observations about the 2002 geothermal monitoring data include:

- At thermistor location CD-15 (Station 1+530) subzero temperatures were recorded at a depth of 10 m, indicating a cooling of soil temperature;
- The thermistors at locations 88-7 at Station 2+115 and 88-11 at Station 2+160 indicate that minimal warming of ground temperatures has occurred below 6 m since initiation of monitoring in 1988. Instrument 88-11 indicates warming is occurring below a depth of 10 m.
- A thermistor string was installed in borehole BGC01-02 to verify the geothermal conditions indicated by installation at 88-11. The data collected in 2002 indicates permafrost exists below approximately 10 m bgs. Unfortunately, a number of the thermistor nodes at this instrument appear to be malfunctioning, limiting the ability to verify the geothermal conditions indicated by installations 88-7 and 88-11.

Slope Indicators:

Readings in 2002 were only obtained from the slope inclinometers installed between Stations 0+990 and 2+325 along the Canal Dike. Data was collected from the inclinometers in May and September. Plots of cumulative and incremental deflection are presented in Appendix II and summarised in Table 5. Data has been collected from all instruments since installation. Only data since 1996 is illustrated on the plots in Appendix II because of quality and compatibility of the previously collected data.

CD-10

This slope indicator was installed on the Diversion Canal Dike in 1981 at Station 0+990, as illustrated on Figure 1. The bottom reading depth is 10 m bgs. In 2002, data was obtained from this instrument in June and September. An analysis of the readings indicates that negligible movement was observed in 2002.

CD-15

This slope indicator was installed on the Diversion Canal Dike in 1981 at Station 1+530, as illustrated on Figure 1. The bottom reading depth is 9.5 m bgs. In 2002, data was obtained from this instrument in June and September. An analysis of the readings indicates that minor movement was observed in the top 1.5 m in 2002.

CD-19

This slope indicator was installed on the Diversion Canal Dike in 1981 at Station 1+900, as illustrated on Figure 1. The bottom reading depth is 10 m bgs. In 2002, data was obtained from this instrument in June and September. An analysis of the readings indicates that negligible movement was observed in 2002.

CD-21

This slope indicator was installed on the Diversion Canal Dike in 1981 at Station 2+100, as illustrated on Figure 1. The bottom reading depth is 10 m bgs. In 2002, data was obtained from this instrument in June and September. An analysis of the readings indicates that negligible movement was observed in 2002. Minor movement was observed in this instrument in 2001 between 6 and 9 m bgs.

91-CD-1

This slope indicator was installed on the Diversion Canal Dike in 1991 at Station 1+767, as illustrated on Figure 1. The bottom reading depth is 11 m bgs. In 2002, data was obtained from this instrument in June and September. An analysis of the readings indicates that negligible movement was observed in 2002.

94-CD-1

This slope indicator was installed on the Diversion Canal Dike in 1994 at approximately Station 2+325, as illustrated on Figure 1. The bottom reading depth is 13.5 m bgs. In 2002, data was obtained from this instrument in June and September. An analysis of the readings indicates that movement was observed in the top 1.0 m in 2002.

BGC01-01

This slope indicator was installed on the Diversion Canal Dike in 2001 at approximately Station 2+160, as illustrated on Figure 1. This instrument was installed as a replacement to the slope indicator 88-10. Instrument 88-10 had been rendered inoperative in 2000 due to casing deformation between 5.0 and 5.5 m bgs caused by ongoing downslope movement.

The original bottom reading depth of BGC01-01 was 14 m bgs. In 2002, passage of the probe was limited to 11.8 m bgs. It is unknown what the cause of the blockage is, but the probe returns to surface with a silty residue on the bottom after readings are attempted. It is possible that subsurface ground movements have damaged the instrument, but no surficial indications of significant subsurface movement has been observed at this location in 2002. Additional readings and visual inspections will be required to determine the current functional capabilities of this instrument. Given that this instrument was a replacement for 88-10, which measured movement at approximately 6 m depth, BGC01-01 should be useable for that purpose.

General Ground Movement Observations:

The following inclinometers have shown negligible movements since 1996:

- CD-10 at Station 0+990;
- CD-15 at Station 1+530;
- CD-19 at Station 1+900; and,
- BH94CD-1 at Station 2+313.

Additional general observations about the 2002 slope indicator monitoring data include:

- The Canal Dike has settled in the vicinity of Station 2+100, based on the distinctive shape of the deflection versus depth curves for data recently obtained from CD- 21.
- During the 2002 visual inspection of the Diversion Canal Dike, longitudinal cracks were observed at edge of the dike crest in the vicinity of CD-21.
- An inclinometer, designated 88-10/BGC01-01, was installed in 2001 to replace 88-10 and to monitor future displacements along the movement zone at approximately 6 m. In 2002, the probe was no longer able to pass 11.8 m in the new casing. Future readings and site inspections may help to determine the cause of this blockage. Readings were continued in 88-10/BGC01-01 above the blockage point. The data from this casing indicates that there is only some slow, downslope movement in the upper 10 m.

From study of the above data, it is concluded that, in general, the canal dike slope indicators continue to show minor movements, mostly related to thaw settlement of the dike.

3.1.4 Canal Dike Summary

In general, the Diversion Canal Dike is relatively well drained, with the exception of the areas around installations 88-7, 88-11 and at depth around installation CD-13. The majority of the permafrost that was originally in the Diversion Canal Dike has degraded beyond the depth of instrumentation, with the exception of the areas around installations 88-7, 88-11 and BGC01-01. Ground movements were recorded at depth at installation 88-10 before it became inoperable in 2000/2001. Instrument BGC01-01, installed in 2001 as a replacement for 88-10, shows minor surficial movement. Surficial features indicating possible subsurface ground movement have been observed around Station 2+100. Given the above summary of monitoring results, it is recommended that the monitoring all functioning instrumentation within the Diversion Canal Dike continue in 2003.

3.2 Diversion Canal - Spoil Piles

3.2.1 Facility Overview

The Diversion Canal Spoil Piles (DCSP) were created during the construction of the Diversion Canal. The construction waste (spoil) was placed downslope of the Diversion Canal Dike. The DCSP were instrumented because of concern that they could have potentially failed during thawing of the loosely placed, frozen materials. Failure of the DCSP would result in the spoil being deposited into the tailings disposal area. In subsequent years, increased support at the toe of the DCSP was provided by tailings deposited at the base of the Spoil Piles. The toe support has reduced the likelihood of significant slope failure. That support is considered effective along the toe of the DCSP, except for the area extending a short distance upstream from the Intermediate Dam. In that area, one thermistor string (SP-3) and one slope indicator (SP-2) are currently monitored. In addition to the instrument installations noted above, the Spoil Pile overlooking the south abutment of the Cross Valley Dam is also monitored (SP-5) for subsurface movement and thermal fluctuation.

3.2.2 2002 Data Collection

Readings of the DCSP instruments for 2002 were obtained in June and September. Tabulated data and plotted records are presented in Appendix II and summarised in Tables 6 and 7.

3.2.3 Instrumentation

Thermal Regime:

Three thermistor strings are present in the DCSP. Initially all of these installations recorded permafrost. Since installation in 1981, much of the permafrost has degraded.

SP-3 and SP-5 were the only thermistors monitored in 2002. Readings were obtained in June and September of 2002. Tabulated data for the thermistors at SP-3 and SP-5 are included in Appendix II and are summarised in Table 6.

SP-3

This thermistor was installed in 1981. The location of the instrument is in the crest of the DCSP at approximately Station 1+900, as illustrated on Figure 1. The installation is composed of a thermistor string with 10 thermistor nodes. The thermistor nodes are located at 1.1, 2.1, 3.1, 4.1, 5.1, 6.1, 7.1, 8.1, 9.1 and 10.1 m bgs. All nodes, with the exception of the 4.1, 8.1 and 10.1 m nodes, are currently monitored.

The thermistor was monitored twice in 2002. The data collected from this thermistor indicates that no permafrost conditions exist at this location. Insufficient data is available to determine depth of frost penetration in 2002.

SP-5

This thermistor was installed in 1981. The location of the instrument is in the crest of the DCSP at approximately Station 2+950, as illustrated on Figure 1. The installation is composed of a thermistor string with 10 thermistor nodes. The thermistor nodes are located at 1.1, 2.1, 3.1, 4.1, 5.1, 6.1, 7.1, 8.1, 9.1 and 10.1 m below ground surface. All nodes, with the exception of the 4.1, 7.1 and 8.1 m nodes, are currently monitored.

The thermistor was monitored twice in 2002. The data collected from this thermistor indicates that permafrost conditions exist at this location below a depth of about 8 m. Data collected in June 2002 indicates that during winter months, the entire instrument profile experiences sub-zero temperatures. Since 2000, the temperatures within the dike have indicated a warming trend.

Slope Indicators:

The plots of the slope inclinometer data are included in Appendix II and summarised in Table 7. In 2002, data was collected from two instruments SP-2 and SP-5. A third instrument, SP-3, was monitored in 2001, but was not monitored in 2002.

SP-2

This slope indicator was installed in 1981 at approximately Station 1+530, on the spoil pile downslope of the Diversion Canal Dike. The original bottom reading depth is 10.0 m bgs.

In previous years, movement was observed at instrument SP-2 at a depth of approximately 7.5 m. In 2000 and 2001, it was noted that the casing was blocked at a depth of 7.5 m. Attempts were made to monitor the instrument in 2002, but again the probe would not go past a depth of 7.5 m. It is concluded from this information that it is likely that the inclinometer casing has been deformed at a depth of 7.5 m as a result of the ongoing subsurface movements.

SP-5

This slope indicator was installed in 1981 at approximately Station 2+950, on the spoil pile downslope of the Diversion Canal Dike. The bottom reading depth is 10.0 m bgs. In 2002, data was obtained from this instrument in June and September. An analysis of the readings indicates that negligible movement was observed in 2002.

3.2.4 Spoil Pile Summary

The geothermal instrumentation indicates some cold ground temperatures remain at depth near the south abutment of the Cross Valley Dam. Data collected from instrument SP-3, upstream of the Intermediate Dam, indicates all permafrost has degraded from the Spoil Pile at this location.

Negligible ground movement has been observed at SP-5 but monitoring should be continued due to the permafrost that still remains at this location at depth.

Ground movement at SP-2 has rendered this instrument inoperative. It is recommended that this instrument not be monitored in 2003.

Since no permafrost remains at SP-3, it is not regarded as necessary to monitor the slope indicator or the thermistor at SP-3 in the future.

3.3 Diversion Canal - Backslope

3.3.1 Facility Overview

The Diversion Canal Backslope (DCBS) was constructed in 1981, when the Diversion Canal was excavated. The DCBS is excavated into native ground, composed mainly of silt, sand and gravel. Prior to construction, the DCBS contained significant amounts of permafrost. A layer of gravel was applied to the face of the DCBS during construction to act as a thermal protection berm. The DCBS was instrumented with slope indicators, piezometers, and thermistors to monitor ground conditions as the permafrost degraded due to the newly constructed geometry and the presence of water in the Diversion Canal.

3.3.2 2002 Data Collection

Readings of the Diversion Canal Back Slope instruments for 2002 were obtained in June and September. Tabulated data and plotted records are presented in Appendix II and summarised in Tables 8 and 9.

3.3.3 Instrumentation

Piezometers:

A review of the 1995 data indicated that, except for location BS-5, a downward trend in backslope pore pressures had developed and the slope was determined to be essentially drained. Figure 9 illustrates the piezometric conditions as monitored in 1995. The low pore pressures within the slope are thought to benefit general stability and as a result, regular monitoring of most of the piezometers in the backslope was discontinued in 1995. In 2002, only Piezometer BS-5 was monitored. The plots of the piezometric data are included in Appendix II and summarised in Table 8.

BS-5

In 2002, the piezometer at BS-5 was monitored in June and September. This pneumatic piezometer was installed in 1981. The instrument is approximately located at Station 0+960 on the crest of the Diversion Canal Back Slope, as illustrated on Figure 1. The installation is composed of one pneumatic piezometer lead at an elevation of 1085.30 m.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates very little seasonally. The historical maximum piezometric surface measured at this location is 1089.99 m, as measured in May 1994.

In 2002, 2 readings were collected from this instrument in June and September. Readings collected from the piezometer were similar to those collect in 2001. Pore pressures, as indicated by BS-5, appear to have stabilised and don't appear to be increasing or decreasing over time.

Thermal Regime:

Ten thermistor strings are present in the Diversion Canal Back Slope (DCBS). Six of those installations previously recorded permafrost and four recorded thawed profiles. The conclusion reached from a previous review of the thermistor data was that a substantial thickness of natural soils behind the gravel-mantled backslope (thermal liner) are now thawed (to at least 6 m based on the data from Thermistors BS-5 and BS-10) along the DCBS. As such, the possibility of excess pore pressures and possible instabilities related to insufficient drainage during thaw of ice-rich permafrost is diminished.

BS-5 and BS-10 were the only thermistors monitored in 2002. Readings were obtained in September of 2002. Tabulated data for BS-10 and BS-5 are located in Appendix II and summarised in Table 9.

BS-5

This thermistor was installed in 1981. The location of the instrument is in the crest of the DCBS at approximately Station 0+960, as illustrated on Figure 1. The installation is composed of a thermistor string with 10 nodes. The nodes are located at 0.5, 1.5, 2.5, 3.5, 4.5, 5.5, 6.5, 7.5, 8.5 and 9.5 m below ground surface. All nodes, with the exception of the 0.5 m node, are currently returning data.

The thermistor was monitored once in 2002, the first reading since 1995. The data collected from this thermistor indicates that permafrost conditions exist at this location below a depth of approximately 5.5 m.

BS-10

This thermistor was installed in 1981. The location of the instrument is in the crest of the DCBS at approximately Station 1+900, as illustrated on Figure 1. The installation is composed of a thermistor string with 10 thermistor nodes. The nodes are located at 0.5, 1.5, 2.5, 3.5, 4.5, 5.5, 6.5, 7.5, 8.5 and 9.5 m below ground surface. All nodes are currently functioning.

The thermistor was monitored once in 2002. The data collected from this thermistor indicates that permafrost conditions exist at this location below a depth of approximately 6 m. Upon review of the historical geothermal data from this instrument, the depth to permafrost conditions continues to increase over time.

Slope Indicators:

The DCBS has a limited history of ground movements. Previously, a slide occurred at. More recently, small slides occurred in 2000/ 2001. All slides have been surficial and have subsequently been remediated. The slides can probably be contributed to high pore pressures as a result of extreme precipitation amounts, as occurred in August and September 2000.

Five slope indicators (BS-2, BS-5, BS-9, BS-10, BS11, BS-16, BS-17, BS-18) were installed in the DCBS to monitor ground movement. Only two instruments, BS-9 and BS-10, were monitored in 2001. Because of the surficial nature of the previous slides, the degradation of the permafrost within the backslope and the fact that most of the instruments are damaged and can no longer be monitored, none of the slope indicators were monitored in 2002.

3.3.4 Canal Dike Backslope Summary

In general, the CDBS is relatively well drained, lacks near surface permafrost and has a history of only failing surficially in response to extreme precipitation events. Consequently, it is no longer considered imperative to monitor the instruments in the CDBS with the same frequency as in previous years. A monitoring frequency of every two years for all functioning CDBS instrumentation is recommended for the future. It is recommended that visual inspections of the CDBS by a qualified geotechnical engineer continue on an annual basis.

3.4 Down Valley Project - Cross Valley Dam

3.4.1 Facility Overview

The Cross Valley (CV) Dam was constructed with a crest elevation of 1065.8 m, a top of core elevation at 1064.8 m and a main spillway entrance elevation of 1063.5 m. The CV Dam site was instrumented before construction. Additional instrumentation was installed after construction was complete and in 1988, a number of thermistors were installed in the crest of the dam. Data for the monitored instruments at the CV Dam are discussed below.

Piezometers installed in the vicinity of the CV Dam embankment consist of pneumatic and standpipe piezometers. Two foundation sections are instrumented from as much as 20 m upstream of centreline to 7 m downstream of centreline. As well, 5 locations on centreline are instrumented; tips range in position from about 11 m below crest to about 13 m below the bottom of the cut-off trench. Finally, it is noted that the embankment core is attached to an upstream blanket of core-type glacial till material, which extends 30 m upstream of centreline. This blanket is connected with a secondary blanket of 'second-rate' glacial till material, which is 60 m wide. The function of these blankets is to reduce the hydraulic gradient in the mixed alluvial strata present beneath the dam.

Seepage emerging at the toe of the CV Dam is collected by a granular toe drain, which was constructed in 1991. Seepage rate is normally measured by observing flow rates in three tributary V-notch weirs and a combined flow weir. Each of the tributaries collects seepage from a discrete portion of the toe drain. The seepage rate is also influenced by some water derived from the spillway/decant area recharge downstream of the core section of the dam.

Ground temperatures in the CV Dam are monitored by the three thermistors installed at the crest of the dam.

3.4.2 2002 Data Collection

Plots of the data collected in 2002 are presented in Appendix II and summarised in Tables 10 through 13. Seepage weirs at the toe of the CV Dam were monitored weekly during 2002. The thermistors in the CV Dam were monitored four times between May and September in 2002.

3.4.3 Instrumentation

Piezometers:

Readings were taken from the Cross Valley Dam piezometers on a weekly basis in January and February 2002 and monthly between May and November 2002. The increased monitoring frequency in January and February was required to monitor the piezometric levels within the dam as the polishing pond was lowered. Plots of the piezometric data are included in Appendix II and summarised in Table 10.

CVDT-1 – Standpipe Piezometer

This standpipe piezometer was installed in 1994. The instrument is located at the downstream toe of the CV Dam, as illustrated on Figure 1. The installation is composed of a 1 inch diameter PVC standpipe installed within the borehole. The base of the slotted section of the PVC pipe is installed 9.8 m bgs.

Data collected from this instrument has historically not indicated a significant variation in piezometric surface. The historical maximum piezometric surface measured at this location is 1050.63 m, measured on June 3, 1999.

In 2002, 14 readings were collected from this instrument. The maximum piezometric elevation (1049.76 m) was measured on September 9. The minimum piezometric elevation (1049.69 m) was measured on May 1. The water level in the standpipe is normally 0.3 m bgs. The near surface water level generally causes the instrument to regularly freeze during winter months, thus data collected during this time period is limited.

CVDT-2 – Standpipe Piezometer

This standpipe piezometer was installed in 1994. The instrument is located at the downstream toe of the CV Dam, as illustrated on Figure 1. The installation is composed of a 1 inch diameter PVC standpipe. The base of the slotted section of the PVC pipe is installed 13.3 m bgs.

Data collected from this instrument has historically not indicated a significant variation in piezometric surface. The historical maximum piezometric surface measured at this location is 1048.79 m, measured on October 6, 1999.

In 2002, 14 readings were collected from this instrument. The maximum piezometric elevation (1048.66 m) was measured on September 9. The minimum piezometric elevation (1048.34 m) was measured on February 20. This instrument regularly freezes during winter months, thus data collected during this time period is limited. The water level in the standpipe is normally 3.0 m bgs. The near surface water level generally causes the instrument to regularly freeze during winter months, thus data collected during this time period is limited.

94CVDC-1 – Standpipe Piezometer

This standpipe piezometer was installed in 1994. The instrument is located at the crest of the CV Dam, as illustrated on Figure 1. The installation is composed of a 1 inch diameter PVC standpipe installed within the borehole. The base of the slotted section of the PVC pipe is installed approximately 12.8 m bgs.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates as the elevation of the Polishing Pond fluctuates. The historical maximum piezometric surface measured at this location is 1056.88 m, measured in September 1995.

In 2002, 15 readings were collected from this instrument. The maximum piezometric elevation (1055.84 m) was measured on September 9. The minimum piezometric elevation (1055.61 m) was measured on August 7. The data from this instrument indicates that the piezometric surface within the core of the dam at this location is approximately 10 m below the crest of the dam.

CVDP-3 – Pneumatic Piezometer

This pneumatic piezometer was installed in 1982. The instrument is located on the downstream face of the CV Dam, 7 m downstream of the centreline of the dam, as illustrated on Figure 1. The installation is composed of one pneumatic piezometer lead at an elevation of approximately 1047.0 m. Assuming the original ground elevation was about 1050 m, the piezometer tip is located within the foundation soils of the dam.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates as the elevation of the CV Pond fluctuates. The historical maximum piezometric surface measured at this location is 1050.37 m, measured in May 1991.

In 2002, 6 readings were collected from this instrument. The maximum piezometric elevation (1049.39 m) was measured on September 9. The minimum piezometric elevation (1049.25 m) was measured on May 1. The pore pressures recorded at this instrument indicate low pore pressures within the foundations soils downstream of the core of the dam.

The instrument became inoperable in November 2001 because of a crack in the tubing at surface, but was repaired to a functioning state by mine staff in May 2002.

CVDP-6 – Pneumatic Piezometer

This pneumatic piezometer was installed in 1982. The instrument is located on the downstream face of the CV Dam, 5 m downstream of the centreline of the dam, as illustrated on Figure 1. The installation is composed of one pneumatic piezometer lead at an elevation of 1046.7 m. Assuming the original ground elevation was about 1050 m, the piezometer is located within the shallow foundation of the dam.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates as the elevation of the Polishing Pond fluctuates. The historical maximum piezometric surface measured at this location is 1051.29 m, measured in September 1992.

In 2002, 14 readings were collected from this instrument. The maximum piezometric elevation (1050.31 m) was measured on May 1 and November 4. The minimum piezometric elevation (1049.89 m) was measured on January 9 and 16. The pore pressures recorded at this instrument indicate low pore pressures within the shallow foundation of the dam.

CVDC-9 – Standpipe Piezometer

This standpipe piezometer was installed in 1982. The instrument is located at the crest of the CV Dam, as illustrated on Figure 1. The installation is composed of two, 1 inch diameter PVC standpipes installed within the borehole. The base of the slotted section of the deep standpipe is installed 32.6 m bgs. The base of the slotted section of the shallow standpipe is installed 25.6 m bgs.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates as the elevation of the Polishing Pond fluctuates. The historical maximum piezometric surface measured at this location is 1057.04 m (shallow) and 1057.91 m (deep), measured in August 1982 and June 1992, respectively. A slight upward gradient between these two tips has been indicated by the data since the initiation of monitoring. This installation is located approximately within an area formerly occupied by Rose Creek. Historically, the pore pressures measured by this instrument are higher than other instruments located within the dam and foundation. This is likely attributed to its location around the old creek channel.

In 2002, 15 readings were collected from this instrument. The maximum piezometric elevation indicated by the shallow standpipe (1054.17 m) was measured on September 9. The maximum piezometric elevation indicated by the deep standpipe (1056.61 m) was measured on September 9. The minimum piezometric elevation indicated by the shallow standpipe (1053.22 m) was measured on January 2. The minimum piezometric elevation indicated by the deep standpipe (1055.36 m) was measured on January 2. The pore pressures recorded at this instrument indicate moderately high pore pressures within the foundation of the dam (likely due to the old creek channel effect noted earlier).

CVDC-7 – Standpipe Piezometer

This standpipe piezometer was installed in 1982. The instrument is located at the crest of the CV Dam, as illustrated on Figure 1. The installation is composed of two, 1 inch diameter PVC standpipes. The base of the slotted section of the deep standpipe is installed approximately 30.5 m bgs. The base of the slotted section of the shallow standpipe is installed 25.6 m bgs.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates as the elevation of the Polishing Pond fluctuates. The historical maximum piezometric surface measured at this location is 1048.60 m (shallow) and 1051.51 m (deep), measured in September 1992 and June 1992 respectively. A slight upward gradient between these two piezometers has been indicated by the data since the initiation of monitoring.

In 2002, 15 readings were collected from this instrument. The maximum piezometric elevation indicated by the shallow standpipe (1048.18 m) and the deep standpipe (1050.79 m) was measured on September 9. The minimum piezometric elevation indicated by the shallow standpipe (1047.91 m) was measured on January 30. The minimum piezometric elevation indicated by the deep standpipe (1050.30 m) was measured on January 9. The readings recorded at this instrument indicate low pore pressures within the foundation of the dam.

CVDC-4 – Standpipe Piezometer

This standpipe piezometer was installed in 1982. The instrument is located at the crest of the CV Dam, as illustrated on Figure 1. The installation is composed of two, 1 inch diameter PVC standpipes installed within the borehole. The base of the slotted section of the deep standpipe is installed approximately 33.5 m bgs. The base of the slotted section of the shallow standpipe is installed 25.3 m bgs.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates as the elevation of the Polishing Pond fluctuates. No data has been collected from the shallow standpipe since October 1987 because of a blockage in the standpipe at a depth of 7.6 m below the top of the pipe. The historical maximum piezometric surface measured at this location is 1050.64 m (shallow standpipe) and 1051.25 m (deep standpipe), measured in October 1986 and June 1992, respectively. A slight downward hydraulic gradient exists between these two elevations as indicated by the data collected prior to October 1987.

In 2002, 15 readings were collected from this instrument. The maximum piezometric elevation indicated by the deep standpipe (1050.96 m) was measured on September 9. The minimum piezometric elevation indicated by the deep standpipe (1050.74 m) was measured on January 16. The pore pressures recorded at this instrument indicate normal pore pressures within the foundation of the dam.

P01-02

This standpipe piezometer was installed in 2001 by Gartner Lee Ltd. The instrument is located at the toe of the CV Dam near the south abutment, as illustrated on Figure 1. The installation is composed of two, 2 inch diameter PVC standpipes. The instrument contains a slotted section of standpipe between 7.78 and 9.30 m bgs (A) and 26.21 and 27.70 m bgs (B).

Static water levels have been recorded at this monitoring well 4 times since installation, 3 times in 2002. The data indicates an upward hydraulic gradient exits between these two depths at this location. The shallow well has indicated a piezometric surface within 1 m of surface. The reading from the deep well indicates artesian conditions.

P01-11

This standpipe piezometer was installed in 2001. The instrument is located at the toe of the CV Dam near the north abutment, as illustrated on Figure 1. The installation is composed of a 2 inch diameter PVC standpipe installed within the borehole. The instrument contains a slotted section of standpipe between 9.15 and 10.67 m bgs.

Static water levels have been recorded at this monitoring well 3 times since installation, including 2 times in 2002. The data indicates the piezometric surface varies between 10 cm above and below ground surface.

Seepage:

The 2002 data and the historic summary of weir flows are presented in Tables 11 and12. All weir flows are summarised on Figure 10. Figure 11 presents rate data for Weir X-13 together with the year-by-year trend in mean annual seepage rate. The Weir X13 quantity should equal the combined flow volumes of X11, X12 and W3. The difference between the calculated combined flow rates and the flow rate is presented in Table 13. A possible contributing factor to that discrepancy is seepage from the pervious spillway foundation materials during periods of CV Dam spillway discharge and contributing surface run-off.

The average 2002 flow rate at Weir X13 is 46.4 L/s, which is slightly less than the 48 L/s. recorded in 2001. The 2002 flow rates continue the overall trend of decreasing flow rates displayed on Figure 11. This phenomenon may be reflective of changes within the granular toe drain (e.g. clogging) but no rise in piezometric levels observed at the toe of the CV Dam has been detected to date.

Thermistors:

In 2002, data from thermistor strings CVDC-6, CVDC-11 and 88-4-4 was collected in May, June, July and September. The data is presented graphically and in tabular formats in Appendix II and summarized in Table 13.

CVDC-6

Thermistor string CVDC-6 was installed from the dam crest to provide temperature data from the lower section of the embankment and the local permafrost beneath it. The location of the instrument is illustrated on Figure 1. Historical data collected from the thermistor indicated that no permafrost remained within 29 m of surface by December 1981, probably due to seepage-related heating. The 2002 readings are consistent with previous readings, which indicate a cooling trend at depth. Marginally sub-zero degree temperatures were recorded at 29 m depth throughout 2002.

CVDC-11

Installation CVDC-11 was installed from the crest of the dam. The location of the instrument is illustrated on Figure 1. The upper 3 m of the thermistor string is in embankment material and the lower 12 m is in abutment foundation material. Initially, all of the natural material was permafrost but the entire monitored soil profile had thawed by about 1986. The 2002 readings are consistent with previous readings of this installation. The data suggests winter frost penetration extends to an approximate depth of 5.7 m. The data also indicates that temperatures at depth remain above freezing. The thermistor tip at 9 m depth is malfunctioning.

88-4

The zone immediately below the crest was instrumented in 1988 for research reasons related to longitudinal cracking of the crest. BH-88-4 is located at approximately the one-third point of the 500 m crest length, south of the spillway, as illustrated on Figure 1. Data collected from BH-88-4 in the spring between 1998 and 2002 indicates that winter frost penetration extends to a depth of approximately 4.5 m.

3.4.4 Cross Valley Dam Summary

The piezometric pressures recorded from the instrumentation in the CV Dam indicate that pore pressures within the CV Dam remain at a low level. Instrument 94CVDC-1 indicates the piezometric surface within the core of the dam is approximately 10 m below the surface of the dam. Low pore pressures within the foundation and cut-off trench of the dam are indicated by readings taken at instruments CVDC-4, CVDC-7, CVDP-3 and CVDP-6. Slightly higher pore pressures are observed at instrument CVDC-9. Higher pore pressures recorded at CVDC-9 are likely related to the fact that the instrument is located in the approximate area of the former Rose Creek channel.

Geothermal instrumentation within the CV Dam indicates that no permafrost is encountered within the foundation of the dam and winter frost penetration is observed to be between 4 and 6 m below the crest.

Additional piezometric monitoring and visual inspection of the CV Dam was conducted in November by mine site staff in response to the seismic events previously noted in Section 2.1. No visual indications of damage as a result of the seismic event were observed. Post seismic event pore pressures remained similar to those recorded prior to the seismic events.

Overall, the dam is exhibiting acceptable piezometric and geothermal performance. Continued monitoring of the seepage weirs and functioning instruments in the CV Dam is recommended for 2003.

3.5 Down Valley Project - Intermediate Dam

3.5.1 Facility Overview

The Intermediate Dam currently has a crest elevation of 1081.7 m; initial construction in 1980 was to only 1068.8 metres. The dam was raised as follows in response to tailings storage requirements using the downstream method:

- To elevation 1073.0 m in the summer of 1988 (spillway crest at 1071.5 m);
- To elevation 1078.0 m in the summer of 1989 (spillway crest at 1076.5 m); and
- To elevation 1081.7 m in the summer of 1991 (spillway crest at 1080.0 m).

Tailings were always discharged from the upstream end of the basin during mine operation, hence a water pond was present immediately upstream of the dam. The water level downstream of the dam is typically at Elevation 1063.5 m, as controlled by the spillway crest of the Cross Valley Dam, or lower, if siphoning/pumping over the Cross Valley Dam spillway is practised. The elevation of the Intermediate Dam foundation is approximately 1050.0 m in the original bed of Rose Creek near the south side of the valley. Therefore, the maximum height of the Intermediate Dam is approximately 31.7 metres.

The original construction phase and first raising (1988) had the emergency spillway at the south abutment; it was moved to the opposite end of the dam during 1989 construction, and rebuilt in 1991 when the dam was raised to its present elevation. As a consequence of this general construction activity, all of the pre-construction and post-construction geotechnical performance instruments have been destroyed, some replacements have been made and new instruments have been installed where required.

Original instrumentation included piezometers (standpipe and pneumatic types) and one string of thermistors. The piezometers monitored pore pressure conditions in the embankment, and in the foundation. The thermistor string was installed in the permafrost of the south abutment.

Currently monitored instrumentation consists of five pneumatic piezometers and one standpipe piezometer. Two sets of instruments are located in the south abutment, and the remainder are positioned at depth downstream of the core.

As part of their mine closure study, Robertson GeoConsultants Inc. installed 8 monitoring wells into 2 sites in the crest and 2 sites in the downstream berm of the Intermediate Dam. Static water level has been measured in these wells sporadically since their installation in 1996.

In 2001, Gartner Lee Ltd. installed three monitoring wells at the toe of the Intermediate Dam. Static water level was measured in installations P01-3A, P01-4A and P01-4B after installation in September 2001 and two to three times in 2002.

3.5.2 2002 Data Collection

Plotted data for the piezometers and monitoring wells installed at the Intermediate Dam (ID) are presented in Appendix II and summarised in Table 14. Readings for 2002 were obtained in June, September and November. The measured Intermediate Pond elevation ranged from a high of 1080.24 m in November to less than 1079.62 m in September.

3.5.3 Instrumentation

Piezometers:

The piezometers within the Intermediate Dam were monitored four times in 2002. The data is included in Appendix II and the results are summarised in Table 14.

BH91-ID3 – Pneumatic Piezometer

This nested pneumatic piezometer was installed in 1991. The instrument is located at the south abutment of the ID, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at an elevation of 1078.45 m (shallow tip) and 1070.25 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates seasonally. The historical maximum piezometric surface measured at this location is 1080.86 and 1079.67 m, as measured at the shallow and deep tips respectively in June 1992. Historically, this instrument has indicated a downward hydraulic gradient between these two elevations.

In 2002, 4 readings were collected from this instrument. The shallow piezometer was observed to indicate dry conditions. The deep piezometer indicates a maximum and minimum piezometric elevation of 1076.62 and 1074.80 m, as measured on June 18 and November 10, respectively. The deep piezometer continues to indicate an overall trend of declining pore pressures with time. It is inferred that the piezometer data reflects abutment conditions dominated by drainage from upslope, not the level of the tailings pond upstream of the dam. That inference is supported by the sudden increase in piezometric level of 2 m recorded by both tips in June 1992, which would be coincident with the spring freshet in the adjacent diversion channel. Therefore, the

decline in piezometric pressure recorded by BH91-ID-3 may be related to better drainage associated with ongoing loss of permafrost in the abutment downstream of the dam. It should be noted that no seepage was observed this year at the toe of the south abutment, where historically, seepage generally occurs.

BH91-ID4 – Pneumatic Piezometer

This nested pneumatic piezometer was installed in 1991. The instrument is located at the toe of the ID, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer tips at an elevation of approximately 1056.52 m (shallow tip) and 1049.38 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates seasonally. The historical maximum piezometric surface measured at this location is 1066.88 and 1064.15 m, as measured at the shallow and deep tips respectively in June and September 1992. Historically, this instrument has indicated a downward hydraulic gradient between these two elevations.

In 2002, 4 readings were collected from this instrument. The maximum piezometric elevation, 1063.31 and 1062.54 m, was measured on June 18 at the shallow and deep piezometer tips, respectively. The minimum piezometric elevation 1062.82 and 1061.70 m was measured on November 4 at the shallow and deep piezometer tips, respectively. The readings continue to indicate a downward hydraulic gradient between these two piezometers at this location.

BH91-ID5 – Pneumatic Piezometer

This nested pneumatic piezometer was installed in 1991. The instrument is located at the toe of the ID, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer tips at an elevation of approximately 1056.60 m (shallow tip) and 1049.38 m (deep tip).

This instrument has not worked since May 1999. It is recommended that monitoring of this instrument be discontinued in the future.

BH91-ID6 – Pneumatic Piezometer

This nested pneumatic piezometer was installed in 1991. The instrument is located at the toe of the ID, as illustrated on Figure 1. The installation is composed of two pneumatic piezometer leads at an elevation of approximately 1057.10 m (shallow tip) and 1049.20 m (deep tip).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates seasonally. The historical maximum piezometric surface measured at this location is 1064.04 and 1067.26 m, as measured at the shallow and deep tips respectively in June 1992. Historically this instrument has indicated an upward hydraulic gradient between these two elevations at this location.

In 2002, 4 readings were collected from this instrument. The maximum piezometric elevation, 1061.86 and 1062.92 m, was measured on June 18 at the shallow and deep piezometer tips, respectively. The minimum piezometric elevation 1061.51 and 1062.50 m was measured on November 4 at the shallow and deep piezometer tips, respectively. The readings continue to indicate an upward hydraulic gradient between these two piezometers at this location.

BH91-ID7 – Pneumatic Piezometer

This pneumatic piezometer was installed in 1991. The instrument is located at the toe of the ID, as illustrated on Figure 1. The installation is composed of one pneumatic piezometer tip at an elevation of approximately 1058.25 m.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates seasonally. The historical maximum piezometric surface measured is 1067.50 m, as measured in February 1992.

In 2002, 4 readings were collected from this instrument. The maximum piezometric elevation, 1064.06 m, was measured on June 18. The minimum piezometric elevation 1063.43 m was measured on November 10. Pore pressures recorded by this instrument have been observed to be declining since 1999.

BH94-IDC-1 – Standpipe Piezometer

This standpipe piezometer was installed in 1994. The instrument is located at the crest of the ID, as illustrated on Figure 1. The installation is composed of a 1 inch diameter PVC standpipe installed within the borehole. The base of the slotted section of the deep standpipe is installed an unknown depth (at least 14 m bgs).

The instrument has recorded only dry piezometric conditions since it installation in 1994.

96-1 – Standpipe Piezometer

This standpipe piezometer was installed in 1996 by Robertson GeoConsultants Inc. The instrument is located in the crest of the ID, as illustrated on Figure 1. The installation is composed of a PVC standpipe installed within the borehole. The instrument contains a slotted section of standpipe between 18.77 and 21.80 m bgs.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates. The historical maximum piezometric surface measured at this location is 1063.95 m, as measured in June 1999.

In 2002, 4 readings were collected from this instrument. The maximum piezometric elevation, 1062.33 m, was measured on September 10. The minimum piezometric elevation of 1061.87 m was measured on August 5. In general, the 2002 data indicates the piezometric surface remains within the normal range, approximately 19 to 20 m bgs.

96-2 – Standpipe Piezometer

This standpipe piezometer was installed in 1996 by Robertson GeoConsultants Inc. The instrument is located in the crest of the ID, as illustrated on Figure 1. The installation is composed of a PVC standpipe installed within the borehole. The instrument contains a slotted section of standpipe between 17.13 and 20.12 m bgs.

Data collected from this instrument has historically indicated that the piezometric surface fluctuates seasonally. The historical maximum piezometric surface measured at this location is 1064.24 m, as measured in June 1999.

In 2002, 5 readings were collected from this instrument. The maximum piezometric elevation, 1062.98 m, was measured on June 18. The minimum piezometric elevation 1062.20 m was measured on August 5. In general, the 2002 data indicates the piezometric surface remains within the normal range, approximately 18 to 20 m bgs.

96-3 – Standpipe Piezometer

This standpipe piezometer was installed in 1996. The instrument is located at the toe of the ID near the north abutment, as illustrated on Figure 1. The installation is composed of two, PVC standpipes installed within the borehole. The instrument contains a slotted section of standpipe between 7.44 and 8.97 m bgs (A – shallow) and 17.70 and 19.17 m bgs (B – deep).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates seasonally. The historical maximum piezometric surface measured at this location is 1063.68 and 1063.75 m, as measured at the shallow and deep standpipes, respectively, in June 1999. A slight upward gradient has been indicated by the data collected from this instrument in previous years.

In 2002, 2 readings were collected from the shallow standpipe and one from the deep standpipe. The maximum piezometric elevation, 1062.57 m, was measured at the shallow standpipe on June 18. The minimum piezometric elevation 1061.82 m was measured at the shallow standpipe on September 10. The data continues to indicate a slight upward gradient at this location. In general, the 2002 data indicates the piezometric surface remains within the normal range, approximately 1.75 to 2.0 m bgs.

96-4 – Standpipe Piezometer

This standpipe piezometer was installed in 1996. The instrument is located at the toe of the ID near the south abutment, as illustrated on Figure 1. The installation is composed of four PVC standpipes. The instrument contains a slotted section of standpipe between 5.70 and 6.48 m bgs (A), 9.80 and 11.30 m bgs (B), 14.97 and 16.47 m bgs (C) and 26.84 and 28.34 m bgs (D).

Data collected from this instrument has historically indicated that the piezometric surface fluctuates seasonally. The historical maximum piezometric surface is 1064.58 m, as measured in standpipe B on June 18, 2002. The historical data collected from this instrument has indicated a near hydrostatic gradient.

In 2002, 2 readings were collected from standpipes A and B and one from each of standpipes C and D. The maximum piezometric elevation, 1064.58 m, was measured at standpipe B on June 18. The minimum piezometric elevation 1062.05 m was measured at standpipe C on September 10. In 2002, a new historical maximum was recorded at this instrument. This is not considered to be a concern since subsequent readings have returned to fit within the normally observed range, approximately 2.5 m bgs. The data continues to indicate a near hydrostatic gradient exists at this location.

P01-03

This standpipe piezometer was installed in 2001. The instrument is located at the toe of the ID near the north abutment, as illustrated on Figure 1. The installation is composed of a 2 inch diameter PVC standpipe installed within the borehole. The instrument contains a slotted section of standpipe between 7.78 and 9.30 m.

The historical maximum piezometric surface measured at this location is 1062.93 m, as measured in September 2001.

The static water level has been measured three times since installation, twice in 2002. The readings collected in 2002 indicate slightly lower pore pressures than those observed in 2001. In general, the piezometric surface varies between 1.5 and 2 m bgs.

P01-04

This standpipe piezometer was installed in 2001. The instrument is located at the toe of the ID near the south abutment, as illustrated on Figure 1. The installation is composed of two, 1 inch diameter PVC standpipes installed within the borehole. The instrument contains a slotted section of standpipe between 31.7 and 33.22 m bgs (A) and 51.0 and 52.5 m bgs (B).

The historical maximum piezometric surface measured at this location is 1063.42 and 1063.80 m, as measured at the shallow and deep standpipes respectively, in September 2001.

The static water level has been measured three times since installation, including two readings in 2002. The readings collected in 2002 indicate slightly lower pore pressures than those observed in 2001. In general, the piezometric surface varies between 0.5 and 1.0 m bgs.

The piezometric information from this installation is regarded to indicate pore pressures within the foundation of the dam and not the pore pressures within the dam itself..

Thermistors:
Thermistor readings in the south abutment area were last taken in 1991. In the prior years, readings had indicated that the ground was thawed to the full depth of the instrumentation and hence, the absence of additional data is not viewed as critical by BGC.

3.5.4 Intermediate Dam Summary

Overall, the Intermediate Dam appears to be performing in an acceptable manner. The piezometers and monitoring wells along the toe of the ID, indicate a piezometric surface ranging between 0.5 and 2.5 m bgs. The piezometers and monitoring wells installed at the crest of the dam indicate a piezometric surface approximately 18 m bgs. The piezometer in the south abutment of the dam indicates drained conditions in the upper 7 m. The deep tip (15.2 m bgs) in the south abutment indicates pore pressures at depth are continuing a declining trend. It is recommended that monitoring of all functional piezometers and monitoring wells in the Intermediate Dam continue in 2003.

Additional piezometric monitoring and visual inspection of the ID was conducted in November by mine site staff in response to the seismic events previously noted in Section 2.1. No visual indications of damage as a result of the seismic event were observed. Post seismic event pore pressures remained similar to those recorded prior to the seismic events.

3.6 FWS Dam

3.6.1 Facility Overview

The Fresh Water Supply (FWS) Dam was constructed in 1968 on the south fork of Rose Creek. The FWS Dam is a zoned earth fill dam that was used to store fresh water for mine-processing operations during the operational life of the mine. The FWS Dam is approximately 410 m long, 20.5 m high at its highest point and 6 to 7 m wide at the crest. The slope of the downstream face of the dam is approximately 2H:1V and the slope of the upstream face of the dam is approximately 2.6H:1V. A 30 m wide, 3.2 m deep concrete spillway is located at the north abutment of the dam. The crest of the FWS Dam is at a nominal elevation of 1099.3 m (asl) based on the geodetic survey conducted in 2002.

3.6.2 2002 Data Collection

Instrument readings were conducted 1 to 3 times per week in 2002. Readings were taken more frequently than in past years in order to monitor subsurface conditions in the dam as the reservoir level fluctuated. In winter 2001/ 2002, the water level was lowered by mine operators in anticipation of a reservoir lowering project. In 2002, the reservoir level ranged from approximately 1093 m (asl) in January to a low of approximately 1090 m (asl) on March 1. The reservoir level remained around 1090 m (asl) between March 1 and May 10, but increased to full capacity (1096 m asl) between May 10 and May 27 in response to increased inflows experienced during spring freshet. Reservoir lowering began again in July and the reservoir level was lowered to approximately 1092.4 m (asl) by December 30. The fluctuating reservoir level is illustrated on Figure 6.

The embankment and its downstream toe area contain a number of piezometers installed for the purpose of monitoring pore pressures.

One crest thermistor (BH85-5) with sensors to 8.1 m depth has been used to observe core zone temperature since 1989. The interest in temperature was derived from the need to research cracking that was occurring along the crest of the dam, as was also observed for the Cross Valley Dam crest. Readings were taken from this instrument weekly in 2002 to monitor the effect of the reservoir fluctuation on the geothermal regime of the dam.

Two seepage weirs are located at the toe of the toe berm. One weir is also located in the canal downstream of the valve house. Measurements of water levels were made using staff gauges at each of the weirs. Readings were taken in conjunction with the piezometric monitoring conducted in 2002, up to three times a week.

Data is presented in Appendix II and summarised in Tables 15 through 18. A geodetic survey was completed of the FWS Dam and surrounding area in 2002. All elevations associated with the FWS Dam and instrumentation are quoted in metres above sea level (m asl).

3.6.3 Instrumentation

Piezometers:

Plotted data is presented in Appendix II and summarised in Table 15. The piezometric response of the FWS Dam to the reservoir lowering activities is summarised in Table 16 and illustrated on Figure 12.

88-16 – Pneumatic Piezometer

This nested pneumatic piezometer was installed in 1988 by Golder Associates. The location of the instrument is in the toe berm of the FWS Dam, as illustrated on Figure 3. The installation includes two pneumatic piezometer tips, installed at 4.5 and 9.2 m below ground surface. After the 1989 addition to berm was completed, the pneumatic piezometer tips were located 10.1 and 14.8 m below ground surface. As a result of the berm construction, the read out location was moved to its current location near the confluence of the toe berm and the downstream face of dam. The borehole log indicates both the shallow and deep piezometer tips are located within the native ground, a granular till.

Historical maximum piezometric pressures were recorded in June 1992. Piezometric elevations of 1085.56 and 1089.36 m (asl) were recorded during this time at the shallow and deep piezometer tips, respectively. Historically, the piezometric data has indicated an upward hydraulic gradient between the two piezometer tips.

The maximum piezometric elevations recorded in 2002 were 1083.67 m (asl) (June 21) and 1087.19 m (asl) (June 17) at the shallow and deep piezometer tips, respectively. The minimum piezometric elevations recorded in 2002 were 1082.90 and 1084.32 m (asl) (April 22) at the shallow and deep piezometer tips, respectively. The deep piezometer tip was observed to reflect a change in the reservoir level much quicker and with much greater magnitude than the shallow piezometer tip.

88-15 – Pneumatic Piezometer

This nested pneumatic piezometer was installed in 1988 by Golder Associates. The location of the instrument is in the crest of the FWS Dam, as illustrated on Figure 3. The installation includes three pneumatic piezometer tips, installed at 4.5, 11.9 and 19.5 m below ground surface. The borehole log indicates both the shallow piezometer tip and the intermediate piezometer tip are located within the earth fill of the FWS DAM, mostly composed of silt. The deep piezometer tip is located within the native ground, a granular till.

Historical maximum piezometric pressures were recorded in June 1992. Piezometric elevations of 1098.44, 1090.64 and 1094.105 m (asl) were recorded during this time at the shallow, intermediate and deep piezometer tips, respectively. Historically, the piezometric data has indicated a downward hydraulic gradient between the shallow and intermediate tips. The piezometer elevation recorded at the shallow piezometer tip appears to approximately reflect the elevation of the reservoir at the time of the recording. The deep piezometer is thought to be indicative of the piezometric regime of the dam foundation, separate of the piezometric regime within the dam.

The maximum piezometric elevations recorded in 2002 were 1095.18, 1087.35 (September 25) and 1091.41 m (asl) (June 17) at the shallow, intermediate and deep piezometer tips, respectively. The minimum piezometric elevations recorded in 2002 were 1094.2 (February 18), 1087.01 and 1087.42 m (asl) (April 26) at the shallow, intermediate and deep piezometer tips, respectively. The minimum recordings observed at the shallow and intermediate tips likely indicate unsaturated conditions. These readings were observed at a time when the reservoir level had dropped below the elevation of the shallow piezometer tip and near the elevation of the intermediate piezometer tip. The deep piezometer tip was observed to reflect a change in the reservoir level much quicker and with much greater magnitude than the shallow and intermediate piezometer tips.

85-1 – Standpipe Piezometer

This standpipe piezometer was installed in 1985 by Dome. The location of the instrument is in the toe berm of the FWS Dam, as illustrated on Figure 3. The installation is composed of a 1 inch diameter standpipe installed within the borehole with a slotted section installed between 4.8 and 6.6 m below ground surface. The borehole log indicates the borehole was drilled from the original ground surface (1078.5 m asl) and encountered granular till to bedrock at a depth of 6.6 m. With the 1989 addition to the toe berm, additional soil was placed around the surface portion of the installation and the stick up was corrected accordingly. Once the 1989 addition to the toe berm was completed, the slotted section of standpipe was located between 5.4 and 7.2 m bgs.

Historically, the piezometric data has indicated that the pore pressure fluctuates very little at this location. Artesian conditions have been observed at this instrument as recently as 1997. During the time period when artesian conditions were observed at this instrument (1985 - 1997) the piezometric elevation was at least 1081.12 m (asl) (1985 – 1991) and as high as 1081.42 m (asl) (1991 – 1997). The different piezometric elevations reflect the different stick-up values during these years. The instrument has been prone to freezing during winter months limiting data collected during this time period.

The piezometric elevation fluctuated minimally in 2002. The maximum piezometric elevation recorded in 2002 was 1079.20 m (asl) (May 20). The minimum piezometric elevation recorded in 2002 was 1078.87 m (asl) (June 14). Data collected from this instrument is limited due to the fact that it is frozen for much of the year. Data was collected for the entire year, but the instrument was only thawed between May 20 and October 28, 2002. In general, the piezometric surface appears to be regularly about 0.1 to 0.2 m bgs.

85-2 – Standpipe Piezometer

This standpipe piezometer was installed in 1985 by Dome. The location of the instrument is in the toe berm of the FWS Dam, as illustrated on Figure 3. The installation is composed of a 1 inch diameter standpipe installed within a 1.5 inch diameter galvanized grout pipe. The grout pipe was left in the hole due to complications with sloughing and artesian pressures encountered while drilling. A slotted section of the PVC pipe is installed between 3.80 and 3.95 m below ground surface. The borehole log indicates the borehole was drilled through the original rockfill berm and into the granular till. With the 1989 addition to the toe berm, additional soil was placed around the surface portion of the installation and the stick up was corrected accordingly. Once the 1989 addition to the toe berm was completed, the slotted section of standpipe was located between 8.2 and 8.35 m bgs.

Historically, the piezometric data has indicated that the pore pressure fluctuates in response to reservoir fluctuation. Historical maximum piezometric pressures were recorded in September 1992. A piezometric elevation of 1085.36 m (asl) was recorded during this time. The instrument has been prone to freezing during winter months limiting data collected during this time period.

The piezometric elevation fluctuated in response to the reservoir lowering activities in 2002. The maximum piezometric elevation recorded in 2002 was 1085.12 m asl (May 29). The minimum piezometric elevation recorded in 2002 was 1084.01 m asl (January 11). Data collected from this instrument is limited due to the fact that it is frozen for much of the year. Data was collected for the entire year, but the instrument was only thawed between May 27 and December 9, 2002. In general, the piezometric surface appears to be approximately 1.5 m bgs.

85-3 – Standpipe Piezometer

This standpipe piezometer was installed in 1985 by Dome. The location of the instrument is in the toe berm of the FWS Dam, as illustrated on Figure 3. The installation is composed of a 1 inch diameter PVC standpipe installed within the borehole. A slotted section of the PVC pipe is installed between 2.3 and 3.6 m below ground surface. The borehole log indicates the borehole was drilled through the original rockfill berm and into the granular till. With the 1989 addition to the toe berm, the additional soil was placed around the surface portion of the installation and the stick-up was corrected accordingly. Once the 1989 addition to the toe berm was completed, the slotted section of standpipe was located between 2.75 and 4.05 m below ground surface.

Historically, the piezometric data has indicated that the pore pressure does fluctuate in response to reservoir fluctuation. Historical maximum piezometric pressures were recorded in July 1990. A piezometric elevation of 1086.13 m (asl) was recorded during this time. The instrument has been prone to freezing during winter months limiting data collected during this time period.

The piezometric elevation fluctuated in response to the reservoir lowering activities in 2002. The maximum piezometric elevation recorded in 2002 was 1085.95 m asl (May 29). The minimum piezometric elevation recorded in 2002 was 1085.44 m asl (February 4). Data collected from this instrument is limited due to the fact that it is frozen for much of the year. Data was collected for the entire year, but the instrument was only thawed between May 20 and December 23, 2002. In general, the piezometric surface appears to be approximately 2.0 m bgs.

85-4 – Standpipe Piezometer

This standpipe piezometer was installed in 1985 by Dome. The location of the instrument is in the crest of the FWS Dam, as illustrated on Figure 3. The installation is composed of a 1 inch diameter PVC standpipe installed within the borehole. A slotted section of the PVC pipe is installed between 6.7 and 9.7 m below ground surface. The borehole log indicates the borehole was drilled through the shell material and into the core and random fill zones of the dam.

Historically, the piezometric data has indicated that the pore pressure does fluctuate in response to reservoir fluctuation. However, the piezometric response to fluctuation in the reservoir level appears to be slower at this location than other areas of the dam. This is likely due to the lower permeability of the core as compared to the shell, berm and foundation materials and the response time required for standpipe piezometers. Historical maximum piezometric pressures were recorded in December 1996. A piezometric elevation of 1092.99 m (asl) was recorded during this time.

The piezometric elevation fluctuated in response to the reservoir lowering activities in 2002. The maximum piezometric elevation recorded in 2002 was 1092.10 m asl (September 18). The minimum piezometric elevation recorded in 2002 was 1090.73 m asl (May 20). In general, the piezometric surface appears to be regularly about 6 to 7 m bgs.

85-5 – Standpipe Piezometer

This standpipe piezometer was installed in 1985 by Dome. The location of the instrument is in the crest of the FWS Dam, as illustrated on Figure 3. The installation is composed of a 1 inch diameter PVC standpipe installed within the borehole. A slotted section of the PVC pipe is installed between 8.4 and 11.4 m below ground surface. The borehole log indicates the borehole was drilled through the shell material and into the core and random fill zones of the dam, composed mostly of silt.

Historically, the piezometric data has indicated that the pore pressure does fluctuate in response to reservoir fluctuation. However, the piezometric response to fluctuation in the reservoir level appears to be slower at this location than other areas of the dam. This is likely due to the lower permeability of the core as compared to the shell, berm and foundation materials. Historical maximum piezometric pressures were recorded in October 2000, a time period when higher than normal precipitation fell in the Faro area. A piezometric elevation of 1090.36 m (asl) was recorded during this time. A piezometric elevation of 1093.28 m (asl) was recorded in June 1991. This value is regarded with some scepticism because it is almost 3 m higher than any other reading taken since initiation of monitoring in 1985.

The piezometric elevation indicated by 85-5 fluctuated in response to the reservoir lowering activities in 2002. The maximum piezometric elevation recorded in 2002 was 1089.37 m (asl) (November 6). The minimum piezometric elevation recorded in 2002 was 1087.92 m (asl) (May 20). The response of this piezometer to the filling of the reservoir in the spring of 2002 was observed to be delayed. This is thought to be related to increased frost penetration due to the lower reservoir level during the winter of 2001/ 2002. In general, the piezometric surface appears to be about 8 to 9 m bgs.

85-6 – Standpipe Piezometer

This standpipe piezometer was installed in 1985 by Dome. The location of the instrument is in the toe berm of the FWS Dam, as illustrated on Figure 3. The installation is composed of a 1 inch diameter PVC standpipe installed within the borehole. A slotted section of the PVC pipe is installed between 3.6 and 5.5 m below ground surface. The borehole log indicates the borehole was drilled through the original rockfill berm and into the granular till. With the 1989 addition to the toe berm, additional soil was placed around the surface portion of the installation and the stick up was corrected accordingly. Once the 1989 addition to the toe berm was completed, the slotted section of standpipe was located between 7.0 and 8.9 m below ground surface.

Historically, the piezometric data has indicated that the pore pressure does fluctuate in response to reservoir fluctuation. Historical maximum piezometric pressures were recorded in September 1992. A piezometric elevation of 1085.35 m (asl) was recorded during this time.

The piezometric elevation indicated by 85-6 fluctuated in response to the reservoir lowering activities in 2002. The maximum piezometric elevation recorded in 2002 was 1085.19 m (asl) (September 4). The minimum piezometric elevation recorded in 2002 was 1083.47 m (asl) (April 22).

BGC02-05 – Pneumatic Piezometer

This pneumatic piezometer was installed in 2002 by BGC Engineering. The location of the instrument is in the crest of the FWS Dam, as illustrated on Figure 3. The installation includes one pneumatic piezometer tip, installed at 14.3 m below ground surface. The borehole log indicates the piezometer tip is located within the core zone of the FWS Dam, mostly composed of silt.

The maximum piezometric elevation recorded in 2002 was 1088.75 m (asl) (September 18). A piezometric elevation of 1088.96 m (asl) was recorded soon after installation in January 2002. This data was taken before the instrument had time to equilibrate and is not considered to be representative of piezometric conditions at the time. The minimum piezometric elevation recorded in 2002 was 1087.35 m (asl) (May 20).

BGC02-14 – Pneumatic Piezometer

This nested pneumatic piezometer was installed in 2002 by BGC Engineering. The location of the instrument is in the crest of the FWS Dam, as illustrated on Figure 3. The installation includes two pneumatic piezometer tips, installed at 11.3 and 14.8 m below ground surface. The borehole log indicates both the piezometer tips are located within the random fill/core zone of the FWS Dam, mostly composed of silt.

The maximum piezometric elevations recorded in 2002 at the shallow and deep piezometer tips were 1090.38 m (asl) (October 2) and 1087.30 m (asl) (September 18), respectively. Piezometric elevations of 1091.01 and 1087.30 m (asl) was recorded soon after installation in February, 2002. This data was collected before the instrument had time to equilibrate and is not considered to be representative of piezometric conditions at the time. The minimum piezometric elevation recorded in 2002 at the shallow and deep piezometer tips were 1088.91 and 1086.04 m asl (May 20), respectively. The piezometric data collected from this instrument indicates a downward hydraulic gradient is present between the two piezometer tips.

Piezometric Response to Reservoir Lowering:

The reservoir lowering activities in 2002 were reflected in the fluctuation of the pore pressures observed within the FWS Dam. The response of each piezometer is summarized in Table 16 and illustrated on Figure 12. In general, the piezometers measuring pore pressures within the foundation, 85-2, 85-3, 85-6, 88-15 (deep) and 88-16, responded relatively quickly to fluctuations in the reservoir level. The piezometers measuring pore pressures within the core and random fill portions of the dam, 85-4, 85-5, BGC02-05 and BGC02-14, responded to fluctuations in reservoir level, but with a delayed reaction. The differences in the maximum and minimum piezometric elevations shown in Table 16 are thought to approximately represent the total pore pressure response of the dam to a reservoir level decrease of approximately 6 m.

Seepage Monitoring:

Water levels at the staff gauges are presented in Table 17, illustrated on Figure 13 and are summarised below:

- "Lower" seepage collection weir – The readings fluctuated between a low of 0.07 m, measured on April 5, to a high of 0.18 m measured on August 21. The wide range in readings can be attributed to the fluctuations in the reservoir level during 2002. The increase of the magnitude of seepage to the increase in the reservoir level was observed to be delayed by approximately 17 days.
- "Valvehouse" seepage collection weir – The staff gauge readings fluctuated between a low of 0.32 m, measured between February 22 and May 17, to a high value of 0.53 m measured on November 1. The wide range in readings can be attributed to the fluctuations in the reservoir level and various valve openings used during 2002 to control the lowering of the reservoir.

Thermistors:

85-5 – Thermistor

The plot of the thermistor data collected from the FWS Dam is presented in Appendix II and summarised in Table 18. This thermistor was installed in 1985 by Dome. The location of the instrument is in the crest of the FWS Dam, as illustrated on Figure 3. The installation is composed of a thermistor string with 9 thermistor nodes taped to the side of a 1 inch diameter PVC standpipe installed within the borehole. The thermistor nodes are located at 0.2, 0.6, 1.2, 1.6, 2.2, 3.1, 4.1, 6.2 and 8.1 m below ground surface. Currently only the nodes at 0.2, 0.6, 1.2, 1.6, 4.1 and 8.1 m depth are monitored; all other nodes have malfunctioned and can no longer be monitored.

The thermistor was monitored weekly in 2002 to gain a better understanding of the near surface geothermal regime within the FWS Dam. Increased monitoring was also completed to determine the effect of a lower reservoir level on the geothermal regime within the dam.

The maximum depth of frost penetration observed in 2002 was 6.2 m as interpolated from the data collected on July 24. This compares to a maximum depth of frost penetration observed in 2001 and 2000 of 3.5 m and 3.1 m as interpolated from the data collected on June 9, 2001 and June 8, 2000, respectively. The increased depth of frost penetration observed in 2002 is attributed to the lower reservoir levels experienced during the winter of 2001/ 2002.

3.6.4 Fresh Water Supply Dam Summary

The piezometric information collected from the FWS Dam in 2002 indicates that the dam has performed in an acceptable manner throughout reservoir fluctuation activities in 2001 and 2002. Pore pressures recorded within the core indicate a downward gradient within the embankment. Pore pressures recorded within the foundation materials of the dam indicate the foundation is much more permeable than the embankment and responds to fluctuation in reservoir level much quicker than the embankment materials.

Additional piezometric monitoring and visual inspection of the FWS Dam was conducted in November by mine site staff in response to the seismic events previously noted in Section 2.1. No visual indications of damage as a result of the seismic event were observed. Post seismic event pore pressures remained similar to those recorded prior to the seismic events.

The frost penetration during the winter of 2001/2002 was about 2 m deeper than levels observed in previous years. This was attributed to the lower reservoir levels behind the dam in the winter of 2001/ 2002.

It is recommended that all instrumentation within the FWS Dam continue to be monitored in 2003.

4.0 FIELD INSPECTION AND SUMMARY NOTES

BGC staff was on-site twice in 2002 to undertake inspections of the various facilities. Mr. J. Cassie, P.Eng., of BGC visited the Faro Mine site during the period June 11 to 12, 2002 and inspected the following facilities:

- The FWS Dam,
- The Intermediate Dam,
- The Cross Valley Dam,
- Selected portions of the backslope of the Rose Creek Diversion Channel, and
- Selected portions of the Faro Creek Diversion Channel.

The objective of the June site visit was specifically to inspect the condition of the FWS Dam after the previous winter of reservoir lowering and to meet with Mr. Dana Haggar to discuss 2002 work proposed for the downstream face of the Intermediate Dam and for the Faro Creek Diversion Channel. Upon completion of this site visit, a summary memo was left with Mr. Haggar that is attached in Appendix I.

In addition to the June visit, Mr. Cassie and Mr. Gerry Ferris, P.Eng. visited the site from September 28 and 29, 2002 to inspect the following facilities:

- Selected components of the Down Valley Tailings Project,
- The FWS Dam,
- Selected waste dump faces associated with the Faro pit,
- The North Fork of Rose Creek flow-through rock drain causeway, and
- The Faro Creek Diversion Channel situated over the east wall of the Faro pit.

The purpose of the September site inspection was to examine the facilities in detail for evidence of deficient performance and possible maintenance, to provide a basis for possible adjustment to the frequency of monitoring and to review points of immediate concern and maintenance with site representatives. Upon return to the office, a Field Memo was prepared that outlined the status of the various structures inspected, highlighted items of concern and items requiring immediate attention. This second inspection memo is also attached in Appendix I.

As in previous visits, the facilities were inspected during a walking tour and a camera and Dictaphone were used to record conditions and observations. The photographs, along with recorded observations, are compiled into a Field Record Summary that is kept in the files of BGC. The observations made during the September site visit are summarized within this section of the report.

At the time of the September visit, the reservoir level at the FWS Dam was lower than the spillway elevation, since siphon pipes were being used to lower the reservoir. Based on site information, the recorded water level was 1095.4 m asl on September 25th, just before the inspection visit. At the Intermediate Dam, the reservoir level was approximately 0.8 m lower than the spillway inlet elevation. Water was being conveyed over the Cross Valley Dam by siphoning and the retained pond level was estimated to be approximately 1.5 m lower than the spillway inlet elevation.

4.1 Down Valley Tailings Project

The Diversion Canal, the North Valley Wall Interceptor Ditch, the Cross Valley Dam and the Intermediate Dam were all inspected. No inspection was undertaken of the Original or the Second Tailings Embankments, situated near the upstream end of the tailings containment area.

4.1.1 Diversion Canal

Canal Dike - The dike crest and immediate uphill slope were inspected by walking. The principal reason for this inspection has historically been to examine the dike for surface cracking, such being in response to deterioration of foundation permafrost. Minor potholes and undulations were noted at a few locations including Station 1+825, as was noted last year. In addition, longitudinal cracking and settlement were observed on the crest between Stations 2+030 and 2+115, in an area where deformation has been historically noted. Slope indicator CD-21 shows negligible movement in this area while the new instrument BGC01-01 did not show any movement at depth. Thermistor cables at 88-7 and 88-11 confirm permafrost existing below a depth of 6 m.

Hence, it appears that settlement for the majority of the dike has generally been completed, except within an area bounded approximately by Stations 2+050 to 2+250. Permafrost is also still evident in CD-15 at Station 1+530 but no deformations were noted in this area. It remains important to continue with the program of visual and instrument observations until it is clearly apparent that thaw-related deformations are complete.

Toe-of-Slope Area - This area was inspected by walking the shoreline from the Cross Valley Dam east to the Diversion Dam. The objectives of the inspection were to identify seepage occurrences and areas of possible slope instability insofar as they may provide an indication of concern for the integrity of the canal.

From a point approximately 200 m east of the Cross Valley Dam (canal Station 2+700) up to the toe of the Intermediate Dam (Station 2+550), approximately 15 seepage discharge points were noted in 2000. In 2001, approximately 8 to 10 seepage points were noted. This year, a total of 13 to 15 seepage discharge points, typically discharging 1 l/min up to a maximum value of 10 l/min, were observed. The higher number of observed seepage points may be related to the relatively low level of the polishing pond. The access road fill situated just below the south abutment of the Intermediate Dam has numerous tension cracks resulting from the oversteepened nature of the material.

Indications of seepage were observed at approximately Station 2+420. Longitudinal toe cracking was again observed intermittently between Stations 2+100 and 2+400, with the cracks at 2+400 opening up since they were observed last year. The toe cracking in this area is indicative of on-going deformation, perhaps exacerbated by some toe erosion (pond level lower than during last years inspection) and seepage.

No evidence of seepage emerging at the toe or of seepage emerging onto the tailings shoreline was observed except from the tails-filled Borrow Pit I, situated at approximate Station 1+350. Seepage has been noted at this location during previous inspections. The emergence points have been in the same locations and the rate of seepage appears relatively steady.

No other areas of seepage emergence were seen between the Borrow Pit I site and the Diversion Canal Dam, except into the channel downstream of the Diversion Canal Dam. The conclusion of the inspection was that the slopes and the area between the canal dike toe and the tailings / water's edge are in good condition, thus posing no field-evident danger to the integrity of the diversion canal or dike. Monitoring should continue on a regular basis between 2+100 to 2+400, where deformations of the dike appear to be continuing and between 2+550 and 2+700 where seepage continues to be observed.

Canal Backslope and Thermal Liner – Two small slides in the backslope, at the entrance to the Diversion Canal and at approximately Station 2+000, were previously repaired and the work appeared satisfactory.

One small erosion gully was forming near Station 0+470 in the face of the thermal liner. The remainder of the gullies appeared to have been present for some time and are generally armoured and pseudo-stable. All the gullies appear to be the result of redirected runoff from upslope, but generally, limited active erosion appears to be occurring.

As previously recommended, it would be beneficial to protect the above-described gullies with blast rock. Redirection of surface water flow over the backslope edge has proven to be an unfortunate consequence of such repairs being done from the top of the backslope. In consequence, it is recommended that consideration be given to armouring the gullies before spring break-up, but only by gaining access from the ice level in the canal. The feasibility of the work should be determined by a trial at one gully location.

It is suggested that well-graded blast rock having a 300 to 500 mm maximum particle size be used for the test. Several front-end loader scoops of the material could be dumped from the canal dike crest as far toward the canal ice surface as possible. Taking care not to damage the rip-rapped slope, a tracked loader could then transfer the material to the gully and distribute it up the feature, leaving a concave shape to the finished section. If the approach proves workable, the program could either be continued immediately or plans could be made to tackle the rest of the gullies a year later. No material should be left on the ice surface because it will disrupt the normal flow in the diversion canal.

One slough was noted near the borrow area in the backslope. It is formed in the back wall of the borrow area, approximately 25 m from the channel edge and is not considered significant to the performance of the channel.

Aside from the conditions noted above, the backslope is considered to be in satisfactory condition.

Weir Cascades – The weir cascades were considered to be in good condition although, at some locations, one or more of the central boulders of some weirs have been displaced downstream. This generally occurs in the first few weirs at the upstream end because the materials of construction for these were of slightly smaller size than for the rest of the weirs. The consequence is that some of these weir crests are becoming relatively ill-defined compared with those downstream. Using photo comparisons, the remainder of the weirs have shown relatively little change from year to year and, except for some accumulated debris, they appear to be functioning well. Finally, and as has been recommended in previous reports, the last weir of the downstream cascade would benefit from repair because some of the flow is going around the corner of the weir.

4.1.2 North Valley Wall Interceptor Ditch

The walking inspection of the ditch indicated no significant changes to its configuration. The two culverts placed under the haul road have an estimated discharge capacity of 4 to 8 m^3/s. This estimated value is still well below the design requirements of 17.7 m^3/s (Hydrocon 1980). It is understood that larger size culverts have been delivered to site but they had not been installed at the time of the inspection visit.

As noted previously, this overflow channel below the culverts should be designed to carry up 17.7 m^3/s plus an allowance for 0.5 m of freeboard. Based on visual estimates of the current channel grade and configuration, it is likely that the current channel could convey this design discharge quantity. But, it is recommended that a detailed survey be undertaken at this area to confirm channel grade and dimensions. In addition, the survey could determine if the right hand access road crest is too high.

Thirdly, some minor edge cracking was noted on the two retention berms; one situated at approximate Station 2+100 (Rose Creek chainage convention) and one situated above the Guard House at the front gate of the mine. This cracking should be monitored to see if it worsens or the associated slope should be flattened to increase it stability. Overall, the inspection indicates that the interceptor ditch system is capable of conveying routine flows without difficulty.

4.1.3 Cross Valley Dam

At the time of the inspection, the upstream pond was approximately 3.8 m lower than the physical crest of the dam, which was approximately 0.6 m lower than during last year's inspection. As a result, the polishing pond water level was 1.5 m lower than the inlet elevation for the spillway and water was being conveyed through a siphon pipe.

Spillway – The inlet to both the spillway and pilot channel were in satisfactory condition, based on the visual inspection. At the bottom of the spillway discharge, below the confluence with the outfall section flow, the combined flow travels through two culverts situated under the access road to the toe of the dam. The rip rap protection around these two culverts appears to have been recently repaired and it appeared in satisfactory condition.

Dam Crest - As has been described by previous reports, the crest of the dam has undergone some episodes of centreline-parallel cracking for which the crack width appears to be sensitive to the time of inspection and the severity of the previous winter. The cracks have been interpreted to be the consequence of frost heave ice lensing within the upper part of the core. For this reason, two thermistor strings were installed to several metres below crest in 1988. This data has tended to confirm the belief that the cracks are initiated as a result of ice lens formation. These cracks are then exacerbated by the infiltration of surface run-off, since grading of the cracks has not been undertaken.

Localized settlement and cracking on the crest appears to be continuing. A subtle settlement trough is visible in the northern third of the dam crest. Previously existing cracks on the crest (location varies from upstream side to center of the crest) in the middle portion of the dam appear to have opened slightly and small sinkholes have formed. This observation leads credence to the deteriorating effects caused by infiltration of surface water and hence, grading of the crest should be carried out.

Some other cracks were observed on the upstream crest edge, generally in the southern third of the dam and these cracks are discussed in the next section.

Upstream and Downstream Slopes - Several discontinuous cracks and settlement troughs were noted in the upstream riprap and crest edge, generally within the southern third of the dam. Site staff marked out several of these cracks with lime-green paint, as shown on some of the site photographs. These cracks appear to be occurring in response to a small scarp formed in the rip rap on the upstream face of the dam. The surficial material is then sloughing into the small scarp so formed, as illustrated on the sketch provided in the site memo in Appendix I. Hence, appropriately-sized rip rap will be required to repair this area.

Numerous small erosional gullies are formed on the downstream face but no significant concerns with them are noted at the current time.

Downstream Toe Area Seepage - The surface of the berm placed during 1991 remains dry, although it appeared that some overland flow has occurred proximal to piezometer P01-02 at the south abutment area. Visually, the rate of flow in the seepage collector ditches appeared equal to previous years.

4.1.4 Intermediate Dam

At the time of the inspection, the Intermediate Reservoir was lower than the spillway inlet and the pond level was significantly lower than during last year's inspection.

Emergency Spillway - Inspection of the entrance to the emergency spillway did not identify any disturbance or repair work to be undertaken. The spillway invert and boulder array, below the entrance area, has been previously noted as disturbed and needs to be reinstated to prevent unnecessary and possibly severe damage to the spillway, should it be required to carry its design flow. Removal of the crossing ramps is also recommended for the same reason.

Crest - Some additional cracking and settlement (and occasionally minor sinkholes proximal to the crack) are occurring towards the north end of the crest. These cracks are being exacerbated due to the infiltration of surface run-off water and grading of the crest should be undertaken. In addition, some minor longitudinal cracking was noted on the upstream edge of the crest. Thirdly, the outermost 0.5 m (approximate dimension) of the downstream portion of the crest has settled slightly, as previously noted, forming some minor longitudinal cracks.

Upstream and Downstream Slopes - The upstream riprap is in good condition. Several small slumps and some significant erosional gullies occurred previously on the downstream side and these features are still visible. Some of these erosional gullies continue to deposit eroded material at the toe of the dam. Rehabilitation work on the downstream face was proposed for 2002 (in fact, it was one of the main points of discussion for the June site visit by BGC) but the work has not been undertaken yet. Deloitte notes that the work is propose for 2003.

Seepage - Seepage has been observed on the toe berm, at the south abutment, in all years since 1995 except 1999 and 2001. In 2000, seven seepage discharge points were noted at the southern abutment. During this year's inspection, no signs of seepage were noted at the south abutment toe, although the material at the toe was soft (and partially saturated perhaps reflecting some small amounts of seepage). No seepage was observed along the toe berm further to the north or at the junction of the embankment with the spillway bank at the north end of the dam.

4.2 FWS Dam

Given the potential issues regarding the low level pipe within this dam, and the redundant nature of its role at site, some significant changes to this dam are proposed for 2003. At the current time, a complete breach of this dam (within the center portion of the dam) is proposed and a preliminary design is being formulated for regulatory submission. In preparation for construction work on this dam, stockpiles of rip rap were being placed below the dam during the September site visit.

4.2.1 Spillway and Channel

The spillway structure and outfall channel appeared to be in good condition. As previously noted, the reservoir level was lower than the spillway inlet elevation (~1096.1 m asl) and three siphon pipes were situated within the spillway alignment.

The culverts used at the site access crossing at the downstream end of the spillway channel are estimated to have a total discharge capacity of approximately 20 m^3/s. NHC (2000) notes that the 100– and 500-year flood events for this dam amounts to 39 m^3/s and 63 m^3/s, respectively, while the currently configured spillway can discharge 94 m^3/s when the reservoir elevation is equal to the top of the dam core. As such, for large flood events, the culvert crossing will be washed out. When the culverts and roads are washed out, it would eliminate convenient access to the dam crest and valve house. As such, either properly sized culverts need to be installed for the crossing or alternatively, a contingency plan for emergency access should be formulated. It should be noted that dam breaching proposed for 2003/2004 would eliminate the need for the spillway and the culverts.

In addition, the two culverts at the road crossing are eroding the embankment supporting the road and the culverts. Some form of rehabilitation work will be required for these culverts at some time in the future, but it is expected that fisheries approval will be required to make any alterations to the structure. Again, future breaching of the dam will negate the need for these culverts.

4.2.2 Embankment Crest, Riprap and Slopes

The crest has a history of cracking along its upstream side, generally related to frost action in the silty core materials and to high pond levels when the stop-logs were installed. Golder Associates undertook a test pit investigation program of the crest. Golder (1994) presented the results of the investigation together with recommendations for repair of the crest, if so required.

During the June site visit, a second longitudinal crack (relatively continuous along the crest) was observed approximately 0.5 to 1 m closer to the downstream side of the dam than the previously existing crack along the upstream side. This second crack may have formed in response to the frost action on the dam (frost penetration in last year was 6 m, significantly deeper than the typical 4 m) or potentially, in response to the reservoir lowering that was undertaken during the previous winter. It is interesting to note that this second crack was not observed by site staff during the reservoir lowering operation. In addition, this second crack did not appear to open up at all between the June and September site visits undertaken by BGC. The crack may provide any indication that the rate of future reservoir lowering operations needs to be controlled and monitored.

Some of the previously existing cracks appear to opening slightly, based on subtle differences from previous year's photos and disturbances with spray painted lines across the cracks. This additional cracking may be partially related to frost action and/or weathering caused by the infiltration of surface run-off into the cracks. Hence, backfilling and grading of all crest cracks should be undertaken.

Some minor notching of the upstream side riprap was noted at the lowered waterline location. The rip rap located on the embankment north of the spillway was disturbed and notched at two elevations on the upstream face. Other than these observations, the rip rap appeared in satisfactory condition.

No signs of seepage or deformation were noted on the downstream face.

4.2.3 Seepage

Three to four distinct seepage discharge points were observed on the upstream side of the valve house, all of which were described going back to 1995. Judging by photos of the total seepage volume at the east corner of the valve house, the seepage quantity is judged to be equal to last year's amount following the initial closure of the valve (which reduced significantly when the valve was first closed).

Divers were back on-site in December 2002 to replace the trashrack on the inlet to the low level pipe. In addition, Mr. Chris Wilson, P.Eng., of Klohn Crippen, undertook both a visual inspection and ultrasonic measurements of the valves in the valve house. His draft summary report has been referenced earlier. As also noted earlier, SRK (2003) has provided a comprehensive review of potential risks and consequences regarding the FWS Dam.

The collector ditch situated along the downstream edge of the toe berm was working effectively to collect seepage from the drainage layer beneath the berm. The V-notch weir downstream from the valve house is in need of repairs. These repairs should be viewed within the context of other recommendations provided in Klohn (2002), Klohn (2003) and SRK (2002).

4.3 North Fork Rose Creek Flow-Through Causeway

The flow-through rock drain, which is some 65 m high on the downstream side, was observed during the site inspection. The discharge area was observed to be flowing clear water from the downstream side. Both the width of the this discharge area, along with flow velocity of the water, indicated slightly higher flow quantity than that observed last year during the inspection. No significant evidence of instability on the slope above the discharge area, other than some old cracks along the top edge of the crest, was observed. On this basis, it appeared that the downstream portion of the causeway section was functioning as intended, and that its performance was not deteriorating.

The head pond level observed in 2002 was slightly higher than the level observed in 2001. As noted before, some woody debris still remains on the upstream face above the observed level of the headpond. On the basis of the observations described above, it is concluded that hydraulic performance continues to be good.

4.4 Waste Rock Dumps

The waste rock dumps situated adjacent to the Faro pit were inspected from the toe, as well as from the crest, except where the crest was inaccessible, and included the following three sections:

- "The Rose Creek Dumps" - Dumps overlooking the North Fork Rose Creek upstream from the Vangorda causeway and downstream of the small access ramp which traverses down to North Fork Rose Creek (section length of approximately 600 m);
- "The Northeast Dumps" - Dumps overlooking the North Fork Rose Creek upstream from the small access road to the Faro Creek diversion outfall (section length of approximately 1500 m); and
- "The West Dump" – A dump that is located some 350 m southwest of the flow-through Vangorda causeway.

From examination along the toe and along the crest of the Rose Creek Dumps, it is concluded that conditions relative to previous inspections are unchanged. No signs of seepage or toe bulging were observed traversing along the toe. Traversing along the top of the slope, no signs of active cracking and/or settlement were noted.

The toe of the Northeast Dumps was traversed southward from the Faro Creek diversion. As seen previously, numerous erosional gullies have previously formed in the till which has been deposited on the lower portion of these dumps. The toe of this till deposit is locally oversteepened due to soil washing down the slope. Some additional sloughing of these till deposits was noted. Some small scarps were also noted adjacent to these sloughs. One significant accumulation of ice was noted at the toe within the void space of the rockfill. Two seepage discharge points, running at 5 to 10 l/min and ~30 l/min, were observed discharging from the toe. No signs of bulging or deformation were observed along the toe of these dumps.

The crest edges of the Northeast Dumps were inspected for evidence of fresh cracking, but no such evidence was seen. As noted previously, several deep test pits were observed along the dump crest edge, adjacent to the access road that leads up to the Faro Creek Diversion channel (the pits are located some 300 m south of the diversion channel at the estimated mine grid co-ordinates of 85,000 N and 21,600 E). These pits should be backfilled to prevent any water collection and infiltration into the adjacent slope. On the basis of the crest area inspection and the fact that no observed changes were seen along the toe areas, these waste dumps are believed to be stable.

The West Dump was inspected by walking along the crest and then traversing partially down the face along a cat-track that has been cut into the southwest face. As for the other dumps inspected, conditions are unchanged and there is no cracking across the dozer-cut ramp. Accordingly, it is concluded that there has been no movement in that immediate area.

As noted in the September inspection memo in Appendix I, a crack was observed proximal to the dump crest edge located just above the water sampling location X23. As such, recommendations for monitoring of this crack were provided to site personnel.

4.5 Faro Creek Diversion Channel

The Faro Creek diversion channel is situated on top of the east wall of the Faro pit. The channel transmits creek water, which previously flowed directly through the pit area, over to the North Fork Rose Creek, where it flows though the Vangorda causeway rock drain.

A visual inspection was made on the diversion channel. The distance from the backscarp of the retrogressing overburden to the access road varies from approximately 6 to 8 m as a minimum distance. The distance from the access road edge to the diversion channel was another 8 to 10 m. No signs of cracking, settlement or deformation were observed within the diversion channel section, on the crest of the access road berm or in the downhill interceptor ditch.

Ravelling of the overburden is likely to continue in the future and Golder (2002b) provides an estimate of the time to failure. Hence, some visual monitoring of the back scarp status and potential cracking within the diversion channel should be implemented such that early indications of diversion channel deformation can be identified.

It should also be noted that rehabilitation of the channel (primarily to prevent glaciation and blockage) is proposed for completion in 2003.

4.6 Training Seminar

A training seminar on geotechnical, hydrotechnical and dam safety issues was provided to the site staff on the evening of September 29, 2002. The attendees included the following four staff members:

- Ms. Rhonda Carr
- Mr. Dana Haggar
- Mr. Craig McKinnon
- Mr. Mike Bryson

5.0 SUMMARY OF MAINTENANCE REQUIREMENTS

The following sections provides a point-form summary of the maintenance and repair recommendations presented in Section 4.0, as well as those noted in the inspection memos of Appendix I. In addition, some recommendations regarding monitoring requirements are also provided.

5.1 Down Valley Project

5.1.1 Diversion Canal

It is important that the crest of the Diversion Canal dike be graded each September or October after the annual inspection to cover areas where cracks and potholes have developed. The purpose of this treatment is to prevent ingress of surface run-off water that may be concentrated in the settled areas, perhaps to enter local cracks, thereby reducing stability. Blading should be used to accomplish this work. Care must be taken not to disturb the existing instrumentation that has been installed to monitor performance of the dike.

- Minor potholes on the crest of the Canal Dike need to be graded to prevent water from ponding. In additions, some minor backfilling and grading could be undertaken on settled areas where surface run-off is now directed towards the downstream slope.
- Attempt trial armouring of erosional gullies on the backslope.
- Monitor edge cracking and minor sloughing noted at the toe of the canal dike, uphill from the Intermediate Dam.
- Repair the final weir in the Weir section of the canal where flow is escaping around the south side of the weir.

5.1.2 North Valley Wall Interceptor Ditch

- Install two larger-capacity culverts running under the main access road at the outfall section. It is noted that these larger culverts have been delivered to site.
- Undertake survey of the outfall channel section beneath the culverts to confirm discharge capacity.
- Monitor edge cracking on the two retention berms.

5.1.3 Cross Valley Dam

- The dam crest should be graded properly to cover over the cracks and to properly drain any surface water off.
- Place appropriately-sized rip rap (nominally 25 cm diameter to a maximum size of 40 cm) to repair the scarp created on the upstream side of the dam.

5.1.4 Intermediate Dam

- The dam crest should be graded properly to cover over the cracks and to properly drain any surface water off the crest.
- Undertake backfilling of all significant erosional gullies on the downstream face to ensure that additional run-off does not erode deeper into the face. In addition, all significant accumulations of debris and slough (that would interrupt any proper drainage on the face) should be removed and/or properly graded.
- It is noted that some fill materials have been placed near the south abutment area for this proposed rehabilitation work.

5.2 FWS Dam

It should be noted that complete breaching of this dam will be undertaken in 2003/2004 and all recommendations noted herein should be put within that context.

- All cracks on the crest should be cleaned out and a mixture of sand and bentonite be placed into the cracks. In addition, any settlement within previously excavated testpits should also be backfilled. The crest should be properly graded to drain any surface water to the upstream side.
- The V-notch weir, downstream from the gatehouse, needs to be repaired as water is escaping around the one side.
- The two culverts within the road crossing berm need to be upgraded for the expected design flood volume or a contingency plan for emergency site access needs to formulated, given that the culverts and the roads will be washed away.
- The discharge end of the two large culverts below the spillway discharge is causing erosion underneath the access road embankment. As such, some form of repair and armouring work needs to be planned since fisheries authorization will be required for work within the waterway.
- If any reservoir lowering operation is planned for the future, the rate of lowering needs to be properly controlled and the pore pressures in the dam will need to be closely monitored.

5.3 Faro Creek Diversion Channel

- Continue with both visual and survey monitoring of the overburden ravelling proximal to the access road and diversion channel.

5.4 Selected Waste Dumps Overlooking Rose Creek

- Backfill the several noted test pits at the north end of the Northeast Dumps.

5.5 Instrumentation Survey

Only a portion of the total number of instruments within the various structures is actually monitored. BGC (2002) noted that less than half of the instrumentation installed within the tailings area was monitored in 2001. The monitored instruments are selected because they are currently working, they are accessible and they provide useful, non-redundant data.

Any conduit, such as an instrument, situated within a water retention structure may become a potential seepage path and hence, a liability over the long term. Hence, a three-phased approach regarding dam instrumentation should be undertaken, as noted below:

1. A desk top review of the purpose and current status of all instruments should be done. In addition, review the instrumentation installation methods, if possible, to evaluate if any voids and/or openings may exist adjacent to or within the instruments.
2. Following this, a field survey of the current location and condition should be done. All instrumentation (whether operational or not) should be inspected for surficial settlement around the instrumentation casing and/or standing water. Any instrumentation not currently read should be assessed for potential rehabilitation. If any instrumentation can be rehabilitated, and useful data would be derived from that instrument, then that work should be carried out.
3. If any instruments are to be abandoned, ensure that suitable protocols for abandonment (e.g. removal of surface casing and grouting of any open holes) have been followed or undertake this work to ensure proper abandonment.

As part of this instrumentation review, and given the current closure status of the mine, consideration should be given to installing dataloggers for automatic and continuous reading of critical instrumentation. This would include critical piezometers within each of the three dams, along with water level readings within each of the three retained ponds. More accurate, continuous data can be collected in this way, and over several years, becomes cost-effective since only two trips per year are required to retrieve the data. Alternatively, numerous technologies currently exist to upload the data (daily, weekly, monthly) to a receiver in Faro so that continuous, remote monitoring of these structures is possible. As a result, BGC would be able to monitor critical aspects of the dams' performance from their operation in Calgary, reducing reading and data reduction errors and costs over some time period.

5.6 Emergency Response Plan

As previously recommended by BGC, and in accordance with Canadian Dam Safety Guidelines, an Emergency Preparedness Plan (EPP) is required for any dam whose failure could be expected to result in a loss of life as well as for any dam for which advanced warning would reduce upstream or downstream damages. Hence, such plans should be prepared for the three dams reviewed herein. Deloitte has indicated that this work will be carried out in 2003.

6.0 INSTRUMENTATION, MONITORING AND ANNUAL REVIEW

6.1 Instrumentation Readings

The frequency of readings of the instrumentation has been greatly reduced from the initial practice of quarterly observations because confidence in the performance of the structures has been substantiated by accumulated data. Hence, Figure 31 provides a schedule of readings for the major structures, broken down by month. As has been the case over the last several years, all instrumentation data collected by site staff should be immediately forwarded to BGC for review.

6.1.1 Down Valley Project

A recommended monitoring program schedule for 2003 is shown in Figure 31. It should be noted that no readings are required for the canal backslope in 2003. Piezometer 91-ID3 should be read in several months during the summer period, in combination with visual seepage observations at the south abutment. The monitoring wells/piezometers installed at the toes of the two dams by Gartner Lee Ltd. have now been added to the monitoring program.

If any rapid lowering of either reservoir in the Down Valley is expected, then BGC should be consulted and changes to the monitoring program may be made.

6.1.2 FWS Dam

It is recommended that the monitoring program be as detailed by Figure 31. It is particularly important that the weirs and valve house seepage be monitored on a weekly basis during ice-free conditions. Piezometers should be read at least once per month.

If any rapid lowering of the reservoir is expected, then BGC should be consulted and changes to the monitoring program may be made.

6.2 Routine Inspections by On-Site Personnel

6.2.1 Down Valley Project

It is important that current site staff continue with their inspection program as described below, and that a log of observations be maintained:

1. To inspect the Rose Creek Diversion Channel before run-off to ensure any snow and/or ice blockages are removed.
2. To inspect, on a monthly basis, the 400 m reach of the Diversion Canal dike crest immediately upstream of the Intermediate Dam for evidence of cracking.
3. To view on a monthly basis, the opposite side of the Diversion Canal from the driving dike looking for change to the top profile of the gravely backslope, possible narrowing of the flow channel, and other changes which might be attributed to sloughing of the backslope.

4. To inspect in June, just after spring runoff is completed, the top of the thermal liner on the backslope of the Diversion Canal at the location situated about 500 m upstream of the Intermediate Dam; such inspection to determine if new (sharp-edged) cracking has developed.
5. To inspect, weekly, the Cross Valley Dam's downstream toe berm culverts for consistency of flow rate.
6. To note and record the water levels weekly in the Intermediate Dam pond and the polishing pond. Consideration should be given to automating this task through the installation of pore pressure transducers and dataloggers so that continuous data may be collected.
7. To inspect weekly, the abutments of the Cross Valley Dam and the Intermediate Dam for evidence of changing conditions (sloughing of the embankment fill and/or the adjacent slopes), for evidence of active crest cracking and for evidence of changing seepage rates (especially the south abutment toe seepage at the Intermediate Dam) and locations.

Any change in condition that is noted as a consequence of this program of routine inspection must be brought immediately to the attention of the inspector's superiors. BGC must also be notified so that the condition can be evaluated in light of the database and prior performance history of the structures, and to provide any necessary geotechnical advice related to the concern at hand. Photos of the changed condition should be taken and forwarded to BGC.

6.2.2 FWS Dam

In addition to the basic monitoring schedule outlined in Figure 31, it is important that current site staff make weekly visits to the dam for inspection purposes described below and that a log of the observations be maintained:

1. To note and record the water level in the reservoir, relative to the concrete spillway level. Consideration should be given to automating this task through the installation of a pore pressure transducer and a datalogger so that continuous data may be collected.
2. To inspect the abutments of the FWS Dam for evidence of changing conditions (sloughing of the embankment fill and/or the adjacent slopes), for evidence of active crest cracking (e.g., spray paint lines) and for evidence of changing seepage rates and locations.
3. To inspect the valve house area at the FWS Dam for evidence of seepage (and any signs of included sediment) and to quantify that amount of seepage.
4. To inspect and record the amount of seepage (V-notch weir) occurring within the seepage collection trench at the toe of the dam. An elevation correlation of the notch bottom to the pond staff gauge will need to be developed.
5. To inspect and record the amount of seepage (V-notch weir) occurring the channel on the downstream side of the valve house. An elevation correlation of the notch bottom to the pond staff gauge will need to be developed.

This data should be forwarded to BGC on a weekly basis such that the dam's performance under changing pond conditions can be closely monitored.

Any change in condition that is noted as a consequence of this program of routine inspection must be brought immediately to the attention of the inspector's superiors. BGC must also be notified so that the condition can be evaluated in light of the database and prior performance history of the structures, and to provide any necessary geotechnical advice related to the concern at hand. Photos of the changed condition should be taken and forwarded to BGC.

6.2.3 North Fork Rose Creek Flow-Through Rock Drain

Headpond water level observations for both the causeway and the road culvert downstream should be observed on a monthly basis. Data during periods of high flow is particularly important and, as a minimum, the headpond should be viewed weekly in the late afternoon for the period from about April 15th until June 30th. Alternatively, it is recommended that an automatic recording and data storage device be used to obtain water level data for the head pond and upstream of the road culvert. Data accumulated by such apparatus can be conveniently down-loaded to a lap top computer. The advantage of such a system is that virtually continuous data is obtained, that the data can be graphed and compared readily, and that a comparative database is then available for evaluation of year-by-year performance.

The upstream and downstream faces of the Vangorda Causeway should also be inspected monthly for any signs of instability or sloughing.

Any change in condition that is noted as a consequence of this program of routine inspection must be brought immediately to the attention of the inspector's superiors. BGC must also be notified so that the condition can be evaluated and to provide any necessary geotechnical advice related to the concerns at hand.

6.2.4 Faro Creek Diversion Channel

Visual inspection of the channel sections for cracks and for overburden ravelling should be undertaken monthly from May until October. Any signs of deformation should be forwarded to BGC for comment.

6.3 Annual Reviews

As has been noted in previous annual reports, the performance monitoring and annual inspections of facilities has served as a basis for:

a. judging current performance of the facilities;
b. providing some forewarning of any trends towards potentially troublesome performance;
c. adjusting the frequency of observation of instrumentation;
d. recommending the installation of additional instrumentation; and
e. undertaking maintenance work.

In keeping with the important nature of these facilities, and the inherent value of keeping a comprehensive performance record, it remains prudent to continue with the data acquisition. As such, Figure 31 provided a proposed schedule of instrumentation monitoring for 2003. The collection of current data is of both immediate and ongoing value, to review such data in relation to the existing database and to visually inspect the works on an annual basis for evidence of deteriorating or deficient performance.

The annual inspection in 2003 should be performed in early September, in keeping with the schedules held for previous inspections, and for the advantage of consistency of conditions. It is recommended that the annual inspection of the Faro waste dumps be undertaken again in 2004 to see if any changes are occurring. If any extreme precipitation or seismic event occurs before then, an interim inspection of the dumps should be completed.

7.0 CLOSURE

This report summarizes the physical conditions as observed by BGC and the instrumentation results as collected by site staff on various mine waste facilities and structures at Faro Mine. Thank you for the opportunity to be of service to Deloitte & Touche and Faro Mine. Should you have any questions on this report, please contact BGC at your convenience.

Respectfully submitted,
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Per:

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TABLES

Table 1
Summary of Polishing Pond and Intermediate Pond Levels

DATE	Cross Valley Staff Gauge	Intermediate Dam Staff Gauge	Cross Valley Pond Elevation (m amsl)	Intermediate Dam Pond Elevation (m amsl)	Cross Valley Pond Elevation (m adpvd)	Intermediate Dam Pond Elevation (m adpvd)
May 08/02	0.18		1030.69		1062.99	
May 09/02	0.21		1030.72		1063.02	
May 10/02						
May 11/02	0.24		1030.75		1063.05	
May 12/02	0.24		1030.75		1063.05	
May 13/02	0.26		1030.77		1063.07	
May 14/02	0.26		1030.77		1063.07	
May 15/02	0.28		1030.79		1063.09	
May 16/02	0.28		1030.79		1063.09	
May 17/02	0.28		1030.79		1063.09	
May 18/02	0.28		1030.79		1063.09	
May 19/02	0.27		1030.78		1063.08	
May 20/02	0.26		1030.77		1063.07	
May 21/02	0.27		1030.78		1063.08	
May 22/02	0.29		1030.8		1063.1	
May 23/02	0.34		1030.85		1063.15	
May 24/02	0.09		1030.6		1062.9	
May 25/02	0.05		1030.56		1062.86	
May 26/02	0.08		1030.59		1062.89	
May 27/02	0.09		1030.6		1062.9	
May 28/02	0.16		1030.67		1062.97	
May 29/02	0.32		1030.83		1063.13	
May 30/02	0.28		1030.79		1063.09	
May 31/02	0.27		1030.78		1063.08	
Jun. 01/02	0.25		1030.76		1063.06	
Jun. 02/02	0.19		1030.7		1063	
Jun. 03/02	0.27		1030.78		1063.08	
Jun. 04/02	0.38		1030.89		1063.19	
Jun. 05/02	0.5		1031.01		1063.31	
Jun. 06/02	0.37		1030.88		1063.18	
Jun. 07/02	0.19		1030.7		1063	
Jun. 08/02	0.07		1030.58		1062.88	
Jun. 09/02						
Jun. 10/02						
Jun. 11/02						
Jun. 12/02						
Jun. 13/02						
Jun. 14/02						
Jun. 15/02	0.34		1030.85		1063.15	
Jun. 16/02	0.51		1031.02		1063.32	
Jun. 17/02	0.31		1030.82		1063.12	
Jun. 18/02	0.12		1030.63		1062.93	
Jun. 19/02						
Jun. 20/02						
Jun. 21/02	0.08		1030.59		1062.89	
Jun. 22/02	0.22		1030.73		1063.03	
Jun. 23/02	0.33		1030.84		1063.14	
Jun. 24/02	0.45		1030.96		1063.26	
Jun. 25/02	0.35		1030.86		1063.16	
Jun. 26/02	0.21		1030.72		1063.02	
Jun. 27/02	0.04		1030.55		1062.85	
Jun. 28/02						
Jun. 29/02	0.02		1030.53		1062.83	
Jun. 30/02	0.14		1030.65		1062.95	
Jul. 01/02	0.25		1030.76		1063.06	
Jul. 02/02	0.34		1030.85		1063.15	
Jul. 03/02	0.14		1030.65		1062.95	
Jul. 04/02						
Jul. 05/02						
Jul. 06/02						
Jul. 07/02						
Jul. 08/02	0.04		1030.55		1062.85	
Jul. 09/02	0.17		1030.68		1062.98	
Jul. 10/02	0.29		1030.8		1063.1	
Jul. 11/02	0.06		1030.57		1062.87	
Jul. 12/02	0.54		1031.05		1063.35	
Jul. 13/02	0.38		1030.89		1063.19	
Jul. 14/02	0.2		1030.71		1063.01	
Jul. 15/02	0.1		1030.61		1062.91	
Jul. 16/02						
Jul. 17/02						
Jul. 18/02						
Jul. 19/02	0.02		1030.53		1062.83	
Jul. 20/02	0.13		1030.64		1062.94	
Jul. 21/02	0.23		1030.74		1063.04	
Jul. 22/02	0.32		1030.83		1063.13	
Jul. 23/02	0.43		1030.94		1063.24	
Jul. 24/02	0.21		1030.72		1063.02	
Jul. 25/02						
Jul. 26/02						
Jul. 27/02						
Jul.28/02						
Jul. 29/02	0.1		1030.61		1062.91	
Jul. 30/02	0.2		1030.71		1063.01	
Jul. 31/02	0.3		1030.81		1063.11	
Aug. 01/02	0.38		1030.89		1063.19	
Aug. 02/02	0.2		1030.71		1063.01	
Aug. 03/02	0.01		1030.52		1062.82	
Aug. 04/02						
Aug. 05/02						

Table 1
Summary of Polishing Pond and Intermediate Pond Levels

Aug. 06/02						
Aug. 07/02						
Aug. 08/02						
Aug. 09/02						
Aug. 10/02						
Aug. 11/02						
Aug. 12/02						
Aug. 13/02						
Aug. 14/02						
Aug. 15/02						
Aug. 16/02						
Aug. 17/02						
Aug. 18/02						
Aug. 19/02	0.1	0.02	1030.61	1047.32	1062.91	1079.62
Aug. 20/02	0.2	0.04	1030.71	1047.34	1063.01	1079.64
Aug. 21/02	0.32	0.05	1030.83	1047.35	1063.13	1079.65
Aug. 22/02	0.41	0.06	1030.92	1047.36	1063.22	1079.66
Aug. 23/02	0.27	0.07	1030.78	1047.37	1063.08	1079.67
Aug. 24/02	0.11	0.1	1030.62	1047.4	1062.92	1079.7
Aug. 25/02		0.11		1047.41		1079.71
Aug. 26/02		0.11		1047.41		1079.71
Aug. 27/02		0.09		1047.39		1079.69
Aug. 28/02	0.1	0.06	1030.61	1047.36	1062.91	1079.66
Aug. 29/02	0.28	0.06	1030.79	1047.36	1063.09	1079.66
Aug. 30/02	0.44	0.04	1030.95	1047.34	1063.25	1079.64
Aug. 31/02	0.38	0.02	1030.89	1047.32	1063.19	1079.62
Sept. 01/02	0.28		1030.79		1063.09	
Sept. 02/02	0.1		1030.61		1062.91	
Sept. 03/02						
Sept. 04/02						
Sept. 05/02	0.16		1030.67		1062.97	
Sept. 06/02	0.32		1030.83		1063.13	
Sept. 07/02	0.48		1030.99		1063.29	
Sept. 08/02	0.36		1030.87		1063.17	
Sept. 09/02	0.24		1030.75		1063.05	
Sept. 10/02	0.13		1030.64		1062.94	
Sept. 11/02	0.04		1030.55		1062.85	
Sept. 12/02	0.08		1030.59		1062.89	
Sept. 13/02	0.25		1030.76		1063.06	
Sept. 14/02	0.4		1030.91		1063.21	
Sept. 15/02	0.56		1031.07		1063.37	
Sept. 16/02	0.7		1031.21		1063.51	
Sept. 17/02	0.62		1031.13		1063.43	
Sept. 18/02	0.5		1031.01		1063.31	
Sept. 19/02	0.38		1030.89		1063.19	
Sept. 20/02	0.27		1030.78		1063.08	
Sept. 21/02	0.14		1030.65		1062.95	
Sept. 22/02	0.17		1030.68		1062.98	
Sept. 23/02	0.2		1030.71		1063.01	
Sept. 24/02	0.18		1030.69		1062.99	
Sept. 25/02	0.08		1030.59		1062.89	
Sept. 26/02						
Sept. 27/02						
Sept. 28/02		0.04		1047.34		1079.64
Sept. 29/02		0.06		1047.36		1079.66
Sept. 30/02		0.07		1047.37		1079.67
Oct. 01/02		0.09		1047.39		1079.69
Oct. 02/02		0.13		1047.43		1079.73
Oct. 03/02		0.15		1047.45		1079.75
Oct. 04/02		0.16		1047.46		1079.76
Oct. 05/02						
Oct. 06/02						
Oct. 07/02		0.21		1047.51		1079.81
Oct. 08/02		0.24		1047.54		1079.84
Oct. 09/02		0.28		1047.58		1079.88
Oct. 10/02		0.3		1047.6		1079.9
Oct. 11/02		0.31		1047.61		1079.91
Oct. 12/02						
Oct. 13/02						
Oct. 14/02						
Oct. 15/02		0.38		1047.68		1079.98
Oct. 16/02		0.4		1047.7		1080
Oct. 17/02		0.41		1047.71		1080.01
Oct. 18/02		0.42		1047.72		1080.02
Oct. 19/02						
Oct. 20/02						
Oct. 21/02		0.47		1047.77		1080.07
Oct. 22/02		0.48		1047.78		1080.08
Oct. 23/02		0.49		1047.79		1080.09
Oct. 24/02		0.5		1047.8		1080.1
Oct. 25/02		0.51		1047.81		1080.11
Oct. 26/02						
Oct. 27/02						
Oct. 28/02		0.54		1047.84		1080.14
Oct. 29/02		0.55		1047.85		1080.15
Oct. 30/02		0.56		1047.86		1080.16
Oct. 31/02		0.56		1047.86		1080.16
Nov. 01/02		0.57		1047.87		1080.17
Nov. 02/02						
Nov. 03/02						
Nov. 04/02		0.58		1047.88		1080.18
Nov. 05/02		0.58		1047.88		1080.18
Nov. 06/02		0.58		1047.88		1080.18
Nov. 07/02						

Table 1
Summary of Polishing Pond and Intermediate Pond Levels

Nov. 08/02		0.61		1047.91		1080.21
Nov. 09/02						
Nov. 10/02						
Nov. 11/02						
Nov. 12/02	0.03	0.63	1030.54	1047.93	1062.84	1080.23
Nov. 13/02						
Nov. 14/02	0.07	0.63	1030.58	1047.93	1062.88	1080.23
Nov. 15/02	0.13	0.64	1030.64	1047.94	1062.94	1080.24
Nov. 16/02	0.13	0.64	1030.64	1047.94	1062.94	1080.24
Nov. 17/02		0.64		1047.94		1080.24
Nov. 18/02	0.17		1030.68		1062.98	
Nov. 19/02						
Nov. 20/02						
Nov. 21/02						
Nov. 22/02						
Nov. 23/02						
Nov. 24/02						
Nov. 25/02						
Nov. 26/02	0.17					
Nov. 27/02						
Nov. 28/02						
Nov. 29/02						
Dec. 02/02						
Dec. 04/02						
Dec. 05/02						
Dec. 06/02						
Dec. 10/02						
Dec. 11/02						
Dec. 16/02						
Dec. 17/02						
Dec. 18/02						
Dec. 19/02						
Dec. 23/02						
Dec. 24/02						
Dec. 30/02						

TABLE 2
TOTAL MONTHLY PRECIPITATION (mm) AT FARO AIRPORT, YUKON

Year	Jan	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total (mm)
1978	0.4	miss.	trace	4.1	11.6	27.0	38.1	41.6	7.8	32.4	20.2	19.0	202.2
1979	8.9	18.3	20.2	6.7	10.5	68.2	55.4	13.8	13.4	11.6	12.4	34.4	273.8
1980	19.7	2.4	11.7	12.5	10.5	11.1	95.4	33.2	46.7	miss.	21.3	13.3	
1981	6.5	23.1	4.0	4.5	7.8	42.8	41.3	22.5	41.9	21.5	17.0	5.4	238.3
1982	10.2	18.0	9.5	4.1	18.2	14.3	58.3	47.3	47.2	42.3	11.8	13.6	294.8
1983	35.7	6.6	9.8	2.2	20.6	55.6	49.1	65.8	21.2	16.3	11.4	3.9	298.2
1984	27.6	24.1	5.9	2.4	38.8	49.0	16.6	64.9	5.5	10.8	10.7	22.5	278.8
1985	22.5	24.8	2.2	13.8	17.2	28.1	62.6	80.8	46.3	20.0	22.2	26.1	366.6
1986	8.4	4.7	34.6	12.9	35.1	12.8	81.8	77.4	44.4	22.7	15.9	5.6	356.3
1987	3.1	14.0	2.8	10	40.1	50.8	92.4	63.5	30.2	26.6	17.8	6.2	357.5
1988	7.0	10.4	17.2	8.2	38.0	37.3	97.2	25.5	43.8	29.0	17.9	16.5	348.0
1989	19.8	3.6	19.8	2.0	17.9	41.0	51.7	16.9	30.8	46.3	39.8	13.8	303.4
1990	14.4	25.8	5.0	7.0	23.4	45.4	30.0	64.4	66.2	22.7	25.4	24.8	354.5
1991	17.2	22.6	16.6	2.8	22.4	30.2	115.4	33.0	48.2	49.6	43.4	40.0	441.4
1992	22.8	24.6	7.6	15.8	14.4	11.4	66.1	34.4	47.8	13.8	18.8	13.0	290.5
1993	22.2	15.0	1.6	6.0	76.7	48.6	50.2	56.0	50.8	35.7	miss.	miss.	
1994	20.2	8.4	11.4	5.0	39.8	24.2	19.6	25.2	45.6	41.6	24.4	8.0	273.4
1995	8.4	7.8	18.4	5.2	10.9	33.9	73.4	63.4	28.8	12.2	22.3	15.4	300.1
1996	10.2	9.1	27.1	7.2	13.4	20.0	64.4	70.8	52.7	34.8	3.5	5.9	319.1
1997	6.6	8.7	1.4	14	16.5	39.3	86.4	33.2	trace	25.2	6.4	12.4	250.1
1998	7.0	2.8	4.8	4.2	14.4	29.6	19.2	24.2	23.4	24.0	4.6	8.2	166.4
1999	24.4	10.0	15.4	1.8	44.4	64.8	42.0	33.8	27.0	22.4	12.8	21.6	320.4
2000	12.2	2.0	trace	6.0	9.6	39.6	48.1	116.2	102.2	8.6	19.4	5.8	369.7
2001	7.4	3.0	4.0	14.6	30.8	35	58.4	14.2	44.6	28.6	12.2	15.4	268.2
2002	9.2	5.8	9.0	7.0	19.6	19.4	34.9	64.1	38.4	18.2	9.6	9.4	244.6
Max	35.7	25.8	34.6	15.8	76.7	68.2	115.4	116.2	102.2	49.6	43.4	40.0	
Year	1983	1990	1986	1992	1993	1979	1991	2000	2000	1991	1991	1991	
Mean	**14.1**	**11.8**	**10.4**	**7.2**	**24.1**	**35.2**	**57.9**	**47.4**	**38.2**	**24.7**	**16.8**	**14.4**	**300.7**
Min	0.4	2.0	trace	1.8	7.8	11.1	16.6	13.8	trace	8.6	3.5	3.9	
Year	1978	2000	1978	1999	1981	1980	1984	1979	1997	2000	1996	1983	
St.Dev	8.7	8.3	8.7	4.4	15.7	15.9	26.1	25.3	20.0	11.5	9.5	9.4	

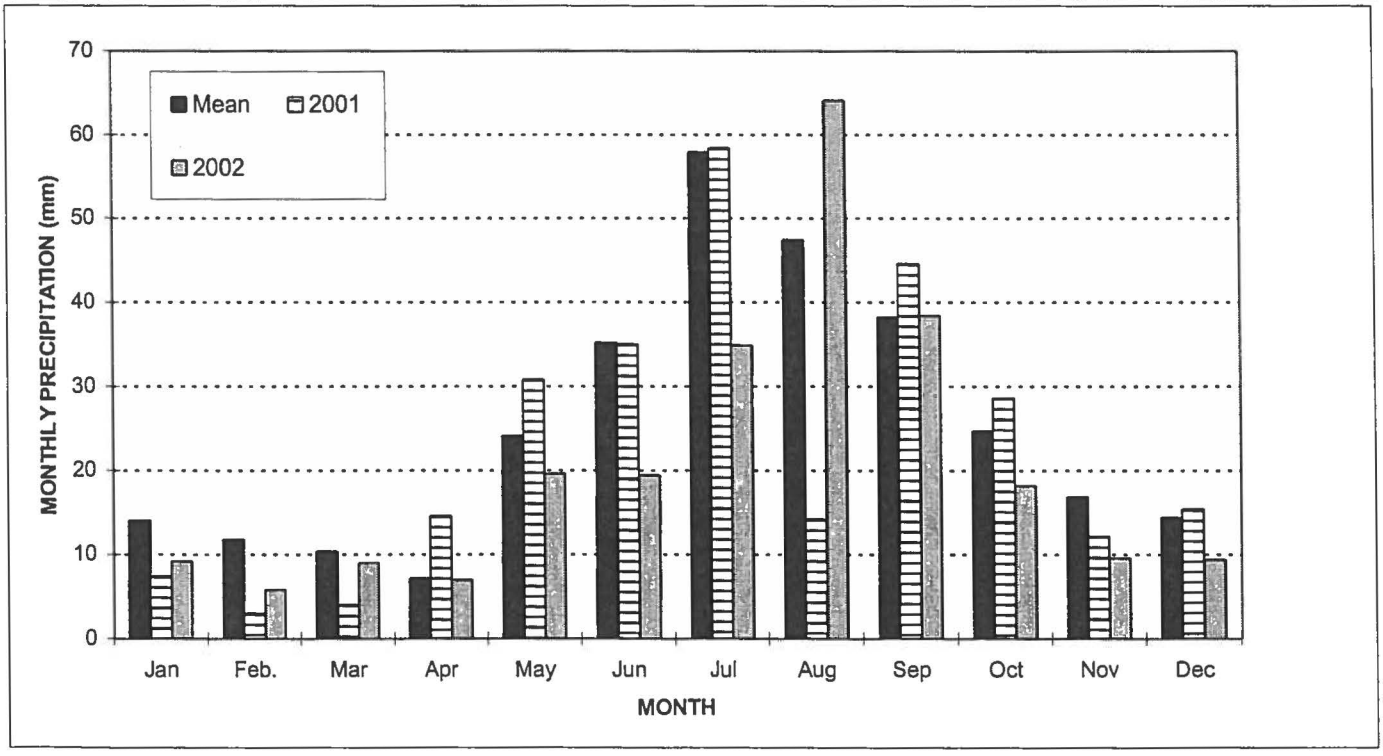


Table 3 Diversion Canal - Canal Dike - Piezometers

Installation	Date Installed	Standpipe (S) or Pneumatic (P)	# of Readings in 2002	Ground Elevation (m advpd)	Tip Elev. (m advpd)	Historic Low Reading/ Date	Historic High Reading/ Date	2002 Low Reading/ Date (Compared to 2001 Low)	2002 High Reading/ Date (Compared to 2001 High)	Comments
CD-13	1981	P	2	1087.6	1081.00/ 1077.00	1081.28/ May, 1982, **1079.87/ May, 1982**	1083.94/ Jun 14, 2000 and Jun 6, 2001, **1083.37/ Jun 14, 2000**	1082.47/ Jun 2 (-0.63), **1082.88/ Sep 12 (.35)**	1082.54/ Sep 12 (-1.4), **1083.02/ June 13 (-0.14)**	Hydraulic gradient switched from slight downward gradient in 2001 to a slight upward gradient in 2002
CD-15	1981	P	2	1087.0	1080.40/ 1075.60	1080.40 (dry)/ Nov, 1981, Dec, 1981 and Sep, 2001, **1075.61/ Dec, 1981**	1083.55/ Oct, 1985, **1083.27/ Sep 19, 2000**	1080.82/ Sep 12 (.42), **1077.56/ June 12 (-2.17)**	1080.89/ Jun 13 (0.07), **1082.46/ Sep 12 (1.26)**	Normally an upward hydraulic gradient, occasional switch. Sub-zero temperatures at depth correlate with variable pressures at depth.
CD-19	1981	P	2	1086.3	1081.00/ 1077.30	1081.35/ May, 1982, **1077.30/ Sep, 1991**	1091.43/ Jun, 1992, **1083.39/ Jun, 1992**	1083.24/ June 13 (.14), **1077.79/ Sept 12(0.43)**	1083.8/ Sep 12 (-.14), **1077.86/ June 13(0.14)**	Downward gradient, likely free drainage at depth. Pore pressures measured at the shallow piezometer have increased steadily since 1995.
CD-21	1981	P	2	1085.9	1079.80/ 1074.30	1080.22/ Apr, 1991, **1074.58/ Nov, 1988 and May, 1982 to Sep, 1983**	1084.56/ Jun, 1992, **1079.81/ Jun, 1992**	1081.41/ June 13 (-0.88), **1075.14/ June 13 and Sep 12 (0.07)**	1081.76/ Sept 12 (-0.63), **1075.14/ June 13 and Sept 12 (-0.07)**	Downward gradient, likely free drainage at depth
CD-26	1981	P	2	1085.5	1080.50/ 1074.30	1080.50/ Sep, 1995, **1074.30/ Sep, 1995**	1082.11/ Jul, 1988, **1075.91/ Jul, 1988**	1080.85/ Sep 12 (0.30), **1074.93/ Sept 12 and June 13 (-.07)**	1080.99/ June 13 (0.07), **1074.93/ June 13 and Sept 12 (-0.07)**	Downward gradient, likely free drainage at depth
BH88-7	1988	P	2	1086.3	1078.60/ 1071.40	1079.09/ Oct, 1988, **1071.54/Mar, 1989**	1094.63/ Aug 7, 1998, **1081.48/Jun, 1992**	1089.87/ Sept 12 (.7), **1075.95/June 13 (1.4)**	1089.94/ June 13 (.21), **1076.65/Sept 12 (-.95)**	Downward gradient, shallow tip readings indicate artesian pressures since 1992. Has been a downward trend in pore pressures measured since 1996.
BH88-11	1988	P	2	1086.2	1078.90/ 1072.30	1079.53/ Oct, 1988, **1073.00/ Jun 6, 2001 and Oct, 1988**	1086.74/ Sep 11, 1999, **1080.39/Jun, 1992**	1082.33/ Jun 13 (.84) **N/A**	1082.4/ Sep 12 (.42) **N/A**	Deep tip malfunctioning, high air return. Shallow tip higher than 2001, but still lower than readings recorded between 1991 and 2000.

Note: Bold values correspond to deep tip readings.
Piezometric elevations quoted in **m advpd.**

Table 4 Diversion Canal - Canal Dike - Thermistors

Installation	Date Installed	Length of String (m)	# of Readings in 2002	Depth to Permafrost 2001 (depth below ground surface (m))	Depth to Permafrost 2002 (depth below ground surface (m))	Comments
CD-10	1981	10	2	N/A	Not observed within 9.9 m of ground surface.	Warming trend at depth. Not monitored in 2001.
CD-15	1981	10	2	9.5	9.5	The data indicating subzero ground temperatures recorded at 3 m depth may be spurious. June readings indicate winter frost penetration to a depth of 5.1 m. Cooling trend indicated at depth.
CD-19	1981	10	2	N/A	Not observed within upper 6.8 m of ground surface	Data from 7.8 and 8.8 m nodes are spurious. Warming trend at depth. Not monitored in 2001.
CD-21	1981	13	2	Not observed within 13.0 m of ground surface.	Not observed within 13.0 m of ground surface.	As expected, a completely thawed profile was present in Sept. 2002. Warming indicated at depth.
CD-26	1981	10	2	N/A	Not observed within upper 9.6 m of ground surface.	Cooling trend since 1999. Not monitored in 2000 and 2001.
BH 88-7	1988	14.9	2	6.0	6.0	Very little warming occuring at depth. Permafrost observed below 6 m.
BH88-11	1988	13.9	2	N/A	5.5	May be warming below 10 m. Permafrost below 6.0 m.
BGC01-02	2001	13.9	6	N/A	10	Many nodes malfunctioning. Permafrost below 10 m.

Table 5 Diversion Canal - Canal Dike - Slope Indicators

Installation	Date Installed	Length of Casing (m)	# of Readings in 2002	Comments
CD-10	1981	10	2	Negligible movement since 1996.
CD-15	1981	10	2	Negligible subsurface movement since 1996. 6 mm movement in upper 2 m since Sep 2001.
91CD-1	1991	11	2	Negligible movement since 1997.
CD-19	1981	10	2	Some movement has been detected in readings recorded prior to 1998. This movement has previously been attributed to settlement of the dike and settlement of the SI casing in the borehole. Negligible movement since 1998.
CD-21	1981	10	2	Some movement had been detected in readings recorded prior to 1998. This movement has been attributed to settlement of the dike and settlement of the SI casing in the borehole. Indications of settlement have been observed at surface during the annual inspection since 1991. 15 mm of movement since 1998 between depths of 6 and 9 m.
BGC01-01 (88-10 replacement)	2001	12	2	68 mm of movement in bottom 2 m of casing (10 to 12 m depth). More data is required to make a determination of significance.
94CD-1	1994	14	2	50 mm of surface movement in the upper 2 m since September 2001.

Table 6 Diversion Canal - Spoil Piles - Thermistors

Installation	Date Installed	Length of String (m)	# of Readings in 2002	Depth to Permafrost 2001 (m below surface)	Depth to Permafrost 2002 (m below surface)	Comments
SP-3	1981	10	2	Not observed within 9.1 m of ground surface.	Not observed within 9.1 m of ground surface.	No permafrost conditions observed. Several tips not working.
SP-5	1981	10	2	5.5	8	There appears to be significant warming since September 2000. Some thermistor tips malfunctioning.

Table 7 Diversion Canal - Spoil Piles - Slope Inclinometers

Installation	Date Installed	Length of Casing (m)	# of Readings in 2002	Comments
SP-2	1981	7.5	2	Casing initially 10 m in length. In 2000, the casing was deformed at 7.5 m below surface, all readings are now taken from 7.5 m.
SP-3	1981	7	0	Casing not monitored in 2002.
SP-5	1981	10	2	No movement at depth has been recorded since 1996. Surface displacements have been occurring in the upper 2 m since Sep 2000.

Table 8 Canal Backslope Piezometers

Installation	Date Installed	Standpipe (S) or Pneumatic (P)	# of Readings in 2002	Ground Elevation (m advpd)	Tip Elev. (m advpd)	Historic Low Reading/ Date	Historic High Reading/ Date	2002 Low Reading/ Date (Compared to 2001 Low)	2002 High Reading/ Date (Compared to 2001 High)	Comments
BS-5	1981	S	2	1092.5	1085.3	1085.69/ Mar 1982	1089.99/ May 1994	1087.26/ Sep (-1.05)	1087.47/ Jun (-.35)	2002 data fits within normally observed range.

Note: Piezometric elevations quoted in m advpd.

Table 9 Canal Backslope Thermistors

Installation	Date Installed	Length of String (m)	# of Readings in 2002	Minimum Depth to Permafrost (m below ground surface)	Depth to Permafrost 2001 (m below surface)	Depth to Permafrost 2002 (m below surface)	Comments
BS-5	1981	10	1	6 m (2002)	N/A	6	Appears to have cooled since 1995. Subzero conditions below 5.5m.
BS-10	1981	10	1	surface (1981)	5	6	Depth to permafrost increasing yearly.

Table 10 Cross Valley Dam - Piezometers

Installation	Date Installed	Standpipe (S) or Pneumatic (P)	# of Readings in 2002	Ground Elevation (m advpd)	Tip Elev. (m advpd)	Historic Low Reading/ Date	Historic High Reading/ Date	2002 Low Reading/ Date (Compared to 2001 Low)	2002 High Reading/ Date (Compared to 2001 High)	Comments
CVDC-4	1982	S	15	1065.5	1040.2/ **1032**	1048.88/Apr, 1984, **1048.92/ Apr, 1984**	1050.64/ Oct, 1986, **1051.25/ Jun, 1992**	N/A **1050.74/ Jan 16 (-0.06)**	N/A **1050.96/ Sep 9 (0.0)**	Shallow piezometer blocked 7.6 m below top of pipe since 1987.
CVDC-7	1982	S	15	1065.7	1040.1/ **1035.2**	1047.51/ Apr, 1984, **1049.57/ Apr, 1984**	1048.60/ Sep, 1992, **1051.51 June, 1992**	1047.91/ Jan 9,16 and 30 (-0.01), **1050.30/Jan 9 (0.0)**	1048.18/ Sep 9 (0.05), **1050.79 Sep 9 (-0.01)**	Low pore pressures in foundation. Upward gradient.
CVDC-9	1982	S	15	1065.6	1040/ **1033**	1052.21/ Aug, 1983, **1053.48/ Jun, 1984**	1057.04/ Aug, 1982, **1057.91/ Jun, 1992**	1053.22/ jan 2 (0.02), **1055.36/ jan 2 (0.04)**	1054.17/ Sep 9 (-0.29), **1056.61/ Sep 9 (0.39)**	Moderately higher pore pressures than in other places of the dam. Slight upward gradient.
CVDP-3	1982	P	6	N/A	1047.01	1047.29/ Sep, 1992	1050.37/ May, 1991	1049.25/ May 1 and Nov 10 (0.07)	1049.39 Sep 9 (-0.14)	Low pore pressures in the shallow foundation. Piezometer fixed, readings re-started in May.
CVDP-6	1982	P	14	N/A	1046.67	1049.29/ May 27, 1998	1051.29/ Sep, 1992	1049.89/ Jan 9, 16 (0.14)	1050.31/ May 1 and Nov 4 (0.21)	Low pore pressures in the shallow foundation.
CVDT-1	1994	S	14	1050.0	1040.2	1049.43/ May 31, 1994	1050.63/ Jun 3, 1999	1049.69 (0.0)	1049.76/ Sep 9 (0.03)	Readings Jan. to May 2002 questionable due to water in standpipe freezing.
CVDT-2	1994	S	14	1051.8	1038.5	1048.34/ Dec 26, 2001and Jan 2, 16, 30 and Feb 6 and 20 2002	1048.79/ Oct 6, 1999	1048.34/ Jan 2, 16, 30 and Feb 6 and 20, 2002	1048.66/ Sep 9 (0.05)	Minor seasonal fluctuation
BH94CVDC-1	1994	S	15	1065.5	1052.7	1055.21/ May 7, 1997	1056.88/ Sep, 1995	1055.61/ Aug 7 (0.06)	1055.84/ Sep 9 (0.28)	Minor seasonal fluctuation. A maximum seasonal fluctuation of approximately 0.5 m. Pressures appear to be decreasing in the long term.
P01-02	2001	S	3	1051.33	1037.4/ **1026.63**	1050.29/ Jun 6, 2002 **1052.0/ Sep 10, 2001**	1050.6/ Sep 3, 2002 **1053.2/ Sep 23, 2002**	1050.29/ Jun 6 (-.14) **1052.8/ Jun 6 (.8)**	1050.6/ Sep 3 (.17) **1053.2/ Sep 3 and 23 (1.2)**	Artesian conditions observed in deep monitoring well. Upward gradient.
P01-11	2001	S	2	1049.58	1038.91	1049.48/ Sep 11, 2001	1049.68/ Sep 3 and 23, 2002	1049.68/ Sep 3 and 23 (.2)	1049.68/ Sep 3 and 23 (.2)	Piezometric surface located near ground surface.

Note: Bold values correspond to deep tip readings
Piezometric elevations quoted in **m advpd.**

Table 11 2002 Cross Valley Dam Weir Flows

DATE	X13 (comb.) FLOW* (Lps)	X11 (North) FLOW** (Lps)	X12 (South) FLOW*** (Lps)	W3 (Central) FLOW** (Lps)	X13-(X11+X12+W3) FLOW (Lps)
03-Jan-02	47	24	1	11	11
10-Jan-02	47	24	1	11	11
14-Jan-02	47	24	1	11	11
22-Jan-02	47	24	1	11	11
29-Jan-02	47	24	1	11	11
06-Feb-02	47	24	1	10	12
11-Feb-02	47	24	1	10	12
20-Feb-02	47	24	1	10	12
26-Feb-02	47	24	1	10	12
05-Mar-02	47	24	1	10	12
11-Mar-02	47	24	1	10	12
20-Mar-02	47	24	1	10	12
31-Mar-02	47	24	1	10	12
05-Apr-02	47	24	1	10	12
11-Apr-02	47	24	1	10	12
15-Apr-02	47	24	1		
18-Apr-02	47	24	1	10	12
25-Apr-02	47	24	1	10	12
02-May-02	47	22	1	10	14
10-May-02	47	22	1	10	14
13-May-02	47	22	1	10	14
18-May-02	49	24	1	10	14
25-May-02	49	30	1	10	8
30-May-02	49	30	1	10	8
06-Jun-02	49	30	1	10	8
08-Jun-02	49			10	
15-Jun-02	49	24	1	11	13
21-Jun-02	49	24	1	11	13
28-Jun-02	49	24	1	11	13
04-Jul-02	49	24	1	11	13
11-Jul-02	49	24	1	10	14
15-Jul-02	49	24	1	10	14
19-Jul-02	49	24	1	10	14
26-Jul-02	49	24	1	10	14
01-Aug-02	49	24	1	10	14
09-Aug-02	49	19	1	10	19
12-Aug-02	49	19	1	10	19
17-Aug-02	49	19	1	10	19
22-Aug-02	49	24	1	10	14
29-Aug-02	49	24	1	10	14
05-Sep-02	49	24	1	10	14
12-Sep-02	49	24	1	11	13
16-Sep-02	49	24	1		
27-Sep-02	45	24	1	10	10
03-Oct-02	38	24	1	8.5	5
12-Oct-02	38	16	1	8.5	13
15-Oct-02	38	16	1	8.5	13
21-Oct-02	38	19	1	9	9
29-Oct-02	38	19	1	8.5	10
05-Nov-02	38	22	1	8.5	7
12-Nov-02	38	22	1	8.5	7
19-Nov-02	45	22	1	10	12
26-Nov-02	45	24	1	10	10
03-Dec-02	45	24	1	10	10
10-Dec-02	45	24	1	10	10
17-Dec-02	46	24	1	10	11
24-Dec-02	46	24	1	10	11
31-Dec-02	46	24	1	10	11

* flows calculated from stage-discharge curve and occaisional spot measurements.
** flows calculated from standard V-Notch weir formula applied to staff gauge readings.
*** Flow estimated by bucket/ timer method.
The difference of flow at X13 less (X11+X12+W3) is un accounted for.

Table 12
CROSS VALLEY DAM SEEPAGE FLOWS - WEIR X13 (1982 - 2002)

YEAR	MEAN POND ELEVATION (m asl)	MINIMUM FLOW RATE (month recorded) (L/s)	MAXIMUM FLOW RATE (month recorded) (L/s)	AVERAGE YEARLY FLOW RATE (L/s)
1982	1058.55	75.9 (Sept)	277.6 (June)	115.3
1984	1059.85	67.8 (Oct)	84.9 (Dec)	76.3
1985	1061.99	83.9 (Sept - Dec)	113.6 (Jul)	93.2
1986	1063.2	79.8 (May)	113.2 (Sept)	93.8
1987	~1063.2	77.0 (May)	106.1 (Aug - Sept)	94.4
1988	~1063.2	78.9 (Jun)	110.4 (Aug)	95.5
1989	~1063.2	72.3 (Mar)	97.9 (Aug)	85.7
1990	~1063.2	64.9 (Mar)	102.9 (Sept)	82.8
1991	~1063.2	66.6 (Oct)	91.0 (Jun)	81.6
1992	N/A	53.8 (Nov)	90.8	68.4
1995	1063.5	29.1 (Dec)	52.8 (Jun)	50.2
1996	1062.2(Sept)	15.8 (Apr)	58.3 (Sep)	34.8
1997	N/A	30.0 (Apr)	109.9 (Sep)	28.6
1998	1062.8	49.0 (Dec)	119.0 (Sep)	52.7
1999	1063	44.0 (Feb and Sep)	82.0 (July)	53.58
2000	1063.8	35.0 (Nov 18)	78.0 (June 26)	48.65
2001		35.0 (Jan and Feb)	49 (Jun to Sep)	48
2002		38 (Oct.3 - Nov. 12)	49 (May 18 - Sept. 16)	46.4

Notes:
1. For locations of weirs see Figure 1.
2. Flows for 1983, 1984 and 1985 based on records for period June to December and flow for 1991 based on records for period January to November.
3. High flow through Weir 3 in June, 1982 due to siphon discharge above weir.
4. Weir 3 was replaced by X13 as a consequence of the seepage filter construction conducted in the summer of 1991.
5. Drainage from west of south abutment road crossed to berm drainage collector during 1995 and perhaps in 1996; therefore some readings may higher than expected.
6. Insufficient data for average pond level in 2001 and 2002 because water level below staff gauge.

Table 13 Cross Valley Dam - Thermistors

Installation	Date Installed	Length of String (m)	# of Readings in 2002	Depth to Permafrost 2001 (m below ground surface)	Depth to Permafrost 2002 (m below ground surface)	Comments
CVDC-6	1981	29	4	none	none	No readings in the top 15 m. Readings all above 0 °C in 2002.
CVDC-11	1981	15	4	none	none	Winter frost penetration to approximately 5.7 m.
88-4-4T	1988	4.2	4	none	none	Depth of winter frost extended beyond the lowest thermistor node.

Table 14 Intermediate Dam - Piezometers

Installation	Date Installed	Standpipe (S) or Pneumatic (P)	# of Readings in 2002	Ground Elevation (m advpd)	Tip Elev. (m advpd)	Historic Low Reading/ Date	Historic High Reading/ Date	2002 Low Reading/ Date (Compared to 2001)	2002 High Reading/ Date (Compared to 2001)	Comments
91-ID3	1991	P	4	1085.45	1078.45/ **1070.25**	1078.45/ Sep, 1995, Dec 16, 1998, Sep 9, 2000, and 2002 **1074.66/ Dec 16, 1998**	1080.86/ Jun, 1992, **1079.67/ Jun, 1992**	**N/A** **1074.8/Nov 10 (-1.19)**	**N/A** **1076.62 Jun 18 (-0.84)**	Shallow tip dry. Deep tip indicates declining pore pressures. Downward gradient observed prior to shallow tip indicating dry conditions.
91-ID4	1991	P	4	1064.1	1056.52/ **1049.38**	1060.93/May 7, 1997, **1060.72/Sep 16, 1999**	1066.88/Jun, 1992, **1064.15/Sep, 1992**	1062.82/ Sep 10 to Nov 4 (-0.35), **1061.7/ Nov 4 (-0.35)**	1063.31/ Jun 18 (0), **1062.54/ Jun 18 (0.42)**	Downward gradient, lower readings than last few years.
91-ID5	1991	P	4	1064	1056.60/ **1049.38**					Both tips are leaking making the instrument inoperable. Recommend to abandon.
91-ID6	1991	P	4	1064.2	1057.10/ **1049.20**	1059.13/ May 7, 1997, **1061.52/ Sep 16, 1999**	1064.04/ Jun, 1992, **1067.26/Jun, 1992**	1061.51/ Nov 4 and 10 (-0.35), **1062.5/ Nov 4 (-0.35)**	1061.86/ Jun 18 (-0.14), **1062.92/ Jun 18 (-0.07)**	Upward gradient.
91-ID7	1991	P	4	1065.75	1058.25	1061.82/ May 7, 1997	1067.50/ Feb, 1992	1063.43/ Nov 10 (-0.49)	1064.06/ Jun 18 (0.07)	Pore pressures appear to be declining since 1999.
94-IDC-1	1994	S	4	1081.6 (approx)	1067.5 (approx)					Has recorded dry conditions since initial monitoring in 1994
P96-1	1996	S	4	1081.6	1059.8	1061.8/ Oct 29, 1999	1063.95/ June 8, 1999	1061.87/ Aug 5 (N/A)	1062.33/ Sep 10 (N/A)	Piezometric Elev. Approx. 19 - 20 m bgs.
P96-2	1996	S	5	1081.6	1061.48	1062.1/ Oct 29, 1999	1064.24/ June 8, 1999	1062.2/ Aug 5 (N/A)	1064.98/ Jun 18 (N/A)	Piezometric Elev. Approx. 18 - 20 m bgs.
P96-3	1996	S	2	1063.7	1054.73/ **1044.53**	1059.88/ May 13, 1997 **1060.01/ May 13, 1997**	1063.68/ Jun 19, 1999 **1063.75/ Jun 1999**	1061.82/ Sep 10 **1061.91/ Sep 10**	1062.57/ Jun 18 **1061.91/ Jun 18**	Piezometric Elev. Approx. 1.75 - 2.0 m bgs.
P96-4	1996	S	2	1064.6	1058.12 1053.3 1048.13 **1036.26**	1060.19/May 13, 1997 1061.73/ Oct 29, 1999 1060.45/ May 13, 1997 **1061.82/ Oct29, 1999**	1064.34/ Jun 18, 2002 1064.58/ Jun 18, 2002 1063.94/ Jun 19, 1999 **1064.05/Jun19,1999**	1062.1/ Sep 10 1062.12/ Sep 10 1062.05/ Sep 10 **1062.2/ Sep 10**	1064.34/ Jun 18 1064.58/ Sep 10 1062.05/ Sep 10 **1062.2/ Sep 10**	Piezometric Elev. Approx. 2.5 m bgs.
P01-03	2001	S	2	1063.95	1054.65	1062.12/ June 10, 2002	1062.93/ Sep 11, 2001	1062.12/ June 10 (-.81)	1062.45/ Sep 23 (-.48)	Piezometric Elev. Approx. 1.5 - 2.0 m bgs.
P01-04	2001	S	2	1063.69	1029.47/ **1010.19**	1062.53/ Jun 10, 2002 **1062.9/ Jun 10, 2002**	1063.42/ Sep 11, 2001 **1063.8/ Sep 11, 2001**	1062.53/ Jun 10 (-.91) **1062.9/ Jun 10 (-.9)**	1062.81/ Sep 23 (-.61) **1063.2/ Sep 23 (-.6)**	Piezometric Elev. Approx. 0.5 - 1.0 m bgs.

Note: Bold values correspond to deep piezometer tips
Piezometric elevations quoted in **m advpd.**

Table 15 Fresh Water Supply Dam - Piezometers

Installation	Date Installed	Standpipe (S) or Pneumatic (P)	# of Readings in 2002	Ground Elevation (m amsl)	Tip Elev. (m amsl)	Historic Low Reading/ Date	Historic High Reading/ Date	2002 Low Reading/ Date (Compared to 2001)	2002 High Reading/ Date (Compared to 2001)	Comments
BH85-1	1985	S	109	1079.32	1072.04	1076.33/ June 8, 2000	1081.42 (1991-1997/ artesian)	1078.87/ June 14	1079.20/ May 20 (0.01)	Frozen in the winter months. Piezometric surface approximately 0.1 to 0.2 m bgs.
BH85-2	1985	S	109	1086.674	1078.75	1082.54/ Oct, 1987	1085.36/ Sept, 1992	1084.005/ Jan 11 to May 20	1085.12/ Jun 10 (-0.01)	Frozen in the winter months. Piezometric elevation generally within 1.5 m of ground surface.
BH85-3	1985	S	109	1087.802	1083.68	1085.01/ Mar, 1990	1086.13/ Jul, 1990	1085.44/ Feb 6	1085.95/ May 29 (-0.02)	Frozen in the winter months. Piezometric elevation generally within 2.0 m of ground surface.
BH85-4	1985	S	109	1099.347	1089.2	1090.73/ May 20, 2002	1092.99/ Dec 3, 1996	1090.73/ May 20	1092.10/ Sep 18 (-0.17)	Piezometric elevation generally within 6-7 m of ground surface at FSL.
BH85-5	1985	S	109	1099.217	1087.31	1087.92/ May 6, 2002	1090.36/ Oct 12, 2000	1087.92/ May 6, 2002	1089.37/ Nov 6 (-0.19)	Piezometric elevation generally within 8-9 m of ground surface at FSL.
BH85-6	1985	S	109	1087.164	1078.26	1083.47/ Apr 22 and 26, 2002	1085.35/ Sept 28, 2000	1083.47/ Apr 22 and 26	1085.19/ Sep 4 (-0.029)	Piezometric surface approximately 2.0 m bgs.
BH88-15	1988	P	109	1099.42	1094.20/ **1087.00/ 1079.30**	1094.207/ Feb 18 and May 20 to June 7,2002 **1087.014/ Apr 26, 2002 1087.42/ Apr 26, 2002**	1098.44/ Jun, 1992 **1090.64/ Jun, 1992 1094.11/ Jun, 1992**	1094.207/ Feb 18 and May 20 to June 7,2002 **1087.014/ Apr 26, 2002 1087.42/ Apr 26, 2002**	1095.18/ Sept 25 (-1.19) **1087.35/ Sep 25 (-0.28) 1091.41/ Jun 17 (-0.003)**	High pore pressures within foundation. Intermediate tip malfunctioning.
BH88-16	1988	P	109	1089.61	1079.40/ **1074.80**	1082.9/ Apr 22, 2002 **1084.32/ Apr 22, 2002**	1085.56/ Jun, 1992 **1089.36/ Jun, 1992**	1082.9/ Apr 22, 2002 **1084.32/ Apr 22, 2002**	1083.67/ Jun 21, 27 and Aug 7 and Oct 23 to Nov 8 (0.28) **1087.19/ May 27 to Jun 17 (+0.07)**	Upward gradient within berm and foundation. The deep tip responds quickly to reservoir fluctuation.
BGC02-05	2002	P	100	1099.305	1084.9	1087.35/ May 20, 2002	1088.75/ Sep.18, 2002	1087.35/ May 20	1088.75/ Sep.18, 2002	Maximum piezometric surface generally about 10.5 m bgs.
BGC02-14	2002	P	91	1099.305	1088.0 **1084.5**	1088.91/May 20, 2002 **1086.04/ May 20, 2002**	1090.38/ Oct. 2, 2002 **1087.30/ Sep 18, 2002**	1088.91/May 20 **1086.04/ May 20**	1090.38/ Oct. 2, 2002 **1087.30/ Sep 18, 2002**	Downward gradient observed.

Note: Bold values correspond to deep tip readings.
Piezometric elevations quoted in **m amsl.**
2002 low not compared to 2001 low because of reservoir lowering in 2002.

Table 16 - Piezometric Response of FWSD to Reservoir Lowering (2001/ 2002)

Instrument		Piezometric Elevation Prior to 1st lowering (Sept. 2001)	Piezometric Elevation Prior to 2002 Freshet (May 2002)	Difference (m)	Pore Pressure Decrease Change in Reservoir (%)
BH88-16	Shallow	1083.39	1082.9	-0.49	8.2%
	Deep	1087.05	1084.32	-2.73	45.5%
BH88-15	Shallow	1096.37	1094.21 (dry)	N/A	N/A
	Intermediate	1087.63	1087.01 (dry)	N/A	N/A
	Deep	1091.42	1087.42	-4.00	66.7%
88-1		1079.19	1078.87	-0.32	5.3%
88-2		1085.13	1084.01	-1.12	18.7%
88-3		1085.87	1085.44	-0.43	7.2%
88-4		1092.27	1090.73	-1.54	25.7%
88-5		1089.56	1087.92	-1.64	27.3%
88-6		1085.08	1083.47	-1.61	26.8%
BGC02-05		N/A	1087.35	N/A	N/A
BGC02-14	Shallow	N/A	1088.91	N/A	N/A
	Deep	N/A	1086.04	N/A	N/A

Note: Piezometric elevations wrt m asl.
Reservoir Level = 1096 m Prior to 1st Lowering (Sept. 2001)
Reservoir Level = 1090 m Prior to 2002 Freshet (May, 2002)

Table 17
2002 FRESH WATER SUPPLY DAM WEIR STAFF GAUGE READINGS

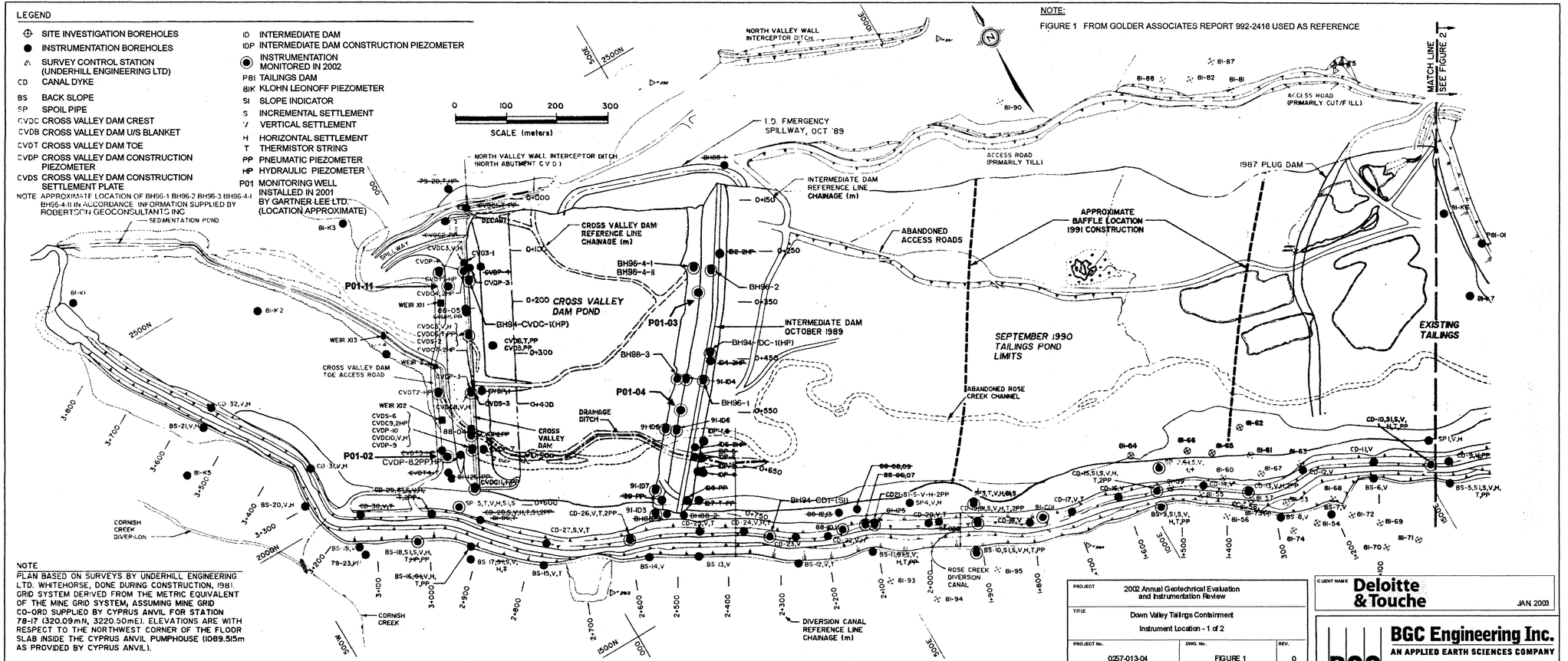
Date	Pond Elevation (m asl)	Lower Seep Weir Staff Gauge (m)	ValveHouse Weir Staff Gauge (m)
2-Jan-02	1092.8		0.51
11-Jan-02	1092.718		0.52
16-Jan-02	1092.532		0.53
23-Jan-02	1091.923	0.17	0.53
15-Feb-02			0.49
19-Feb-02	1090.045		0.34
22-Feb-02	1090.075		0.32
5-Apr-02	1090.485	0.07	
26-Apr-02	1090.295	0.12	0.32
29-Apr-02		0.12	0.32
3-May-02	1090.548	0.12	0.32
6-May-02		0.12	
10-May-02	1090.815	0.12	0.32
13-May-02		0.12	0.32
17-May-02		0.12	0.32
20-May-02	1093.08	0.14	0.33
24-May-02	1095.395	0.15	0.34
27-May-02	1096.3	0.153	0.34
29-May-02	1096.554	0.16	0.34
31-May-02		0.16	0.34
7-Jun-02	1096.479	0.16	0.34
14-Jun-02	1096.25	0.16	0.34
21-Jun-02	1096.21	0.16	0.34
27-Jun-02	1096.124	0.16	0.34
3-Jul-02	1095.905	0.16	0.34
10-Jul-02	1095.335	0.16	0.34
17-Jul-02	1095.82	0.16	0.34
24-Jul-02	1095.92	0.16	0.34
31-Jul-02	1096.171	0.16	0.34
7-Aug-02	1095.69	0.16	0.34
14-Aug-02	1095.365	0.16	0.34
21-Aug-02	1095.576	0.18	0.34
28-Aug-02	1095.99	0.17	0.49
4-Sep-02	1096.2	0.17	0.5
11-Sep-02	1096.1	0.17	0.5
18-Sep-02	1095.81	0.17	0.5
25-Sep-02	1095.365	0.17	0.5
2-Oct-02	1095.141	0.17	0.5
9-Oct-02	1094.535	0.17	0.49
11-Oct-02	1094.29	0.165	0.49
14-Oct-02	1094.132	0.165	0.49
16-Oct-02	1094.035	0.165	0.49
18-Oct-02	1094.115	0.165	0.49
21-Oct-02	1094.33	0.165	0.49
23-Oct-02	1094.46	0.165	0.49
25-Oct-02	1094.46	0.165	0.49
30-Oct-02	1094.392	0.165	0.48
1-Nov-02	1094.335	0.165	0.49
4-Nov-02	1094.255	0.165	0.49
6-Nov-02	1094.195	0.165	0.49
8-Nov-02	1094.12	0.165	0.49
11-Nov-02	1093.99	0.165	0.49
13-Nov-02	1093.89	0.165	0.49
15-Nov-02	1093.81	0.165	0.49
18-Nov-02	1093.68	0.16	0.49
20-Nov-02	1093.56	0.155	0.49
22-Nov-02	1093.395	0.155	0.49
25-Nov-02	1093.297	0.15	0.48
27-Nov-02	1093.088	0.16	0.48
29-Nov-02	1093.112	0.15	0.48
2-Dec-02	1093.12	0.15	0.48
4-Dec-02	1093.096	0.15	0.48
6-Dec-02	1093.045	0.15	0.48
9-Dec-02		0.15	0.48
11-Dec-02		0.15	0.48
13-Dec-02	1092.915	0.15	0.48
16-Dec-02	1092.83	0.13	0.48
18-Dec-02	1092.78	0.13	0.48
20-Dec-02	1092.72	0.135	0.48
23-Dec-02	1092.69	0.14	0.48
27-Dec-02	1092.57	0.14	0.48
30-Dec-02	1092.42	0.14	0.485

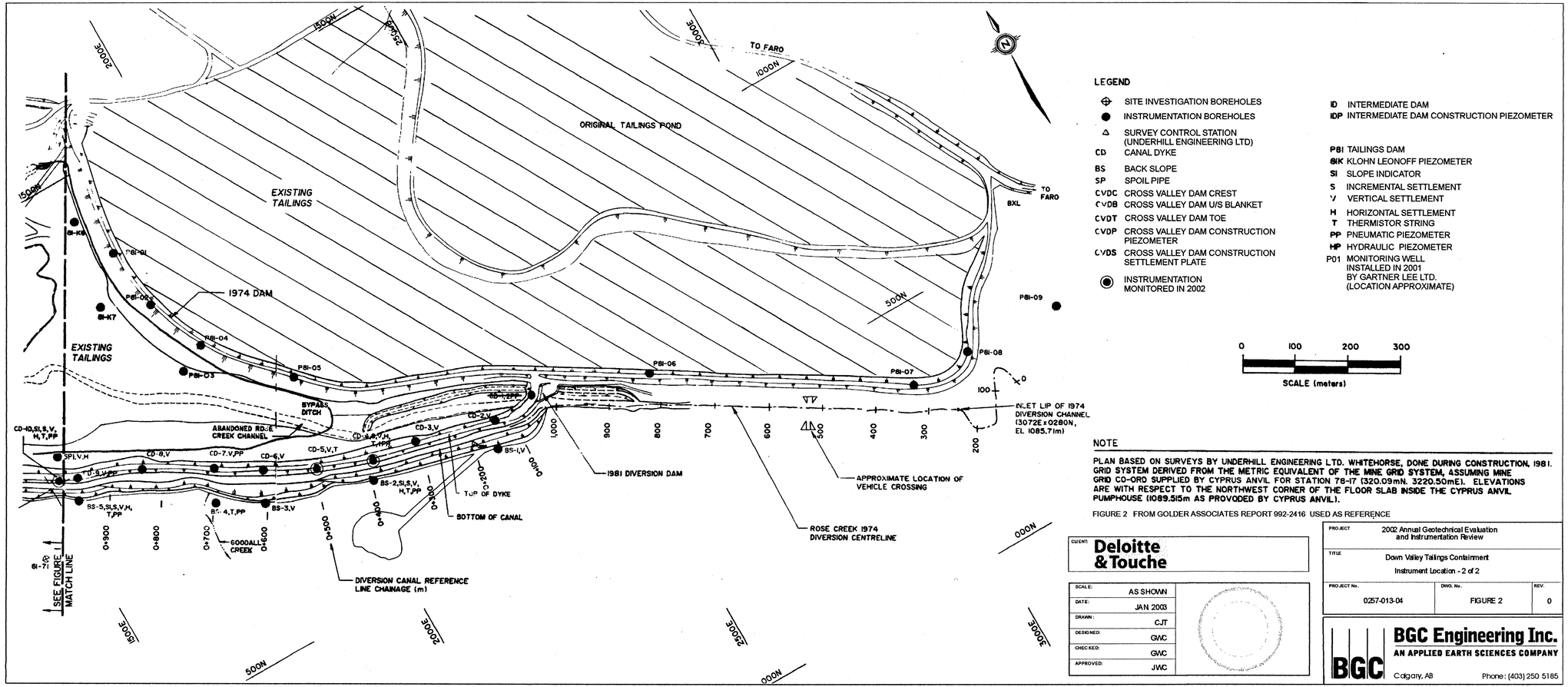
All data provided by Anvil Range Mining Corp. (Interim Receivership)
log of physical inspections not reported here

Table 18 Fresh Water Supply Dam - Thermistors

Installation	Date Installed	Length of String (m)	# of Readings in 2002	Permafrost Interval 2001 (m below surface)	Permafrost Interval 2002 (m below surface)	Comments
BH 85-5	1985	8.1	51	none	None	Depth of winter frost penetration was 6.2 m.

FIGURES


LEGEND
SITE INVESTIGATION BOREHOLES
INSTRUMENTATION BOREHOLES
SURVEY CONTROL STATION (UNDERHILL ENGINEERING LTD)
CD CANAL DYKE
BS BACK SLOPE
SP SPOIL PIPE
CVDC CROSS VALLEY DAM CREST
CVDB CROSS VALLEY DAM U/S BLANKET
CVDT CROSS VALLEY DAM TOE
CVDP CROSS VALLEY DAM CONSTRUCTION PIEZOMETER
CVDS CROSS VALLEY DAM CONSTRUCTION SETTLEMENT PLATE
NOTE APPROXIMATE LOCATION OF BH96-1 BH96-2 BH96-3 BH96-4-I BH96-4-II IN ACCORDANCE INFORMATION SUPPLIED BY ROBERTSON GEOCONSULTANTS INC
ID INTERMEDIATE DAM
IDP INTERMEDIATE DAM CONSTRUCTION PIEZOMETER
INSTRUMENTATION MONITORED IN 2002
PBI TAILINGS DAM
BIK KLOHN LEONOFF PIEZOMETER
SI SLOPE INDICATOR
S INCREMENTAL SETTLEMENT
V VERTICAL SETTLEMENT
H HORIZONTAL SETTLEMENT
T THERMISTOR STRING
PP PNEUMATIC PIEZOMETER
HP HYDRAULIC PIEZOMETER
P01 MONITORING WELL INSTALLED IN 2001 BY GARTNER LEE LTD. (LOCATION APPROXIMATE)
NOTE
PLAN BASED ON SURVEYS BY UNDERHILL ENGINEERING LTD. WHITEHORSE, DONE DURING CONSTRUCTION, 1981. GRID SYSTEM DERIVED FROM THE METRIC EQUIVALENT OF THE MINE GRID SYSTEM, ASSUMING MINE GRID CO-ORD SUPPLIED BY CYPRUS ANVIL FOR STATION 78-17 (320.09mN, 3220.50mE). ELEVATIONS ARE WITH RESPECT TO THE NORTHWEST CORNER OF THE FLOOR SLAB INSIDE THE CYPRUS ANVIL PUMPHOUSE (1089.515m AS PROVIDED BY CYPRUS ANVIL).
NOTE:
FIGURE 1 FROM GOLDER ASSOCIATES REPORT 992-2416 USED AS REFERENCE
0 100 200 300
SCALE (meters)
NORTH VALLEY WALL INTERCEPTOR DITCH
NORTH VALLEY WALL INTERCEPTOR DITCH (NORTH ABUTMENT CVDT)
I.D. EMERGENCY SPILLWAY, OCT '89
INTERMEDIATE DAM REFERENCE LINE CHAINAGE (m)
CROSS VALLEY DAM REFERENCE LINE CHAINAGE (m)
ABANDONED ACCESS ROADS
APPROXIMATE BAFFLE LOCATION 1991 CONSTRUCTION
1987 PLUG DAM
ACCESS ROAD (PRIMARILY TILL)
ACCESS ROAD (PRIMARILY CUT/F ILL)
MATCH LINE SEE FIGURE 2
SEDIMENTATION POND
CROSS VALLEY DAM POND
CROSS VALLEY DAM TOE ACCESS ROAD
CROSS VALLEY DAM
DRAINAGE DITCH
INTERMEDIATE DAM OCTOBER 1989
SEPTEMBER 1990 TAILINGS POND LIMITS
ABANDONED ROSE CREEK CHANNEL
EXISTING TAILINGS
ROSE CREEK DIVERSION CANAL
DIVERSION CANAL REFERENCE LINE CHAINAGE (m)
CORNISH CREEK DIVERSION
CORNISH CREEK
P01-11
P01-02
P01-03
P01-04
BH96-4-I
BH96-4-II
BH96-2
BH96-3
BH96-1
BH94-CVDC-1(HP)
BH94-IDC-1(HP)
BH94-CD1-(SI)
WEIR XI1
WEIR XI2
WEIR XI3
CVDP-82PP1H
PROJECT 2002 Annual Geotechnical Evaluation and Instrumentation Review
TITLE Down Valley Tailings Containment Instrument Location - 1 of 2
PROJECT No. 0257-013-04
DWG. No. FIGURE 1
REV. 0
CLIENT NAME Deloitte & Touche
JAN 2003
BGC Engineering Inc.
AN APPLIED EARTH SCIENCES COMPANY
Calgary, AB
Phone: (403) 250 5185



LEGEND

- SITE INVESTIGATION BOREHOLES
- INSTRUMENTATION BOREHOLES
- SURVEY CONTROL STATION (UNDERHILL ENGINEERING LTD)
- CD CANAL DYKE
- BS BACK SLOPE
- SP SPOIL PIPE
- CVDC CROSS VALLEY DAM CREST
- CVDB CROSS VALLEY DAM U/S BLANKET
- CVDT CROSS VALLEY DAM TOE
- CVDP CROSS VALLEY DAM CONSTRUCTION PIEZOMETER
- CVDS CROSS VALLEY DAM CONSTRUCTION SETTLEMENT PLATE
- INSTRUMENTATION MONITORED IN 2002
- ID INTERMEDIATE DAM
- IDP INTERMEDIATE DAM CONSTRUCTION PIEZOMETER
- PBI TAILINGS DAM
- BIK KLOHN LEONOFF PIEZOMETER
- SI SLOPE INDICATOR
- S INCREMENTAL SETTLEMENT
- V VERTICAL SETTLEMENT
- H HORIZONTAL SETTLEMENT
- T THERMISTOR STRING
- PP PNEUMATIC PIEZOMETER
- HP HYDRAULIC PIEZOMETER
- P01 MONITORING WELL INSTALLED IN 2001 BY GARTNER LEE LTD. (LOCATION APPROXIMATE)

0 100 200 300

SCALE (meters)

NOTE

PLAN BASED ON SURVEYS BY UNDERHILL ENGINEERING LTD. WHITEHORSE, DONE DURING CONSTRUCTION, 1981. GRID SYSTEM DERIVED FROM THE METRIC EQUIVALENT OF THE MINE GRID SYSTEM, ASSUMING MINE GRID CO-ORD SUPPLIED BY CYPRUS ANVIL FOR STATION 78-17 (320.09mN. 3220.50mE). ELEVATIONS ARE WITH RESPECT TO THE NORTHWEST CORNER OF THE FLOOR SLAB INSIDE THE CYPRUS ANVIL PUMPHOUSE (1089.515m AS PROVODED BY CYPRUS ANVIL).

FIGURE 2 FROM GOLDER ASSOCIATES REPORT 992-2416 USED AS REFERENCE

CLIENT: Deloitte & Touche

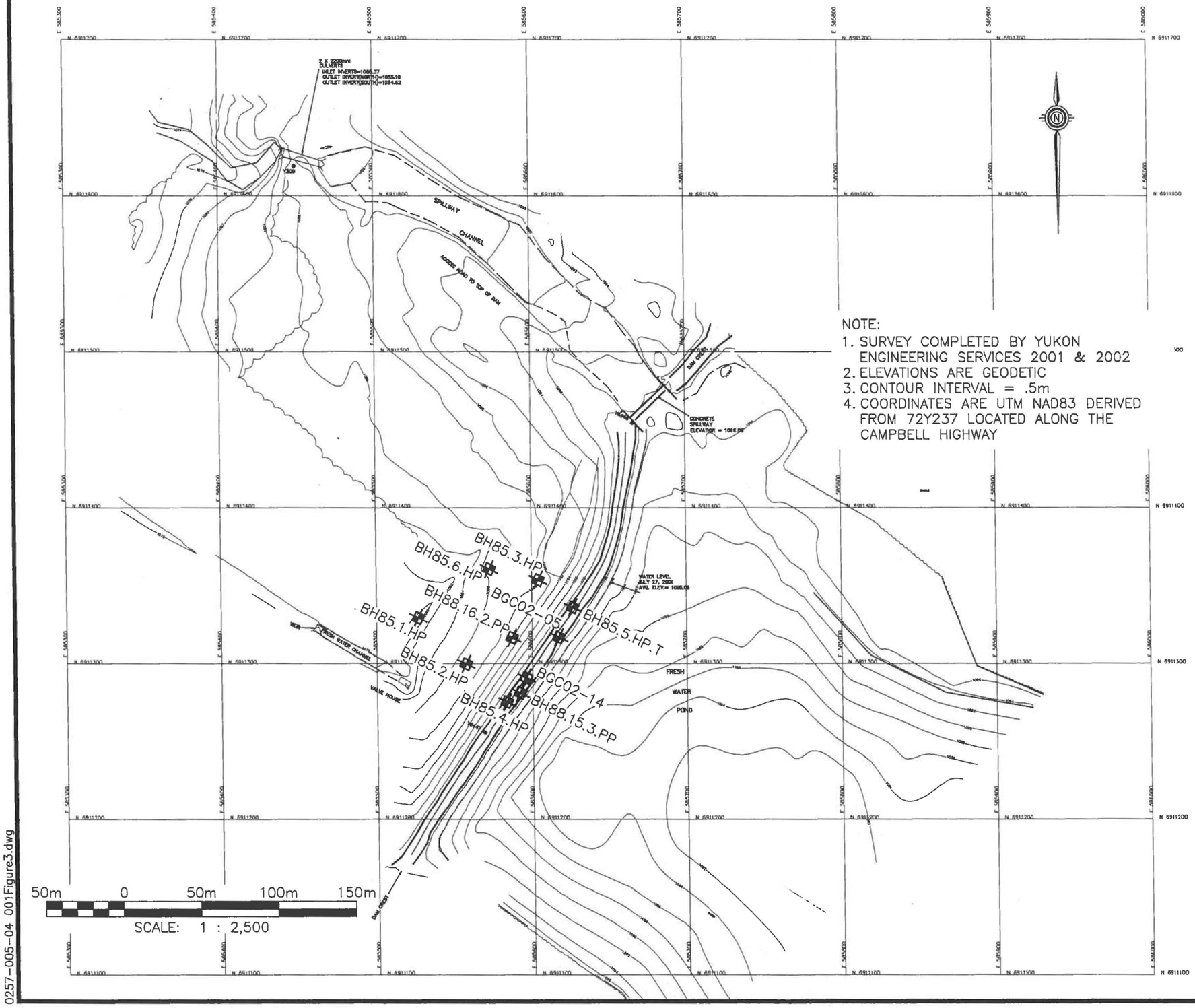
SCALE:	AS SHOWN
DATE:	JAN 2003
DRAWN:	CJT
DESIGNED:	GWC
CHECKED:	GWC
APPROVED:	JWC

PROJECT: 2002 Annual Geotechnical Evaluation and Instrumentation Review

TITLE: Down Valley Tailings Containment
Instrument Location - 2 of 2

PROJECT No.	DWG. No.	REV.
0257-013-04	FIGURE 2	0

BGC Engineering Inc.
AN APPLIED EARTH SCIENCES COMPANY
Calgary, AB
Phone: (403) 250 5185



NOTE:
1. SURVEY COMPLETED BY YUKON ENGINEERING SERVICES 2001 & 2002
2. ELEVATIONS ARE GEODETIC
3. CONTOUR INTERVAL = .5m
4. COORDINATES ARE UTM NAD83 DERIVED FROM 72Y237 LOCATED ALONG THE CAMPBELL HIGHWAY

CLIENT: **Deloitte & Touche**

LEGEND:
PIEZOMETER

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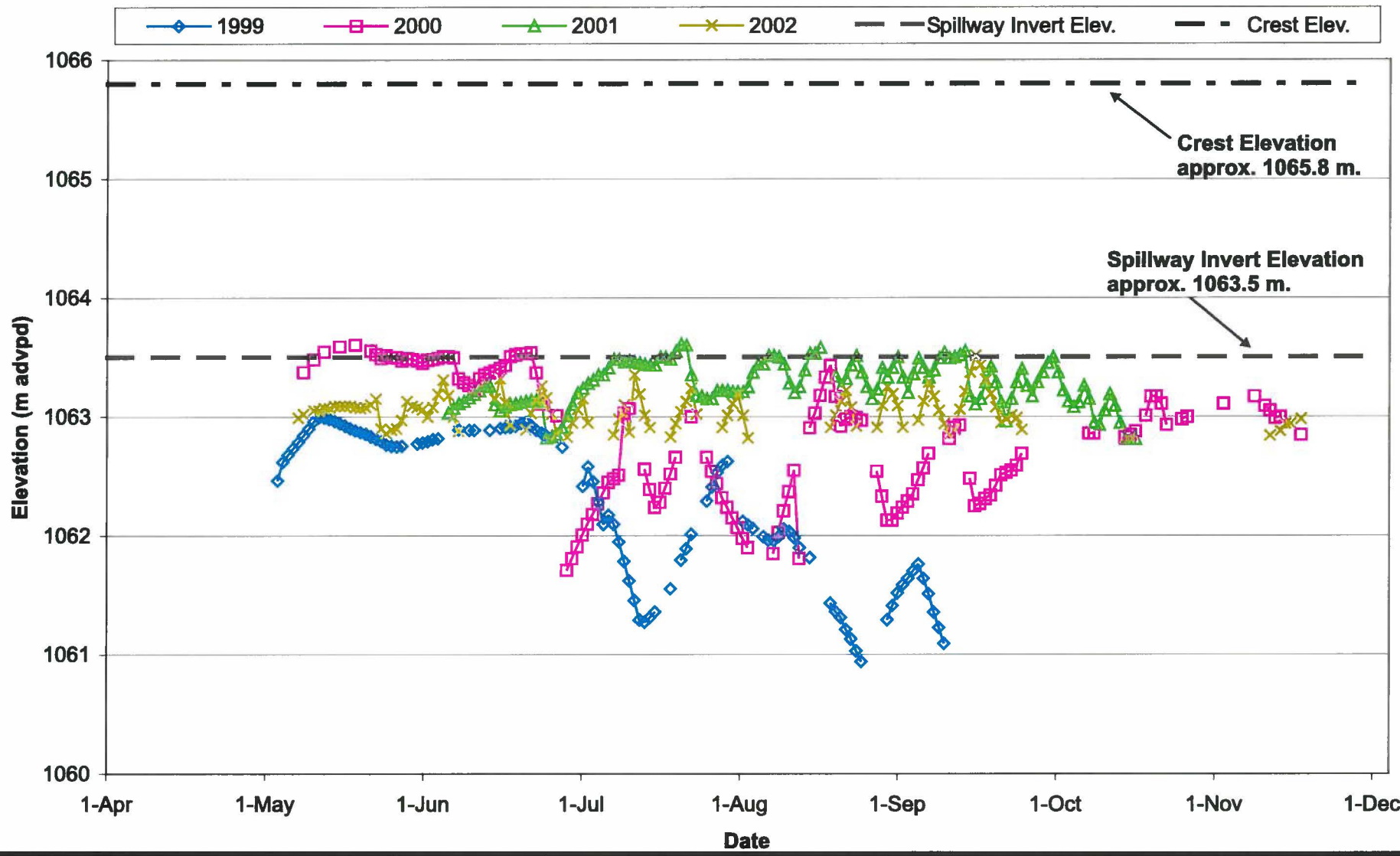
REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

SCALE:	AS SHOWN
DATE:	JANUARY, 2003
DRAWN:	GEJ
DESIGNED:	GC
CHECKED:	JWC
APPROVED:	JWC

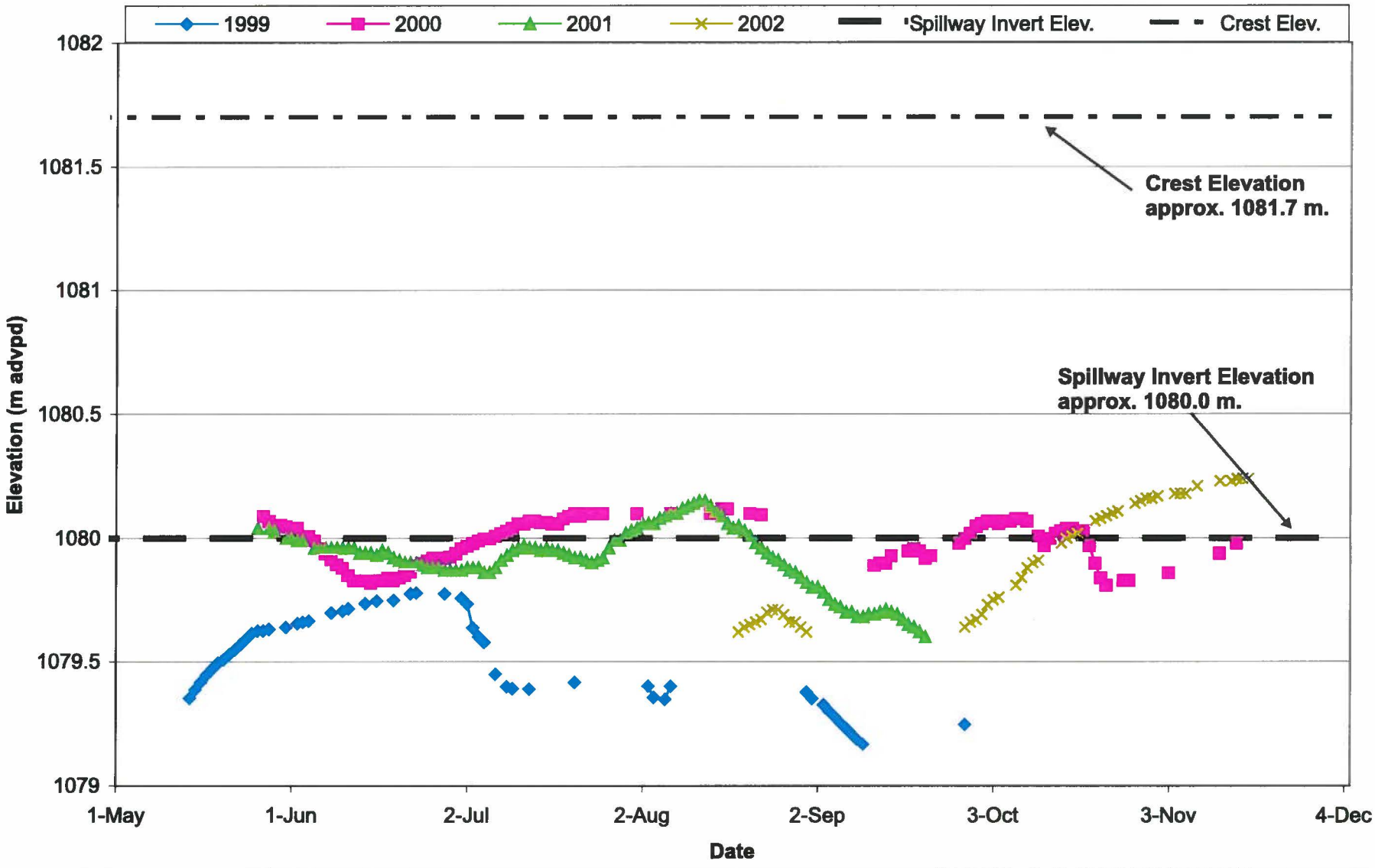
PROJECT	2002 ANNUAL GEOTECHNICAL EVALUATION AND INSTRUMENTATION REVIEW	
TITLE	FRESH WATER SUPPLY DAM SITE PLAN	
PROJECT No. 0257-013-04	DWG. No. FIGURE 3	REV. 0

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Calgary, AB Phone: (403) 250 5185

0257-005-04 001Figure3.dwg

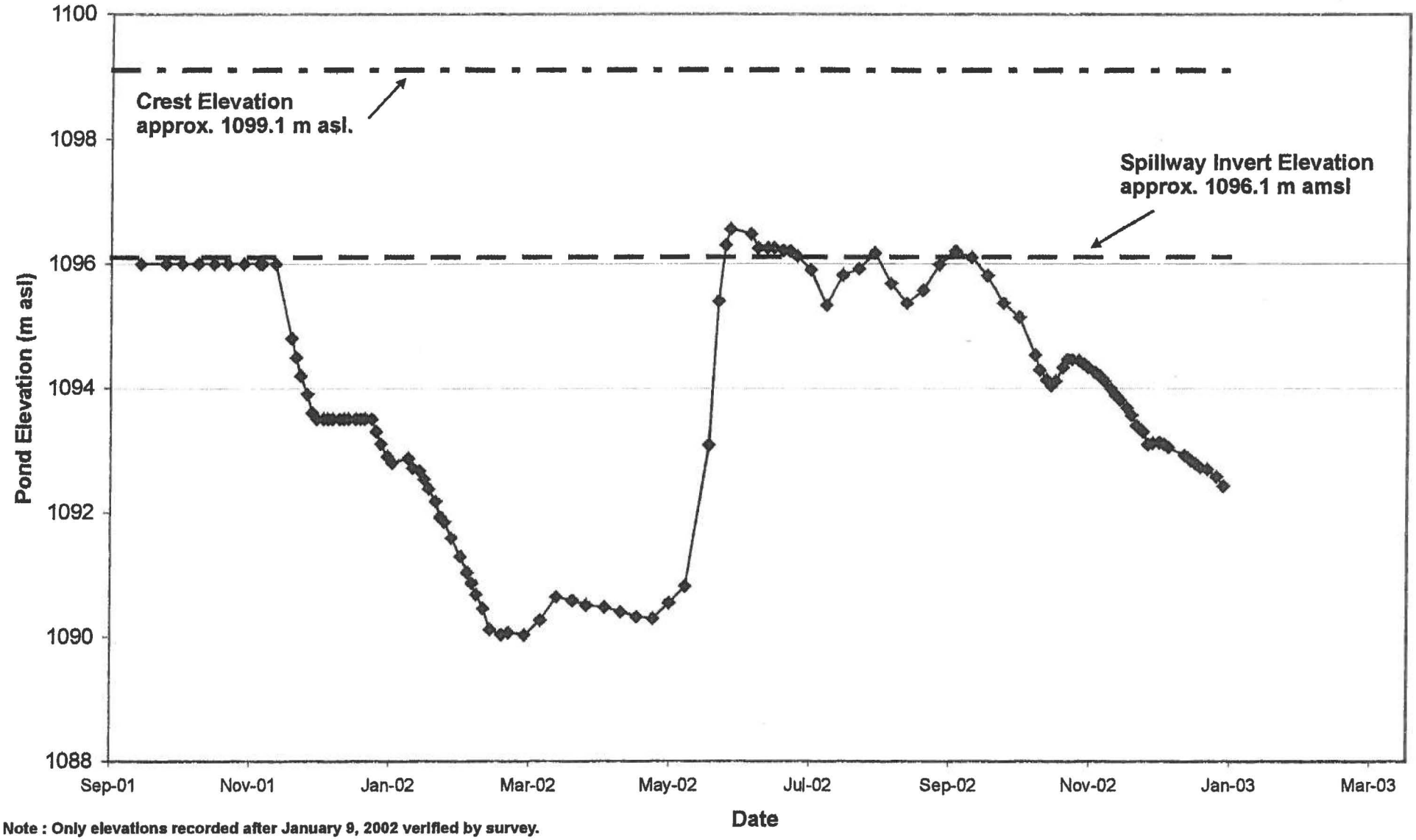


DATE: January, 2003	DRAWN GKC	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY Calgary, Alberta Phone: (403) 250-5185	PROJECT 2002 Annual Geotechnical Evaluation and Instrumentation Review
REFERENCED DRAWING DESCRIPTION			TITLE Cross Valley Pond Elevations (1999 - 2002)
AS A MUTUAL PROTECTION TO OUR CLIENT, THE PUBLIC AND OURSELVES, ALL REPORTS AND DRAWINGS ARE SUBMITTED FOR THE CONFIDENTIAL INFORMATION OF OUR CLIENT FOR A SPECIFIC PROJECT AND AUTHORIZATION FOR USE AND/OR PUBLICATION OF DATA, STATEMENTS, CONCLUSIONS OR ABSTRACTS FROM OR REGARDING OUR REPORTS AND DRAWINGS IS RESERVED PENDING OUR WRITTEN APPROVAL.		CLIENT Deloitte & Touche	PROJECT No. 0257-013-04 / DWG. No. Figure 4 / REV. 0



DATE: January, 2003	DRAWN GKC	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY Calgary, Alberta Phone: (403) 250-5185	PROJECT 2002 Annual Geotechnical Evaluation and Instrumentation Review	
REFERENCED DRAWING DESCRIPTION			TITLE Intermediate Pond Elevations (1999 - 2002)	
CLIENT Deloitte & Touche			PROJECT No. 0257-013-04	DWG. No. Figure 5 / REV. 0

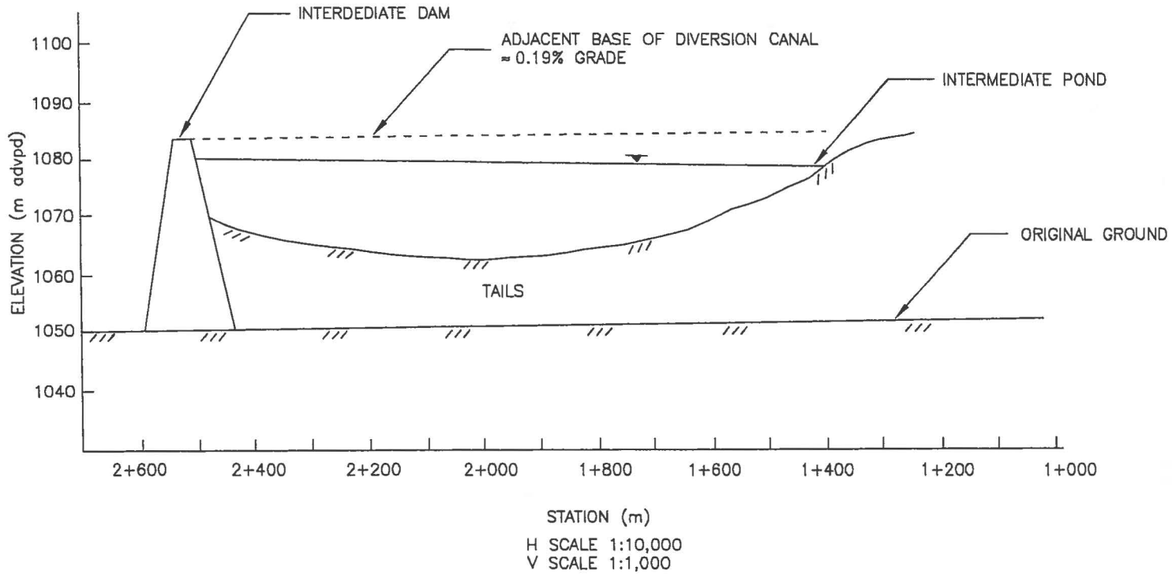
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Note : Only elevations recorded after January 9, 2002 verified by survey.

DATE: January, 2003	DRAWN GKC	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY Calgary, Alberta Phone: (403) 250-5185	PROJECT 2002 Annual Geotechnical Evaluation and Instrumentation Review		
REFERENCED DRAWING DESCRIPTION			TITLE Fresh Water Reservoir Elevation (2001 - 2002)		
CLIENT Deloitte & Touche			PROJECT No. 0257-013-04	DWG. No. Figure 6	REV. 0

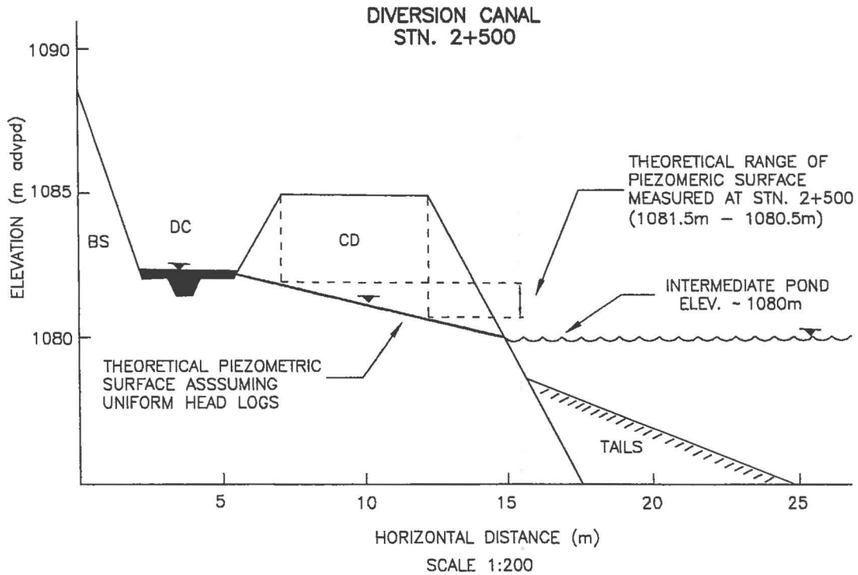
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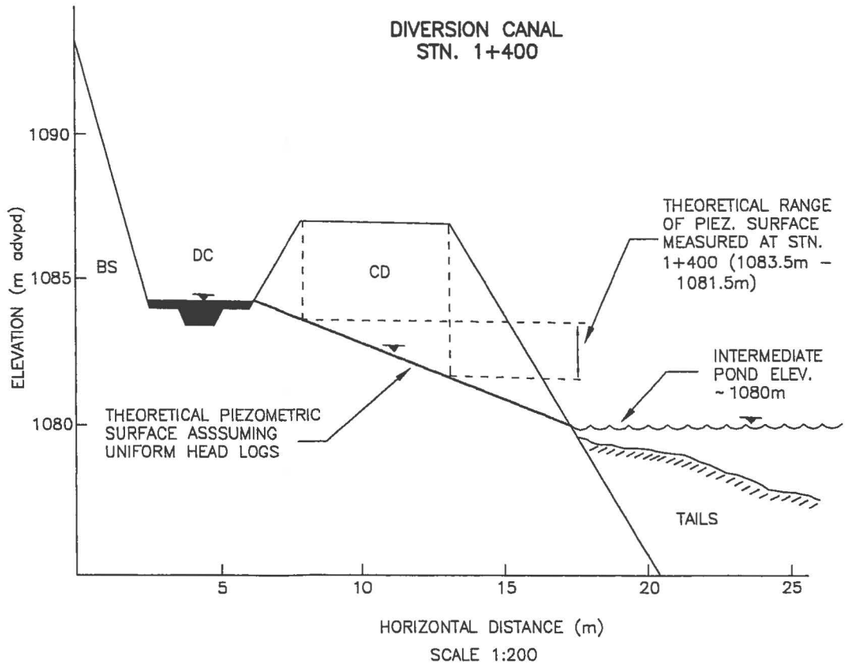


NOTES: 1) DRAWING IS A SCHEMATIC, CONSTRUCTED FOR ILLUSTRATIVE PURPOSES ONLY.

2) ALL ELEVATIONS ARE APPROXIMATE AND ARE BASED ON AVAILABLE INFORMATION.

3) LOCATION OF TAILINGS IN ID POND IS APPROXIMATE. NO BATHYMETRIC INFORMATION IS AVAILABLE.





CLIENT: **Deloitte & Touche**

LEGEND

BS BACK SLOPE
DC DIVERSION CANAL
CD CANAL DIKE

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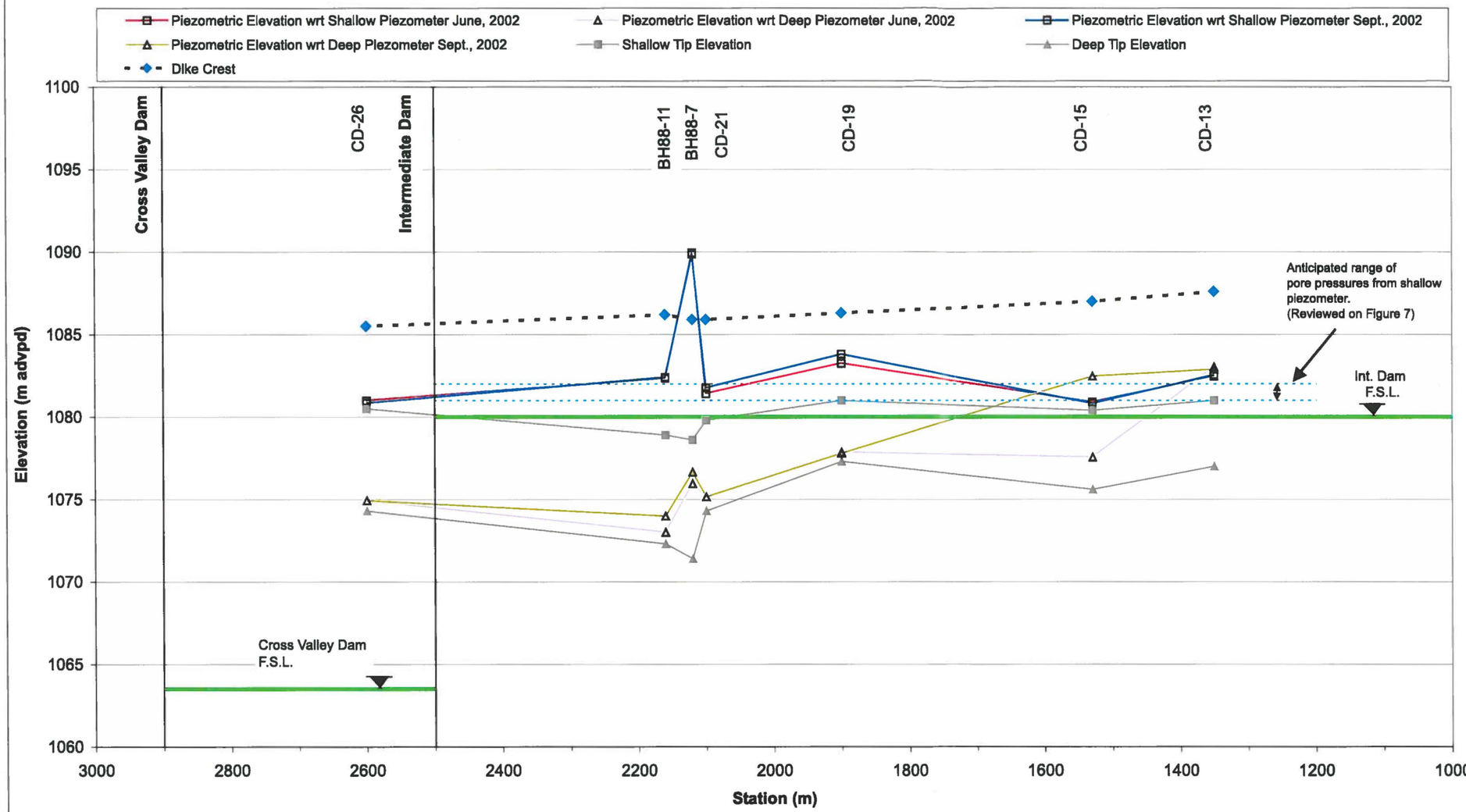
REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

SCALE:	AS SHOWN
DATE:	JAN. 2003
DRAWN:	CJT
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT	2002 ANNUAL GEOTECHNICAL EVALUATION AND INSTRUMENTATION REVIEW		
TITLE	CANAL DIKE / INTERMEDIATE POND HYDRAULIC CONNECTIVITY		
PROJECT No.	0257-013-04	DWG. No. FIGURE 7	REV. 0

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0257-013-04 002Figure7.dwg



Note:
Drawing is schematic and is not to scale.
Permafrost has been confirmed at BH88-11 and 88-7 below 6 m bgs.
Readings from BH88-11 (Deep Tip) were recorded in June and September, 2001. Data collected from this tip in 2002 are considered spurious.

CLIENT:

Deloitte & Touche

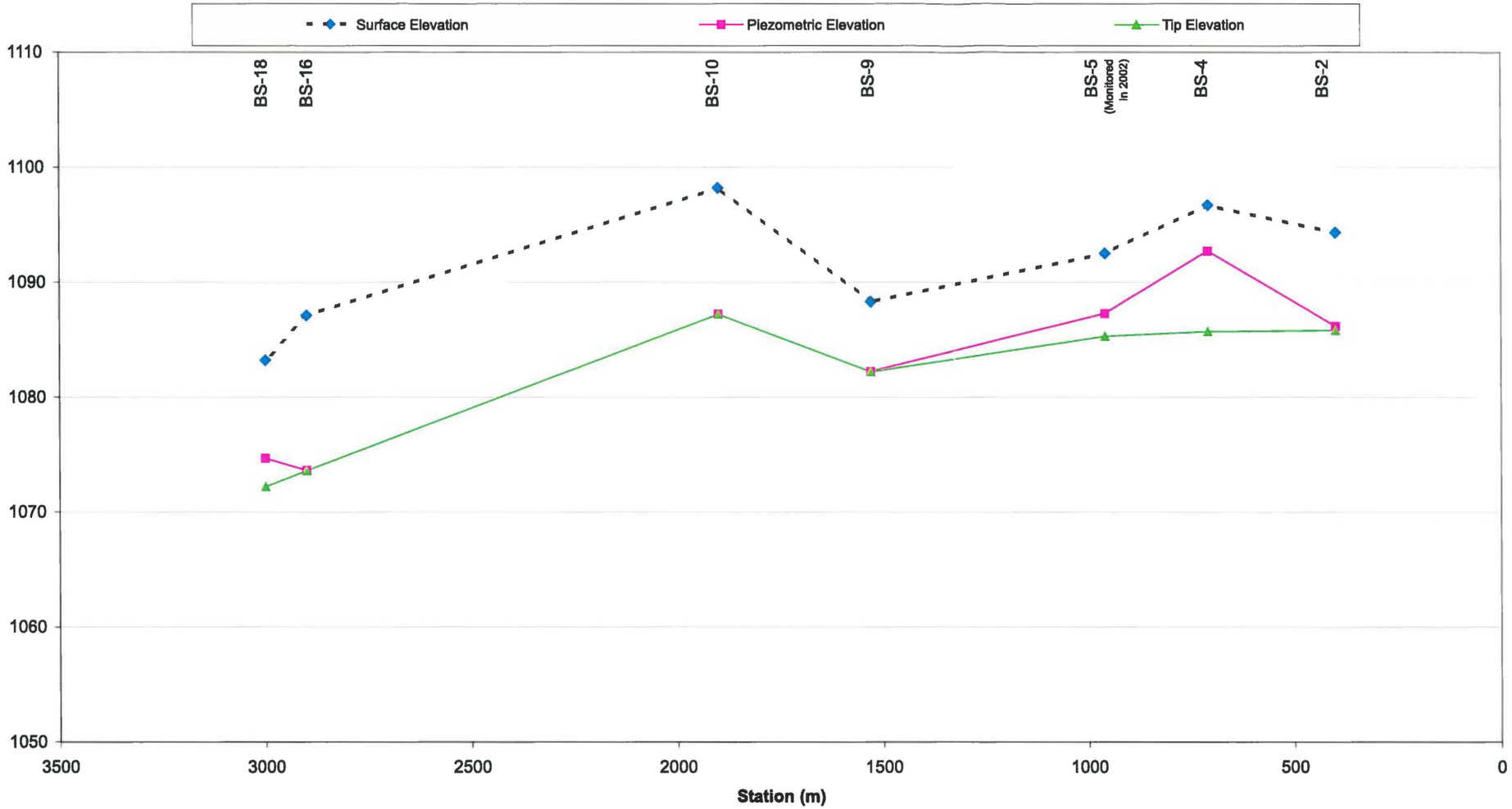
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SCALE:	N/A
DATE:	January, 2003
DRAWN:	GKC
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT	2002 Annual Geotechnical Evaluation and Instrumentation Review	
TITLE	Canal Dike Current Piezometric Conditions	
PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 8	0

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Note:
Drawing is a schematic and is not to scale.
All data, except for BS-5, was recorded in 1995.

CLIENT:

Deloitte & Touche

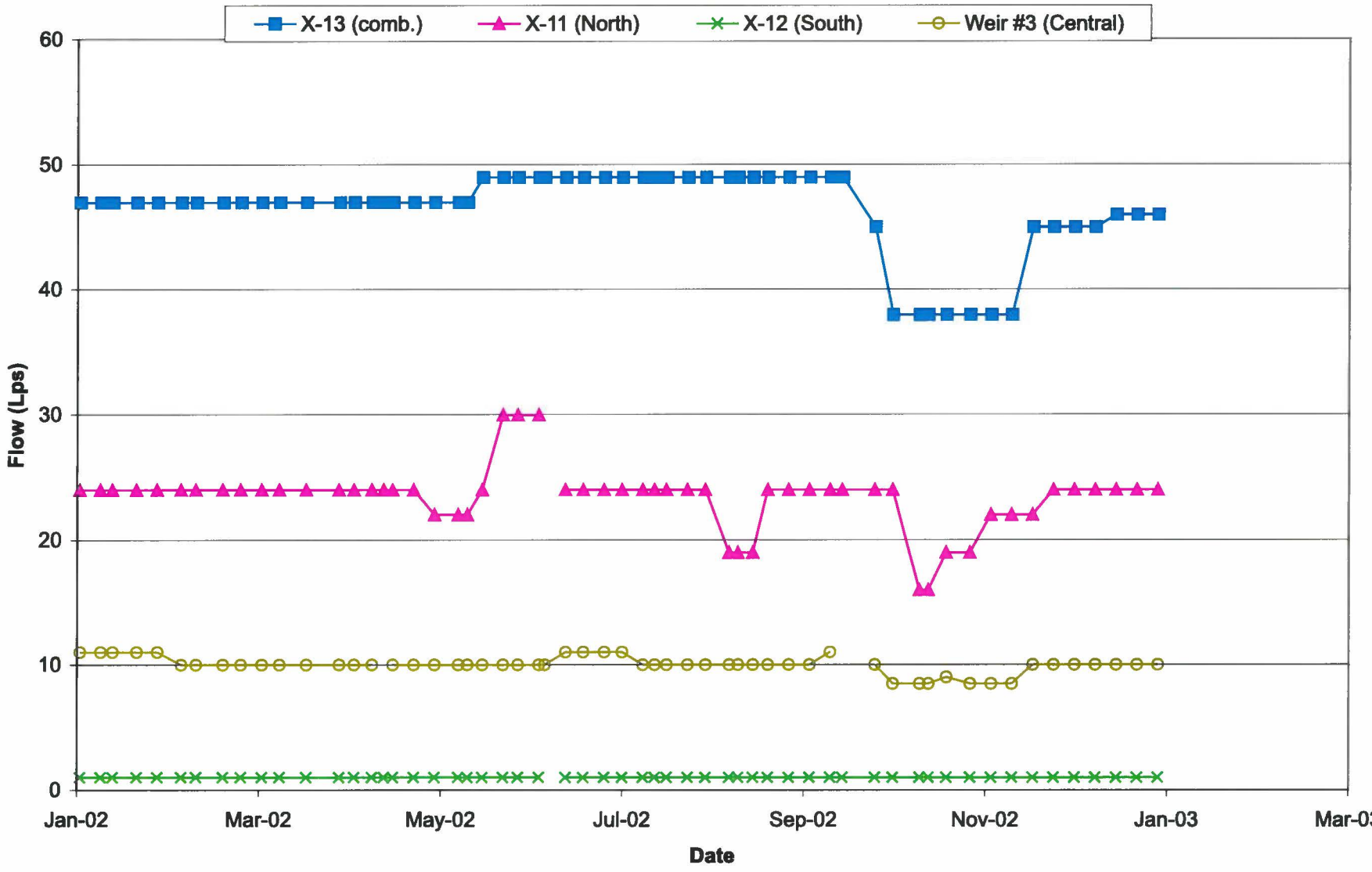
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SCALE:	N/A
DATE:	January, 2003
DRAWN:	GKC
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

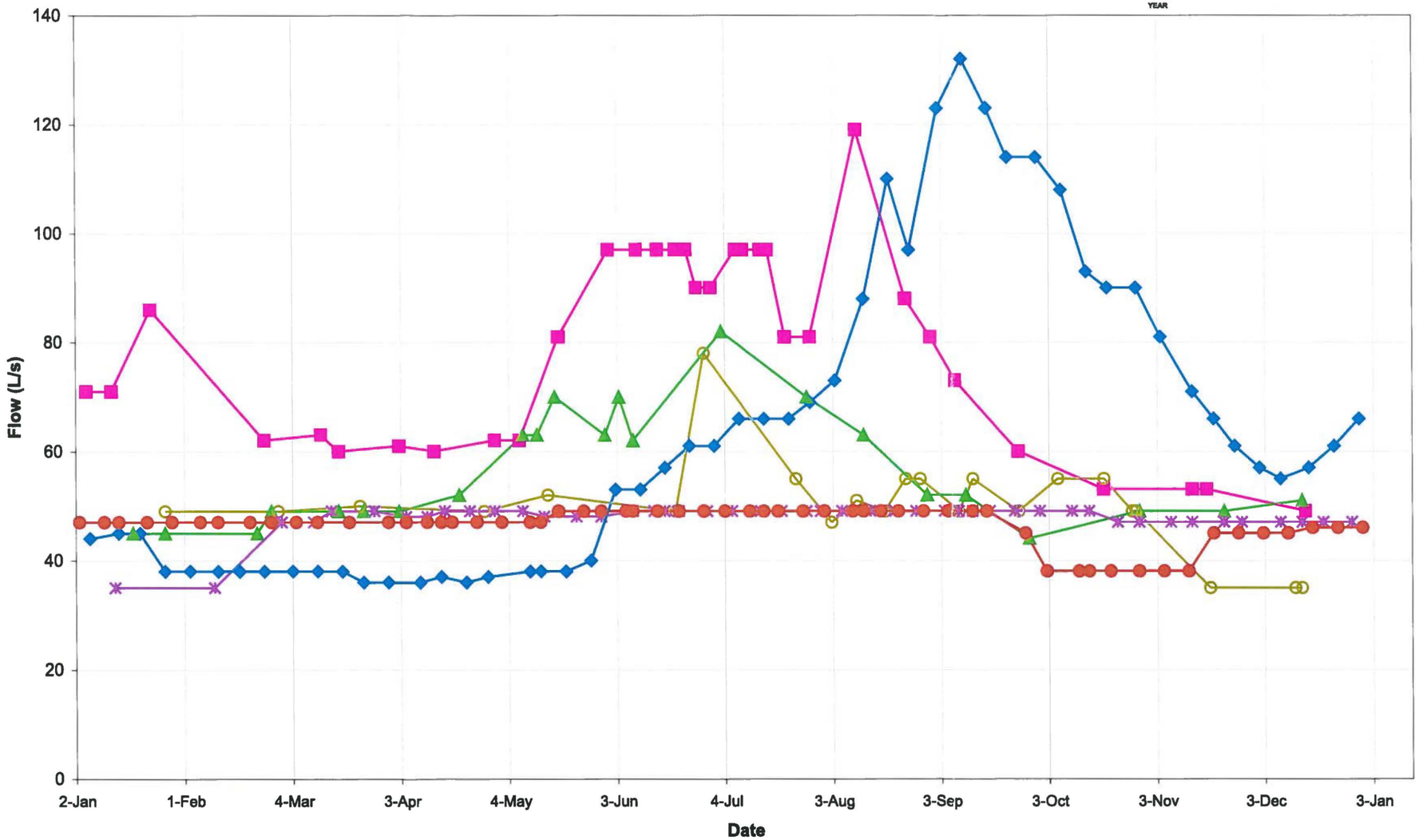
PROJECT	2002 Annual Geotechnical Evaluation and Instrumentation Review	
TITLE	Diversion Canal - Back Slope Longitudinal Section of 1995 Piezometric Conditions	
PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 9	0

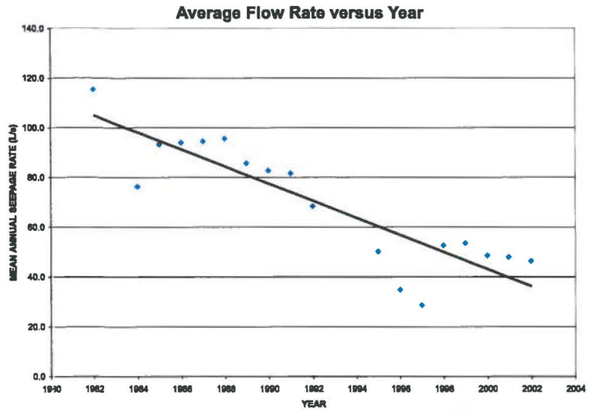
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DATE: January, 2003	DRAWN GKC	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY Calgary, Alberta Phone: (403) 250-5185	PROJECT 2002 Annual Geotechnical Evaluation and Instrumentation Review	
REFERENCED DRAWING DESCRIPTION			TITLE Cross Valley Dam 2002 Weir Flows	
		CLIENT Deloitte & Touche	PROJECT No. 0257-013-04	DWG. No. Figure 10 / REV. 0

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CLIENT:

Deloitte & Touche

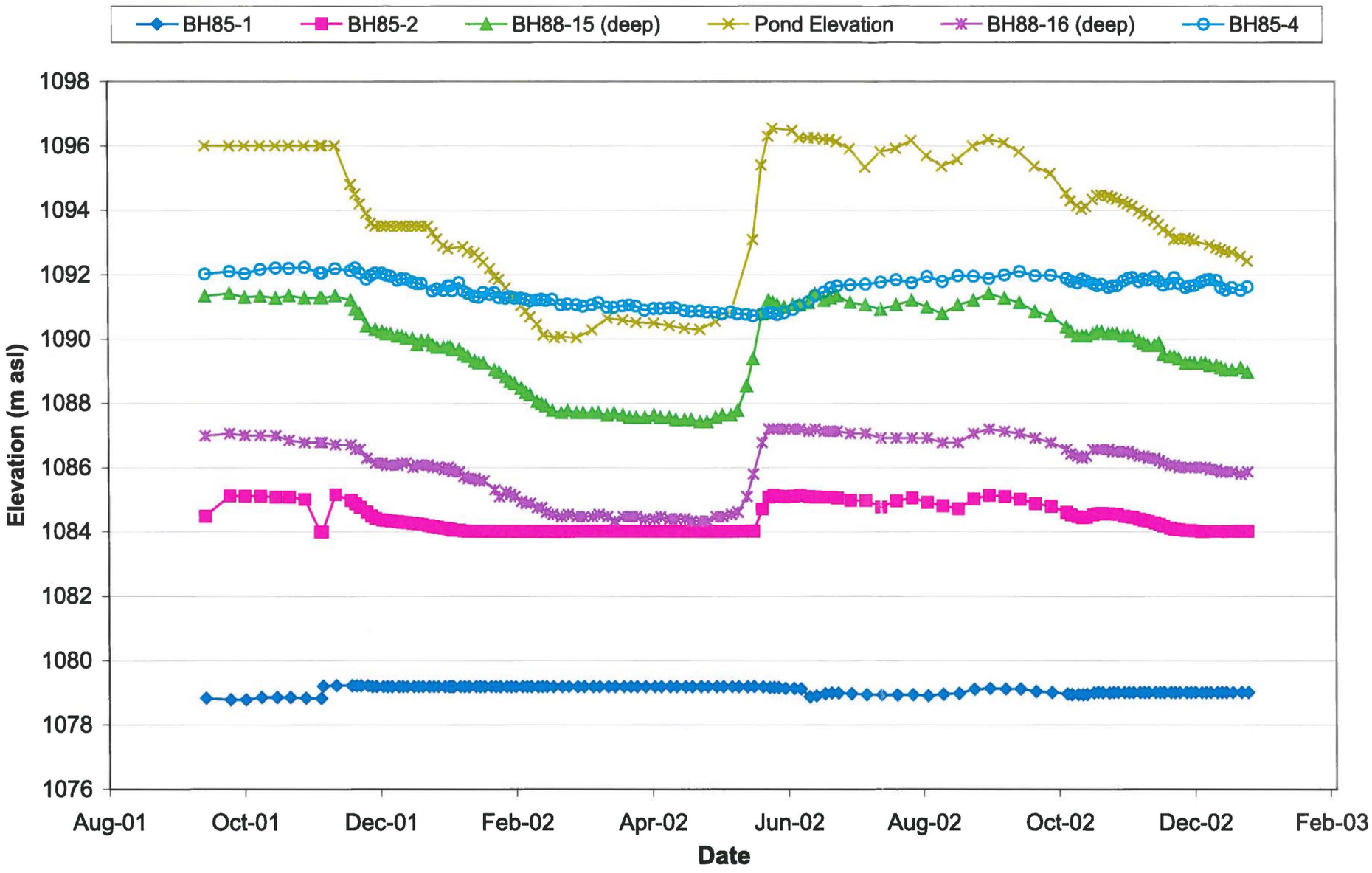
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SCALE:	N/A
DATE:	January, 2003
DRAWN:	GKC
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT	2002 Annual Geotechnical Evaluation and Instrumentation Review	
TITLE	Cross Valley Dam X-13 Weir Flows (1997 - 2002)	
PROJECT No. 0257-013-04	DWG. No. Figure 11	REV. 0

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Phone: (403) 250-5185



CLIENT:

Deloitte & Touche

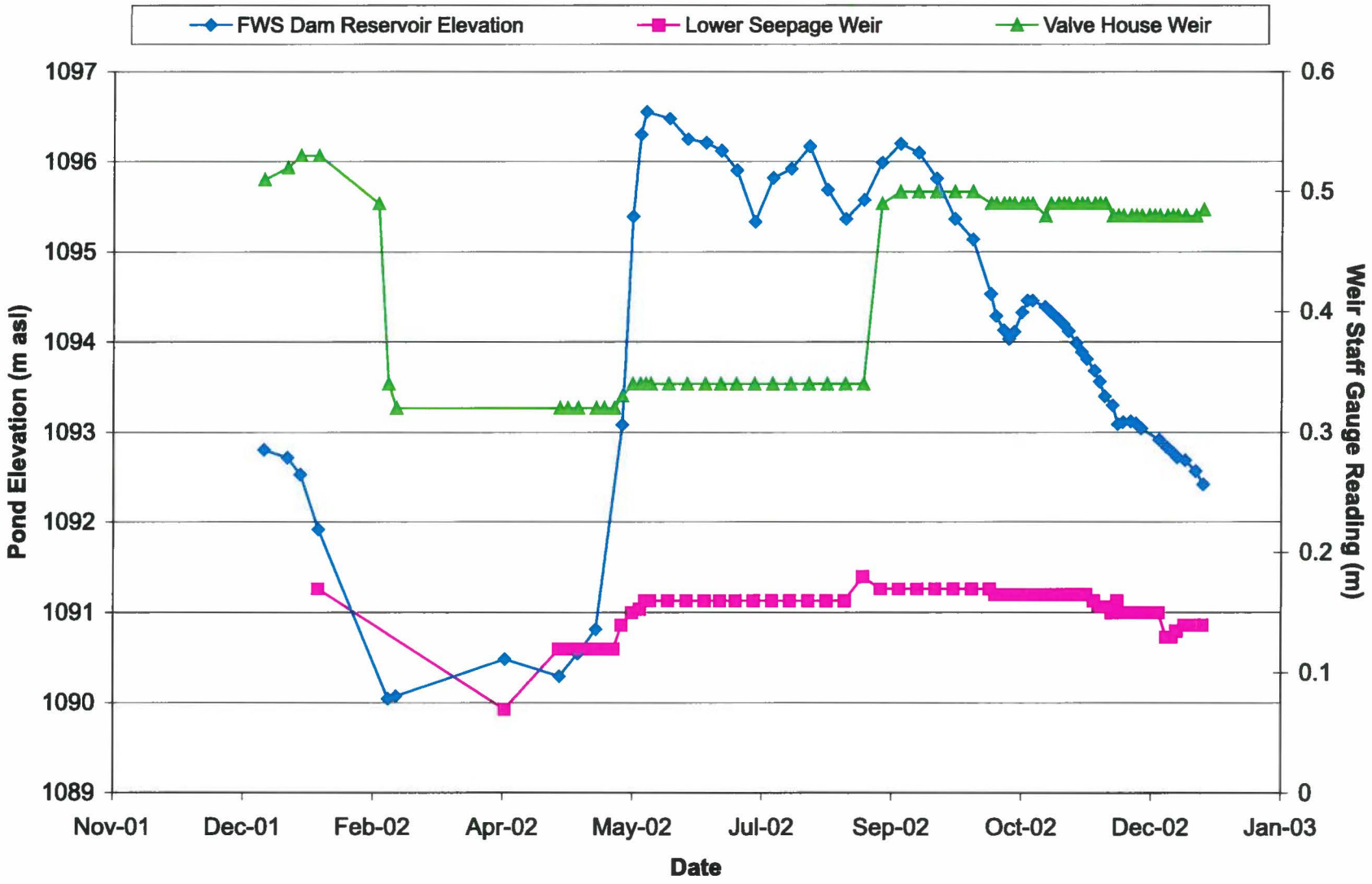
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SCALE:	N/A
DATE:	January, 2003
DRAWN:	GKC
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT	2002 Annual Geotechnical Evaluation and Instrumentation Review	
TITLE	Fresh Water Supply Dam Piezometric Response to Reservoir Lowering	
PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 12	0

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DATE: January, 2003	DRAWN GKC	PROJECT	2002 Annual Geotechnical Evaluation and Instrumentation Review
REFERENCED DRAWING DESCRIPTION	BGC ENGINEERING INC. AN APPLIED EARTH SCIENCES COMPANY Calgary, Alberta Phone: (403) 250-5185	TITLE	Fresh Water Supply Dam 2002 Weir Flows
	CLIENT Deloitte & Touche	PROJECT No. 0257-013-04	DWG. No. Figure 13 / REV. 0

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View of the crest from the location from instrument CD-4. To this point, there are no signs of significant settlement or deformation noted on the crest.



View of the crest taken from instrument location CD-10. No real signs of significant settlement or erosion noted to this distance.



Shows the crest taken from the instrument location CD-18. Some slight settlement in the crest occurs some 20 to 30 meters to the west of this instrument location. The settlement may be on the order of 0.3 meters.



View of the crest on the downstream side taken from instrument location CD-20. Some subtle settlement of the crest can be seen. In addition, the portion of the crest about 30 meters towards the west does slope towards the downstream side.

CLIENT:

Deloitte & Touche

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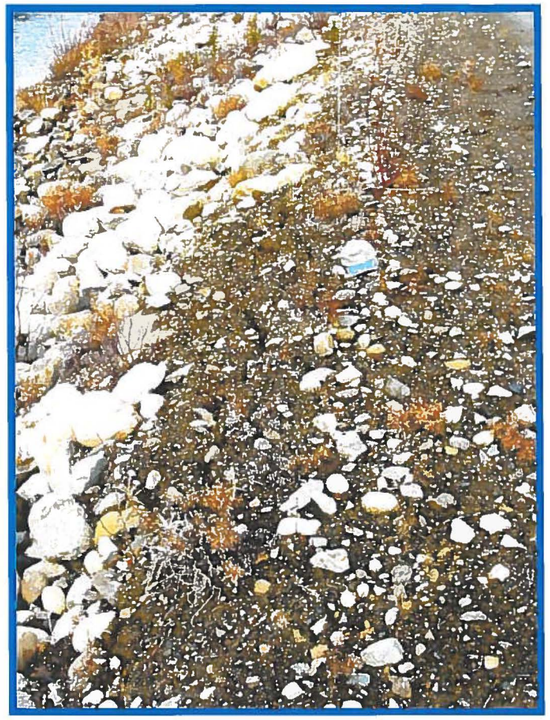
SCALE:	N/A
DATE:	January 2003
DRAWN:	SLF
DESIGNED:	JWC
CHECKED:	JWC
APPROVED:	JWC

PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: Diversion Canal Dike Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 14	0

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Shows some longitudinal tension cracks right at the crest edge. These cracks are located approximately 15 meters to the east of instrument location CD-21.



View of the crest directly adjacent to the instruments 88-10 and 88-11. The crest here is relatively well graded with some direction of surficial water towards the downstream side. No real significant signs of settlement or cracking were noted.



View of the crest again looking towards the west. The green barrels in the photo are instrument location CD-25 which is just east of the abutment with the Intermediate Dam. There are some minor potholes but no other significant concerns were noted.

CLIENT:

Deloitte & Touche

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SCALE:	N/A
DATE:	January 2003
DRAWN:	SLF
DESIGNED:	JWC
CHECKED:	JWC
APPROVED:	JWC

PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: Diversion Canal Dike Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 15	0

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View of the small slide on the backslope which was repaired last year. The repair appears to be in satisfactory condition.



Shows a brown stained area on the backslope across from 88-10 and 88-11.

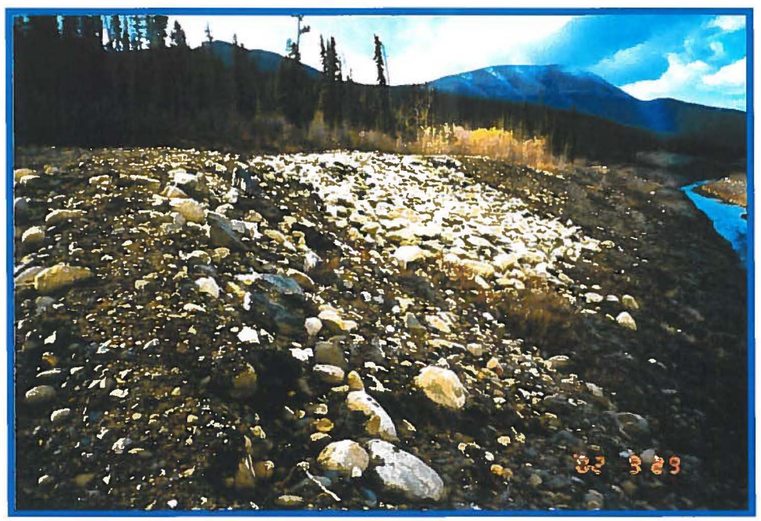
CLIENT:

Deloitte & Touche

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-	-	-	-	-	-
-	-	-	-	-	-

SCALE:	N/A
DATE:	January 2003
DRAWN:	SLF
DESIGNED:	JWC
CHECKED:	JWC
APPROVED:	JWC



Shows a view of the bank located directly above the inlet to the canal dike. This zone shows the recent repairs completed by placing the riprap on the slope surface.



View of a large block of the bedrock formed from cracking. This block is some 2 m wide by 6 m long and it appears to be loosened from the bedrock and hanging over the edge of the canal. It should be noted that there is appearance of some vegetation growing within this crack which indicates that this block is not actively moving.

PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

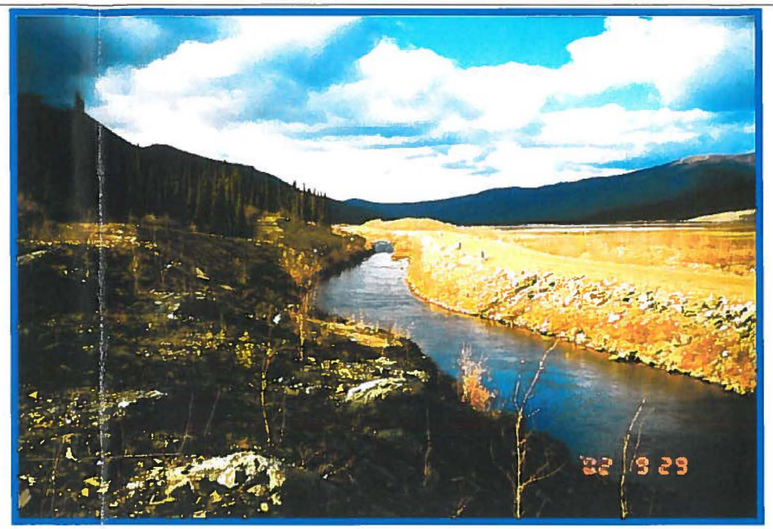
TITLE: Diversion Canal Backslope Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 16	0

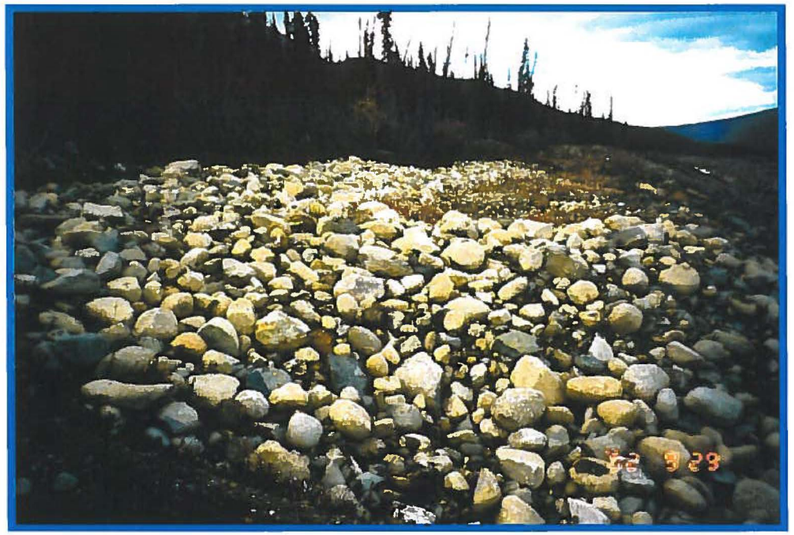
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Shows the appearance of the first erosional rill that is located in the Thermal Protection Berm. This erosional rill is approximately 2 m wide by 0.5 m deep. Note the self armouring nature of the base of this erosional rill. The debris fan coming out of the erosional rill reaches almost the edge of the rock cut face.



Shows a view looking west from Station 1+200.



This photo shows the riprap placed as part of the erosion protection for surficial flow at this location.



Shows the appearance of the Thermal Protection Berm on the backslope.

CLIENT:

Deloitte & Touche

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SCALE:	N/A
DATE:	January 2003
DRAWN:	SLF
DESIGNED:	JWC
CHECKED:	JWC
APPROVED:	JWC

PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: Diversion Canal Backslope Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 17	0

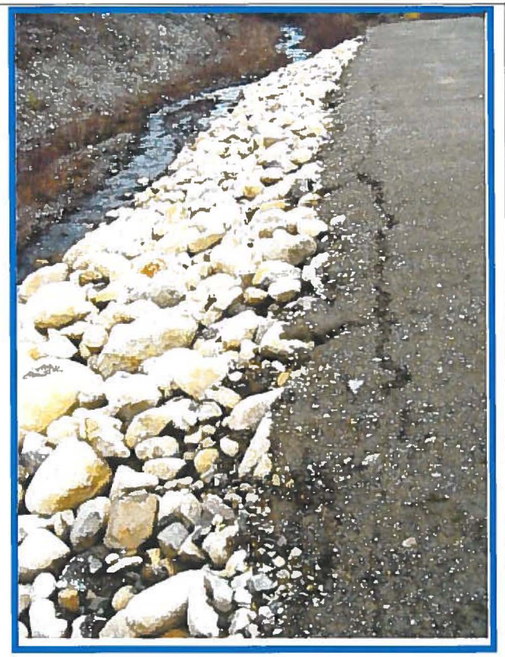
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Shows the discharge end of the two culverts under the access road. They appear to be working satisfactorily.



Shows the retention berm that was repaired several years ago. On the inside, a fairly extensive amount of riprap was placed. On the outer most edge (right side of photo), some edge cracking is occurring.



Shows some edge crack directly proximal to the riprap placed on the inside of the Retention Dike.



View of the downstream side of the retention berm. Some erosion has occurred at the toe, leading to some minor edge cracking.



View of the rehabilitated dike crest. The crest appears to be good and level without signs of significant settlement.

CLIENT:

Deloitte & Touche

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REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED
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SCALE:	N/A
DATE:	January 2003
DRAWN:	SLF
DESIGNED:	JWC
CHECKED:	JWC
APPROVED:	JWC

PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: North Valley Wall Interceptor Ditch Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 18	0

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View of the Diversion Channel looking in the downstream direction.



Shows the water running in the downstream seepage collection channel which is situated on the downstream side of the diversion ditch.



Shows some of the rehabilitation work for the pilot channel that was started earlier this year (2002). A nominal amount of rock has been placed along with geotextile on the bottom of the channel. In two locations, it appears that the geotextile has already been filled-in on the underside with silt or sediment and they have ballooned upwards. Where the black geotextile has bulged out, the armour rock on top has been pushed off or relocated to another position.



Shows one of the bulges in the black goetextile. This bulge appears to be completely filled with sediment which is trapped by the geotextile. The riprap that was probably placed on there has been eroded off or dumped into a different location.

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SCALE:	N/A
DATE:	January 2003
DRAWN:	SLF
DESIGNED:	JWC
CHECKED:	JWC
APPROVED:	JWC

PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: Faro Creek Diversion Channel Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 20	0

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View of the retrogressing overburden on the right hand side of the photo. The distance from this erosional scarp to the road is approximately 6 to 8 meters. The road width is approximately 8 to 10 meters up to the Diversion Channel.



View looking back onto the erosional scarp with is located just downstream from the Diversion Channel.

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SCALE:	N/A	DESIGNED:	JWC
DATE:	JANUARY 2003	CHECKED:	JWC
DRAWN:	SLF	APPROVED:	JWC

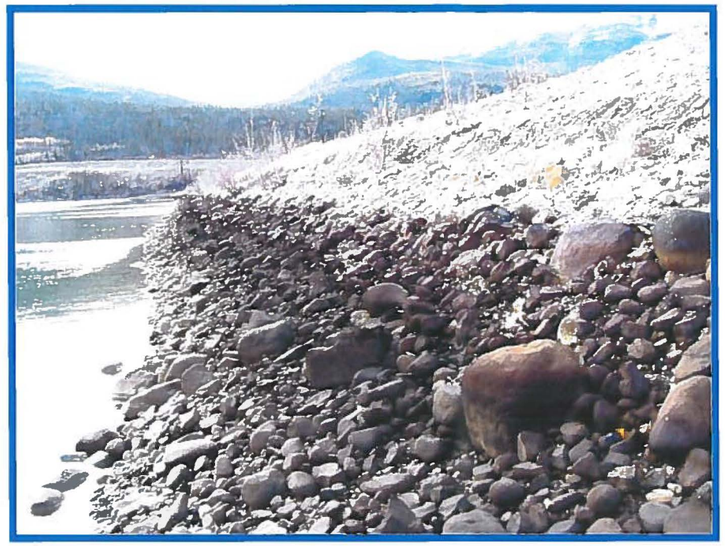
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PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: Faro Pit Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 19	0



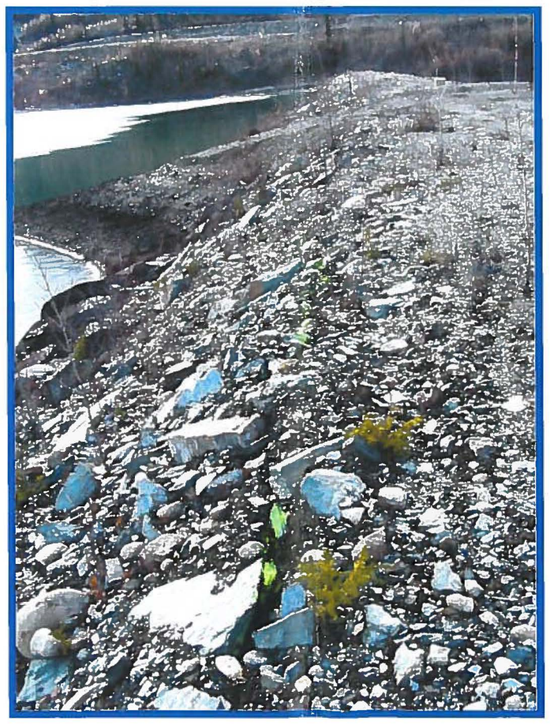
View of the riprap on the upstream side of this dam. At the current time, the water level to the physical crest would be 3.5 to maybe 3.8 meters. There is a little slight erosional scarp formed on the light material within the top of 1.5 meters of the face.



Shows the continuation of the settlement trough on the downstream side of the crest. In the mid to background of the photo, the settlement trough then jogs towards the centre or upstream side. It appears that the settlement trough on the downstream crest is slightly more pronounced than was observed last year.



Shows a continuation of the settlement trough in the centre of the dam just to the left of the hard hat. It then moves obliquely towards the left. In viewing the morphology of the settlement trough in comparison to June 2002, it appears that some settlement is still ongoing.



Shows some cracking occurring in the upstream shell. The lime green mark shows the approximate location of slumps. This location of these cracks are directly proximal to the four cracks noted on the upstream side on a previous photo. Hence, it appears that erosion of the upstream face is resulting in cracking on the upstream side.

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SCALE:	N/A
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PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: Cross Valley Dam Inspection Photos - Crest & Upstream Side

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 21	0

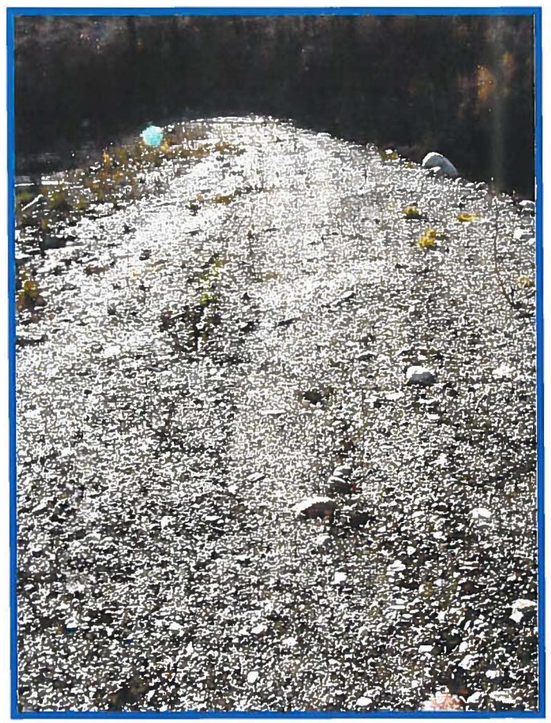
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Shows a sink hole directly proximal to the hard hat. This little sinkhole was caused by the infiltration of surface water as noted in June.



Shows some longitudinal cracking on the upstream side and in the shell material directly adjacent to the hard hat. The material here is disturbed and it is difficult to trace the crack for a long distance. A settlement trough is visible 1 m to the left of the steel bar.



Shows some ongoing cracking within the upstream shell and riprap, situated approximately some 30 meters north of the south abutment. Some of the cracks and settled areas are marked with lime green paint and they occur on 3 locations. It is difficult to trace the cracks but they probably have a length here within the range of 10 to 15 meters.



Shows the continuation of the settlement trough towards the south abutment.

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PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: Cross Valley Dam Inspection Photos - Crest & Upstream Side

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 22	0

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Shows a view looking north along the toe of the Cross Valley Dam. The monitoring well was installed previously by Gartner Lee. The surface does appear to be somewhat stained perhaps indicative of outflow occurring but none was seen at the current time.



Panorama view of the northern portion of the downstream side of the Cross Valley Dam. There are no signs of erosional gullies, sloughing or deformation. The horizontal banding was likely caused by the construction process or freeze thaw processes.



Shows the intersection of the dam embankment fill with the north abutment. No signs of seepage are emerging from this corner of the dam.



Shows a view of the downstream side. Again, no signs of seepage on the downstream face or any deformation was noted.

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TITLE: Cross Valley Dam Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 23	0

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Shows the inlet to the emergency spillway at the north abutment at the Intermediate Dam. The water level is low enough that is not entering the spillway at the current time



Shows the view of the upstream side of the Intermediate Dam. The water level has been dropped significantly and a significant amount of the stained riprap is exposed.



Shows two longitudinal cracks directly at the north abutment. The more pronounced one is located to the right of the hard hat and a somewhat obvious settlement trough has formed proximal to the crack. In addition, on the left hand side, a very subtle longitudinal crack is also formed which then appears to peter out just beside the hard hat. The crack on the right was noted last year and the settlement trough is getting slightly worse. Also, directly within the foreground just beyond the hard hat, there is a small sinkhole indicating that surface water is infiltrating into the crack.

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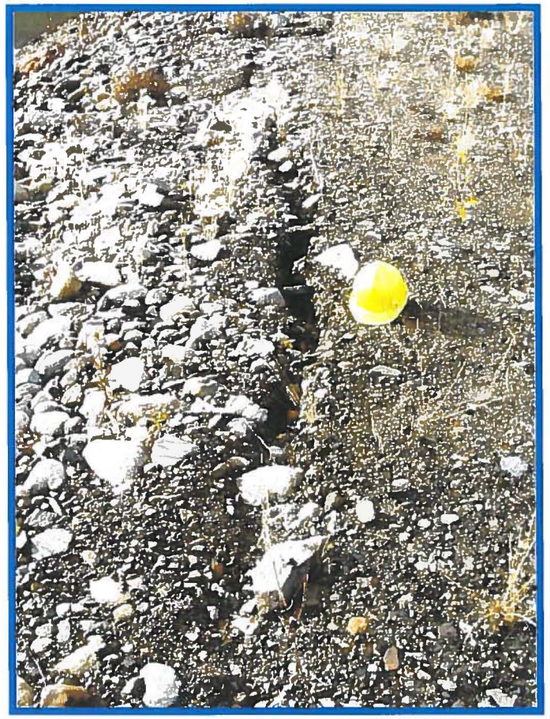
SCALE:	N/A
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PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

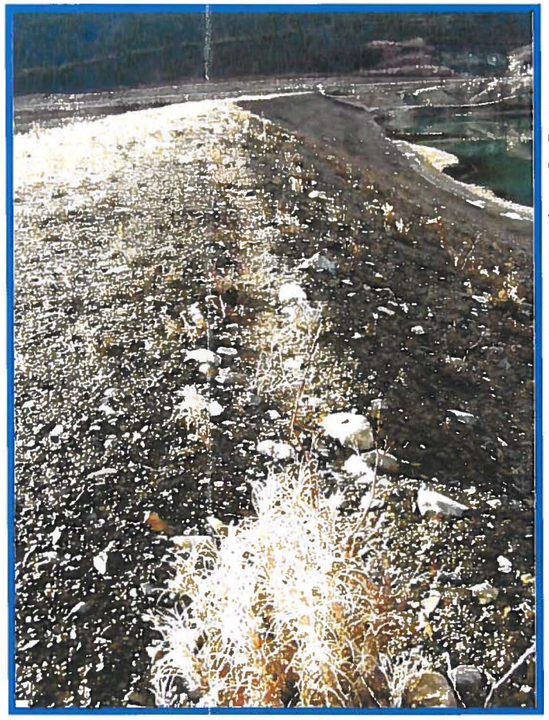
TITLE: Intermediate Dam Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 24	0

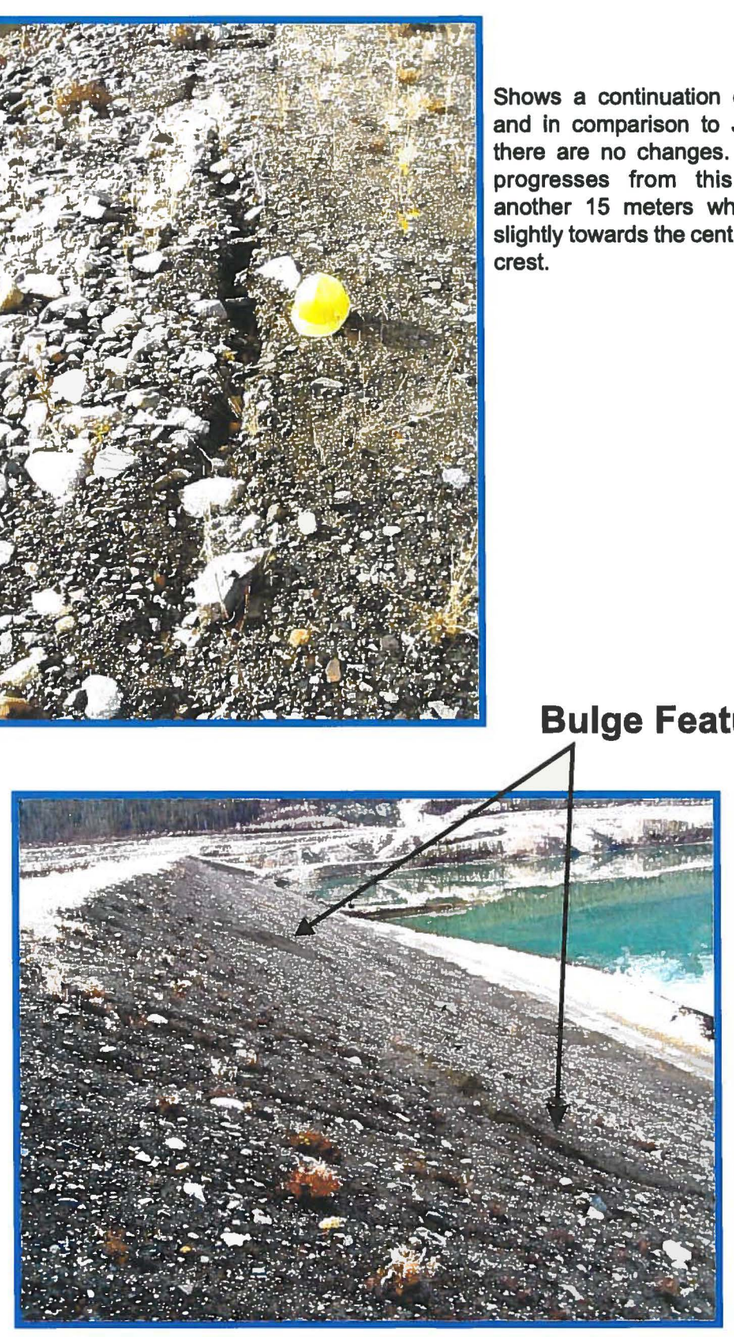
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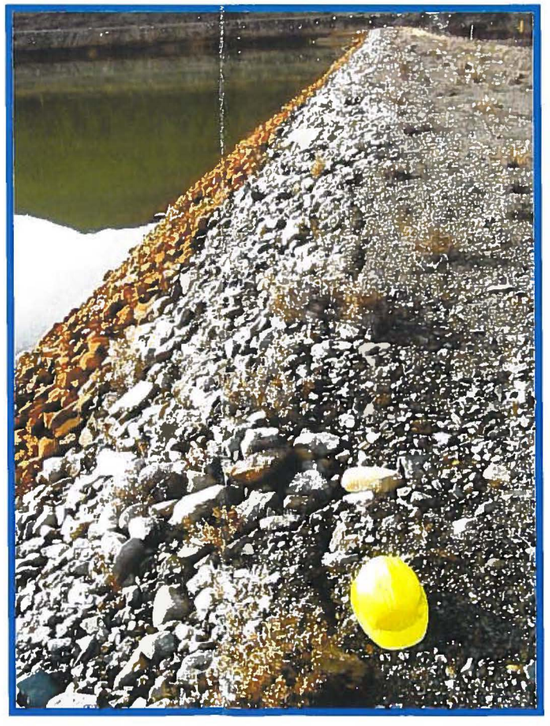
Shows a continuation of a crack, and in comparison to June 2002, there are no changes. This crack progresses from this point for another 15 meters where it jogs slightly towards the centreline of the crest.



Shows some settlement which is ongoing on the outermost 0.5 m of the crest. This settlement is relatively proximal to the bulges that were noted on the downstream side and hence, likely indicates the marginal stability of the outside face of this dam.



Shows the two bulge features located on the downstream side of this dam. One would be located to the lower right of the centre of the photo and the other is upper left side of the photo. They have not changed much in morphology since last year's observations.



Shows a longitudinal crack and settlement trough situated on the upstream edge of the crest. The crack progresses for a distance of some 6 m directly proximal to the riprap shell material.

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PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

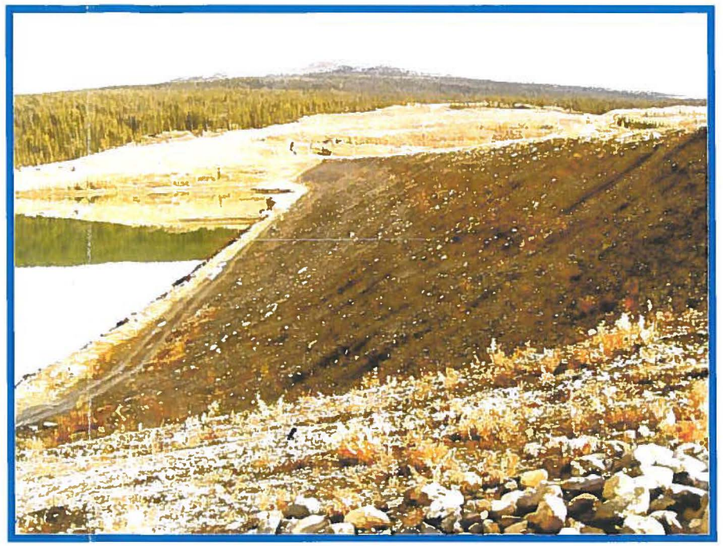
TITLE: Intermediate Dam Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 25	0

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Shows a very subtle settlement trough and associated crack near the upstream side, located some 30 meter from the south abutment of this dam.



View of the downstream face of this dam. As previously noted, the overall grade has changed due to some surficial sloughing and movement of materials. In addition, a number of erosional rills ranging from relatively minor to more significant have been formed.



Shows the area at the toe where historically seepage is usually observed. At the current time, there are no signs of any seepage discharging at the toe.



View along the toe of this dam. There are no signs of seepage discharging in the foreground of this photo. But the area is relatively wet and saturated and may be indicative of small seepage quantities.

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TITLE: Intermediate Dam Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 26	0

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Shows a cone of material which is has been deposited at the toe of the dam. At the apex of the cone is an erosional gully indicating the source area some 8 meters higher up on the face. The erosional gully appears to be ongoing, indicating that backfilling of these gullies is required.



View of the spillway bottom looking in the downstream direction. The bottom is slightly disturbed by previous construction access tracks.



Panoramic view showing the bottom condition of the inlet to the emergency spillway. It is lined with rounded cobbles and boulders in the range of probably 10 inches to 16 inches in diameter. There is a significant amount of sediment within the voids which is precipitate from the lime treatment that was previously ongoing.

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TITLE: Intermediate Dam Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 27	0

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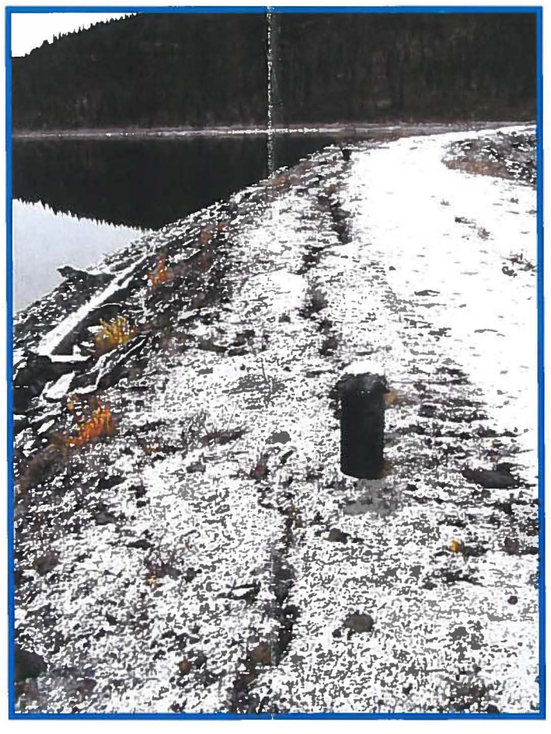
View of the spillway looking towards the north abutment. There is no water currently spilling over the spillway edge as the water level is lower than the inlet elevation. In addition, there are three decant siphons situated within the spillway.



View of the upstream side of the northern portion of this dam. On the left hand slide of this photo, a scarp has formed where the waves have lapped at a higher level. Then there is a bench at a level perhaps some 2 meters from the top.



View of the upstream side of this dam. The initial part of the slope is relatively steep. Then the grade flattens out. At the current time, the distance from the water level to the physical crest would be in the range 3.5 to 3.8 meters in height.



View of a previously existing crack located near the upstream side of the crest.

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PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

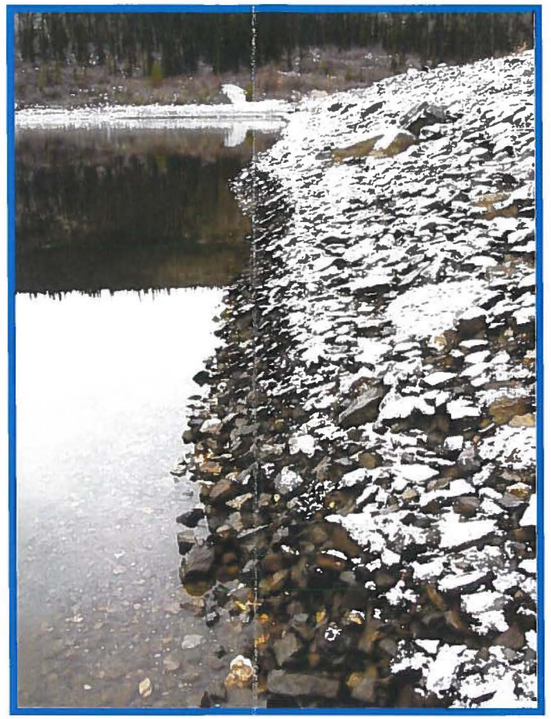
TITLE: Fresh Water Supply Dam Inspection Photos - Spillway & Crest

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 28	0

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Shows a crack that bifurcates and comes back onto itself. Based on the disturbed orange markers on some of the rocks, it would appear that this crack is opening up.



Shows the small scarp which has been formed at the waterline, lower down on the slope.



View is of a crack running down the mid point of the crest, which then runs obliquely to the left, joining up to the main crack. This crack appears to be relatively new and fresh. On the far left hand side is the old crack. The two cracks then connect behind the black pipe.



View of the riprap on the upstream side which appears to be in a satisfactory condition.

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TITLE: Fresh Water Supply Dam Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 29	0

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View of the downstream side taken from the south abutment. From this vantage point, there are no signs of seepage or deformations that can be observed.



Shows the discharge of the water through the culverts at the bottom of the spillway discharge area.



Panoramic view showing the downstream side of this dam and the top of the toe berm. No signs of seepage or deformation were noted from this location.

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TITLE: Fresh Water Supply Dam Inspection Photos

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 30	0

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2003 INSTRUMENTATION READINGS SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	03	03	03	03	03	03	03	03	03	03	03	03
1. Diversion Canal												
THERMISTORS												
- Canal Dyke: CD-10, CD-15, CD-19, CD-21, CD-26, BGC01-02, 88-7, 88-11					***	***			***			
- Spoil Pile: SP-5					***	***			***			
- Backslope: None in 2003, resume monitoring in 2004.												
SLOPE INDICATORS					If blocked in May, attempt to read in June.							
- Canal Dyke:												
BGC01-01					***		***		***			
CD-21, BH94CD-1, BH91-CD1					***				***			
CD-10, CD-15, CD-19					***				***			
- Spoil Pile: SP-5					***				***			
PIEZOMETERS												
- Canal Dyke CD-13, -15, -19, -21, -26, 88-7, -11					***	***			***			
- Backslope: None in 2003, resume monitoring in 2004.												
2. Cross Valley Dam												
THERMISTORS - BH88-4, CVDC-6, CVDC-11					***	***			***			
PIEZOMETERS: CVDC-4, -7, -9, CVDT-1, -2 CVDP-3, -6, 94 CVDC-1, P01-02**, P01-11**					***	***			***			
WEIR FLOWS: X-11, X-12, W3 (monthly)	***	***	***	***	***	***	***	***	***	***	***	***
WEIR FLOWS: X-13	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly
POLISHING POND WATER LEVEL* (or automate with datalogger)	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly
3. Intermediate Dam												
PIEZOMETERS: 91ID-4, -6, -7, 94-IDC-1, 96-1, 96-2, 96-3, 96-4, P01-03**, P01-04**					***	***			***			
91-ID3 (with seepage observations near abutment)					***	***		***	***			
96-1, 2, 3, 4, in combination with toe seepage observations.					***		***		***			
RETAINED POND WATER LEVEL* (or automate with datalogger)	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly
4. Fresh Water Supply Dam (subject to change if reservoir lowering undertaken)												
THERMISTOR - BH85-5					***	***			***			
PIEZOMETERS: 85-1, -2, -3, -4, -5, -6, 88-15, -16, BGC02-05, -14	***	***	***	***	***	***	***	***	***	***	***	***
VALVE HOUSE SEEPAGE AMOUNTS	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly
FRESH WATER CHANNEL (Below Valve House) FLOW QUANTITY	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly
TOE BERM SEEPAGE WEIR FLOWS	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly
RESERVOIR WATER LEVEL (or automate with datalogger)	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly	weekly
NOTES:												
* Confirm accuracy of staff gauge monitoring techniques.												
** Before monitoring P01 series monitoring wells, confirm with GLL staff in Whitehorse that it is alright to do so.												

CLIENT:

Deloitte & Touche

AS A MUTUAL PROTECTION TO OUR CLIENT, THE PUBLIC AND OURSELVES, ALL REPORTS AND DRAWINGS ARE SUBMITTED FOR THE CONFIDENTIAL INFORMATION OF OUR CLIENT FOR A SPECIFIC PROJECT AND AUTHORIZATION FOR USE AND/OR PUBLICATION OF DATA STATEMENTS CONCLUSIONS OR ABSTRACTS FROM OR REGARDING OUR REPORTS AND DRAWINGS IS RESERVED PENDING OUR WRITTEN APPROVAL.

REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

SCALE:	N/A
DATE:	January, 2003
DRAWN:	GKC
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT: 2002 Annual Geotechnical Inspection of Various Facilities at Faro Mine

TITLE: 2003 Monitoring Schedule

PROJECT No.	DWG. No.	REV.
0257-013-04	Figure 31	0

BGC Engineering Inc.
AN APPLIED EARTH SCIENCES COMPANY
Calgary Alberta Phone: (403) 250-5185

APPENDIX I

SITE VISIT INSPECTION MEMOS

(FROM JUNE AND SEPTEMBER)

BGC ENGINEERING INC.

AN APPLIED EARTH SCIENCES COMPANY

1605, 840 - 7 Avenue S.W. , Calgary, Alberta, Canada. T2P 3G2
Phone (403) 250-5185 Fax (403) 250-5330

PROJECT MEMORANDUM

To:	**ARMC/Deloitte**	**Fax No.:**	
Attention:	**Dana Haggar**	**CC:**	**Doug Sedgwick**
From:	**Jim Cassie**	**Date:**	**June 13, 2002**
Subject:	**June Site Visit by BGC Engineering Summary of Observations and Activities**		
No. of Pages (including this page):3 Pages		**Project No:**	**0257-013-05**

As verbally requested by Mr. Doug Sedgwick, Mr. Jim Cassie, P.Eng. of BGC Engineering Inc. (BGC) visited the Faro Mine site from June 11th until June 13th, 2002. It should be noted that this June site visit was not meant to replace the annual inspection visit that typically occurs in September of each year. The following project memo serves as a summary of the observations made and the activities undertaken:

FWS Dam

- New longitudinal cracking noted adjacent (approximately 0.5 to 1.5 m downstream) from the previously existing main crack.
- On-going cracking noted within pre-existing crack.
- Crest cracking likely related to frost effects since 6 m of frost penetration observed this year. Other possible cause is related to reservoir lowering over the past winter.
- Need to backfill and grade over cracks and then continue to monitor if cracking of the crest is continuing.
- The larger vegetation (trees and shrubs) should be removed from the crest and the upstream side of the northern portion of this dam.
- The seepage monitoring weir, downstream from the valve house, needs to be repaired to prevent water flow around the one end.
- Took survey measurements relative to the seepage monitoring weirs. These measurements will allow for the calculation of seepage volume from a staff gauge reading.

Intermediate Dam

- New minor longitudinal cracking noted on the crest, directly at the north abutment.
- Some additional settlement is occurring within previously noted cracks on the crest, located within the northern portion of the dam.

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- Need to backfill and grade over cracks and then continue to monitor if cracking of the crest is continuing.
- Seepage occurring at the toe of the dam, near the south abutment. Seepage in this area has been previously noted.

Cross Valley Dam

- New longitudinal cracking noted on the crest within the southern one third (approximately).
- On-going cracking noted within pre-existing crack.
- Need to backfill and grade over cracks and then continue to monitor if cracking of the crest is continuing.

Canal Dike and Backslope

- Two backslope slide repairs, at approximate Stations 0+000 and 1+950, appear satisfactory as viewed from the canal dike access road.
- Need to place some Peltonite (bentonite pellets) around the settled casing at Instrument BH94CD-1 and then monitor for any other settlement around the casing.

Vangorda Diversion Flume

- Majority of the rock slope (of the sections previously cleaned under BGC's direction) over this flume appears satisfactory. One portion of overhang still noted (that could not be previously blasted off due to winter access issues) and this could be cleaned up.

Clarification Pond Dike (below Water Treatment Plant)

- Dana requested that an inspection be held, based on the 0.3 m of pond water loss in 36 hours and the seepage occurring at the toe of the dike.
- Seepage is occurring at an estimated rate of ~5 gallons per minute. Toe area is wet but not really soft. No signs of sediment in seepage discharge.
- One small transverse crack (new ?) seen on the east dike crest, proximal to seepage area. No other current signs of embankment distress on this dike.
- Longitudinal crack (old) noted on the inside side slope along the south dike.
- Small seepage occurring on the outside of the west dike. Very soft in the area of this seepage point.
- Discussed the need to monitor the seepage amount, location and identification of any included sediment as pond level is raised. Any deteriorating performance (increasing seepage rate, dam cracking, sediment in the seepage, etc.) will require that the pond level be dropped and mitigative action be taken.
- Reviewed the possibility of installing a piezometer to locate the phreatic surface within the embankment.

Proposed Faro Creek Diversion Work

- Toured the site with Dana and the potential contractor, Tim Moon. Proposal is to construct an earthen pilot channel within the existing channel.
- Dana will get YES to survey channel for original survey data.
- Discussed use of geotextile and Bentofix (geocomposite clay liner) in certain portions.

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- Undertook some very basic calculations (based on assumed values provided by Dana) to estimate quantities required. Extended these quantities based on assumed unit rates to estimate project capital cost.
- Dana requested some other technical input from BGC. Project invoicing for these costs are to forwarded to Dana for payment.

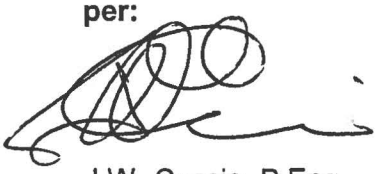
Proposed Rip Rap Quarry Near Intermediate Dam

- Observed the old rock quarry site with Dana and the potential contractor, Tim Moon. Reviewed access requirements across the canal.
- Reviewed potential rip rap sizing of 40 cm, based on assumed density values for rock. Talked about need to varying drill hole spacing and hole charges in response to ground conditions in order to meet rip rap size specifications.
- Dana requested that BGC provide technical input regarding blasting agents and proximity to a creek.
- Jim Cassie was not able to access the quarry side due to the relatively high water levels in the canal. Craig (site staff) will collect six 8 to 10 inch pieces of rock from the quarry walls and forward to EBA Engineering in Whitehorse.

Proposed Grading on the Downstream Side of the Intermediate Dam

- Walked over proposed backfill and grading requirements for the downstream side of the Intermediate Dam with Dana and Tim Moon.
- Noted the requirement to backfill erosional gullies and level any high areas or mounds of soil on the face.
- Overall objective is to nicely grade a consistent slope to the dam so that erosion of the face does not occur.
- Also reviewed that the crest needs to be graded so that no standing water occurs on the crest.
- Discussed construction approaches based on use of a dozer and a hydraulic excavator.

Respectfully submitted,
BGC Engineering Inc.
per:



J.W. Cassie, P.Eng.
Specialist Geotechnical Engineer

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BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
#1605, 840 – 7 Avenue S.W. , Calgary, Alberta, Canada. T2P 3G2
Phone (403) 250-5185 Fax (403) 250-5330

PROJECT MEMORANDUM

To:	**ARMC c/o Deloitte & Touche Inc.**	**Fax No.:**	**867/994-2600**
Attention:	**Dana Haggar, Site Manager**	**CC:**	**Doug Sedgwick 416/601-5902**
From:	**Jim Cassie (Ext. 103)**	**Date:**	**October 11, 2002**
Subject:	**Summary of Observations & Maintenance Recommendations Geotechnical Inspection of Various Facilities at Faro Mine, Yukon**		
No. of Pages (including this page): 5 Pages		**Project No:**	**0257-013-01**

1. INTRODUCTION

Messrs. Jim Cassie and Gerry Ferris of BGC undertook a geotechnical inspection of the Faro Mine on September 28 and 29, 2002 (Saturday and Sunday) that included the following major components:

- Fresh Water Supply Dam.
- Down Valley Tailings Project.
- North Fork – Rose Creek Rock Drain.
- Faro Creek Diversion (overlooking Faro Pit).
- Selected Waste Dumps Overlooking North Fork – Rose Creek

The purpose of this memo is to summarize some of the observations made and to point out recommended maintenance items. Nothing of a critical nature was noted and the following comments relate to routine maintenance and monitoring that should be undertaken.

2. NORTH FORK – ROSE CREEK ROCK DRAIN

- Water appears to be effectively flowing through the rock drain. No visual signs of embankment instability on either side.
- Some erosion is on-going relative to the crest openings on the haul road on top where surface water is directed.
- As previously recommended, a record of the headpond levels and flow readings at the downstream culverts should be kept to assess its performance. Alternatively, a photographic record of the headpond size should be kept.

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3.0 DOWN VALLEY TAILINGS PROJECT

3.1 Diversion Canal

- Minor potholes and rutting on the crest of the Canal Dike need to be graded to prevent water from ponding.
- One longitudinal crack noted on the upstream side of the crest at Instrument CD-20.
- Seepage continues to occur along the toe of the backslope, between the Intermediate Dam and the spoil piles, located east of the Cross Valley Dam. Minor sloughing accompanies the seepage discharge points.
- Some minor shore erosion and sloughing is occurring within the Intermediate Impoundment, likely due to the low level of the pond.
- Repair the final weir in the Weir section of the canal where flow is escaping around the south side of the weir.

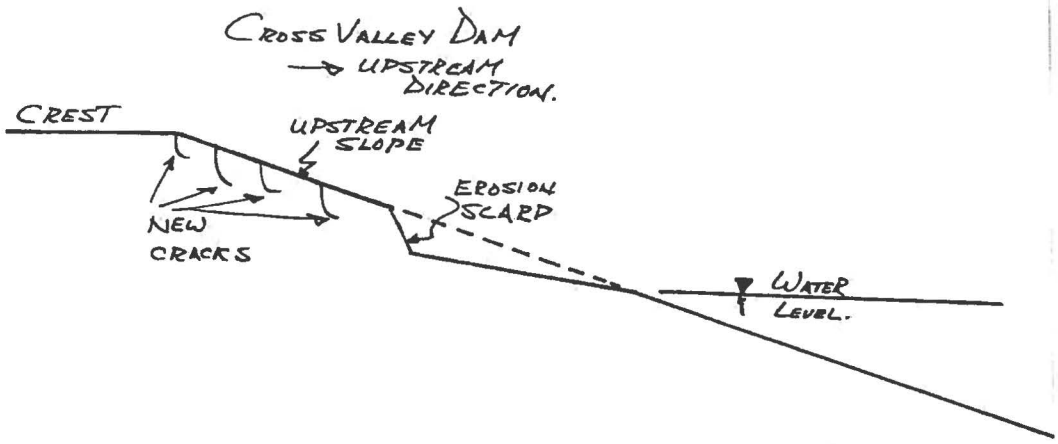
3.2 Intermediate Dam

- Cracking at the north abutment of the crest appears to be continuing. The crest should be graded properly to cover over the cracks and to properly drain any surface water off the crest onto the upstream side.
- Minor settlement of the downstream edge of the crest, along with some crest edge cracking, appears unchanged from before.
- The previously noted sloughing of the downstream face is still apparent. In addition, a number of significant erosional gullies are still apparent on the face. These have resulted in the formation of several debris cones of the downstream face. As such, some backfilling of the significant erosional gullies should be undertaken to ensure that additional run-off does not erode deeper into the face. In addition, all significant accumulations of debris and slough (that would interrupt any proper drainage on the face) should be removed and/or properly graded.
- Fill materials have been stockpiled towards the south abutment in preparation for grading work in the future.

3.3 Cross Valley Dam

- Cracking on the crest appears to be continuing on previously noted cracks. The crest should be graded properly to cover over these cracks and to properly drain any surface water off.
- Some new cracking (discontinuous, but traced over a significant distance on the upstream side) is occurring near the upstream edge of the crest and in the shell materials on the upstream side. These cracks are likely due to locally oversteepened material caused by the creation of an erosion scarp, approximately 1.5 m below the crest, as shown in the sketch below:

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- As a result, appropriately sized angular rip rap material should be placed within the eroded area to buttress the material above that is cracking. This work should have the highest priority of any of the maintenance items noted herein.
- It should be noted that design information noted for this dam states that rip rap (cobbles and boulders) were to be placed on the upstream side between Elev. 1062.5 and 1064.5 m, or 1.3 to 3.3 m below the crest elevation. Therefore, if the lowered pond remains below a distance of 3.3 m from the crest, additional erosion of the upstream face will likely result. If this lowered pond condition is required, then consideration should be given to placing appropriately sized rip rap proximal to the new water line.

3.4 North Valley Wall Interceptor Ditch

- The capacity of the two culverts running under the main access road at the outfall section are likely not capable of handing the design flood quantity of 17.7 m^3/s. Recommended sizing has been provided to site in a memo by BGC and the culverts have been delivered to site.

3. FRESH WATER SUPPLY DAM

- Cracking on the crest appears to be continuing in portions of the old crack on the crest. In addition, a new longitudinal crack was identified on the downstream side of the old crack during a site visit in June, although this crack appears relatively unchanged since that time. In accordance with the recommendations previously provided, the cracks should be cleaned out and a mixture of sand and bentonite be placed into the cracks. In addition, the crest should be graded properly to fill in some low points in old test pits and to properly drain any surface water off the crest.
- The V-notch weir, downstream from the gatehouse, needs to be repaired as water is escaping around the side of the weir.
- Could you please provide BGC with the date of installation for the seepage collection "chute" now installed on the north side of the valve house?

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- The discharge end of the two large culverts below the spillway discharge is continuing to erode underneath the access road embankment. As such, a plan for these culverts should be formulated to ensure the erosion does not continue unabated.
- The installation of a new siphon pipe was on-going during the inspection visit. If any rapid draw down is to occur, the pore pressure response in the dam must be carefully monitored and a separate memo on the monitoring protocol has been provided.

4. FARO CREEK DIVERSION CHANNEL

- Ravelling of the pit slope adjacent to the Faro Creek diversion channel appears to be on-going. Monitoring, both visually and by surveying, should continue to determine the rate of ravelling and hence determine when the resulting deformation will impact the channel section.

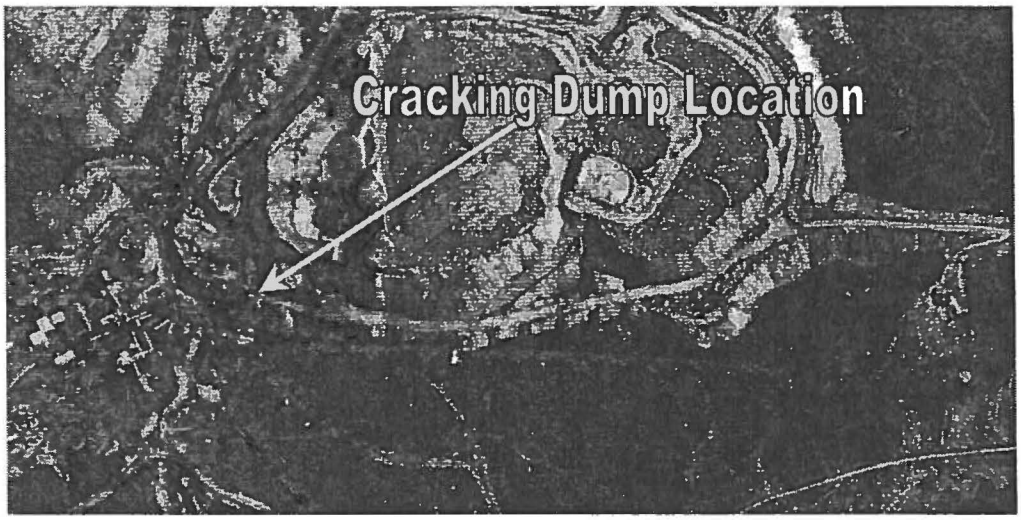
5. SELECTED WASTE DUMPS OVERLOOKING NORTH FORK – ROSE CREEK

- No new cracking or toe bulging was noted within the selected waste dumps inspected (those overlooking North Fork – Rose Creek).
- Several small test pits still exist near the crest edge at the north end of the Northeast Dumps, overlooking North Fork – Rose Creek. The pits should be backfilled to prevent the infiltration of surface water.

6. WASTE DUMP PROXIMAL TO MILL

- A longitudinal crack and associated settlement trough was identified by Mr. Bud McAlpine (DIAND). This crack is located approximately 15 m back from the crest edge in the dump located, in relative proximity to the main mine haul road.
- The dump is situated just above the water sampling point X23 and as shown in the following aerial photograph.
- Hence, it is recommended that the crack and the settlement trough be backfilled and graded over to prevent the infiltration of any surface water. The extent of the cracks should be marked with paint and then visually monitored to determine if the cracks are lengthening and/or widening. Preparations to make these observations under potential snow cover should also be made.

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- If any additional movement occurs at this location, BGC should be immediately notified and additional monitoring and/or assessment measures may be required.

7. CONCLUSIONS

In summary, the project components are in a satisfactory condition to perform their required function. The suggested maintenance items should be undertaken as soon as practically possible.

Regular visual inspections, along with the scheduled collection of instrumentation data, are a necessary component for dam safety and must be continued.

Please contact the undersigned should you have any questions or comments.

Respectfully submitted,
BGC ENGINEERING INC.
per:

James W. Cassie, M.Sc., P.Eng.
Specialist Geotechnical Engineer

JWC/jwc

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APPENDIX II

INSTRUMENTATION DATA RECORDS AND GRAPHS

DIVERSION CANAL
CANAL DIKE

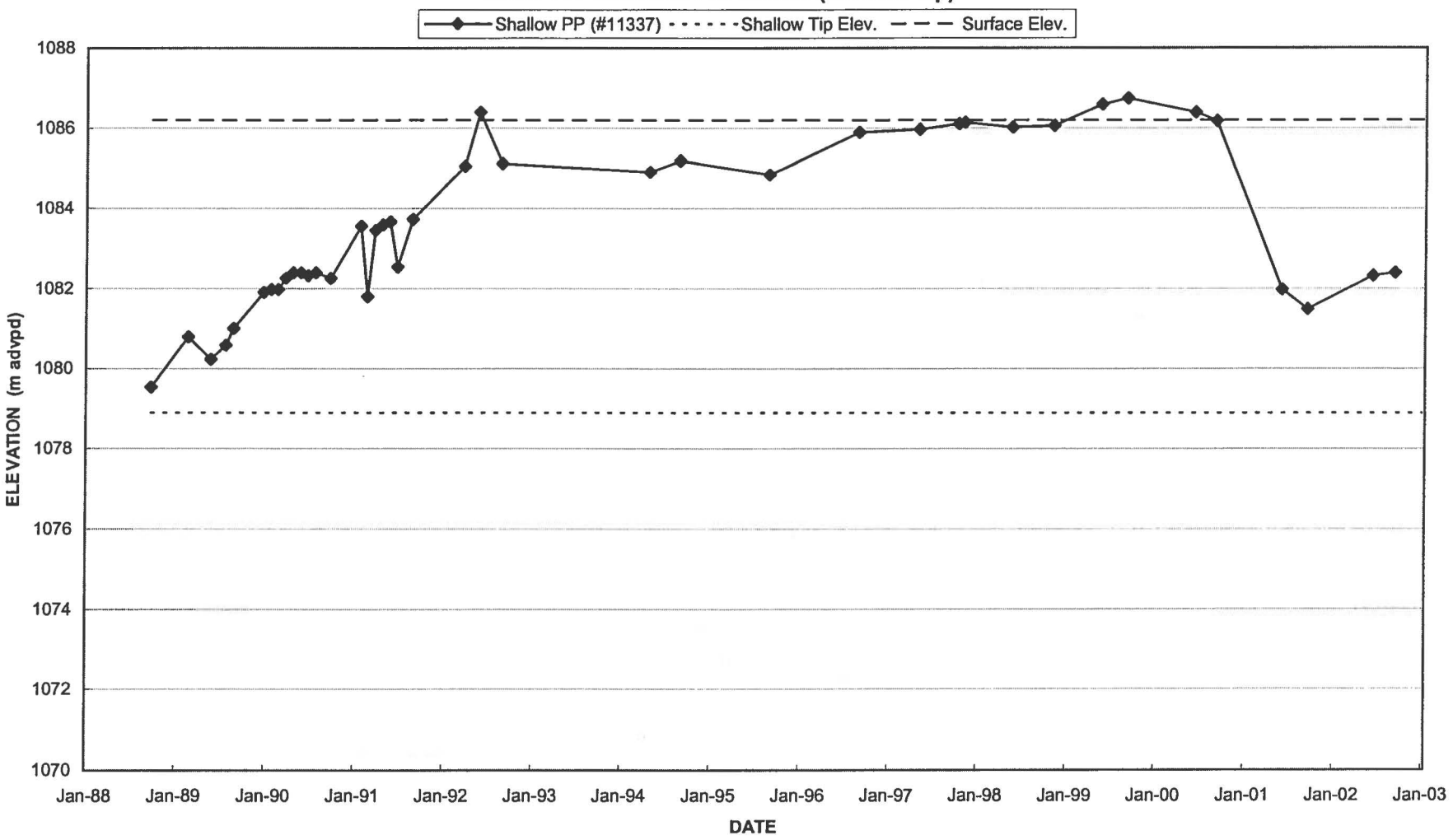
PIEZOMETERS

Faro Mine Instrumentation - Diversion Canal Dike

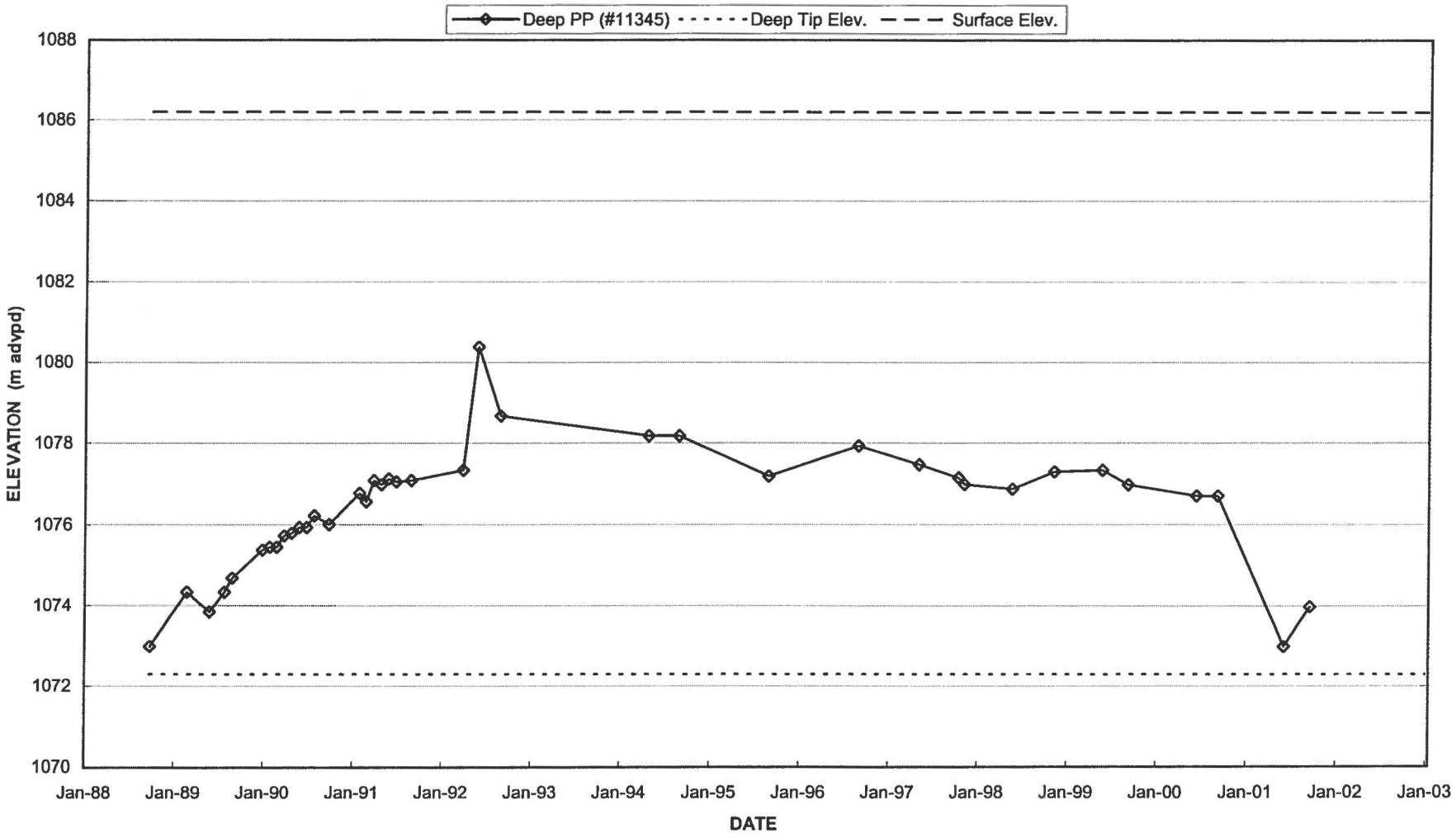
BH88-11	Location:	Canal Dyke St. 2+160 (approx)				Coordinates:	unknown
				Ground Elevation: (m advpd)	1086.20		
				Shallow Tip Elev: (m advpd)	1078.90		
	Date Installed:	1988		Deep Tip Elev.: (m advpd)	1072.30	Surface Protector:	yes

Date	Reading (psi)		Piezometric Elevation (m advpd)		Comments
	Shallow PP (#11337)	Deep PP (#11345)	Shallow (#11337)	Deep (#11345)	
01-Oct-88	0.9	1	1079.53	1073.00	
01-Mar-89	2.7	2.9	1080.79	1074.33	
01-Jun-89	1.9	2.2	1080.23	1073.84	
01-Aug-89	2.4	2.9	1080.58	1074.33	
01-Sep-89	3	3.4	1081.00	1074.68	
01-Jan-90	4.3	4.4	1081.91	1075.38	
01-Feb-90	4.4	4.5	1081.98	1075.45	
01-Mar-90	4.4	4.5	1081.98	1075.45	
01-Apr-90	4.8	4.9	1082.26	1075.73	
01-May-90	5	5	1082.40	1075.8	
01-Jun-90	5	5.2	1082.40	1075.94	
01-Jul-90	4.9	5.2	1082.33	1075.94	
01-Aug-90	5	5.6	1082.40	1076.22	
01-Oct-90	4.8	5.3	1082.26	1076.01	
01-Feb-91	6.65	6.4	1083.56	1076.78	
01-Mar-91	4.15	6.1	1081.81	1076.57	
01-Apr-91	6.5	6.85	1083.45	1077.10	
01-May-91	6.7	6.7	1083.59	1076.99	
01-Jun-91	6.8	6.9	1083.66	1077.13	
01-Jul-91	5.2	6.8	1082.54	1077.06	
01-Sep-91	6.9	6.85	1083.73	1077.095	
01-Apr-92	8.8	7.2	1085.06	1077.34	
01-Jun-92	10.7	11.55	1086.39	1080.39	
01-Sep-92	8.9	9.1	1085.13	1078.67	
01-May-94	8.6	8.4	1084.92	1078.18	
01-Sep-94	9	8.4	1085.20	1078.18	
01-Sep-95	8.5	7	1084.85	1077.2	
01-Sep-96	10	8.05	1085.90	1077.935	
08-May-97	10.1	7.4	1085.97	1077.48	
17-Oct-97	10.30	6.94	1086.11	1077.16	
10-Nov-97	10.35	6.71	1086.15	1077.00	
26-May-98	10.18	6.55	1086.03	1076.89	
13-Nov-98	10.23	7.15	1086.06	1077.31	
28-May-99	10.98	7.20	1086.59	1077.34	
11-Sep-99	11.20	6.70	1086.74	1076.99	
14-Jun-00	10.70	6.30	1086.39	1076.71	
09-Sep-00	10.40	6.30	1086.18	1076.71	
06-Jun-01	4.40	1.00	1081.98	1073.00	
19-Sep-01	3.70	2.40	1081.49	1073.98	
13-Jun-02	4.9	29.6	1082.33		
12-Sep-02	5.0	N/A	1082.4		

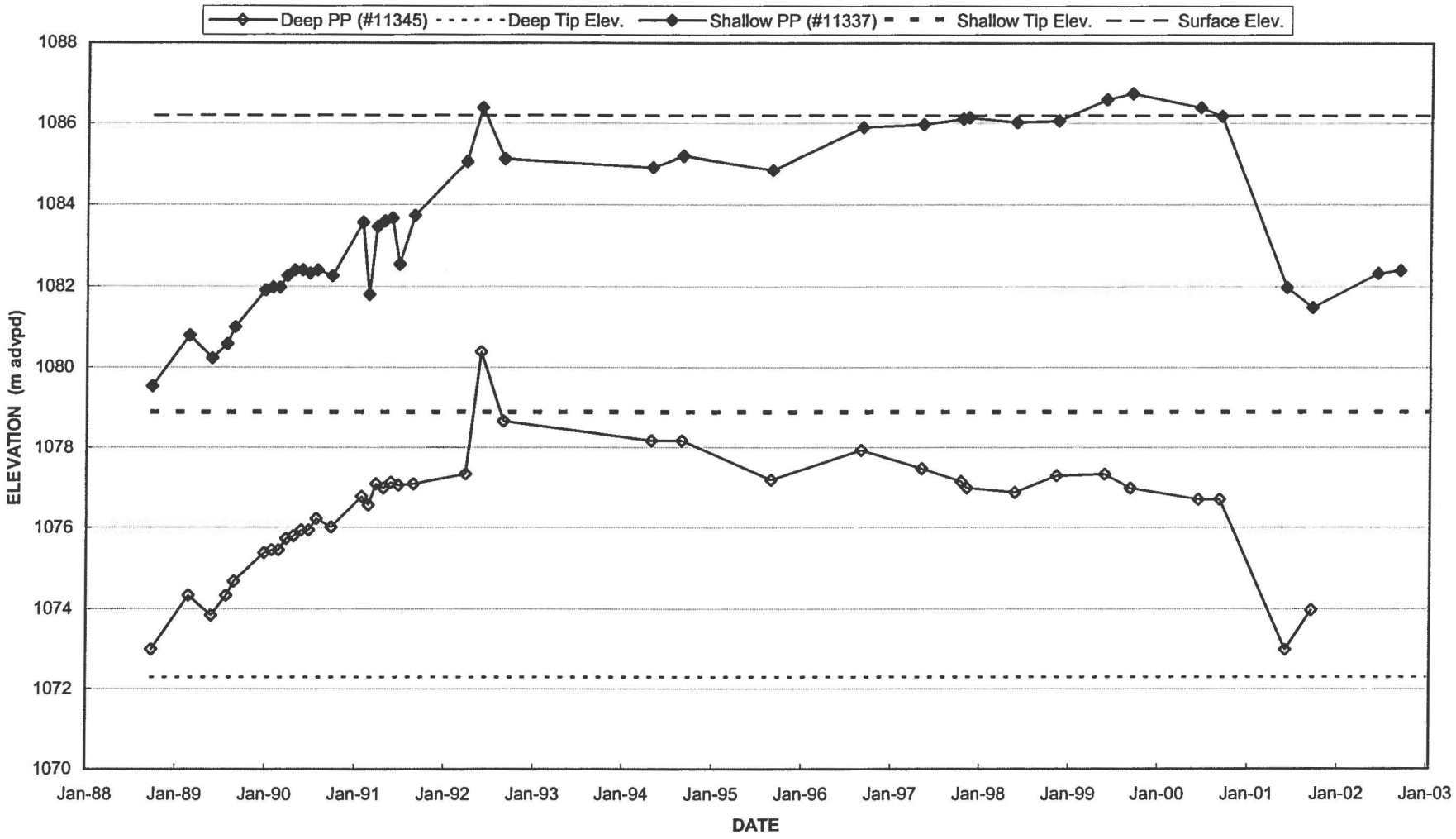
DIVERSION CANAL DIKE
Piezometric Monitoring
BH88-11 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
BH88-11 Pneumatic Piezometer (Deep Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
BH88-11 Pneumatic Piezometer (Both Tips)

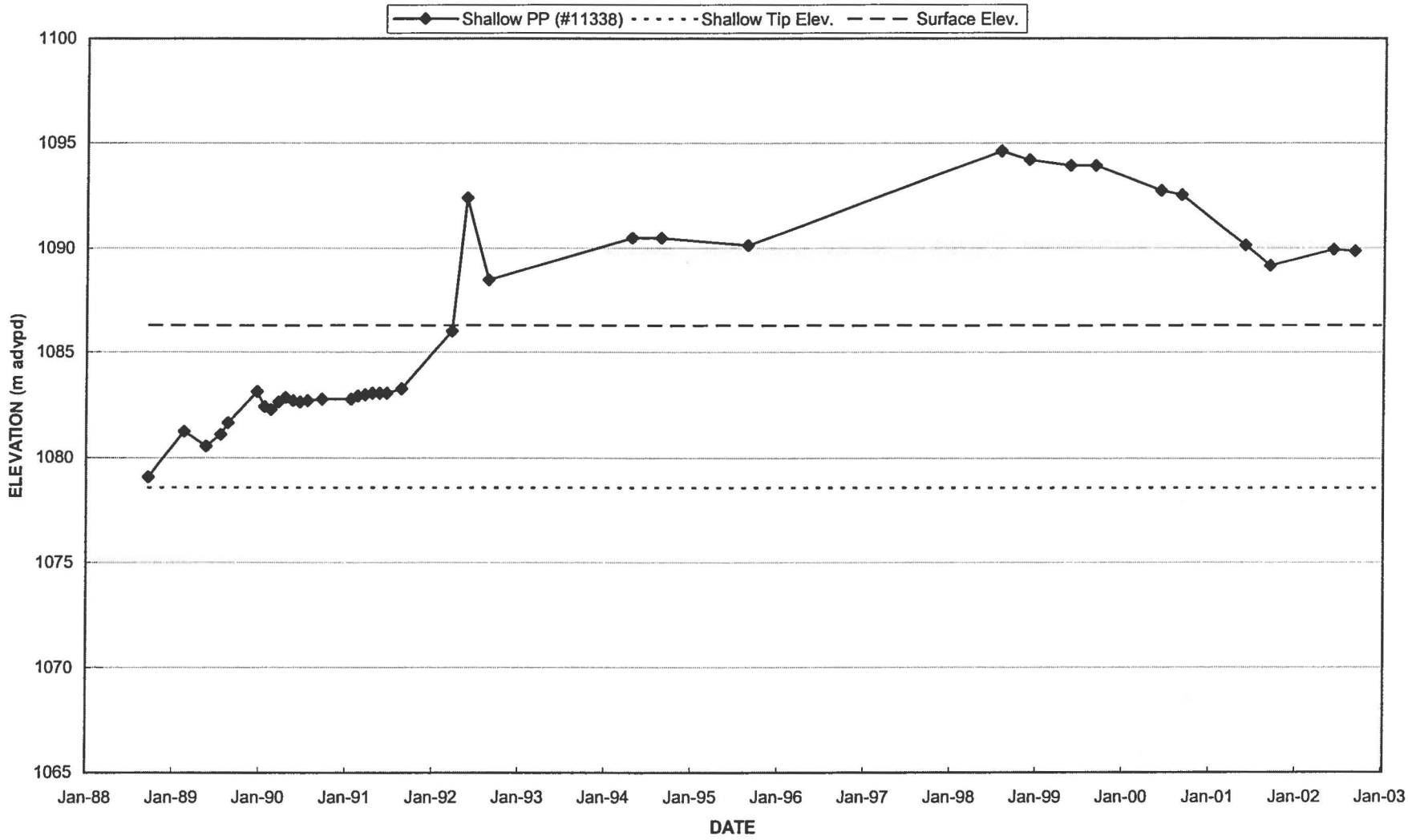


Faro Mine Instrumentation - Diversion Canal Dike

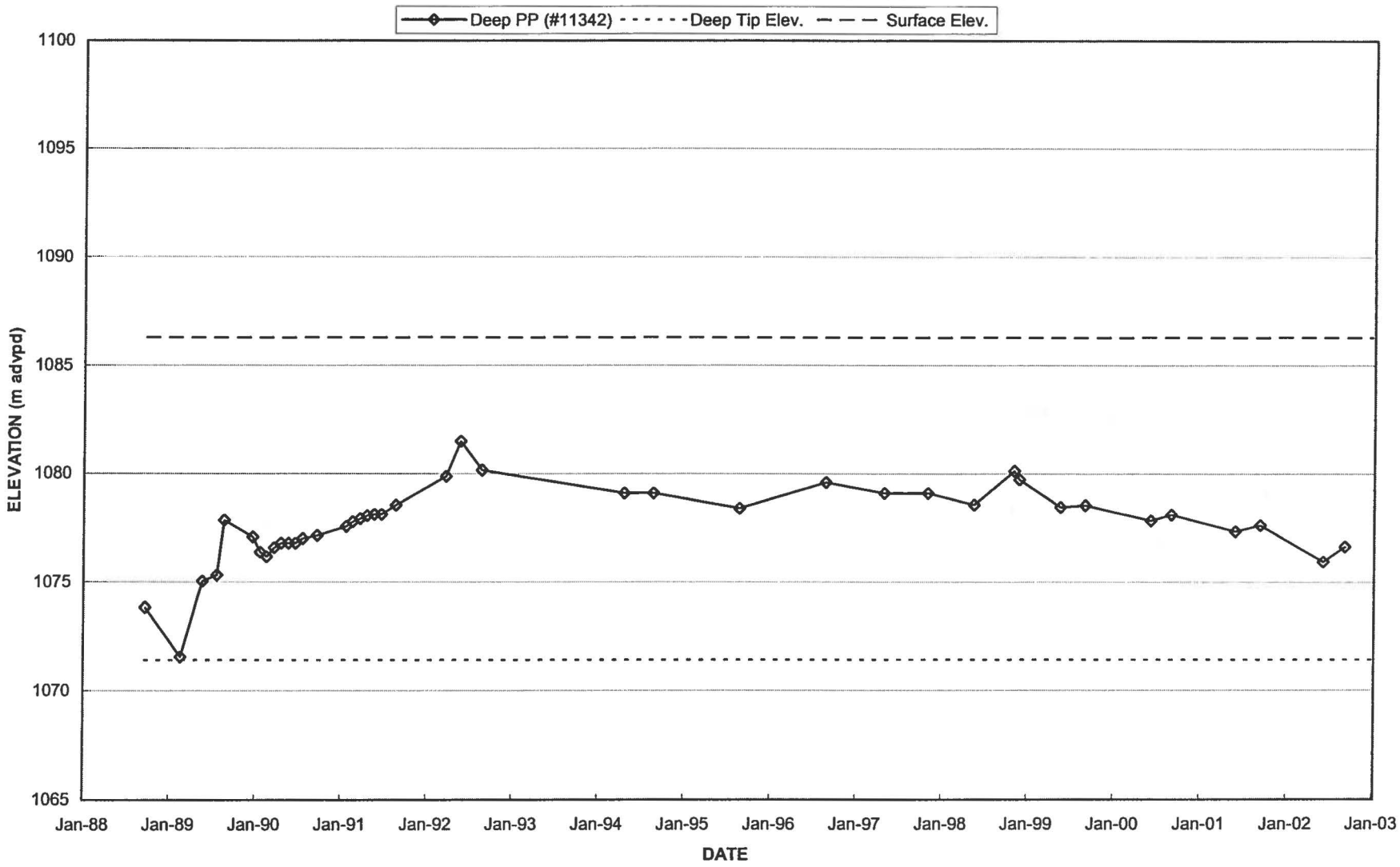
BH88-7	Location:	Canal Dyke St. 2+120 (approx)				Coordinates:	unknown
				Ground Elevation: (m advpd)	1086.30		
				Shallow Tip Elev: (m advpd)	1078.60		
	Date installed:	1988		Deep Tip Elev.: (m advpd)	1071.40	Surface Protector:	yes

Date	Reading (psi)					Piezometric Elevation (m advpd)		Comments
	Shallow PP (#11338)	Deep PP (#11342)				Shallow	Deep	
01-Oct-88	0.7	3.45				1079.09	1073.82	
01-Mar-89	3.8	0.2				1081.26	1071.54	
01-Jun-89	2.8	5.2				1080.56	1075.04	
01-Aug-89	3.6	5.6				1081.12	1075.32	
01-Sep-89	4.4	9.2				1081.68	1077.84	
01-Jan-90	6.5	8.1				1083.15	1077.07	
01-Feb-90	5.5	7.1				1082.45	1076.37	
01-Mar-90	5.3	6.8				1082.31	1076.16	
01-Apr-90	5.8	7.4				1082.66	1076.58	
01-May-90	6.1	7.7				1082.87	1076.79	
01-Jun-90	5.9	7.7				1082.73	1076.79	
01-Jul-90	5.8	7.7				1082.66	1076.79	
01-Aug-90	5.9	8				1082.73	1077	
01-Oct-90	6	8.2				1082.80	1077.14	
01-Feb-91	6	8.8				1082.80	1077.56	
01-Mar-91	6.2	9.1				1082.94	1077.77	
01-Apr-91	6.3	9.3				1083.01	1077.91	
01-May-91	6.4	9.5				1083.08	1078.05	
01-Jun-91	6.4	9.6				1083.08	1078.12	
01-Jul-91	6.4	9.6				1083.08	1078.12	
01-Sep-91	6.7	10.2				1083.29	1078.54	
01-Apr-92	10.6	12.1				1086.02	1079.87	
01-Jun-92	19.7	14.4				1092.39	1081.48	
01-Sep-92	14.1	12.5				1088.47	1080.15	
01-May-94	17	11				1090.50	1079.1	
01-Sep-94	17	11				1090.50	1079.1	
01-Sep-95	16.5	10				1090.15	1078.4	
01-Sep-96		11.7					1079.59	
08-May-97		11					1079.1	
10-Nov-97		11					1079.1	
26-May-98		10.24					1078.6	
07-Aug-98	22.9					1094.63		
13-Nov-98		12.45					1080.1	
04-Dec-98	22.30	11.90				1094.21	1079.7	
28-May-99	21.90	10.09				1093.93	1078.5	
11-Sep-99	21.90	10.20				1093.93	1078.5	
14-Jun-00	20.20	9.20				1092.74	1077.8	
09-Sep-00	19.90	9.60				1092.53	1078.1	
06-Jun-01	16.50	8.50				1090.15	1077.35	
19-Sep-01	15.10	8.90				1089.17	1077.6	
13-Jun-02	16.2	6.5				1089.94	1075.95	
12-Sep-02	16.1	7.5				1089.87	1076.65	

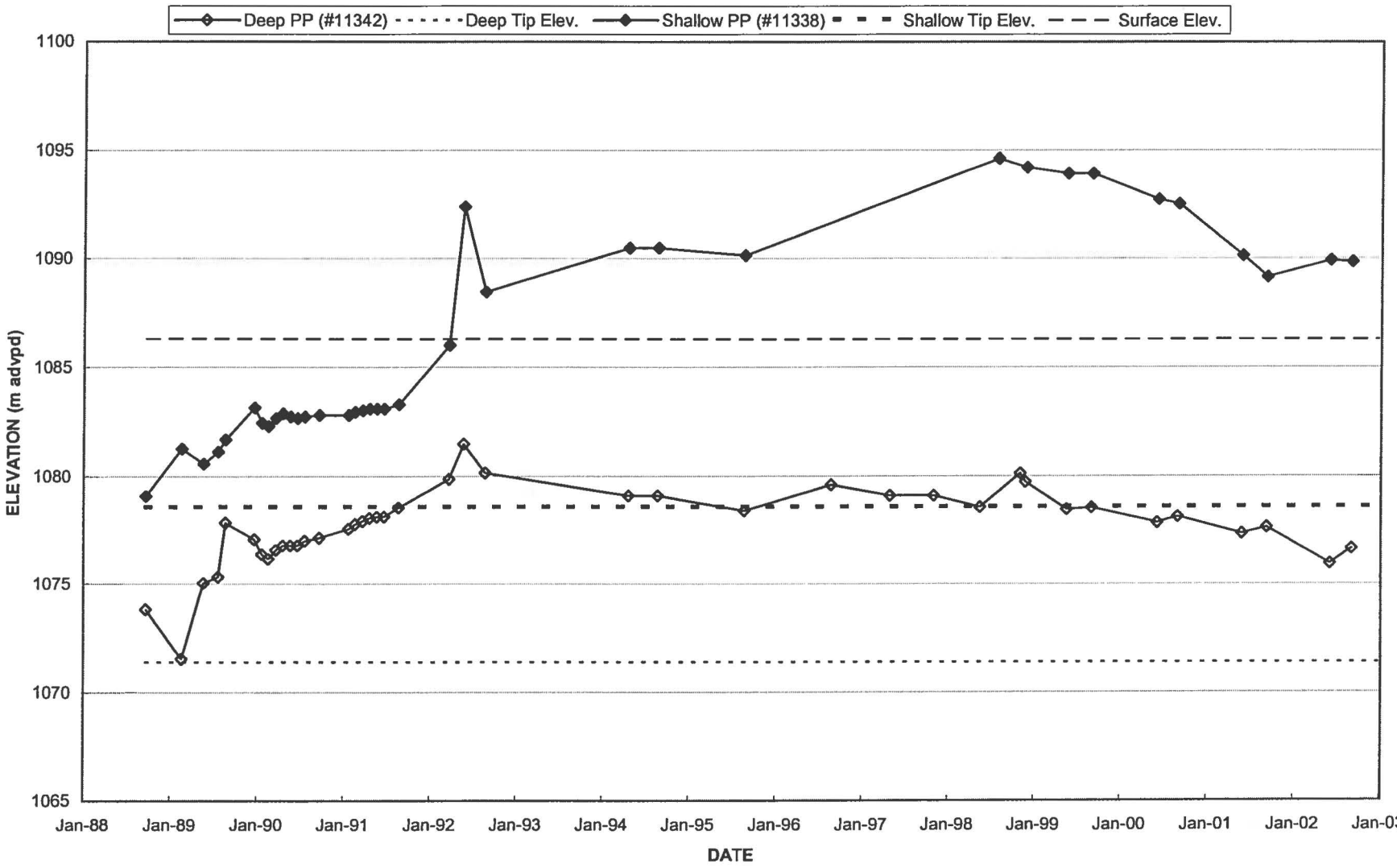
DIVERSION CANAL DIKE
Piezometric Monitoring
BH88-7 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
BH88-7 Pneumatic Piezometer (Deep Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
BH88-7 Pneumatic Piezometer (Both Tips)

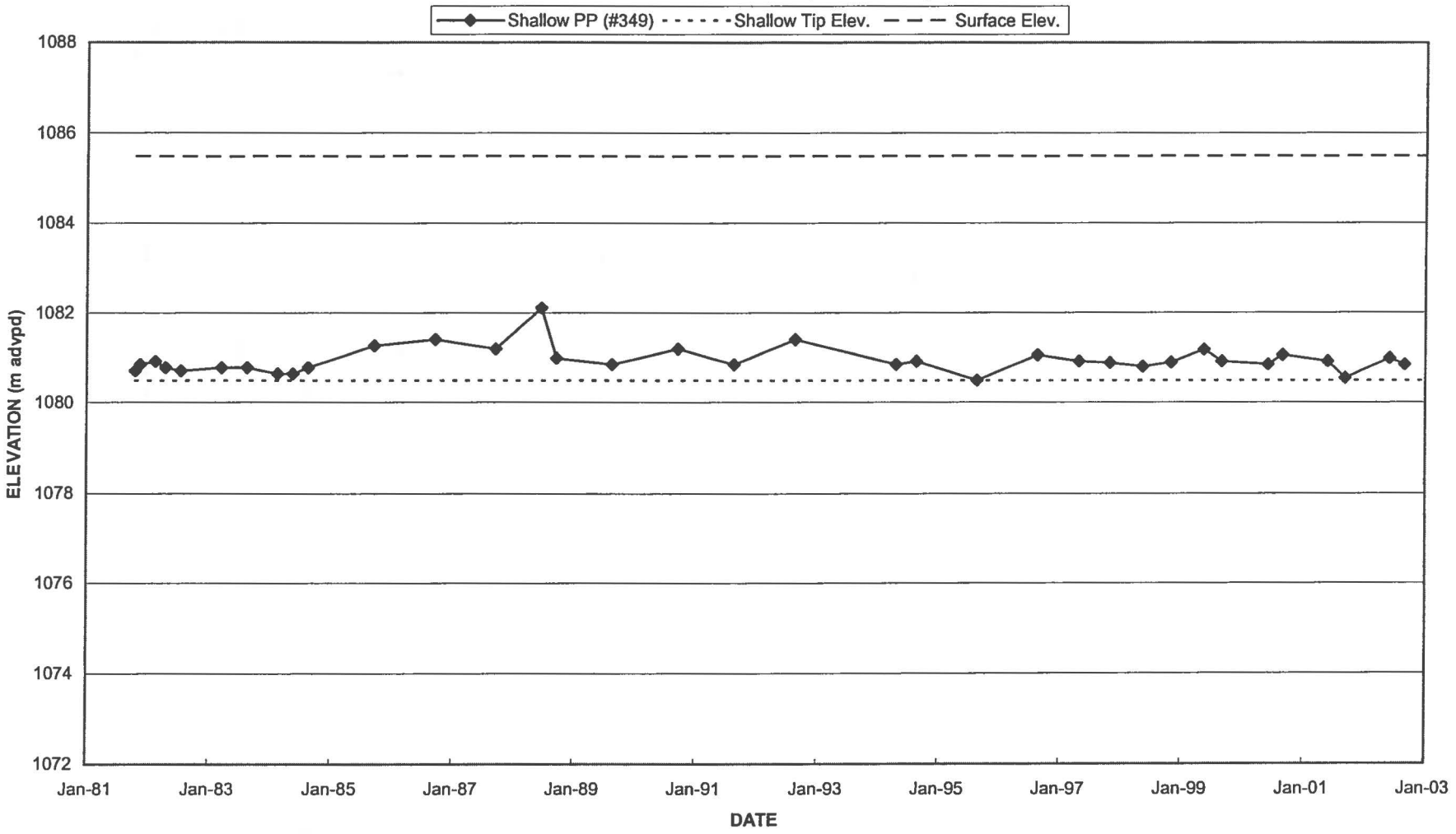


Faro Mine Instrumentation - Diversion Canal Dike

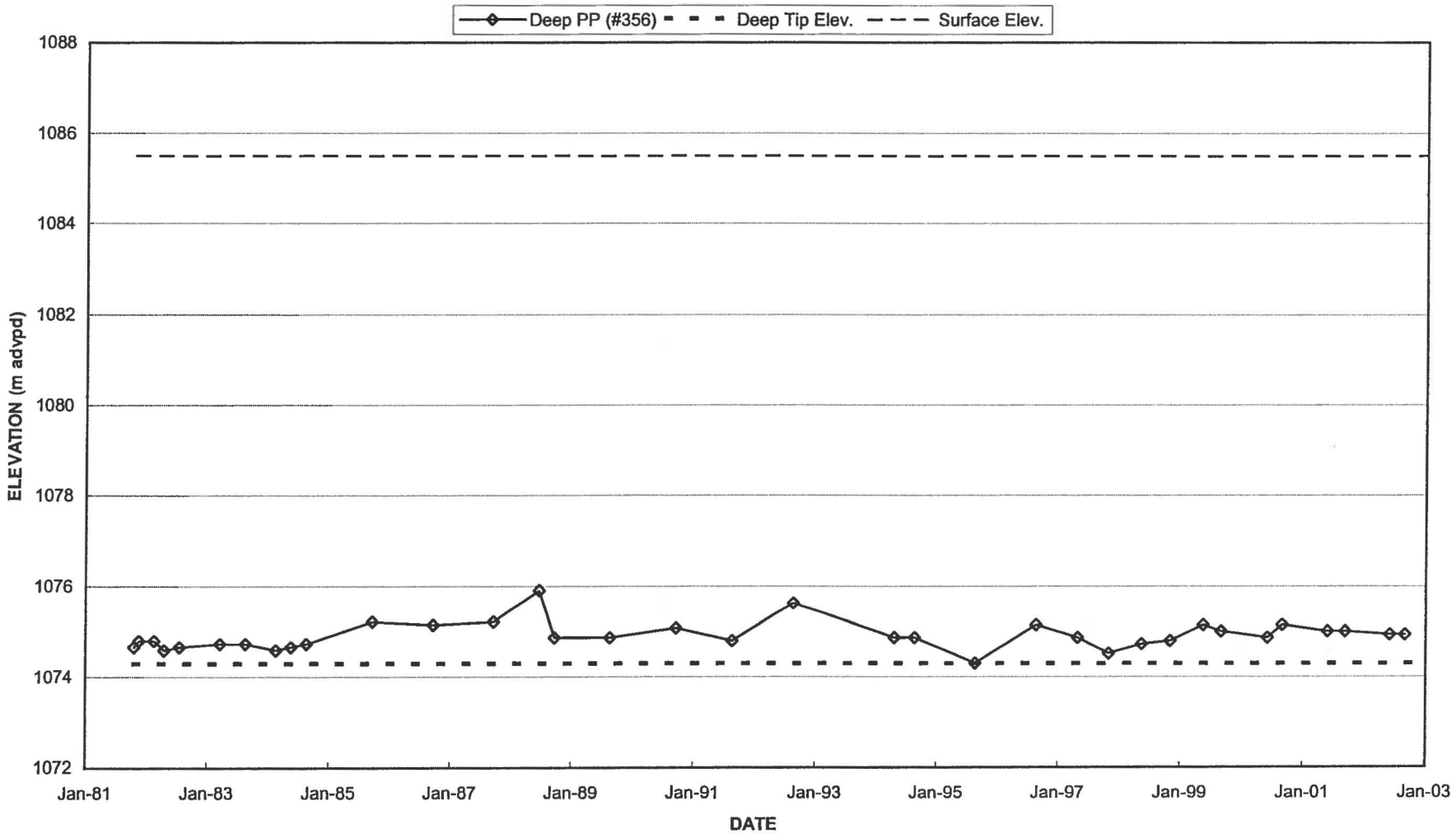
CD-26	Location:	Canal Dyke St.2+600				Coordinates:	1674.7N, 71.7E
				Ground Elevation: (m advpd)	1085.50		
				Shallow Tip Elev: (m advpd)	1080.50		
	Date Installed:	1981		Deep Tip Elev.: (m advpd)	1074.30	Surface Protector:	yes

Date	Reading (psi)					Piezometric Elevation (m advpd)		Comments
	Shallow PP	Deep PP				Shallow	Deep	
	(#349)	(#356)						
01-Nov-81	0.3	0.5				1080.71	1074.65	
01-Dec-81	0.5	0.7				1080.85	1074.79	
01-Mar-82	0.6	0.7				1080.92	1074.79	
01-May-82	0.4	0.4				1080.78	1074.58	
01-Aug-82	0.3	0.5				1080.71	1074.65	
01-Apr-83	0.4	0.6				1080.78	1074.72	
01-Sep-83	0.4	0.6				1080.78	1074.72	
01-Mar-84	0.2	0.4				1080.64	1074.58	
01-Jun-84	0.2	0.5				1080.64	1074.65	
01-Sep-84	0.4	0.6				1080.78	1074.72	
01-Oct-85	1.1	1.3				1081.27	1075.21	
01-Oct-86	1.3	1.2				1081.41	1075.14	
01-Oct-87	1	1.3				1081.20	1075.21	
01-Jul-88	2.3	2.3				1082.11	1075.91	
01-Oct-88	0.7	0.8				1080.99	1074.86	
01-Sep-89	0.5	0.8				1080.85	1074.86	
01-Oct-90	1	1.1				1081.20	1075.07	
01-Sep-91	0.5	0.7				1080.85	1074.79	
01-Sep-92	1.3	1.9				1081.41	1075.63	
01-May-94	0.5	0.8				1080.85	1074.86	
01-Sep-94	0.6	0.8				1080.92	1074.86	
01-Sep-95	0	0				1080.50	1074.30	
01-Sep-96	0.8	1.2				1081.06	1075.14	
08-May-97	0.6	0.8				1080.92	1074.86	
10-Nov-97	0.55	0.30				1080.89	1074.51	
26-May-98	0.44	0.60				1080.81	1074.72	
12-Nov-98	0.57	0.70				1080.90	1074.79	
28-May-99	0.98	1.20				1081.19	1075.14	
11-Sep-99	0.60	1.0				1080.92	1075.00	
14-Jun-00	0.50	0.8				1080.85	1074.86	
09-Sep-00	0.80	1.2				1081.06	1075.14	
06-Jun-01	0.60	1.0				1080.92	1075.00	
19-Sep-01	0.07	1.0				1080.55	1075.00	
13-Jun-02	0.7	0.9				1080.99	1074.93	
12-Sep-02	0.5	0.9				1080.85	1074.93	

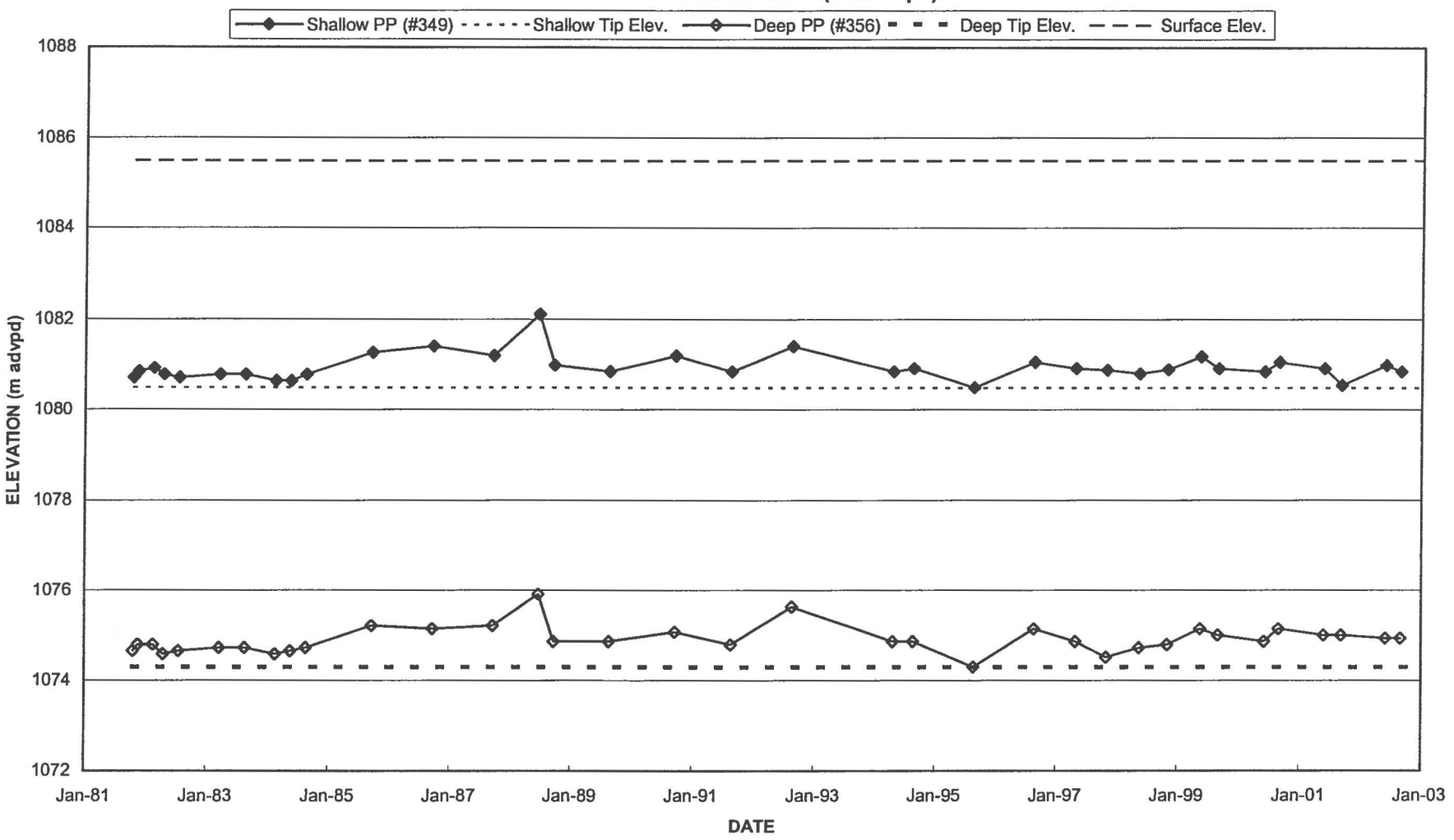
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-26 Pneumatic Piezometer (Shallow Tip)



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



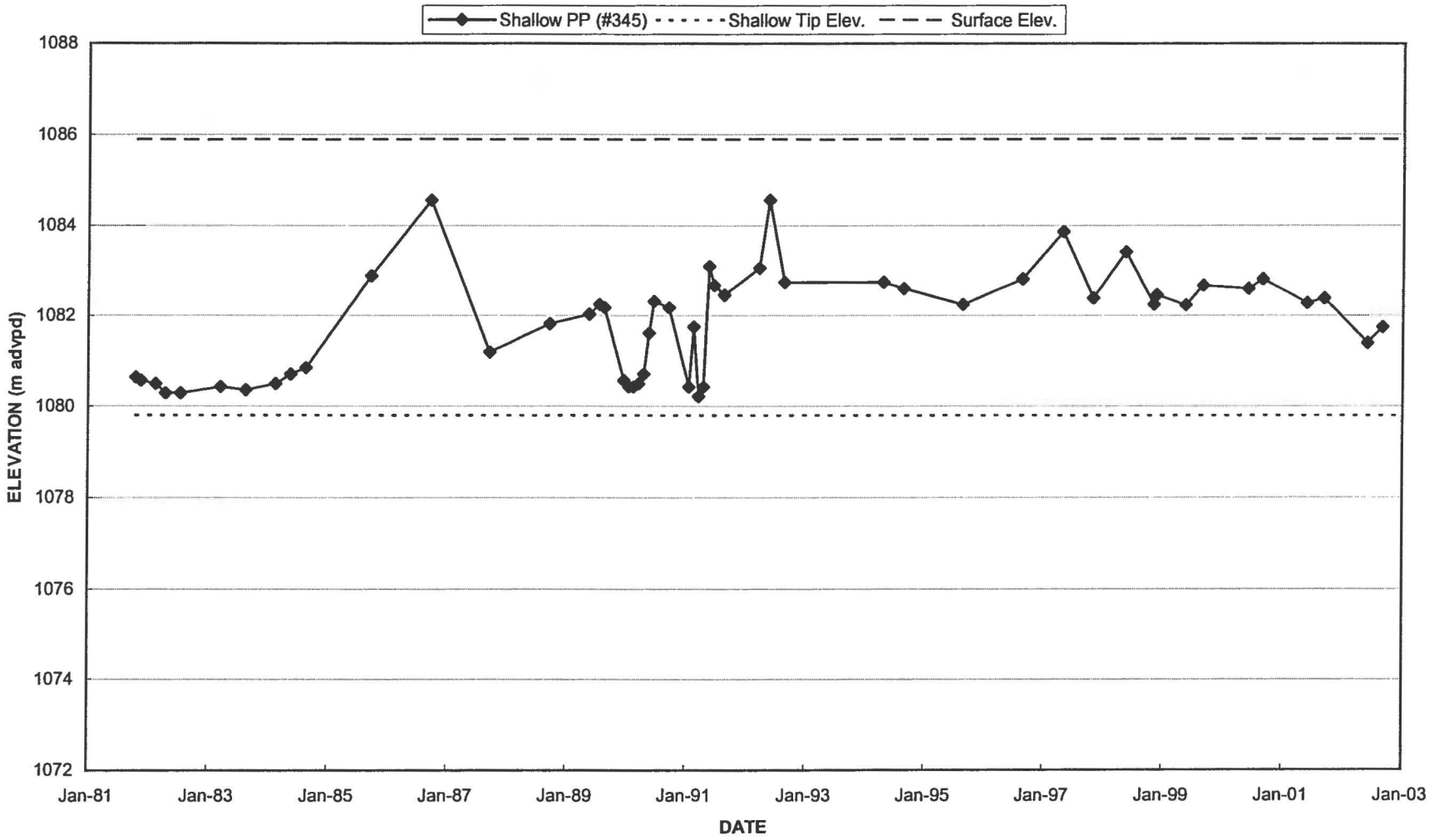
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-26 Pneumatic Piezometers (Both Tips)



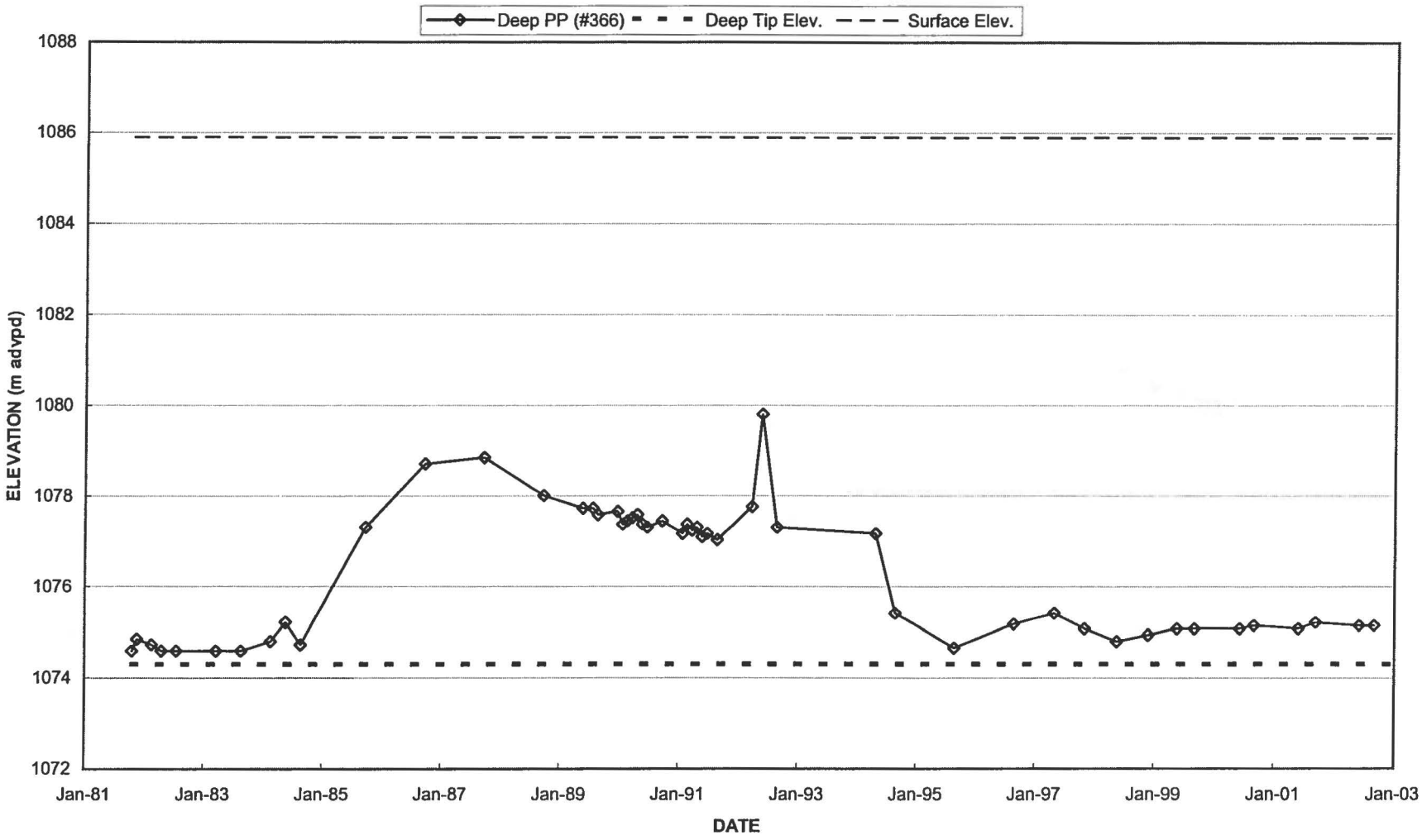
Faro Mine Instrumentation - Diversion Canal Dike

CD-21	Location:	Canal Dyke St.2+100				Coordinates:	1455.9N, 509.5E
			Ground Elevation: (m advpd)	1085.90			
			Shallow Tip Elev: (m advpd)	1079.80			
	Date Installed:	1981	Deep Tip Elev.: (m advpd)	1074.30		Surface Protector:	yes
Date	Reading (psi)			Piezometric Elevation (m advpd)			Comments
	Shallow PP (#345)	Deep PP (#366)		Shallow	Deep		
01-Nov-81	1.2	0.4		1080.64	1074.58		
01-Dec-81	1.1	0.78		1080.57	1074.85		
01-Mar-82	1	0.6		1080.50	1074.72		
01-May-82	0.7	0.4		1080.29	1074.58		
01-Aug-82	0.7	0.4		1080.29	1074.58		
01-Apr-83	0.9	0.4		1080.43	1074.58		
01-Sep-83	0.8	0.4		1080.36	1074.58		
01-Mar-84	1	0.7		1080.50	1074.79		
01-Jun-84	1.3	1.3		1080.71	1075.21		
01-Sep-84	1.5	0.6		1080.85	1074.72		
01-Oct-85	4.4	4.3		1082.88	1077.31		
01-Oct-86	6.8	6.3		1084.56	1078.71		
01-Oct-87	2	6.5		1081.20	1078.85		
01-Oct-88	2.9	5.3		1081.83	1078.01		
01-Jun-89	3.2	4.9		1082.04	1077.73		
01-Aug-89	3.5	4.9		1082.25	1077.73		
01-Sep-89	3.4	4.7		1082.18	1077.59		
01-Jan-90	1.1	4.8		1080.57	1077.66		
01-Feb-90	0.9	4.4		1080.43	1077.38		
01-Mar-90	0.9	4.5		1080.43	1077.45		
01-Apr-90	1	4.6		1080.50	1077.52		
01-May-90	1.3	4.7		1080.71	1077.59		
01-Jun-90	2.6	4.4		1081.62	1077.38		
01-Jul-90	3.6	4.3		1082.32	1077.31		
01-Oct-90	3.4	4.5		1082.18	1077.45		
01-Feb-91	0.9	4.1		1080.43	1077.17		
01-Mar-91	2.8	4.4		1081.76	1077.38		
01-Apr-91	0.6	4.2		1080.22	1077.24		
01-May-91	0.9	4.3		1080.43	1077.31		
01-Jun-91	4.7	4		1083.09	1077.1		
01-Jul-91	4.1	4.1		1082.67	1077.17		
01-Sep-91	3.8	3.9		1082.46	1077.03		
01-Apr-92	4.65	4.95		1083.06	1077.765		
01-Jun-92	6.8	7.87		1084.56	1079.809		
01-Sep-92	4.2	4.3		1082.74	1077.31		
01-May-94	4.2	4.1		1082.74	1077.17		
01-Sep-94	4	1.6		1082.60	1075.42		
01-Sep-95	3.5	0.5		1082.25	1074.65		
01-Sep-96	4.3	1.25		1082.81	1075.175		
08-May-97	5.8	1.6		1083.86	1075.42		
10-Nov-97	3.7	1.1		1082.39	1075.07		
26-May-98	5.16	0.70		1083.41	1074.79		
15-Nov-98	3.50	n.r.	(no bubbles after initial charge; falls to 0)	1082.25			
04-Dec-98	3.80	0.90		1082.46	1074.93		
28-May-99	3.49	1.10		1082.24	1075.07		
11-Sep-99	4.10	1.10		1082.67	1075.07		
14-Jun-00	4.00	1.10		1082.60	1075.07		
09-Sep-00	4.30	1.20	(no bubbles #366)	1082.81	1075.14		
06-Jun-01	3.55	1.10	(no bubbles #366)	1082.29	1075.07		
19-Sep-01	3.70	1.30	(no bubbles #366)	1082.39	1075.21		
13-Jun-02	2.3	1.2	(no bubbles #366)	1081.41	1075.14		
12-Sep-02	2.8	1.2	(no bubbles #366)	1081.76	1075.14		

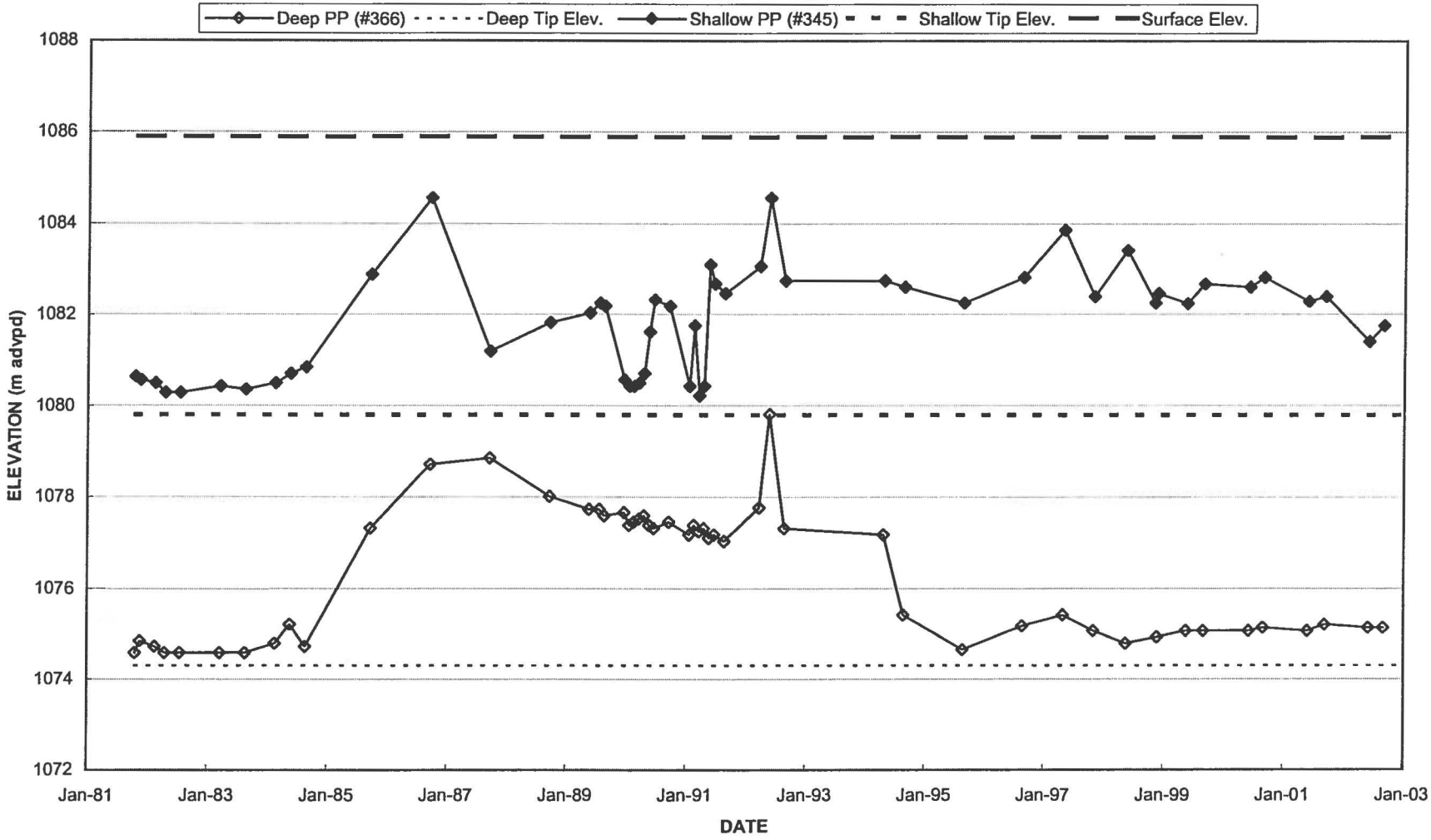
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-21 Pneumatic Piezometer (Shallow Tip)



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



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

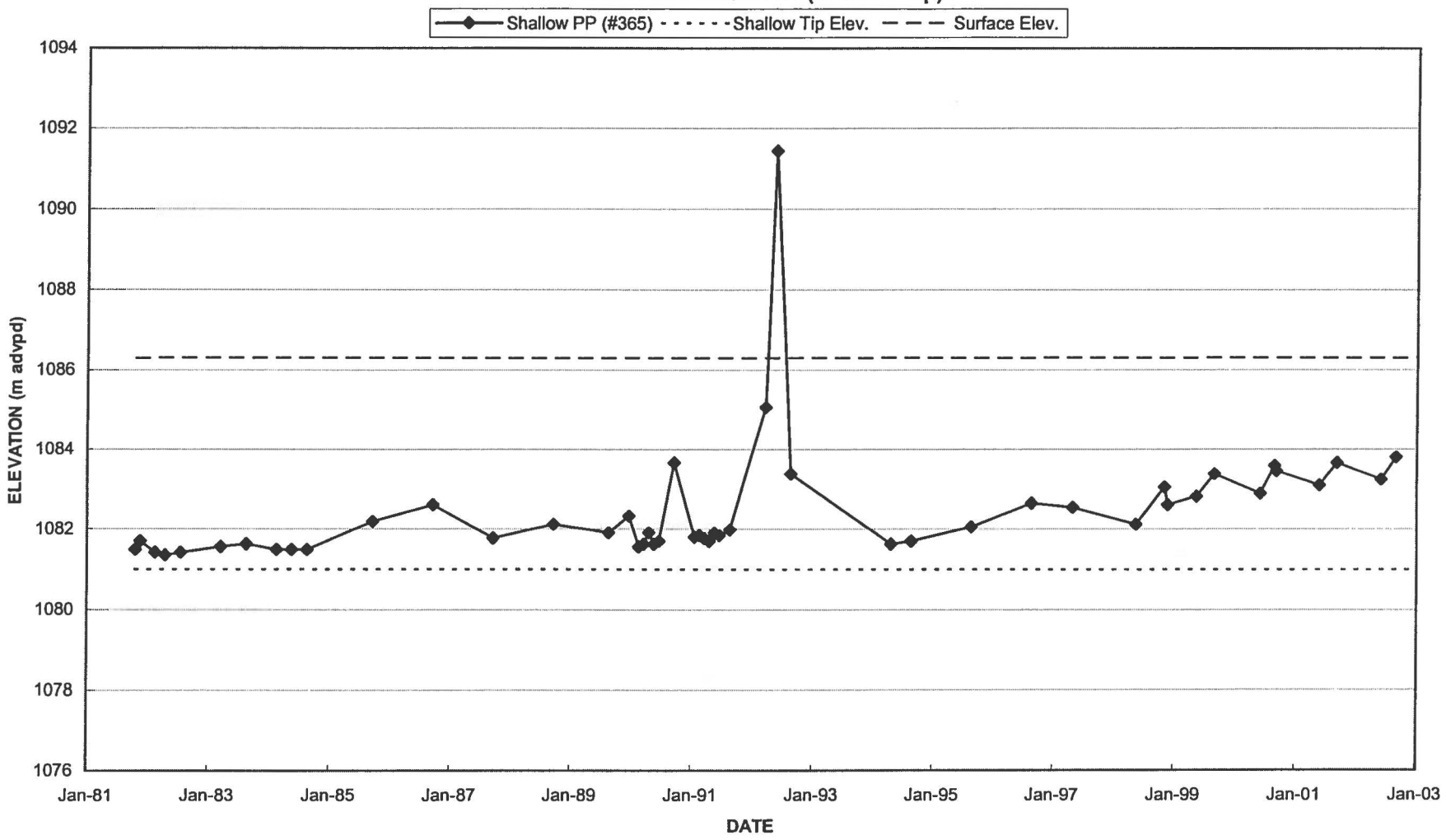


Faro Mine Instrumentation - Diversion Canal Dike

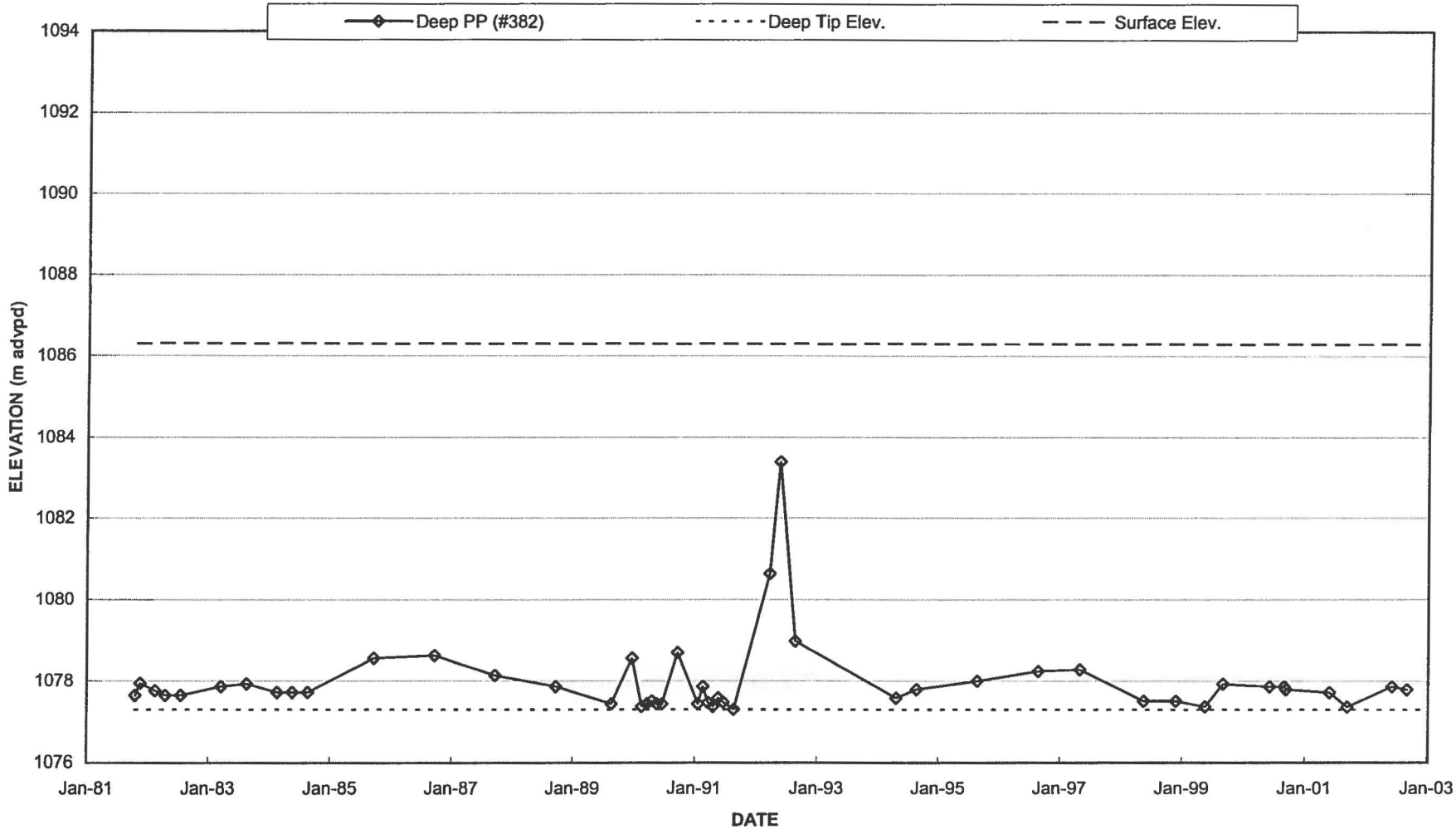
CD-19	Location:	Canal Dyke St.1+900				Coordinates:	1357.8N, 687.9E
			Ground Elevation: (m advpd)	1086.30			
			Shallow Tip Elev: (m advpd)	1081.00			
	Date Installed:	1981	Deep Tip Elev.: (m advpd)	1077.30		Surface Protector:	yes

Date	Reading (psi)		Piezometric Elevation (m advpd)		Comments
	Shallow PP (#365)	Deep PP (#382)	Shallow	Deep	
01-Nov-81	0.7	0.5	1081.49	1077.65	
01-Dec-81	1	0.92	1081.70	1077.944	
01-Mar-82	0.6	0.65	1081.42	1077.755	
01-May-82	0.5	0.5	1081.35	1077.65	
01-Aug-82	0.6	0.5	1081.42	1077.65	
01-Apr-83	0.8	0.8	1081.56	1077.86	
01-Sep-83	0.9	0.9	1081.63	1077.93	
01-Mar-84	0.7	0.6	1081.49	1077.72	
01-Jun-84	0.7	0.6	1081.49	1077.72	
01-Sep-84	0.7	0.6	1081.49	1077.72	
01-Oct-85	1.7	1.8	1082.19	1078.56	
01-Oct-86	2.3	1.9	1082.61	1078.63	
01-Oct-87	1.1	1.2	1081.77	1078.14	
01-Oct-88	1.6	0.8	1082.12	1077.86	
01-Sep-89	1.3	0.2	1081.91	1077.44	
01-Jan-90	1.9	1.8	1082.33	1078.56	
01-Mar-90	0.8	0.1	1081.56	1077.37	
01-Apr-90	0.9	0.2	1081.63	1077.44	
01-May-90	1.3	0.3	1081.91	1077.51	
01-Jun-90	0.9	0.2	1081.63	1077.44	
01-Jul-90	1	0.2	1081.70	1077.44	
01-Oct-90	3.8	2	1083.66	1078.7	
01-Feb-91	1.15	0.2	1081.81	1077.44	
01-Mar-91	1.2	0.8	1081.84	1077.86	
01-Apr-91	1.1	0.24	1081.77	1077.468	
01-May-91	1	0.1	1081.70	1077.37	
01-Jun-91	1.3	0.4	1081.91	1077.58	
01-Jul-91	1.2	0.25	1081.84	1077.475	
01-Sep-91	1.4	0	1081.98	1077.3	
01-Apr-92	5.8	4.75	1085.06	1080.625	
01-Jun-92	**14.9**	**8.7**	**1091.43**	**1083.39**	
01-Sep-92	3.4	2.4	1083.38	1078.98	
01-May-94	0.9	0.4	1081.63	1077.58	
01-Sep-94	1	0.7	1081.70	1077.79	
01-Sep-95	1.5	1	1082.05	1078	
01-Sep-96	2.35	1.35	1082.65	1078.245	
08-May-97	2.2	1.4	1082.54	1078.28	
07-Nov-97	could not locate				
26-May-98	1.60	0.30	1082.12	1077.51	
15-Nov-98	2.92	n.r.	(no bubbles returned; hissing sound)	1083.04	
04-Dec-98	2.30	0.3	1082.61	1077.51	
28-May-99	2.60	0.10	1082.82	1077.37	
11-Sep-99	3.40	0.90	1083.38	1077.93	
14-Jun-00	2.70	0.80	1082.89	1077.86	
09-Sep-00	3.70	0.80	(no bubbles #382)	1083.59	1077.86
19-Sep-00	3.50	0.70	(no bubbles #382)	1083.45	1077.79
06-Jun-01	3.00	0.60	(no bubbles #382)	1083.10	1077.72
19-Sep-01	3.80	0.09	(no bubbles #382)	1083.66	1077.363
13-Jun-02	3.20	0.8	(no bubbles #382)	1083.24	1077.86
12-Sep-02	4.00	0.7	(no bubbles #382)	1083.8	1077.79

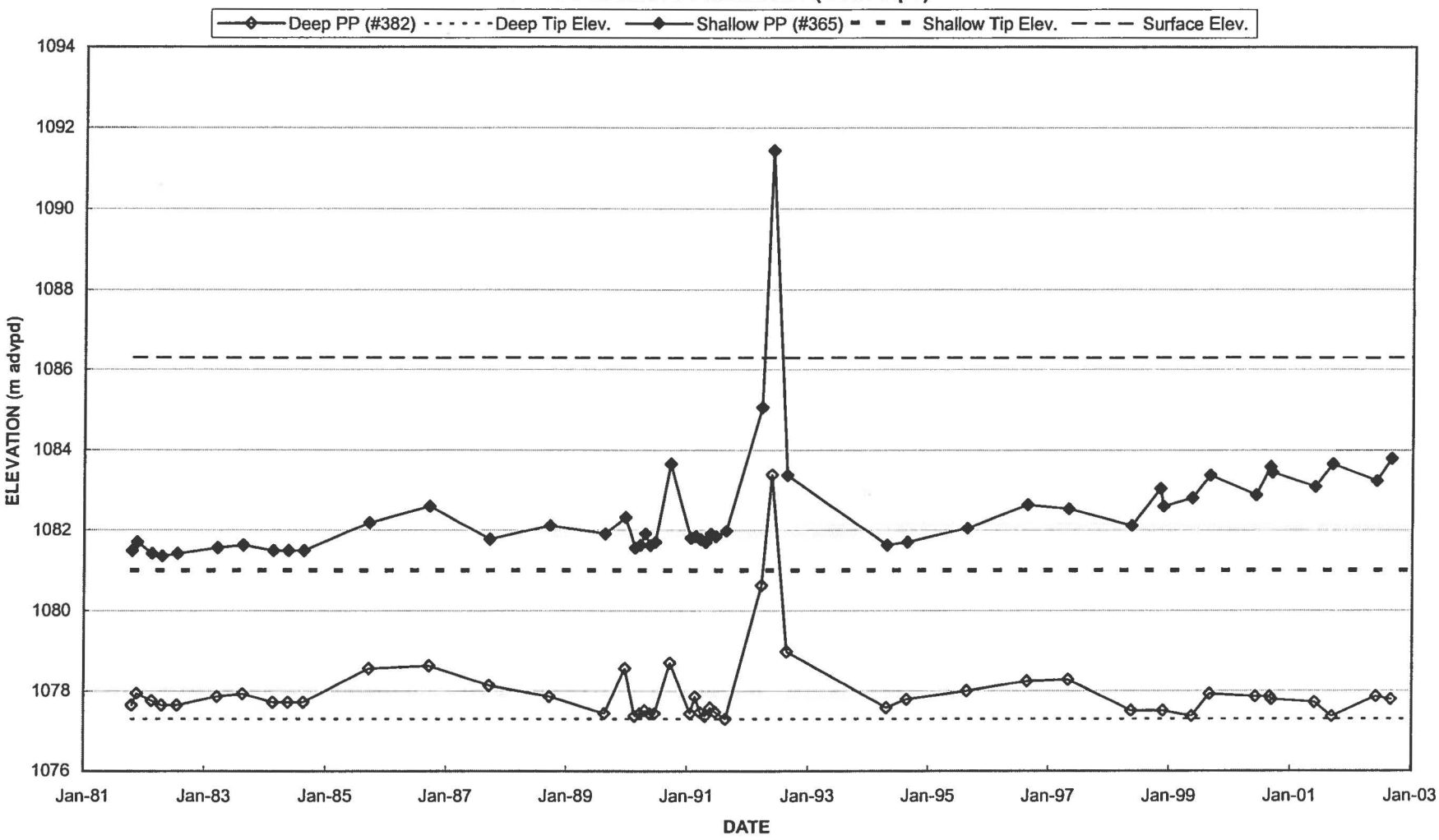
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-19 Pneumatic Piezometer (Shallow Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-19 Pneumatic Piezometer (Deep Tip)



DIVERSION CANAL DIKE
Piezometric Monitoring
CD-19 Pneumatic Piezometer (Both Tips)

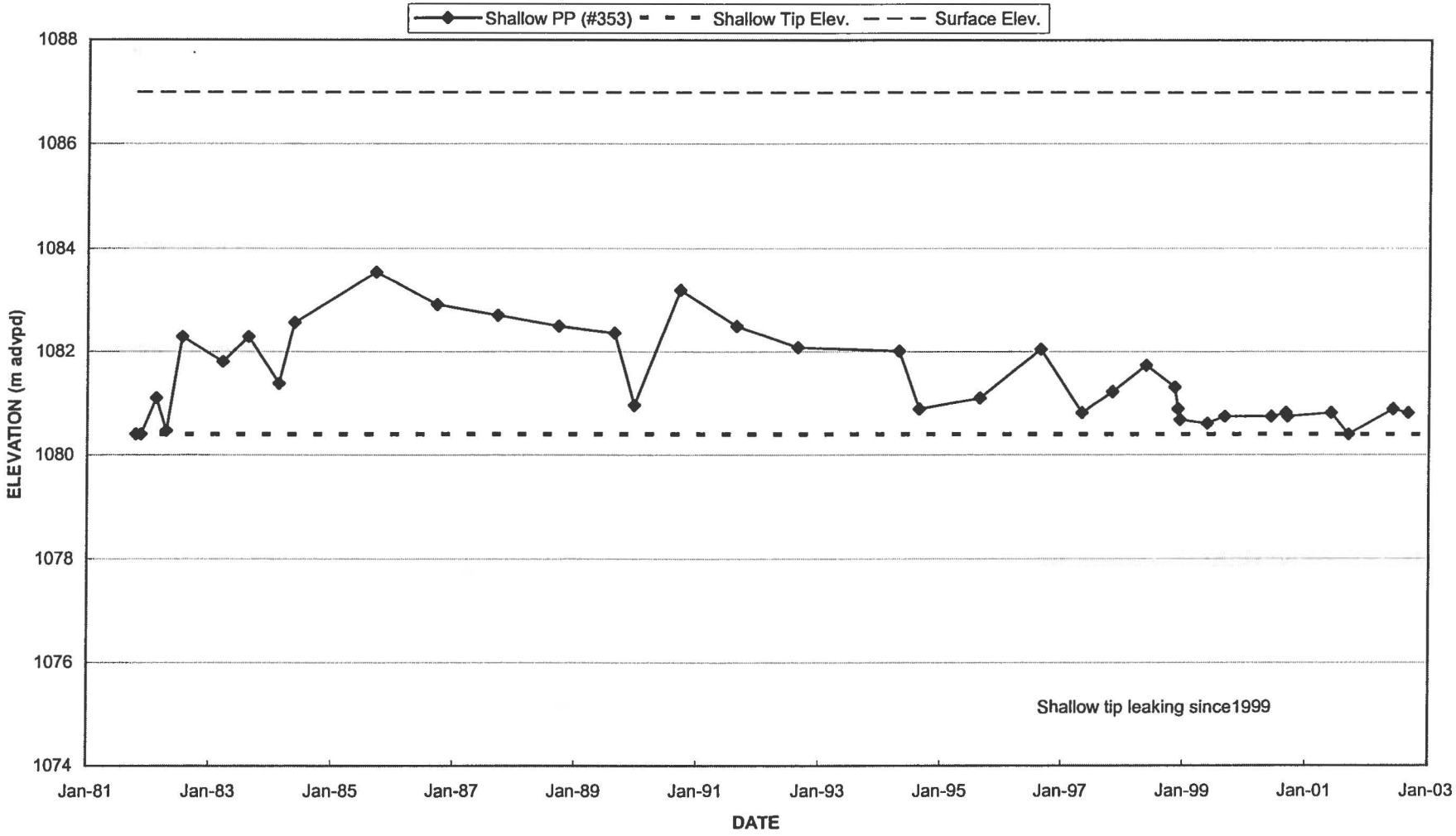


Faro Mine Instrumentation - Diversion Canal Dike

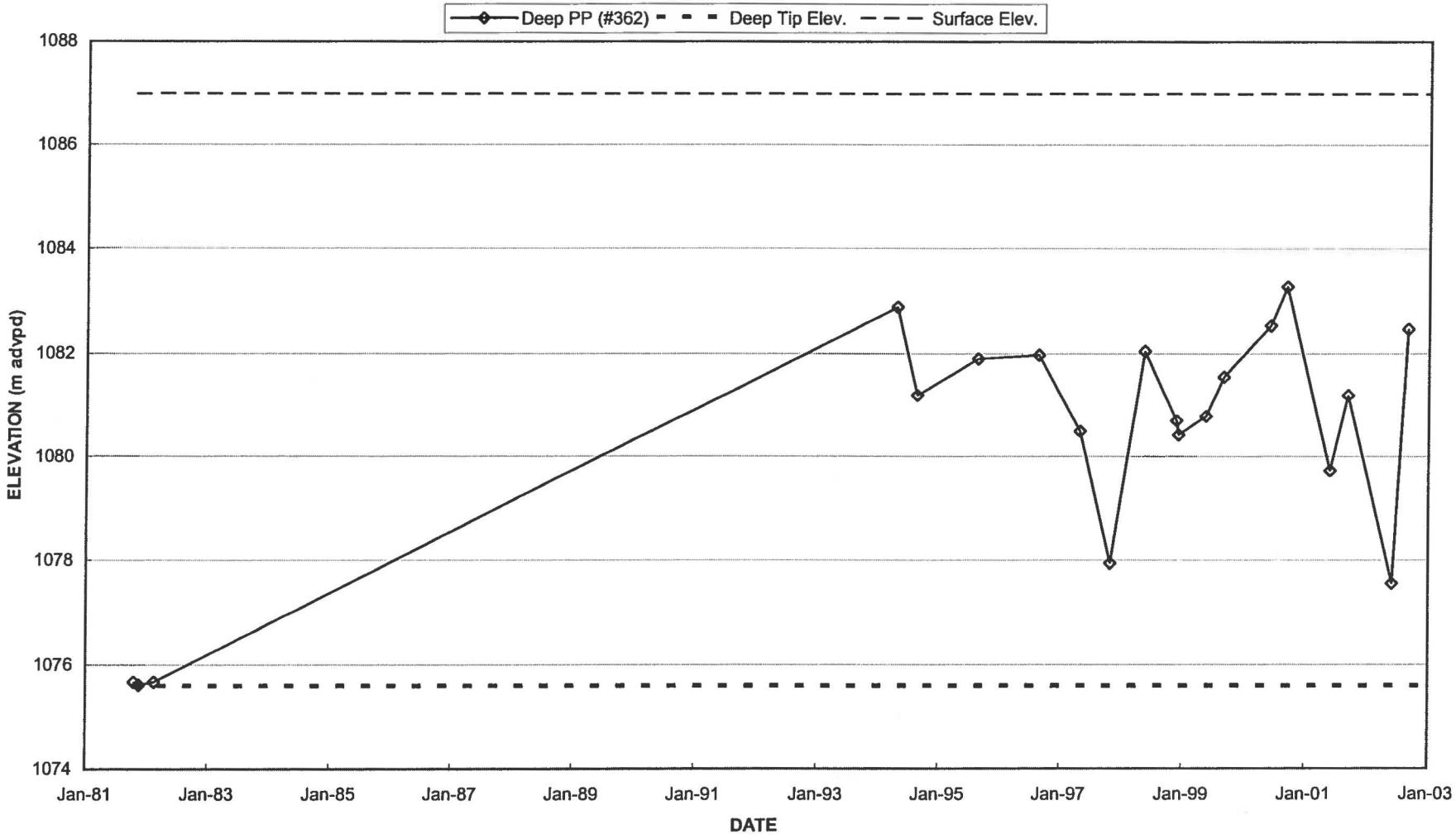
CD-15	Location:	Canal Dyke St.1+530				Coordinates:	1233.7N, 1028.7E
			Ground Elevation: (m advpd)		1087.00		
			Shallow Tip Elev: (m advpd)		1080.40		
	Date Installed:	1981	Deep Tip Elev.: (m advpd)		1075.60	Surface Protector:	yes

Date	Reading (psi)					Piezometric Elevation (m advd)		Comments
	Shallow PP (#353)	Deep PP (#362)				Shallow	Deep	
01-Nov-81	0	0.1				1080.40	1075.67	
01-Dec-81	0	0.02				1080.40	1075.614	
01-Mar-82	1	0.1				1081.10	1075.67	
01-May-82	0.1					1080.47		
01-Aug-82	2.7					1082.29		
01-Apr-83	2					1081.80		
01-Sep-83	2.7					1082.29		
01-Mar-84	1.4					1081.38		
01-Jun-84	3.1					1082.57		
01-Oct-85	4.5					1083.55		
01-Oct-86	3.6					1082.92		
01-Oct-87	3.3					1082.71		
01-Oct-88	3					1082.50		
01-Sep-89	2.8					1082.36		
01-Jan-90	0.8					1080.96		
01-Oct-90	4					1083.20		
01-Sep-91	3					1082.50		
01-Sep-92	2.4					1082.08		
01-May-94	2.3	10.4				1082.01	1082.88	
01-Sep-94	0.7	8				1080.89	1081.2	
01-Sep-95	1	9				1081.10	1081.9	
01-Sep-96	2.35	9.1				1082.05	1081.97	
08-May-97	0.6	7.0				1080.82	1080.5	
06-Nov-97	1.17	3.35				1081.22	1077.945	
26-May-98	1.90	9.20				1081.73	1082.04	
15-Nov-98	1.3	n.r.	(no bubbles returned)			1081.31		
04-Dec-98	0.7	7.3				1080.89	1080.71	
16-Dec-98	0.4	6.9				1080.68	1080.43	
28-May-99	0.30	7.42				1080.61	1080.794	
11-Sep-99	0.50	8.5				1080.75	1081.55	
14-Jun-00	0.50	9.9				1080.75	1082.53	
09-Sep-00	0.60	n.r.	(no bubbles returned #362)			1080.82		
19-Sep-00	0.50	10.95	(questionable operation #362)			1080.75	1083.265	
06-Jun-01	0.60	5.9	(no bubbles returned #362)			1080.82	1079.73	
19-Sep-01	0.00	8.0	(no bubbles returned #362)			1080.40	1081.2	Shallow tip is "dry"
13-Jun-02	0.7	2.8				1080.89	1077.56	
12-Sep-02	0.6	9.8				1080.82	1082.46	

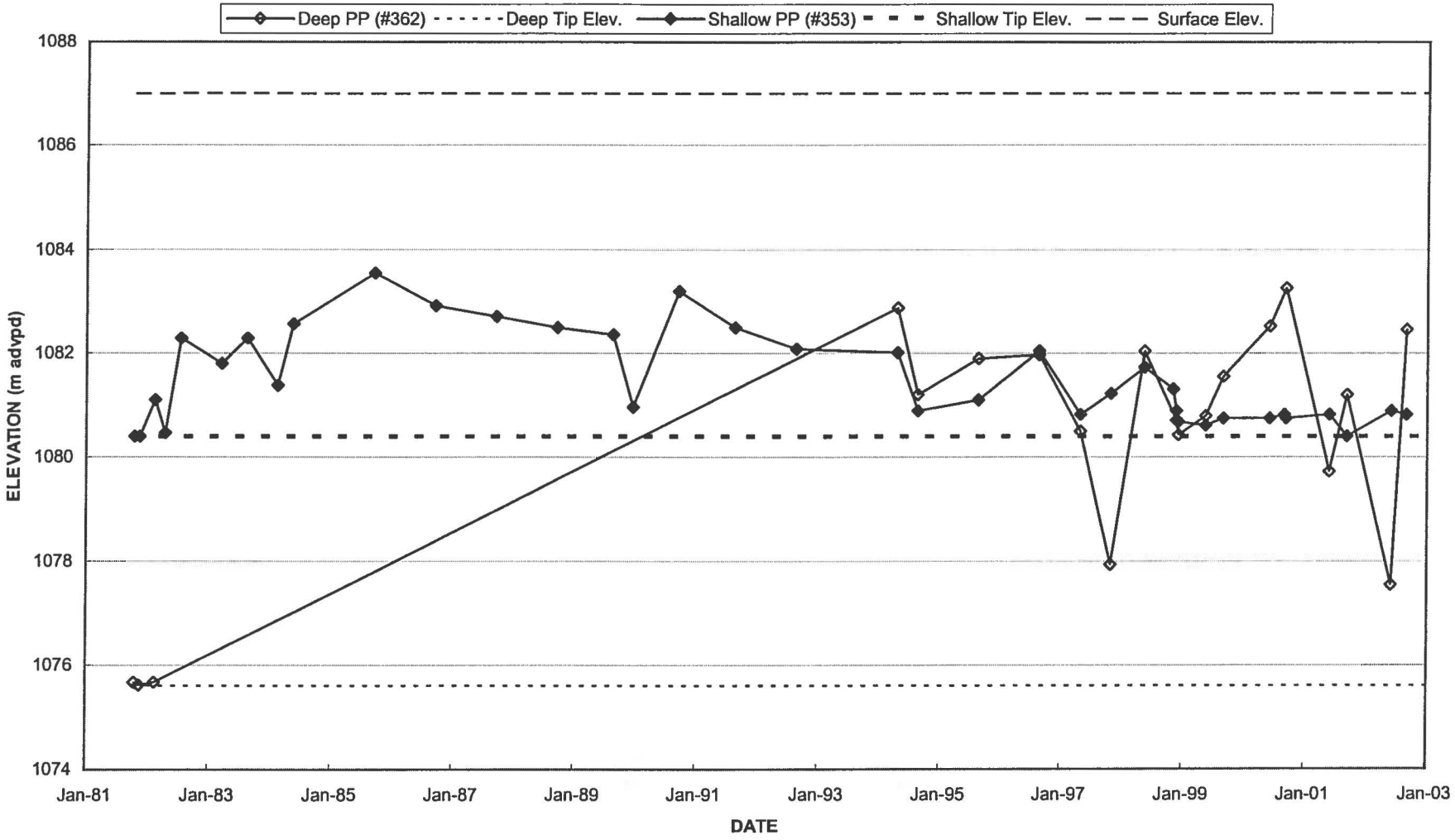
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-15 Pneumatic Piezometer (Shallow Tip)



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



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

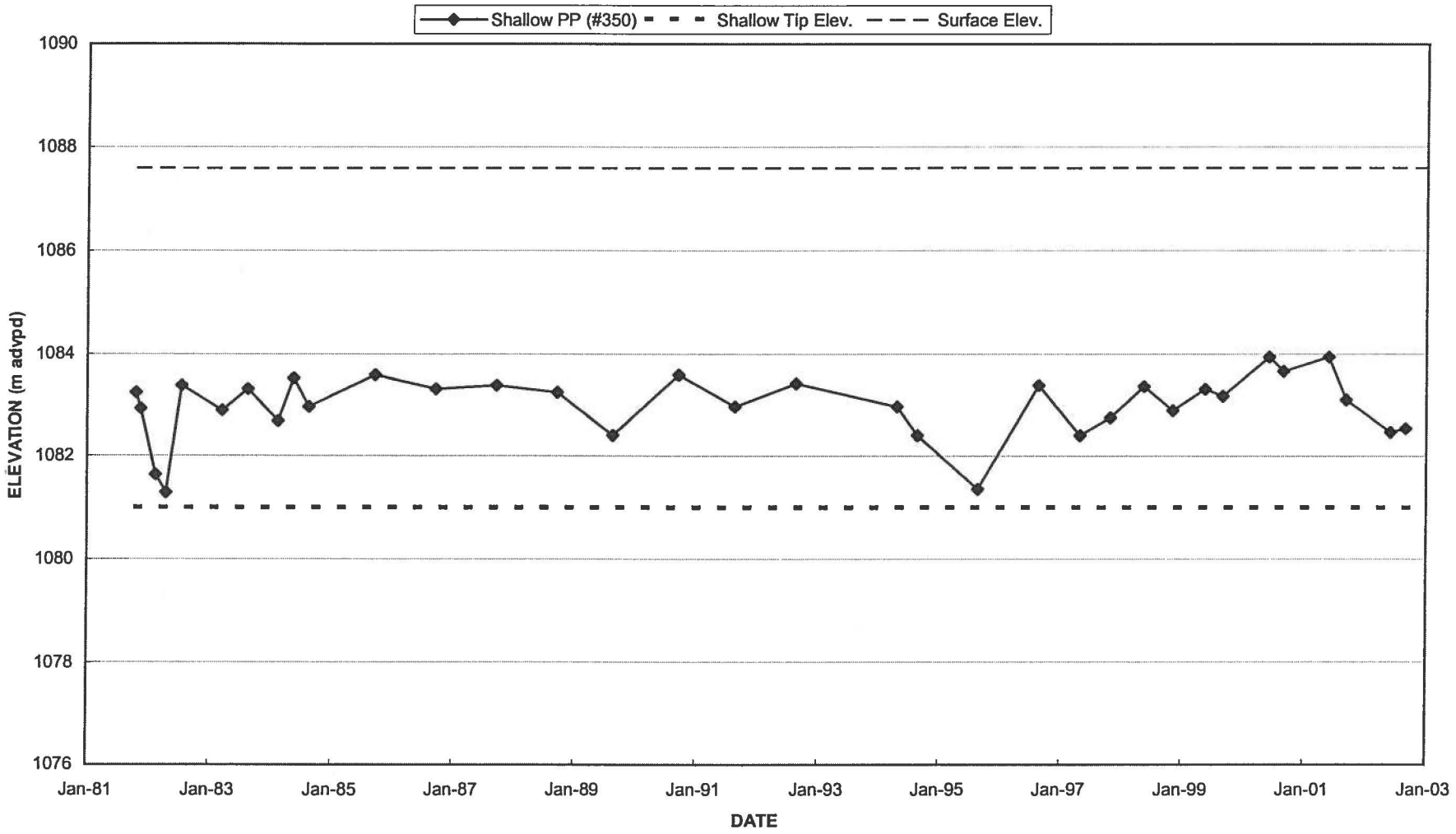


Faro Mine Instrumentation - Diversion Canal Dike

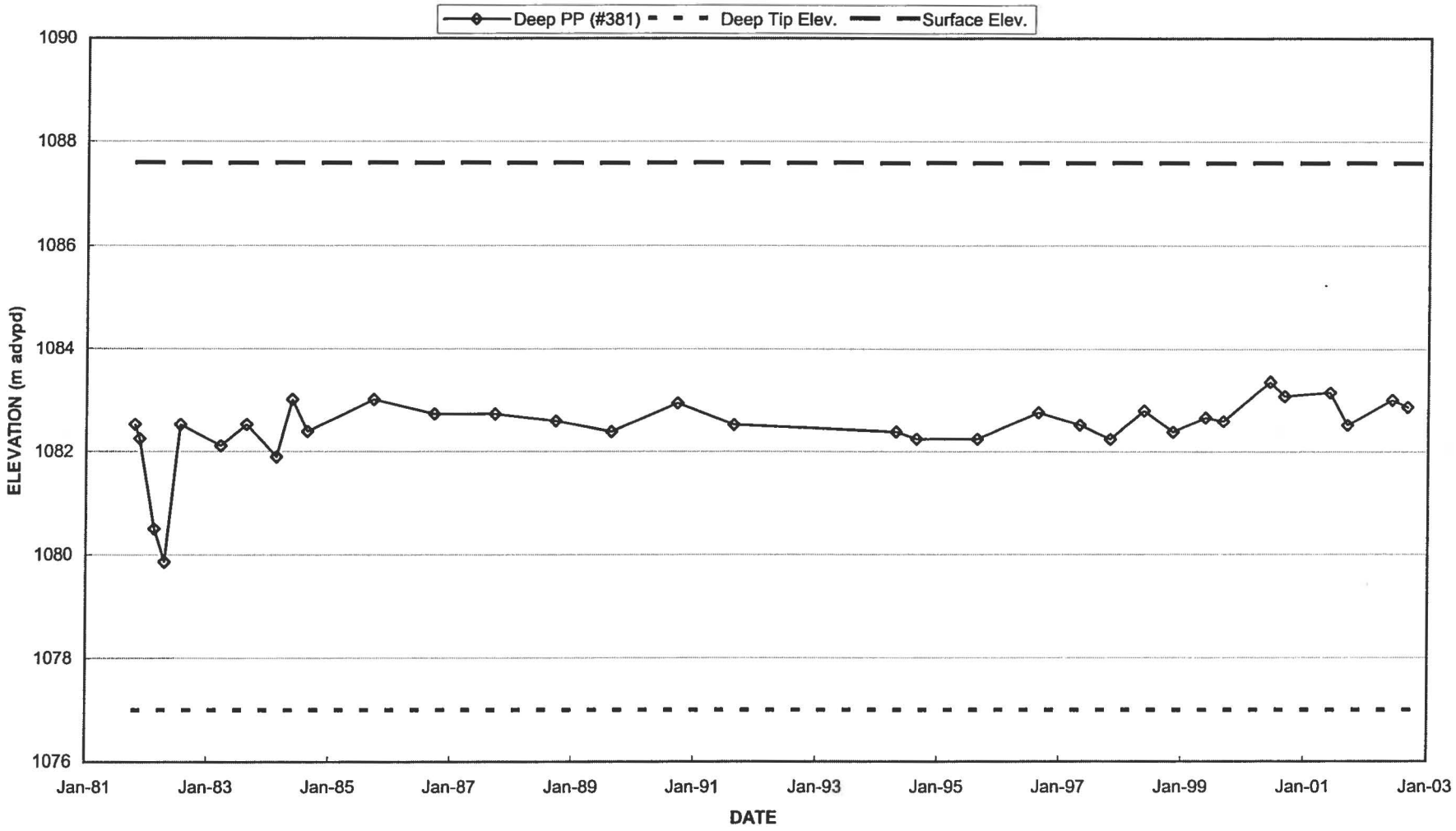
CD-13	Location:	Canal Dyke St.1+350				Coordinates:	unknown
				Ground Elevation: (m advpd)	1087.60		
				Shallow Tip Elev: (m advpd)	1081.00		
	Date Installed:	1981		Deep Tip Elev.: (m advpd)	1077.00	Surface Protector:	yes

Date	Reading (psi)					Piezometric Elevation (m advpd)		Comments
	Shallow PP (#350)	Deep PP (#381)				Shallow	Deep	
01-Nov-81	3.2	7.9				1083.24	1082.53	
01-Dec-81	2.75	7.5				1082.93	1082.25	
01-Mar-82	0.9	5				1081.63	1080.5	
01-May-82	0.4	4.1				1081.28	1079.87	
01-Aug-82	3.4	7.9				1083.38	1082.53	
01-Apr-83	2.7	7.3				1082.89	1082.11	
01-Sep-83	3.3	7.9				1083.31	1082.53	
01-Mar-84	2.4	7				1082.68	1081.9	
01-Jun-84	3.6	8.6				1083.52	1083.02	
01-Sep-84	2.8	7.7				1082.96	1082.39	
01-Oct-85	3.7	8.6				1083.59	1083.02	
01-Oct-86	3.3	8.2				1083.31	1082.74	
01-Oct-87	3.4	8.2				1083.38	1082.74	
01-Oct-88	3.2	8				1083.24	1082.6	
01-Sep-89	2	7.7				1082.40	1082.39	
01-Oct-90	3.7	8.5				1083.59	1082.95	
01-Sep-91	2.8	7.9				1082.96	1082.53	
01-Sep-92	3.45					1083.42		
01-May-94	2.8	7.7				1082.96	1082.39	
01-Sep-94	2	7.5				1082.40	1082.25	
01-Sep-95	0.5	7.5				1081.35	1082.25	
01-Sep-96	3.4	8.25				1083.38	1082.775	
08-May-97	2.0	7.9				1082.40	1082.53	
07-Nov-97	2.5	7.5				1082.75	1082.25	
26-May-98	3.37	8.30				1083.36	1082.81	
15-Nov-98	2.70	7.70				1082.89	1082.39	
28-May-99	3.30	8.10				1083.31	1082.67	
11-Sep-99	3.10	8.00				1083.17	1082.6	
14-Jun-00	4.20	9.10				1083.94	1083.37	
09-Sep-00	3.80	8.70				1083.66	1083.09	
06-Jun-01	4.20	8.80				1083.94	1083.16	
19-Sep-01	3.00	7.90				1083.10	1082.53	
13-Jun-02	2.1	8.6				1082.47	1083.02	
12-Sep-02	2.2	8.4				1082.54	1082.88	

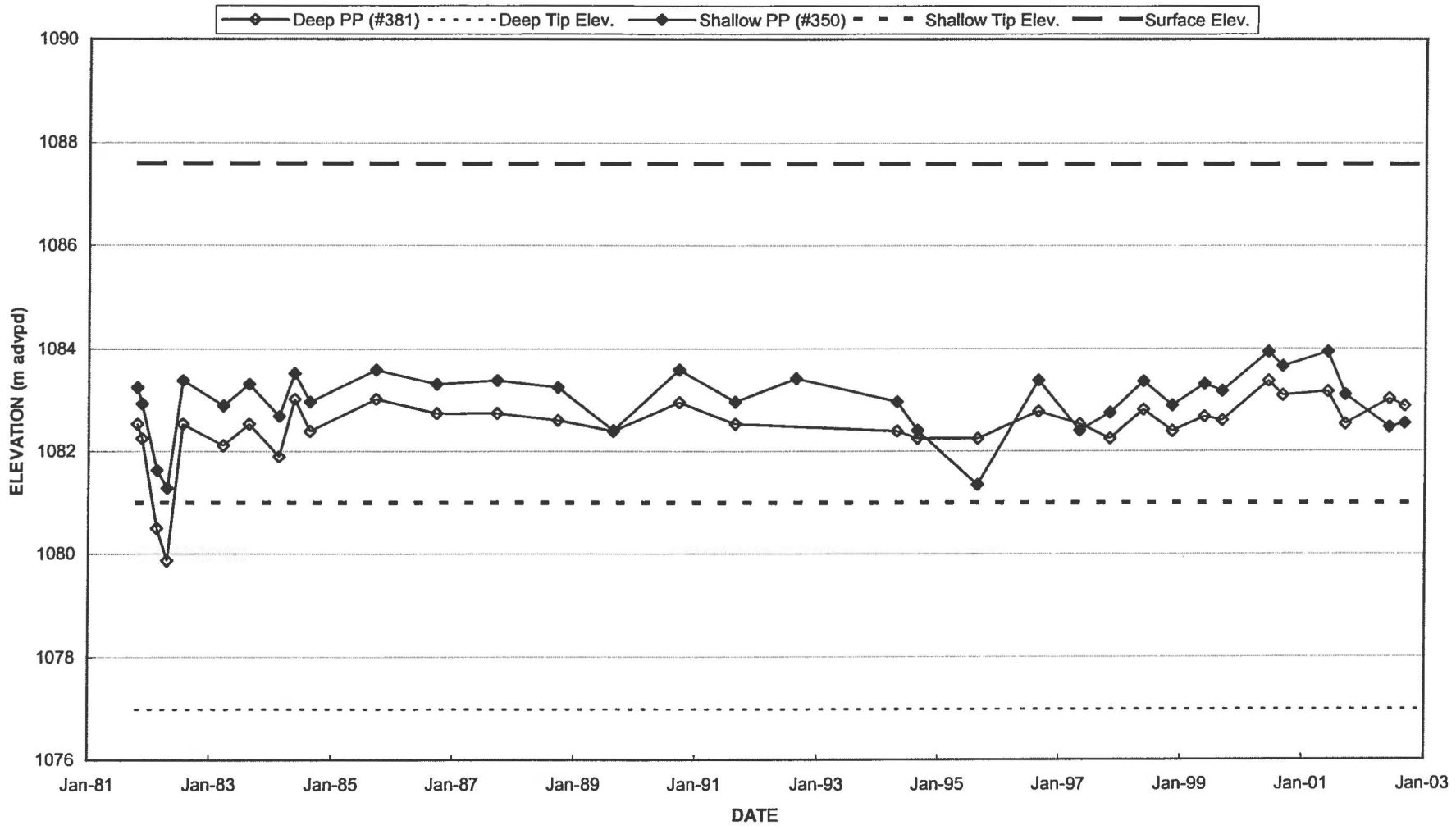
DIVERSION CANAL DIKE
Piezometric Monitoring
CD-13 Pneumatic Piezometer (Shallow Tip)



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

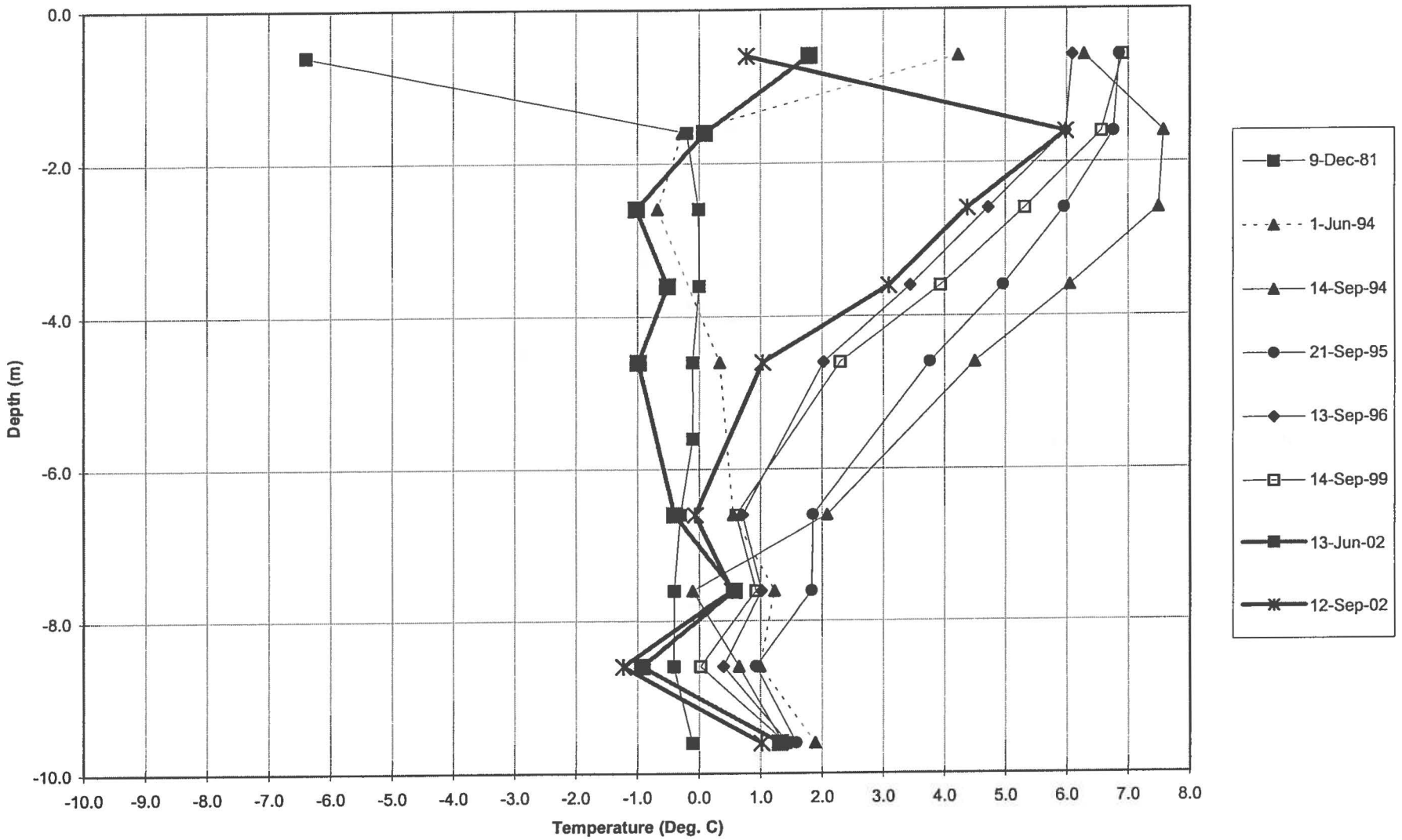


DIVERSION CANAL DIKE
Piezometric Monitoring
CD-13 Pneumatic Piezometer (Both Tips)



THERMISTORS

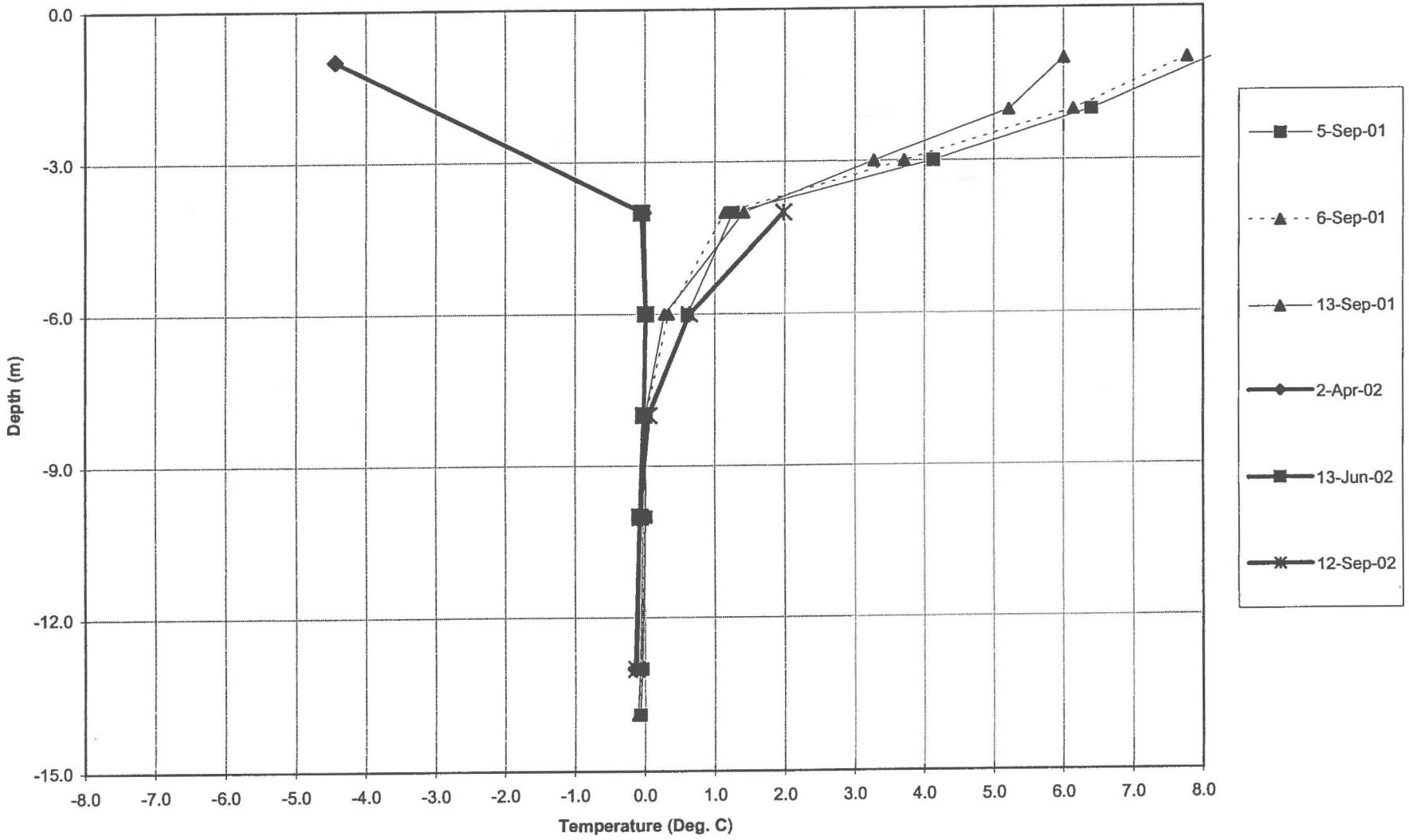
DIVERSION CANAL DIKE
Geothermal Monitoring
CD-26



Faro Mine Instrumentation
Diversion Canal Dike

CD-26		Location:	Canal Dyke St.2+600			Elevation: m advpd	1085.5	Coordinates:	1674.7 mN, 71.7 mE	
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)
(m)	(m)	9-Dec-81	1-Jun-94	14-Sep-94	21-Sep-95	13-Sep-96	14-Sep-99	13-Jun-02	12-Sep-02	
1.0	-0.6	22.70	13.14	11.87	11.54	11.98	11.51	14.85	15.64	
2.0	-1.6	16.32	16.38	11.07	11.52	11.97	11.63	16.08	11.97	
3.0	-2.6	16.20	16.76	11.14	12.01	12.77	12.40	17.06	12.99	
4.0	-3.6	16.17		11.94	12.60	13.59	13.26	16.60	13.83	
5.0	-4.6	16.24	15.88	12.88	13.36	14.58	14.38	16.99	15.33	
6.0	-5.6	16.28	17.71	15.80	18.08	22.69	27.08	35.50	34.25	
7.0	-6.6	16.43	15.73	14.56	14.73	15.61	15.69	16.51	16.23	
8.0	-7.6	16.50	15.19	16.25	14.73	15.35	15.42	15.70	15.73	
9.0	-8.6	16.46	15.33	15.60	15.38	15.80	16.10	16.90	17.17	
10.0	-9.6	16.24	14.68	15.07	14.91	15.01	15.04	15.11	15.34	
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)	9-Dec-81	1-Jun-94	14-Sep-94	21-Sep-95	13-Sep-96	14-Sep-99	13-Jun-02	12-Sep-02	0-Jan-00
1.0	-0.6	-6.40	4.23	6.28	6.86	6.10	6.91	1.79	0.77	
2.0	-1.6	-0.20	-0.27	7.58	6.76	5.98	6.57	0.09	5.98	
3.0	-2.6	0.00	-0.67	7.50	5.97	4.72	5.32	-1.01	4.38	
4.0	-3.6	0.00		6.05	4.96	3.45	3.94	-0.51	3.10	
5.0	-4.6	-0.10	0.34	4.50	3.77	2.02	2.30	-0.98	1.03	
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	
8.0	-7.6	-0.40	1.22	-0.10	1.83	1.02	0.93	0.57	0.54	
9.0	-8.6	-0.40	0.99	0.65	0.93	0.40	0.03	-0.92	-1.23	
10.0	-9.6	-0.10	1.89	1.37	1.58	1.45	1.41	1.32	1.02	
	*Tip at 5.6 m depth is suspect									

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

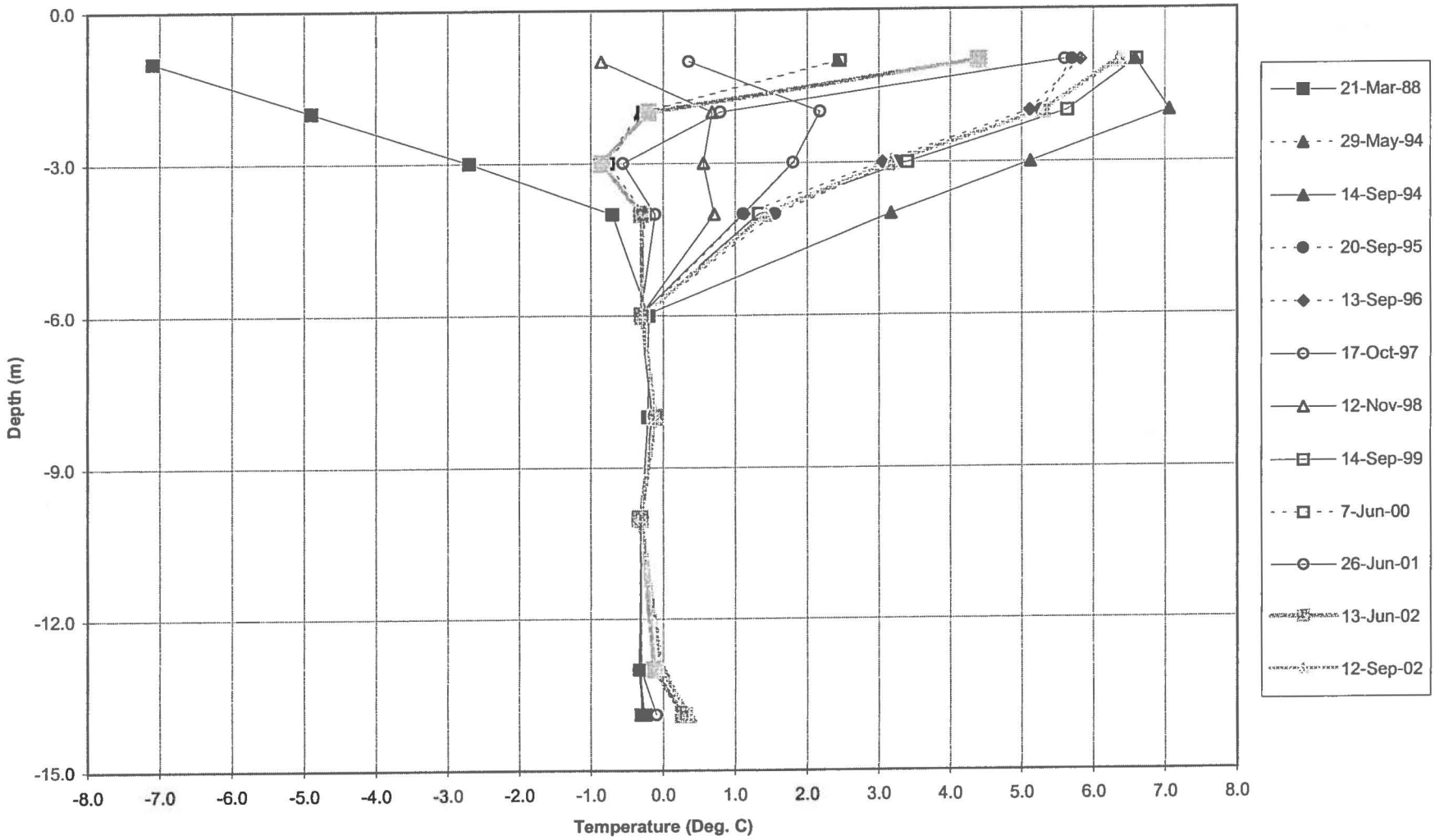


Faro Mine Instrumentation
Diversion Canal Dike

BGC01-02		Location:	Canal Dyke St.2+160			Elevation:	1086.2 m advpd	Coordinates:	1478.8mN, 456.6mE			
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)
(m)	(m)	5-Sep-01	6-Sep-01	13-Sep-01	2-Apr-02	5-Apr-02	9-Apr-02	12-Apr-02	13-Jun-02	12-Sep-02		
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								
4.0	-4.0	15.31	15.40	15.19	16.34	16.33	16.33	16.34	16.36	14.76		
6.0	-6.0	15.82	16.04	16.09	16.31	16.30	16.30	16.31	16.31	15.80		
8.0	-8.0	16.32	16.32	16.33	16.35	16.34	16.35	16.35	16.35	16.29		
10.0	-10.0	16.32	16.33	16.35	16.39	16.38	16.38	16.39	16.39	16.39		
13.0	-13.0	16.32	16.32	16.34	16.40	16.39	16.39	16.39		16.39		
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)
(m)	(m)	5-Sep-01	6-Sep-01	13-Sep-01	2-Apr-02	5-Apr-02	9-Apr-02	12-Apr-02	13-Jun-02	12-Sep-02	0-Jan-00	0-Jan-00
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								
4.0	-4.0	1.26	1.14	1.41	-0.02	-0.01	-0.01	-0.02	-0.04	1.98		
6.0	-6.0	0.61	0.34	0.28	0.02	0.03	0.03	0.02	0.02	0.64		
8.0	-8.0	0.02	0.02	0.01	-0.01	0.00	-0.01	-0.01	-0.01	0.06		
10.0	-10.0	0.01	0.00	-0.02	-0.07	-0.06	-0.06	-0.07	-0.07	-0.07		
13.0	-13.0	-0.04	-0.04	-0.06	-0.13	-0.12	-0.12	-0.12		-0.12		
13.9	-13.9	-0.06	-0.06	-0.10								

DIVERSION CANAL DIKE
Geothermal Monitoring
BH88-11



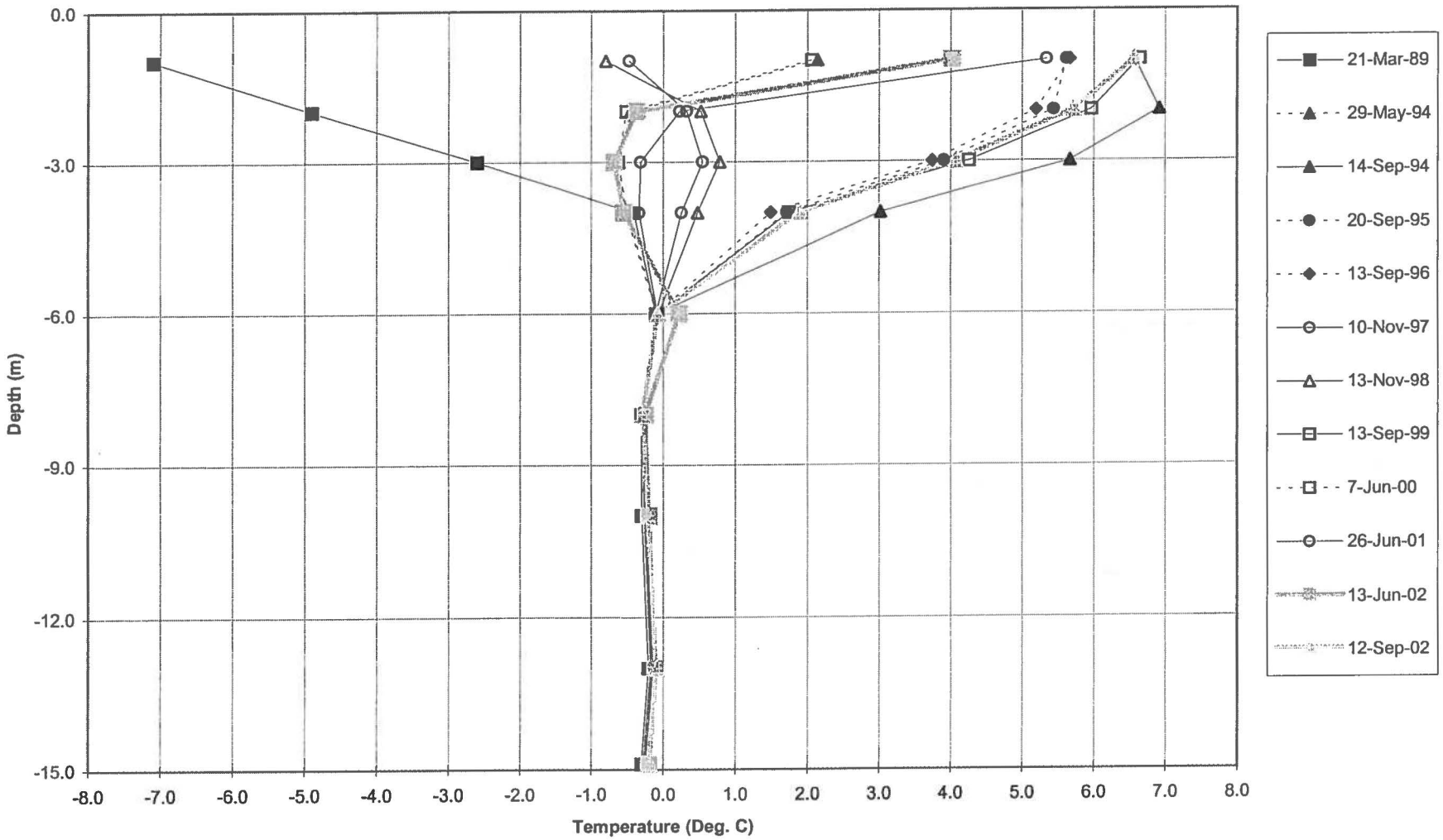
Faro Mine Instrumentation
Diversion Canal Dike

BH88-11		Location:	Canal Dyke St.2+160			Elevation:	1086.2 m advpd	Coordinates:	1478.8mN, 456.6mE					
Thermistor String #		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)
(m)	(m)	21-Mar-88	29-May-94	14-Sep-94	20-Sep-95	13-Sep-96	17-Oct-97	12-Nov-98	14-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	13-Jun-02	12-Sep-02
1.0	-1.0	23.60	14.40	11.71	12.23	12.16	15.99	17.02	11.70	14.38	12.18	12.29	13.05	11.84
2.0	-2.0	21.00	16.55	11.44	12.49	12.59	14.58	15.73	12.27	16.52	12.51	15.64	16.46	12.47
3.0	-3.0	18.76	17.03	12.61	13.84	13.98	14.89	15.86	13.74	16.97	13.96	16.79	17.05	13.89
4.0	-4.0	16.92	16.54	13.90	15.08	15.41	15.42	15.74	15.25	16.53	15.52	16.41	16.57	15.18
6.0	-6.0	16.49	16.56	16.55	16.56	16.56	16.59	16.58	16.57	16.58	16.58	16.58	16.57	16.57
8.0	-8.0	16.51	16.47	16.47	16.46	16.45	16.46	16.45	16.44	16.44	16.44	16.44	16.43	16.42
10.0	-10.0	16.58	16.58	16.58	16.58	16.58	16.58	16.58	16.59	16.60	16.59	16.60	16.60	16.59
13.0	-13.0	16.54	16.57	16.57	16.57	16.56	16.56	16.56	16.56	16.56	16.55	16.54	16.39	16.30
13.9	-13.9	16.55	16.54	16.53	16.53	16.52	16.52	16.51	16.51	16.50	16.47	16.37	16.06	16.00

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)	21-Mar-88	29-May-94	14-Sep-94	20-Sep-95	13-Sep-96	17-Oct-97	12-Nov-98	14-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	13-Jun-02	12-Sep-02
1.0	-1.0	-7.10	2.43	6.59	5.71	5.82	0.36	-0.86	6.61	2.46	5.79	5.61	4.40	6.36
2.0	-2.0	-4.90	-0.31	7.06	5.28	5.12	2.18	0.69	5.64	-0.27	5.25	0.80	-0.20	5.31
3.0	-3.0	-2.70	-0.83	5.13	3.26	3.06	1.81	0.56	3.41	-0.76	3.09	-0.55	-0.85	3.19
4.0	-4.0	-0.70	-0.26	3.17	1.56	1.13	1.12	0.71	1.34	-0.25	0.99	-0.10	-0.29	1.43
6.0	-6.0	-0.20	-0.28	-0.27	-0.28	-0.28	-0.32	-0.31	-0.29	-0.31	-0.31	-0.31	-0.29	-0.29
8.0	-8.0	-0.20	-0.16	-0.16	-0.14	-0.13	-0.14	-0.13	-0.12	-0.12	-0.12	-0.12	-0.11	-0.10
10.0	-10.0	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.31	-0.32	-0.31	-0.32	-0.32	-0.31
13.0	-13.0	-0.30	-0.33	-0.33	-0.33	-0.32	-0.32	-0.32	-0.32	-0.32	-0.31	-0.30	-0.12	-0.01
13.9	-13.9	-0.30	-0.29	-0.28	-0.28	-0.26	-0.26	-0.25	-0.25	-0.24	-0.21	-0.09	0.29	0.36

DIVERSION CANAL DIKE
Geothermal Monitoring
BH88-7



Faro Mine Instrumentation
Diversion Canal Dike

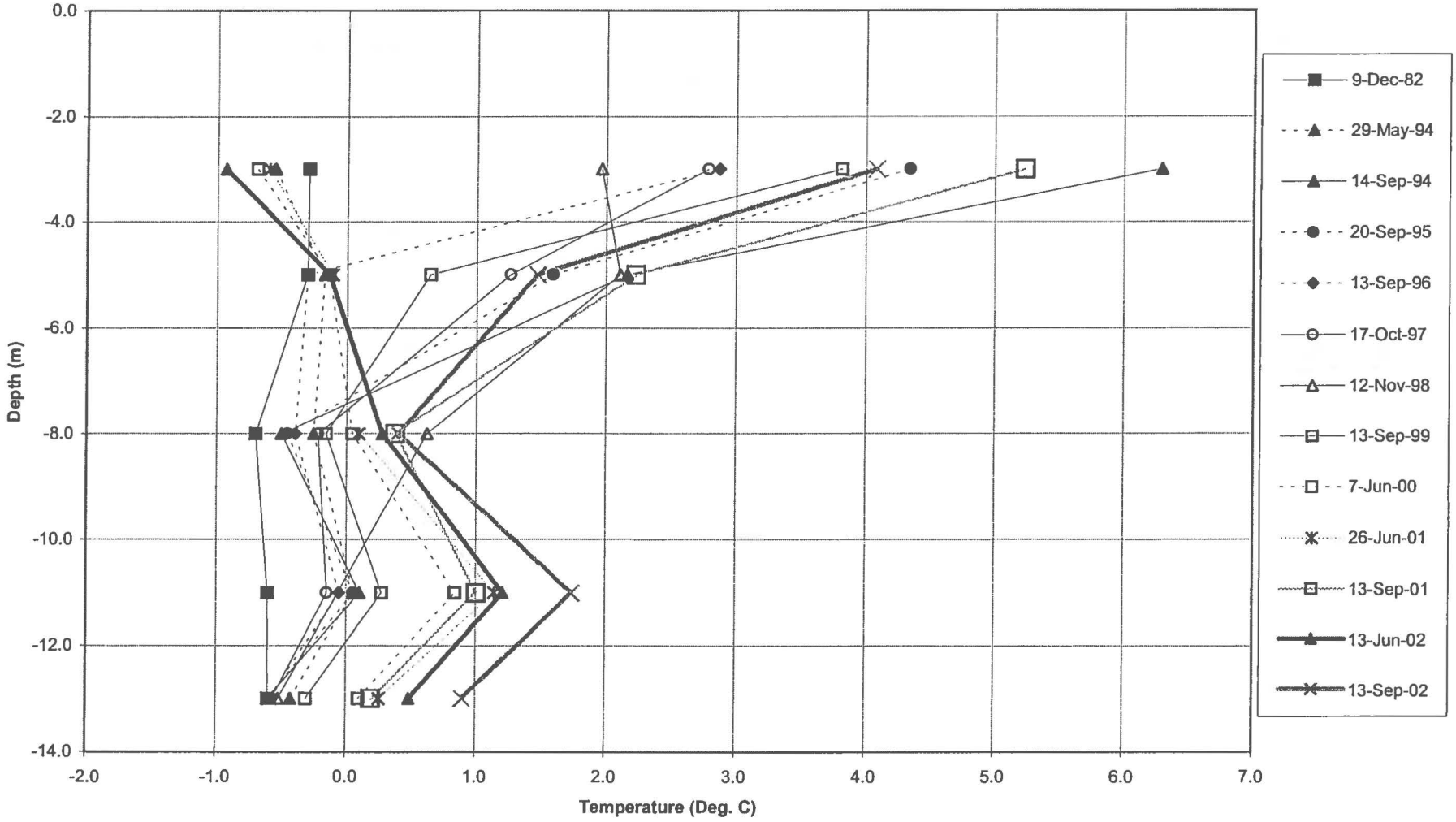
BH88-7		Location:	Canal Dyke St.2+115			Elevation:	1085.9 m advpd	Coordinates:		1455.9 mN 509.5 mE				
Thermistor String #		Date Installed:	1988		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	NO		Surface Protector:	yes			
Depth Correction	0													

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)
(m)	(m)	21-Mar-89	29-May-94	14-Sep-94	20-Sep-95	13-Sep-96	10-Nov-97	13-Nov-98	13-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	13-Jun-02	12-Sep-02
1.0	-1.0	23.60	14.61	11.72	12.28	12.25	16.69	16.97	11.68	14.67	12.14	12.45	13.30	11.72
2.0	-2.0	21.00	16.67	11.52	12.39	12.54	16.02	15.86	12.07	16.72	12.38	16.10	16.60	12.22
3.0	-3.0	18.62	16.81	12.25	13.37	13.48	15.84	15.65	13.14	16.82	13.51	16.55	16.87	13.26
4.0	-4.0	16.62	16.72	13.97	14.92	15.09	16.07	15.89	14.90	16.70	15.44	16.56	16.74	14.79
6.0	-6.0	16.44	16.43	16.44	16.43	16.43	16.44	16.41	16.43	16.42	16.42	16.42	16.17	16.42
8.0	-8.0	16.54	16.53	16.53	16.52	16.52	16.53	16.51	16.53	16.53	16.53	16.53	16.50	16.53
10.0	-10.0	16.58	16.55	16.55	16.54	16.54	16.53	16.51	16.52	16.52	16.52	16.52	16.50	16.51
13.0	-13.0	16.52	16.49	16.49	16.48	16.47	16.47	16.44	16.45	16.45	16.45	16.45	16.44	16.43
14.9	-14.9	16.56	16.53	16.54	16.52	16.52	16.51	16.48	16.49	16.49	16.49	16.49	16.47	16.46

*The initial reading (Oct 1/88) 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)
(m)	(m)	21-Mar-89	29-May-94	14-Sep-94	20-Sep-95	13-Sep-96	10-Nov-97	13-Nov-98	13-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	13-Jun-02	12-Sep-02
1.0	-1.0	-7.10	2.14	6.57	5.62	5.67	-0.47	-0.80	6.64	2.06	5.86	5.35	4.02	6.57
2.0	-2.0	-4.90	-0.45	6.92	5.44	5.20	0.33	0.52	5.97	-0.51	5.46	0.23	-0.37	5.72
3.0	-3.0	-2.60	-0.61	5.67	3.91	3.75	0.55	0.79	4.26	-0.63	3.70	-0.31	-0.68	4.08
4.0	-4.0	-0.40	-0.52	3.02	1.72	1.49	0.26	0.48	1.74	-0.50	1.04	-0.33	-0.54	1.89
6.0	-6.0	-0.10	-0.09	-0.10	-0.09	-0.09	-0.10	-0.06	-0.09	-0.08	-0.08	-0.08	0.22	-0.08
8.0	-8.0	-0.30	-0.29	-0.29	-0.27	-0.27	-0.29	-0.26	-0.29	-0.29	-0.29	-0.29	-0.25	-0.29
10.0	-10.0	-0.30	-0.26	-0.26	-0.25	-0.25	-0.24	-0.21	-0.22	-0.22	-0.22	-0.22	-0.20	-0.21
13.0	-13.0	-0.20	-0.17	-0.17	-0.16	-0.15	-0.15	-0.11	-0.12	-0.12	-0.12	-0.12	-0.11	-0.10
14.9	-14.9	-0.30	-0.27	-0.28	-0.25	-0.25	-0.24	-0.21	-0.22	-0.22	-0.22	-0.22	-0.20	-0.18

DIVERSION CANAL DIKE
Geothermal Monitoring
CD-21



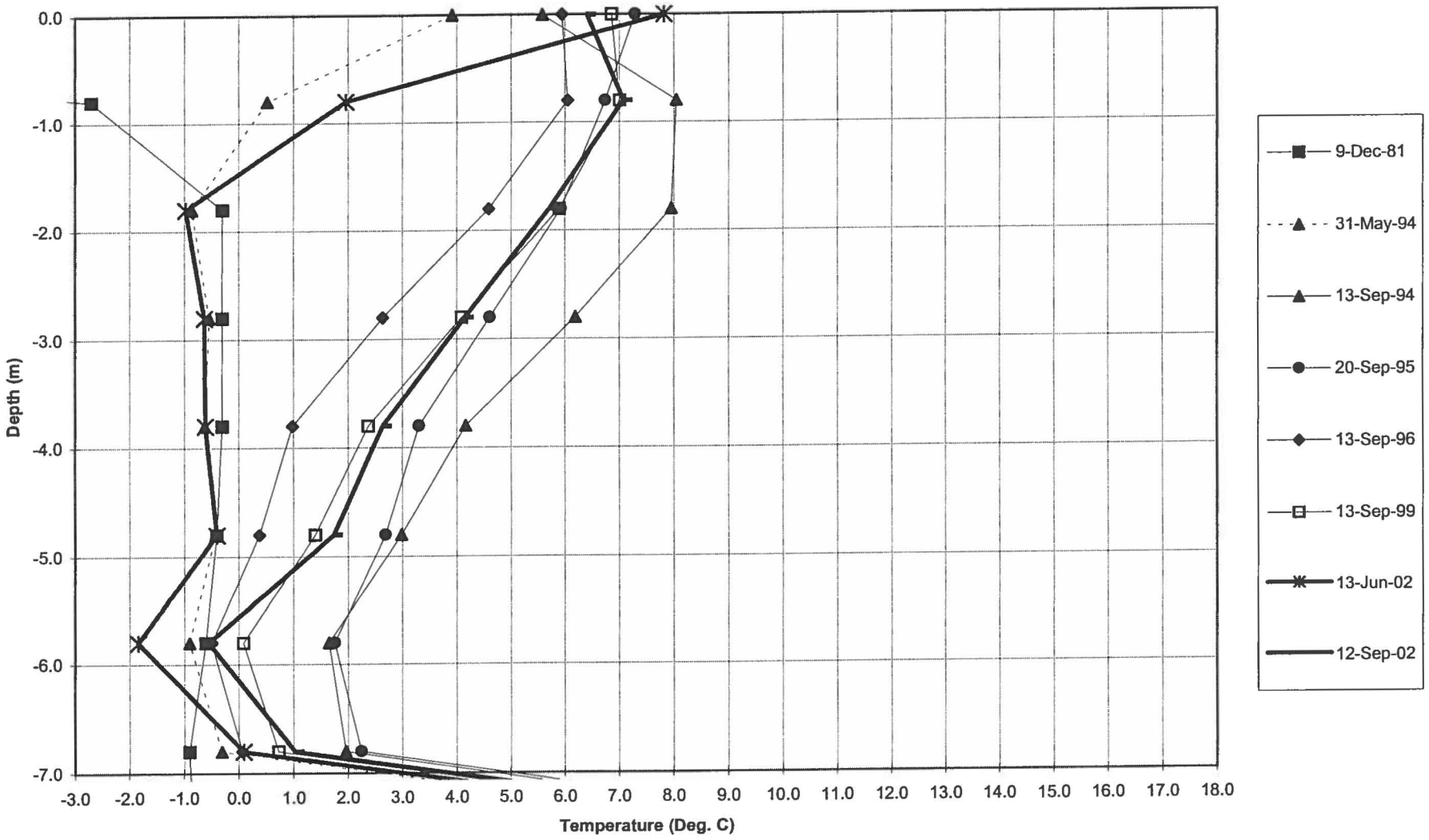
Faro Mine Instrumentation
Diversion Canal Dike

CD-21		Location:	Canal Dyke St.2+100			Elevation:	1085.9 m advpd	Coordinates:	1455.9 mN 509.5 mE							
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)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	9-Dec-82	29-May-94	14-Sep-94	20-Sep-95	13-Sep-96	17-Oct-97	12-Nov-98	13-Sep-99	7-Jun-00	5-Sep-00	25-May-01	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02
3.0	-3.0	16.58	16.80	11.91	13.12	14.12	14.18	14.78	13.47	16.92	13.27	16.96	16.84	12.55	17.13	13.29
5.0	-5.0	16.56	16.45	14.61	15.04	16.56	15.29	14.65	15.78	16.42	15.15	16.34	16.40	14.56	16.42	15.13
8.0	-8.0	16.89	16.51	16.72	16.68	16.63	16.48	15.79	16.43	16.26	16.23	16.11	16.22	15.99	16.07	15.97
11.0	-11.0	16.87	16.31	16.27	16.31	16.40	16.48	nr	16.13	15.67	15.79	15.53	15.43	15.54	15.38	14.97
13.0	-13.0	16.84	16.69	16.84	16.84	16.83	16.81	16.77	16.59	16.25	16.37	16.00	16.12	16.17	15.93	15.60

Depth on String	Actual Depth	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Resistivity (kOhms)	Resistivity (kOhms)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	9-Dec-82	29-May-94	14-Sep-94	20-Sep-95	13-Sep-96	17-Oct-97	12-Nov-98	13-Sep-99	7-Jun-00	5-Sep-00	25-May-01	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02
3.0	-3.0	-0.30	-0.55	6.29	4.34	2.87	2.79	1.96	3.81	-0.69	4.11	-0.74	-0.60	5.23	-0.93	4.08
5.0	-5.0	-0.30	-0.17	2.16	1.59	-0.30	1.26	2.11	0.64	-0.14	1.45	-0.04	-0.11	2.23	-0.14	1.47
8.0	-8.0	-0.70	-0.25	-0.50	-0.45	-0.39	-0.22	0.62	-0.16	0.05	0.08	0.23	0.09	0.37	0.28	0.40
11.0	-11.0	-0.60	0.06	0.10	0.06	-0.05	-0.15		0.27	0.84	0.69	1.02	1.14	1.00	1.21	1.74
13.0	-13.0	-0.60	-0.42	-0.60	-0.60	-0.59	-0.56	-0.52	-0.31	0.10	-0.05	0.40	0.25	0.19	0.49	0.90

*tip #4 suspect

DIVERSION CANAL DIKE
Geothermal Monitoring
CD-19



Faro Mine Instrumentation
Diversion Canal Dike

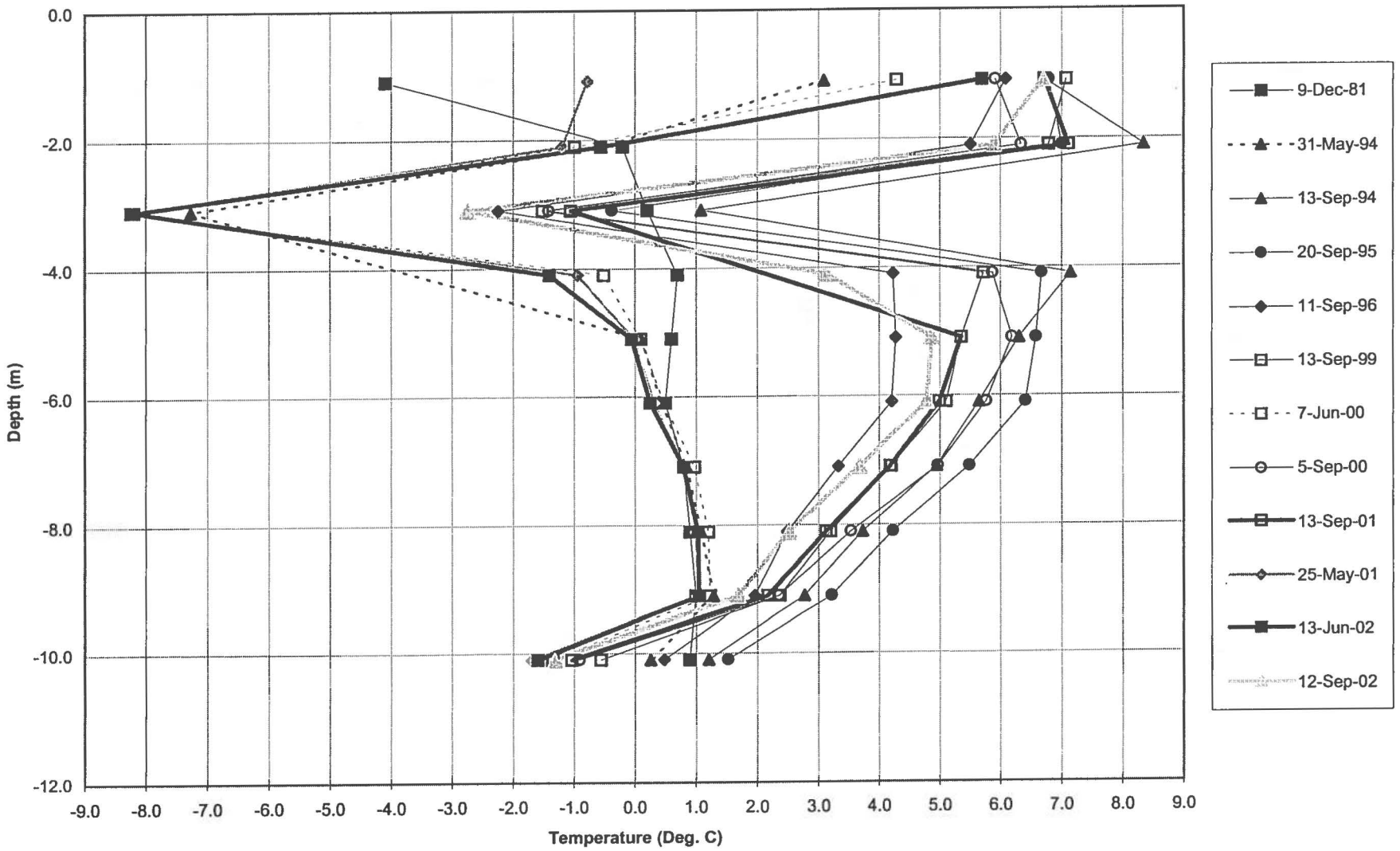
CD-19		Location:	Canal Dyke St.1+900			Elevation:	1086.3 m advpd	Coordinates:	1278.6 mN, 862.7 mE	
Thermistor String "A"	Subex. at 4.0 m	Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	yes	Surface Protector:	yes
Depth Correction	-0.2									

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)	9-Dec-81	31-May-94	13-Sep-94	20-Sep-95	13-Sep-96	13-Sep-99	13-Jun-02	12-Sep-02	
0.2	0.0	48.60	13.36	12.30	11.31	12.08	11.55	11.02	11.81	
1.0	-0.8	18.73	15.87	10.91	11.63	12.03	11.48	14.75	11.44	
2.0	-1.8	16.60	17.08	10.99	12.14	12.97	12.16	17.18	12.27	
3.0	-2.8	16.57	16.77	11.96	12.93	14.27	13.27	16.85	13.23	
4.0	-3.8	16.52	16.79	13.18	13.76	15.47	14.42	16.78	14.23	
5.0	-4.8	16.67	16.69	14.04	14.25	16.02	15.21	16.67	14.95	
6.0	-5.8	16.85	17.11	15.02	14.94	16.76	16.27	17.96	16.81	
7.0	-6.8	17.04	16.53	14.73	14.52	16.22	15.68	16.20	15.44	
8.0	-7.8	16.94	8.21	7.69	7.54	8.08	7.93	8.02	7.85	
9.0	-8.8	16.91	8.21	7.69	7.54	8.08	7.93	8.02	7.85	

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)	9-Dec-81	31-May-94	13-Sep-94	20-Sep-95	13-Sep-96	13-Sep-99	13-Jun-02	12-Sep-02	0-Jan-00
1.0	0.0	-20.03	3.92	5.58	7.29	5.95	6.86	7.82	6.41	
2.0	-0.8	-2.70	0.52	8.05	6.74	6.05	7.00	1.96	7.07	
3.0	-1.8	-0.30	-0.85	7.96	5.93	4.59	5.89	-0.97	5.71	
4.0	-2.8	-0.30	-0.54	6.19	4.61	2.64	4.09	-0.63	4.15	
5.0	-3.8	-0.30	-0.62	4.17	3.31	0.98	2.37	-0.61	2.64	
6.0	-4.8	-0.40	-0.42	2.98	2.69	0.38	1.40	-0.40	1.74	
7.0	-5.8	-0.60	-0.90	1.66	1.76	-0.50	0.08	-1.84	-0.55	
8.0	-6.8	-0.90	-0.31	1.96	2.25	0.06	0.73	0.09	1.03	
9.0	-7.8	-0.80	13.93	15.32	15.74	14.27	14.66	14.42	14.88	
10.0	-8.8	-0.70	14.00	15.39	15.81	14.34	14.73	14.49	14.95	

* The 8 & 9 metre depth tips are suspect

DIVERSION CANAL DIKE
Geothermal Monitoring
CD-15



Faro Mine Instrumentation
Diversion Canal Dike

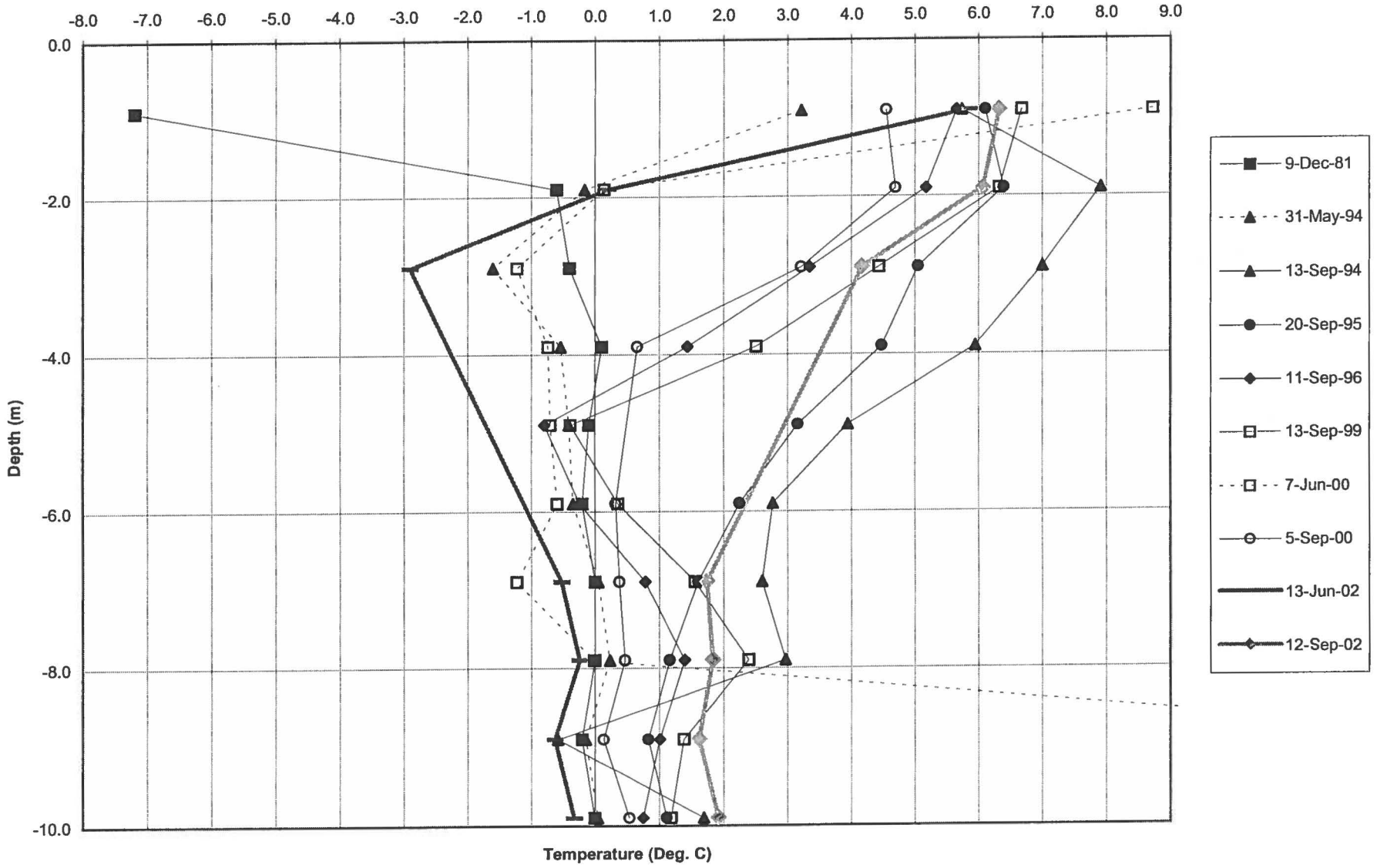
CD-15		Location:	Canal Dyke St. 1+530			Elevation:	1087.0 m advpd	Coordinates:	1233.7 mN, 1028.7 mE				
Thermistor String #26		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes			
Depth Correction	0.1												
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	9-Dec-81	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	13-Sep-99	7-Jun-00	5-Sep-00	25-May-01	13-Sep-01	13-Jun-02	12-Sep-02
1.0	-1.1	20.00	13.84	11.56	11.52	11.93	11.36	13.04	12.03	16.84	11.56	12.16	11.57
2.0	-2.1	16.29	16.58	10.64	11.36	12.23	11.48	16.96	11.74	17.14	11.30	16.59	12.00
3.0	-3.1	15.99	23.62	15.29	16.47	18.13	17.46	24.88	17.37	24.84	17.05	24.82	18.61
4.0	-4.1	15.65		11.34	11.61	13.10	12.17	16.64	12.08	17.01		17.42	13.84
5.0	-5.1	15.71	16.11	11.81	11.65	13.06	12.38	16.12	11.88	16.21	12.38	16.24	12.68
6.0	-6.1	15.75	15.80	12.17	11.72	13.07	12.50	15.77	12.10	15.90	12.57	15.95	12.70
7.0	-7.1	15.53	15.49	12.61	12.28	13.67	13.09	15.39	12.60	15.52	13.10	15.53	13.43
8.0	-8.1	15.47	15.33	13.42	13.09	14.28	13.78	15.24	13.55	15.40	13.83	15.37	14.26
9.0	-9.1	15.41	15.19	14.09	13.78	14.68	14.38	15.23	14.39	15.40	14.52	15.37	14.88
10.0	-10.1	15.45	15.96	15.21	14.97	15.78	16.64	17.33	16.94	17.64	17.05	17.55	17.30

*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)
(m)	(m)	9-Dec-81	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	13-Sep-99	7-Jun-00	5-Sep-00	25-May-01	13-Sep-01	13-Jun-02	12-Sep-02
1.0	-1.1	-4.10	3.09	6.72	6.79	6.08	7.08	4.28	5.91	-0.78	6.72	5.69	6.70
2.0	-2.1	-0.20	-0.55	8.35	7.01	5.51	6.79	-0.99	6.34	-1.19	7.12	-0.56	5.89
3.0	-3.1	0.20	-7.27	1.08	-0.38	-2.24	-1.51	-8.24	-1.41	-8.21	-1.05	-8.20	-2.75
4.0	-4.1	0.70		7.15	6.67	4.23	5.72	-0.51	5.87	-0.93		-1.40	3.13
5.0	-5.1	0.60	0.11	6.31	6.58	4.27	5.35	0.09	6.19	-0.01	5.35	-0.05	4.87
6.0	-6.1	0.50	0.44	5.65	6.41	4.21	5.11	0.48	5.76	0.31	4.99	0.25	4.79
7.0	-7.1	0.80	0.85	4.95	5.48	3.33	4.20	0.98	4.96	0.81	4.18	0.80	3.68
8.0	-8.1	0.90	1.08	3.73	4.23	2.49	3.20	1.20	3.53	0.99	3.13	1.03	2.52
9.0	-9.1	1.00	1.28	2.77	3.22	1.96	2.37	1.23	2.35	1.01	2.18	1.05	1.69
10.0	-10.1	0.90	0.26	1.21	1.52	0.48	-0.56	-1.35	-0.90	-1.69	-1.03	-1.59	-1.31

* The 3 metre depth tip is suspect

DIVERSION CANAL DIKE
Geothermal Monitoring
CD-10



Faro Mine Instrumentation
Diversion Canal Dike

CD-10		Location:	Canal Dyke St. 0+990			Elevation:	1088.3 m advpd	Coordinates:	1008.7 mN, 1519.7 mE		
Thermistor String #23		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes	
Depth Correction	-0.1										

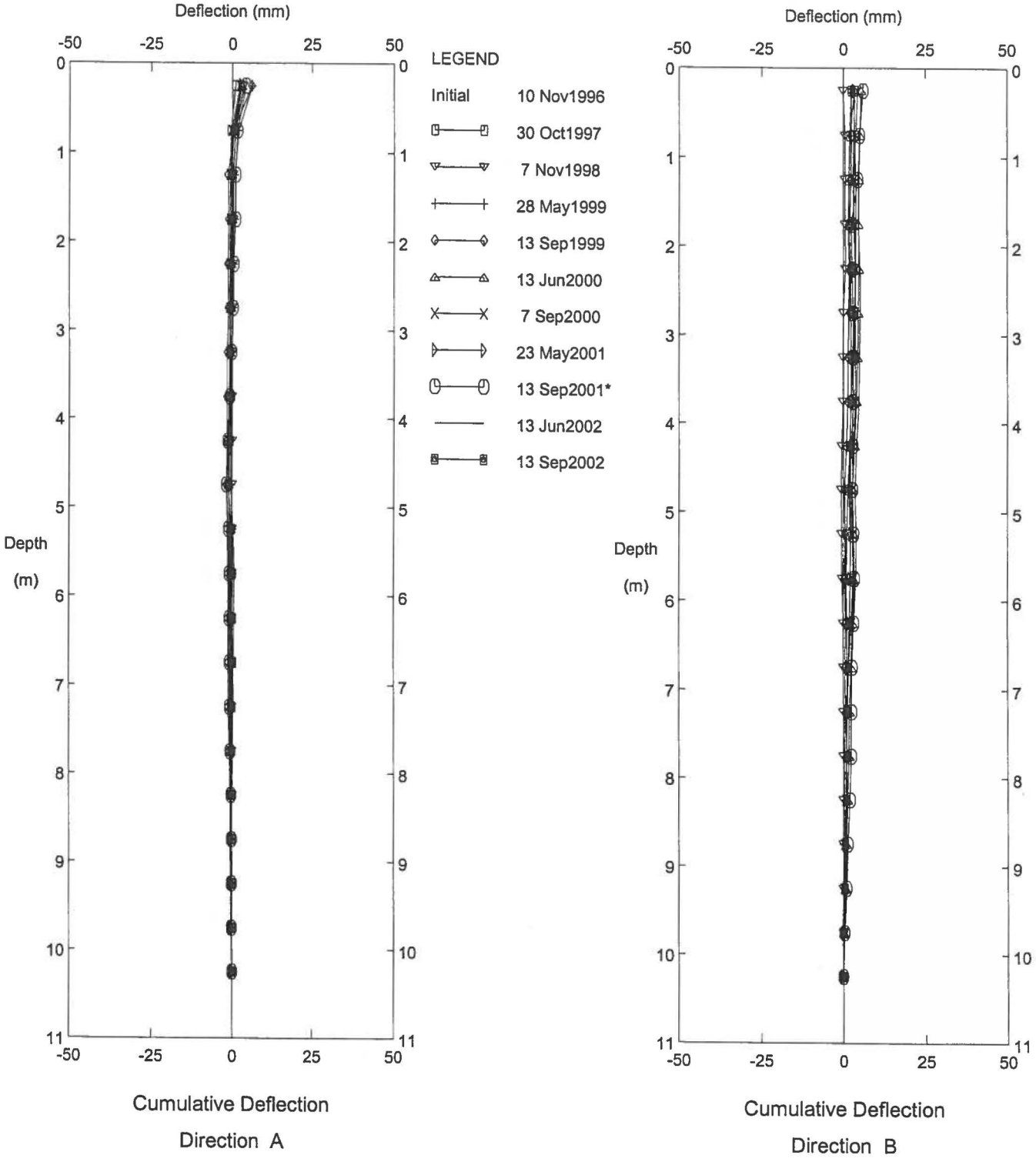
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	9-Dec-81	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	13-Sep-99	7-Jun-00	5-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	8.02	16.08	16.72	14.91
10.0	-9.9	16.21	16.17	14.87	15.31	15.60	15.26	8.02	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)	9-Dec-81	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	13-Sep-99	7-Jun-00	5-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		
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		
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	14.34	0.13	-0.63	1.62
10.0	-9.9	0.00	0.04	1.69	1.12	0.75	1.18	14.36	0.54	-0.33	1.92

SLOPE INDICATORS

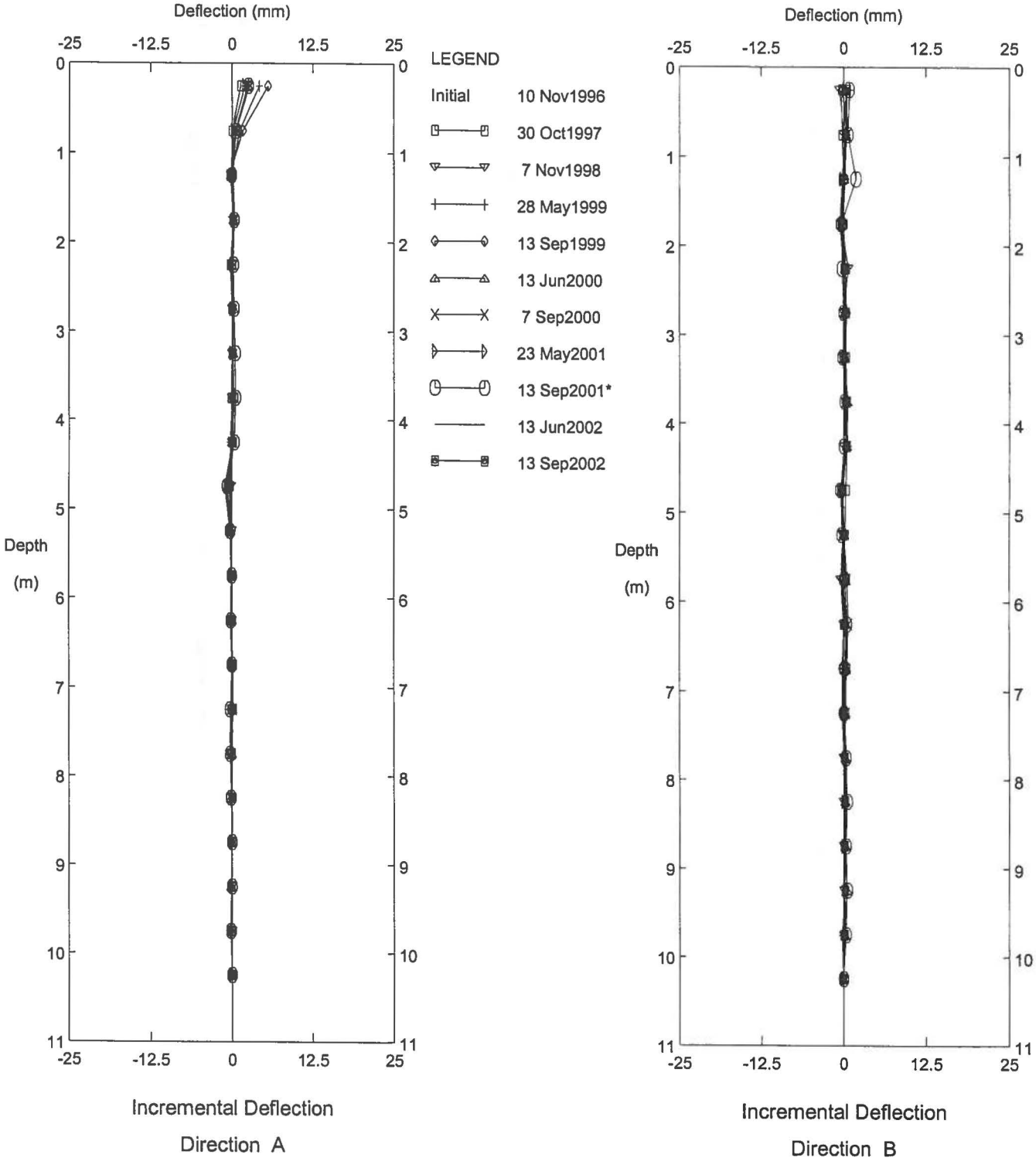
BGC Engineering Inc. - Calgary, AB



CD-10, Inclinometer 0+990

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

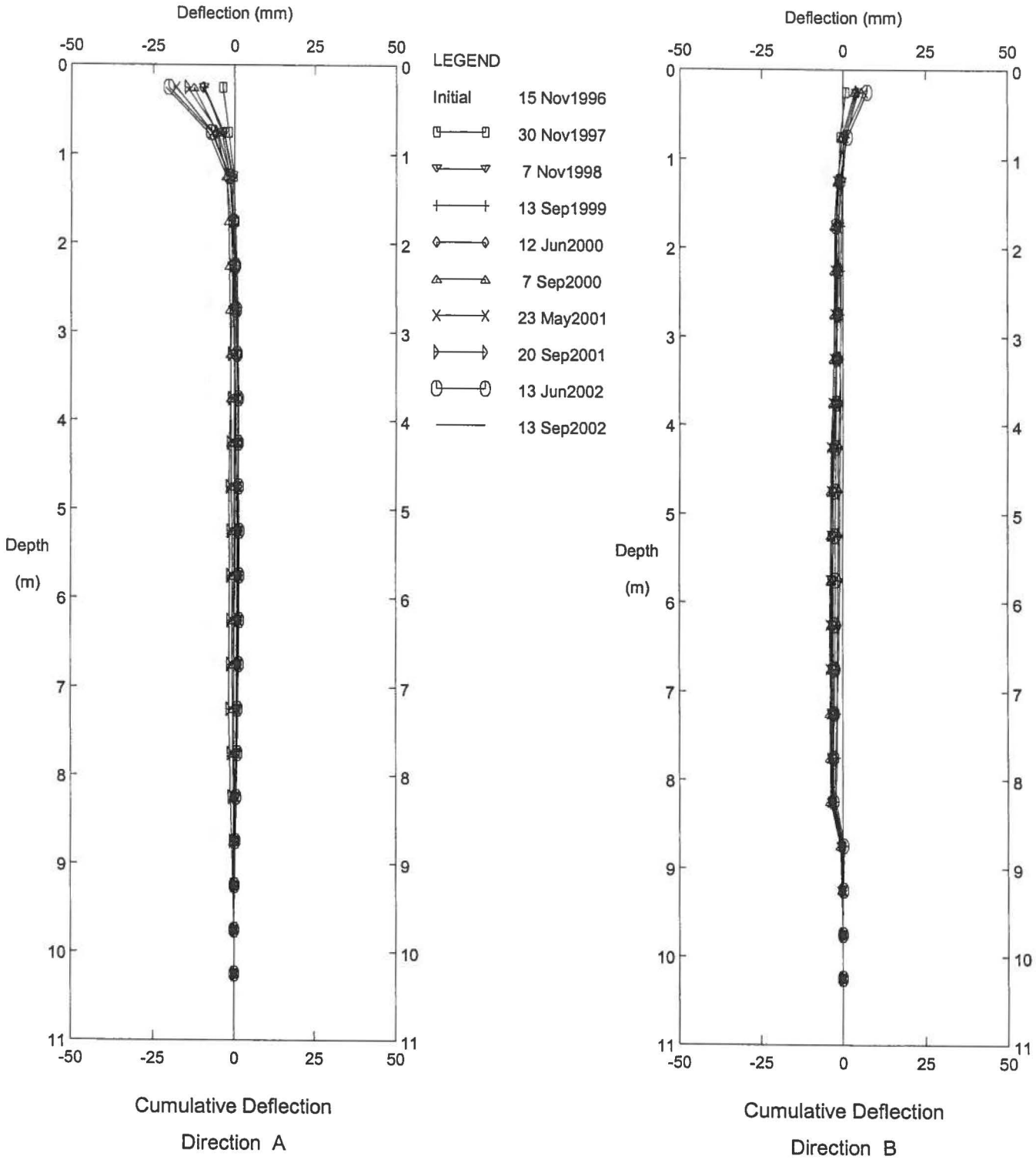
BGC Engineering Inc. - Calgary, AB



CD-10, Inclinometer 0+990

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

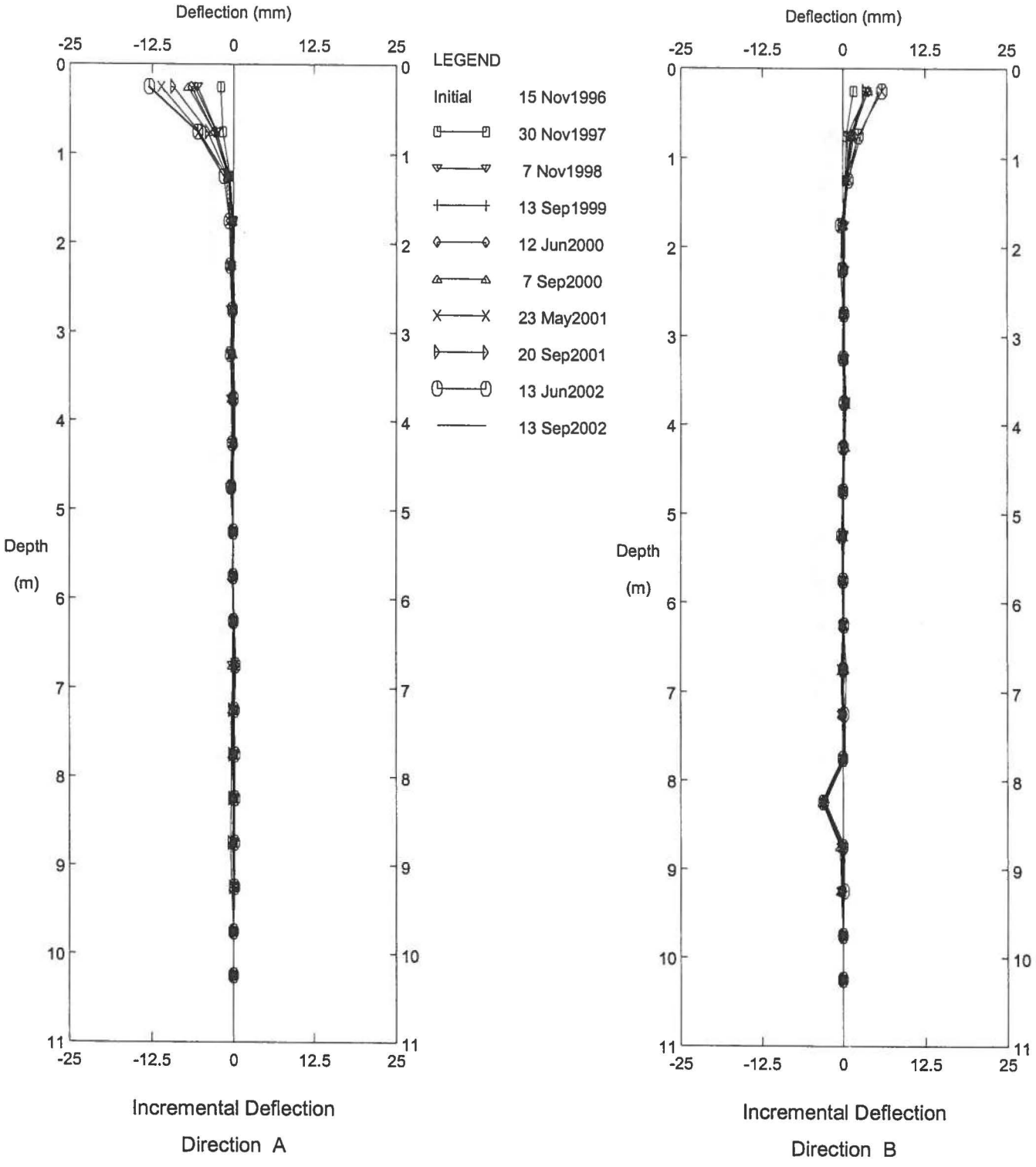
BGC Engineering Inc. - Calgary, AB



CD-15, Inclinometer 1+530

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

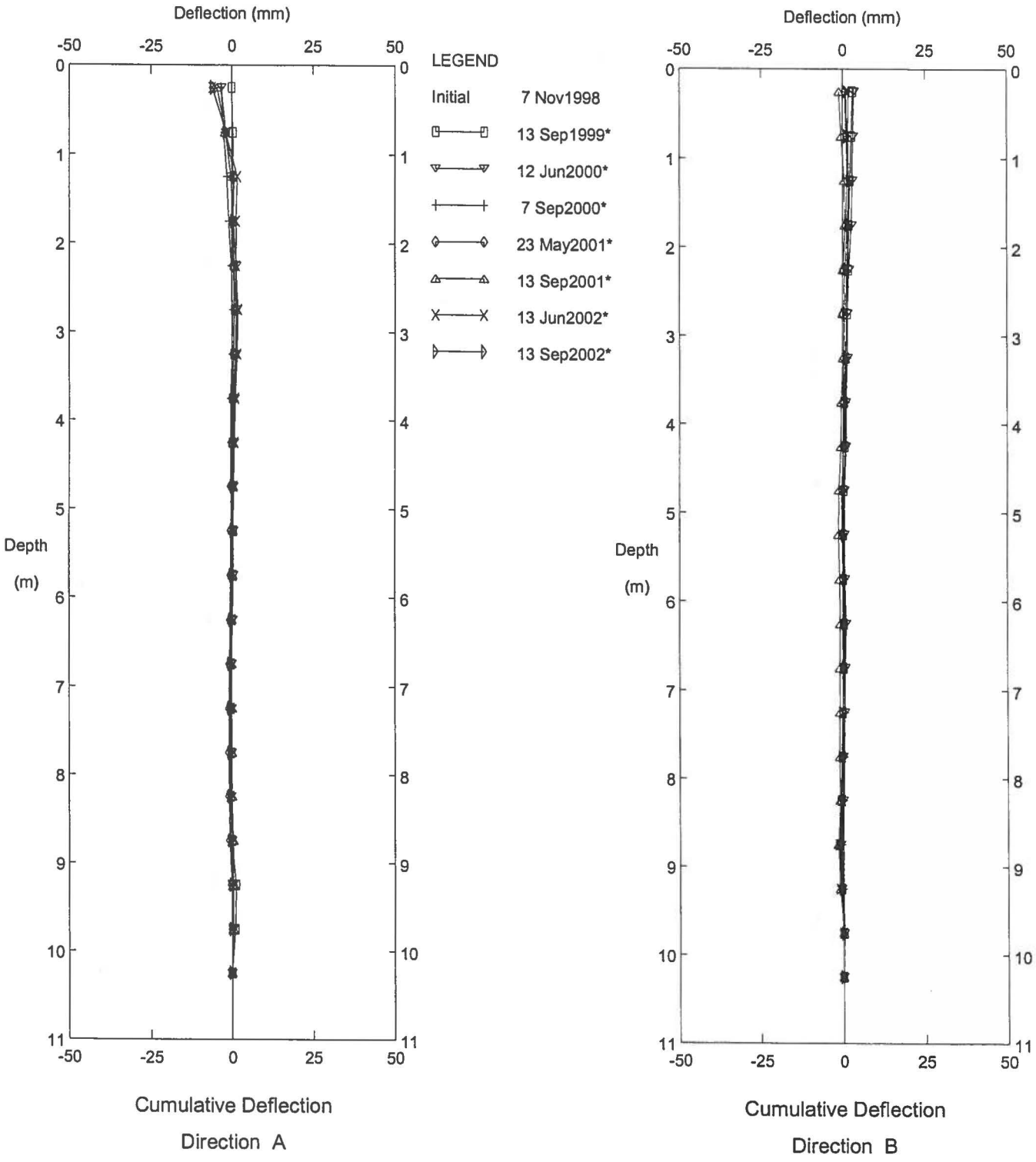
BGC Engineering Inc. - Calgary, AB



CD-15, Inclinometer 1+530

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

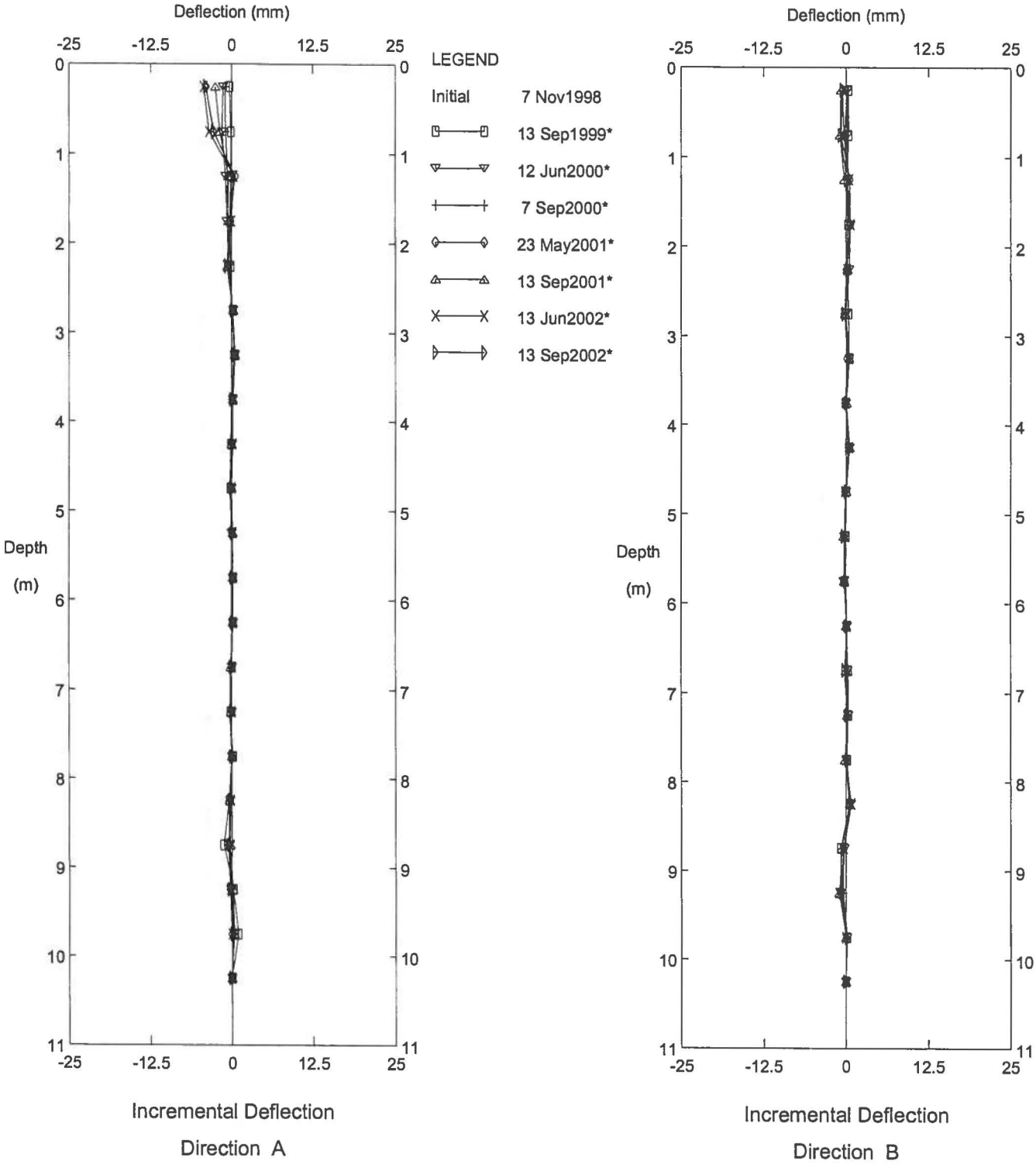
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CD-19, Inclinometer 1+900

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

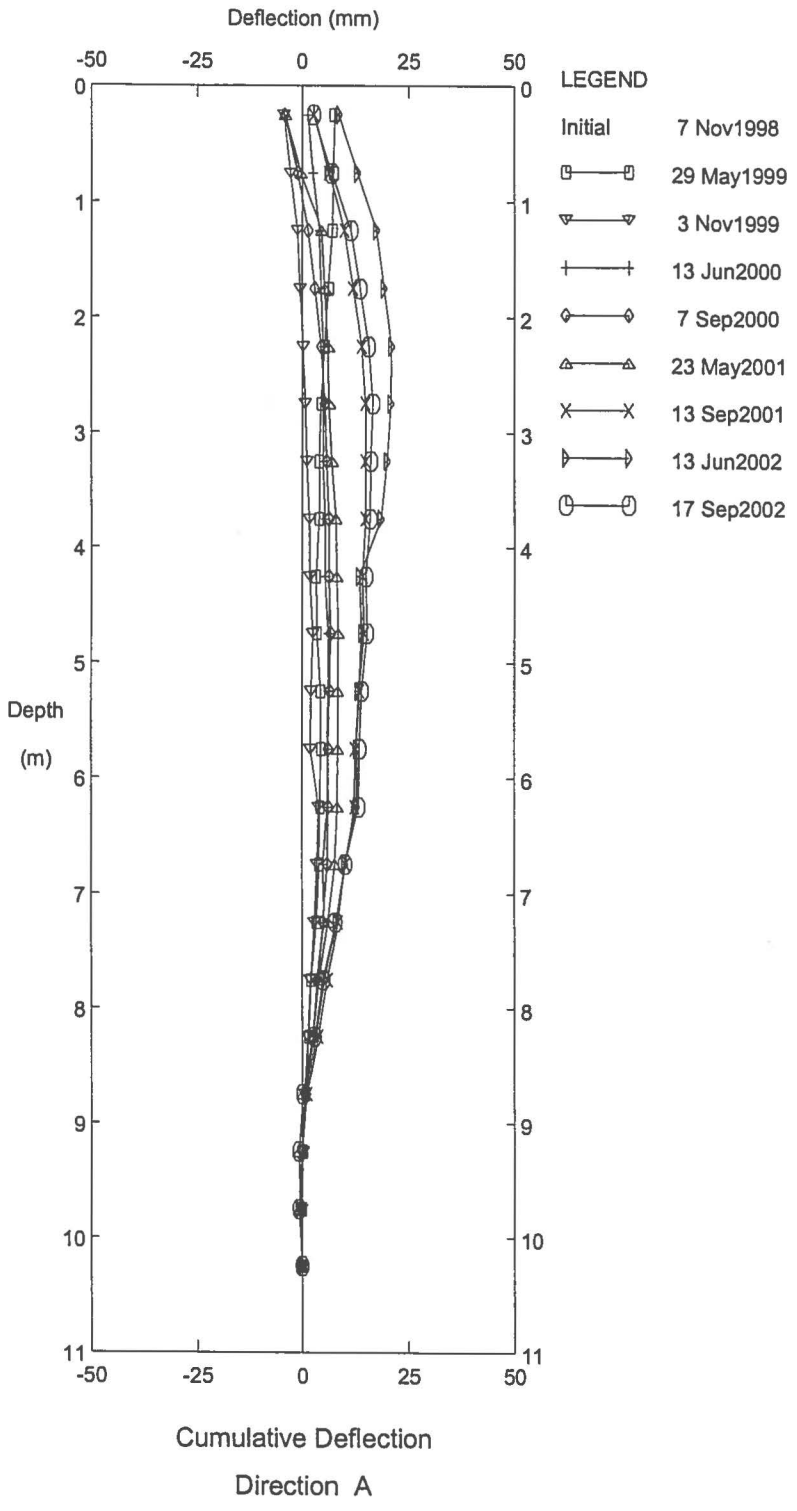
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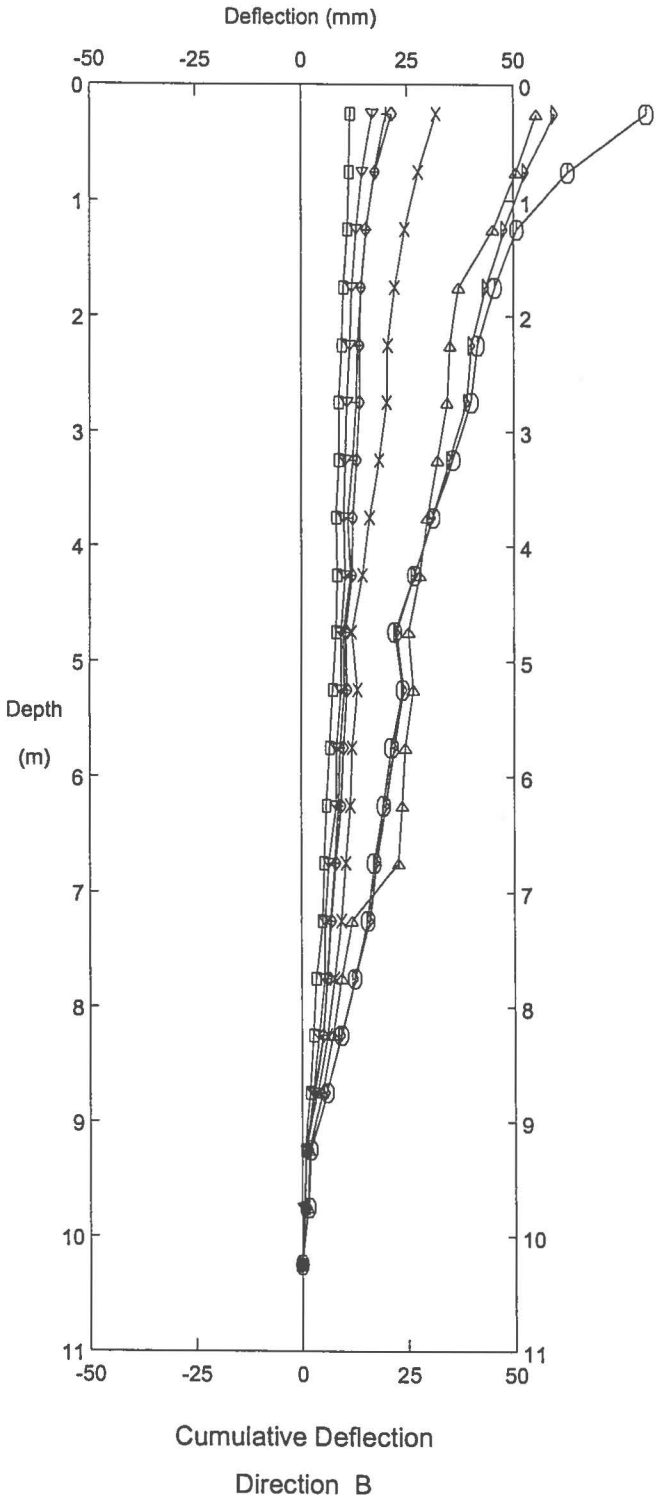
CD-19, Inclinometer 1+900

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

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Cumulative Deflection
Direction A

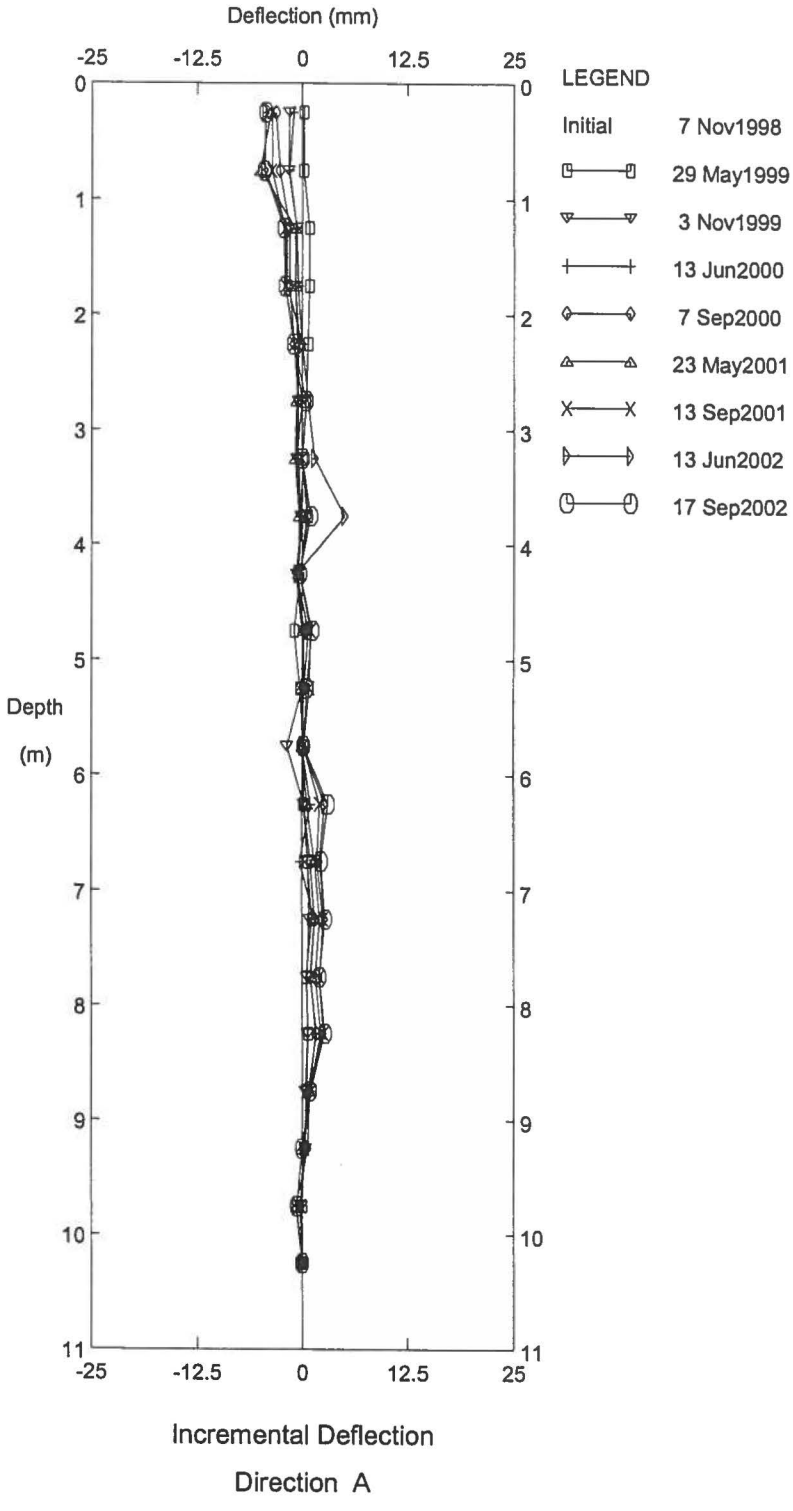


Cumulative Deflection
Direction B

CD-21, Inclinometer 2+100

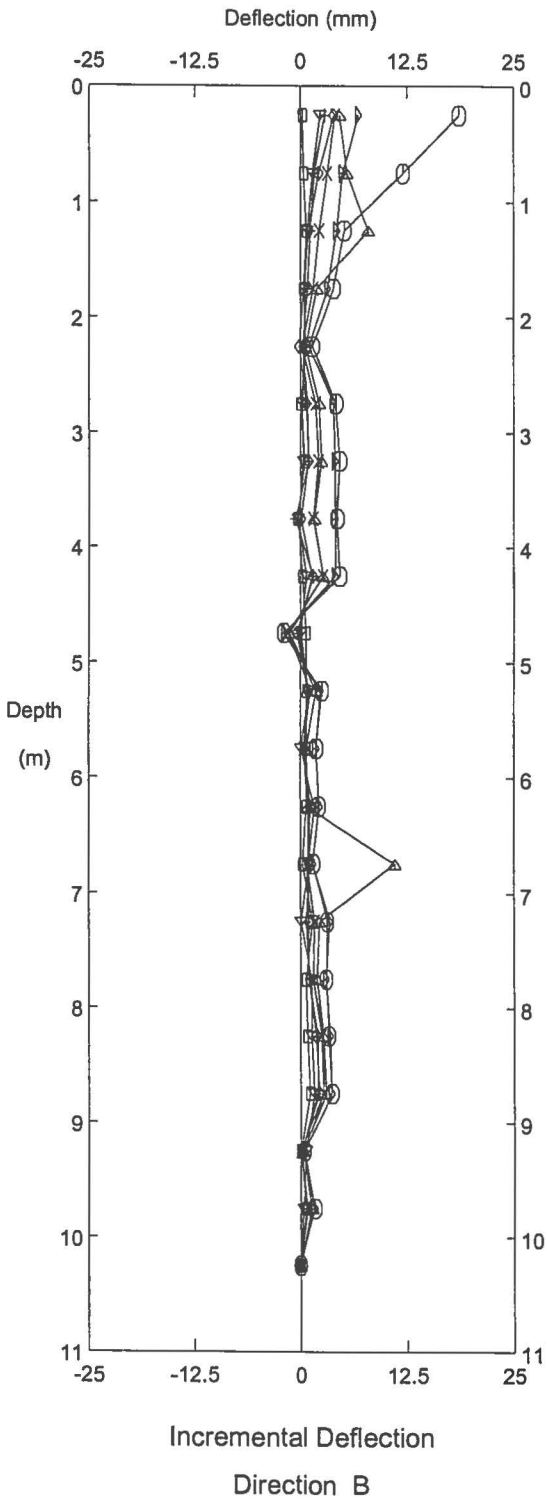
Sets marked * include zero shift and/or rotation corrections.

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Incremental Deflection

Direction A



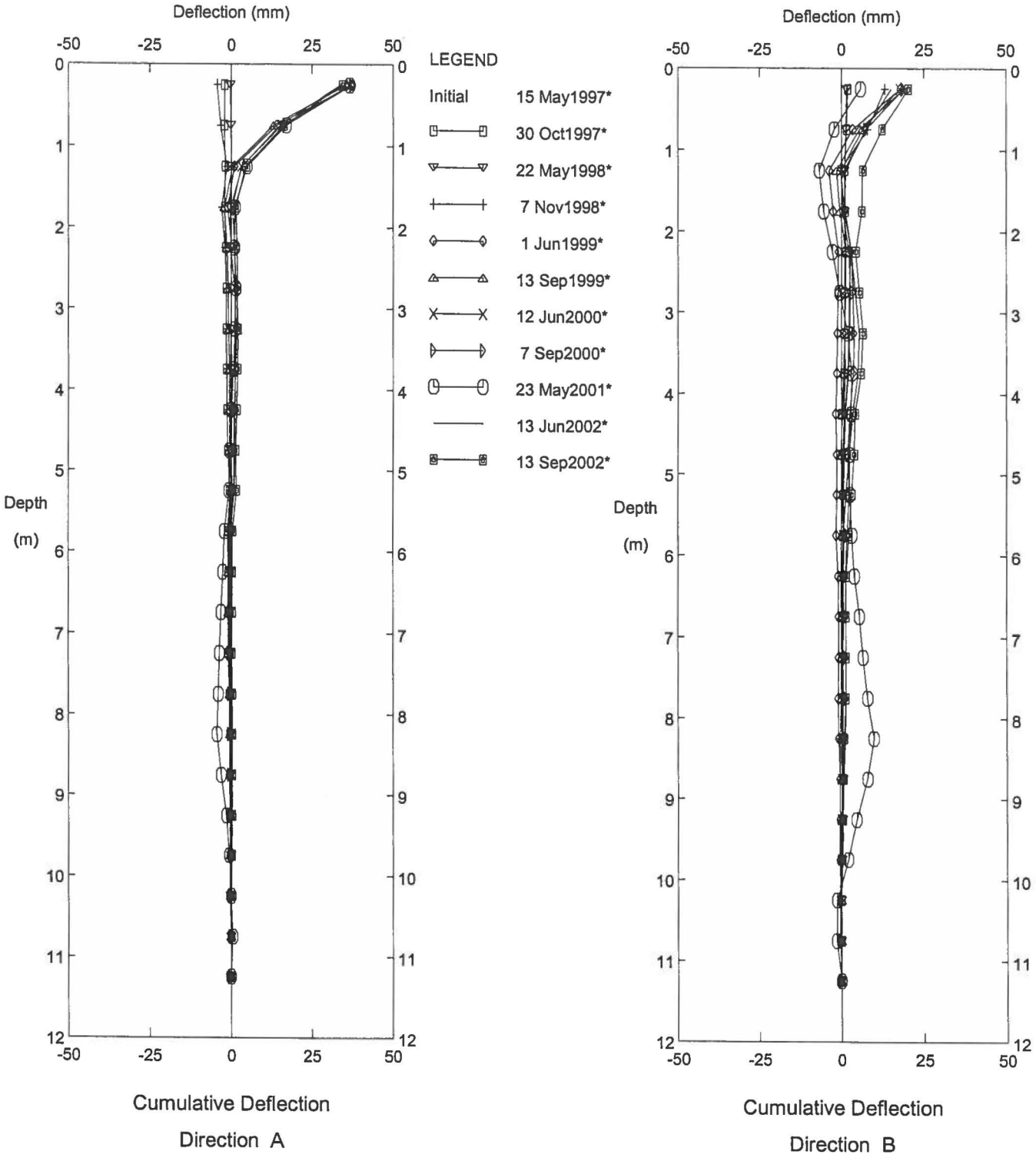
Incremental Deflection

Direction B

CD-21, Inclinometer 2+100

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

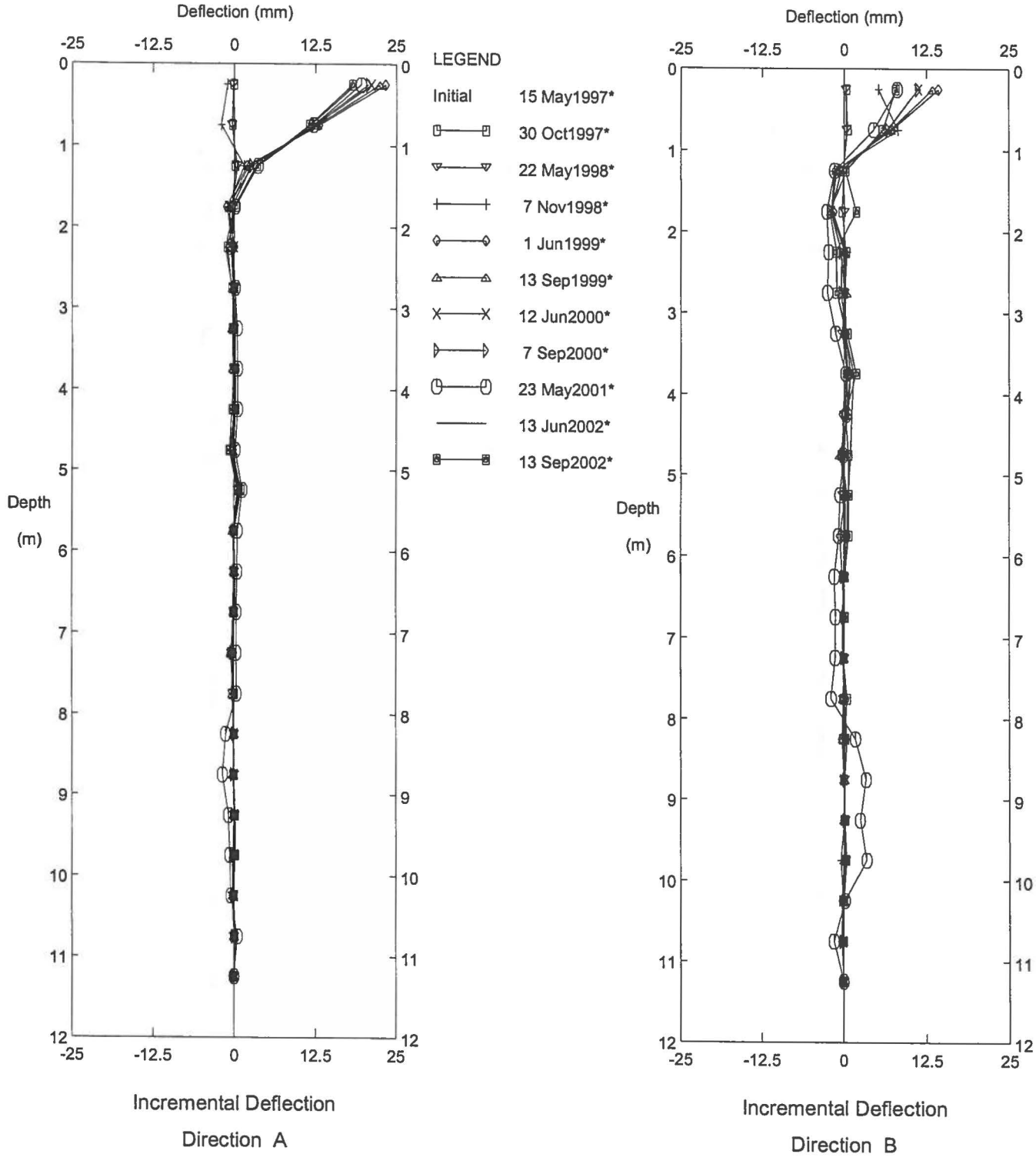
BGC Engineering Inc. - Calgary, AB



91CD-1, Inclinometer 1+767

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

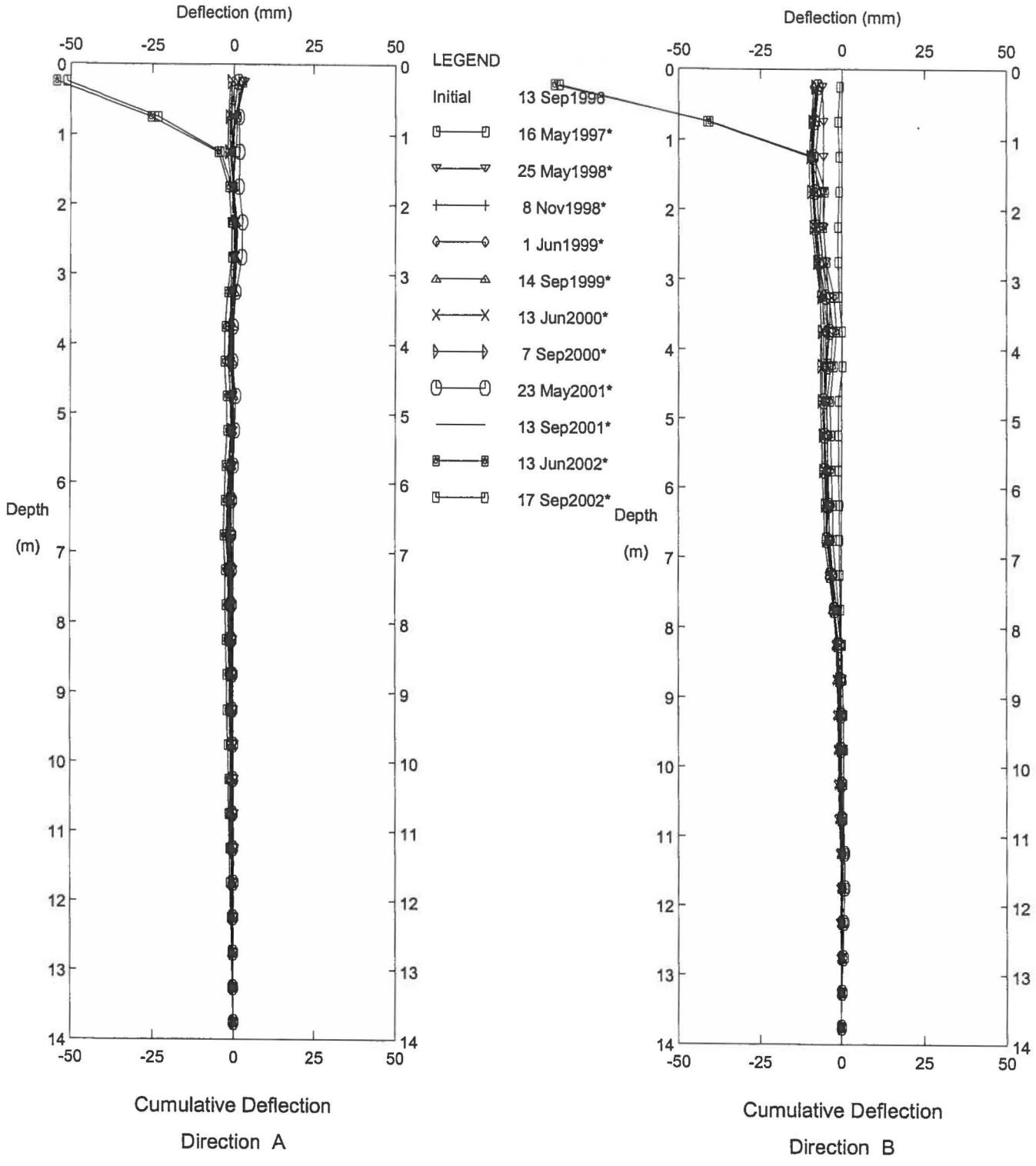
BGC Engineering Inc. - Calgary, AB



91CD-1, Inclinometer 1+767

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

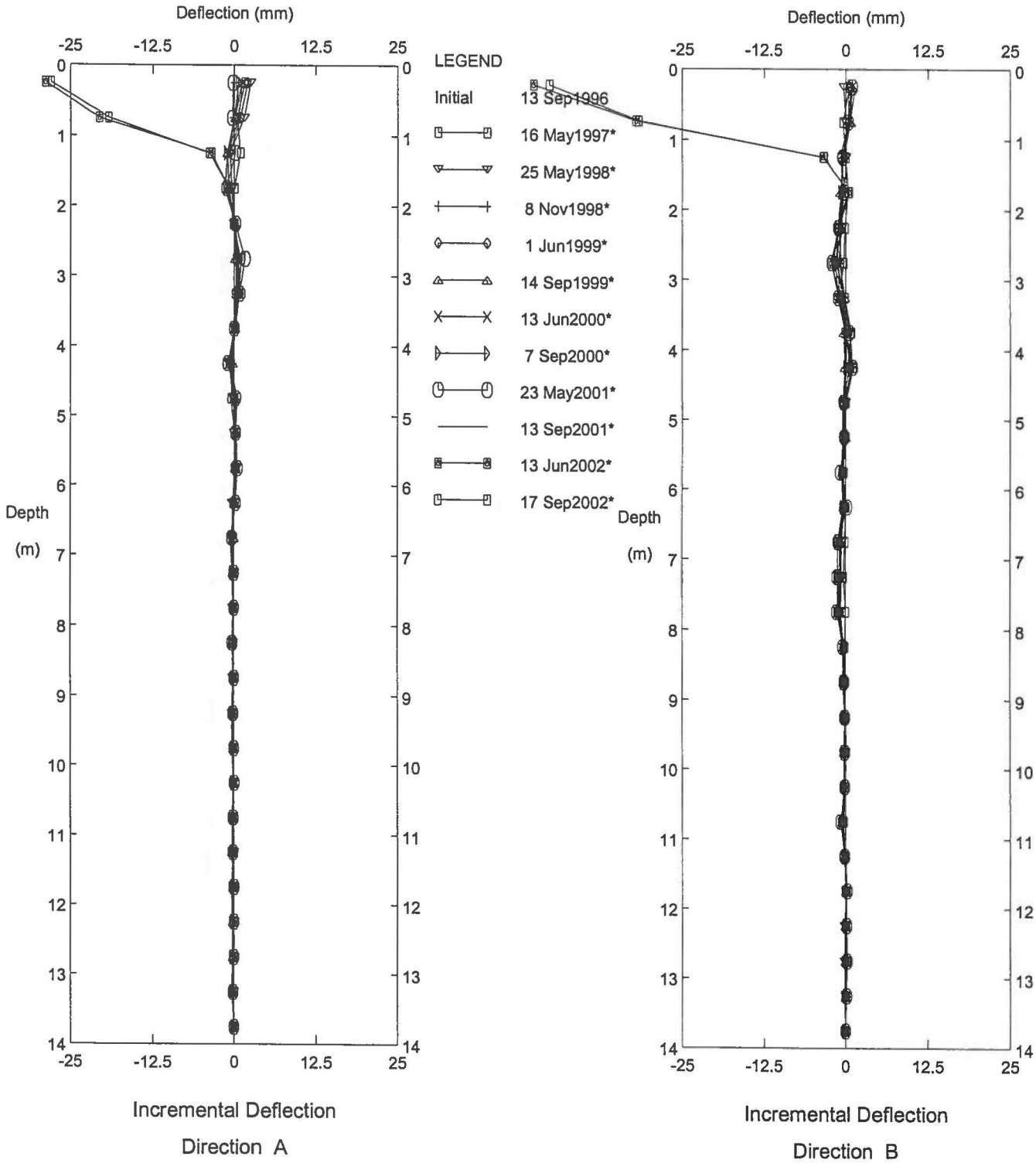
BGC Engineering Inc. - Calgary, AB



94CD-1, Inclinometer

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

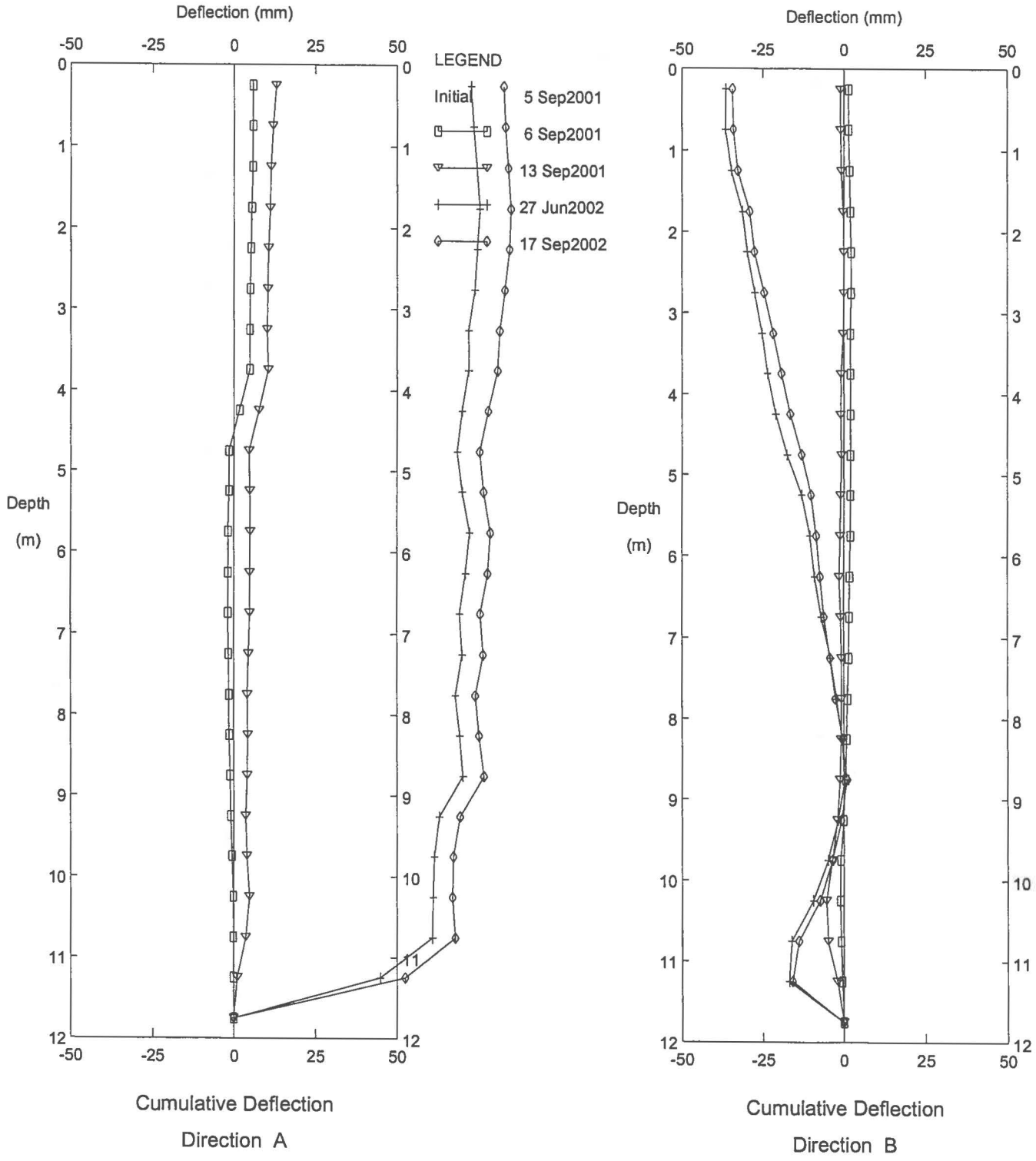
BGC Engineering Inc. - Calgary, AB



94CD-1, Inclinometer

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

BGC Engineering Inc. - Calgary, AB

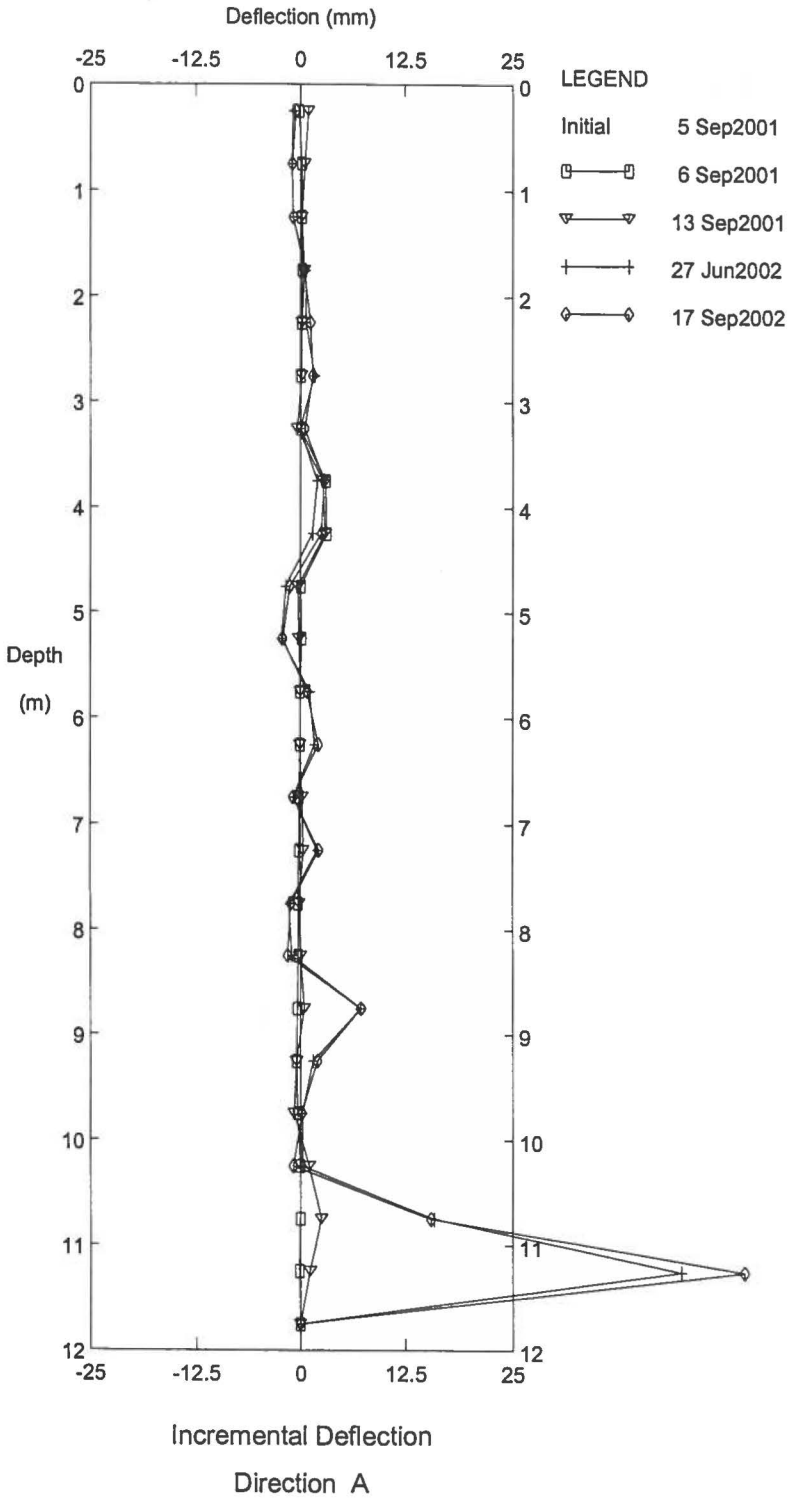


Faro Mine - Closure Monitoring, Inclinometer 88-10/BGC-01

Deloitte and Touche

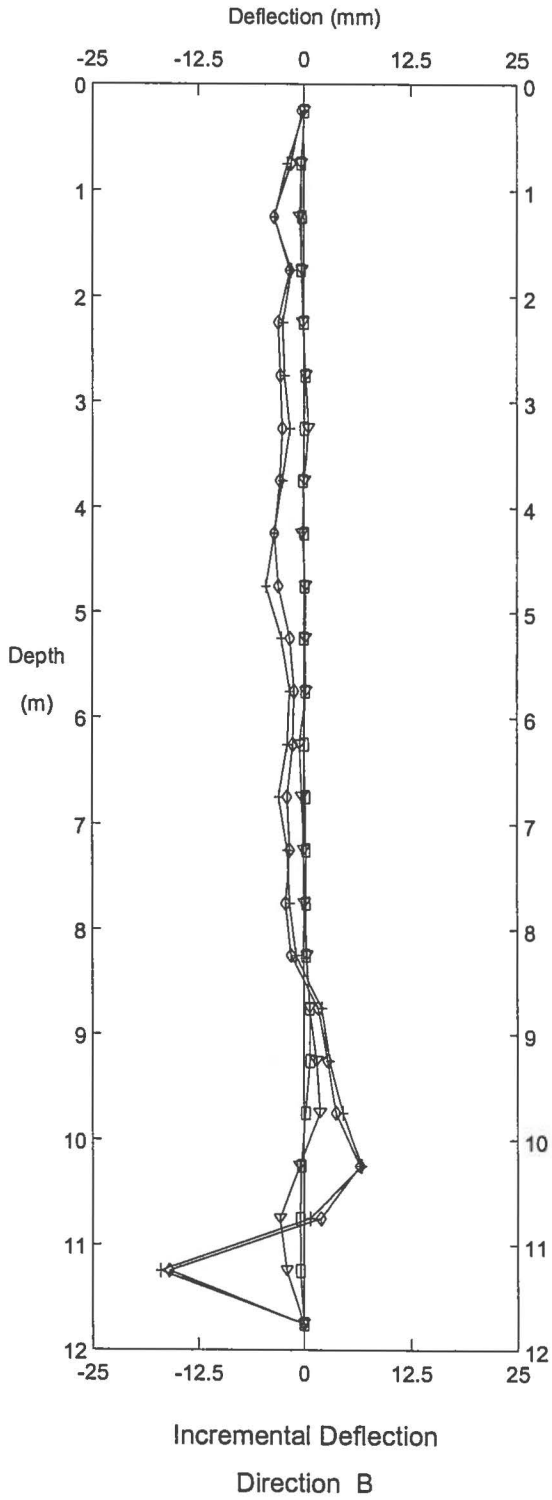
Sets marked * include zero shift and/or rotation corrections.

BGC Engineering Inc. - Calgary, AB



Incremental Deflection

Direction A



Incremental Deflection

Direction B

Faro Mine - Closure Monitoring, Inclinometer 88-10/BGC-01

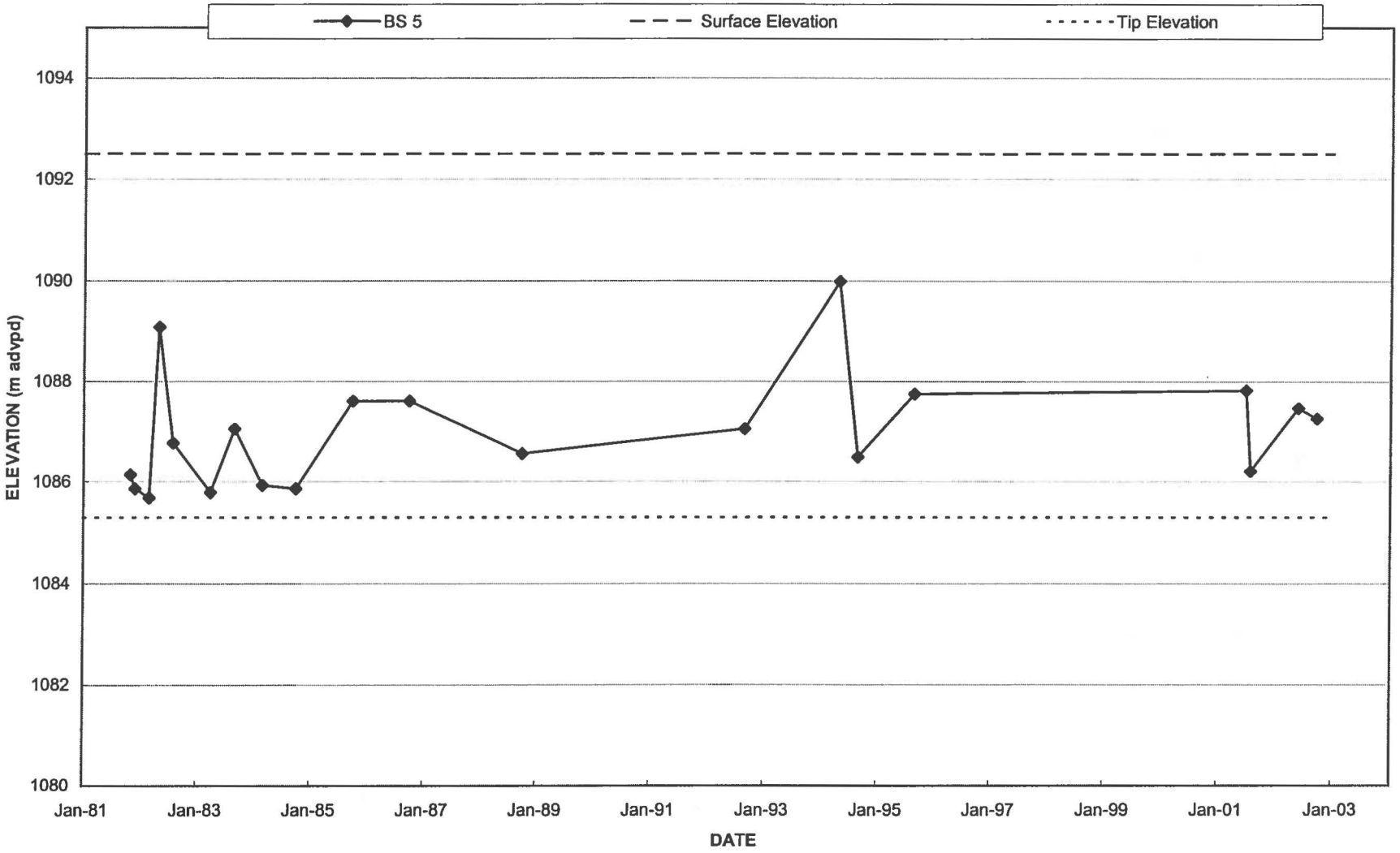
Deloitte and Touche

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

DIVERSION CANAL
BACK SLOPE

PIEZOMETERS

DIVERSION CANAL BACKSLOPE
Piezometric Monitoring
BS5



Faro Mine Instrumentation
Diversion Canal Backslope

BS-5		Location:	Canal Dyke Backslope			Ground Elevation: (m advpd)	1092.50	Coordinates:	953.2N, 1534.6E
			St.0+960						
		Date Installed:	1981			Tip Elevation: (m advpd)	1085.30	Surface Protector:	yes
Date		Reading (psi)					Piezometric Elevation (m advpd)		
Nov-81		1.20					1086.14		
Dec-81		0.80					1085.86		
Mar-82		0.55					1085.69		
May-82		5.40					1089.08		
Aug-82		2.10					1086.77		
Apr-83		0.70					1085.79		
Sep-83		2.50					1087.05		
Mar-84		0.90					1085.93		
Oct-84		0.80					1085.86		
Oct-85		3.30					1087.61		
Oct-86		3.30					1087.61		
Oct-88		1.80					1086.56		
Oct-90									
Sep-92		2.50					1087.05		
May-94		6.70					1089.99		
Sep-94		1.70					1086.49		
Sep-95		3.50					1087.75		
Jul-01		3.60					1087.82		
Aug-01		1.30					1086.21		
Jun-02		3.10					1087.47		
Sep-02		2.80					1087.26		

THERMISTORS

Faro Mine Instrumentation
Diversion Canal Backslope

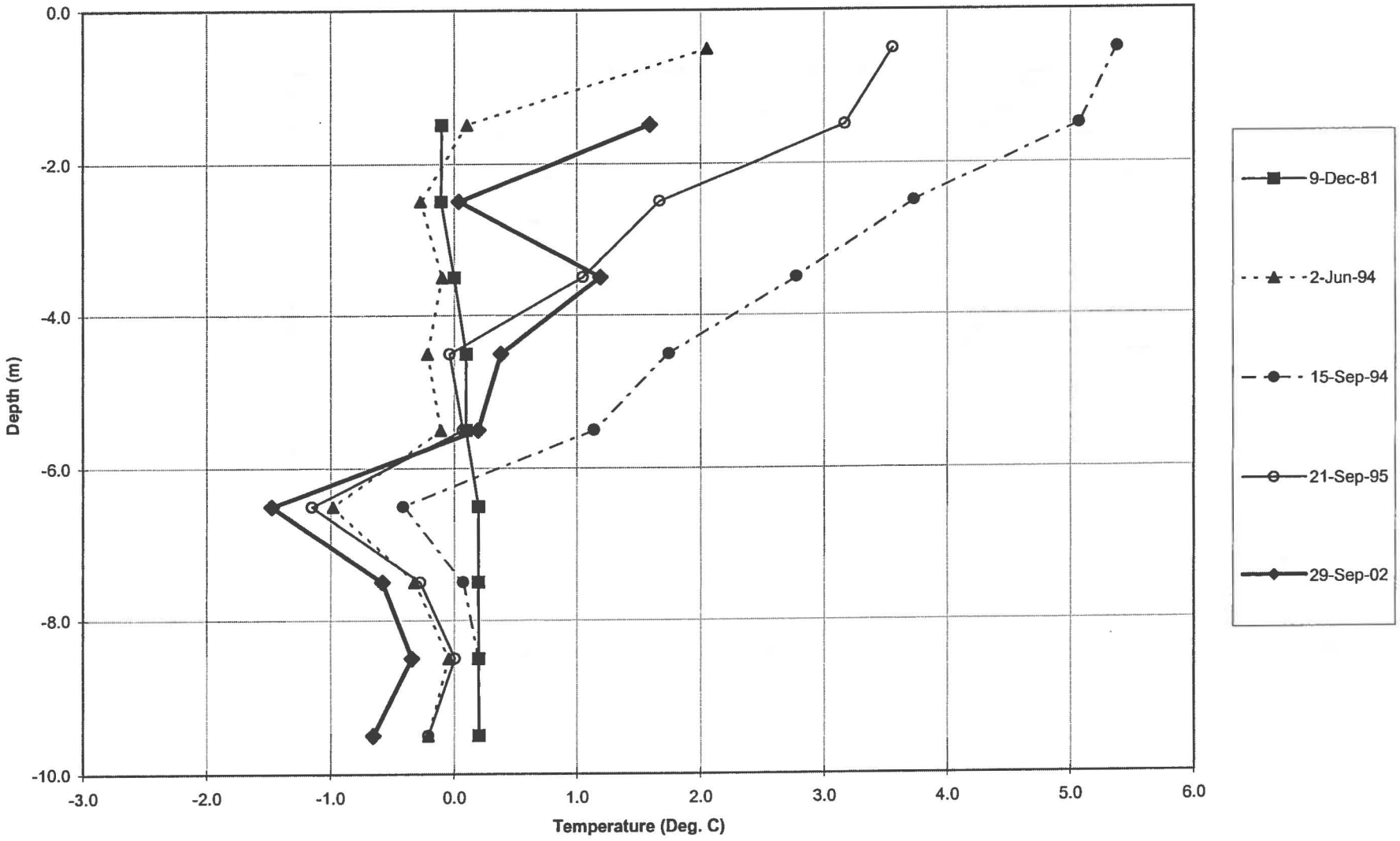
BS-5 Backslope		Location:	Diversion Canal - Back Slope St.0+960			Surface Elevation: (m advpd)	1092.5 m	Coordinates:	953.2 mN, 1534.6 mE	
Thermistor String #3		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied	Surface Protector:	yes
Depth Correction	-0.5									

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)	9-Dec-81	2-Jun-94	15-Sep-94	21-Sep-95	29-Sep-02				
1.0	-0.5		14.56	12.33	13.50					
2.0	-1.5	16.28	16.11	12.55	13.80	14.94				
3.0	-2.5	16.25	16.39	13.39	14.85	16.13				
4.0	-3.5	16.18	16.26	14.06	15.34	15.23				
5.0	-4.5	16.10	16.36	14.81	16.21	15.87				
6.0	-5.5	16.10	16.27	15.27	16.12	16.02				
7.0	-6.5	16.05	17.05	16.56	17.20	17.49				
8.0	-7.5	16.01	16.44	16.11	16.40	16.66				
9.0	-8.5	16.04	16.24	16.04	16.20	16.49				
10.0	-9.5	16.03	16.37	16.23	16.37	16.75				

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)	9-Dec-81	2-Jun-94	15-Sep-94	21-Sep-95	29-Sep-02	0-Jan-00	0-Jan-00	0-Jan-00	0-Jan-00
1.0	-0.5		2.05	5.38	3.56					
2.0	-1.5	-0.10	0.11	5.07	3.17	1.59				
3.0	-2.5	-0.10	-0.27	3.73	1.67	0.04				
4.0	-3.5	0.00	-0.09	2.78	1.05	1.19				
5.0	-4.5	0.10	-0.21	1.74	-0.03	0.38				
6.0	-5.5	0.10	-0.11	1.14	0.07	0.20				
7.0	-6.5	0.20	-0.98	-0.41	-1.15	-1.48				
8.0	-7.5	0.20	-0.32	0.08	-0.27	-0.58				
9.0	-8.5	0.20	-0.04	0.20	0.01	-0.34				
10.0	-9.5	0.20	-0.21	-0.04	-0.21	-0.65				

* The 6.5 metre depth tip is suspect

DIVERSION CANAL BACKSLOPE
Geothermal Monitoring
BS-5



Faro Mine Instrumentation
Diversion Canal Backslope

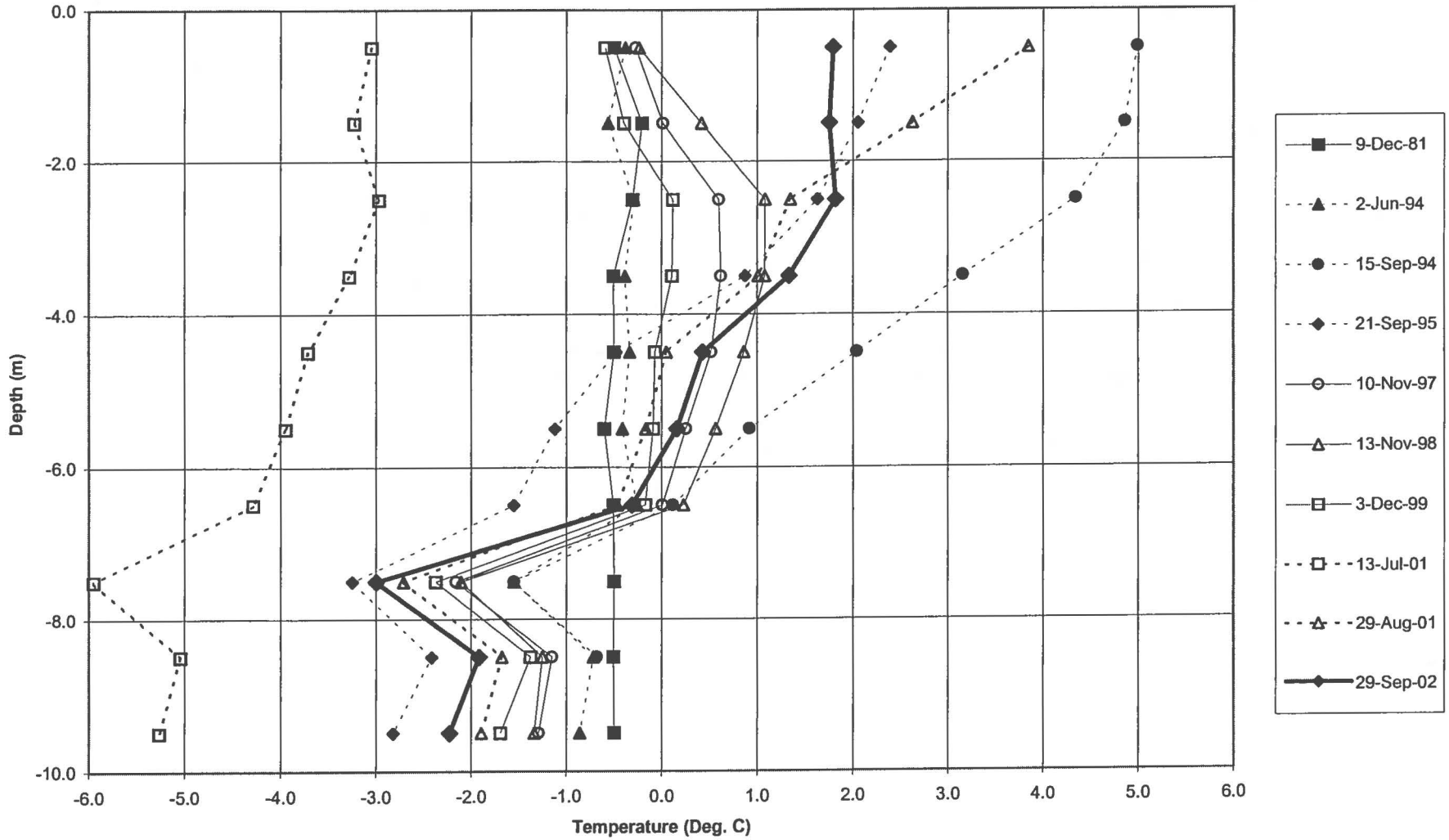
BS-10 Backslope		Location:	Diversion Canal - Back Slope St.1+900			Surface Elevation (m advpd)	1098.2	Coordinates:		1310.5 mN, 657.3 mE	
Thermistor String #5		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied		Surface Protector:	yes
Depth Correction	-0.5										

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)
(m)	(m)	9-Dec-81	2-Jun-94	15-Sep-94	21-Sep-95	10-Nov-97	13-Nov-98	3-Dec-99	13-Jul-01	29-Aug-01	29-Sep-02
1.0	-0.5	16.64	16.54	12.62	14.37	16.45	16.42	16.72	18.98	13.36	14.81
2.0	-1.5	16.35	16.65	12.67	14.58	16.17	15.84	16.51	19.16	14.20	14.84
3.0	-2.5	16.45	16.44	13.01	14.91	15.71	15.33	16.10	18.90	15.15	14.79
4.0	-3.5	16.55	16.45	13.75	15.43	15.63	15.27	16.04	19.21	15.41	15.16
5.0	-4.5	16.59	16.45	14.58	16.57	15.75	15.48	16.23	19.65	16.18	15.87
6.0	-5.5	16.65	16.49	15.41	17.10	15.94	15.69	16.22	19.89	16.36	16.09
7.0	-6.5	16.62	16.41	16.10	17.54	16.19	16.01	16.34	20.25	16.61	16.48
8.0	-7.5	16.58	17.50	17.50	19.11	18.06	18.01	18.26	22.11	18.65	18.93
9.0	-8.5	16.62	16.80	16.77	18.34	17.18	17.27	17.38	21.07	17.68	17.90
10.0	-9.5	16.58	16.89	16.95	18.69	17.27	17.31	17.63	21.32	17.88	18.19

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)	9-Dec-81	2-Jun-94	15-Sep-94	21-Sep-95	10-Nov-97	13-Nov-98	3-Dec-99	13-Jul-01	29-Aug-01	29-Sep-02
1.0	-0.5	-0.50	-0.38	4.99	2.39	-0.27	-0.24	-0.59	-3.04	3.85	1.79
2.0	-1.5	-0.20	-0.56	4.86	2.05	0.01	0.42	-0.39	-3.23	2.63	1.75
3.0	-2.5	-0.30	-0.29	4.35	1.63	0.60	1.08	0.12	-2.96	1.35	1.82
4.0	-3.5	-0.50	-0.38	3.16	0.87	0.62	1.08	0.11	-3.28	1.01	1.33
5.0	-4.5	-0.50	-0.33	2.04	-0.47	0.52	0.86	-0.07	-3.71	0.05	0.43
6.0	-5.5	-0.60	-0.41	0.92	-1.12	0.26	0.57	-0.09	-3.94	-0.16	0.16
7.0	-6.5	-0.50	-0.25	0.12	-1.55	0.01	0.23	-0.17	-4.28	-0.46	-0.31
8.0	-7.5	-0.50	-1.55	-1.55	-3.25	-2.16	-2.10	-2.37	-5.95	-2.71	-2.99
9.0	-8.5	-0.50	-0.71	-0.68	-2.41	-1.15	-1.25	-1.37	-5.04	-1.68	-1.91
10.0	-9.5	-0.50	-0.86	-0.93	-2.82	-1.29	-1.34	-1.69	-5.26	-1.89	-2.23

The 8 metre depth tip is suspect

DIVERSION CANAL BACKSLOPE
Geothermal Monitoring
BS-10



DIVERSION CANAL
SPOIL PILES

THERMISTORS

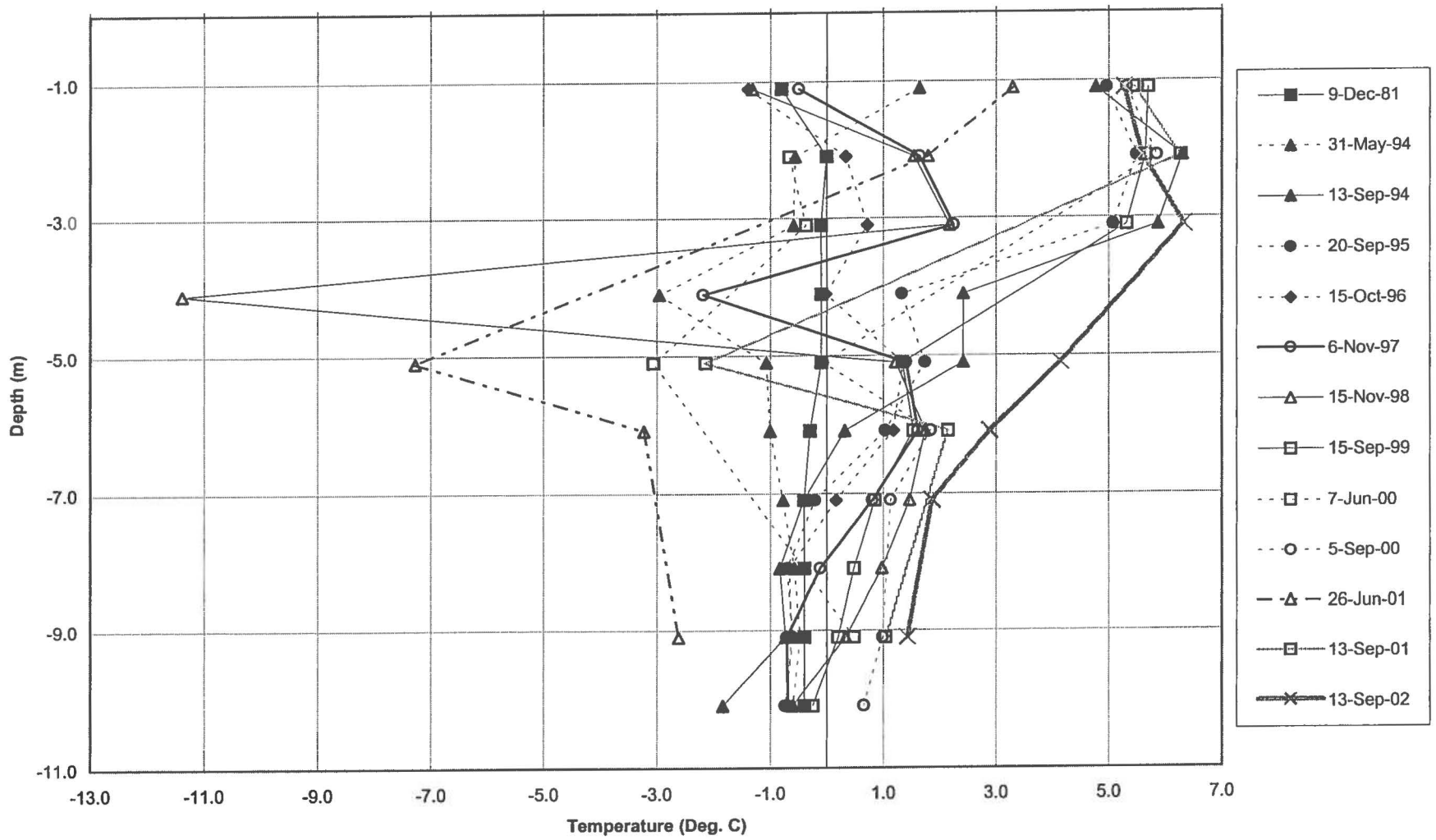
Faro Mine Instrumentation
Diversion Canal Spoil Pile

SP-3		Location:	N. of canal dyke St.1+900		Surface Elevation: (m advpd)	1083.5	Coordinates:	1394.4 mN & 704.5 mE						
Thermistor String#25		Date Installed:	1981		Thermistor Type:	Cantec 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)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	9-Dec-81	31-May-94	13-Sep-94	20-Sep-95	15-Oct-96	6-Nov-97	15-Nov-98	15-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02
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
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
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
4.0	-4.1	16.27	18.85	14.32	15.13	16.19	18.09	29.54	nr	nr					
5.0	-5.1	16.27	17.10	14.32	14.82	15.10	15.06	15.20	15.11	18.93	16.23	23.65	18.05		13.12
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
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
8.0	-8.1	16.54	16.69	16.91	16.80	16.73	16.27	15.39	15.78			18.79	18.79		
9.0	-9.1	16.54	16.60	16.82	16.71	16.70	16.77	15.90	16.01	15.78	15.38	18.50	15.34		15.04
10.0	-10.1	16.48	16.65	17.74	16.77	16.77	16.75	16.68	16.38		15.64				

* 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)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	9-Dec-81	31-May-94	13-Sep-94	20-Sep-95	15-Oct-96	6-Nov-97	15-Nov-98	15-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	13-Sep-01	13-Jun-02	13-Sep-02
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
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
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
4.0	-4.1	-0.10	-2.95	2.42	1.33	-0.02	-2.18	-11.38							
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
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
7.0	-7.1	-0.40	-0.77	-0.41	-0.21	0.16	0.81	1.47	0.85		1.13				1.87
8.0	-8.1	-0.40	-0.57	-0.83	-0.70	-0.66	-0.12	0.98	0.48						
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
10.0	-10.1	-0.40	-0.60	-1.83	-0.74	-0.71	-0.68	-0.60	-0.25		0.66				

DIVERSION CANAL SPOIL PILE
Geothermal Monitoring
SP-3



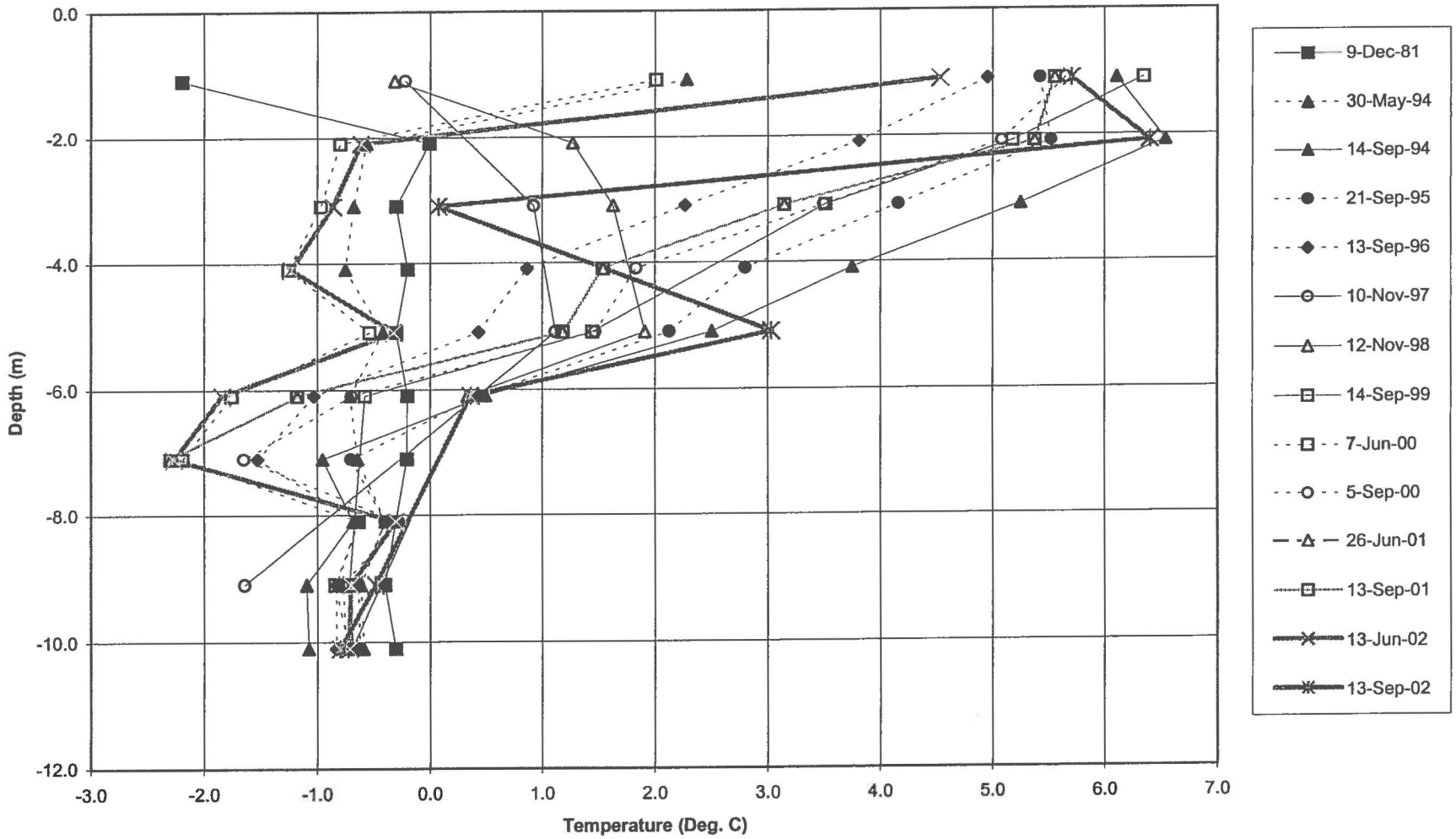
Faro Mine Instrumentation
Diversion Canal Spoil Pile

SP-5		Location:	N. of canal dyke St.2+950		Surface Elevation: (m advpd)	1079.2	Coordinates:	1898.2 mN & 183.1 mW							
Thermistor String #24		Date Installed:	1981		Thermistor Type:	Cantec 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)	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
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
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
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
4.0	-4.1	16.32	16.79	13.37	14.02	15.46				17.23	14.72	17.23	14.94	17.21	
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
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
7.0	-7.1	16.36	16.73	17.00	16.78	17.51				18.12	17.62	18.16	18.22	18.19	
8.0	-8.1	16.40	16.48	16.72	16.48	16.68				16.68	16.38	16.50		16.40	
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
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

* 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)
(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
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
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
3.0	-3.1	-0.30	-0.68	5.25	4.16	2.27	0.93	1.63	3.51	-0.97	3.50	-0.87	3.15	-0.86	0.08
4.0	-4.1	-0.20	-0.75	3.75	2.80	0.87				-1.25	1.84	-1.25	1.54	-1.23	
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
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
7.0	-7.1	-0.20	-0.64	-0.95	-0.70	-1.53				-2.19	-1.65	-2.23	-2.30	-2.27	
8.0	-8.1	-0.30	-0.40	-0.68	-0.40	-0.63				-0.63	-0.28	-0.42		-0.30	
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
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

DIVERSION CANAL SPOIL PILE
Geothermal Monitoring
SP-5

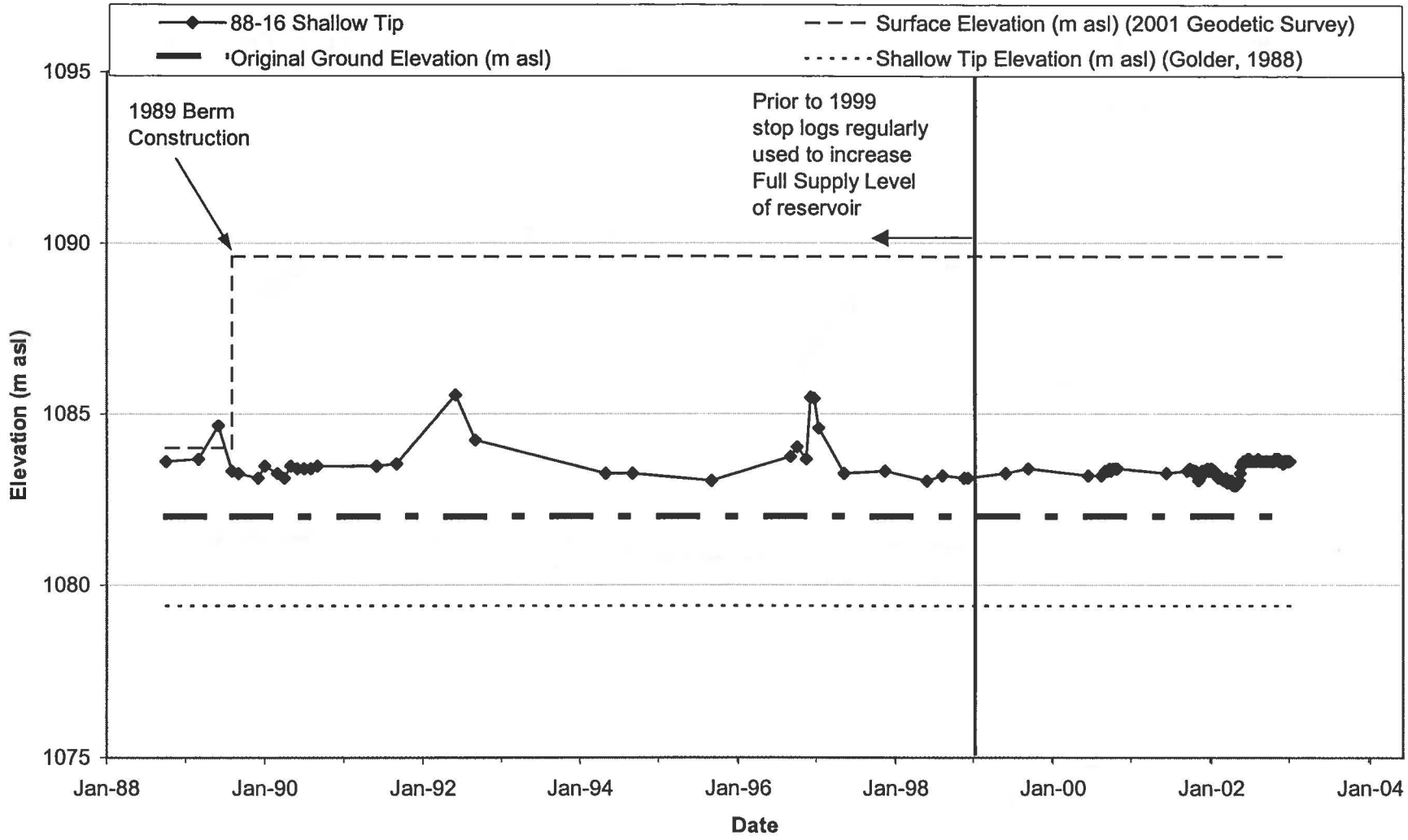


PIEZOMETERS

BH88-16		Location:	Fresh Water Supply Dam			Ground Elev. Before 1989 Berm Construction (m asl) (as per Golder, 1989)	1084.00	Coordinates:		UTM NAD 83 Northing: 6911316.7 Easting: 585587.2
			Toe Berm			Ground Elev. After 1989 Berm Construction (m asl) (as per 2001 survey)	1089.51			
						Shallow Tip Elevation (m asl)	1079.40	Surface		
		Date Installed:	1988			Deep Tip Elevation (m asl)	1074.60	Protector:	yes	
Date		Reading (psi)					Piezometric Elevation (m)		Pond Elev.	Pond
		Shallow #11343	Deep #11341				Shallow	Deep		Level
Oct-88		6.00	16.90				1083.6	1086.63		
Mar-89		6.10	16.30				1083.67	1086.21		
Jun-89		7.50	17.00				1084.65	1086.7		
Aug-89		5.60	16.60				1083.32	1086.42		
Sep-89		5.50	16.30				1083.25	1086.21		
Dec-89		5.30	16.60				1083.11	1086.42		
Jan-90		5.80	17.00				1083.46	1086.7		
Mar-90		5.50	15.60				1083.25	1085.72		
Apr-90		5.30	15.70				1083.11	1085.79		
May-90		5.80	17.10				1083.46	1086.77		
Jun-90		5.70	17.10				1083.39	1086.77		
Jul-90		5.70	16.90				1083.39	1086.63		
Aug-90		5.70	17.20				1083.39	1086.84		
Sep-90		5.80	17.30				1083.46	1086.91		
Dec-90										
Mar-91										
Jun-91		5.80	17.20				1083.46	1086.84		
Sep-91		5.90	17.60				1083.53	1087.12		
Jan-92										
Apr-92		buried	buried							
Jun-92		8.80	20.80				1085.56	1089.36		
Sep-92		6.90	20.20				1084.23	1088.94		
May-94		5.50	16.00				1083.25	1086		
Sep-94		5.50	17.00				1083.25	1086.7		
Sep-95		5.20	17.00				1083.04	1086.7		
1-Sep-96		6.2					1083.74			6 stop logs
1-Oct-96		6.6	18.5				1084.02	1087.75		
12-Nov-96		6.10					1083.67			
3-Dec-96		6.70					1085.49			6 logs & overflow
20-Dec-96		6.65					1085.455			
10-Jan-97		7.40					1084.58			
May-97		5.5					1083.25			pond v.v.low
Nov-97		5.6					1083.32			3 logs; no overflow
27-May-98		5.19					1083.03			pond mod. low<<sill
7-Aug-98		5.4	16.9				1083.18	1086.63		~0.2m>sill
16-Nov-98		5.30					1083.11			~.005m>sill
4-Dec-98		5.3	17.2				1083.11	1086.84		~.005m<sill
28-May-99		5.50	17.30				1083.25	1086.91		pond overflow
11-Sep-99		5.70	17.20				1083.39	1086.84		pond overflow
14-Jun-00		5.40	17.40				1083.18	1086.98		pond overflow
14-Aug-00		5.40	17.40				1083.18	1086.98		pond overflow
24-Aug-00		5.50	17.40				1083.25	1086.98		pond overflow
31-Aug-00		5.60	17.40				1083.32	1086.98		pond overflow
7-Sep-00		5.60	17.50				1083.32	1087.05		pond overflow
14-Sep-00		5.60	17.40				1083.32	1086.98		pond overflow
21-Sep-00		5.70	17.50				1083.39	1087.05		pond overflow
28-Sep-00		5.60	17.50				1083.32	1087.05		pond overflow
6-Oct-00		5.70	17.50				1083.39	1087.05		pond overflow
12-Oct-00		5.70	17.50				1083.39	1087.05		pond overflow
20-Oct-00		5.70	17.40				1083.39	1086.98		pond overflow
27-Oct-00		5.70	17.30				1083.39	1086.91		pond overflow
10-Jun-01		5.50	17.60				1083.25	1087.12		
14-Sep-01		5.6	17.40				1083.32	1086.98	1096	
25-Sep-01		5.7	17.5				1083.39	1087.05	1096	
2-Oct-01		5.62	17.41				1083.334	1086.987	1096	
9-Oct-01		5.62	17.41				1083.334	1086.987	1096	
16-Oct-01		5.61	17.4				1083.327	1086.98	1096	
22-Oct-01		5.6	17.2				1083.32	1086.84	1096	
29-Oct-01		5.4	17.1				1083.18	1086.77	1096	
5-Nov-01		5.2	17.1				1083.04	1086.77	1096	
6-Nov-01		5.2	17.1				1083.04	1086.77	1096	
12-Nov-01		5.3	17				1083.11	1086.7	1096	Pond 7 cm above spillway
19-Nov-01		5.6	17				1083.32	1086.7	1094.8	Pond approx. 1.2 m below spillway
21-Nov-01		5.6	16.8				1083.32	1086.56	1094.5	Pond approx. 1.5 m below spillway
23-Nov-01		5.6	16.8				1083.32	1086.56	1094.2	Pond approx. 1.8 m below spillway
26-Nov-01		5.6	16.4				1083.32	1086.28	1093.9	Pond approx. 2.1 m below spillway
28-Nov-01									1093.6	piezo tank low on pressure
30-Nov-01		5.61	16.2				1083.327	1086.14	1093.5	Pond Approx. 2.5 m below spillway
3-Dec-01		5.6	16.2				1083.32	1086.14	1093.5	Pond Approx. 2.5 m below spillway
5-Dec-01		5.6	16.1				1083.32	1086.07	1093.5	Pond Approx. 2.5 m below spillway
7-Dec-01		5.6	16.1				1083.32	1086.07	1093.5	Pond Approx. 2.5 m below spillway
10-Dec-01		5.6	16.1				1083.32	1086.07	1093.5	Pond Approx. 2.5 m below spillway
12-Dec-01		5.6	16.2				1083.32	1086.14	1093.5	Pond Approx. 2.5 m below spillway
14-Dec-01		5.7	16.2				1083.39	1086.14	1093.5	Pond Approx. 2.5 m below spillway
17-Dec-01		5.7	16				1083.39	1086	1093.5	Pond Approx. 2.5 m below spillway
19-Dec-01		5.6	16.1				1083.32	1086.07	1093.5	Pond Approx. 2.5 m below spillway
21-Dec-01		5.6	16.1				1083.32	1086.07	1093.5	Pond Approx. 2.5 m below spillway
24-Dec-01		5.6	16.1				1083.32	1086.07	1093.5	Pond Approx. 2.5 m below spillway
26-Dec-01		5.6	16				1083.32	1086	1093.3	Pond Approx. 2.7 m below spillway
28-Dec-01		5.6	16				1083.32	1086	1093.1	Pond Approx. 3.0 m below spillway
31-Dec-01		5.65	15.9				1083.355	1085.93		Pond Approx. 3.2 m below spillway

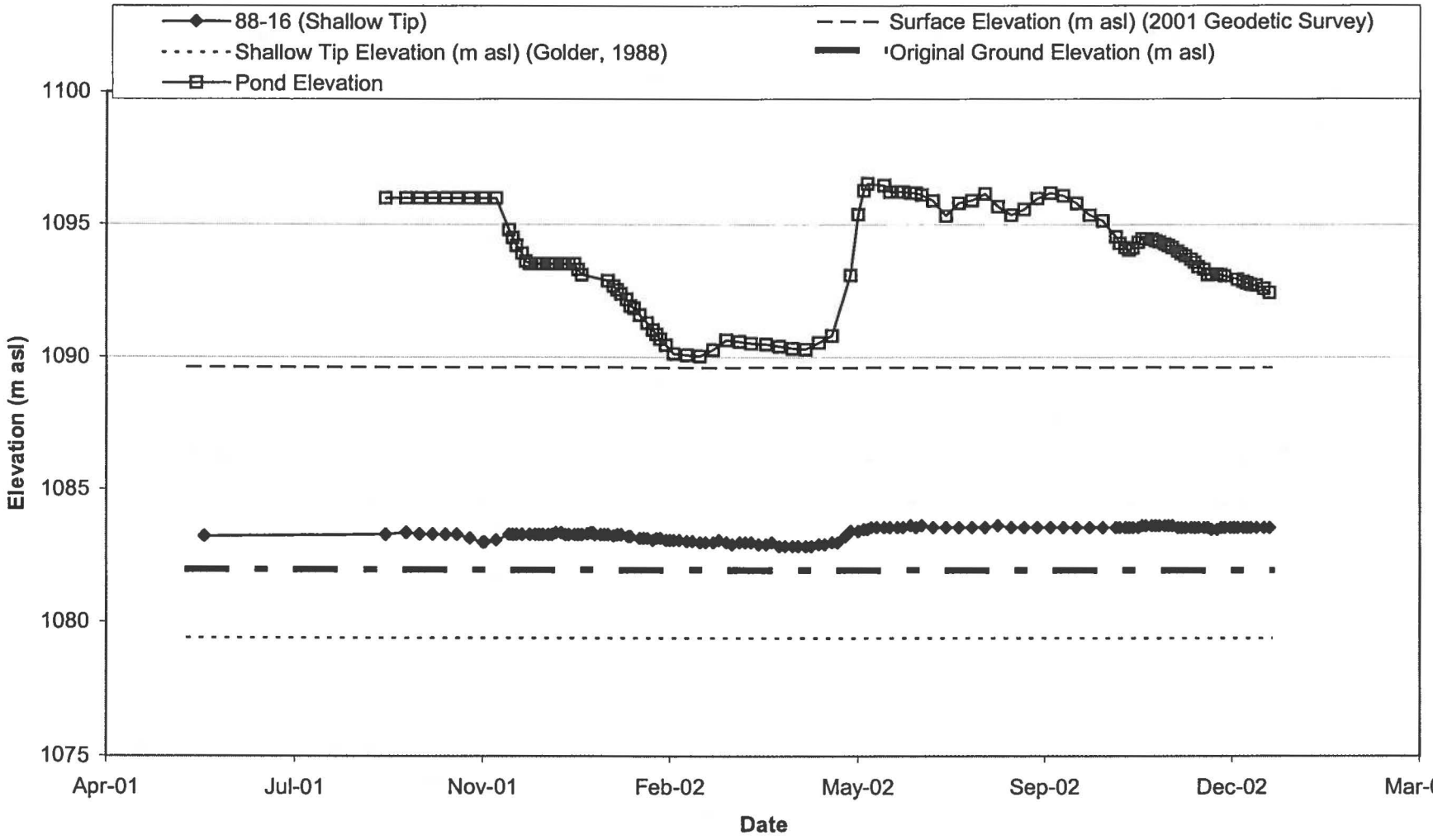
2-Jan-02		5.7	16				1083.39	1086		Pond Approx. 3.3 m below spillway
3-Jan-02		5.7	15.9				1083.39	1085.93		Pond Approx. 3.4 m below spillway
4-Jan-02		5.6	15.8				1083.32	1085.86		
7-Jan-02		5.6	15.8				1083.32	1085.86		
9-Jan-02		5.6	15.6				1083.32	1085.72		
11-Jan-02		5.6	15.5				1083.32	1085.65	1092.867	
14-Jan-02		5.55	15.5				1083.285	1085.65	1092.670	
16-Jan-02		5.6	15.4				1083.32	1085.58	1092.532	
18-Jan-02		5.6	15.4				1083.32	1085.58	1092.379	
21-Jan-02									1092.178	Read out box unavailable
22-Jan-02		5.5	15.1				1083.25	1085.37		
23-Jan-02		5.5	15.0				1083.25	1085.3	1091.923	
25-Jan-02			14.7					1085.09	1091.850	
28-Jan-02		5.4	14.9				1083.18	1085.23	1091.569	
30-Jan-02		5.4	14.8				1083.18	1085.16		
1-Feb-02		5.4	14.7				1083.18	1085.09	1091.29	
4-Feb-02		5.3	14.5				1083.11	1084.95	1091.035	
6-Feb-02		5.4	14.4				1083.18	1084.88	1090.865	
8-Feb-02		5.4	14.4				1083.18	1084.88	1090.685	
11-Feb-02		5.3	14.2				1083.11	1084.74	1090.457	
13-Feb-02		5.3	14.2				1083.11	1084.74		
15-Feb-02		5.3	14.0				1083.11	1084.6	1090.124	
18-Feb-02		5.3	13.9				1083.11	1084.53		
22-Feb-02		5.25	13.8				1083.075	1084.46	1090.075	
25-Feb-02		5.25	13.9				1083.075	1084.53		
1-Mar-02		5.2	13.8				1083.04	1084.46	1090.035	
4-Mar-02		5.2	13.8				1083.04	1084.46		
8-Mar-02		5.2	13.8				1083.04	1084.46	1090.274	
11-Mar-02		5.3	13.9				1083.11	1084.53		
15-Mar-02		5.2	13.8				1083.04	1084.46	1090.645	
18-Mar-02		5.1	13.6				1082.97	1084.32		
22-Mar-02		5.2	13.8				1083.04	1084.46	1090.585	
25-Mar-02		5.2	13.8				1083.04	1084.46		
28-Mar-02		5.2	13.8				1083.04	1084.46	1090.510	
1-Apr-02		5.1	13.7				1082.97	1084.39		
5-Apr-02		5.1	13.7				1082.97	1084.39	1090.485	
8-Apr-02		5.2	13.8				1083.04	1084.46		
12-Apr-02		5	13.7				1082.9	1084.39	1090.408	
15-Apr-02		5	13.7				1082.9	1084.39		
19-Apr-02		5	13.7				1082.9	1084.39	1090.325	
22-Apr-02		5	13.6				1082.9	1084.32		
26-Apr-02		5	13.6				1082.9	1084.32	1090.295	
29-Apr-02		5	13.6				1082.9	1084.32		
3-May-02		5.1	13.6				1082.97	1084.46	1090.548	
6-May-02		5.1	13.6				1082.97	1084.46		
10-May-02		5.2	13.9				1083.04	1084.53	1090.815	
13-May-02		5.2	14				1083.04	1084.6		
17-May-02		5.5	14.7				1083.25	1085.09		
20-May-02		5.8	15.7				1083.46	1085.79	1093.080	
24-May-02		5.8	17.1				1083.46	1086.77	1095.395	
27-May-02		5.9	17.7				1083.53	1087.19	1096.3	
29-May-02		5.9	17.7				1083.53	1087.19	1096.554	
31-May-02		6.0	17.7				1083.6	1087.19		
3-Jun-02		6.0	17.7				1083.6	1087.19		
7-Jun-02		6.0	17.7				1083.6	1087.19	1096.479	
10-Jun-02		6.0	17.7				1083.6	1087.19	1096.25	estimated based on visual observations
14-Jun-02		6.0	17.6				1083.6	1087.12	1096.25	estimated based on visual observations
17-Jun-02		6.0	17.7				1083.6	1087.19	1096.25	estimated based on visual observations
21-Jun-02		6.1	17.6				1083.67	1087.12	1096.21	surveyed
24-Jun-02		6.0	17.6				1083.6	1087.12	1096.2	
27-Jun-02		6.1	17.6				1083.67	1087.12	1096.124	surveyed
3-Jul-02		6.0	17.5				1083.6	1087.05	1095.905	surveyed
10-Jul-02		6.0	17.5				1083.6	1087.05	1095.335	surveyed
17-Jul-02		6.0	17.3				1083.6	1086.91	1095.820	surveyed
24-Jul-02		6.0	17.3				1083.6	1086.91	1095.920	surveyed
31-Jul-02		6.0	17.3				1083.6	1086.91	1096.171	surveyed
7-Aug-02		6.1	17.3				1083.67	1086.91	1095.69	surveyed
14-Aug-02		6.0	17.1				1083.6	1086.77	1095.365	surveyed
21-Aug-02		6.0	17.1				1083.6	1086.77	1095.576	surveyed
28-Aug-02		6.0	17.5				1083.6	1087.05	1095.99	surveyed
4-Sep-02		6.0	17.7				1083.6	1087.19	1096.2	estimated based on visual observations
11-Sep-02		6.0	17.6				1083.6	1087.12	1096.1	estimated based on visual observations
18-Sep-02		6.0	17.5				1083.6	1087.05	1095.81	surveyed
25-Sep-02		6.0	17.3				1083.6	1086.91	1095.365	Surveyed
2-Oct-02		6.0	17.1				1083.6	1086.77	1095.141	surveyed
9-Oct-02		6.0	16.8				1083.6	1086.56	1094.535	surveyed
11-Oct-02		6.0	16.6				1083.6	1086.42	1094.29	surveyed
14-Oct-02		6.0	16.5				1083.6	1086.35	1094.132	surveyed
16-Oct-02		6.0	16.4				1083.6	1086.28	1094.035	surveyed
18-Oct-02		6.0	16.5				1083.6	1086.35	1094.115	surveyed
21-Oct-02		6.0	16.6				1083.6	1086.56	1094.330	surveyed
23-Oct-02		6.1	16.6				1083.67	1086.56	1094.46	surveyed
25-Oct-02		6.1	16.6				1083.67	1086.56	1094.46	surveyed
28-Oct-02		6.1	16.6				1083.67	1086.56	1094.45	surveyed
30-Oct-02		6.1	16.7				1083.67	1086.49	1094.392	surveyed
1-Nov-02		6.1	16.7				1083.67	1086.49	1094.335	surveyed
4-Nov-02		6.1	16.7				1083.67	1086.49	1094.256	surveyed
6-Nov-02		6.1	16.7				1083.67	1086.49	1094.195	surveyed
8-Nov-02		6.1	16.6				1083.67	1086.42	1094.12	surveyed
11-Nov-02		6	16.5				1083.6	1086.35	1093.99	surveyed
13-Nov-02		6	16.5				1083.6	1086.35	1093.89	surveyed
15-Nov-02		6	16.4				1083.6	1086.28	1093.81	surveyed
18-Nov-02		6	16.4				1083.6	1086.28	1093.68	surveyed
20-Nov-02		6	16.3				1083.6	1086.21	1093.58	surveyed
22-Nov-02		6	16.2				1083.6	1086.14	1093.395	surveyed
25-Nov-02		6	16.1				1083.6	1086.07	1093.297	surveyed
27-Nov-02		6	16.1				1083.6	1086.07	1093.088	surveyed
29-Nov-02		5.9	16				1083.53	1086	1093.112	surveyed
2-Dec-02		5.9	16				1083.53	1086	1093.12	surveyed
4-Dec-02		6	16				1083.6	1086	1093.096	surveyed
6-Dec-02		6	16				1083.6	1086	1093.045	surveyed
9-Dec-02		6	16				1083.6	1086		no survey equipment
11-Dec-02		6	16				1083.6	1086		no survey equipment
13-Dec-02		6	15.9				1083.6	1085.93	1092.915	surveyed
16-Dec-02		6	15.9				1083.6	1085.93	1092.83	surveyed
18-Dec-02		6	15.8				1083.6	1085.86	1092.78	surveyed
20-Dec-02		6	15.8				1083.6	1085.86	1092.72	surveyed
23-Dec-02		6	15.8				1083.6	1085.86	1092.69	surveyed
27-Dec-02		6	15.7				1083.6	1085.79	1092.57	surveyed
30-Dec-02		6	15.8				1083.6	1085.86	1092.42	surveyed

FRESH WATER SUPPLY DAM
Piezometric Monitoring
88-16 Shallow Tip (Toe Berm)



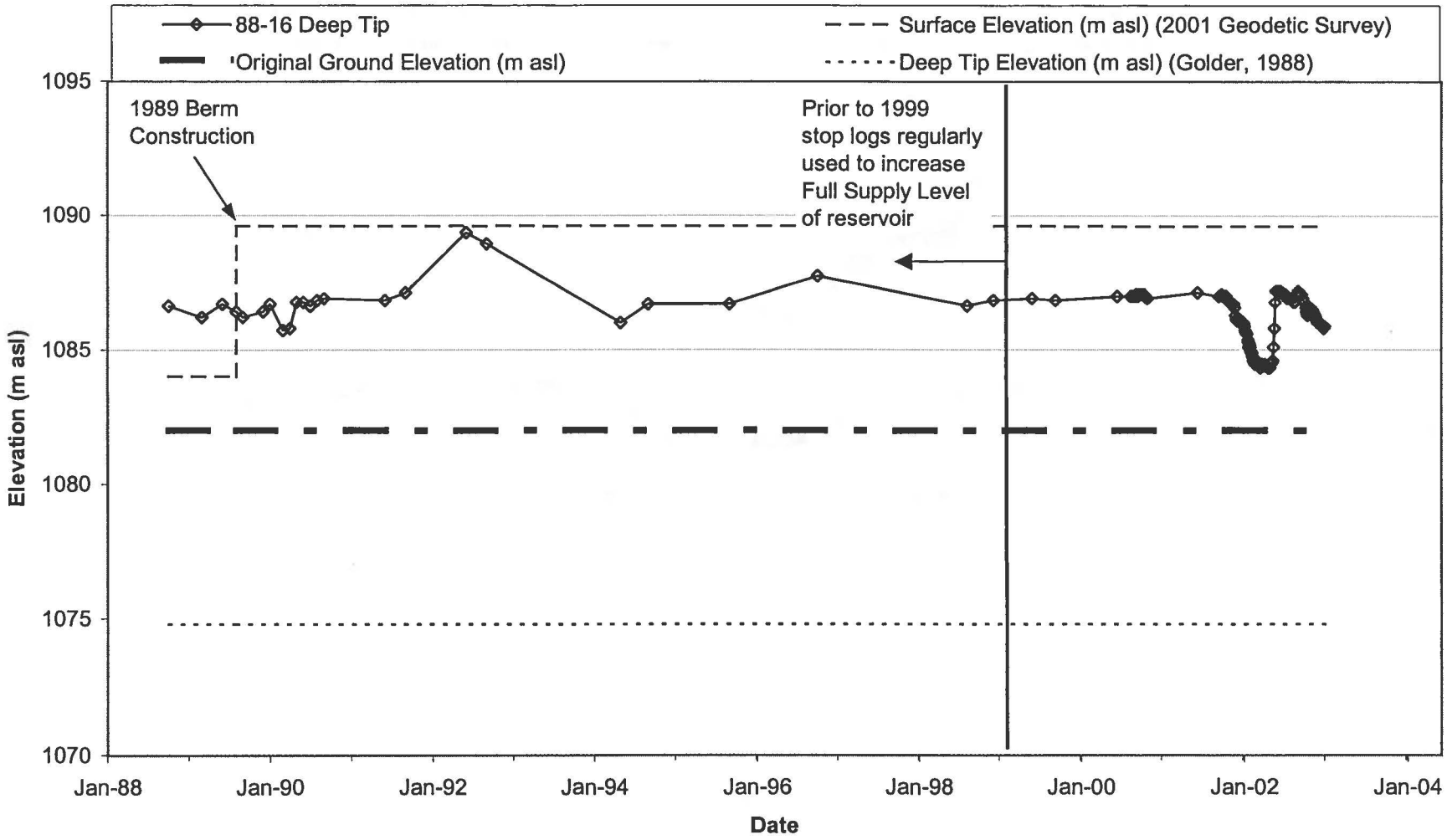
Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
BH88-16 Shallow Tip (Toe Berm)



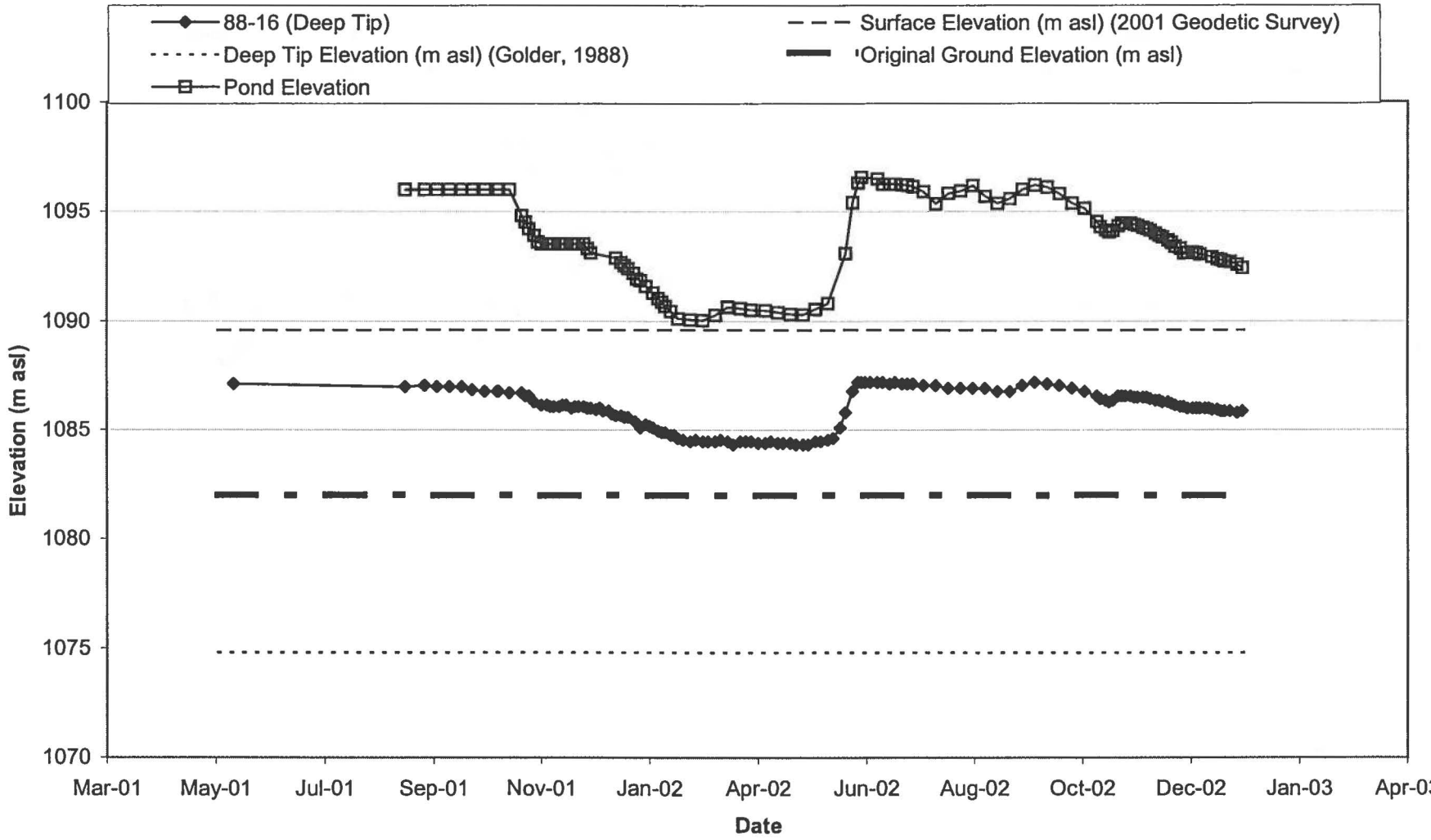
Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
Piezometric Monitoring
88-16 Deep Tip (Toe Berm)



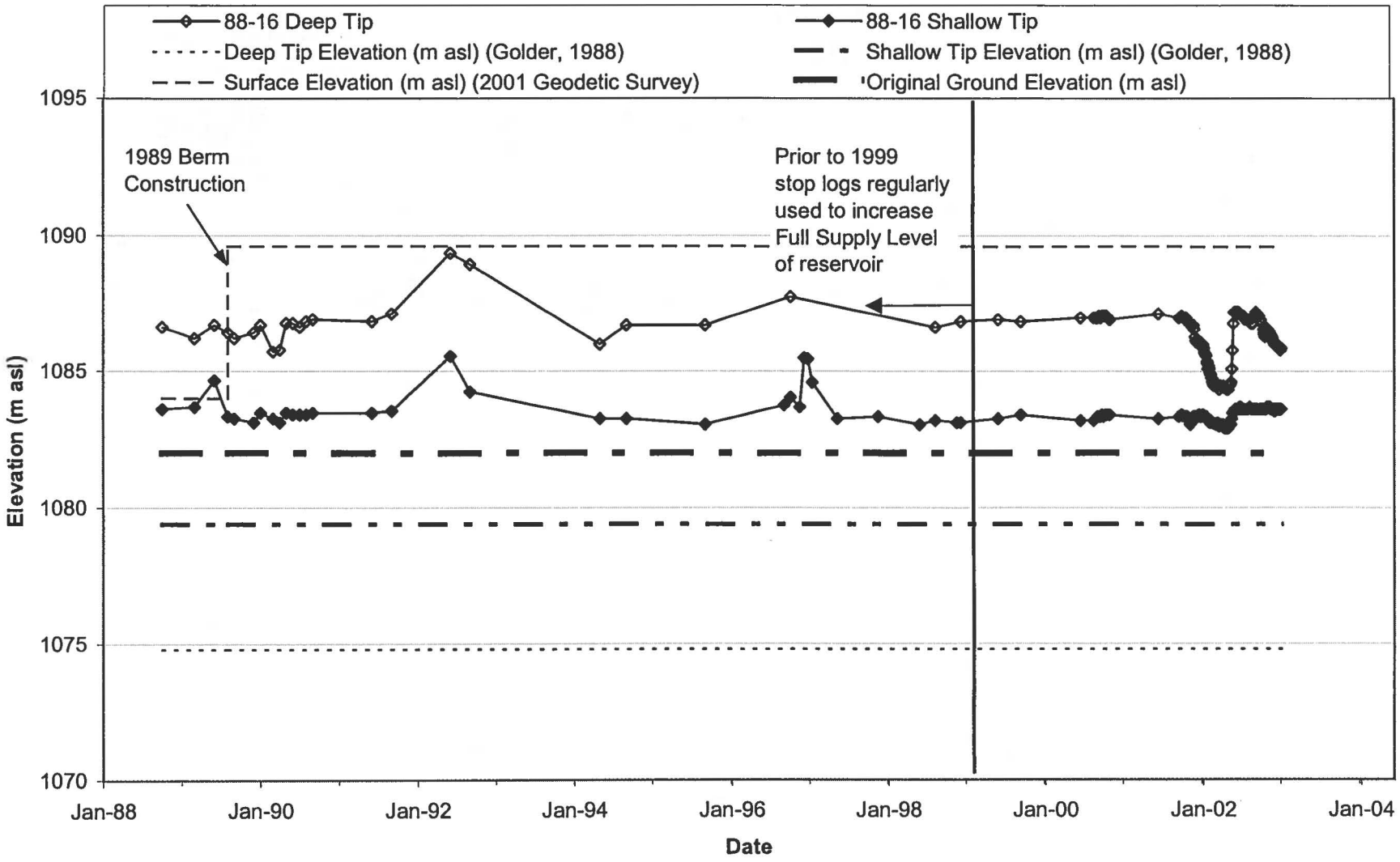
Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
BH88-16 Deep Tip (Toe Berm)



Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
Piezometric Monitoring
88-16 Both Tips (Toe Berm)

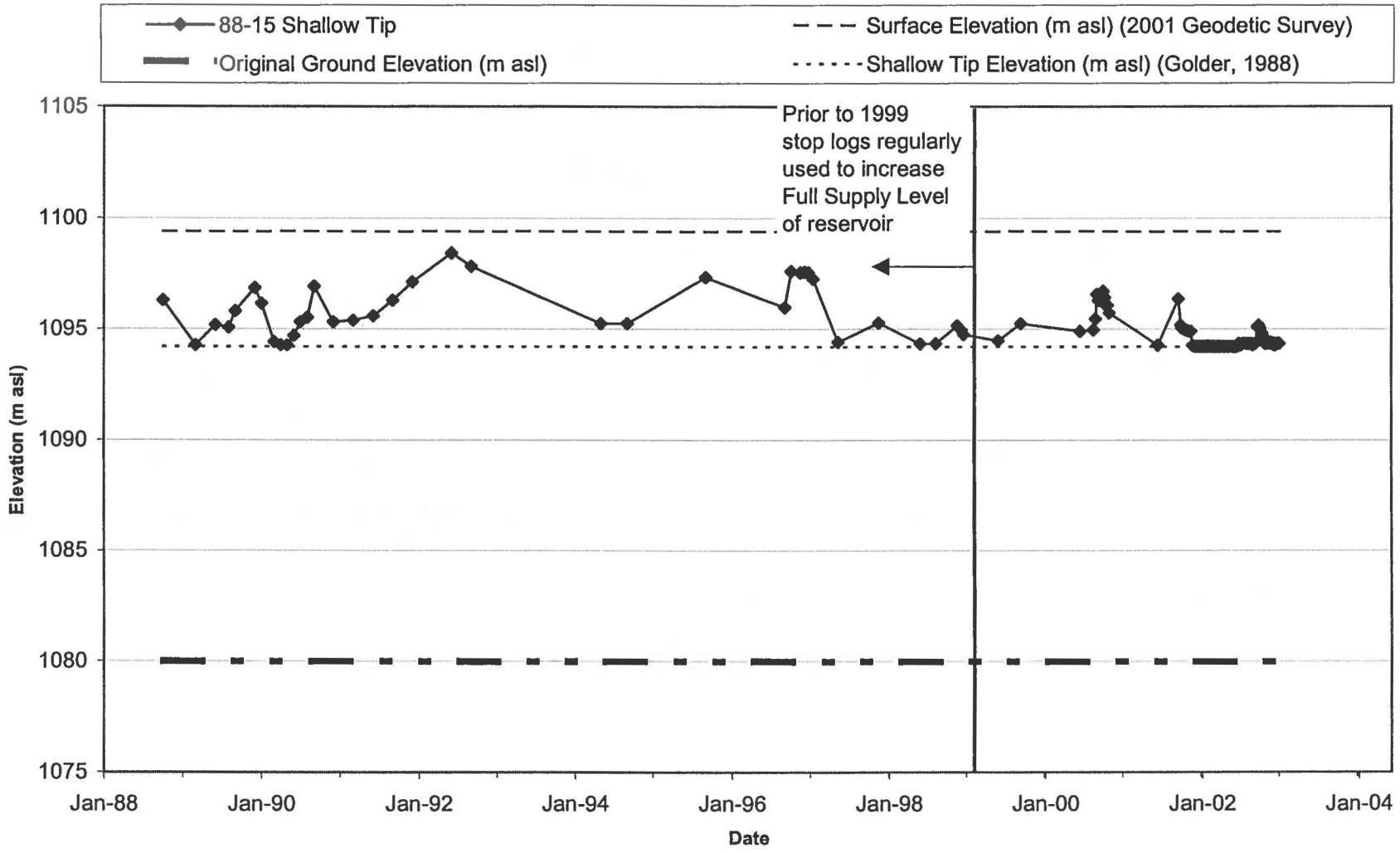


Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

BH88-15		Location:	Fresh Water Supply Dam			Ground Elev. (as per 2001 geodetic survey) (m asl)	1099.42	Coordinates:		UTM NAD 83 Northing: 6911281.4 Easting: 585592.1
			Dam Crest							
						Shallow Tip Elevation (m asl)	1094.20	Surface		
		Date Installed:	1988			Intermediate Elevation (m asl)	1087.00	Protector:	yes	
						Deep Tip Elevation (m asl)	1079.30			
Date	Reading (psi)					Piezometric Elevation (m asl)				
	Shallow #11340	Int #11339	Deep #11334			Shallow	Intermediate	Deep	Pond Elev.	Comments
Sep-85										
Oct-88	3.00	3.50	17.80			1096.3	1089.45	1091.76		
Mar-89	0.10	2.30	16.00			1094.27	1088.61	1090.5		
Jun-89	1.40	2.00	16.40			1095.18	1088.40	1090.78		
Aug-89	1.25	2.00	17.00			1095.08	1088.40	1091.2		
Sep-89	2.30	2.00	17.20			1095.81	1088.40	1091.34		
Dec-89	3.80	2.50	18.40			1096.86	1088.75	1092.18		
Jan-90	2.60	3.00	16.00			1096.16	1089.10	1091.9		
Mar-90	0.30	2.10	16.00			1094.41	1088.47	1090.5		
Apr-90	0.10	1.40	14.80			1094.27	1087.96	1089.66		
May-90	0.10	0.90	17.40			1094.27	1087.63	1091.48		
Jun-90	0.70	1.20	17.60			1094.89	1087.84	1091.62		
Jul-90	1.60	1.20	17.50			1095.32	1087.84	1091.55		
Aug-90	1.90	1.30	17.80			1095.53	1087.91	1091.76		
Sep-90	3.90	1.90	18.70			1096.93	1088.33	1092.39		
Dec-90	1.80	1.40	11.65			1095.32	1087.98	1087.455		
Mar-91	1.70	1.95	16.90			1095.39	1088.37	1091.13		
Jun-91	2.00	1.40	17.60			1095.60	1087.98	1091.62		
Sep-91	3.00	1.65	17.80			1096.30	1088.16	1091.76		
Dec-91	4.20	2.70	18.50			1097.14	1088.89	1092.25		
Jun-92	6.05	5.20	21.15			1098.44	1090.64	1094.105		
Sep-92	5.20	3.30	20.80			1097.84	1089.31	1093.86		
May-94	1.50	1.00	16.00			1095.25	1087.70	1090.5		
Sep-94	1.50	0.50	17.50			1095.25	1087.35	1091.55		
Sep-95	4.50	0.00	18.00			1097.35	1087.00	1091.9		
1-Sep-96	2.55	1.30				1095.985	1087.91			6 stop logs
1-Oct-96	4.9	3.10	20.6			1097.63	1089.17	1093.72		
12-Nov-96	4.80	1.95				1097.56	1088.37			
3-Dec-96	4.85	3.80				1097.595	1089.52			8 logs & overflow
20-Dec-96	4.80	3.45				1097.56	1089.42			
10-Jan-97	4.40	4.80				1097.28	1090.36			
May-97	0.3	0.10				1094.41	1087.07			pond v.v.low
Nov-97	1.55	0.80				1095.285	1087.42			3 logs; no overflow
27-May-98	0.19	0.24				1094.333	1087.17			pond mod. low<<sill
7-Aug-98	0.2	0.40	16.3			1094.34	1087.28	1090.71		~0.2m>sill
16-Nov-98	1.37	0.60				1095.159	1087.42			~.005m>sill
4-Dec-98	1.1	0.5	17.1			1094.97	1087.35	1091.27		~.005m<sill
16-Dec-98	0.8	0.4	16.7			1094.76	1087.28	1090.99		ice covered <sill
28-May-99	0.40	0.50	16.41			1094.48	1087.35	1090.787		pond overflow
11-Sep-99	1.50	1.20	16.80			1095.25	1087.84	1091.06		pond overflow
14-Jun-00	1.00	0.50	17.00			1094.9	1087.35	1091.2		pond overflow
14-Aug-00	1.10	0.80	16.80			1094.97	1087.56	1091.06		pond overflow
24-Aug-00	1.80	0.70	16.80			1095.46	1087.49	1091.06		pond overflow
31-Aug-00	3.40	0.80	17.00			1096.58	1087.56	1091.2		pond overflow
7-Sep-00	3.00	0.90	17.10			1096.3	1087.63	1091.27		pond overflow
14-Sep-00	3.10	0.90	17.20			1096.37	1087.63	1091.34		pond overflow
21-Sep-00	3.10	0.70	17.00			1096.37	1087.49	1091.2		pond overflow
28-Sep-00	3.60	0.80	17.20			1096.72	1087.56	1091.34		pond overflow
6-Oct-00	3.20	0.80	17.30			1096.44	1087.56	1091.41		pond overflow
12-Oct-00	2.70	0.70	17.20			1096.09	1087.49	1091.34		pond overflow
20-Oct-00	2.70	0.80	17.20			1096.09	1087.56	1091.34		pond overflow
27-Oct-00	2.20	0.90	17.00			1095.74	1087.63	1091.2		pond overflow
10-Jun-01	0.1	0.50	17			1094.27	1087.35	1091.2		pond overflow
14-Sep-01	3.1	0.90	17.2			1096.37	1087.63	1091.34	1096	pond overflow
25-Sep-01	1.4	0.08	17.31			1095.18	1087.056	1091.417	1096	
2-Oct-01	1.2	0.08	17.13			1095.04	1087.056	1091.291	1096	
9-Oct-01	1.21	0.08	17.2			1095.047	1087.056	1091.34	1096	
16-Oct-01	1.1	0.07	17.1			1094.97	1087.049	1091.27	1096	
22-Oct-01	1.1	0.07	17.21			1094.97	1087.049	1091.347	1096	
29-Oct-01	1	0.07	17.1			1094.9	1087.049	1091.27	1096	
5-Nov-01	1	0.08	17.1			1094.9	1087.056	1091.27	1096	lowering of pond began
8-Nov-01	1	0.8	17.1			1094.9	1087.56	1091.27	1096	
12-Nov-01	1	0.09	17.2			1094.9	1087.063	1091.34	1096	Pond 7 cm above spillway
19-Nov-01	0.09	0.081	17			1094.263	1087.0567	1091.2	1094.8	Pond approx. 1.2 m below spillway
21-Nov-01	0.08	0.07	16.6			1094.256	1087.049	1090.92	1094.5	Pond approx. 1.5 m below spillway
23-Nov-01	0.06	0.08	16.4			1094.242	1087.056	1090.78	1094.2	Pond approx. 1.8 m below spillway
26-Nov-01	0.05	0.08	15.85			1094.235	1087.056	1090.395	1093.9	Pond approx. 2.1 m below spillway
28-Nov-01									1093.6	not read piez tank too low
30-Nov-01	0.03	0.08	15.7			1094.221	1087.056	1090.29	1093.5	Pond Approx. 2.5 m below spillway
3-Dec-01	0.02	0.06	15.6			1094.214	1087.056	1090.22	1093.5	Pond Approx. 2.5 m below spillway
5-Dec-01	0.02	0.07	15.5			1094.214	1087.049	1090.15	1093.5	Pond Approx. 2.5 m below spillway
7-Dec-01	0.02	0.08	15.5			1094.214	1087.056	1090.15	1093.5	Pond Approx. 2.5 m below spillway
10-Dec-01	0.02	0.08	15.4			1094.214	1087.056	1090.08	1093.5	Pond Approx. 2.5 m below spillway
12-Dec-01	0.03	0.09	15.4			1094.221	1087.063	1090.08	1093.5	Pond Approx. 2.5 m below spillway
14-Dec-01	0.02	0.08	15.3			1094.214	1087.056	1090.01	1093.5	Pond Approx. 2.5 m below spillway
17-Dec-01	0.03	0.08	15.3			1094.221	1087.056	1090.01	1093.5	Pond Approx. 2.5 m below spillway
19-Dec-01	0.03	0.08	15.03			1094.221	1087.056	1089.821	1093.5	Pond Approx. 2.5 m below spillway
21-Dec-01	0.02	0.08	15.2			1094.214	1087.056	1089.94	1093.5	Pond Approx. 2.5 m below spillway
24-Dec-01	0.03	0.08	15.2			1094.221	1087.056	1089.94	1093.5	Pond Approx. 2.5 m below spillway
26-Dec-01	0.02	0.05	15.0			1094.214	1087.035	1089.8	1093.3	Pond Approx. 2.7 m below spillway
28-Dec-01	0.02	0.06	14.9			1094.214	1087.042	1089.73	1093.1	Pond Approx. 3.0 m below spillway
31-Dec-01	0.03	0.06	14.9			1094.221	1087.042	1089.73		

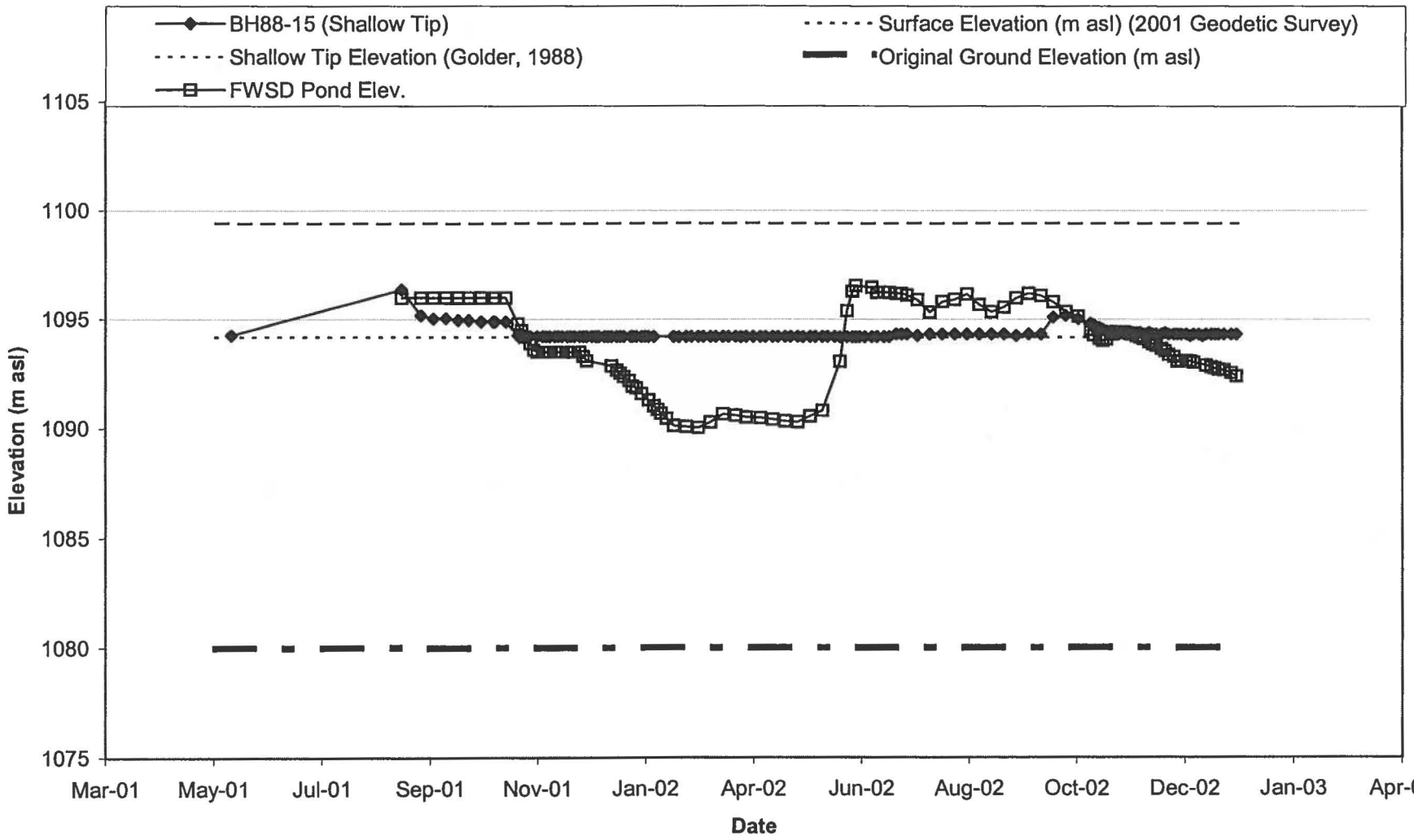
2-Jan-02	0.03	0.06	14.9			1094.221	1087.056	1089.73		
3-Jan-02	0.02	0.06	14.9			1094.214	1087.042	1089.73		
4-Jan-02	0.02	0.07	14.8			1094.214	1087.049	1089.66		
7-Jan-02	0.02	0.07	14.8			1094.214	1087.049	1089.66		
9-Jan-02	0.02	0.07	14.6			1094.214	1087.049	1089.52		
11-Jan-02	0.02	0.06	14.5			1094.214	1087.042	1089.45	1092.867	
14-Jan-02	0.02	0.04	14.3			1094.214	1087.028	1089.31	1092.670	
16-Jan-02	0.02	0.06	14.2			1094.214	1087.042	1089.24	1092.532	
18-Jan-02	0.02	0.04	14.2			1094.214	1087.028	1089.24	1092.379	
21-Jan-02									1092.176	Readout box unavailable
22-Jan-02	0.02	0.06	13.9			1094.214	1087.042	1089.03		
23-Jan-02	0.03	0.06	13.9			1094.221	1087.042	1089.03	1091.923	
25-Jan-02	0.03	0.06	13.8			1094.221	1087.042	1088.96	1091.850	
28-Jan-02	0.03	0.06	13.8			1094.221	1087.042	1088.82	1091.590	
30-Jan-02	0.04	0.06	13.4			1094.228	1087.042	1088.68		
1-Feb-02	0.02	0.06	13.3			1094.214	1087.042	1088.61	1091.290	
4-Feb-02	0.03	0.05	13.1			1094.221	1087.035	1088.47	1091.035	
6-Feb-02			12.9					1088.33	1090.865	
8-Feb-02			12.8					1088.26	1090.685	
11-Feb-02			12.5					1088.05	1090.457	
13-Feb-02			12.4					1087.98		
15-Feb-02	0.02	0.04	12.3			1094.214	1087.028	1087.91	1090.124	
18-Feb-02	0.01	0.04	12.1			1094.207	1087.028	1087.77		
22-Feb-02	0.03	0.03	12			1094.221	1087.021	1087.7	1090.075	
25-Feb-02	0.02	0.04	12.1			1094.214	1087.028	1087.77		
1-Mar-02	0.02	0.03	12			1094.214	1087.021	1087.7	1090.035	
4-Mar-02	0.02	0.03	12			1094.214	1087.021	1087.7		
8-Mar-02	0.02	0.03	12			1094.214	1087.021	1087.7	1090.274	
11-Mar-02	0.02	0.04	12			1094.214	1087.028	1087.7		
15-Mar-02	0.02	0.03	11.9			1094.214	1087.021	1087.63	1090.645	
18-Mar-02	0.02	0.03	12			1094.214	1087.021	1087.7		
22-Mar-02	0.03	0.04	11.9			1094.221	1087.028	1087.63	1090.585	
25-Mar-02	0.01	0.03	11.8			1094.207	1087.021	1087.56		
28-Mar-02	0.02	0.03	11.8			1094.214	1087.021	1087.56	1090.510	
1-Apr-02	0.02	0.04	11.8			1094.214	1087.028	1087.56		
5-Apr-02	0.02	0.04	11.9			1094.214	1087.028	1087.63	1090.485	
8-Apr-02	0.02	0.03	11.8			1094.214	1087.021	1087.56		
12-Apr-02	0.02	0.03	11.8			1094.214	1087.021	1087.56	1090.406	
15-Apr-02	0.02	0.03	11.7			1094.214	1087.021	1087.49		
19-Apr-02	0.02	0.03	11.7			1094.214	1087.021	1087.49	1090.325	
22-Apr-02	0.02	0.03	11.7			1094.214	1087.021	1087.49		
26-Apr-02	0.02	0.02	11.6			1094.214	1087.014	1087.42	1090.295	
29-Apr-02	0.01	0.02	11.6			1094.207	1087.014	1087.42		
3-May-02	0.02	0.02	11.8			1094.214	1087.014	1087.56	1090.548	
6-May-02	0.02	0.02	11.9			1094.214	1087.014	1087.63		
10-May-02	0.02	0.03	11.9			1094.214	1087.021	1087.63	1090.815	
13-May-02	0.02	0.02	12.1			1094.214	1087.014	1087.77		
17-May-02	0.02	0.02	13.2			1094.214	1087.014	1088.54		
20-May-02	0.01	0.04	14.4			1094.207	1087.028	1089.38	1093.08	
24-May-02	0.01	0.02	16.4			1094.207	1087.014	1090.78	1095.395	
27-May-02	0.01	0.02	17.0			1094.207	1087.014	1091.2	1096.3	
29-May-02	0.01	0.03	16.9			1094.207	1087.021	1091.13	1096.554	
31-May-02	0.01	0.02	16.8			1094.207	1087.014	1091.06		
3-Jun-02	0.01	0.02	16.7			1094.207	1087.014	1090.99		
7-Jun-02	0.01	0.02	16.8			1094.207	1087.014	1091.06	1096.479	
10-Jun-02	0.02	0.02	16.8			1094.214	1087.014	1091.06	1096.25	estimated based on visual observations
14-Jun-02	0.02	0.03	16.9			1094.214	1087.021	1091.13	1096.25	estimated based on visual observations
17-Jun-02	0.02	0.03	17.3			1094.214	1087.021	1091.41	1096.25	estimated based on visual observations
21-Jun-02	0.2	0.3	17.0			1094.34	1087.21	1091.2	1096.21	surveyed
24-Jun-02	0.2	0.3	17.1			1094.34	1087.21	1091.27	1096.2	
27-Jun-02	0.2	0.3	17.2			1094.34	1087.21	1091.34	1096.124	surveyed
3-Jul-02	0.1	0.3	16.9			1094.27	1087.21	1091.13	1095.905	surveyed
10-Jul-02	0.2	0.3	16.8			1094.34	1087.21	1091.06	1095.335	surveyed
17-Jul-02	0.2	0.4	16.6			1094.34	1087.28	1090.92	1095.82	surveyed
24-Jul-02	0.2	0.4	16.8			1094.34	1087.28	1091.06	1095.92	surveyed
31-Jul-02	0.2	0.4	17.0			1094.34	1087.28	1091.2	1096.171	surveyed
7-Aug-02	0.2	0.4	16.7			1094.34	1087.28	1090.99	1095.69	surveyed
14-Aug-02	0.2	0.4	16.4			1094.34	1087.28	1090.78	1095.365	surveyed
21-Aug-02	0.2	0.5	16.8			1094.34	1087.35	1091.06	1095.578	surveyed
28-Aug-02	0.1	0.4	17.0			1094.27	1087.28	1091.2	1095.99	surveyed
4-Sep-02	0.2	0.4	17.3			1094.34	1087.28	1091.41	1096.2	estimated based on visual observations
11-Sep-02	0.2	0.4	17.1			1094.34	1087.28	1091.27	1096.1	estimated based on visual observations
18-Sep-02	1.3	0.5	16.9			1095.11	1087.35	1091.13	1095.81	surveyed
25-Sep-02	1.4	0.5	16.5			1095.18	1087.35	1090.85	1095.365	surveyed
2-Oct-02	1.2	0.5	16.3			1095.04	1087.35	1090.71	1095.141	surveyed
9-Oct-02	0.9	0.5	15.8			1094.83	1087.35	1090.36	1094.535	surveyed
11-Oct-02	0.8	0.5	15.8			1094.76	1087.35	1090.22	1094.29	surveyed
14-Oct-02	0.6	0.5	15.4			1094.62	1087.35	1090.08	1094.132	surveyed
16-Oct-02	0.5	0.5	15.4			1094.55	1087.35	1090.08	1094.035	surveyed
18-Oct-02	0.4	0.5	15.4			1094.48	1087.35	1090.08	1094.115	surveyed
21-Oct-02	0.3	0.4	15.5			1094.41	1087.28	1090.15	1094.33	surveyed
23-Oct-02	0.2	0.4	15.6			1094.34	1087.28	1090.22	1094.46	surveyed
25-Oct-02	0.2	0.4	15.6			1094.34	1087.28	1090.22	1094.46	surveyed
28-Oct-02	0.2	0.5	15.5			1094.34	1087.35	1090.15	1094.45	surveyed
30-Oct-02	0.2	0.4	15.5			1094.34	1087.28	1090.15	1094.392	surveyed
1-Nov-02	0.2	0.5	15.5			1094.34	1087.35	1090.15	1094.335	surveyed
4-Nov-02	0.3	0.5	15.4			1094.41	1087.35	1090.08	1094.255	surveyed
6-Nov-02	0.3	0.5	15.4			1094.41	1087.35	1090.08	1094.195	surveyed
8-Nov-02	0.2	0.5	15.4			1094.34	1087.35	1090.08	1094.12	surveyed
11-Nov-02	0.3	0.5	15.2			1094.41	1087.35	1089.94	1093.99	surveyed
13-Nov-02	0.2	0.5	15.1			1094.34	1087.35	1089.87	1093.89	surveyed
15-Nov-02	0.2	0.5	15.0			1094.34	1087.35	1089.8	1093.81	surveyed
18-Nov-02	0.2	0.5	15			1094.34	1087.35	1089.8	1093.68	surveyed
20-Nov-02	0.3	0.5	15.1			1094.41	1087.35	1089.87	1093.56	surveyed
22-Nov-02	0.2	0.4	14.6			1094.34	1087.28	1089.52	1093.395	surveyed
25-Nov-02	0.2	0.4	14.5			1094.34	1087.28	1089.45	1093.297	surveyed
27-Nov-02	0.2	0.4	14.5			1094.34	1087.28	1089.45	1093.088	surveyed
29-Nov-02	0.2	0.4	14.4			1094.34	1087.28	1089.38	1093.112	surveyed
2-Dec-02	0.2	0.4	14.2			1094.34	1087.28	1089.24	1093.12	surveyed
4-Dec-02	0.1	0	14.2			1094.27	1087	1089.24	1093.098	surveyed
6-Dec-02	0.2	0.3	14.2			1094.34	1087.21	1089.24	1093.045	surveyed
9-Dec-02	0.2	0.4	14.2			1094.34	1087.28	1089.24		no survey equipment
11-Dec-02	0.1	0.4	14.2			1094.27	1087.28	1089.24		no survey equipment
13-Dec-02	0.2	0.4	14.1			1094.34	1087.28	1089.17	1092.915	surveyed
16-Dec-02	0.2	0.4	14.1			1094.34	1087.28	1089.17	1092.83	surveyed
18-Dec-02	0.2	0.2	14			1094.34	1087.14	1089.1	1092.78	surveyed
20-Dec-02	0.2	0.4	13.9			1094.34	1087.28	1089.03	1092.72	surveyed
23-Dec-02	0.2	0.2	13.9			1094.34	1087.14	1089.03	1092.69	surveyed
27-Dec-02	0.2	0.2	14			1094.34	1087.14	1089.1	1092.57	surveyed
30-Dec-02	0.2	0.2	13.8			1094.34	1087.14	1088.96	1092.42	surveyed

FRESH WATER SUPPLY DAM
Piezometric Monitoring
88-15 Shallow Tip (Dam Crest)



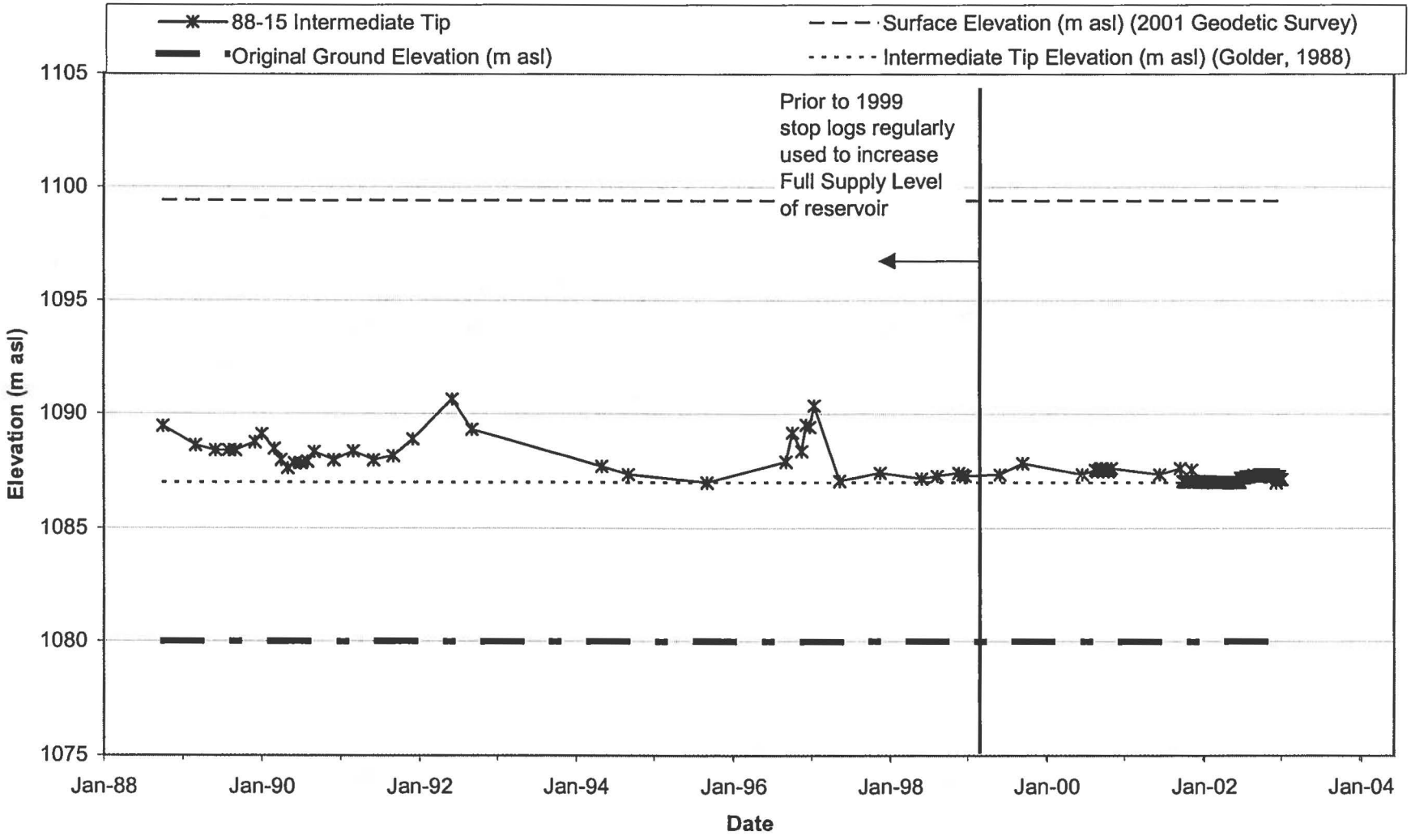
Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
BH88-15 Shallow Tip (Dam Crest)



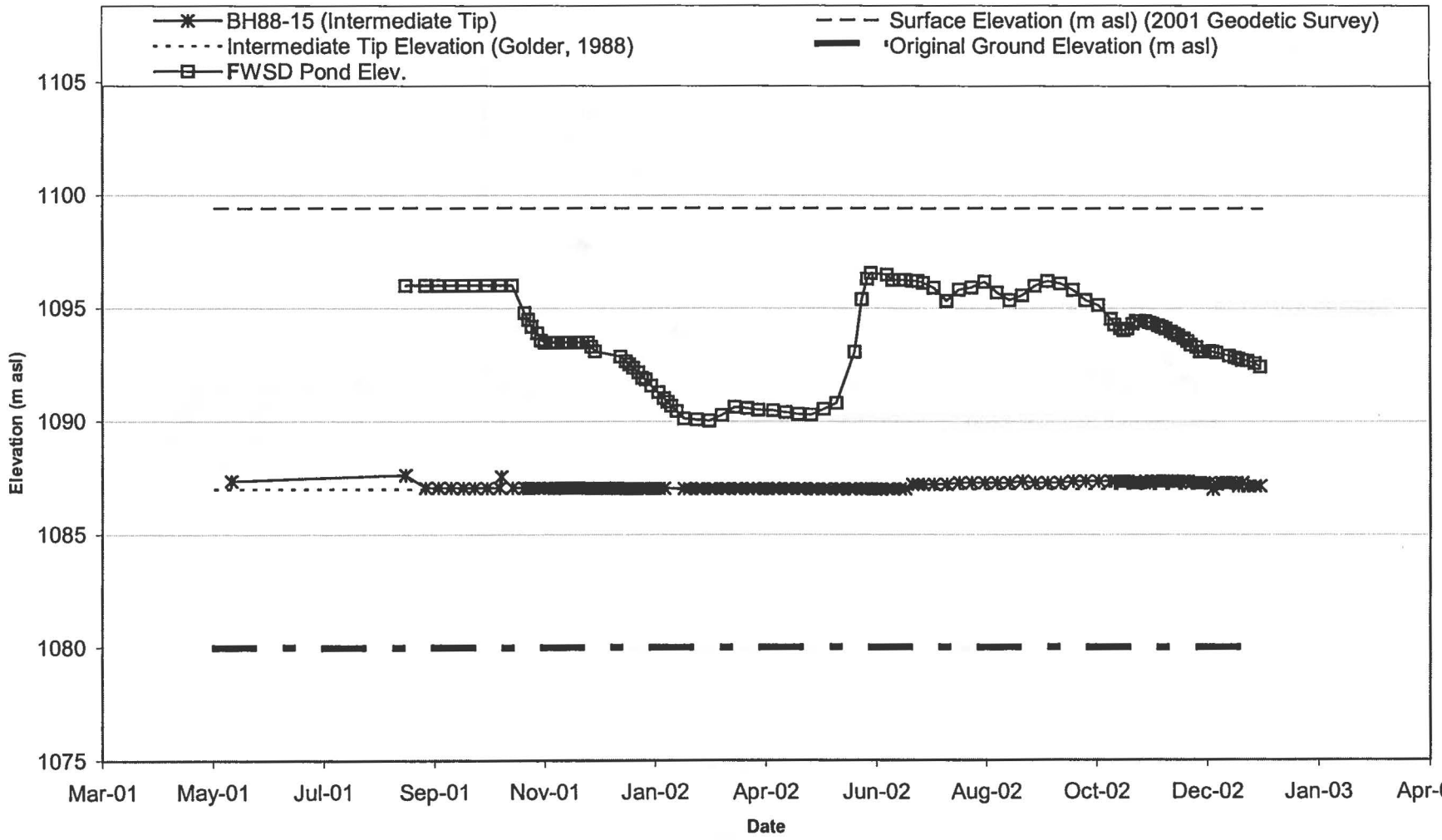
Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
Piezometric Monitoring
88-15 Intermediate Tip (Dam Crest)



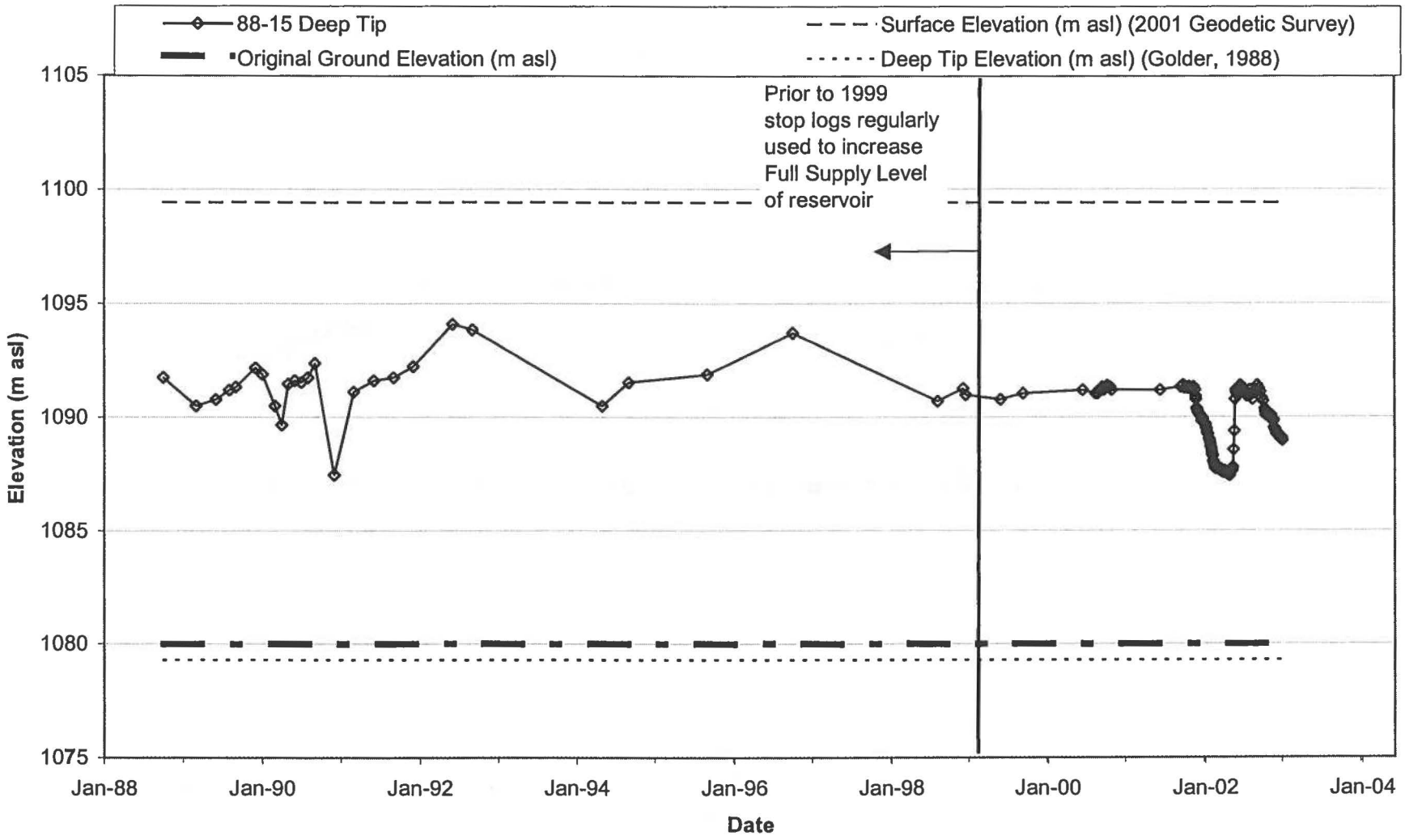
Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
BH88-15 Intermediate Tip (Dam Crest)



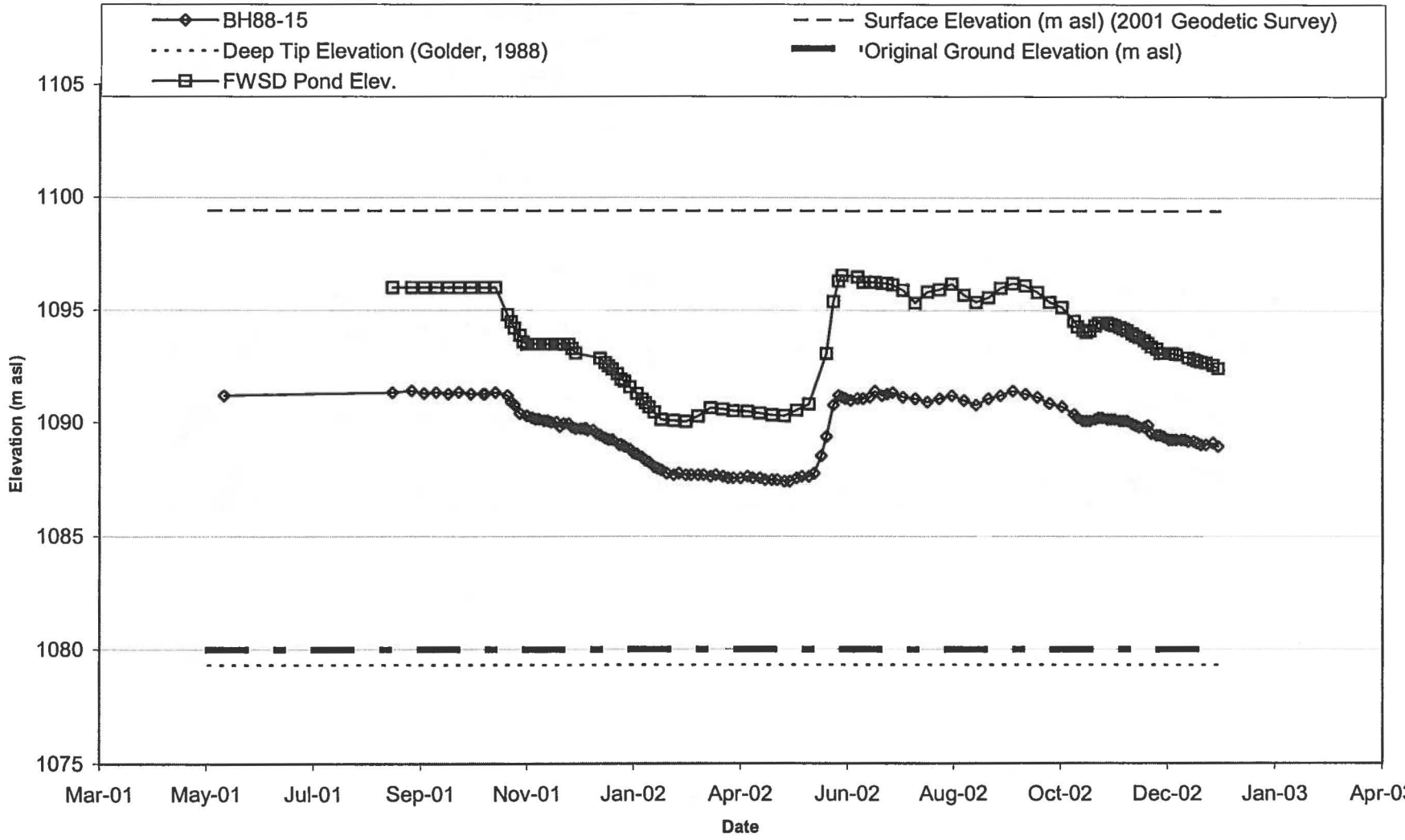
Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
Piezometric Monitoring
88-15 Deep Tip (Dam Crest)



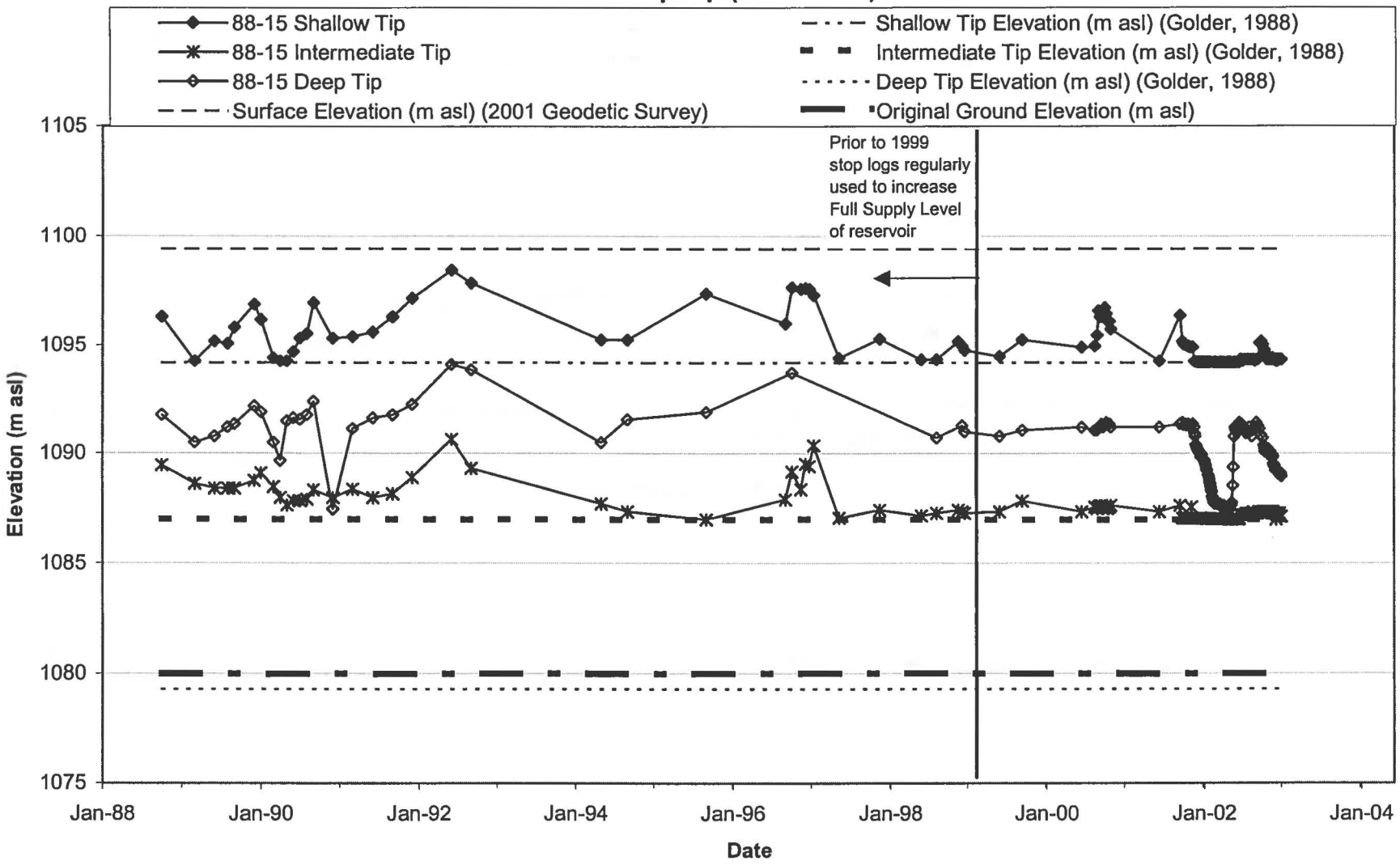
Note: Original Ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
BH88-15 Deep Tip (Dam Crest)



Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
Piezometric Monitoring
88-15 Deep Tip (Dam Crest)

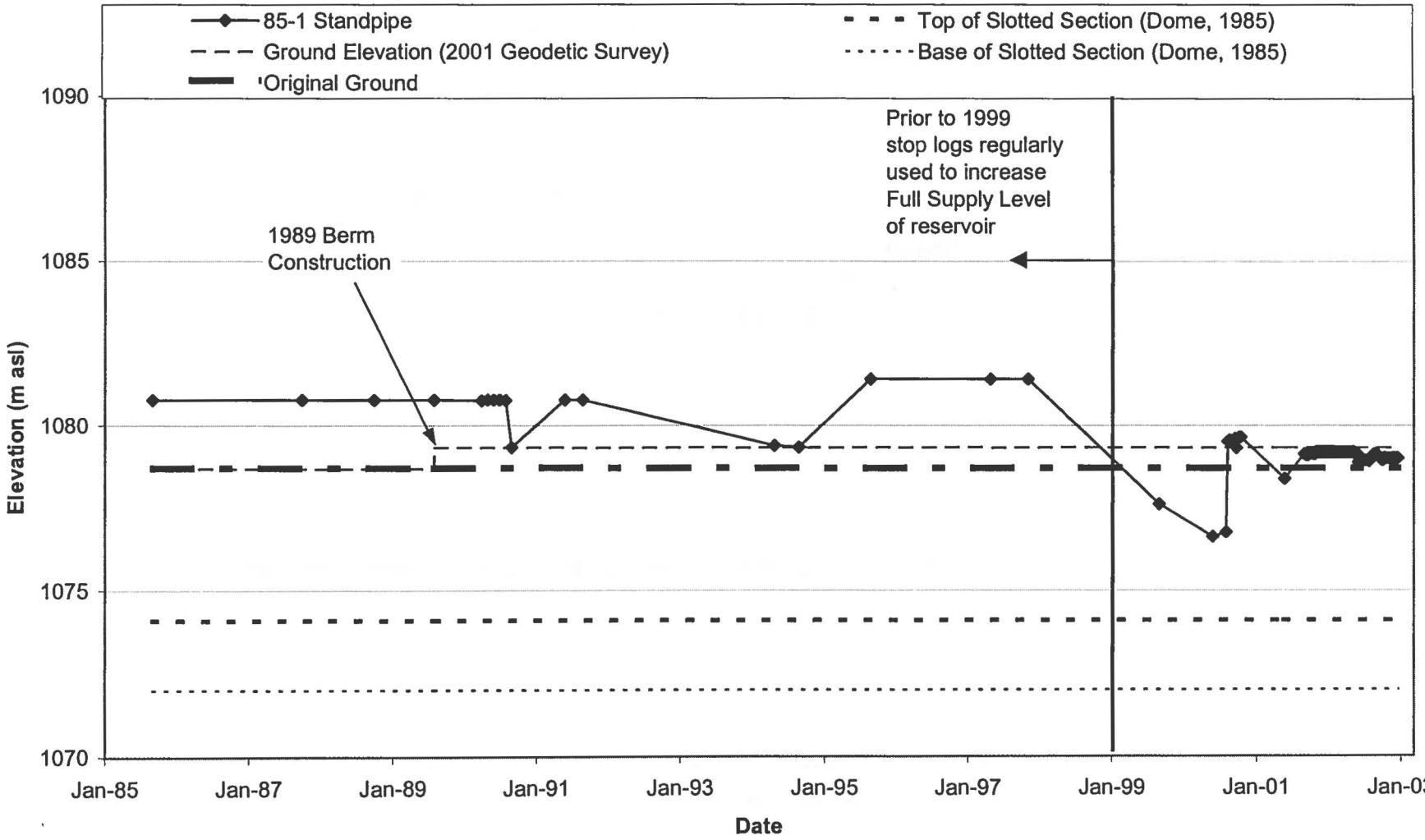


Note: Original Ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

BH85-1	Location:	Fresh Water Supply Dam		Ground Elev. (as per Dome 1985) (m asl)	1078.68	Coordinates:	UTM NAD 83 Northing: 6911329.3 Easting: 585526.6
		Valve House		Ground Elev. as per 2001 survey (m asl)	1079.32		
				Tip Elev. (m asl)	1072.04	Surface	
	Date Installed:	1985		Stick-up (m)	2.1m/1.8m/0.216m	Protector:	yes
Date		Water Level from Top of Pipe (m)			Piezometric Elevation (m asl)		
Sep-85		Artesian			1080.78		stick up 2.1 m
Nov-85		Frozen					
Oct-87		Artesian			1080.78		
Oct-88		Artesian			1080.79		
Aug-89		Artesian			1080.78		
Jan-90		Frozen					
Mar-90		Frozen					
Apr-90		0.02			1080.76		ground elevation changes to 1079.32 m stick up changes to 1.46 m
May-90		Artesian			1080.78		
Jun-90		Artesian			1080.78		
Jul-90		Artesian			1080.78		
Aug-90		0.01			1080.77		
Sep-90		1.46			1079.33		
Dec-90		-					
Mar-91		-					
Jun-91		artesian			1080.78		
Sep-91		artesian			1080.78		
Dec-91		-					
Jan-92		buried					
May-94		2.04			1079.38		Stick up changed to 2.1 m
Sep-94		2.09			1079.33		
Sep-95		artesian			1081.42		
May-97		artesian			1081.42		
Nov-97		artesian			1081.42		
May-98		blocked (frozen?)					
Sep-99		3.81			1077.81		
Jun-00		4.79			1076.83		
14-Aug-00		4.86			1076.76		
24-Aug-00		1.91			1079.51		
31-Aug-00		1.87			1079.55		
7-Sep-00		1.89			1079.53		
14-Sep-00		1.91			1079.51		
21-Sep-00		1.92	frozen/blocked				
28-Sep-00		1.82			1079.60		
6-Oct-00		2.11			1079.31		
12-Oct-00		6.54	dry				
20-Oct-00		1.78	frozen/blocked		1079.64		
27-Oct-00		1.78	frozen/blocked		1079.64		
6-Jun-01		3.04			1078.38		
14-Sep-01		2.29			1079.13	1096	
25-Sep-01		2.34			1079.08	1096	
2-Oct-01		2.34			1079.08	1096	
9-Oct-01		2.27			1079.15	1096	
16-Oct-01		2.27			1079.15	1096	
22-Oct-01		2.27			1079.15	1096	
29-Oct-01		2.29			1079.13	1096	
5-Nov-01		2.3			1079.12	1096	Lowering of pond began
6-Nov-01		0.37			1079.166	1096	Stick up changed to 0.22 m
12-Nov-01		0.35			1079.166	1096	Pond 7 cm above spillway
19-Nov-01		0.35			1079.166	1094.8	Pond approx. 1.2 m below spillway
21-Nov-01		0.35			1079.166	1094.5	Pond approx. 1.5 m below spillway
23-Nov-01		0.35			1079.166	1094.2	Pond approx. 1.8 m below spillway
26-Nov-01		0.35			1079.166	1093.9	Pond approx. 2.1 m below spillway
28-Nov-01		0.35			1079.166	1093.6	Pond approx. 2.4 m below spillway
30-Nov-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
3-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
5-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
7-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
10-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
12-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
14-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
17-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
19-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
21-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
24-Dec-01		0.35			1079.166	1093.5	Pond approx. 2.5 m below spillway
26-Dec-01		0.35			1079.166	1093.3	Pond approx. 2.7 m below spillway
28-Dec-01		0.35			1079.166	1093.1	Pond approx. 3.0 m below spillway
31-Dec-01		0.35			1079.166		

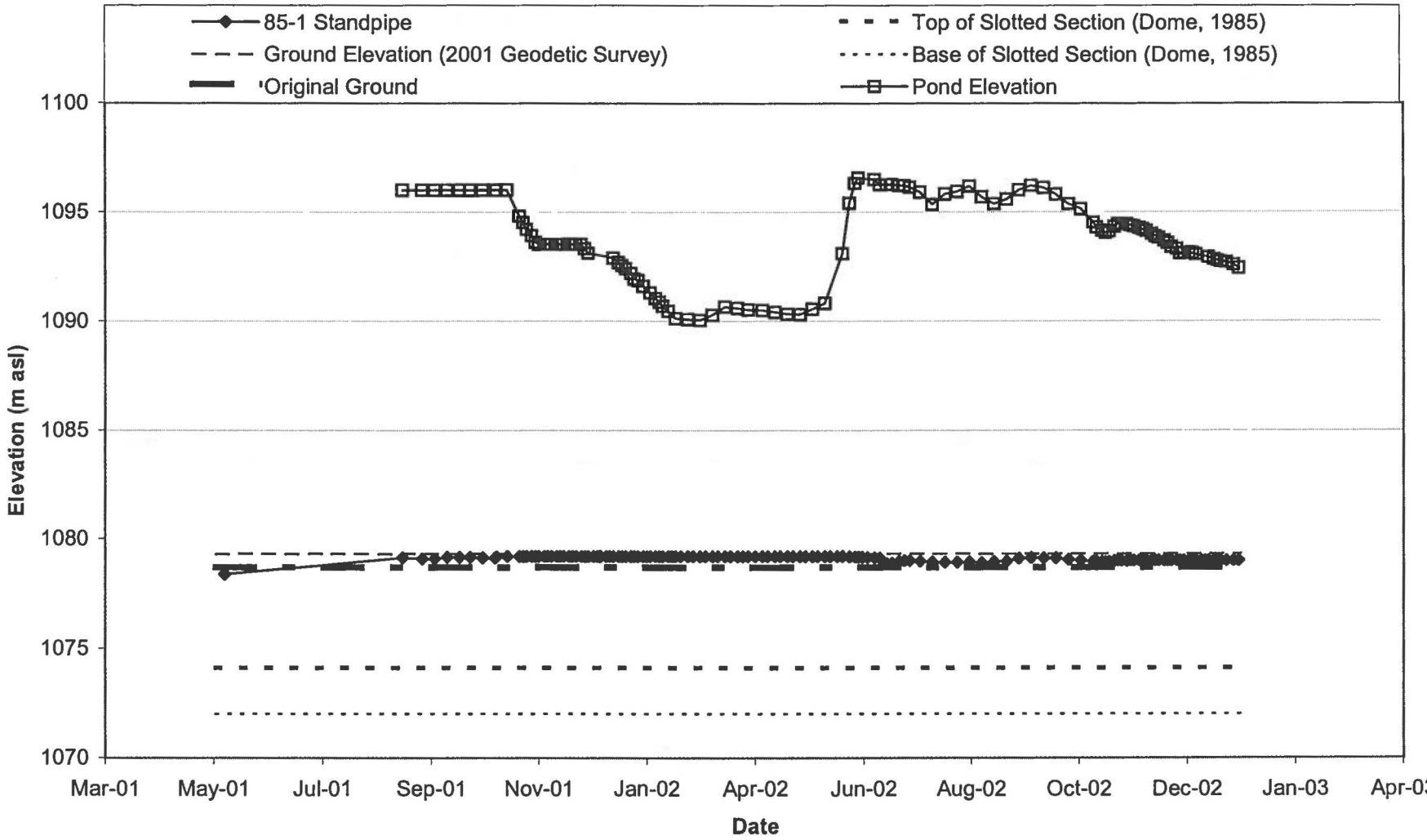
2-Jan-02		0.35			1079.186		
3-Jan-02		0.35			1079.186		
4-Jan-02		0.35			1079.186		
7-Jan-02		0.35			1079.186		
9-Jan-02		0.35			1079.186		
11-Jan-02		0.35			1079.186	1092.667	
14-Jan-02		0.35			1079.186	1092.670	
16-Jan-02		0.35			1079.186	1092.532	
18-Jan-02		0.35			1079.186	1092.379	
21-Jan-02		0.35			1079.186	1092.178	
23-Jan-02		0.35			1079.186	1091.923	
25-Jan-02		0.35			1079.186	1091.850	
28-Jan-02		0.35			1079.186	1091.589	
30-Jan-02		0.35			1079.186		
1-Feb-02		0.35			1079.186	1091.29	
4-Feb-02		0.35			1079.186	1091.035	
6-Feb-02		0.35			1079.186	1090.865	
8-Feb-02		0.35			1079.186	1090.685	
11-Feb-02		0.35			1079.186	1090.457	
13-Feb-02		0.35			1079.186		
15-Feb-02		0.35			1079.186	1090.124	
18-Feb-02		0.35			1079.186		
22-Feb-02		0.35			1079.186	1090.075	
25-Feb-02		0.35			1079.186		
1-Mar-02		0.35			1079.186	1090.035	
4-Mar-02		0.35			1079.186		
8-Mar-02		0.35			1079.186	1090.274	
11-Mar-02		0.35			1079.186		
15-Mar-02		0.35			1079.186	1090.645	
18-Mar-02		0.35			1079.186		
22-Mar-02		0.35			1079.186	1090.585	
25-Mar-02		0.35			1079.186		
28-Mar-02		0.35			1079.186	1090.510	
1-Apr-02		0.35			1079.186		
5-Apr-02		0.35			1079.186	1090.486	
8-Apr-02		0.35			1079.186		
12-Apr-02		0.35			1079.186	1090.406	
15-Apr-02		0.35			1079.186		
19-Apr-02		0.35			1079.186	1090.325	
22-Apr-02		0.35			1079.186		
26-Apr-02		0.35			1079.186	1090.295	
29-Apr-02		0.35			1079.186		
3-May-02		0.35			1079.186	1090.548	
6-May-02		0.35			1079.186		
10-May-02		0.35			1079.186	1090.815	
13-May-02		0.35			1079.186		
17-May-02		0.35			1079.186		
20-May-02		0.34			1079.196	1093.08	
24-May-02		0.36			1079.176	1095.395	
27-May-02		0.37			1079.166	1096.3	
29-May-02		0.375			1079.161	1096.554	
31-May-02		0.38			1079.156		
3-Jun-02		0.4			1079.136		
7-Jun-02		0.405			1079.131	1096.479	
10-Jun-02		0.415			1079.121	1096.25	
14-Jun-02		0.643			1078.871	1096.25	2002 minimum
17-Jun-02		0.64			1078.896	1096.25	
21-Jun-02		0.57			1078.966	1096.21	
24-Jun-02		0.54			1078.996	1096.2	
27-Jun-02		0.54			1078.996	1096.124	surveyed
3-Jul-02		0.565			1078.971	1095.905	surveyed
10-Jul-02		0.595			1078.941	1095.335	surveyed
17-Jul-02		0.605			1078.931	1095.82	surveyed
24-Jul-02		0.605			1078.931	1095.92	surveyed
31-Jul-02		0.595			1078.941	1096.171	surveyed
7-Aug-02		0.63			1078.906	1095.69	surveyed
14-Aug-02		0.58			1078.956	1095.365	surveyed
21-Aug-02		0.56			1078.976	1095.578	surveyed
28-Aug-02		0.43			1079.106	1095.99	surveyed
4-Sep-02		0.405			1079.131	1096.2	estimated
11-Sep-02		0.415			1079.121	1096.1	estimated
18-Sep-02		0.42			1079.116	1095.81	surveyed
25-Sep-02		0.495			1079.041	1095.365	surveyed
2-Oct-02		0.53			1079.006	1095.141	surveyed
9-Oct-02		0.575			1078.961	1094.535	surveyed
11-Oct-02		0.59			1078.946	1094.29	surveyed
14-Oct-02		0.59			1078.946	1094.132	surveyed
18-Oct-02		0.595			1078.941	1094.035	surveyed
18-Oct-02		0.59			1078.946	1094.115	surveyed
21-Oct-02		0.54			1078.996	1094.33	surveyed
23-Oct-02		0.52			1079.016	1094.46	surveyed
25-Oct-02		0.535			1079.001	1094.46	surveyed
28-Oct-02		0.545			1078.991	1094.45	surveyed
30-Oct-02		0.53			1079.006	1094.392	surveyed
1-Nov-02		0.53			1079.006	1094.335	surveyed
4-Nov-02		0.53			1079.006	1094.255	surveyed
6-Nov-02		0.53			1079.006	1094.195	surveyed
8-Nov-02		0.53			1079.006	1094.12	surveyed
11-Nov-02		0.53			1079.006	1093.99	surveyed
13-Nov-02		0.53			1079.006	1093.89	surveyed
15-Nov-02		0.53			1079.006	1093.81	surveyed
18-Nov-02		0.53			1079.006	1093.68	surveyed
20-Nov-02		0.53			1079.006	1093.56	surveyed
22-Nov-02		0.53			1079.006	1093.395	surveyed
25-Nov-02		0.53			1079.006	1093.297	surveyed
27-Nov-02		0.53			1079.006	1093.088	surveyed
29-Nov-02		0.53			1079.006	1093.112	surveyed
2-Dec-02		0.53			1079.006	1093.12	surveyed
4-Dec-02		0.53			1079.006	1093.096	surveyed
6-Dec-02		0.53			1079.006	1093.045	surveyed
9-Dec-02		0.53			1079.006		no survey equipment
11-Dec-02		0.53			1079.006		no survey equipment
13-Dec-02		0.53			1079.006	1092.915	surveyed
16-Dec-02		0.53			1079.006	1092.83	surveyed
18-Dec-02		0.53			1079.006	1092.78	surveyed
20-Dec-02		0.53			1079.006	1092.72	surveyed
23-Dec-02		0.53			1079.006	1092.69	surveyed
27-Dec-02		0.53			1079.006	1092.57	surveyed
30-Dec-02		0.53			1079.006	1092.42	surveyed

FRESH WATER SUPPLY DAM
Piezometric Monitoring
85-1 Standpipe (Toe Berm)



Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
85-1 Standpipe (Toe Berm)

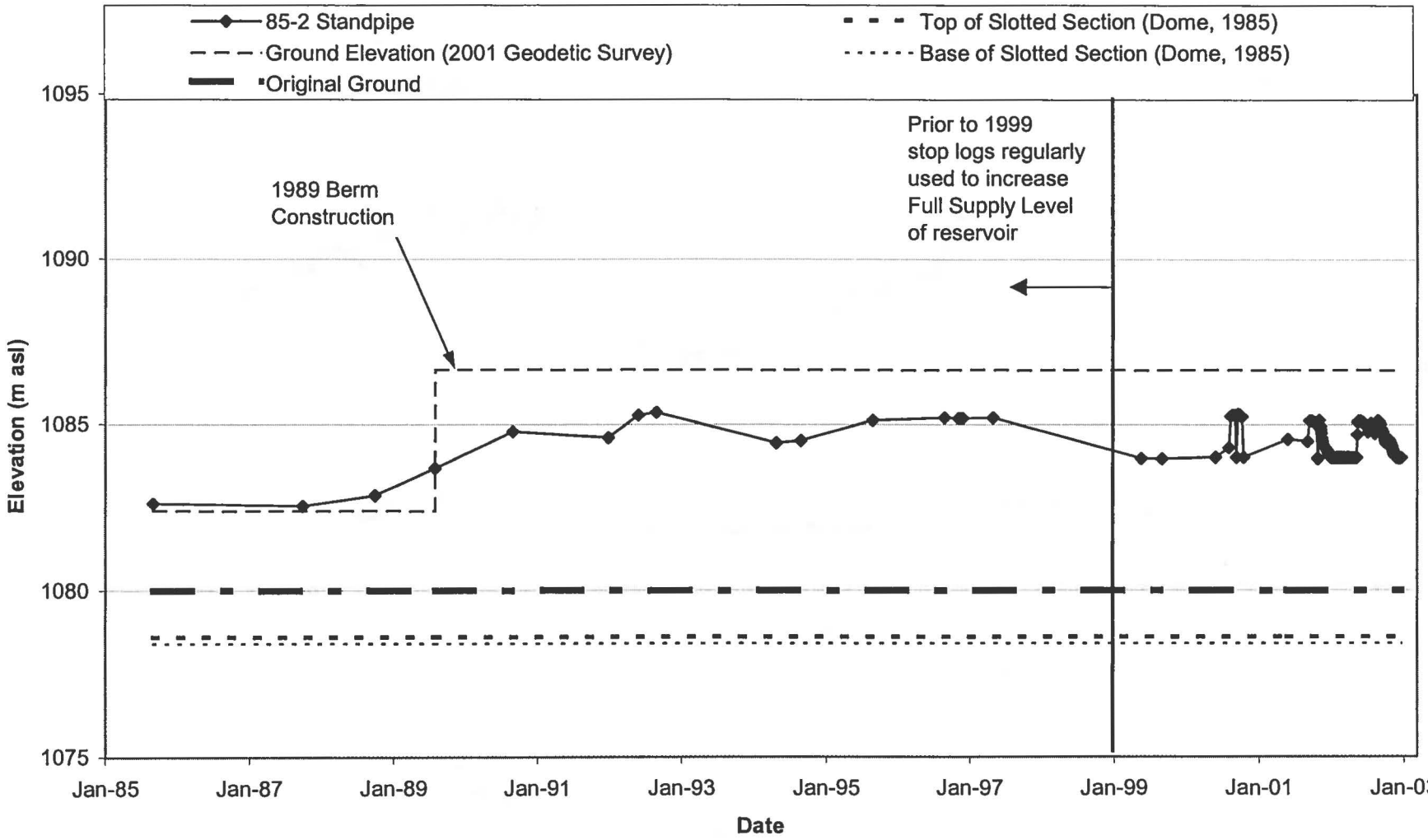


Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

BH85-2	Location:	Fresh Water Supply Dam		Ground Elev. Before 1989 Berm Construction (as per Dame 1985) (m asl)	1082.4	Coordinates:	UTM NAD 83 Northing: 6911299.9 Easting: 585556.9
		Toe Berm		Ground Elev. After 1989 Berm Construction (as per 2001 survey) (m asl)	1086.674		
				Tip Elev. (m asl)	1078.75	Surface	
	Date Installed:	1985		Stick-up (m)	2.1m/1.51m/0.241m	Protector:	yes
Date		Water level from top of pipe (m)			Piezometric Elevation (m asl)	Pond Elev.	Comments
Sep-85		1.89			1082.81		
Nov-85		Frozen					
Oct-87		1.96			1082.54		
Oct-88		1.64			1082.86		
Aug-89		0.83			1083.67		
Jan-90		Frozen					
Mar-90		Frozen					
Apr-90		Dry					
May-90		Dry					
Jun-90		Dry					
Jul-90		Dry					
Aug-90		Dry					
Sep-90		4.00			1084.77		
Mar-91		dry					
Jun-91		blocked					
Sep-91		blocked					
Jan-92		4.18			1084.59		
Apr-92		blocked					
Jun-92		3.50			1085.27		
Sep-92		3.41			1085.36		
May-94		3.75			1084.43		Stick up changed
Sep-94		3.68			1084.50		
Sep-95		3.06			1085.12		
1-Sep-96		2.98			1085.20		6 stop logs
12-Nov-96		3			1085.18		
22-Nov-96		3			1085.18		
3-Dec-96		3	frozen		1085.18		6 logs & overflow
May-97		2.98			1085.20		pond v.v.low
Nov-97		blocked/dry @ 4.18m					3 logs; no overflow
May-98		blocked/dry @ 3.66m					pond mod. low<<sill
Dec-98		frozen/dry @ 3.03m					
May-99		4.21	bottom/blocked		1083.97		pond overflow
Sep-99		4.22	bottom/blocked		1083.96		pond overflow
Jun-00		4.17			1084.01		pond overflow
14-Aug-00		3.89			1084.29		pond overflow
24-Aug-00		2.93			1085.25		pond overflow
31-Aug-00		2.90			1085.28		pond overflow
7-Sep-00		2.90			1085.28		pond overflow
14-Sep-00		2.91			1085.27		pond overflow
21-Sep-00		4.17	frozen/blocked		1084.01		pond overflow
28-Sep-00		2.87			1085.31		pond overflow
6-Oct-00		2.88			1085.30		pond overflow
12-Oct-00		2.93			1085.25		pond overflow
20-Oct-00		2.95			1085.23		pond overflow
27-Oct-00		4.17	frozen/blocked		1084.01		pond overflow
6-Jun-01		3.63			1084.55		pond overflow
14-Sep-01		3.7			1084.48	1096	pond overflow
25-Sep-01		3.07			1085.114	1096	
2-Oct-01		3.08			1085.104	1096	
9-Oct-01		3.08			1085.104	1096	
16-Oct-01		3.11			1085.074	1096	
22-Oct-01		3.11			1085.074	1096	
29-Oct-01		3.16			1085.004	1096	
5-Nov-01		4.2			1083.964	1096	Lowering of pond began
6-Nov-01		2.95			1083.965	1096	Stick up changed
12-Nov-01		1.785			1085.13	1096	Pond 7 cm above spillway
19-Nov-01		1.97			1084.945	1094.8	Pond approx. 1.2 m below spillway
21-Nov-01		2.07			1084.845	1094.5	Pond approx. 1.5 m below spillway
23-Nov-01		2.18			1084.735	1094.2	Pond approx. 1.8 m below spillway
26-Nov-01		2.33			1084.585	1093.9	Pond approx. 2.1 m below spillway
28-Nov-01		2.43			1084.485	1093.6	Pond approx. 2.4 m below spillway
30-Nov-01		2.51			1084.405	1093.5	Pond approx. 2.5 m below spillway
3-Dec-01		2.55			1084.365	1093.5	Pond approx. 2.5 m below spillway
5-Dec-01		2.565			1084.35	1093.5	Pond approx. 2.5 m below spillway
7-Dec-01		2.585			1084.33	1093.5	Pond approx. 2.5 m below spillway
10-Dec-01		2.61			1084.305	1093.5	Pond approx. 2.5 m below spillway
12-Dec-01		2.62			1084.295	1093.5	Pond approx. 2.5 m below spillway
14-Dec-01		2.635			1084.28	1093.5	Pond approx. 2.5 m below spillway
17-Dec-01		2.66			1084.256	1093.5	Pond approx. 2.5 m below spillway
19-Dec-01		2.675			1084.24	1093.5	Pond approx. 2.5 m below spillway
21-Dec-01		2.69			1084.225	1093.5	Pond approx. 2.5 m below spillway
24-Dec-01		2.725			1084.19	1093.5	Pond approx. 2.5 m below spillway
28-Dec-01		2.755			1084.16	1093.3	Pond approx. 2.7 m below spillway
28-Dec-01		2.78			1084.135	1093.1	Pond approx. 2.9 m below spillway
31-Dec-01		2.81			1084.105		

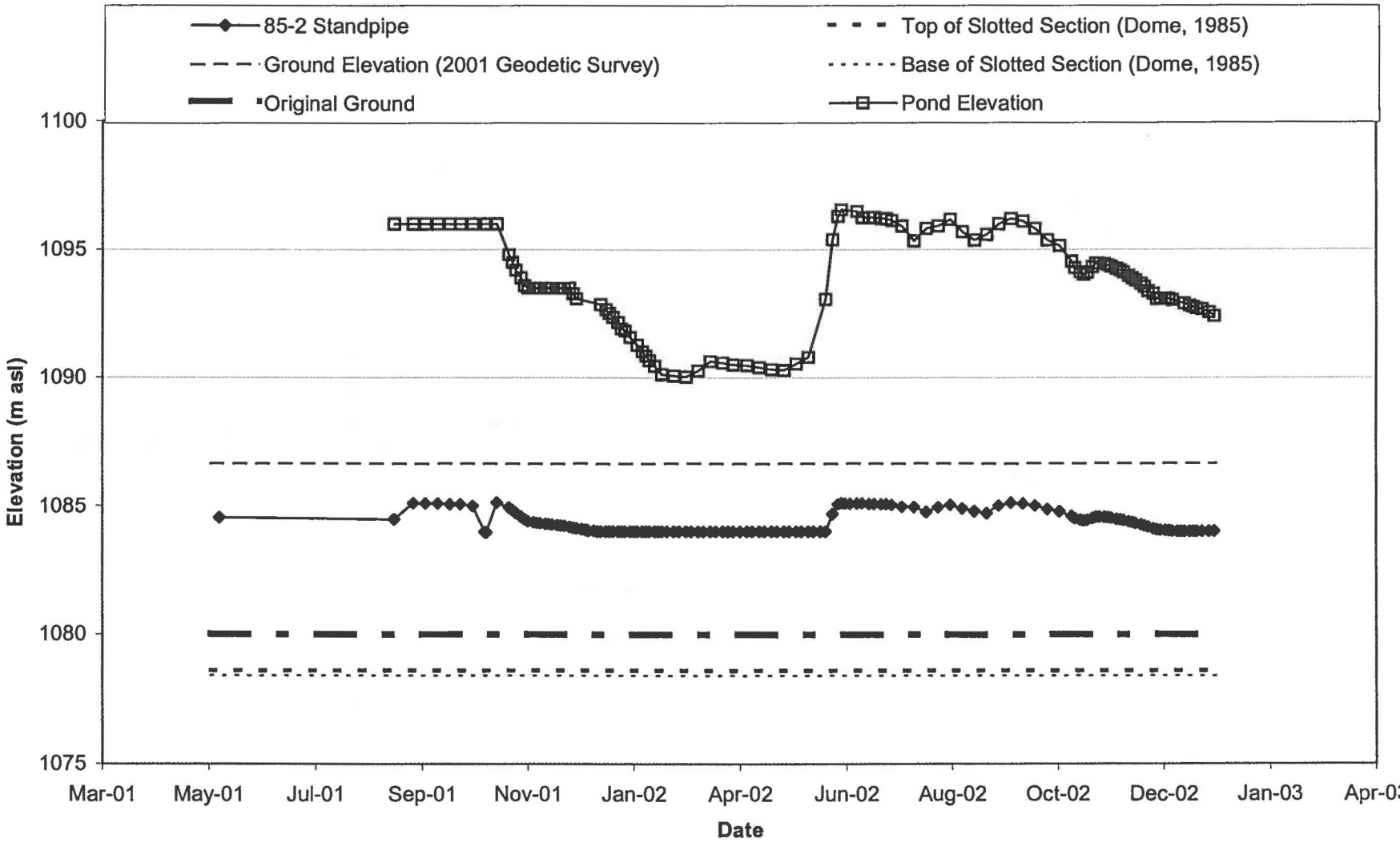
2-Jan-02		2.835			1084.08		
3-Jan-02		2.85			1084.065		
4-Jan-02		2.875			1084.04		
7-Jan-02		2.875			1084.04		
9-Jan-02		2.905			1084.01		
11-Jan-02		2.91			1084.005	1092.867	
14-Jan-02		2.91			1084.005	1092.670	
16-Jan-02		2.91			1084.005	1092.532	
18-Jan-02		2.91			1084.005	1092.379	
21-Jan-02		2.91			1084.005	1092.178	
23-Jan-02		2.91			1084.005	1091.923	
25-Jan-02		2.91			1084.005	1091.850	
28-Jan-02		2.91			1084.005	1091.589	
30-Jan-02		2.91			1084.005		
1-Feb-02		2.91			1084.005	1091.29	
4-Feb-02		2.91			1084.005	1091.035	
6-Feb-02		2.91			1084.005	1090.865	
8-Feb-02		2.91			1084.005	1090.685	
11-Feb-02		2.91			1084.005	1090.457	
13-Feb-02		2.91			1084.005		
15-Feb-02		2.91			1084.005	1090.124	
18-Feb-02		2.91			1084.005		
22-Feb-02		2.91			1084.005	1090.074	
25-Feb-02		2.91			1084.005		
1-Mar-02		2.91			1084.005	1090.035	
4-Mar-02		2.91			1084.005		
8-Mar-02		2.91			1084.005	1090.274	
11-Mar-02		2.91			1084.005		
15-Mar-02		2.91			1084.005	1090.645	
18-Mar-02		2.91			1084.005		
22-Mar-02		2.91			1084.005	1090.585	
25-Mar-02		2.91			1084.005		
28-Mar-02		2.91			1084.005	1090.510	
1-Apr-02		2.91			1084.005		
5-Apr-02		2.91			1084.005	1090.486	
8-Apr-02		2.91			1084.005		
12-Apr-02		2.91			1084.005	1090.406	
15-Apr-02		2.91			1084.005		
19-Apr-02		2.91			1084.005	1090.325	
22-Apr-02		2.91			1084.005		
26-Apr-02		2.91			1084.005	1090.295	
29-Apr-02		2.91			1084.005		
3-May-02		2.91			1084.005	1090.548	
6-May-02		2.91			1084.005		
10-May-02		2.91			1084.005	1090.815	
13-May-02		2.91			1084.005		
17-May-02		2.91			1084.005		
20-May-02		2.91			1084.005	1093.08	
24-May-02		2.22			1084.695	1095.395	
27-May-02		1.84			1085.075	1096.3	
29-May-02		1.8			1085.115	1096.554	
31-May-02		1.81			1085.105		
3-Jun-02		1.825			1085.09		
7-Jun-02		1.81			1085.105	1096.479	
10-Jun-02		1.8			1085.115	1096.25	
14-Jun-02		1.83			1085.085	1096.25	
17-Jun-02		1.835			1085.08	1096.25	
21-Jun-02		1.845			1085.07	1096.21	
24-Jun-02		1.845			1085.07	1096.2	
27-Jun-02		1.875			1085.04	1096.124	surveyed
3-Jul-02		1.945			1084.97	1095.905	surveyed
10-Jul-02		1.95			1084.965	1095.335	surveyed
17-Jul-02		2.15			1084.765	1095.82	surveyed
24-Jul-02		1.96			1084.955	1095.92	surveyed
31-Jul-02		1.87			1085.045	1096.171	surveyed
7-Aug-02		2.01			1084.905	1095.69	surveyed
14-Aug-02		2.12			1084.795	1095.365	surveyed
21-Aug-02		2.2			1084.715	1095.576	surveyed
28-Aug-02		1.9			1085.015	1095.99	surveyed
4-Sep-02		1.79			1085.125	1096.2	estimated
11-Sep-02		1.82			1085.095	1096.1	estimated
18-Sep-02		1.905			1085.01	1095.81	surveyed
25-Sep-02		2.045			1084.87	1095.365	surveyed
2-Oct-02		2.13			1084.785	1095.141	surveyed
9-Oct-02		2.32			1084.595	1094.535	surveyed
11-Oct-02		2.395			1084.52	1094.29	surveyed
14-Oct-02		2.455			1084.46	1094.132	surveyed
16-Oct-02		2.485			1084.43	1094.035	surveyed
18-Oct-02		2.465			1084.45	1094.115	surveyed
21-Oct-02		2.4			1084.515	1094.33	surveyed
23-Oct-02		2.355			1084.56	1094.46	surveyed
25-Oct-02		2.35			1084.565	1094.46	surveyed
28-Oct-02		2.36			1084.555	1094.45	surveyed
30-Oct-02		2.365			1084.55	1094.392	surveyed
1-Nov-02		2.385			1084.53	1094.335	surveyed
4-Nov-02		2.435			1084.48	1094.255	surveyed
6-Nov-02		2.45			1084.465	1094.195	surveyed
8-Nov-02		2.475			1084.44	1094.12	surveyed
11-Nov-02		2.53			1084.385	1093.99	surveyed
13-Nov-02		2.56			1084.355	1093.89	surveyed
15-Nov-02		2.595			1084.32	1093.81	surveyed
18-Nov-02		2.65			1084.265	1093.65	surveyed
20-Nov-02		2.695			1084.22	1093.56	surveyed
22-Nov-02		2.74			1084.175	1093.395	surveyed
25-Nov-02		2.805			1084.11	1093.297	surveyed
27-Nov-02		2.84			1084.075	1093.086	surveyed
29-Nov-02		2.856			1084.06	1093.112	surveyed
2-Dec-02		2.87			1084.045	1093.12	surveyed
4-Dec-02		2.875			1084.04	1093.096	surveyed
6-Dec-02		2.895			1084.02	1093.045	surveyed
9-Dec-02		2.91			1084.005		no survey equipment
11-Dec-02		2.91			1084.005		no survey equipment
13-Dec-02		2.91			1084.005	1092.915	surveyed
16-Dec-02		2.91			1084.005	1092.83	surveyed
18-Dec-02		2.91			1084.005	1092.78	surveyed
20-Dec-02		2.91			1084.005	1092.72	surveyed
23-Dec-02		2.91			1084.005	1092.69	surveyed
27-Dec-02		2.91			1084.005	1092.57	surveyed
30-Dec-02		2.91			1084.005	1092.42	surveyed

FRESH WATER SUPPLY DAM
Piezometric Monitoring
85-2 Standpipe (Toe Berm)



Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
85-2 Standpipe (Toe Berm)

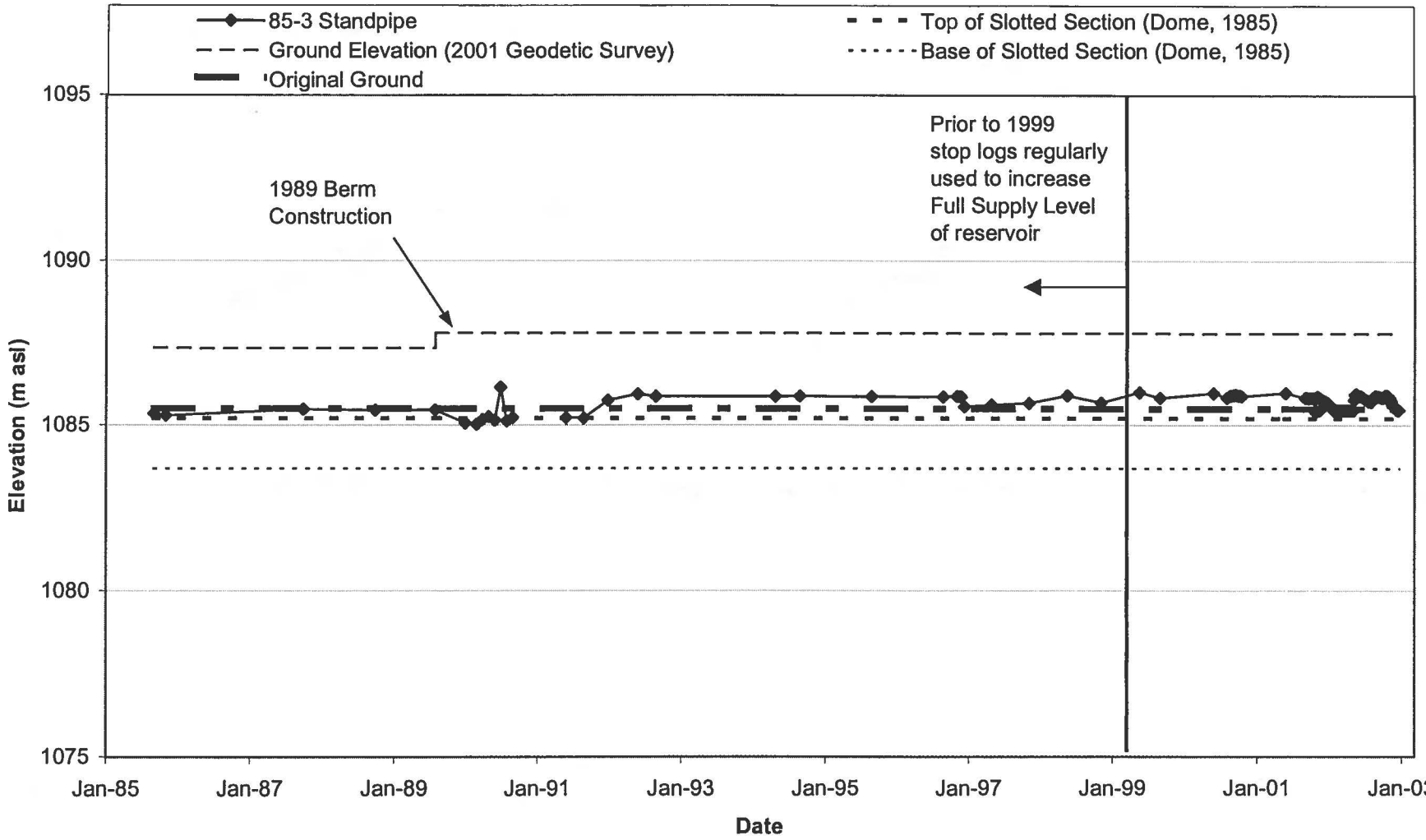


Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

BH85-3	Location:	Fresh Water Supply Dam		Ground Elev. Before 1988 Berm Construction (as per Dome 1985) (m asl)	1087.34	Coordinates:	UTM NAD 83 Northing: 6911353.5 Easting: 585603.7
		Toe Berm		Ground Elev. After 1988 Berm Construction (as per 2001 survey) (m asl)	1087.802		
				Tip Elev. (m asl)	1083.68	Surface	
	Date Installed:	1985		Stick-up (m)	0.53m/0.46m/0.254m	Protector:	yes
Date		Water level from top of pipe (m)			Piezometric Elevation (m asl)	Pond Elev.	Comments
Sep-85		2.53			1085.34		
Nov-85		2.59			1085.28		
Oct-87		2.40			1085.47		
Oct-88		2.43			1085.44		
Aug-89		2.42			1085.45		
Jan-90		3.28			1085.05		
Mar-90		3.32			1085.01		
Apr-90		3.17			1085.16		
May-90		3.09			1085.24		
Jun-90		3.19			1085.14		
Jul-90		2.20			1086.13		
Aug-90		3.22			1085.11		
Sep-90		3.11			1085.22		
Mar-91		dry					
Jun-91		3.11			1085.22		
Sep-91		3.13			1085.20		
Jan-92		2.59			1085.74		
Jun-92		2.40			1085.93		
Sep-92		2.47			1085.86		
May-94		2.40			1085.86		Stick up changed
Sep-94		2.39			1085.87		
Sep-95		2.40			1085.86		
1-Sep-96		2.41			1085.85		6 stop logs
12-Nov-96		2.39			1085.87		
22-Nov-96		2.39			1085.87		
3-Dec-96		2.41			1085.85		6 logs&overflow
20-Dec-96		2.7	frozen		1085.56		
May-97		2.65			1085.61		pond v.v.low
Nov-97		2.60			1085.67		3 logs; no o/f
May-98		2.37			1085.90		pond mod.low<<sill
Nov-98		2.55			1085.68		~0.005m>sill
May-99		2.27			1085.99		pond overflow
Sep-99		2.44			1085.82		pond overflow
Jun-00		2.30			1085.96		pond overflow
14-Aug-00		2.43			1085.83		pond overflow
24-Aug-00		2.40			1085.86		pond overflow
31-Aug-00		2.37			1085.89		pond overflow
7-Sep-00		2.37			1085.89		pond overflow
14-Sep-00		2.36			1085.90		pond overflow
21-Sep-00		2.36			1085.90		pond overflow
28-Sep-00		2.34			1085.92		pond overflow
6-Oct-00		2.36			1085.90		pond overflow
12-Oct-00		2.37			1085.89		pond overflow
20-Oct-00		2.36			1085.90		pond overflow
27-Oct-00		2.39			1085.87		pond overflow
6-Jun-01		2.29			1085.97		pond overflow
14-Sep-01		2.44			1085.82	1096	pond overflow
25-Sep-01		2.44			1085.822	1096	
2-Oct-01		2.45			1085.812	1096	
9-Oct-01		2.44			1085.822	1096	
16-Oct-01		2.44			1085.822	1096	
22-Oct-01		2.45			1085.812	1096	
29-Oct-01		2.46			1085.802	1096	
5-Nov-01		2.87			1085.392	1096	Lowering of pond began
6-Nov-01		2.61			1085.446	1096	Stick up changed
12-Nov-01		2.19			1085.866	1096	Pond 7 cm above spillway
19-Nov-01		2.2			1085.856	1094.8	Pond approx. 1.2 m below spillway
21-Nov-01		2.21			1085.846	1094.5	Pond approx. 1.5 m below spillway
23-Nov-01		2.23			1085.826	1094.2	Pond approx. 1.8 m below spillway
26-Nov-01		2.61			1085.446	1093.9	frozen, Pond aprx.~2.1 m down
28-Nov-01		2.24			1085.816	1093.6	Pond approx. 2.4 m below spillway
30-Nov-01		2.25			1085.806	1093.5	Pond approx. 2.5 m below spillway
3-Dec-01		2.27			1085.786	1093.5	Pond approx. 2.5 m below spillway
5-Dec-01		2.285			1085.771	1093.5	Pond approx. 2.5 m below spillway
7-Dec-01		2.29			1085.766	1093.5	Pond approx. 2.5 m below spillway
10-Dec-01		2.3			1085.756	1093.5	Pond approx. 2.5 m below spillway
12-Dec-01		2.31			1085.746	1093.5	Pond approx. 2.5 m below spillway
14-Dec-01		2.31			1085.746	1093.5	Pond approx. 2.5 m below spillway
17-Dec-01		2.33			1085.726	1093.5	Pond approx. 2.5 m below spillway
19-Dec-01		2.335			1085.721	1093.5	Pond approx. 2.5 m below spillway
21-Dec-01		2.335			1085.721	1093.5	Pond approx. 2.5 m below spillway
24-Dec-01		2.345			1085.711	1093.5	Pond approx. 2.5 m below spillway
26-Dec-01		2.355			1085.701	1093.3	Pond approx. 2.7 m below spillway
28-Dec-01		2.35			1085.706	1093.1	Pond approx. 3.0 m below spillway
31-Dec-01		2.37			1085.686		

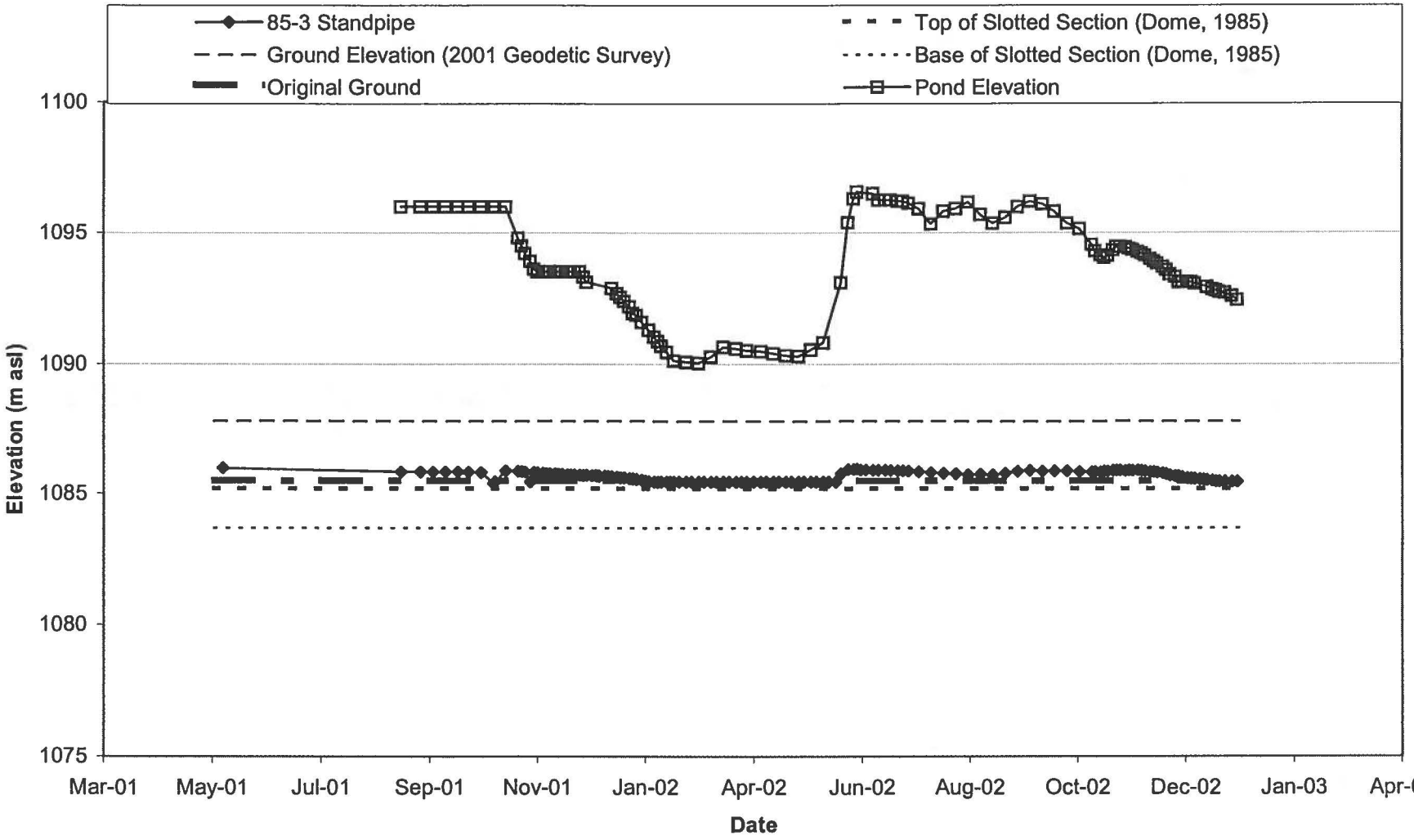
2-Jan-02		2.365			1085.691		
3-Jan-02		2.375			1085.681		
4-Jan-02		2.385			1085.671		
7-Jan-02		2.385			1085.671		
9-Jan-02		2.4			1085.656		
11-Jan-02		2.41			1085.646	1092.667	
14-Jan-02		2.43			1085.626	1092.670	
16-Jan-02		2.45			1085.606	1092.532	
18-Jan-02		2.445			1085.611	1092.379	
21-Jan-02		2.48			1085.576	1092.178	
23-Jan-02		2.49			1085.566	1091.923	
25-Jan-02		2.51			1085.546	1091.85	
28-Jan-02		2.54			1085.516	1091.589	
30-Jan-02		2.565			1085.491		
1-Feb-02		2.595			1085.461	1091.290	
4-Feb-02		2.61			1085.446	1091.035	
6-Feb-02		2.62			1085.436	1090.865	
8-Feb-02		2.61			1085.446	1090.685	
11-Feb-02		2.61			1085.446	1090.457	
13-Feb-02		2.61			1085.446		
15-Feb-02		2.61			1085.446	1090.124	
18-Feb-02		2.61			1085.446		
22-Feb-02		2.61			1085.446	1090.075	
25-Feb-02		2.61			1085.446		
1-Mar-02		2.61			1085.446	1090.035	
4-Mar-02		2.61			1085.446		
8-Mar-02		2.61			1085.446	1090.274	
11-Mar-02		2.61			1085.446		
15-Mar-02		2.61			1085.446	1090.645	
18-Mar-02		2.61			1085.446		
22-Mar-02		2.61			1085.446	1090.585	
25-Mar-02		2.61			1085.446		
28-Mar-02		2.61			1085.446	1090.510	
1-Apr-02		2.61			1085.446		
5-Apr-02		2.61			1085.446	1090.485	
8-Apr-02		2.61			1085.446		
12-Apr-02		2.61			1085.446	1090.406	
15-Apr-02		2.61			1085.446		
19-Apr-02		2.61			1085.446	1090.325	
22-Apr-02		2.61			1085.446		
26-Apr-02		2.61			1085.446	1090.295	
29-Apr-02		2.61			1085.446		
3-May-02		2.61			1085.446	1090.546	
6-May-02		2.61			1085.446		
10-May-02		2.61			1085.446	1090.815	
13-May-02		2.61			1085.446		
17-May-02		2.61			1085.446		
20-May-02		2.29			1085.766	1093.08	
24-May-02		2.13			1085.926	1095.395	
27-May-02		2.13			1085.926	1096.30	
29-May-02		2.11			1085.946	1096.55	
31-May-02		2.15			1085.906		
3-Jun-02		2.155			1085.901		
7-Jun-02		2.16			1085.896	1096.48	
10-Jun-02		2.16			1085.896	1096.25	
14-Jun-02		2.16			1085.896	1096.25	
17-Jun-02		2.17			1085.886	1096.25	
21-Jun-02		2.18			1085.876	1096.21	
24-Jun-02		2.18			1085.876	1096.2	
27-Jun-02		2.19			1085.866	1096.124	surveyed
3-Jul-02		2.215			1085.841	1095.905	surveyed
10-Jul-02		2.25			1085.806	1095.335	surveyed
17-Jul-02		2.28			1085.776	1095.82	surveyed
24-Jul-02		2.295			1085.761	1095.92	surveyed
31-Jul-02		2.335			1085.721	1096.171	surveyed
7-Aug-02		2.315			1085.741	1095.69	surveyed
14-Aug-02		2.35			1085.706	1095.365	surveyed
21-Aug-02		2.275			1085.781	1095.576	surveyed
28-Aug-02		2.20			1085.856	1095.99	surveyed
4-Sep-02		2.17			1085.886	1096.2	estimated
11-Sep-02		2.20			1085.856	1096.1	estimated
18-Sep-02		2.19			1085.866	1095.81	surveyed
25-Sep-02		2.19			1085.866	1095.365	surveyed
2-Oct-02		2.22			1085.836	1095.141	surveyed
9-Oct-02		2.225			1085.831	1094.535	surveyed
11-Oct-02		2.22			1085.836	1094.29	surveyed
14-Oct-02		2.225			1085.831	1094.132	surveyed
16-Oct-02		2.195			1085.861	1094.035	surveyed
16-Oct-02		2.2			1085.856	1094.115	surveyed
21-Oct-02		2.17			1085.886	1094.33	surveyed
23-Oct-02		2.18			1085.896	1094.46	surveyed
25-Oct-02		2.18			1085.896	1094.46	surveyed
28-Oct-02		2.175			1085.881	1094.45	surveyed
30-Oct-02		2.185			1085.891	1094.392	surveyed
1-Nov-02		2.17			1085.886	1094.335	surveyed
4-Nov-02		2.185			1085.891	1094.255	surveyed
6-Nov-02		2.17			1085.886	1094.195	surveyed
8-Nov-02		2.185			1085.871	1094.120	surveyed
11-Nov-02		2.215			1085.841	1093.990	surveyed
13-Nov-02		2.22			1085.836	1093.890	surveyed
15-Nov-02		2.24			1085.816	1093.810	surveyed
18-Nov-02		2.265			1085.791	1093.680	surveyed
20-Nov-02		2.3			1085.756	1093.580	surveyed
22-Nov-02		2.345			1085.711	1093.395	surveyed
25-Nov-02		2.39			1085.666	1093.297	surveyed
27-Nov-02		2.39			1085.666	1093.088	surveyed
29-Nov-02		2.43			1085.625	1093.112	surveyed
2-Dec-02		2.47			1085.586	1093.120	surveyed
4-Dec-02		2.475			1085.581	1093.096	surveyed
6-Dec-02		2.49			1085.566	1093.045	surveyed
9-Dec-02		2.505			1085.551		no survey equipment
11-Dec-02		2.52			1085.536		no survey equipment
13-Dec-02		2.535			1085.521	1092.915	surveyed
16-Dec-02		2.555			1085.501	1092.830	surveyed
18-Dec-02		2.585			1085.471	1092.780	surveyed
20-Dec-02		2.585			1085.471	1092.720	surveyed
23-Dec-02		2.59			1085.466	1092.690	surveyed
27-Dec-02		2.6			1085.456	1092.570	surveyed
30-Dec-02		2.6			1085.456	1092.420	surveyed

FRESH WATER SUPPLY DAM
Piezometric Monitoring
85-3 Standpipe (Toe Berm)



Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
85-3 Standpipe (Toe Berm)

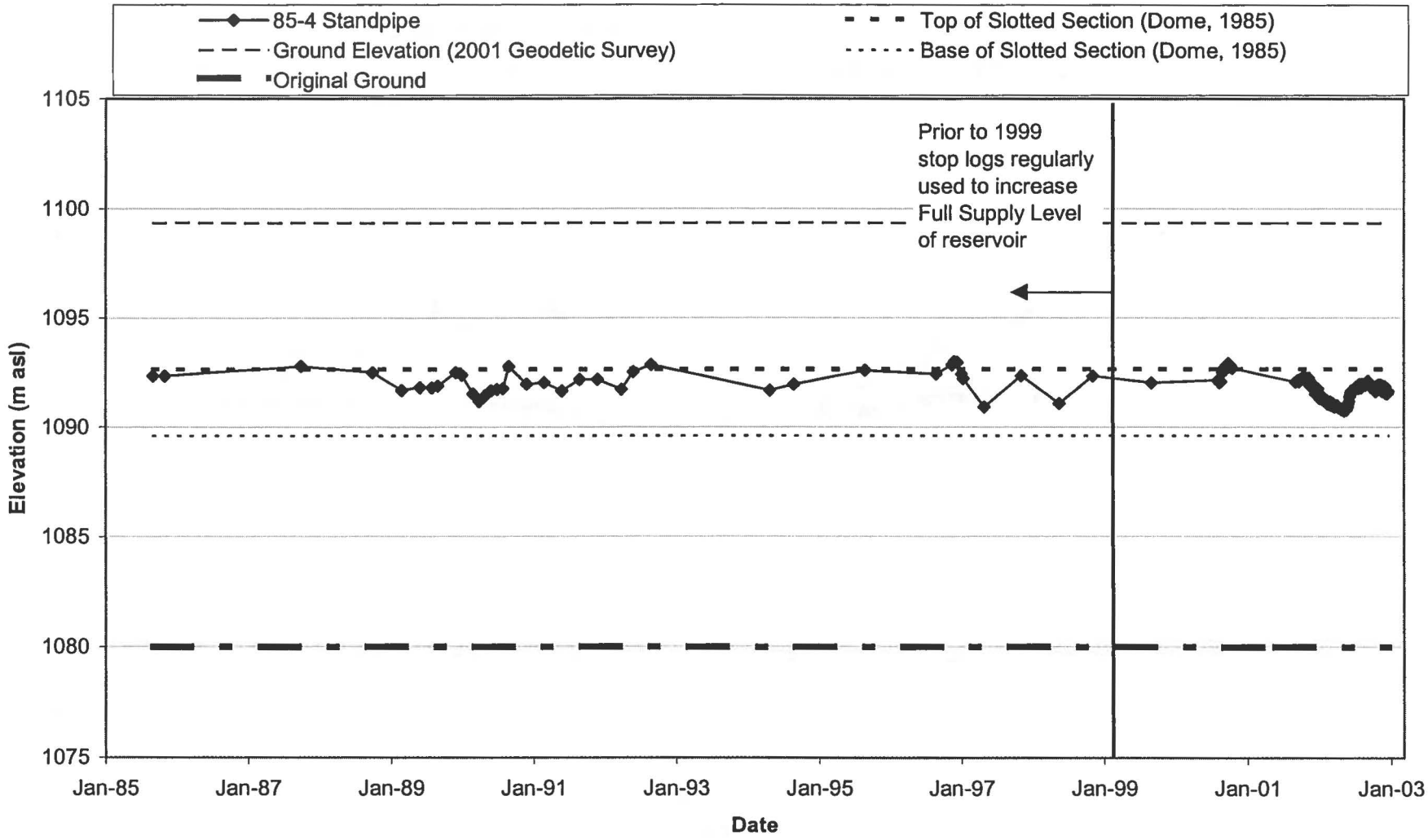


Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

BH85-4	Location:	Fresh Water Supply Dam					
		Dam Crest		Ground Elevation as per 2001 geodetic survey (m asl)	1099.347	Coordinates:	UTM NAD 83 Northing: 6911275.5 Easting: 585583.2
				Tip Elev. (m asl)	1089.2	Surface	
	Date Installed:	1985		Stick-up (m)	0.61/0.46/0.75/0.038	Protector:	yes
Date		Water level from top of pipe (m)			Piezometric Elevation (m asl)		Water El.
Sep-85		7.62			1092.34		
Nov-85		7.62			1092.34		
Oct-87		7.17			1092.79		
Oct-88		7.46			1092.50		
Mar-89		8.13			1091.68		Stick up changed
Jun-89		8.00			1091.81		
Aug-89		8.01			1091.80		
Sep-89		7.93			1091.88		
Dec-89		7.31			1092.50		
Jan-90		7.43			1092.38		
Mar-90		8.30			1091.51		
Apr-90		8.64			1091.17		
May-90		8.38			1091.43		
Jun-90		8.14			1091.67		
Jul-90		8.09			1091.72		
Aug-90		8.05			1091.78		
Sep-90		7.03			1092.78		
Dec-90		7.85			1091.96		
Mar-91		7.78			1092.03		
Jun-91		8.18			1091.65		
Sep-91		7.63			1092.18		
Dec-91		7.63			1092.18		
Apr-92		8.08			1091.73		
Jun-92		7.29			1092.52		
Sep-92		6.95			1092.86		
May-94		8.42			1091.68		stick up changed
Sep-94		8.15			1091.95		
Sep-95		7.50			1092.60		
1-Sep-96		7.67			1092.43		6 stop logs
22-Nov-96		7.25			1092.85		
3-Dec-96		7.11			1092.99		6 logs & overflow
20-Dec-96		7.15			1092.95		
10-Jan-97		7.67			1092.43		
20-Jan-97		7.89			1092.21		
May-97		9.18			1090.92		pond v.v.low
Nov-97		7.76			1092.34		3 logs; no overflow
May-98		9.04			1091.08		pond med. low<<sill
Nov-98		7.05			1092.34		-.005m>sill stick up changed
Jun-99		n.r.	blocked at 1.67 metres				
Sep-99		7.36			1092.03		pond overflow
Jun-00		1.3	frozen				pond overflow
14-Aug-00		7.25			1092.14		pond overflow
24-Aug-00		7.35			1092.04		pond overflow
31-Aug-00		7.32			1092.07		pond overflow
7-Sep-00		6.90			1092.49		pond overflow
14-Sep-00		6.70			1092.69		pond overflow
21-Sep-00		6.82			1092.77		pond overflow
28-Sep-00		6.56			1092.83		pond overflow
6-Oct-00		6.48			1092.91		pond overflow
12-Oct-00		6.64			1092.75		pond overflow
20-Oct-00		6.59			1092.80		pond overflow
27-Oct-00		6.70			1092.69		pond overflow
10-Jun-01			0.87 (regarded as erroneus)				pond overflow
14-Sep-01		7.33			1092.06	1096	
25-Sep-01		7.25			1092.14	1096	
2-Oct-01		7.32			1092.07	1096	
9-Oct-01		7.185			1092.20	1096	
16-Oct-01		7.14			1092.25	1096	
22-Oct-01		7.15			1092.24	1096	
29-Oct-01		7.12			1092.27	1096	
5-Nov-01		7.29			1092.10	1096	lowering of pond began
6-Nov-01		7.29			1092.10	1096	
12-Nov-01		7.16			1092.23	1096	Pond 7 cm above spillway
19-Nov-01		7.22			1092.17	1094.8	Pond approx. 1.2 m below spillway
21-Nov-01		7.14			1092.25	1094.5	Pond approx. 1.5 m below spillway
23-Nov-01		7.29			1092.10	1094.2	Pond approx. 1.8 m below spillway
26-Nov-01		7.46			1091.91	1093.9	Pond approx. 2.1 m below spillway
28-Nov-01		7.41			1091.96	1093.6	Pond approx. 2.4 m below spillway
30-Nov-01		7.33			1092.06	1093.5	Pond approx. 2.5 m below spillway
3-Dec-01		7.34			1092.05	1093.5	Pond approx. 2.5 m below spillway
5-Dec-01		7.40			1091.99	1093.5	Pond approx. 2.5 m below spillway
7-Dec-01		7.43			1091.96	1093.5	Pond approx. 2.5 m below spillway
10-Dec-01		7.56			1091.83	1093.5	Pond approx. 2.5 m below spillway
12-Dec-01		7.51			1091.88	1093.5	Pond approx. 2.5 m below spillway
14-Dec-01		7.515			1091.87	1093.5	Pond approx. 2.5 m below spillway
17-Dec-01		7.61			1091.78	1093.5	Pond approx. 2.5 m below spillway
19-Dec-01		7.67			1091.72	1093.5	Pond approx. 2.5 m below spillway
21-Dec-01		7.655			1091.73	1093.5	Pond approx. 2.5 m below spillway
24-Dec-01						1093.5	frozen, pond -2.5 m
26-Dec-01		7.89			1091.50	1093.3	Pond approx 2.7 m below spillway
28-Dec-01		7.83			1091.56	1093.1	Pond approx 3.0 m below spillway
31-Dec-01		7.88			1091.51		

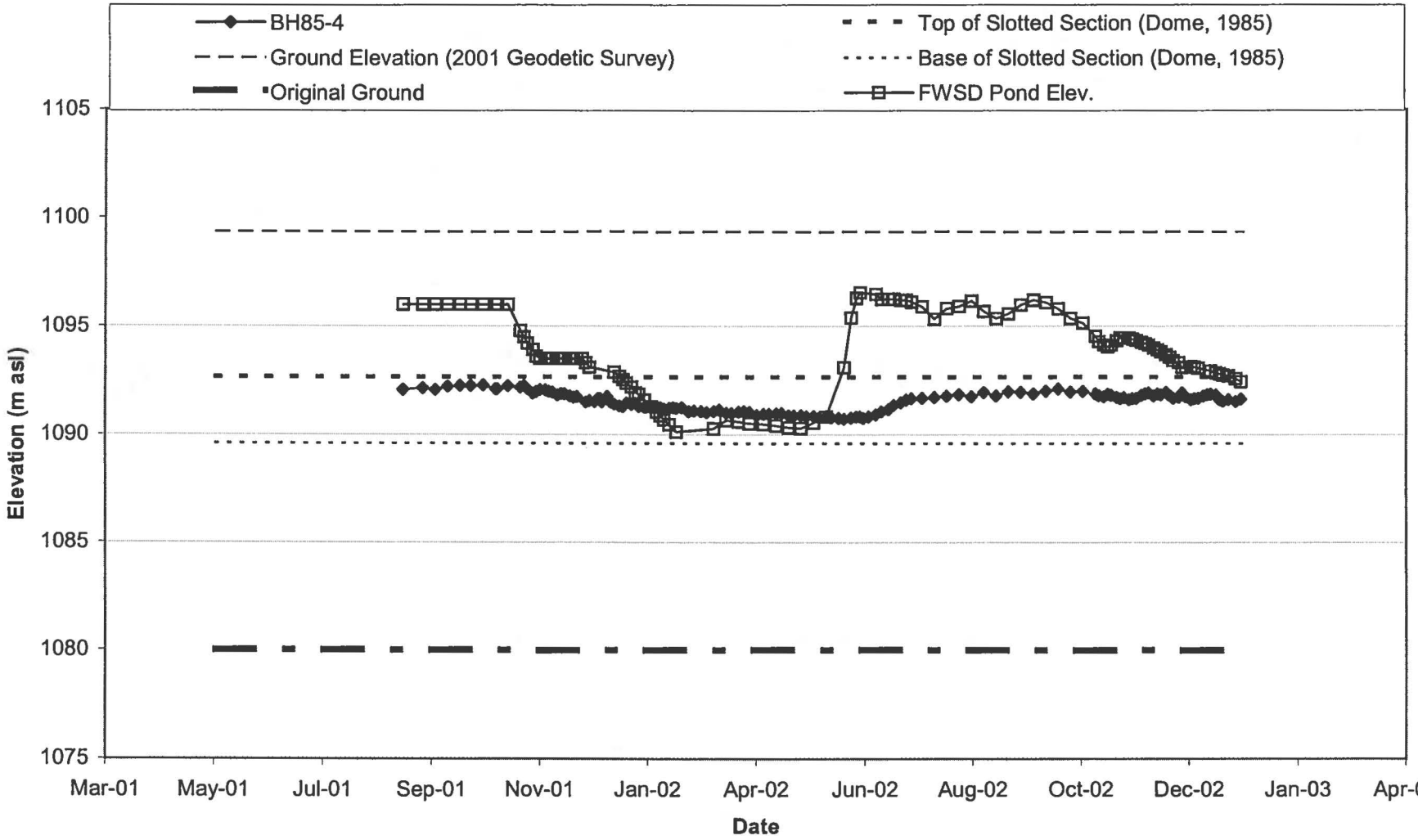
2-Jan-02		7.74		1091.65		
3-Jan-02		7.74		1091.65		
4-Jan-02		7.685		1091.50		
7-Jan-02		7.635		1091.75		
9-Jan-02		7.89		1091.50		
11-Jan-02		7.97		1091.42	1092.867	
14-Jan-02		8.06		1091.33	1092.670	
16-Jan-02		8.09		1091.30	1092.532	
18-Jan-02		7.93		1091.456	1092.379	
21-Jan-02		8.00		1091.385	1092.178	
23-Jan-02		7.94		1091.445	1091.923	
25-Jan-02		8.10		1091.285	1091.850	
28-Jan-02		8.115		1091.27	1091.589	
30-Jan-02		8.07		1091.315		
1-Feb-02		8.12		1091.265	1091.29	
4-Feb-02		8.12		1091.265	1091.035	
6-Feb-02		8.15		1091.235	1090.885	
8-Feb-02		8.2		1091.185	1090.685	
11-Feb-02		8.17		1091.215	1090.457	
13-Feb-02		8.15		1091.235		
15-Feb-02		8.185		1091.2	1090.124	
18-Feb-02		8.15		1091.235		
22-Feb-02		8.33		1091.055		
25-Feb-02		8.3		1091.085		
1-Mar-02		8.32		1091.065		
4-Mar-02		8.37		1091.015		
8-Mar-02		8.32		1091.065	1090.274	
11-Mar-02		8.25		1091.135		
15-Mar-02		8.4		1090.985	1090.645	
18-Mar-02		8.41		1090.975		
22-Mar-02		8.35		1091.035	1090.585	
25-Mar-02		8.33		1091.055		
28-Mar-02		8.36		1091.025	1090.510	
1-Apr-02		8.49		1090.895		
5-Apr-02		8.44		1090.945	1090.485	
8-Apr-02		8.44		1090.945		
12-Apr-02		8.42		1090.965	1090.406	
15-Apr-02		8.415		1090.97		
19-Apr-02		8.5		1090.885	1090.325	
22-Apr-02		8.52		1090.865		
26-Apr-02		8.51		1090.875	1090.295	
29-Apr-02		8.55		1090.835		
3-May-02		8.545		1090.84	1090.548	
6-May-02		8.6		1090.785		
10-May-02		8.54		1090.845	1090.815	
13-May-02		8.6		1090.785		
17-May-02		8.62		1090.765		
20-May-02		8.66		1090.725	1093.08	
24-May-02		8.61		1090.775	1095.395	
27-May-02		8.57		1090.815	1096.3	
29-May-02		8.565		1090.82	1096.564	
31-May-02		8.625		1090.78		
3-Jun-02		8.58		1090.825		
7-Jun-02		8.47		1090.915	1096.479	
10-Jun-02		8.34		1091.045	1096.25	estimated based on visual observations
14-Jun-02		8.225		1091.16	1096.25	estimated based on visual observations
17-Jun-02		8.03		1091.355	1096.25	estimated based on visual observations
21-Jun-02		7.92		1091.465	1096.21	surveyed
24-Jun-02		7.79		1091.595	1096.2	
27-Jun-02		7.735		1091.65	1096.124	surveyed
3-Jul-02		7.705		1091.68	1095.905	surveyed
10-Jul-02		7.68		1091.705	1095.335	surveyed
17-Jul-02		7.615		1091.77	1095.82	surveyed
24-Jul-02		7.54		1091.845	1095.92	surveyed
31-Jul-02		7.635		1091.75	1096.171	surveyed
7-Aug-02		7.44		1091.945	1095.69	surveyed
14-Aug-02		7.6		1091.785	1095.385	surveyed
21-Aug-02		7.415		1091.97	1095.578	surveyed
28-Aug-02		7.435		1091.95	1095.99	surveyed
4-Sep-02		7.5		1091.885	1096.2	estimated based on visual observations
11-Sep-02		7.39		1091.995	1096.1	estimated based on visual observations
18-Sep-02		7.285		1092.1	1095.81	surveyed
25-Sep-02		7.42		1091.965	1095.365	surveyed
2-Oct-02		7.4		1091.985	1095.141	surveyed
9-Oct-02		7.5		1091.885	1094.535	surveyed
11-Oct-02		7.585		1091.8	1094.29	surveyed
14-Oct-02		7.64		1091.745	1094.132	surveyed
16-Oct-02		7.525		1091.86	1094.035	surveyed
18-Oct-02		7.575		1091.81	1094.115	surveyed
21-Oct-02		7.67		1091.715	1094.33	surveyed
23-Oct-02		7.73		1091.655	1094.46	surveyed
25-Oct-02		7.69		1091.695	1094.46	surveyed
28-Oct-02		7.78		1091.605	1094.45	surveyed
30-Oct-02		7.74		1091.645	1094.392	surveyed
1-Nov-02		7.725		1091.66	1094.335	surveyed
4-Nov-02		7.58		1091.805	1094.255	surveyed
6-Nov-02		7.5		1091.885	1094.195	surveyed
8-Nov-02		7.47		1091.915	1094.12	surveyed
11-Nov-02		7.6		1091.785	1093.99	surveyed
13-Nov-02		7.515		1091.87	1093.89	surveyed
15-Nov-02		7.55		1091.835	1093.81	surveyed
18-Nov-02		7.445		1091.94	1093.68	surveyed
20-Nov-02		7.585		1091.8	1093.56	surveyed
22-Nov-02		7.71		1091.675	1093.395	surveyed
25-Nov-02		7.67		1091.715	1093.297	surveyed
27-Nov-02		7.475		1091.91	1093.088	surveyed
29-Nov-02		7.656		1091.73	1093.112	surveyed
2-Dec-02		7.78		1091.605	1093.12	surveyed
4-Dec-02		7.74		1091.645	1093.096	surveyed
6-Dec-02		7.72		1091.665	1093.045	surveyed
9-Dec-02		7.81		1091.775		no survey equipment
11-Dec-02		7.56		1091.835		no survey equipment
13-Dec-02		7.535		1091.85	1092.915	surveyed
16-Dec-02		7.56		1091.825	1092.63	surveyed
18-Dec-02		7.785		1091.6	1092.78	surveyed
20-Dec-02		7.86		1091.525	1092.72	surveyed
23-Dec-02		7.785		1091.6	1092.59	surveyed
27-Dec-02		7.87		1091.515	1092.57	surveyed
30-Dec-02		7.76		1091.625	1092.42	surveyed

FRESH WATER SUPPLY DAM
Piezometric Monitoring
85-4 Standpipe (Dam Crest)



Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-055-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
BH85-4 Standpipe (Dam Crest)

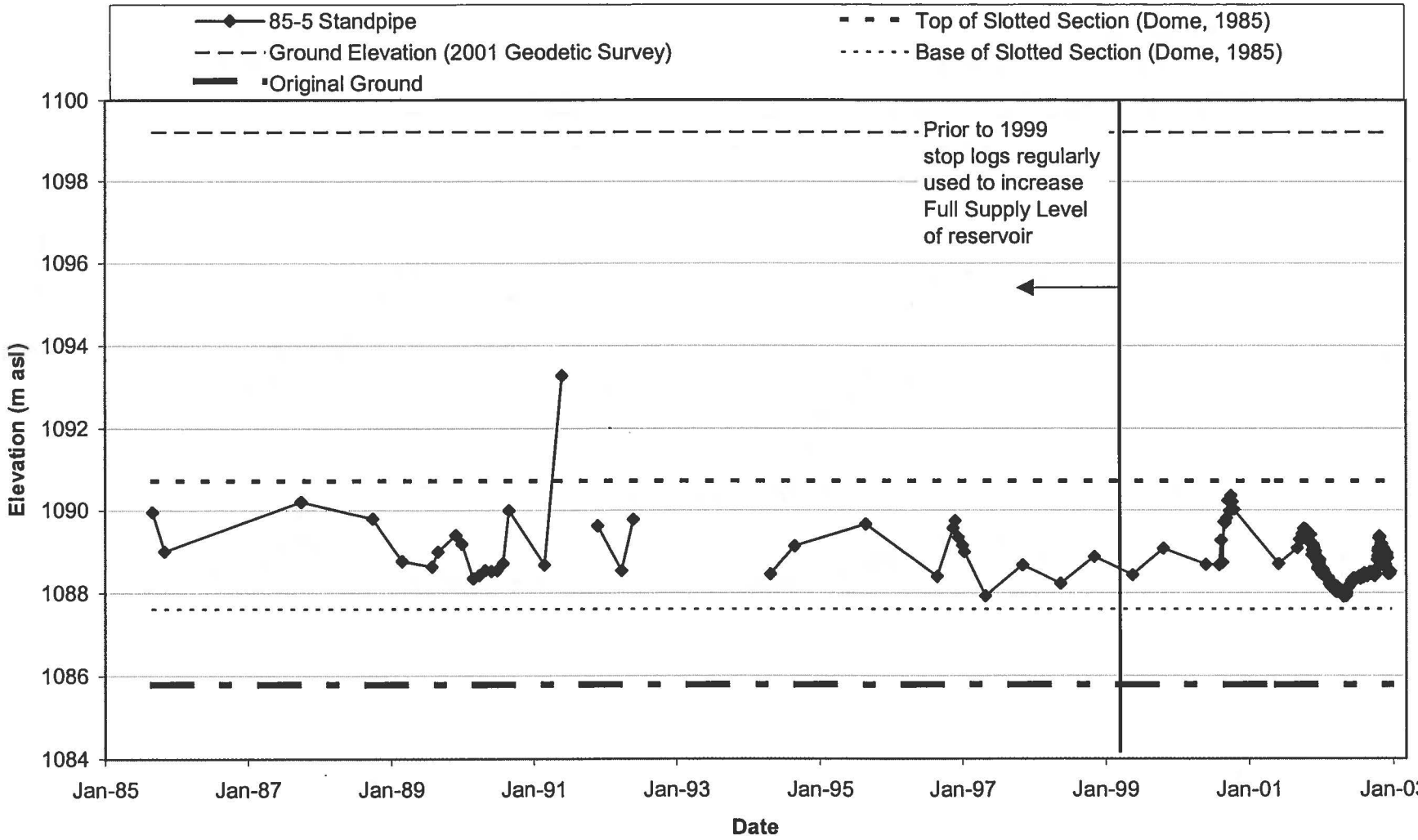


Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

BH85-5	Location:	Fresh Water Supply Dam					
		Dam Crest		Ground Elev. as per 2001 Geodetic Survey (m asl)	1099.217	Coordinates:	UTM NAD 83 Northing: N/A Easting: N/A
				Tip Elev. (m asl)	1087.31	Surface	
	Date Installed:	1985		Stick-up (m)	0.49/0.15/0.33	Protector:	yes
Date		Water level from top of pipe (m)			Piezometric Elevation (m asl)	Pond Elev.	Comments
Sep-85		9.75			1089.96		
Nov-85		10.70			1089.01		
Oct-87		9.50			1090.21		
Oct-88		9.91			1089.80		
Mar-89		10.61			1088.77		
Aug-89		10.74			1088.64		
Sep-89		10.38			1089.00		
Dec-89		9.98			1089.40		
Jan-90		10.19			1089.19		
Mar-90		11.03			1088.35		
Apr-90		10.95			1088.43		
May-90		10.83			1088.55		
Jun-90		10.85			1088.53		
Jul-90		10.83			1088.55		
Aug-90		10.66			1088.72		
Sep-90		9.38			1090.00		
Mar-91		10.70			1088.68		
Jun-91		6.16			1093.28		
Sep-91		dry					
Dec-91		9.75			1089.53		
Apr-92		10.84			1088.54		
Jun-92		9.60			1089.78		
Sep-92		frozen					
May-94		11.09			1088.46		stick up changed
Sep-94		10.41			1089.14		
Sep-95		9.88			1089.67		
1-Sep-96		11.15			1088.40		6 stop logs
22-Nov-96		9.98			1089.57		
3-Dec-96		9.80			1089.75		6 logs & overflow
20-Dec-96		10.20			1089.35		
10-Jan-97		10.40			1089.15		
20-Jan-97		10.55			1089.00		
May-97		11.62			1087.93		pond v.v.low
Nov-97		10.88			1088.67		3 logs; no overflow
May-98		11.32			1088.23		pond mod. low<<sill
Nov-98		10.67			1088.88		~.005m>sill
May-99		11.11			1088.44		pond overflow
Nov-99		10.47			1089.08		pond overflow
Jun-00		10.86			1088.69		pond overflow
14-Aug-00		10.87			1088.68		pond overflow
24-Aug-00		10.27			1089.28		pond overflow
31-Aug-00		10.81			1088.74		pond overflow
7-Sep-00		9.83			1089.72		pond overflow
14-Sep-00		9.85			1089.70		pond overflow
21-Sep-00		9.74			1089.81		pond overflow
28-Sep-00		9.31			1090.24		pond overflow
6-Oct-00		9.56			1089.99		pond overflow
12-Oct-00		9.19			1090.36		pond overflow
20-Oct-00		9.34			1090.21		pond overflow
27-Oct-00		9.53			1090.02		pond overflow
10-Jun-01		10.84			1088.71		pond overflow
14-Sep-01		10.46			1089.09	1096	pond overflow
25-Sep-01		10.25			1089.30	1096	
2-Oct-01		10.27			1089.28	1096	
9-Oct-01		10.116			1089.43	1096	
16-Oct-01		9.99			1089.56	1096	
22-Oct-01		10.02			1089.53	1096	
29-Oct-01		10.02			1089.53	1096	
5-Nov-01		10.28			1089.27	1096	lowering of pond began
6-Nov-01		10.28			1089.27	1096	
12-Nov-01		10.13			1089.42	1096	Pond 7 cm above spillway
19-Nov-01		10.3			1089.25	1094.8	Pond approx. 1.2 m below spillway
21-Nov-01		10.14			1089.41	1094.5	Pond approx. 1.5 m below spillway
23-Nov-01		10.34			1089.21	1094.2	Pond approx. 1.8 m below spillway
26-Nov-01		10.63			1088.92	1093.9	Pond approx. 2.1 m below spillway
28-Nov-01		10.51			1089.04	1093.6	Pond approx. 2.4 m below spillway
30-Nov-01		10.375			1089.17	1093.5	Pond approx. 2.5 m below spillway
3-Dec-01		10.37			1089.18	1093.5	Pond approx. 2.5 m below spillway
5-Dec-01		10.43			1089.12	1093.5	Pond approx. 2.5 m below spillway
7-Dec-01		10.47			1089.08	1093.5	Pond approx. 2.5 m below spillway
10-Dec-01		10.63			1088.92	1093.5	Pond approx. 2.5 m below spillway
12-Dec-01		10.57			1088.98	1093.5	Pond approx. 2.5 m below spillway
14-Dec-01		10.54			1089.01	1093.5	Pond approx. 2.5 m below spillway
17-Dec-01		10.66			1088.89	1093.5	Pond approx. 2.5 m below spillway
19-Dec-01		10.75			1088.80	1093.5	Pond approx. 2.5 m below spillway
21-Dec-01		10.75			1088.80	1093.5	Pond approx. 2.5 m below spillway
24-Dec-01		10.81			1088.74	1093.5	Pond approx. 2.5 m below spillway
26-Dec-01		10.96			1088.59	1093.3	Pond approx. 2.7 m below spillway
28-Dec-01		10.92			1088.63	1093.1	Pond approx. 3.0 m below spillway
31-Dec-01		10.96			1088.59		

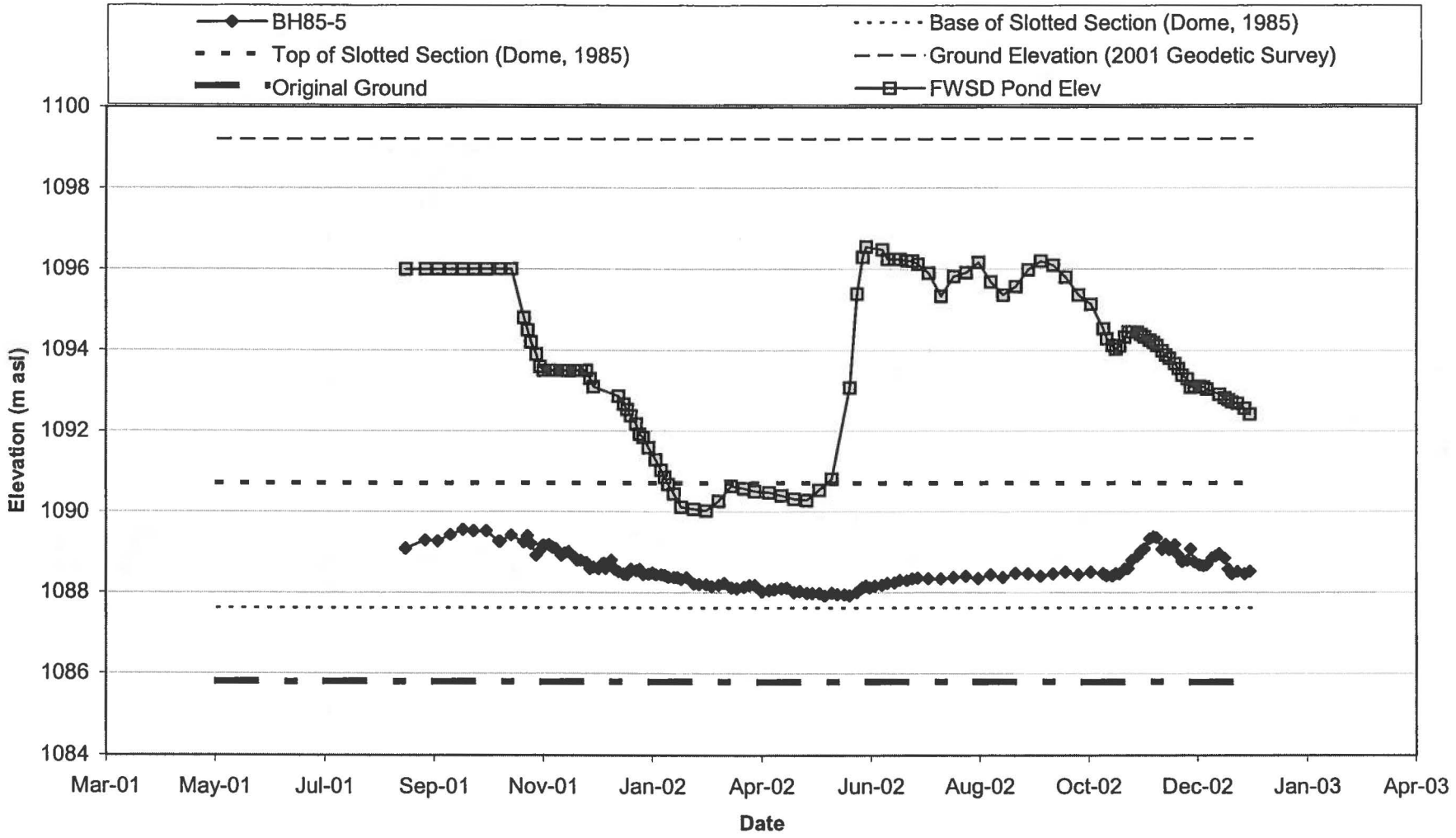
2-Jan-02		10.84			1088.71		
3-Jan-02		10.83			1088.72		
4-Jan-02		10.955			1088.59		
7-Jan-02		10.75			1088.80		
9-Jan-02		10.975			1088.57		
11-Jan-02		11.03			1088.52	1092.867	
14-Jan-02		11.09			1088.46	1092.670	
16-Jan-02		11.1			1088.45	1092.532	
18-Jan-02		10.975			1088.572	1092.379	
21-Jan-02		11.01			1088.537	1092.178	
23-Jan-02		10.98			1088.567	1091.923	
25-Jan-02		11.1			1088.447	1091.85	
28-Jan-02		11.095			1088.452	1091.589	
30-Jan-02		11.06			1088.487		
1-Feb-02		11.11			1088.437	1091.290	
4-Feb-02		11.11			1088.437	1091.035	
6-Feb-02		11.13			1088.417	1090.865	
8-Feb-02		11.17			1088.377	1090.685	
11-Feb-02		11.18			1088.367	1090.457	
13-Feb-02		11.18			1088.367		
15-Feb-02		11.225			1088.322	1090.124	
18-Feb-02		11.18			1088.367		
22-Feb-02		11.335			1088.212	1090.075	
25-Feb-02		11.345			1088.202		
1-Mar-02		11.355			1088.192	1090.035	
4-Mar-02		11.4			1088.147		
8-Mar-02		11.365			1088.182	1090.274	
11-Mar-02		11.32			1088.227		
15-Mar-02		11.43			1088.117	1090.645	
18-Mar-02		11.45			1088.097		
22-Mar-02		11.41			1088.137	1090.585	
25-Mar-02		11.375			1088.172		
28-Mar-02		11.375			1088.172	1090.510	
1-Apr-02		11.53			1088.017		
5-Apr-02		11.495			1088.052	1090.485	
8-Apr-02		11.475			1088.072		
12-Apr-02		11.45			1088.097	1090.406	
15-Apr-02		11.44			1088.107		
19-Apr-02		11.55			1087.997	1090.325	
22-Apr-02		11.525			1088.022		
26-Apr-02		11.57			1087.977	1090.295	
29-Apr-02		11.575			1087.972		
3-May-02		11.575			1087.972	1090.548	
6-May-02		11.63			1087.917		
10-May-02		11.565			1087.982	1090.815	
13-May-02		11.6	-		1087.947		
17-May-02		11.61			1087.937		
20-May-02		11.625			1087.922	1093.08	
24-May-02		11.55			1087.997	1095.395	
27-May-02		11.43			1088.117	1096.3	
29-May-02		11.385			1088.162	1096.554	
31-May-02		11.43			1088.117		
3-Jun-02		11.386			1088.162		
7-Jun-02		11.37			1088.177	1096.479	
10-Jun-02		11.32			1088.227	1096.25	estimated based on visual observations
14-Jun-02		11.31			1088.237	1096.25	estimated based on visual observations
17-Jun-02		11.25			1088.297	1096.25	estimated based on visual observations
21-Jun-02		11.256			1088.292	1096.21	surveyed
24-Jun-02		11.21			1088.337	1096.2	
27-Jun-02		11.195			1088.352	1096.124	surveyed
3-Jul-02		11.205			1088.342	1095.905	surveyed
10-Jul-02		11.21			1088.337	1095.336	surveyed
17-Jul-02		11.18			1088.367	1095.82	surveyed
24-Jul-02		11.145			1088.402	1095.92	surveyed
31-Jul-02		11.205			1088.342	1096.171	surveyed
7-Aug-02		11.11			1088.437	1095.69	surveyed
14-Aug-02		11.18			1088.367	1095.365	surveyed
21-Aug-02		11.075			1088.472	1095.576	surveyed
28-Aug-02		11.09			1088.457	1095.99	surveyed
4-Sep-02		11.15			1088.397	1096.2	estimated based on visual observations
11-Sep-02		11.09			1088.457	1096.1	estimated based on visual observations
18-Sep-02		11.04			1088.507	1095.81	surveyed
25-Sep-02		11.105			1088.442	1095.365	surveyed
2-Oct-02		11.04			1088.507	1095.141	surveyed
9-Oct-02		11.08			1088.467	1094.535	surveyed
11-Oct-02		11.135			1088.412	1094.29	surveyed
14-Oct-02		11.14			1088.407	1094.132	surveyed
16-Oct-02		11.085			1088.462	1094.035	surveyed
18-Oct-02		11.09			1088.457	1094.115	surveyed
21-Oct-02		10.975			1088.572	1094.33	surveyed
23-Oct-02		10.96			1088.587	1094.46	surveyed
25-Oct-02		10.75			1088.797	1094.46	surveyed
28-Oct-02		10.86			1088.687	1094.45	surveyed
30-Oct-02		10.53			1089.017	1094.392	surveyed
1-Nov-02		10.485			1089.062	1094.335	surveyed
4-Nov-02		10.22			1089.327	1094.255	surveyed
6-Nov-02		10.175			1089.372	1094.195	surveyed
8-Nov-02		10.195			1089.352	1094.12	surveyed
11-Nov-02		10.48			1089.067	1093.99	surveyed
13-Nov-02		10.35			1089.197	1093.89	surveyed
15-Nov-02		10.485			1089.062	1093.81	surveyed
18-Nov-02		10.36			1089.187	1093.66	surveyed
20-Nov-02		10.61			1088.937	1093.58	surveyed
22-Nov-02		10.785			1088.762	1093.395	surveyed
25-Nov-02		10.75			1088.797	1093.297	surveyed
27-Nov-02		10.47			1089.077	1093.088	surveyed
29-Nov-02		10.79			1088.757	1093.112	surveyed
2-Dec-02		10.87			1088.677	1093.12	surveyed
4-Dec-02		10.89			1088.657	1093.096	surveyed
6-Dec-02		10.86			1088.687	1093.045	surveyed
9-Dec-02		10.895			1088.652		no survey equipment
11-Dec-02		10.85			1088.897		no survey equipment
13-Dec-02		10.59			1088.957	1092.915	surveyed
16-Dec-02		10.7			1088.847	1092.83	surveyed
18-Dec-02		10.97			1088.577	1092.78	surveyed
20-Dec-02		11.09			1088.457	1092.72	surveyed
23-Dec-02		11.03			1088.517	1092.69	surveyed
27-Dec-02		11.09			1088.457	1092.57	surveyed
30-Dec-02		11.03			1088.517	1092.42	surveyed

FRESH WATER SUPPLY DAM
Piezometric Monitoring
85-5 Standpipe (Dam Crest)



Note: Original Ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
BH85-5 Standpipe (Dam Crest)

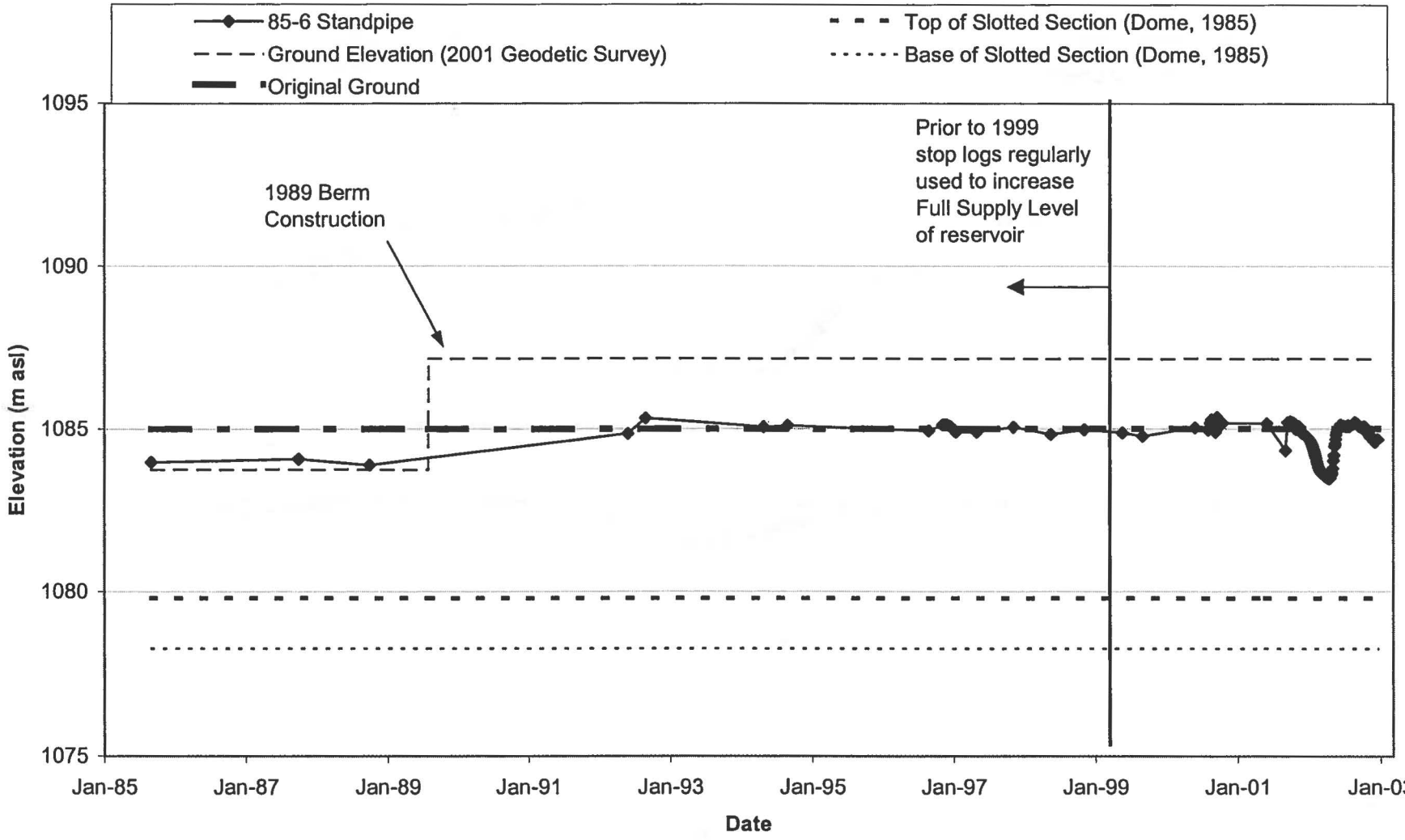


Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

BH85-6	Location:	Fresh Water Supply Dam		Ground Elev. Before 1989 Berm Construction (as per Dome 1985) (m asl)	1083.74	Coordinates:	UTM NAD 83 Northing: 6911361.1 Easting: 585571.9
		Toe Berm		Ground Elev. After 1989 Berm Construction (as per 2001 geodetic survey) (m asl)	1087.164		
				Tip Elev. (m asl)	1078.26	Surface	
	Date Installed:	1985		Stick-up (m)	0.48m/1.11m/ 0.26m	Protector:	yes
Date		Water level from top of pipe (m)			Piezometric Elevation (m asl)	Pond Elev.	Comments
Sep-85		0.25			1083.97		
Nov-85		Frozen					
Oct-87		0.15			1084.07		
Oct-88		0.34			1083.98		
Aug-89		Gate stuck					
Jan-90		Frozen					
Mar-90		Frozen					
Apr-90		Dry					
Jun-90		Dry					
Jul-90		Dry					
Aug-90		Dry					
Sep-90		Blocked					
Mar-91		dry					
Jun-91		blocked					
Sep-91		dry					
Dec-91		-					
Jan-92		blocked					
Apr-92		blocked					
Jun-92		2.80			1084.94		
Sep-92		2.32			1085.32		
May-94		3.22			1085.05		stick up changed
Sep-94		3.18			1085.09		
1-Sep-96		3.34			1084.93		6 stop logs
12-Nov-96		3.16			1085.11		
22-Nov-96		3.16			1085.11		
3-Dec-96		3.16			1085.11		6 logs & overflow
20-Dec-96		3.20			1085.07		
10-Jan-97		3.31			1084.96		
20-Jan-97		3.38	frozen		1084.89		
May-97		3.38			1084.89		pond v.v.low
Nov-97		3.23			1085.04		3 logs; no overflow
May-98		3.45	dry		1084.82		pond mod. low<<sill
Nov-98		3.31			1084.96		~.005m>sill
May-99		3.405			1084.87		pond overflow
Sep-99		3.51			1084.78		pond overflow
Jun-00		3.25			1085.02		pond overflow
14-Aug-00		3.32			1084.95		pond overflow
24-Aug-00		3.10			1085.17		pond overflow
31-Aug-00		2.99			1085.28		pond overflow
7-Sep-00		3.02			1085.25		pond overflow
14-Sep-00		3.30			1084.97		pond overflow
21-Sep-00		3.38			1084.89		pond overflow
28-Sep-00		2.92			1085.35		pond overflow
6-Oct-00		3.20			1085.07		pond overflow
12-Oct-00		3.20			1085.07		pond overflow
20-Oct-00		3.60					pond overflow
27-Oct-00		3.10			1085.17		pond overflow
10-Jun-01		3.12			1085.15		pond overflow
14-Sep-01		3.95			1084.32	1096	pond overflow
25-Sep-01		3.08			1085.19	1096	
2-Oct-01		3.09			1085.184	1096	
9-Oct-01		3.055			1085.219	1096	
16-Oct-01		3.09			1085.184	1096	
22-Oct-01		3.09			1085.184	1096	
29-Oct-01		3.11			1085.164	1096	
5-Nov-01		3.25			1085.024	1096	lowering of pond began
6-Nov-01		2.44			1084.964	1096	stick up changed
12-Nov-01		2.34			1085.064	1096	Pond 7 cm above spillway
19-Nov-01		2.35			1085.074	1094.8	Pond approx. 1.2 m below spillway
21-Nov-01		2.37			1085.054	1094.5	Pond approx. 1.5 m below spillway
23-Nov-01		2.39			1085.034	1094.2	Pond approx. 1.8 m below spillway
26-Nov-01		2.42			1085.004	1093.9	Pond approx. 2.1 m below spillway
28-Nov-01		2.45			1084.974	1093.6	Pond approx. 2.4 m below spillway
30-Nov-01		2.48			1084.944	1093.5	Pond approx. 2.5 m below spillway
3-Dec-01		2.52			1084.904	1093.5	Pond approx. 2.5 m below spillway
5-Dec-01		2.545			1084.879	1093.5	Pond approx. 2.5 m below spillway
7-Dec-01		2.56			1084.864	1093.5	Pond approx. 2.5 m below spillway
10-Dec-01		2.58			1084.844	1093.5	Pond approx. 2.5 m below spillway
12-Dec-01		2.59			1084.834	1093.5	Pond approx. 2.5 m below spillway
14-Dec-01		2.59			1084.834	1093.5	Pond approx. 2.5 m below spillway
17-Dec-01		2.605			1084.819	1093.5	Pond approx. 2.5 m below spillway
19-Dec-01		2.61			1084.814	1093.5	Pond approx. 2.5 m below spillway
21-Dec-01		2.62			1084.804	1093.5	Pond approx. 2.5 m below spillway
24-Dec-01		2.635			1084.789	1093.5	Pond approx. 2.5 m below spillway
26-Dec-01		2.645			1084.779	1093.3	Pond approx. 2.7 m below spillway
28-Dec-01		2.65			1084.774	1093.1	Pond approx. 3.0 m below spillway
31-Dec-01		2.66			1084.764		

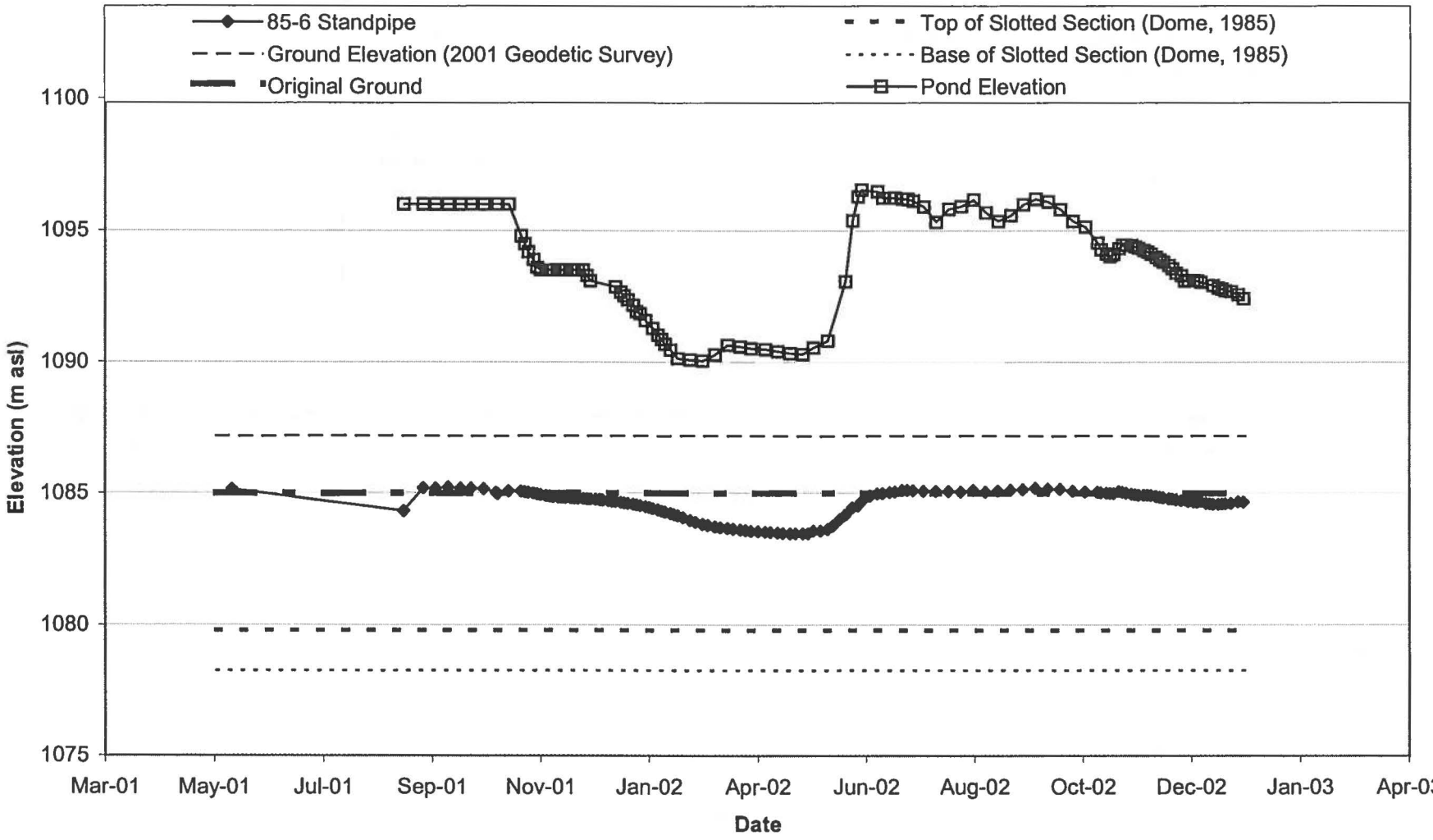
2-Jan-02		2.675			1084.749		
3-Jan-02		2.685			1084.733		
4-Jan-02		2.69			1084.734		
7-Jan-02		2.71			1084.714		
9-Jan-02		2.725			1084.699		
11-Jan-02		2.735			1084.689	1092.867	
14-Jan-02		2.765			1084.659	1092.670	
16-Jan-02		2.785			1084.639	1092.532	
18-Jan-02		2.805			1084.619	1092.379	
21-Jan-02		2.84			1084.584	1092.178	
23-Jan-02		2.855			1084.569	1091.923	
25-Jan-02		2.885			1084.539	1091.850	
28-Jan-02		2.925			1084.499	1091.589	
30-Jan-02		2.96			1084.464		
1-Feb-02		3.00			1084.424	1091.29	
4-Feb-02		3.05			1084.374	1091.035	
6-Feb-02		3.095			1084.329	1090.865	
8-Feb-02		3.135			1084.289	1090.685	
11-Feb-02		3.19			1084.234	1090.457	
13-Feb-02		3.24			1084.184		
15-Feb-02		3.28			1084.144	1090.124	
18-Feb-02		3.345			1084.079		
22-Feb-02		3.445			1083.979	1090.075	
25-Feb-02		3.51			1083.914		
1-Mar-02		3.59			1083.834	1090.036	
4-Mar-02		3.635			1083.789		
8-Mar-02		3.69			1083.734	1090.274	
11-Mar-02		3.72			1083.704		
15-Mar-02		3.755			1083.669	1090.645	
18-Mar-02		3.785			1083.639		
22-Mar-02		3.815			1083.609	1090.585	
25-Mar-02		3.835			1083.589		
28-Mar-02		3.86			1083.564	1090.510	
1-Apr-02		3.875			1083.549		
5-Apr-02		3.895			1083.529	1090.485	
8-Apr-02		3.905			1083.519		
12-Apr-02		3.92			1083.504	1090.406	
15-Apr-02		3.94			1083.484		
19-Apr-02		3.95			1083.474	1090.325	
22-Apr-02		3.955			1083.469		
26-Apr-02		3.955			1083.469	1090.295	
29-Apr-02		3.95			1083.474		
2-May-02		3.85			1083.574	1090.548	
6-May-02		3.85			1083.574		
10-May-02		3.79			1083.634	1090.815	
13-May-02		3.65			1083.774		
17-May-02		3.41			1084.014		
20-May-02		3.245			1084.179	1093.08	
24-May-02		2.97			1084.454	1095.395	
27-May-02		2.895			1084.529	1096.3	
29-May-02		2.75			1084.674	1096.554	
31-May-02		2.615			1084.809		
3-Jun-02		2.52			1084.904		
7-Jun-02		2.445			1084.979	1096.479	
10-Jun-02		2.43			1084.994	1096.25	estimated based on visual observations
14-Jun-02		2.395			1085.029	1096.25	estimated based on visual observations
17-Jun-02		2.37			1085.054	1096.25	estimated based on visual observations
21-Jun-02		2.31			1085.114	1096.21	surveyed
24-Jun-02		2.31			1085.114	1096.2	
27-Jun-02		2.325			1085.099	1096.124	surveyed
3-Jul-02		2.34			1085.084	1095.905	surveyed
10-Jul-02		2.34			1085.084	1095.335	surveyed
17-Jul-02		2.355			1085.069	1095.82	surveyed
24-Jul-02		2.375			1085.049	1095.92	surveyed
31-Jul-02		2.315			1085.109	1096.171	surveyed
7-Aug-02		2.375			1085.049	1095.89	surveyed
14-Aug-02		2.33			1085.094	1095.385	surveyed
21-Aug-02		2.3			1085.124	1095.576	surveyed
28-Aug-02		2.285			1085.139	1095.99	surveyed
4-Sep-02		2.23			1085.194	1096.2	estimated based on visual observations
11-Sep-02		2.26			1085.164	1096.1	estimated based on visual observations
18-Sep-02		2.275			1085.149	1095.81	surveyed
25-Sep-02		2.345			1085.079	1095.385	surveyed
2-Oct-02		2.37			1085.054	1095.141	surveyed
9-Oct-02		2.38			1085.044	1094.535	surveyed
11-Oct-02		2.405			1085.019	1094.29	surveyed
14-Oct-02		2.415			1085.009	1094.132	surveyed
16-Oct-02		2.425			1084.999	1094.035	surveyed
18-Oct-02		2.43			1084.994	1094.115	surveyed
21-Oct-02		2.355			1085.069	1094.33	surveyed
23-Oct-02		2.38			1085.044	1094.46	surveyed
25-Oct-02		2.41			1085.014	1094.46	surveyed
28-Oct-02		2.455			1084.969	1094.45	surveyed
30-Oct-02		2.47			1084.954	1094.392	surveyed
1-Nov-02		2.495			1084.929	1094.335	surveyed
4-Nov-02		2.49			1084.934	1094.255	surveyed
6-Nov-02		2.49			1084.934	1094.195	surveyed
8-Nov-02		2.505			1084.919	1094.12	surveyed
11-Nov-02		2.54			1084.884	1093.99	surveyed
13-Nov-02		2.57			1084.854	1093.89	surveyed
15-Nov-02		2.59			1084.834	1093.81	surveyed
18-Nov-02		2.63			1084.794	1093.68	surveyed
20-Nov-02		2.645			1084.779	1093.56	surveyed
22-Nov-02		2.675			1084.749	1093.395	surveyed
25-Nov-02		2.705			1084.719	1093.297	surveyed
27-Nov-02		2.675			1084.749	1093.088	surveyed
29-Nov-02		2.725			1084.699	1093.112	surveyed
2-Dec-02		2.75			1084.674	1093.12	surveyed
4-Dec-02		2.755			1084.669	1093.096	surveyed
6-Dec-02		2.73			1084.694	1093.045	surveyed
9-Dec-02		2.61			1084.814		no survey equipment
11-Dec-02		2.62			1084.804		no survey equipment
13-Dec-02		2.835			1084.589	1092.915	surveyed
16-Dec-02		2.835			1084.589	1092.83	surveyed
18-Dec-02		2.83			1084.594	1092.78	surveyed
20-Dec-02		2.82			1084.604	1092.72	surveyed
23-Dec-02		2.805			1084.619	1092.69	surveyed
27-Dec-02		2.75			1084.674	1092.57	surveyed
30-Dec-02		2.76			1084.664	1092.42	surveyed

FRESH WATER SUPPLY DAM
Piezometric Monitoring
85-6 Standpipe (Toe Berm)



Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

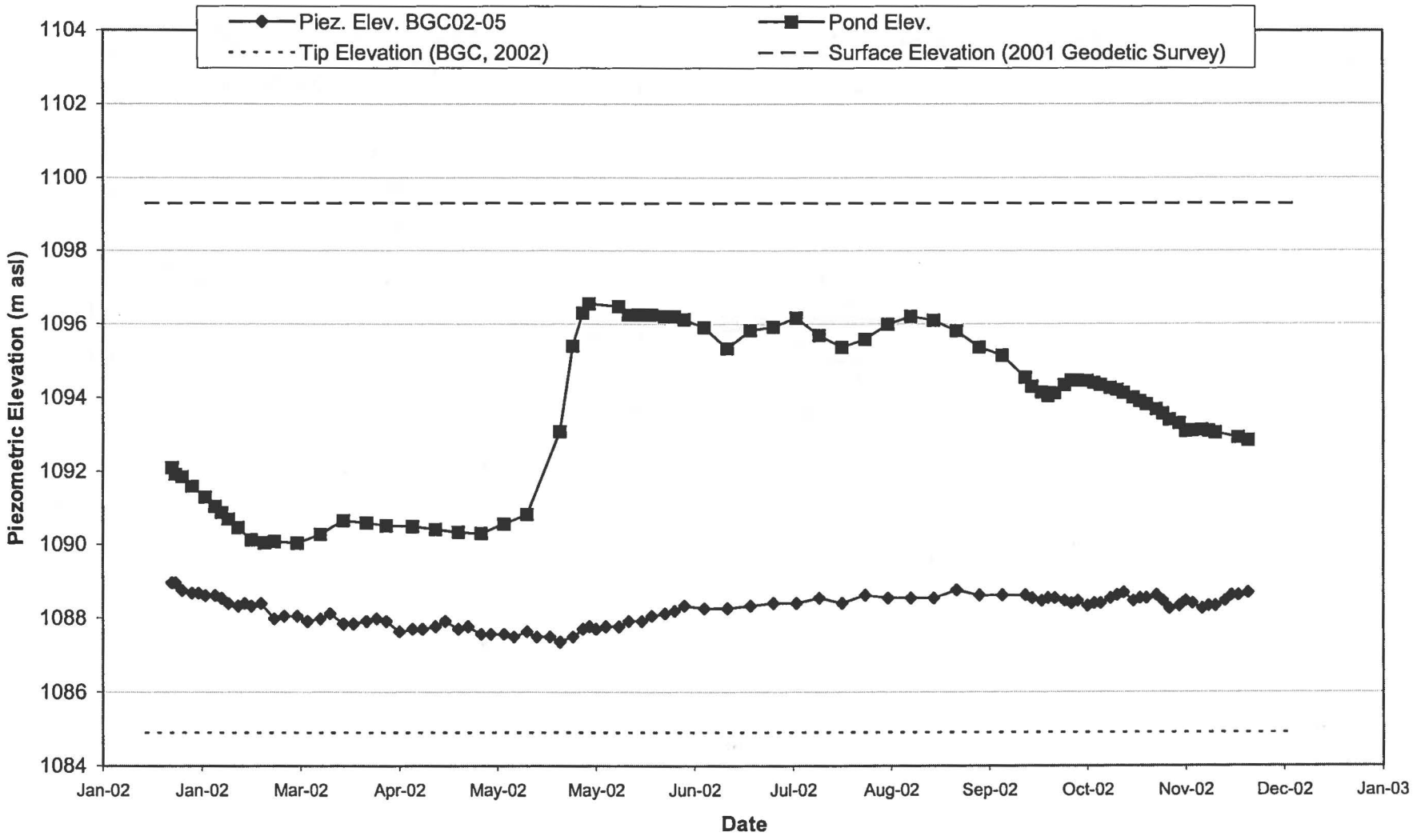
FRESH WATER SUPPLY DAM
2001/ 2002 Piezometric Monitoring
85-6 Standpipe (Toe Berm)



Note: Original ground elevation is approximate and is based on original ground contours on drawing D1575-058-006 Rev 06 (H.A. Simmons, 1968).

BGC02-05		Location:	Fresh Water Supply Dam	Ground Elev. (m asl)	1099.305	Coordinates:	UTM NAD 83 Northing: 6911316.7 Easting: 585587.2
		Date Installed:	January, 2002	Tip Elevation (m asl)	1084.90	Protector:	yes
Date		Reading (psi)			Piezometric Elevation (m asl)		Pond Elev. (m asl)
22-Jan-02		5.80			1088.96		1092.100
23-Jan-02		5.80			1088.96		1091.923
25-Jan-02		5.50			1088.75		1091.850
26-Jan-02		5.40			1088.68		1091.589
30-Jan-02		5.40			1088.68		
1-Feb-02		5.30			1088.61		1091.29
4-Feb-02		5.30			1088.61		1091.04
6-Feb-02		5.20			1088.54		1090.866
8-Feb-02		5.00			1088.40		1090.668
11-Feb-02		4.90			1088.33		1090.467
13-Feb-02		5.00			1088.40		
15-Feb-02		4.90			1088.33		1090.124
18-Feb-02		5.00			1088.40		
19-Feb-02							1090.045
22-Feb-02		4.40			1087.98		1090.075
25-Feb-02		4.50			1088.05		
1-Mar-02		4.50			1088.05		1090.035
4-Mar-02		4.30			1087.91		
8-Mar-02		4.40			1087.98		1090.274
11-Mar-02		4.60			1088.12		
15-Mar-02		4.20			1087.84		1090.645
18-Mar-02		4.20			1087.84		
22-Mar-02		4.30			1087.91		1090.585
25-Mar-02		4.40			1087.98		
28-Mar-02		4.30			1087.91		1090.510
1-Apr-02		3.90			1087.63		
5-Apr-02		4.00			1087.70		1090.49
8-Apr-02		4.00			1087.70		
12-Apr-02		4.10			1087.77		1090.41
15-Apr-02		4.30			1087.91		
19-Apr-02		4.00			1087.70		1090.325
22-Apr-02		4.10			1087.77		
26-Apr-02		3.80			1087.56		1090.295
29-Apr-02		3.80			1087.56		
3-May-02		3.80			1087.56		1090.55
6-May-02		3.70			1087.49		
10-May-02		3.90			1087.63		1090.62
13-May-02		3.70			1087.49		
17-May-02		3.70			1087.49		
20-May-02		3.58			1087.35		1093.06
24-May-02		3.70			1087.49		1093.395
27-May-02		4.00			1087.70		1096.3
29-May-02		4.10			1087.77		1096.564
31-May-02		4.00			1087.70		
3-Jun-02		4.10			1087.77		
7-Jun-02		4.10			1087.77		1096.479
10-Jun-02		4.30			1087.91		1096.25
14-Jun-02		4.30			1087.91		1096.25
17-Jun-02		4.50			1088.05		1096.25
21-Jun-02		4.80			1088.12		1096.21
24-Jun-02		4.70			1088.19		1096.20
27-Jun-02		4.90			1088.33		1096.12
3-Jul-02		4.60			1088.26		1095.91
10-Jul-02		4.80			1088.26		1095.336
17-Jul-02		4.90			1088.33		1095.820
24-Jul-02		5.00			1088.40		1095.820
31-Jul-02		5.00			1088.40		1096.171
7-Aug-02		5.20			1088.54		1095.890
14-Aug-02		5.00			1088.40		1095.365
21-Aug-02		5.30			1088.61		1095.576
28-Aug-02		5.20			1088.54		1095.990
4-Sep-02		5.20			1088.54		1096.200
11-Sep-02		5.20			1088.54		1096.100
18-Sep-02		5.58			1088.75		1095.810
25-Sep-02		5.30			1088.61		1095.365
2-Oct-02		5.30			1088.61		1095.141
9-Oct-02		5.30			1088.61		1094.535
11-Oct-02		5.20			1088.54		1094.290
14-Oct-02		5.18			1088.47		1094.132
16-Oct-02		5.20			1088.54		1094.036
18-Oct-02		5.20			1088.54		1094.115
21-Oct-02		5.10			1088.47		1094.330
23-Oct-02		5.00			1088.40		1094.460
25-Oct-02		5.10			1088.47		1094.460
28-Oct-02		4.90			1088.33		1094.450
30-Oct-02		5.00			1088.40		1094.382
1-Nov-02		5.00			1088.40		1094.335
4-Nov-02		5.20			1088.54		1094.255
6-Nov-02		5.30			1088.61		1094.195
8-Nov-02		5.40			1088.68		1094.120
11-Nov-02		5.10			1088.47		1093.990
13-Nov-02		5.20			1088.54		1093.890
15-Nov-02		5.20			1088.54		1093.810
18-Nov-02		5.30			1088.61		1093.680
20-Nov-02		5.10			1088.47		1093.560
22-Nov-02		4.80			1088.26		1093.395
25-Nov-02		4.90			1088.33		1093.297
27-Nov-02		5.10			1088.47		1093.088
29-Nov-02		5.00			1088.40		1093.112
2-Dec-02		4.80			1088.26		1093.120
4-Dec-02		4.90			1088.33		1093.096
6-Dec-02		4.90			1088.33		1093.045
9-Dec-02		5.10			1088.47		
11-Dec-02		5.30			1088.61		
13-Dec-02		5.30			1088.61		1092.915
16-Dec-02		5.40			1088.68		1092.830
18-Dec-02		5.10			1088.47		1092.780
20-Dec-02		4.90			1088.33		1092.720
23-Dec-02		5.00			1088.40		1092.690
27-Dec-02		5.00			1088.40		1092.570
30-Dec-02		5.10			1088.47		1092.420

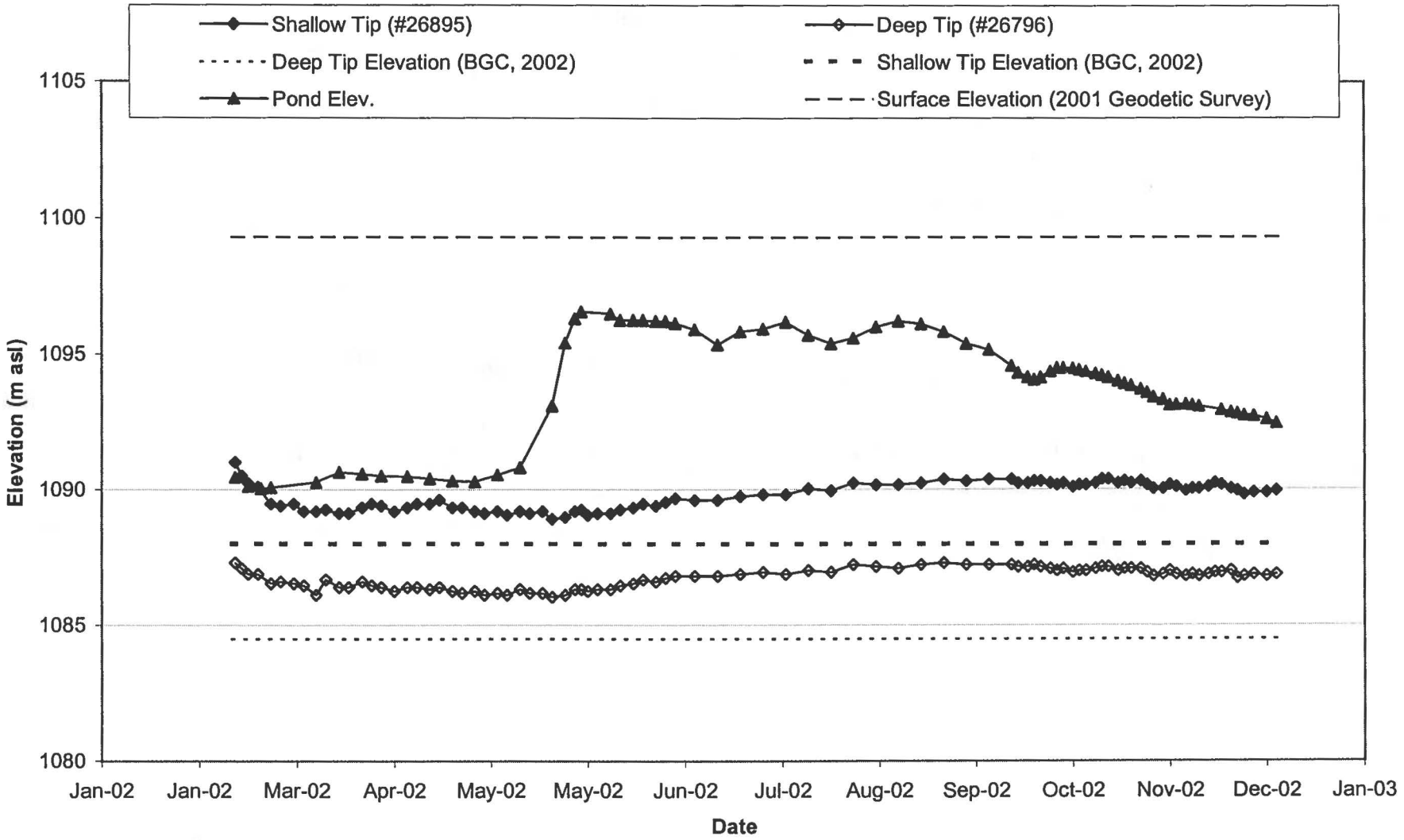
FRESH WATER SUPPLY DAM
2002 Piezometric Monitoring
BGC02-05 (Dam Crest)



BGC02-14	Location:	Fresh Water Supply Dam	Ground Elev. (m asl)	1099.305	Coordinates:	UTM NAD 83 Northing: 6911316.7 Easting: 585687.2
			Shallow Tip Elev. (m asl)	1088.00		
	Date Installed:	January, 2002	Deep Tip Elevation (m asl)	1084.50	Protector:	yes

Date	Reading (psi)			Piezometric Elevation (m asl)		Pond Elev. (m asl)
	Shallow Tip (#26895)	Deep Tip (#26796)		Shallow Tip (#26895)	Deep Tip (#26796)	Pond Elev.
	(psi)	(psi)		(m)	(m)	
11-Feb-02	4.30	4.00		1091.01	1087.30	1090.467
13-Feb-02	3.80	3.70		1090.52	1087.09	
15-Feb-02	3.20	3.40		1090.24	1086.88	1090.124
18-Feb-02	3.00	3.40		1090.10	1086.88	
19-Feb-02						1090.045
22-Feb-02	2.10	2.90		1089.47	1086.53	1090.075
25-Feb-02	2.00	3.00		1089.40	1086.60	
1-Mar-02	2.10	2.90		1089.47	1086.53	
4-Mar-02	1.70	2.80		1089.19	1086.46	
8-Mar-02	1.70	2.30		1089.19	1086.11	1090.274
11-Mar-02	1.80	3.10		1089.26	1086.67	
15-Mar-02	1.80	2.70		1089.12	1086.39	1090.645
18-Mar-02	1.80	2.70		1089.12	1086.39	
22-Mar-02	1.90	3.00		1089.33	1086.60	1090.585
25-Mar-02	2.10	2.80		1089.47	1086.46	
28-Mar-02	2.00	2.70		1089.40	1086.39	1090.510
1-Apr-02	1.70	2.50		1089.19	1086.25	
5-Apr-02	1.90	2.70		1089.33	1086.39	1090.485
8-Apr-02	2.10	2.70		1089.47	1086.39	
12-Apr-02	2.10	2.80		1089.47	1086.32	1090.406
15-Apr-02	2.30	2.70		1089.61	1086.39	
19-Apr-02	1.90	2.50		1089.33	1086.25	1090.325
22-Apr-02	1.90	2.40		1089.33	1086.18	
26-Apr-02	1.70	2.50		1089.19	1086.25	1090.295
29-Apr-02	1.80	2.30		1089.12	1086.11	
3-May-02	1.70	2.40		1089.19	1086.18	1090.56
6-May-02	1.50	2.30		1089.05	1086.11	
10-May-02	1.70	2.60		1089.19	1086.32	1090.62
13-May-02	1.60	2.40		1089.12	1086.18	
17-May-02	1.70	2.40		1089.19	1086.18	
20-May-02	1.30	2.20		1088.81	1086.04	1093.06
24-May-02	1.40	2.30		1088.96	1086.11	1095.395
27-May-02	1.70	2.60		1089.19	1086.32	1096.3
29-May-02	1.60	2.60		1089.26	1086.32	1096.564
31-May-02	1.50	2.50		1089.05	1086.25	
3-Jun-02	1.60	2.60		1089.12	1086.32	
7-Jun-02	1.60	2.60		1089.12	1086.32	1096.479
10-Jun-02	1.80	2.60		1089.26	1086.46	1096.25
14-Jun-02	1.90	2.90		1089.33	1086.53	1096.25
17-Jun-02	2.10	3.10		1089.47	1086.67	1096.25
21-Jun-02	2.00	3.00		1089.40	1086.60	1096.21
24-Jun-02	2.20	3.20		1089.54	1086.74	1096.20
27-Jun-02	2.40	3.30		1089.68	1086.81	1096.12
3-Jul-02	2.30	3.30		1089.61	1086.81	1095.91
10-Jul-02	2.30	3.30		1089.61	1086.81	1095.34
17-Jul-02	2.50	3.40		1089.75	1086.88	1095.82
24-Jul-02	2.60	3.50		1089.82	1086.95	1095.92
31-Jul-02	2.60	3.40		1089.82	1086.88	1096.17
7-Aug-02	2.80	3.60		1090.03	1087.02	1095.69
14-Aug-02	2.80	3.50		1089.96	1086.95	1095.37
21-Aug-02	3.20	3.90		1090.24	1087.23	1095.58
28-Aug-02	3.10	3.80		1090.17	1087.16	1095.99
4-Sep-02	3.10	3.70		1090.17	1087.09	1096.30
11-Sep-02	3.20	3.90		1090.24	1087.23	1096.10
18-Sep-02	3.40	4.00		1090.38	1087.30	1095.81
25-Sep-02	3.30	3.90		1090.31	1087.23	1096.37
2-Oct-02	3.40	3.90		1090.38	1087.23	1095.14
9-Oct-02	3.40	3.90		1090.38	1087.23	1094.54
11-Oct-02	3.20	3.80		1090.24	1087.16	1094.39
14-Oct-02	3.20	3.80		1090.24	1087.16	1094.13
16-Oct-02	3.30	3.90		1090.31	1087.23	1094.04
18-Oct-02	3.30	3.80		1090.31	1087.16	1094.12
21-Oct-02	3.20	3.70		1090.24	1087.09	1094.33
23-Oct-02	3.10	3.80		1090.17	1087.02	1094.46
25-Oct-02	3.20	3.70		1090.24	1087.09	1094.48
28-Oct-02	3.00	3.50		1090.10	1086.95	1094.45
30-Oct-02	3.10	3.60		1090.17	1087.02	1094.39
1-Nov-02	3.10	3.60		1090.17	1087.02	1094.34
4-Nov-02	3.20	3.70		1090.24	1087.09	1094.26
6-Nov-02	3.40	3.80		1090.38	1087.16	1094.29
8-Nov-02	3.40	3.80		1090.38	1087.16	1094.12
11-Nov-02	3.20	3.60		1090.24	1087.02	1093.99
13-Nov-02	3.30	3.70		1090.31	1087.09	1093.89
15-Nov-02	3.20	3.70		1090.24	1087.09	1093.81
18-Nov-02	3.30	3.70		1090.31	1087.09	1093.86
20-Nov-02	3.10	3.50		1090.17	1086.95	1093.56
22-Nov-02	2.90	3.30		1090.03	1086.81	1093.40
25-Nov-02	2.90	3.40		1090.03	1086.88	1093.30
27-Nov-02	3.10	3.60		1090.17	1087.02	1093.09
29-Nov-02	3.00	3.40		1090.10	1086.88	1093.11
2-Dec-02	2.80	3.30		1089.96	1086.81	1093.12
4-Dec-02	2.90	3.40		1090.03	1086.88	1093.10
6-Dec-02	2.90	3.30		1090.03	1086.81	1093.05
9-Dec-02	3.00	3.40		1090.10	1086.88	
11-Dec-02	3.20	3.50		1090.24	1086.95	
13-Dec-02	3.10	3.50		1090.17	1086.95	1092.92
18-Dec-02	2.90	3.60		1090.03	1087.02	1092.83
18-Dec-02	2.80	3.20		1089.96	1086.74	1092.78
20-Dec-02	2.60	3.30		1089.82	1086.81	1092.72
23-Dec-02	2.70	3.40		1089.89	1086.88	1092.69
27-Dec-02	2.70	3.30		1089.89	1086.81	1092.57
30-Dec-02	2.80	3.40		1089.96	1086.88	1092.42

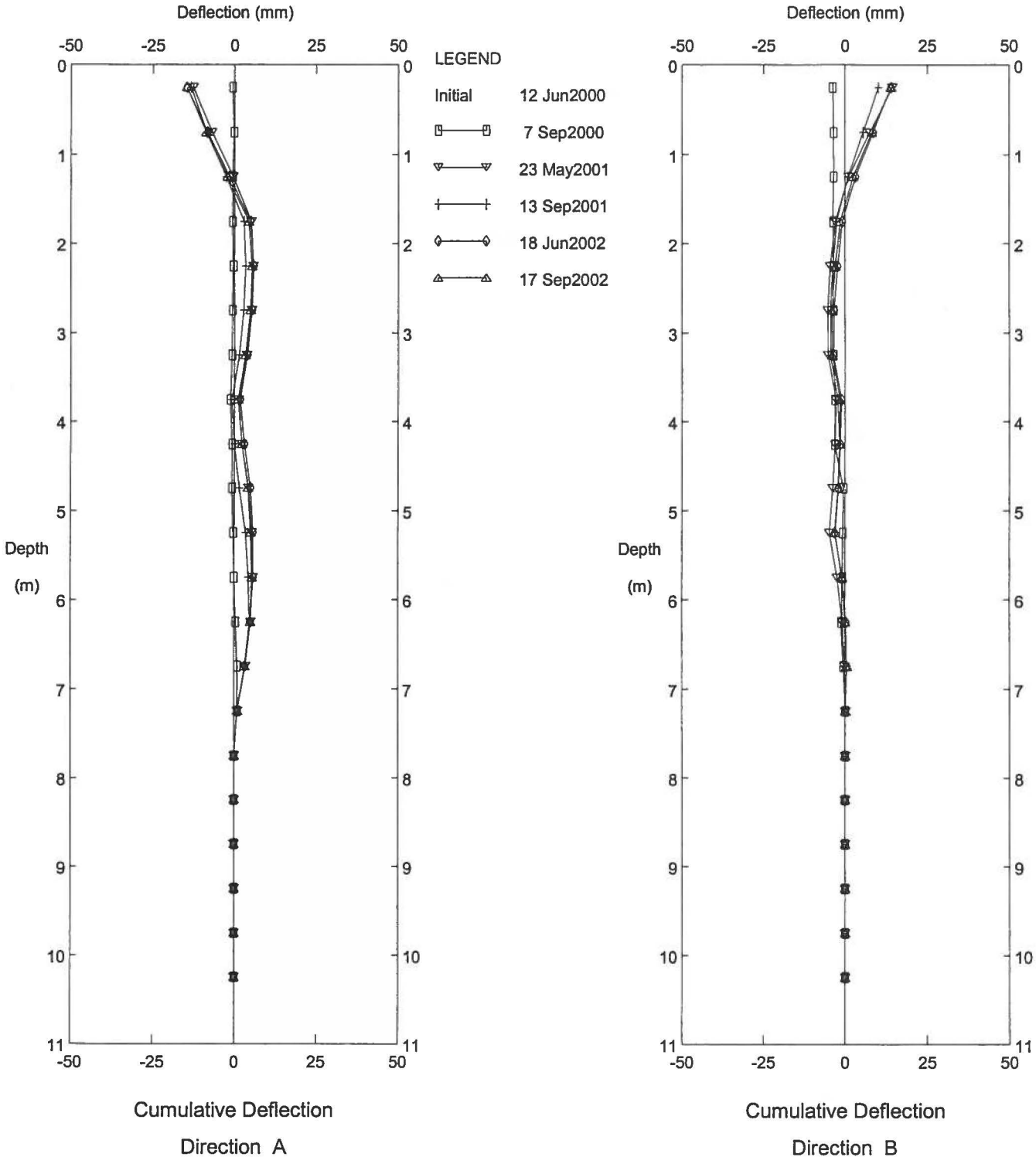
FRESH WATER SUPPLY DAM
2002 Piezometric Monitoring
BGC02-14 (Dam Crest)



THERMISTORS

SLOPE INDICATORS

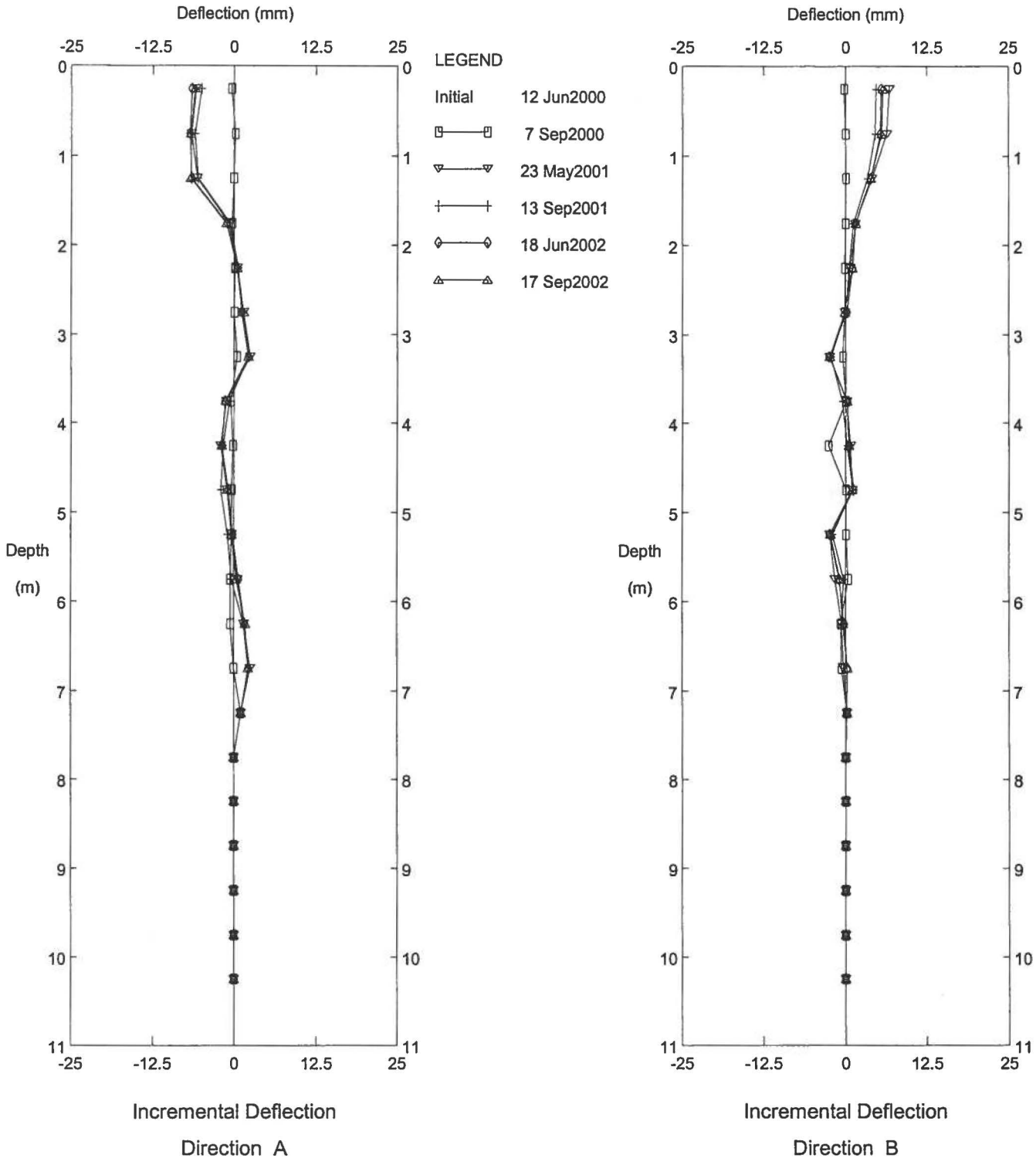
BGC Engineering Inc. - Calgary, AB



SP-2, Inclinometer 1+530

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

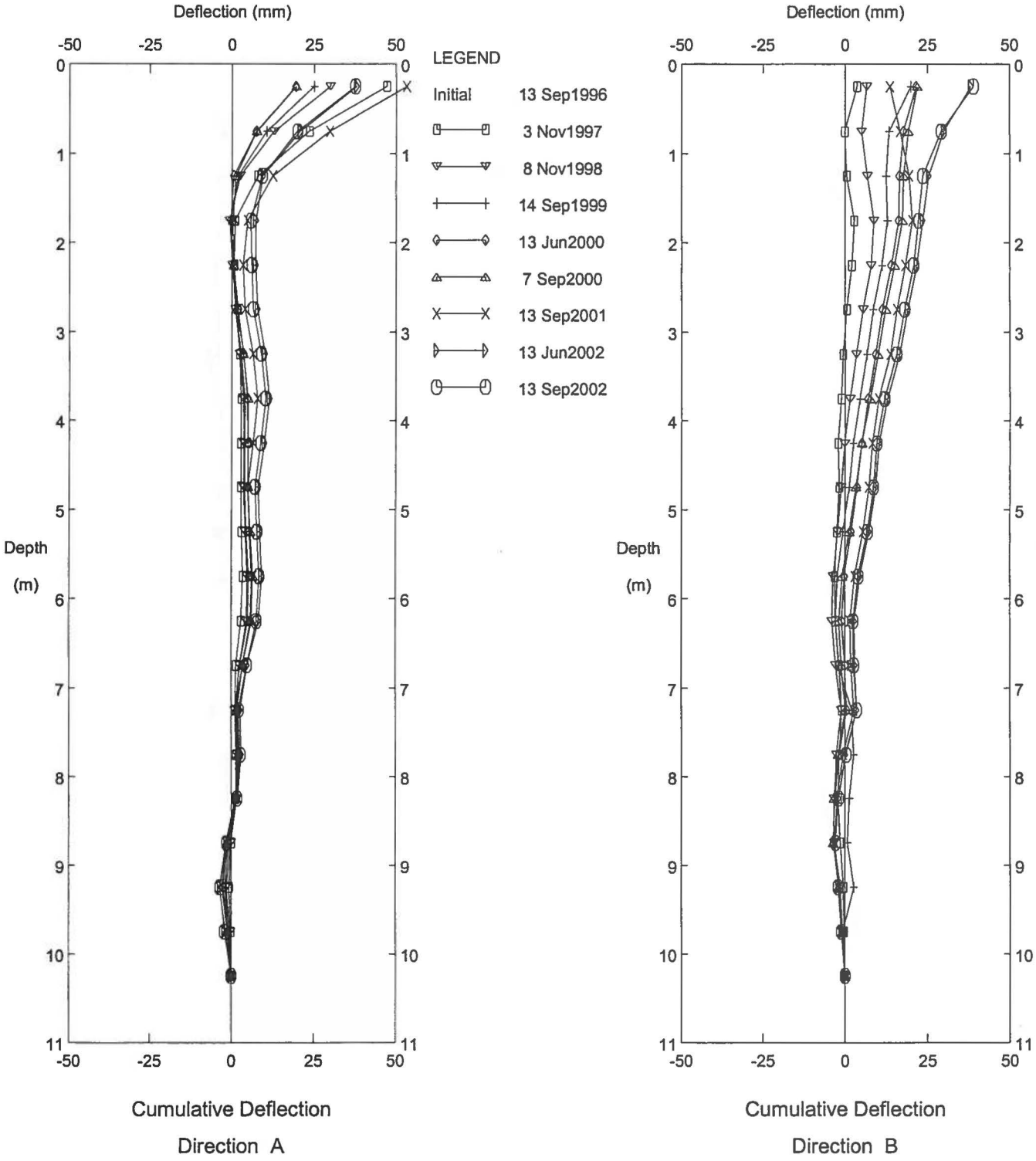
BGC Engineering Inc. - Calgary, AB



SP-2, Inclinometer 1+530

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

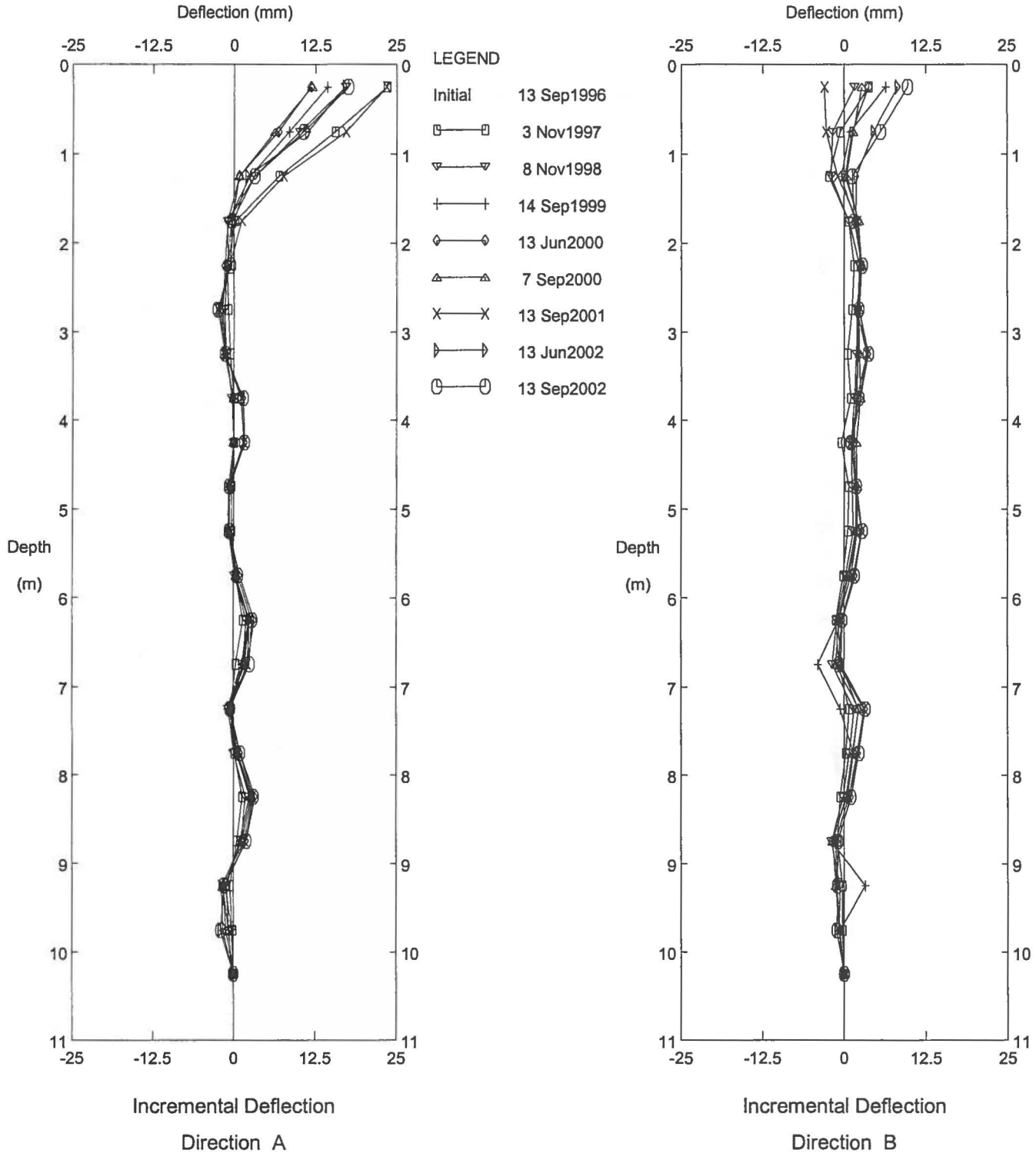
BGC Engineering Inc. - Calgary, AB



SP-5, Inclinometer 2+950

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

BGC Engineering Inc. - Calgary, AB



SP-5, Inclinometer 2+950

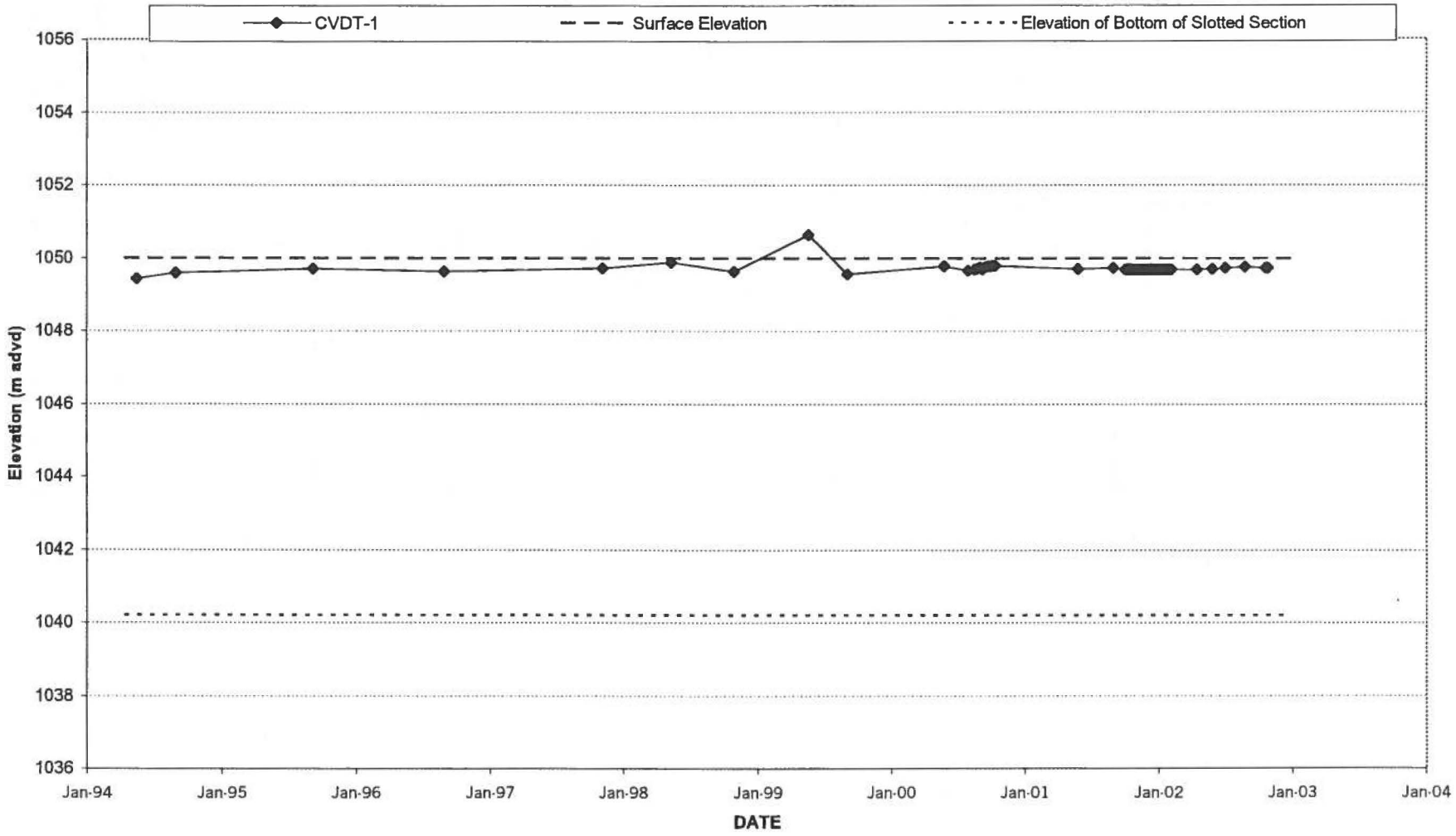
Sets marked * include zero shift and/or rotation corrections.

CROSS VALLEY DAM

PIEZOMETERS

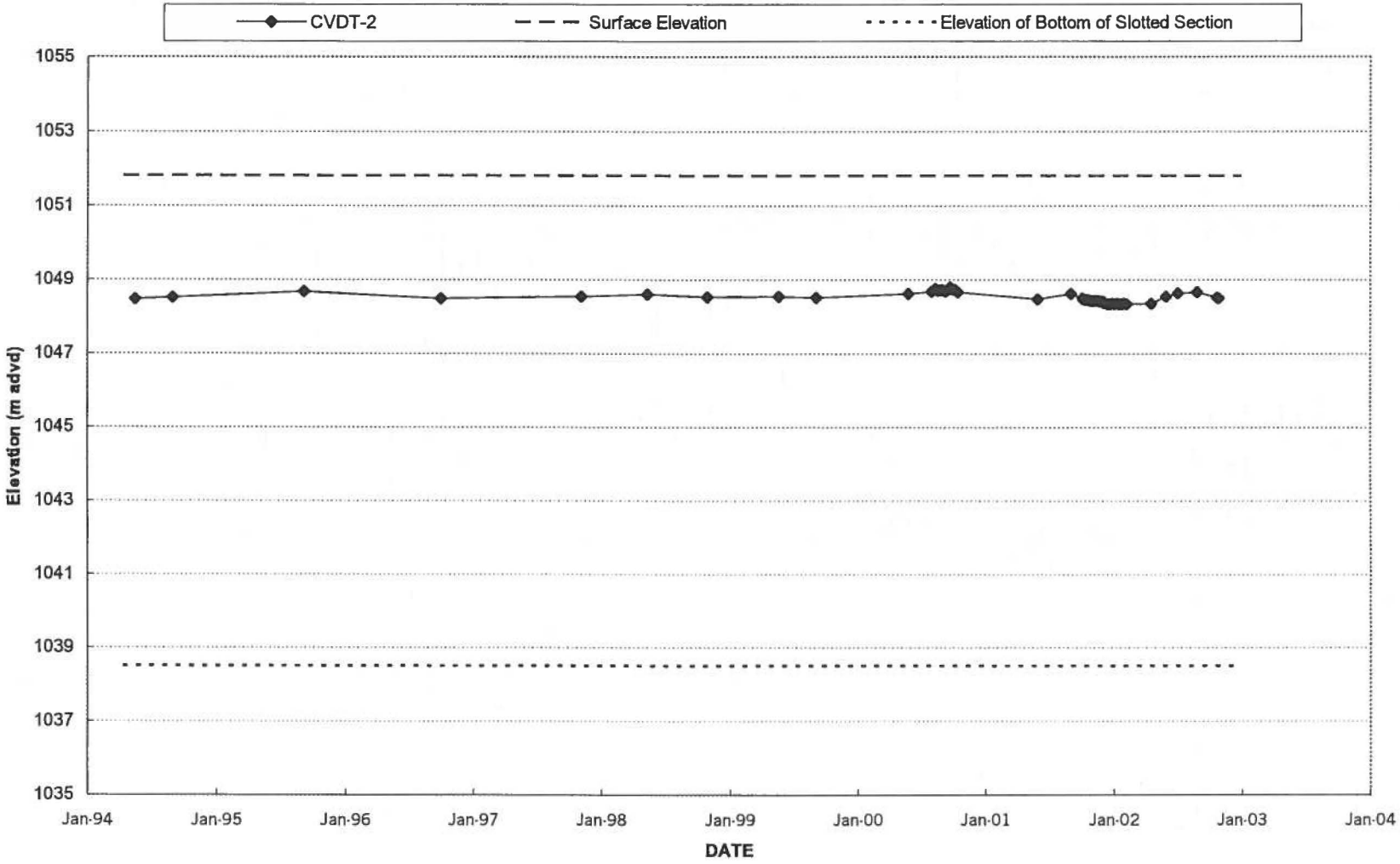
CVDT-1	Location:	Cross Valley Dam Toe		Ground Elevation: (m advd)	1050.0	Coordinates:	N/A
		black PVC adj. to X11 channel					
	Date Installed:	N/A		Tip Elevation: (m advd)	1040.2	Surface Protector:	N/A
				Stick-up:	1.5m/ 0.13m		
		Water Level from top of pipe (m)			Piezometric Elevation (m advd)		Pond El. (m advd)
May-94		-2.07			1049.43		
Sep-94		-1.92			1049.58		
Sep-95		-1.80			1049.70		
Sep-96		-1.87			1049.63		1062.215
Nov-97		-1.78			1049.72		
May-98		-1.62			1049.88		1063.5
Nov-98		-1.87	dry		1049.63		1062.1
Jun-99		-0.868			1050.63		1063.7
Sep-99		-1.940			1049.56		~1061.5
Jun-00		-1.73			1049.77		~1062.5
14-Aug-00		-1.84			1049.66		
31-Aug-00		-1.81			1049.69		
7-Sep-00		-1.80			1049.70		
14-Sep-00		-1.75			1049.75		
21-Sep-00		-1.81			1049.69		
28-Sep-00		-1.76			1049.74		
6-Oct-00		-1.73			1049.77		
12-Oct-00		-1.73			1049.77		
20-Oct-00		-1.71			1049.79		
27-Oct-00		-1.71	blocked/frozen		1049.79		
10-Jun-01		-1.80			1049.70		
14-Sep-01		-1.77			1049.73		
16-Oct-01		-1.81			1049.69		
18-Oct-01		-1.81			1049.69		
19-Oct-01		-1.81			1049.69		
20-Oct-01		-1.81			1049.69		
21-Oct-01		-1.81			1049.69		
22-Oct-01		-1.81			1049.69		
25-Oct-01		-1.81			1049.69		
29-Oct-01		-1.81			1049.69		
1-Nov-01		-1.81			1049.69		
5-Nov-01		-1.81			1049.69		
6-Nov-01		-0.44			1049.69		Stick up changed
8-Nov-01		-0.44			1049.69		
12-Nov-01		-0.44			1049.69		
15-Nov-01		-0.44			1049.69		
19-Nov-01		-0.44			1049.69		
21-Nov-01		-0.44			1049.69		
23-Nov-01		-0.44			1049.69		pond elev approx - 8 ft.
26-Nov-01		-0.44			1049.69		daytime temp -34 C
28-Nov-01		-0.44			1049.69		
30-Nov-01		-0.44			1049.69		
3-Dec-01		-0.44			1049.69		
5-Dec-01		-0.44			1049.69		
12-Dec-01		-0.44			1049.69		
14-Dec-01		-0.44			1049.69		
15-Dec-01		-0.44			1049.69		
16-Dec-01		-0.44			1049.69		
17-Dec-01		-0.44			1049.69		
18-Dec-01		-0.44			1049.69		
19-Dec-01		-0.44			1049.69		
26-Dec-01		-0.44			1049.69		
2-Jan-02		-0.44			1049.69		
9-Jan-02		-0.44			1049.69		
16-Jan-02		-0.44			1049.69		
23-Jan-02		-0.44			1049.69		
30-Jan-02		-0.44			1049.69		
6-Feb-02		-0.44			1049.69		
13-Feb-02		-0.44			1049.69		
20-Feb-02		-0.44			1049.69		
1-May-02		-0.44			1049.69		
12-Jun-02		-0.435			1049.695		
17-Jul-02		-0.395			1049.735		
7-Aug-02						not read	
9-Sep-02		-0.37			1049.76		
4-Nov-02		-0.395			1049.735		
10-Nov-02		-0.395			1049.735		

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



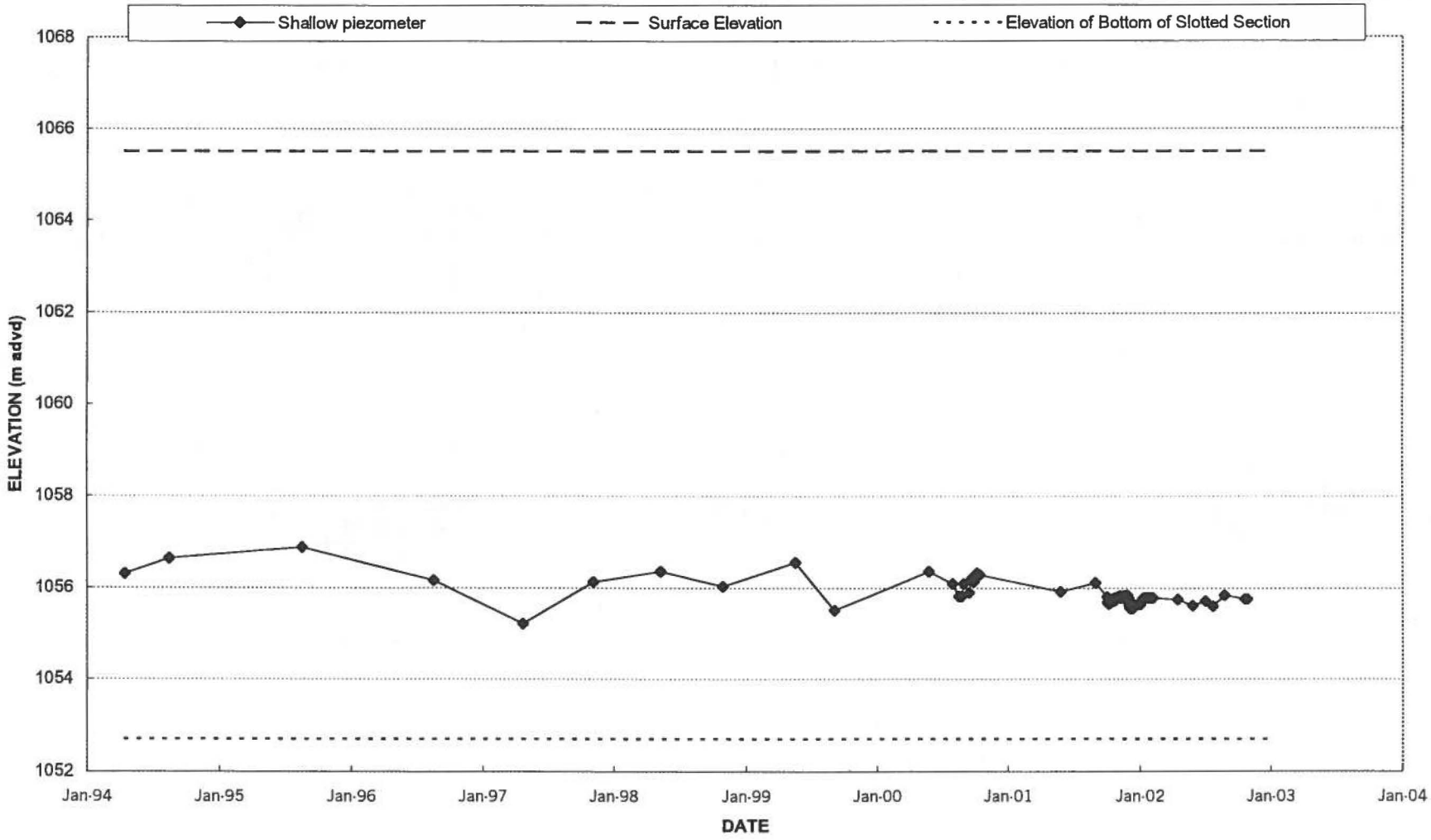
CVDT-2	Location:	Cross Valley Dam Toe		Ground Elevation: (m advd)	1051.8	Coordinates:	N/A
		black PVC adj. to W3 channel		Tip Elevation: (m advd)	1038.5	Surface Protector:	N/A
	Date Installed:	N/A					
				Stick up:	1.52m/ 0.38m		
		Water level from top of pipe (m)			Piezometric Elev. (m advd)		Pond El. (m advd)
May-94		-4.86			1048.46		
Sep-94		-4.81			1048.51		
Sep-95		-4.65			1048.67		
Oct-96		-4.84			1048.48		1062.215
Nov-97		-4.78			1048.54		
May-98		-4.73			1048.59		1063.5
Nov-98		-4.79			1048.53		1062.1
Jun-99		-4.784			1048.54		1063.7
Sep-99		-4.81			1048.51		~1061.5
Jun-00		-4.70			1048.62		~1062.5
14-Aug-00		-4.65			1048.67		
24-Aug-00		-4.57			1048.75		
31-Aug-00		-4.62			1048.70		
7-Sep-00		-4.60			1048.72		
14-Sep-00		-4.61			1048.71		
21-Sep-00		-4.65			1048.67		
28-Sep-00		-4.60			1048.72		
6-Oct-00		-4.53			1048.79		
12-Oct-00		-4.59			1048.73		
20-Oct-00		-4.61			1048.71		
27-Oct-00		-4.66			1048.66		
10-Jun-01		-4.85			1048.47		
14-Sep-01		-4.71			1048.61		
16-Oct-01		-4.83			1048.49		
18-Oct-01		-4.85			1048.47		
19-Oct-01		-4.86			1048.46		
20-Oct-01		-4.86			1048.46		
21-Oct-01		-4.86			1048.46		
22-Oct-01		-4.86			1048.46		
25-Oct-01		-4.87			1048.45		
29-Oct-01		-4.87			1048.45		
1-Nov-01		-4.875			1048.45		
5-Nov-01		-4.88			1048.44		
6-Nov-01		-3.74			1048.44		
8-Nov-01		-3.74			1048.44		
12-Nov-01		-3.76			1048.42		
15-Nov-01		-3.76			1048.42		
19-Nov-01		-3.755			1048.425		
21-Nov-01		-3.75			1048.43		
23-Nov-01		-3.75			1048.43		pond elev approx - 8 ft.
26-Nov-01		-3.75			1048.43		daytime temp -34 C
28-Nov-01		-3.76			1048.42		
30-Nov-01		-3.76			1048.42		
3-Dec-01		-3.76			1048.42		
5-Dec-01		-3.775			1048.405		
12-Dec-01		-3.775			1048.405		
14-Dec-01		-3.775			1048.405		
15-Dec-01		-3.8			1048.38		
16-Dec-01		-3.79			1048.39		
17-Dec-01		-3.81			1048.37		
18-Dec-01		-3.815			1048.365		
19-Dec-01		-3.82			1048.36		
26-Dec-01		-3.84			1048.34		
2-Jan-02		-3.84			1048.34		
9-Jan-02		-3.835			1048.345		
16-Jan-02		-3.84			1048.34		
23-Jan-02		-3.83			1048.35		
30-Jan-02		-3.84			1048.34		
6-Feb-02		-3.84			1048.34		
13-Feb-02		-3.83			1048.35		
20-Feb-02		-3.84			1048.34		
1-May-02		-3.83			1048.35		
12-Jun-02		-3.64			1048.54		
17-Jul-02		-3.545			1048.635		
7-Aug-02							not read
9-Sep-02		-3.52			1048.66		
4-Nov-02		-3.67			1048.51		
10-Nov-02		-3.68			1048.5		

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



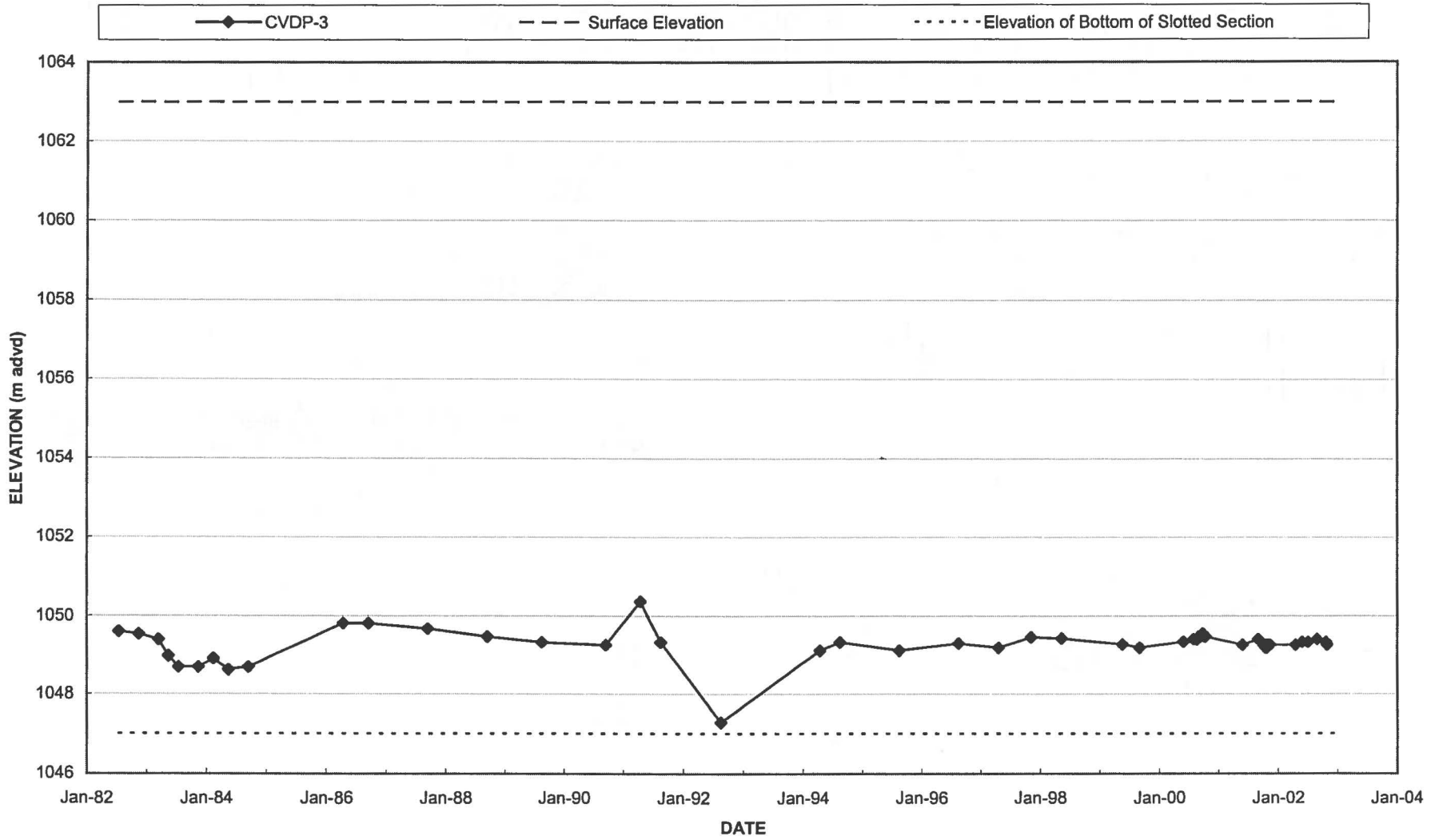
94CVDC-1	Location:	Cross Valley Dam Crest		Ground Elevation: (m advd)	1065.5	Coordinates:	N/A
		St.0+215					
	Date Installed:	1994		Tip Elevation: (m advd)	1052.7	Surface Protector:	yes
				Stick-up:	0.7m		
		Water Level from top of pipe (m)			Piezometric Elevation (m advd)		Pond El. (m advd)
May-94		9.90			1056.30		
Sep-94		9.57			1056.63		
Sep-95		9.32			1056.88		
Sep-96		10.04			1056.16		1062.215
May-97		11.00			1055.21		
Nov-97		10.07			1056.13		
May-98		9.84			1056.36		1063.5
Nov-98		10.16			1056.04		1062.1
Jun-99		9.650			1056.55		1063.7
Sep-99		10.69			1055.51		~1061.5
Jun-00		9.84			1056.36		~1062.5
14-Aug-00		10.10			1056.10		
31-Aug-00		10.38			1055.82		
7-Sep-00		10.38			1055.82		
14-Sep-00		10.10			1056.10		
21-Sep-00		13.61	frozen?				
28-Sep-00		10.30			1055.90		
6-Oct-00		9.99			1056.21		
12-Oct-00		10.06			1056.14		
20-Oct-00		9.87			1056.33		
27-Oct-00		9.91			1056.29		
10-Jun-01		10.28			1055.92		
14-Sep-01		10.08			1056.12		
16-Oct-01		10.39			1055.81		
18-Oct-01		10.51			1055.69		
19-Oct-01		10.53			1055.67		
20-Oct-01		10.54			1055.66		
21-Oct-01		10.55			1055.65		
22-Oct-01		10.53			1055.67		
25-Oct-01		10.53			1055.67		
29-Oct-01		10.44			1055.76		
1-Nov-01		10.425			1055.775		
5-Nov-01		10.485			1055.715		
6-Nov-01		10.485			1055.715		
8-Nov-01		10.41			1055.79		
12-Nov-01		10.41			1055.79		
15-Nov-01		10.39			1055.81		
19-Nov-01		10.38			1055.82		
21-Nov-01		10.375			1055.825		
23-Nov-01		10.42			1055.78		pond elev approx - 8 ft.
26-Nov-01		10.42			1055.78		daytime temp -34 C
28-Nov-01		10.39			1055.81		
30-Nov-01		10.37			1055.83		
3-Dec-01		10.37			1055.83		
5-Dec-01		10.365			1055.835		
12-Dec-01		10.36			1055.84		
14-Dec-01		10.42			1055.78		
15-Dec-01		10.48			1055.72		
16-Dec-01		10.53			1055.67		
17-Dec-01		10.59			1055.61		
18-Dec-01		10.62			1055.58		
19-Dec-01		10.65			1055.55		
26-Dec-01		10.64			1055.56		
2-Jan-02		10.56			1055.64		
9-Jan-02		10.57			1055.63		
16-Jan-02		10.56			1055.64		
23-Jan-02		10.43			1055.77		
30-Jan-02		10.42			1055.78		
6-Feb-02		10.42			1055.78		
13-Feb-02		10.41			1055.79		
20-Feb-02		10.41			1055.79		
1-May-02		10.45			1055.75		
12-Jun-02		10.59			1055.61		
17-Jul-02		10.485			1055.715		
7-Aug-02		10.595			1055.605		
9-Sep-02		10.36			1055.84		
4-Nov-02		10.435			1055.765		
10-Nov-02		10.44			1055.76		

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



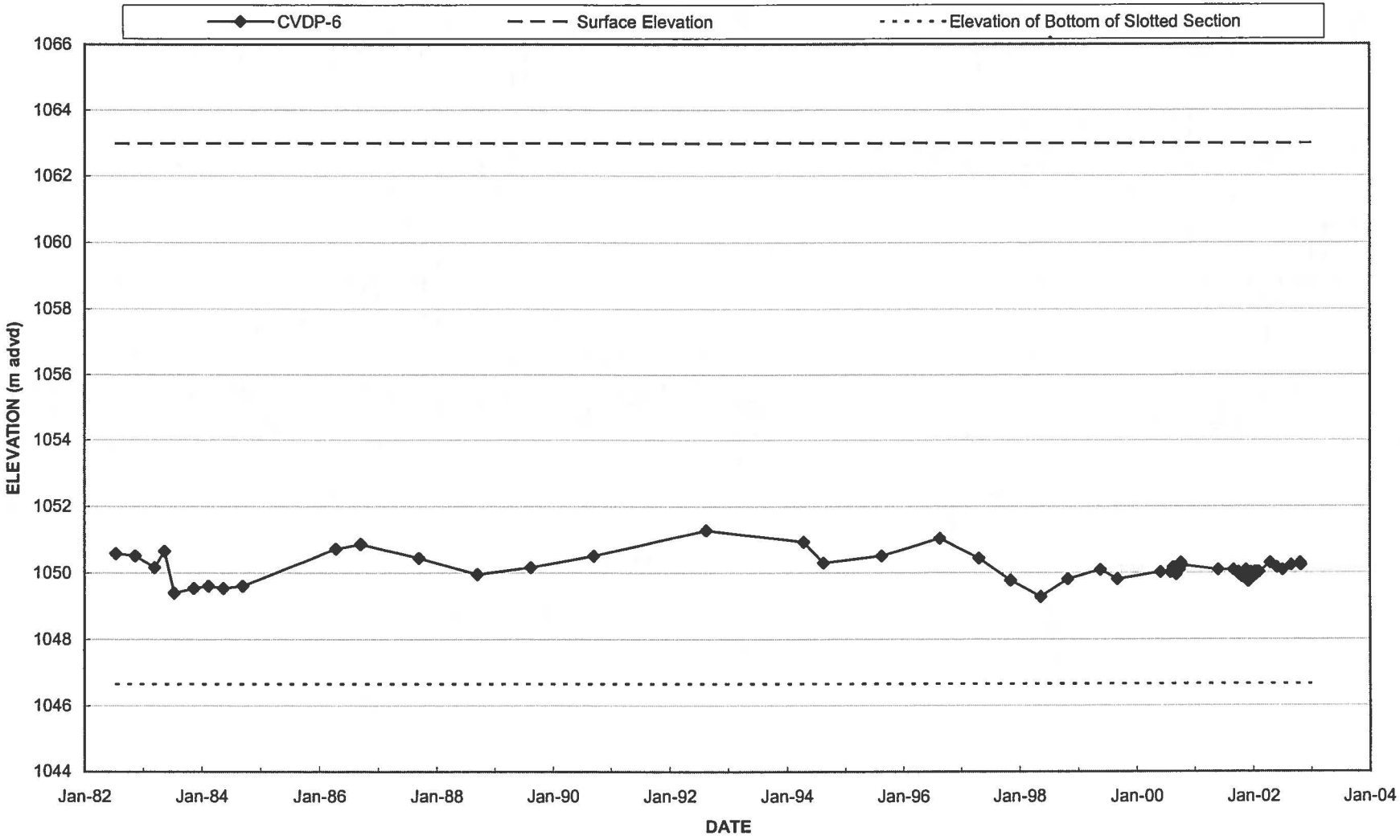
CVDP-3		Location:	Cross Valley Dam SL0+450			Ground Elevation: (m advd)	N/A	Coordinates:	N/A
			7m d/s of CL.						
		Date Installed:	1982			Tip Elevation: (m advd)	1047.01	Surface Protector:	yes
Date		Reading (psi)				Piezometric Elevation (m advd)			Pond Elev. (m advd)/ Comments
Aug-82		3.70				1049.60			
Dec-82		3.60				1049.53			
Apr-83		3.40				1049.39			1061.63
Jun-83		2.80				1048.97			1058.18
Aug-83		2.40				1048.69			
Dec-83		2.40				1048.69			
Mar-84		2.70				1048.90			1062.01
Jun-84		2.30				1048.62			1059.10
Oct-84		2.40				1048.69			
May-86		4.00				1049.81			1063.00
Oct-86		4.00				1049.81			1063.20
Oct-87		3.80				1049.67			
Oct-88		3.50				1049.46			
Sep-89		3.30				1049.32			
Oct-90		3.20				1049.25			
May-91		4.80				1050.37			
Sep-91		3.30				1049.32			
Sep-92		0.40				1047.29			
May-94		3.00				1049.11			
Sep-94		3.30				1049.32			
Sep-95		3.00				1049.11			
Sep-96		3.25				1049.29			1062.215
May-97		3.10				1049.18			
Nov-97		3.48				1049.45			
May-98		3.44				1049.42			1063.5
12-Nov-98		n.r.	no air bubbles returned						
4-Dec-98		n.r.	no air bubbles returned						
Jun-99		3.22				1049.26			1063.7
Sep-99		3.10	very slow			1049.18			~1061.5
Jun-00		3.31				1049.33			~1062.5
14-Aug-00		3.40				1049.39			
31-Aug-00		3.40				1049.39			
7-Sep-00		3.40				1049.39			
14-Sep-00		3.50				1049.46			
21-Sep-00		3.50				1049.46			
28-Sep-00		3.50				1049.46			
6-Oct-00		3.60				1049.53			
12-Oct-00		3.60				1049.53			
20-Oct-00		3.50				1049.46			
27-Oct-00		3.50				1049.46			
10-Jun-01		3.20				1049.25			
14-Sep-01		3.40				1049.39			
16-Oct-01		3.2				1049.25			
18-Oct-01		3.2				1049.25			
19-Oct-01		3.2				1049.25			
20-Oct-01		3.22				1049.264			
21-Oct-01		3.21				1049.257			
22-Oct-01		3.2				1049.25			
25-Oct-01		3.2				1049.25			
29-Oct-01		3.1				1049.18			
1-Nov-01		3.2				1049.25			
5-Nov-01		3.1				1049.18			
6-Nov-01		3.1				1049.18			
8-Nov-01		3.2				1049.25			
12-Nov-01		3.2				1049.25			
15-Nov-01		3.2				1049.25			
19-Nov-01		3.2				1049.25			
21-Nov-01		3.2				1049.25			
23-Nov-01		3.2				1049.25			pond elev approx - 8 ft
26-Nov-01		3.2				1049.25			daytime temp -34 C
28-Nov-01									not read, low pressure in box
30-Nov-01									instrument broken
3-Dec-01									instrument broken
5-Dec-01									instrument broken
12-Dec-01									instrument broken
14-Dec-01									instrument broken
15-Dec-01									instrument broken
16-Dec-01									instrument broken
17-Dec-01									instrument broken
18-Dec-01									instrument broken
19-Dec-01									instrument broken
26-Dec-01									instrument broken
2-Jan-02									instrument broken
9-Jan-02									instrument broken
16-Jan-02									instrument broken
23-Jan-02									instrument broken
30-Jan-02									instrument broken
6-Feb-02									instrument broken
13-Feb-02									instrument broken
20-Feb-02									instrument broken
1-May-02		3.2				1049.25			instrument fixed
12-Jun-02		3.3				1049.32			
17-Jul-02		3.3				1049.32			
7-Aug-02									not read
9-Sep-02		3.4				1049.39			
4-Nov-02		3.3				1049.32			
10-Nov-02		3.2				1049.25			

CROSS VALLEY DAM
Piezometric Monitoring
CVDP-3 Pneumatic Piezometer
(D/S face of Dam)



CVDP-6		Location:	Cross Valley Dam SL0+210			Ground Elevation: (m advd)	N/A	Coordinates:	N/A
			5m d/s of CL.						
		Date Installed:	1982			Tip Elevation: (m advd)	1046.67	Surface Protector:	yes
Date		Reading (psi)				Piezometric Elevation (m advd)			Pond Elev. (m advd)/ Comments
Aug-82		5.60				1050.59			
Dec-82		5.50				1050.52			
Apr-83		5.00				1050.17			1061.63
Jun-83		5.70				1050.66			1058.18
Aug-83		3.90				1049.40			
Dec-83		4.10				1049.54			
Mar-84		4.20				1049.61			1062.01
Jun-84		4.10				1049.54			1059.10
Oct-84		4.20				1049.61			
May-86		5.80				1050.73			1063.00
Oct-86		6.00				1050.87			1063.20
Oct-87		5.40				1050.45			
Oct-88		4.70				1049.96			
Sep-89		5.00				1050.17			
Oct-90		5.50				1050.52			
Sep-92		6.60				1051.29			
May-94		6.10				1050.94			
Sep-94		5.20				1050.31			
Sep-95		5.50				1050.52			
Sep-96		6.25				1051.05			1062.215
May-97		5.40				1050.45			
Nov-97		4.45				1049.79			
May-98		3.74				1049.29			1063.5
Nov-98		4.50				1049.82			1062.1
Jun-99		4.90				1050.10			1063.7
Sep-99		4.50				1049.82			
Jun-00		4.80				1050.03			~1062.5
14-Aug-00		4.80				1050.03			
31-Aug-00		5.00	return bubbles "sputtering"			1050.17			
7-Sep-00		5.00				1050.17			
14-Sep-00		5.00				1050.17			
21-Sep-00		4.70				1049.96			
28-Sep-00		4.90				1050.10			
6-Oct-00		5.00				1050.17			
12-Oct-00		4.90				1050.10			
20-Oct-00		5.20				1050.31			
27-Oct-00		5.10				1050.24			
10-Jun-01		4.90				1050.1			
14-Sep-01		4.9				1050.1			
16-Oct-01		4.8				1050.03			
18-Oct-01		4.72				1049.974			
19-Oct-01		4.7				1049.96			
20-Oct-01		4.7				1049.96			
21-Oct-01		4.7				1049.96			
22-Oct-01		4.7				1049.96			
25-Oct-01		4.70				1049.96			
29-Oct-01		4.7				1049.96			
1-Nov-01		4.7				1049.96			
5-Nov-01		4.6				1049.89			
6-Nov-01		4.6				1049.89			
8-Nov-01		4.7				1049.96			
12-Nov-01		4.7				1049.96			
15-Nov-01		4.7				1049.96			
19-Nov-01		4.8				1050.03			
21-Nov-01		4.7				1049.96			
23-Nov-01		4.7				1049.96			pond elev approx - 8 ft.
26-Nov-01		-							not read
28-Nov-01		-							not read, low pressure in box
30-Nov-01		4.9				1050.1			
3-Dec-01		4.7				1049.96			
5-Dec-01		4.7				1049.96			
12-Dec-01		4.7				1049.96			
14-Dec-01		4.8				1050.03			
15-Dec-01		4.4				1049.75			
16-Dec-01		4.8				1050.03			
17-Dec-01		4.8				1050.03			
18-Dec-01		4.5				1049.82			
19-Dec-01		4.8				1050.03			
26-Dec-01		4.6				1049.89			
2-Jan-02		4.8				1050.03			
9-Jan-02		4.6				1049.89			
16-Jan-02		4.6				1049.89			
23-Jan-02		4.8				1050.03			
30-Jan-02		4.8				1050.03			
6-Feb-02		4.8				1050.03			
13-Feb-02		4.8				1050.03			
20-Feb-02		4.8				1050.03			
1-May-02		5.2				1050.31			
12-Jun-02		5.0				1050.17			
17-Jul-02		4.9				1050.1			
7-Aug-02							not read		
9-Sep-02		5.1				1050.24			
4-Nov-02		5.2				1050.31			
10-Nov-02		5.1				1050.24			

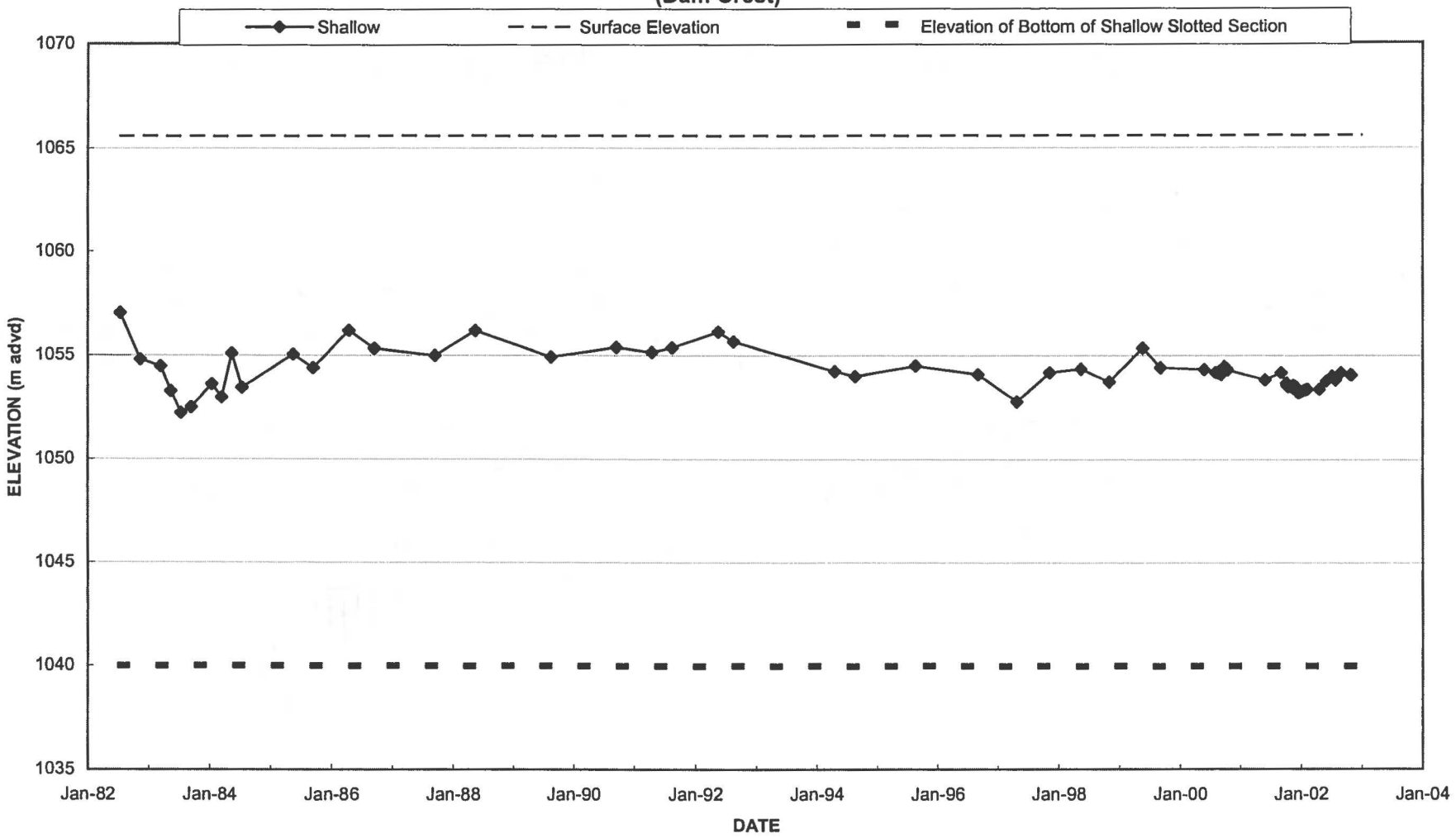
CROSS VALLEY DAM
Piezometric Monitoring
CVDP-6 Pneumatic Piezometer
(D/S Face of Dam)



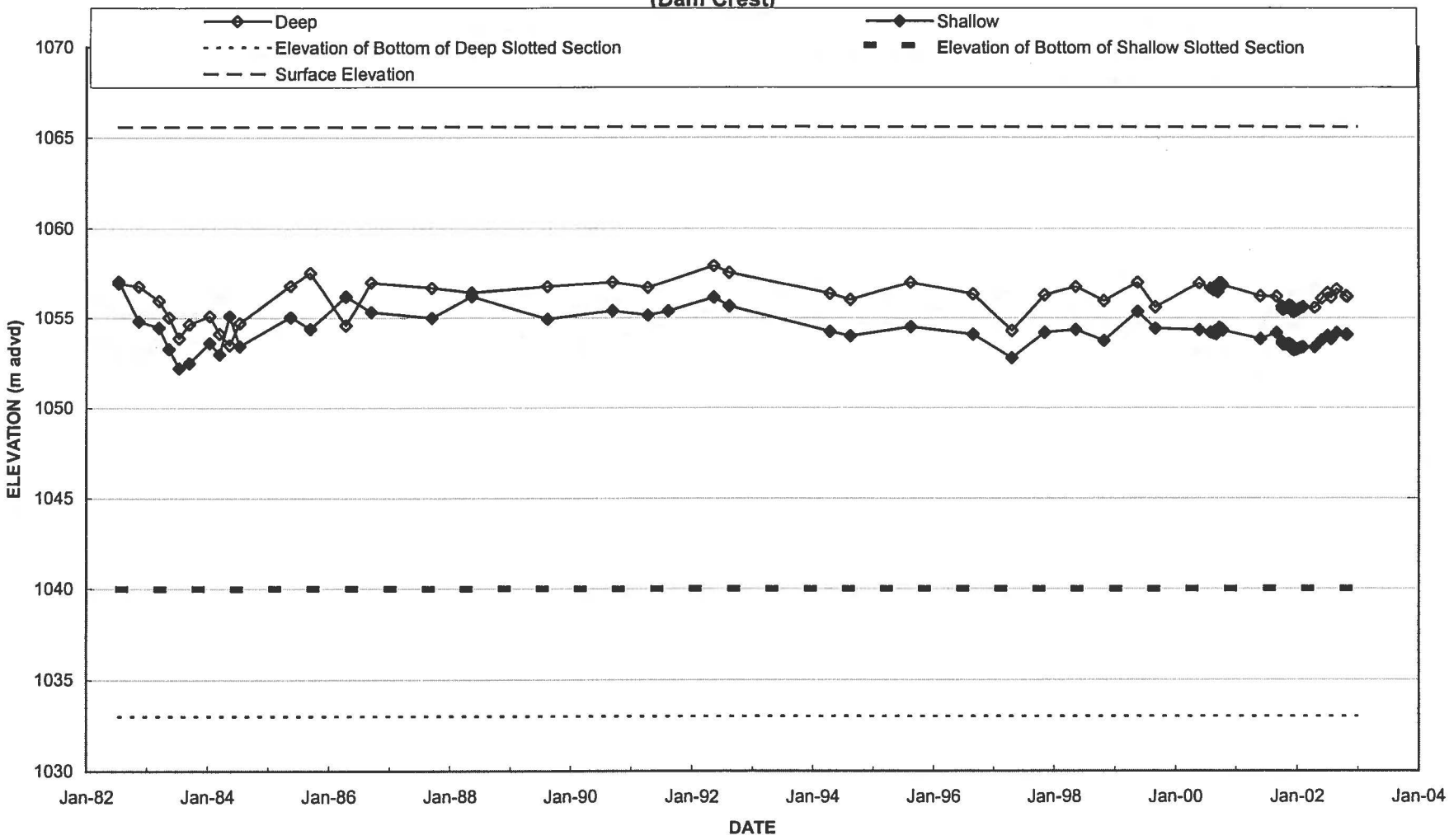
CVDC-9	Location:	Cross Valley Dam Crest				Coordinates:	N/A
		St.0+565		Ground Elevation: (m advd)	1065.6		
				Shallow Tip Elev: (m advd)	1040		
	Date installed:	1981		Deep Tip Elevation: (m advd)	1033	Surface Protector:	yes
				Shallow stick-up: (m)	0.24/ 0.30/ 0.32		
				Deep stick-up: (m)	0.16/ 0.23/ 0.25		

Date	Water Level below top of pipe (m) Shallow	Water Level below top of pipe (m) Deep		Piezometric Elevation (m advd) Shallow	Deep	Pond Elev. (m advd)/ Comments
Aug-82	8.80	8.85		1057.04	1056.91	
Dec-82	11.04	9.00		1054.80	1056.76	
Apr-83	11.38	9.81		1054.46	1055.95	1061.63
Jun-83	12.58	10.74		1053.26	1055.02	1058.18
Aug-83	13.63	11.90		1052.21	1053.86	
Oct-83	13.36	11.13		1052.48	1054.63	
Feb-84	12.24	10.67		1053.60	1055.09	
Mar-84						1062.90
Apr-84	12.67	11.65		1052.97	1054.11	
Jun-84	10.75	12.28		1055.09	1053.48	1059.10
Aug-84	12.41	11.05		1053.43	1054.71	
Jun-85	10.80	8.98		1055.04	1056.78	1063.50
Oct-85	11.45	8.25		1054.39	1057.51	
May-86	9.65	11.18		1056.19	1054.58	1063.00
Oct-86	10.51	8.79		1055.33	1056.97	1063.20
Oct-87	10.85	9.10		1054.99	1056.66	
Jun-88	9.74	9.42		1056.20	1056.41	
Sep-89	11.01	9.07		1054.93	1056.76	
Oct-90	10.54	8.83		1055.40	1057.00	
May-91	10.79	9.14		1055.15	1056.69	
Sep-91	10.56			1055.38		
Jun-92	9.79	7.92		1056.15	1057.91	
Sep-92	10.27	8.29		1055.67	1057.54	
May-94	11.68	9.49		1054.24	1056.38	
Sep-94	11.93	9.82		1053.99	1056.03	
Sep-95	11.42	8.86		1054.50	1056.99	
Sep-96	11.84	9.52		1054.08	1056.33	1062.215
May-97	13.15	11.57		1052.78	1054.29	
Nov-97	11.74	9.58		1054.18	1056.27	
May-98	11.57	9.11		1054.35	1056.74	1063.5
Nov-98	12.19	9.90		1053.73	1055.95	1062.1
Jun-99	10.560	8.868		1055.36	1056.98	1063.7
Sep-99	11.50	10.25		1054.42	1055.60	~1061.5
Jun-00	11.60	8.90		1054.32	1056.95	~1062.5
14-Aug-00	11.73	9.19		1054.19	1056.66	
31-Aug-00	11.77	9.30		1054.15	1056.55	
7-Sep-00	11.66	9.12		1054.26	1056.73	
14-Sep-00	11.65	9.30		1054.27	1056.55	
19-Sep-00	11.83	9.34		1054.09	1056.51	
21-Sep-00	11.78	9.28		1054.14	1056.57	
28-Sep-00	11.61	9.40		1054.31	1056.45	
6-Oct-00	11.46	8.89		1054.46	1056.96	
12-Oct-00	11.57	9.00		1054.35	1056.85	
20-Oct-00	11.53	8.91		1054.39	1056.94	
27-Oct-00	11.62	9.03		1054.30	1056.82	
10-Jun-01	12.09	9.63		1053.83	1056.22	
14-Sep-01	11.75	9.67		1054.17	1056.18	
16-Oct-01	12.24	10.2		1053.68	1055.65	
18-Oct-01	12.35	10.33		1053.57	1055.52	
19-Oct-01	12.37	10.36		1053.55	1055.49	
20-Oct-01	12.38	10.37		1053.54	1055.48	
21-Oct-01	12.39	10.38		1053.53	1055.47	
22-Oct-01	12.40	10.39		1053.52	1055.46	
25-Oct-01	12.42	10.39		1053.5	1055.46	
29-Oct-01	12.405	10.34		1053.515	1055.51	
1-Nov-01	12.395	10.315		1053.525	1055.535	
5-Nov-01	12.41	10.31		1053.51	1055.54	
6-Nov-01	12.41	10.31		1053.51	1055.54	
8-Nov-01	12.41	10.3		1053.51	1055.55	
12-Nov-01	12.42	10.295		1053.5	1055.555	
15-Nov-01	12.42	10.285		1053.5	1055.565	
19-Nov-01	12.39	10.22		1053.53	1055.63	
21-Nov-01	12.37	10.19		1053.55	1055.66	
23-Nov-01	12.37	10.17		1053.55	1055.68	pond elev approx - 8 ft.
26-Nov-01	12.37	10.17		1053.55	1055.68	daytime temp -34 C
28-Nov-01	12.36	10.16		1053.54	1055.69	
30-Nov-01	12.385	10.17		1053.535	1055.68	
3-Dec-01	12.4	10.19		1053.52	1055.66	
5-Dec-01	12.42	10.2		1053.5	1055.65	
12-Dec-01	12.435	10.2		1053.485	1055.65	
14-Dec-01	12.47	10.25		1053.45	1055.6	
15-Dec-01	12.52	10.31		1053.4	1055.54	
16-Dec-01	12.57	10.38		1053.35	1055.47	
17-Dec-01	12.62	10.43		1053.3	1055.42	
18-Dec-01	12.66	10.48		1053.26	1055.37	
19-Dec-01	12.66	10.51		1053.24	1055.34	
26-Dec-01	12.72	10.53		1053.2	1055.32	
2-Jan-02	12.7	10.49		1053.22	1055.36	
9-Jan-02	12.66	10.45		1053.24	1055.4	
16-Jan-02	12.65	10.41		1053.27	1055.44	
23-Jan-02	12.62	10.36		1053.3	1055.49	
30-Jan-02	12.6	10.33		1053.32	1055.52	
6-Feb-02	12.585	10.31		1053.335	1055.54	
13-Feb-02	12.55	10.26		1053.37	1055.59	
20-Feb-02	12.55	10.25		1053.37	1055.6	
1-May-02	12.55	10.27		1053.37	1055.58	
12-Jun-02	12.155	9.77		1053.765	1056.08	
17-Jul-02	11.91	9.465		1054.01	1056.385	
7-Aug-02	12.1	9.705		1053.82	1056.145	
9-Sep-02	11.75	9.24		1054.17	1056.61	
4-Nov-02	11.85	9.64		1054.07	1056.21	
10-Nov-02	11.88	9.685		1054.06	1056.165	

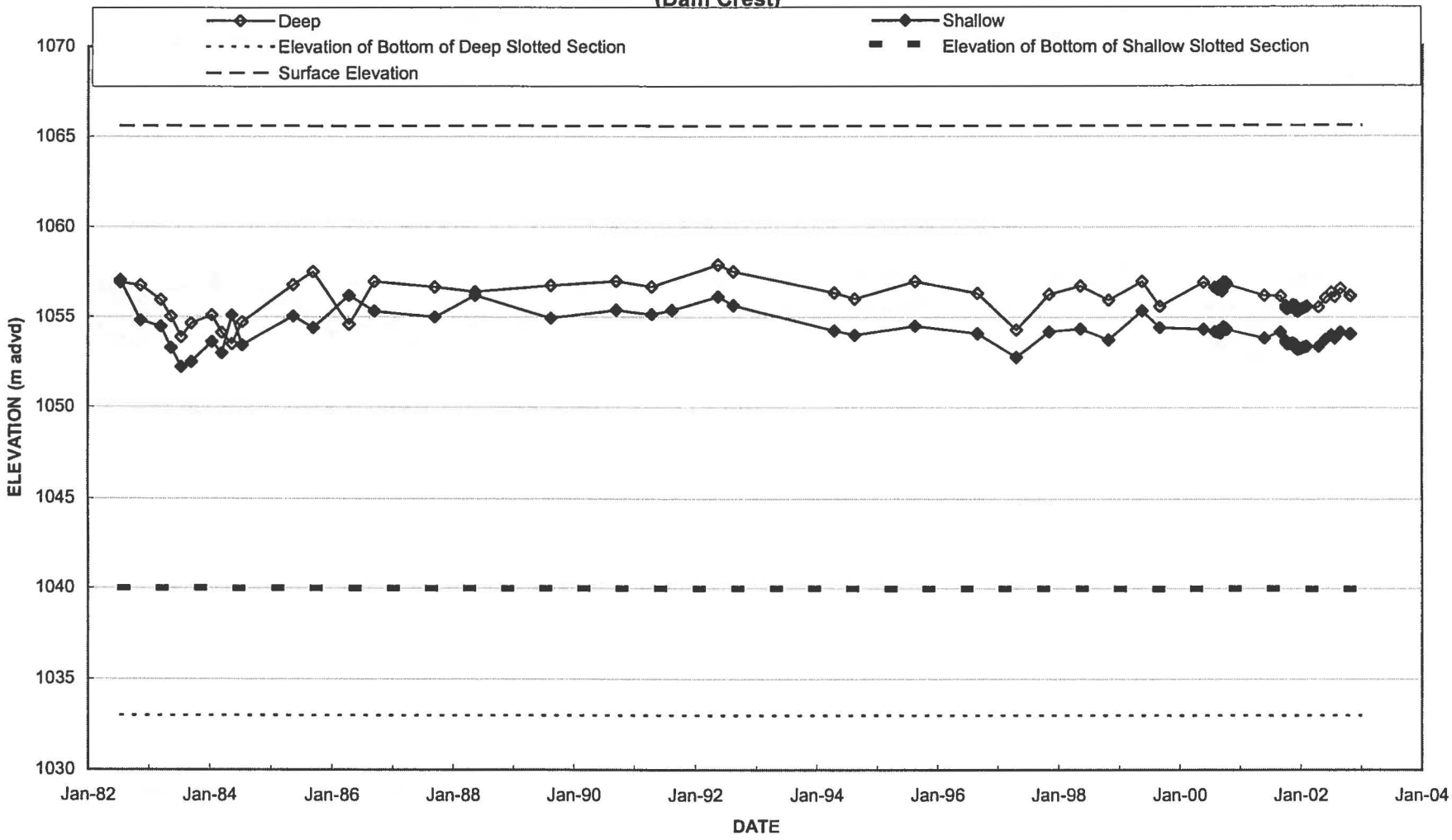
CROSS VALLEY DAM
Piezometric Monitoring
CVDC-9 Shallow Standpipe Piezometer
(Dam Crest)



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

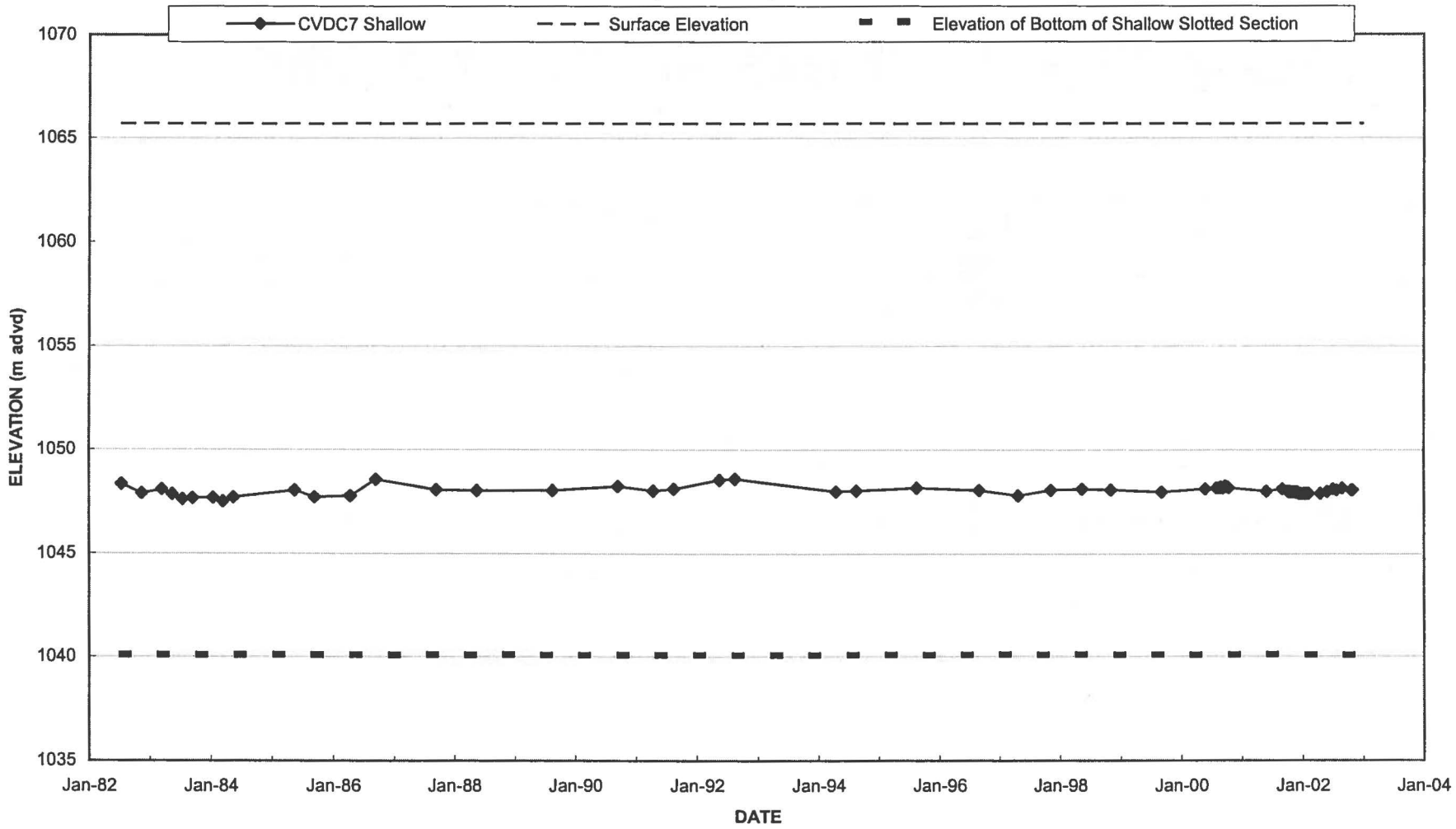


CROSS VALLEY DAM
Piezometric Monitoring
CVDC-9 Standpipe Piezometers
(Dam Crest)

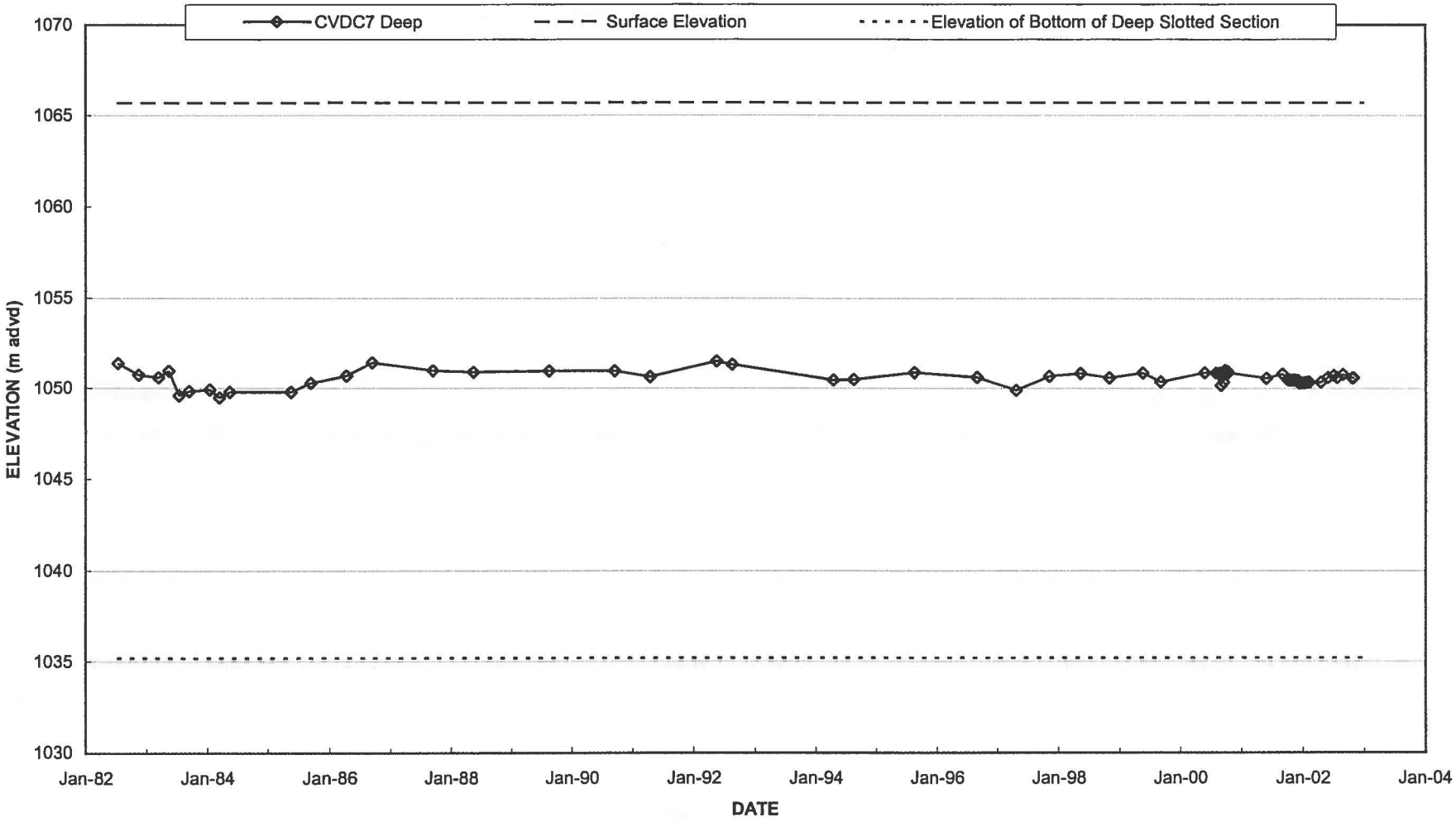


CVDC-7	Location:	Cross Valley Dam Crest				Coordinates:	N/A
		SL0+450		Ground Elevation: (m advd)	1065.7		
				Shallow Tip Elev: (m advd)	1040.1		
	Date Installed:	1981		Deep Tip Elevation: (m advd)	1035.2	Surface Protector:	yes
				Shallow stick-up: (m)	0.22/ 0.23/ 0.26		
				Deep stick-up: (m)	0.13/ 0.29		
Date		Water Level from top of pipe (m)			Piezometric Elevation (m advd)		Pond Elev. (m advd)/ Comments
		Shallow	Deep		Shallow	Deep	
Aug-82		17.58	14.44		1048.34	1051.39	
Dec-82		18.02	15.10		1047.90	1050.73	
Apr-83		17.83	15.24		1048.09	1050.59	1061.63
Jun-83		18.06	14.88		1047.86	1050.95	1058.18
Aug-83		18.30	16.24		1047.62	1049.59	
Oct-83		18.26	16.01		1047.66	1049.82	
Feb-84		18.24	15.92		1047.68	1049.91	
Mar-84							1062.90
Apr-84		18.41	16.36		1047.51	1049.47	
Jun-84		18.22	16.06		1047.70	1049.77	1059.10
Jun-85		17.87	16.06		1048.05	1049.77	1063.50
Oct-85		18.20	15.55		1047.72	1050.28	
May-86		18.14	15.14		1047.78	1050.69	1063.00
Oct-86		17.35	14.40		1048.57	1051.43	1063.20
Oct-87		17.85	14.85		1048.07	1050.98	
Jun-88		17.90	15.10		1048.03	1050.89	
Sep-89		17.88	15.03		1048.05	1050.96	
Oct-90		17.88	15.03		1048.25	1050.96	
May-91		17.89	15.38		1048.04	1050.63	
Sep-91		17.81			1048.12		
Jun-92		17.37	14.48		1048.56	1051.51	
Sep-92		17.33	14.66		1048.60	1051.33	
May-94		17.99	15.50		1048.00	1050.46	
Sep-94		17.95	15.47		1048.04	1050.49	
Sep-95		17.81	15.08		1048.18	1050.88	
Sep-96		17.93	15.34		1048.06	1050.62	1062.215
May-97		18.19	16.07		1047.80	1049.89	
Nov-97		17.91	15.29		1048.08	1050.67	
May-98		17.87	15.12		1048.12	1050.84	1063.5
Nov-98		17.91	15.38		1048.08	1050.58	1062.1
Jun-99		n.r.	15.10			1050.86	1063.7
Sep-99		18.00	15.59		1047.99	1050.37	~1061.5
Jun-00		17.85	15.08		1048.14	1050.88	~1062.5
14-Aug-00		17.82	15.10		1048.17	1050.86	
31-Aug-00		17.80	15.16		1048.19	1050.80	
7-Sep-00		17.78	15.09		1048.21	1050.87	
14-Sep-00		17.78	15.80		1048.21	1050.16	
19-Sep-00		17.82	15.19		1048.17	1050.77	
21-Sep-00		17.82	15.16		1048.17	1050.80	
28-Sep-00		17.77	15.60		1048.22	1050.36	
6-Oct-00		17.71	14.96		1048.28	1051.00	
12-Oct-00		17.75	15.03		1048.24	1050.93	
20-Oct-00		17.76	15.00		1048.23	1050.96	
27-Oct-00		17.80	15.08		1048.19	1050.88	
10-Jun-01		17.97	15.39		1048.02	1050.57	
14-Sep-01		17.86	15.16		1048.13	1050.80	
16-Oct-01		17.95	15.43		1048.04	1050.53	
18-Oct-01		17.97	15.48		1048.02	1050.48	
19-Oct-01		17.98	15.49		1048.01	1050.47	
20-Oct-01		17.98	15.49		1048.01	1050.47	
21-Oct-01		17.98	15.49		1048.01	1050.47	
22-Oct-01		17.98	15.5		1048.01	1050.46	
25-Oct-01		17.99	15.51		1048.00	1050.45	
29-Oct-01		17.99	15.51		1048	1050.45	
1-Nov-01		17.985	15.495		1048.005	1050.465	
5-Nov-01		17.99	15.505		1048	1050.455	
6-Nov-01		17.99	15.505		1048	1050.455	
8-Nov-01		17.99	15.51		1048	1050.45	
12-Nov-01		18	15.51		1047.99	1050.45	
15-Nov-01		18	15.51		1047.99	1050.45	
19-Nov-01		18	15.51		1047.99	1050.45	
21-Nov-01		17.99	15.495		1048	1050.465	
23-Nov-01		17.99	15.495		1048	1050.465	pond elev approx - 6 ft.
26-Nov-01		18	15.495		1047.99	1050.465	daytime temp -34 C
28-Nov-01		18	15.5		1047.99	1050.46	
30-Nov-01		18.01	15.5		1047.98	1050.46	
3-Dec-01		18.01	15.51		1047.98	1050.45	
5-Dec-01		18.01	15.52		1047.98	1050.44	
12-Dec-01		18.01	15.52		1047.98	1050.44	
14-Dec-01		18.01	15.5		1047.98	1050.46	
15-Dec-01		18.02	15.54		1047.97	1050.42	
18-Dec-01		18.03	15.58		1047.96	1050.38	
17-Dec-01		18.04	15.61		1047.95	1050.35	
18-Dec-01		18.05	15.63		1047.94	1050.33	
19-Dec-01		18.06	15.65		1047.93	1050.31	
26-Dec-01		18.07	15.68		1047.92	1050.3	
2-Jan-02		18.07	15.65		1047.92	1050.31	
9-Jan-02		18.08	15.66		1047.91	1050.3	
16-Jan-02		18.08	15.65		1047.91	1050.31	
23-Jan-02		18.07	15.63		1047.92	1050.33	
30-Jan-02		18.08	15.63		1047.91	1050.33	
6-Feb-02		18.075	15.62		1047.915	1050.34	
13-Feb-02		18.07	15.6		1047.92	1050.36	
20-Feb-02		18.075	15.6		1047.915	1050.36	
1-May-02		18.07	15.6		1047.92	1050.36	Water being discharged from the polishing pond
12-Jun-02		17.975	15.35		1048.015	1050.61	
17-Jul-02		17.85	15.225		1048.14	1050.735	
7-Aug-02		17.9	15.35		1048.09	1050.61	
9-Sep-02		17.815	15.17		1048.175	1050.79	
4-Nov-02		17.91	15.36		1048.08	1050.6	
10-Nov-02		17.91	15.355		1048.08	1050.605	

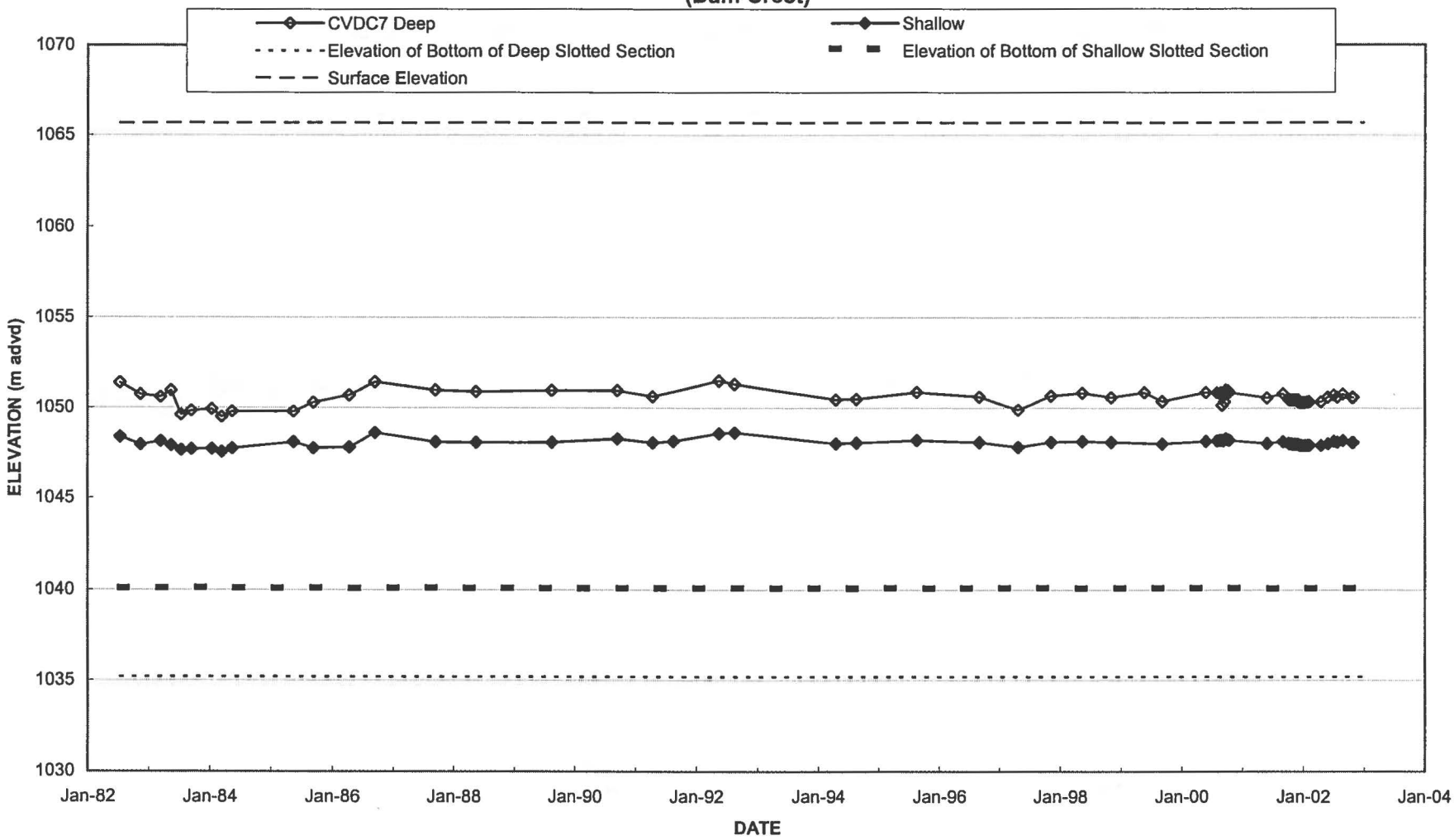
CROSS VALLEY DAM
Piezometric Monitoring
CVDC-7 Shallow Standpipe Piezometer
(Dam Crest)



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

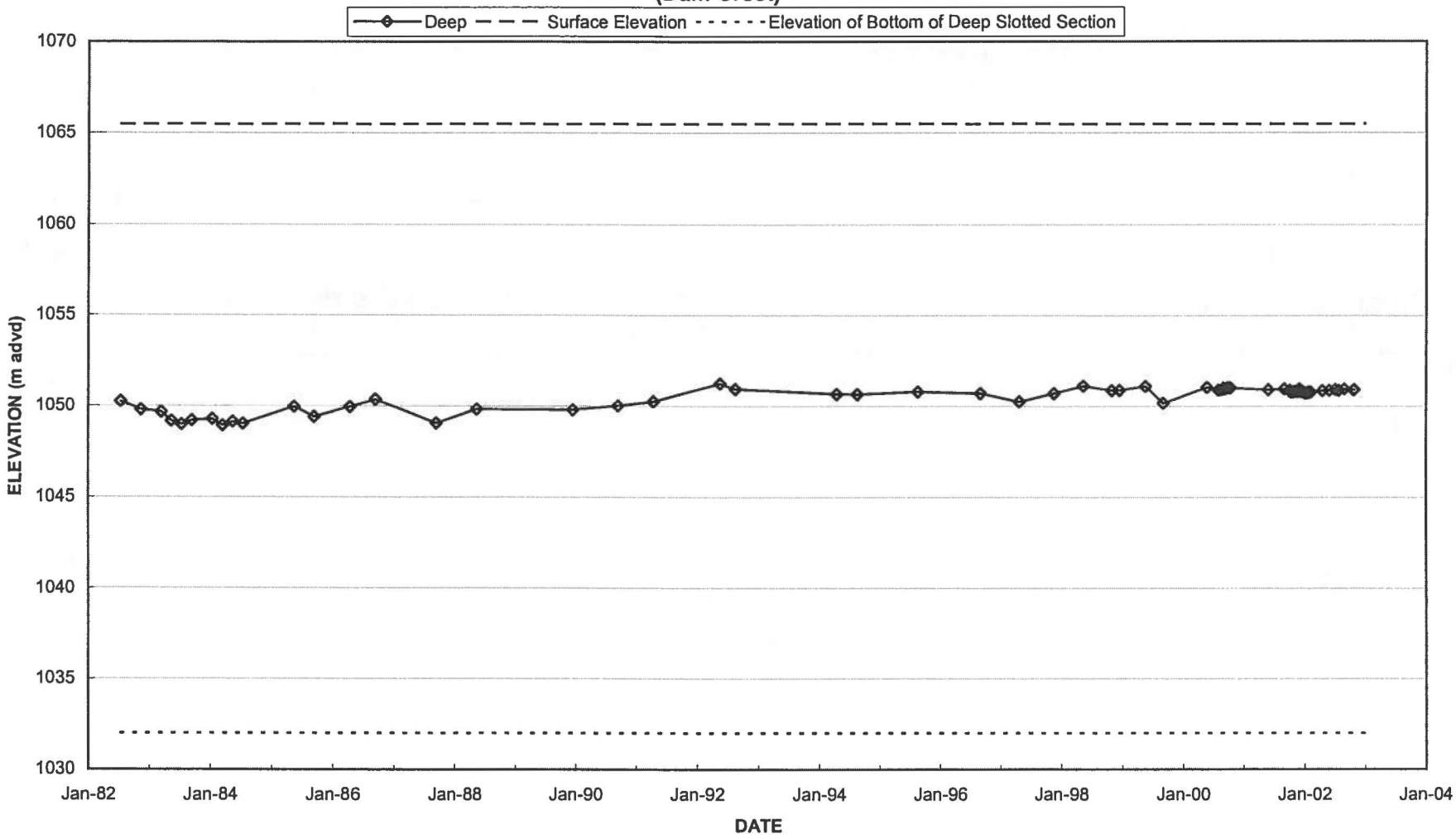


CROSS VALLEY DAM
Piezometric Monitoring
CVDC-7 Deep Standpipe Piezometer
(Dam Crest)



CVDC-4	Location:	Cross Valley Dam Crest				Coordinates:	N/A
		St.0+215		Ground Elevation: (m advd)	1065.5		
				Shallow Tip Elev: (m advd)	1040.2		
	Date Installed:	1981		Deep Tip Elev.: (m advd)	1032	Surface Protector:	yes
				Shallow stick-up: (m)	0.13 / 0.28		
				Deep stick-up: (m)	0.0/ 0.07/ 0.10		
Date		Water Level from top of pipe (m)			Piezometric Elevation (m asl)		Pond Elev. (m advd)/ Comments
		Shallow	Deep		Shallow	Deep	
Aug-82		15.10	15.26		1050.53	1050.24	
Dec-82		15.82	15.71		1049.81	1049.79	
Apr-83		15.71	15.84		1049.92	1049.86	1061.63
Jun-83		16.54	16.33		1049.09	1049.17	1058.18
Aug-83		16.57	16.52		1049.06	1048.98	
Oct-83		16.34	16.30		1049.29	1049.20	
Feb-84		16.21	16.22		1049.42	1049.28	
Mar-84							1062.90
Apr-84		16.75	16.58		1048.88	1048.92	
Jun-84		16.40	16.37		1049.23	1049.13	1059.10
Aug-84		16.50	16.48		1049.13	1049.02	
Jun-85		15.50	15.55		1050.13	1049.95	1063.50
Oct-85		16.00	16.10		1049.63	1049.40	
May-86		15.58	15.54		1050.05	1049.96	1063.00
Oct-86		14.99	15.14		1050.64	1050.36	1063.20
Oct-87		15.42	16.45		1050.21	1049.05	
Jun-88		dry	15.67			1049.83	
Jan-90			15.78			1049.79	
Oct-90			15.54			1050.03	
May-91			15.31			1050.26	
Jun-92			14.32			1051.25	
Sep-92			14.63			1050.94	
May-94			14.93			1050.67	
Sep-94			14.95			1050.65	
Sep-95			14.80			1050.80	
Sep-96			14.69			1050.71	1062.215
May-97			15.34			1050.26	
Dec-97		plugged	14.69			1050.71	
May-98		plugged	14.66			1051.12	1063.5
13-Nov-98		n.r.	14.91			1050.87	1062.1
29-Dec-98		n.r.	14.89			1050.89	1062.1
3-Jun-99		blocked @ 1.25m	14.671			1051.11	1063.7
18-Sep-99		blocked @ 7.60m	15.60			1050.18	~1061.5
8-Jun-00		blocked @ 7.61m	14.73			1051.05	~1062.5
14-Aug-00		blocked @ 7.61m	14.88			1050.90	
31-Aug-00		blocked @ 7.62m	14.86			1050.92	
7-Sep-00		blocked @ 7.61m	14.83			1050.95	
14-Sep-00		blocked @ 7.61m	14.76			1051.02	
21-Sep-00		blocked @ 7.61m	14.84			1050.94	
28-Sep-00		blocked @ 7.61m	14.79			1050.99	
6-Oct-00		blocked @ 7.61m	14.75			1051.03	
12-Oct-00		blocked @ 7.61m	14.76			1051.02	
20-Oct-00		blocked @ 7.61m	14.74			1051.04	
27-Oct-00		blocked @ 7.61m	14.76			1051.02	
10-Jun-01		7.67	14.87			1050.91	
14-Sep-01		7.61	14.82			1050.96	
16-Oct-01		7.61	14.90			1050.88	
18-Oct-01		7.61	14.93			1050.85	
19-Oct-01		7.61	14.95			1050.83	
20-Oct-01		7.61	14.96			1050.82	
21-Oct-01		7.61	14.97			1050.81	
22-Oct-01		7.61	14.98			1050.8	
25-Oct-01		7.61	14.98			1050.8	
29-Oct-01		7.61	14.98			1050.8	
1-Nov-01		7.61	14.975			1050.805	
5-Nov-01		7.61	14.97			1050.81	
6-Nov-01		7.61	14.97			1050.81	
8-Nov-01		7.61	14.965			1050.815	
12-Nov-01		7.61	14.96			1050.82	
15-Nov-01		7.61	14.95			1050.83	
19-Nov-01		7.61	14.95			1050.83	
21-Nov-01		7.61	14.95			1050.83	
23-Nov-01		7.61	14.94			1050.84	pond elev approx - 8 ft.
26-Nov-01		7.61	14.95			1050.83	daytime temp -34 C
28-Nov-01		7.61	14.94			1050.84	
30-Nov-01		7.61	14.94			1050.84	
3-Dec-01		7.61	14.96			1050.82	
5-Dec-01		7.61	14.97			1050.81	
12-Dec-01		7.61	14.94			1050.84	
14-Dec-01		7.61	14.82			1050.96	
15-Dec-01		7.61	14.84			1050.94	
16-Dec-01		7.61	14.87			1050.91	
17-Dec-01		7.61	14.9			1050.88	
18-Dec-01		7.61	14.92			1050.86	
19-Dec-01		7.61	14.94			1050.84	
26-Dec-01		7.61	14.96			1050.82	
2-Jan-02		7.61	14.94			1050.84	
9-Jan-02		7.61	14.99			1050.79	
16-Jan-02		7.61	15.04			1050.74	
23-Jan-02		7.61	15.02			1050.76	
30-Jan-02		7.61	15.02			1050.76	
6-Feb-02		7.61	15.00			1050.78	
13-Feb-02		7.61	15			1050.78	
20-Feb-02		7.61	14.99			1050.79	
1-May-02		7.61	14.915			1050.865	
12-Jun-02		7.61	14.895			1050.885	
17-Jul-02		7.61	14.845			1050.935	
7-Aug-02		7.61	14.895			1050.885	
9-Sep-02		7.61	14.82			1050.96	
4-Nov-02		7.61	14.86			1050.92	
10-Nov-02		7.61	14.85			1050.93	

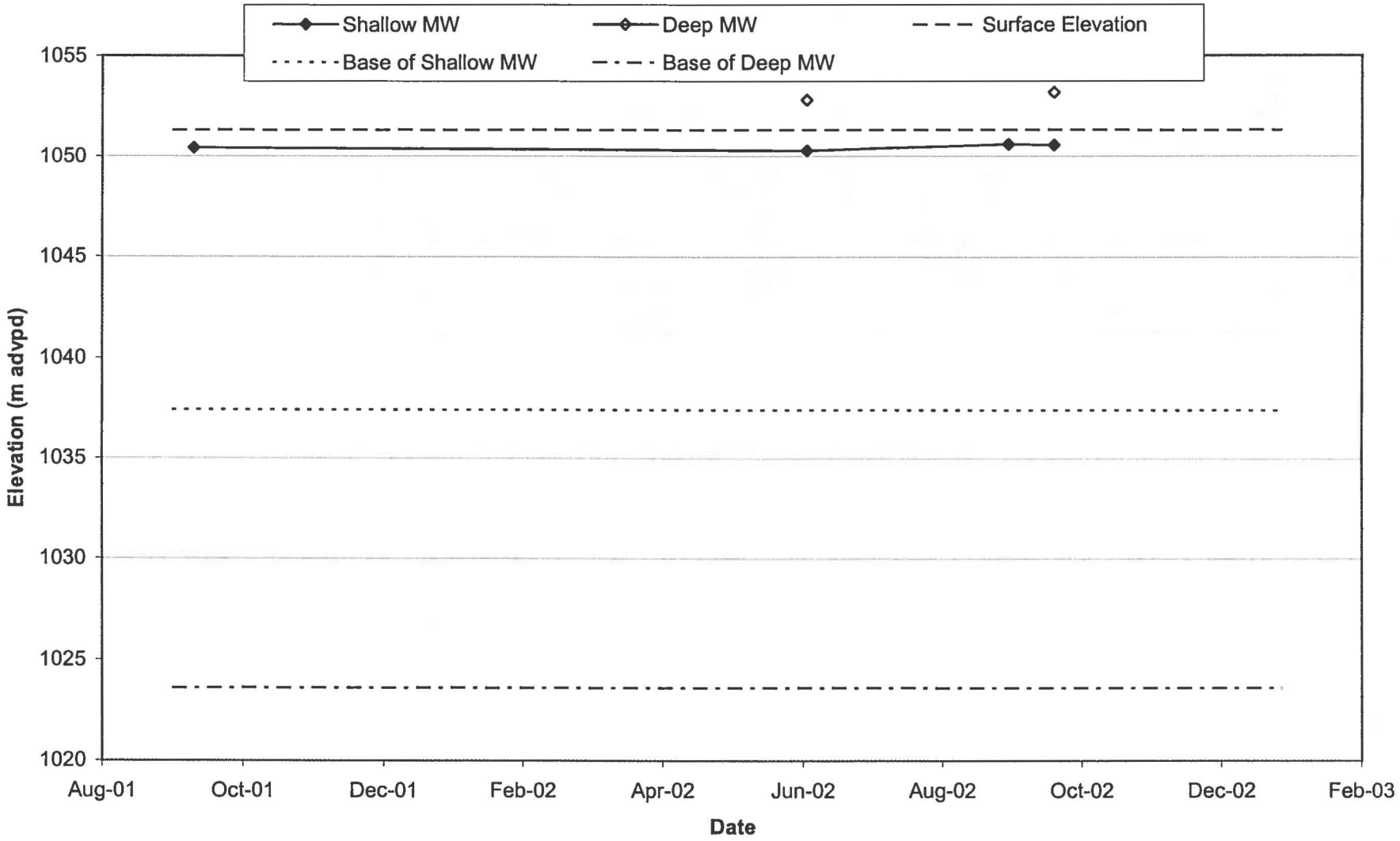
CROSS VALLEY DAM
Pieometric Monitoring
CVDC-4 Deep Standpipe
(Dam Crest)



Faro Mine Instrumentation Cross Valley Dam

P01-02		Location:	Cross Valley Dam Toe					Coordinates:	unknown
						Surface Elevation: (m amsl)	1019.027		
						Surface Elevation: (m advpd)	1051.33		
		Date Installed:	2001			Tip Elevation (A) (m advpd)	1037.44	Surface Protector:	yes
						Tip Elevation (B) (m advpd)	1023.63		
		Screened Interval (A): (m bgs)	12.37 - 13.89			Stick Up (A): (m)	0.68		
		Screened Interval (B): (m bgs)	26.21 - 27.70			Stick Up (B): (m)	0.70		
Date			Water level from top of pipe (m)			Piezometric Elevation (m amsl)	Piezometric Elevation (m amsl)	Piezometric Elevation (m advpd)	Piezometric Elevation (m advpd)
			A	B		A	B	A	B
10-Sep-01			1.58		Artesian	1018.13		1050.43	
6-Jun-02			1.72	1.49		1017.99	1020.52	1050.29	1052.6
3-Sep-02			1.41			1018.30		1050.60	
23-Sep-02			1.45	1.87		1018.26	1020.90	1050.56	1053.2

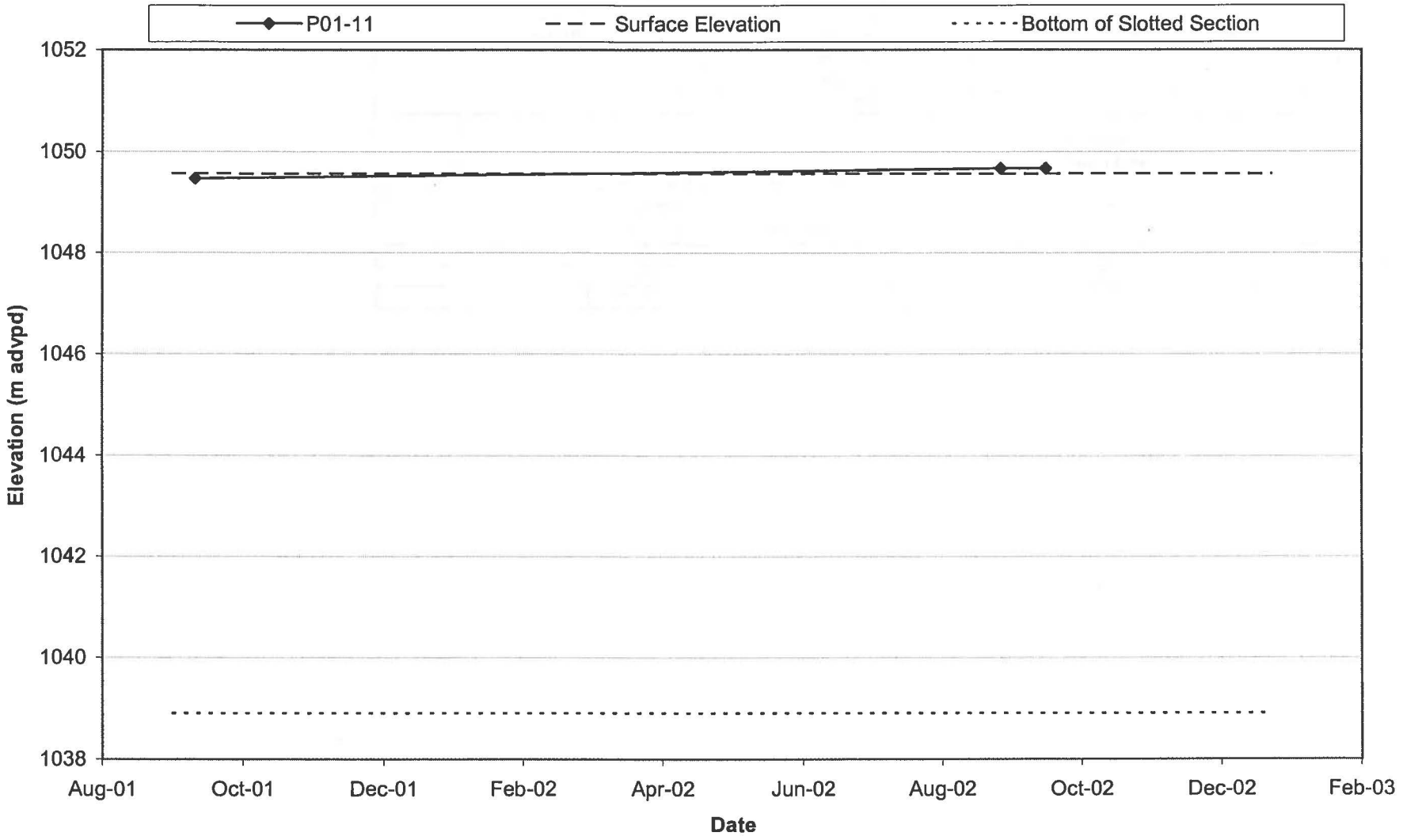
CROSS VALLEY DAM
Piezometric Monitoring
P01-02 (2001 - GLL Monitoring Well)



Faro Mine Instrumentation Cross Valley Dam

P01-11		Location:	Cross Valley Dam Toe					Coordinates:	unknown
						Surface Elevation: (m amsl)	1017.278		
						Surface Elevation: (m advpd)	1049.58		
		Date Installed:	2001			Screened Interval: (m bgs)	9.15 - 10.67	Surface Protector:	yes
						Tip Elevation (m advpd)	1038.91		
						Stick Up:	0.55		
Date			Water level from top of pipe (m)			Piezometric Elevation (m amsl)	Piezometric Elevation (m advpd)		Pond El. (m advpd)
11-Sep-01			0.65			1017.18	1049.48		
3-Sep-02			0.45			1017.38	1049.68		
23-Sep-02			0.45			1017.38	1049.68		

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



THERMISTORS

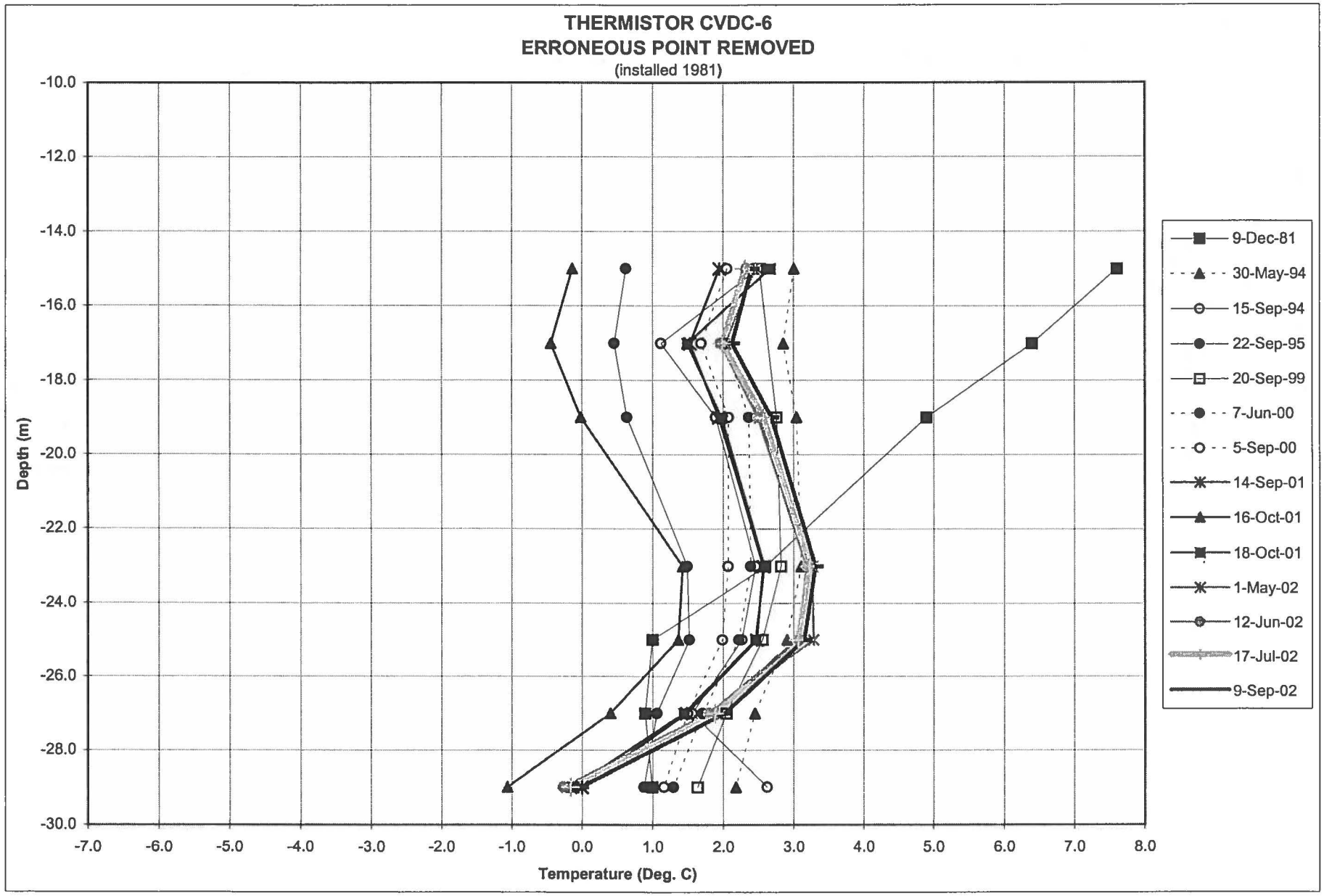
Faro Mine Instrumentation
Cross Valley Dam

CVDC-6	Stn 0+340	Location:	Cross Valley Dam Crest		Elevation:	1065.8 m advpd	Coordinates:	2182.1 mN &4.7 mE									
Thermistor String #32		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied	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)
(m)	(m)	9-Dec-81	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	20-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	14-Sep-01	16-Oct-01	18-Oct-01	1-May-02	12-Jun-02	17-Jul-02	9-Sep-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	14.35	14.37	14.30
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	14.59	14.57	14.47
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	14.20	14.14	14.06
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	22.43	22.43	22.44
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	13.75	13.72	13.66
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	13.84	13.85	13.79
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	14.74	14.67	14.57
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	16.37	16.28	16.16

* 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)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	9-Dec-81	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	20-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	14-Sep-01	16-Oct-01	18-Oct-01	1-May-02	12-Jun-02	17-Jul-02	9-Sep-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	2.33	2.30	2.40
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	1.96	1.99	2.12
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	2.49	2.57	2.69
21.0	-21.0	3.60	-2.86	-3.66	-4.67		-5.27	-6.02	-6.39	-6.46	-6.56	-7.80	-6.62	-6.26	-6.29	-6.29	-6.30
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	3.18	3.22	3.31
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	3.08	3.07	3.15
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	1.79	1.88	2.02
29.0	-29.0	1.00	2.18	2.62	0.88		1.64	1.29	1.16	0.17	0.00	-1.06	-0.12	-0.22	-0.27	-0.16	-0.01


THERMISTOR CVDC-6
ERRONEOUS POINT REMOVED
(installed 1981)
Depth (m)
-10.0
-12.0
-14.0
-16.0
-18.0
-20.0
-22.0
-24.0
-26.0
-28.0
-30.0
-7.0
-6.0
-5.0
-4.0
-3.0
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
Temperature (Deg. C)
9-Dec-81
30-May-94
15-Sep-94
22-Sep-95
20-Sep-99
7-Jun-00
5-Sep-00
14-Sep-01
16-Oct-01
18-Oct-01
1-May-02
12-Jun-02
17-Jul-02
9-Sep-02

Faro Mine Instrumentation
Cross Valley Dam

CVDC-11	St0+645	Location:	Cross Valley Dam Crest		Elevation:	1065.7 m advpd	Coordinates:	1913.4 mN -133.5mW									
Thermistor String #29		Date Installed:	1981		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	applied			Surface Protector:	yes					
Depth Correction	-0.1																

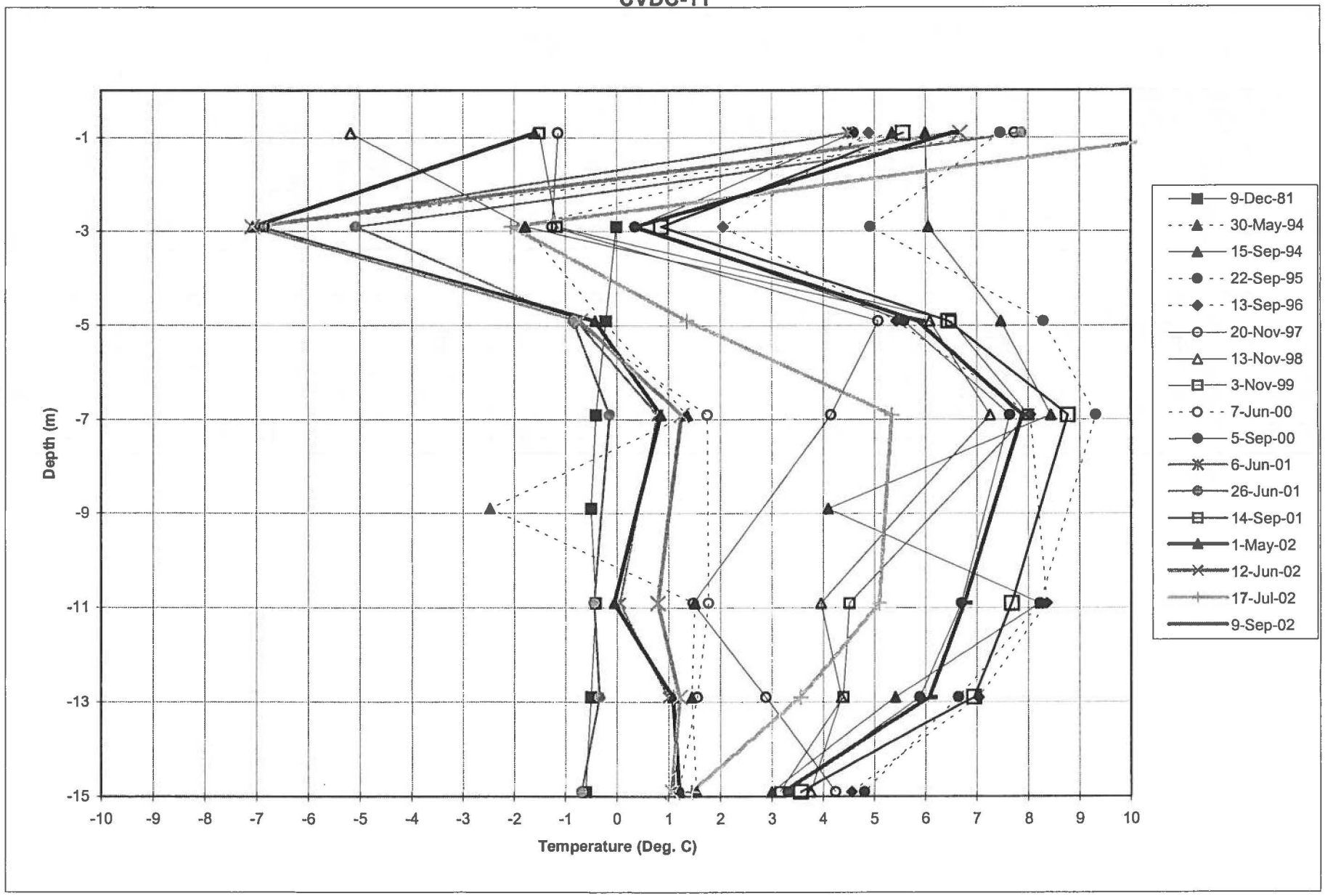
Depth on String	Actual Depth	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	9-Dec-81	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	20-Nov-97	13-Nov-98	3-Nov-99	7-Jun-00	5-Sep-00	6-Jun-01	26-Jun-01	14-Sep-01	1-May-02	12-Jun-02	17-Jul-02	9-Sep-02
1.0	-0.9		12.38	11.99	11.16	12.66	17.17	21.19	17.49	11.01	12.85	12.92	10.94	12.25	17.58	11.60	9.15	11.69
3.0	-2.9	16.21	17.76	11.96	12.65	14.60	17.28	17.75	17.20	23.16	15.91	23.21	21.09	15.51	23.44	23.45	18.01	15.92
5.0	-4.9	16.36	16.40	11.15	10.71	12.32	12.54	11.93	11.69	16.89	12.23	16.84	16.90	11.72	16.54	16.79	15.11	12.07
7.0	-6.9	16.50	15.09	10.62	10.18	10.83	13.11	11.25	10.85	14.79	11.04	15.53	16.28	10.45	15.48	15.17	12.36	10.91
9.0	-8.9	16.64	18.42	13.19	14.45	16.78	26.89	28.51	29.09	34.7	26.62	38.70	35.14	26.27	39.96	35.55	27.03	27.02
11.0	-10.9	16.52	14.99	10.74	10.74	10.67	15.01	13.25	12.89	14.79	11.57	16.13	16.55	11.03	16.22	15.54	12.52	11.54
13.0	-12.9	16.64	15.07	12.36	11.63	11.41	14.02	13.02	13.00	14.99	12.07	15.42	16.50	11.46	15.35	15.25	13.55	11.96
15.0	-14.9	16.67	14.95	13.89	12.69	12.85	13.05	13.37	13.78	15.21	13.67		16.74	13.50	15.20	15.31	15.02	13.73

* 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)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	9-Dec-81	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	20-Nov-97	13-Nov-98	3-Nov-99	7-Jun-00	5-Sep-00	6-Jun-01	26-Jun-01	14-Sep-01	1-May-02	12-Jun-02	17-Jul-02	9-Sep-02
1.0	-0.9		5.35	6.00	7.46	4.90	-1.14	-5.18	-1.50	7.74	4.60	4.49	7.87	5.56	-1.60	6.67	11.57	6.51
3.0	-2.9	0.00	-1.78	6.06	4.92	2.06	-1.25	-1.77	-1.16	-6.84	0.36	-6.88	-5.08	0.86	-7.07	-7.08	-2.05	0.35
5.0	-4.9	-0.20	-0.25	7.47	8.30	5.44	5.08	6.09	6.50	-0.83	5.59	-0.77	-0.84	6.45	-0.42	-0.71	1.36	5.85
7.0	-6.9	-0.40	1.35	8.44	9.31	8.04	4.16	7.26	8.00	1.75	7.64	0.79	-0.14	8.77	0.85	1.25	5.34	7.89
9.0	-8.9	-0.50	-2.47	4.10														
11.0	-10.9	-0.40	1.51	8.23	8.23	8.36	1.48	3.96	4.52	1.77	6.70	0.06	-0.44	7.68	-0.05	0.79	5.10	6.76
13.0	-12.9	-0.50	1.45	5.41	6.65	7.04	2.88	4.36	4.40	1.56	5.89	1.00	-0.33	6.95	1.09	1.22	3.56	6.08
15.0	-14.9	-0.60	1.54	3.00	4.81	4.56	4.25	3.76	3.16	1.20	3.32		-0.68	3.57	1.21	1.07	1.45	3.23

The 8.9 metre depth tip is suspect

CROSS VALLEY DAM
Geothermal Monitoring
CVDC-11



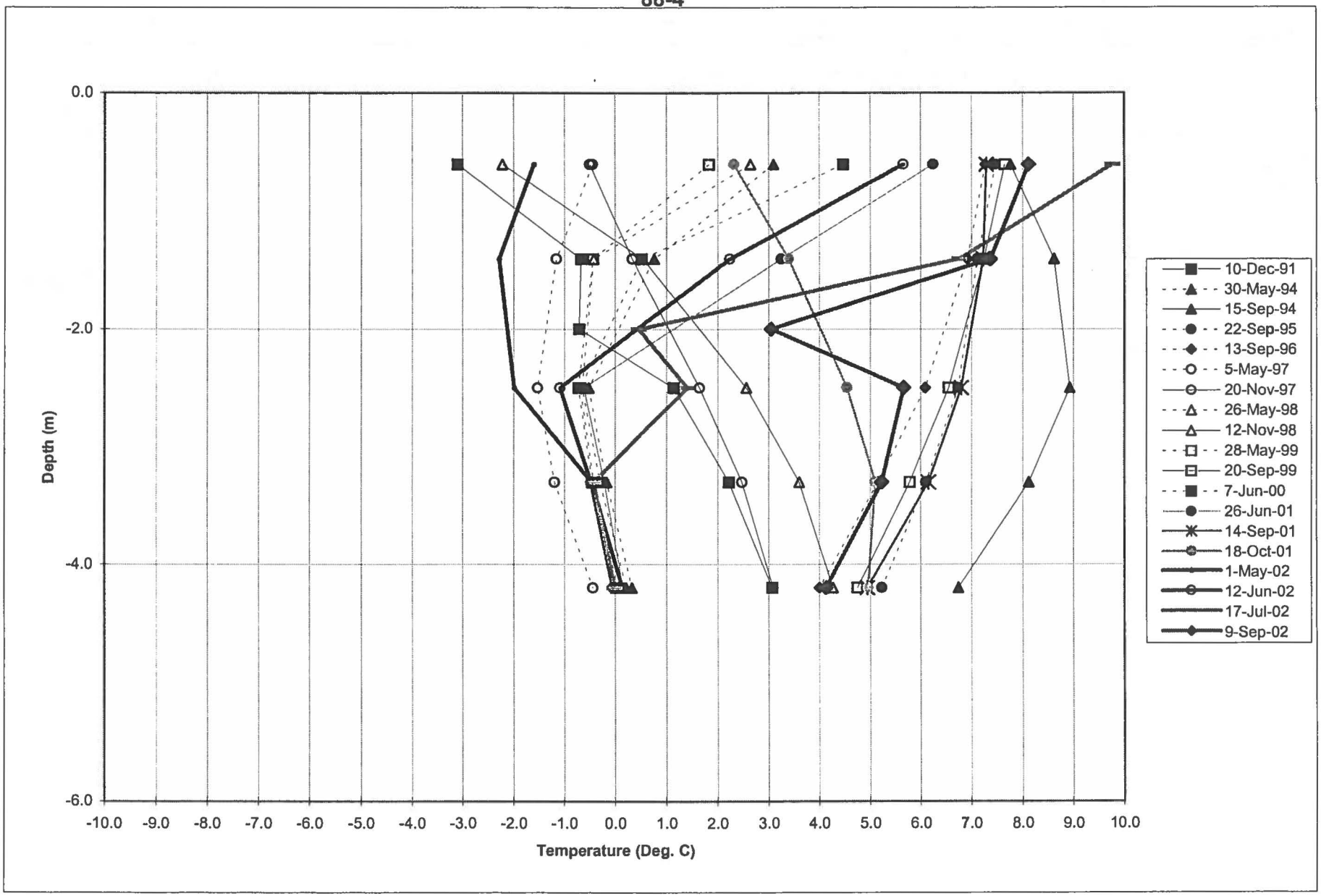
BGC Engineering Inc.

Faro Mine Instrumentation Cross Valley Dam

BH 88-4	0+450	Location:	Cross Valley Dam Crest		Elevation:	1066.9 m advpd	Coordinates:	2018.3mN, 76.6mW															
		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)	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	5-May-97	20-Nov-97	26-May-98	12-Nov-98	28-May-99	20-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	14-Sep-01	18-Oct-01	1-May-02	12-Jun-02	17-Jul-02	9-Sep-02		
0.6	-0.6	19.03	20.60	13.87	11.01	11.17	11.28	16.59	16.64	14.19	18.18	14.78	11.07	12.95	11.74	11.86	11.27	14.42	17.61	12.21	9.99	10.82	
1.4	-1.4	18.72	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	11.18	
2.0	-2.0	16.81	17.93	18.04	11.27	12.45	13.01	19.84	17.50	19.19	17.30	19.78	13.61	19.90	14.13	19.22	13.49	15.59	21.52	19.89	15.78	13.85	
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	12.05	16.67	11.50	12.85	17.89	17.08	15.04	12.16	
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	12.42	
4.2	-4.2	13.82	14.69	15.87	11.52	12.41	13.19	16.52	13.82	15.98	13.03	16.11	12.72	16.14	13.30	16.03	12.80	12.59	16.04	16.19	16.17	13.12	

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)
(m)	(m)	10-Dec-91	24-Jan-92	30-May-94	15-Sep-94	22-Sep-95	13-Sep-96	5-May-97	20-Nov-97	26-May-98	12-Nov-98	28-May-99	20-Sep-99	7-Jun-00	5-Sep-00	26-Jun-01	14-Sep-01	18-Oct-01	1-May-02	12-Jun-02	17-Jul-02	9-Sep-02	
0.6	-0.6	-3.10	-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	5.66	9.77	8.13	
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	7.37	
2.0	-2.0	-0.70																			0.46	3.05	
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	-1.08	1.41	5.66	
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	5.24	
4.2	-4.2	3.07	1.86	0.33	6.74	5.23	4.00	-0.43	3.09	0.22	4.27	0.08	4.75	0.02	3.86	0.15	4.94	4.96	0.14	-0.04	-0.02	4.13	

Faro Mine Instrumentation
Cross Valley Dam
88-4



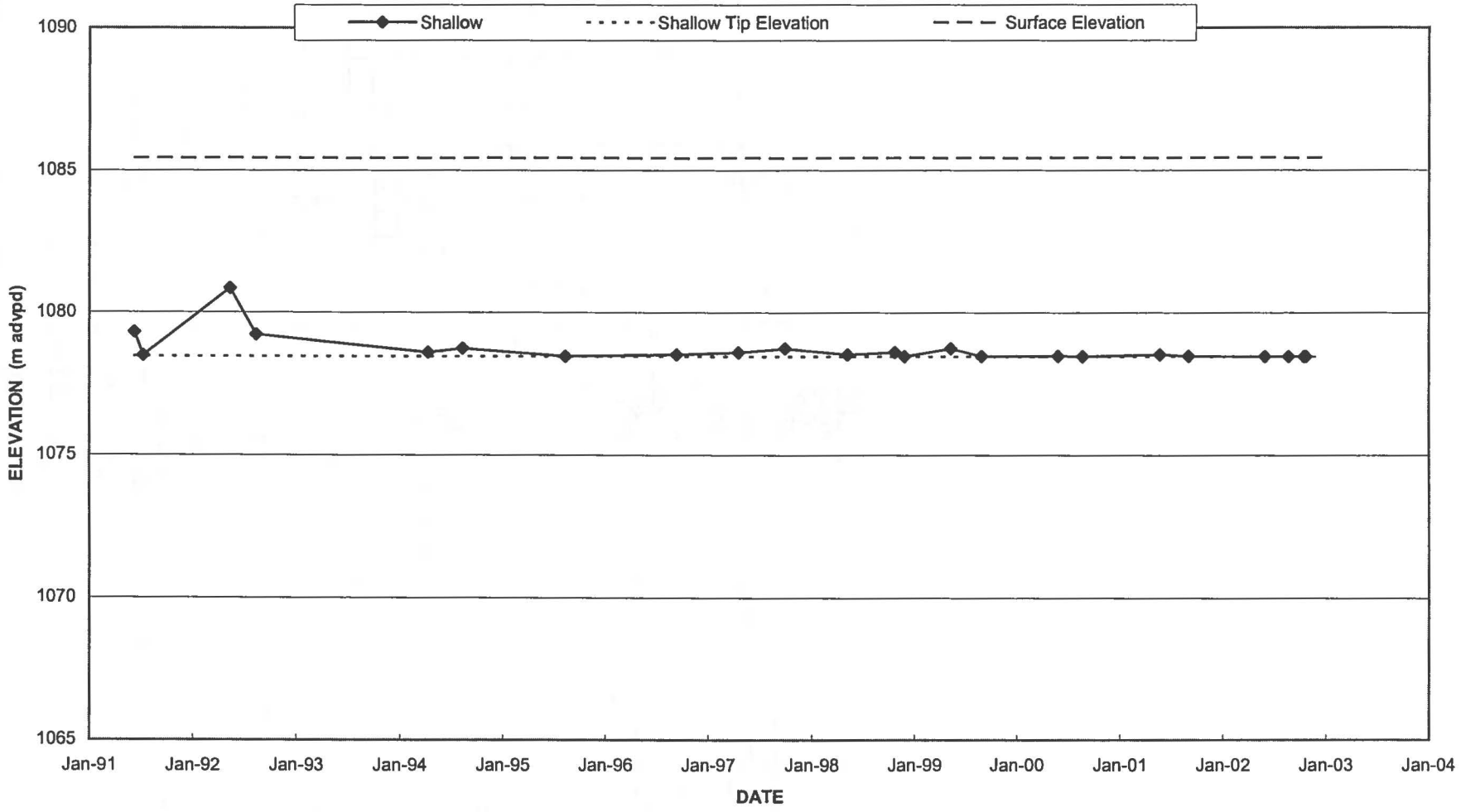
BGC Engineering Inc.

INTERMEDIATE DAM

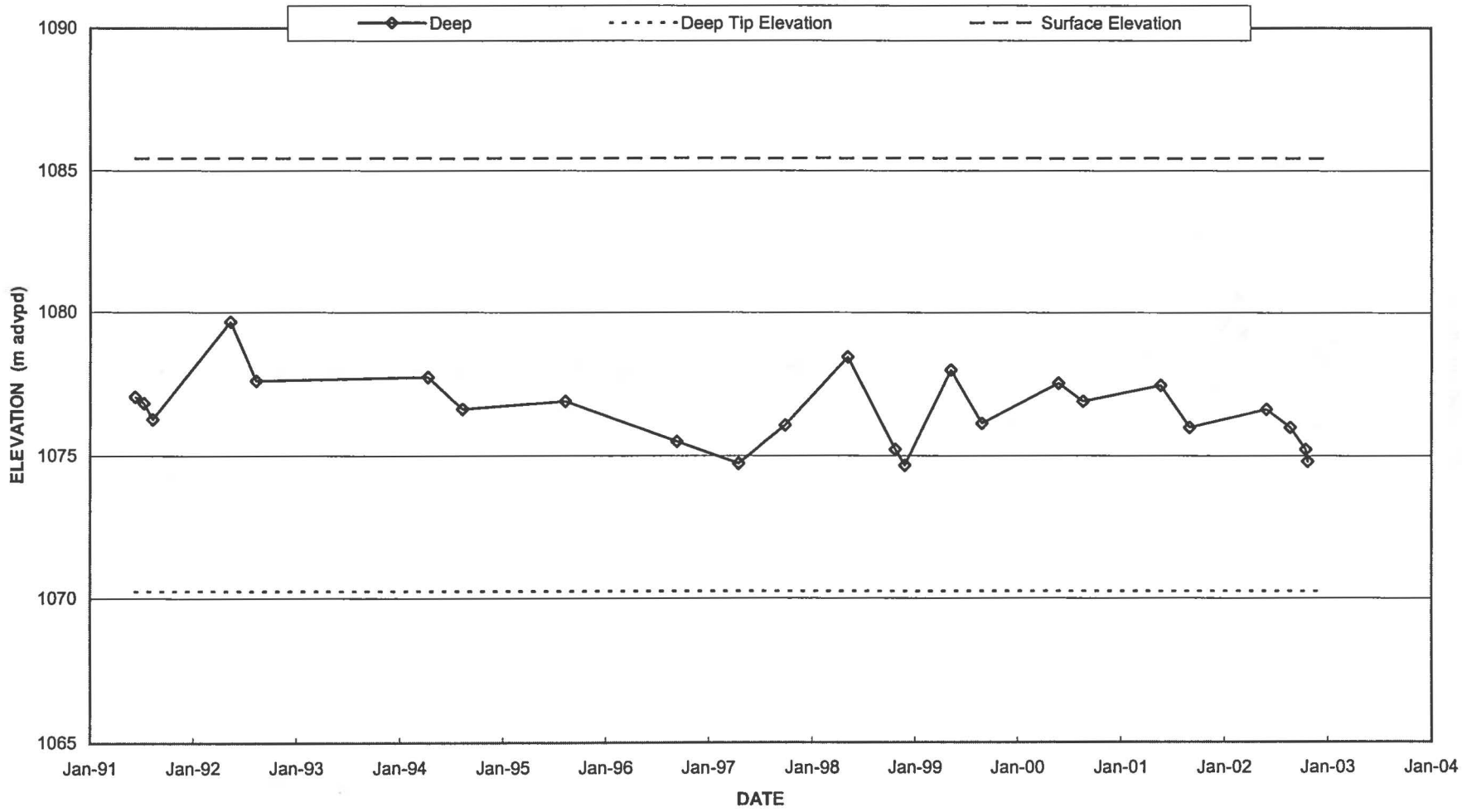
PIEZOMETERS

BH91-ID3		Location:	Intermediate Dam South Abutment @ Stn. 0+810				Coordinates:	unknown
					Surface Elevation: (m advpd)	1085.45		
					Shallow Tip Elevation: (m advpd)	1078.45		yes
		Date Installed:	1991		Deep Tip Elevation: (m advpd)	1070.25	Surface Protector:	
Date		Reading (psi)			Piezometric Elevation (m advpd)			Pond El. (m advpd)
		Shallow	Deep		Shallow	Deep		
Jul-91		1.23	9.71		1079.31	1077.05		~1074.5
Aug-91		0.04	9.40		1078.48	1076.83		~1074.5
Sep-91			8.60			1076.27		~1074.5
Feb-92								
Apr-92								
Jun-92		3.44	13.46		1080.86	1079.67		1080.0
Sep-92		1.10	10.51		1079.22	1077.61		1080.0
May-94		0.20	10.70		1078.59	1077.74		1080.0
Sep-94		0.40	9.10		1078.73	1076.62		1080.0
Sep-95		0.00	9.50		1078.45	1076.9		1080.0
Oct-96		0.1	7.5		1078.52	1075.5		1080.4
May-97		0.2	6.4		1078.59	1074.73		
Oct-97		0.40	8.31		1078.73	1076.07		
May-98		0.10	11.70		1078.52	1078.44		1080.4
12-Nov-98		0.22	7.10		1078.60	1075.22		1080.1
16-Dec-98		0.0	6.3		1078.45	1074.66		1080.1
29-May-99		0.40	11.05		1078.73	1077.99		1080.3
16-Sep-99		0.02	8.4		1078.46	1076.13		1080.0
14-Jun-00		0.01	10.4		1078.46	1077.54		1079.9
9-Sep-00		0.00	9.5		1078.45	1076.90		
10-Jun-01		0.10	10.3		1078.52	1077.46		
20-Sep-01		0.01	8.2		1078.457	1075.99		
18-Jun-02		0.00	9.1		1078.45	1076.62		
10-Sep-02		0.00	8.20		1078.45	1075.99		
4-Nov-02		0.00	7.10		1078.45	1075.22		
10-Nov-02		0.00	6.50		1078.45	1074.8		

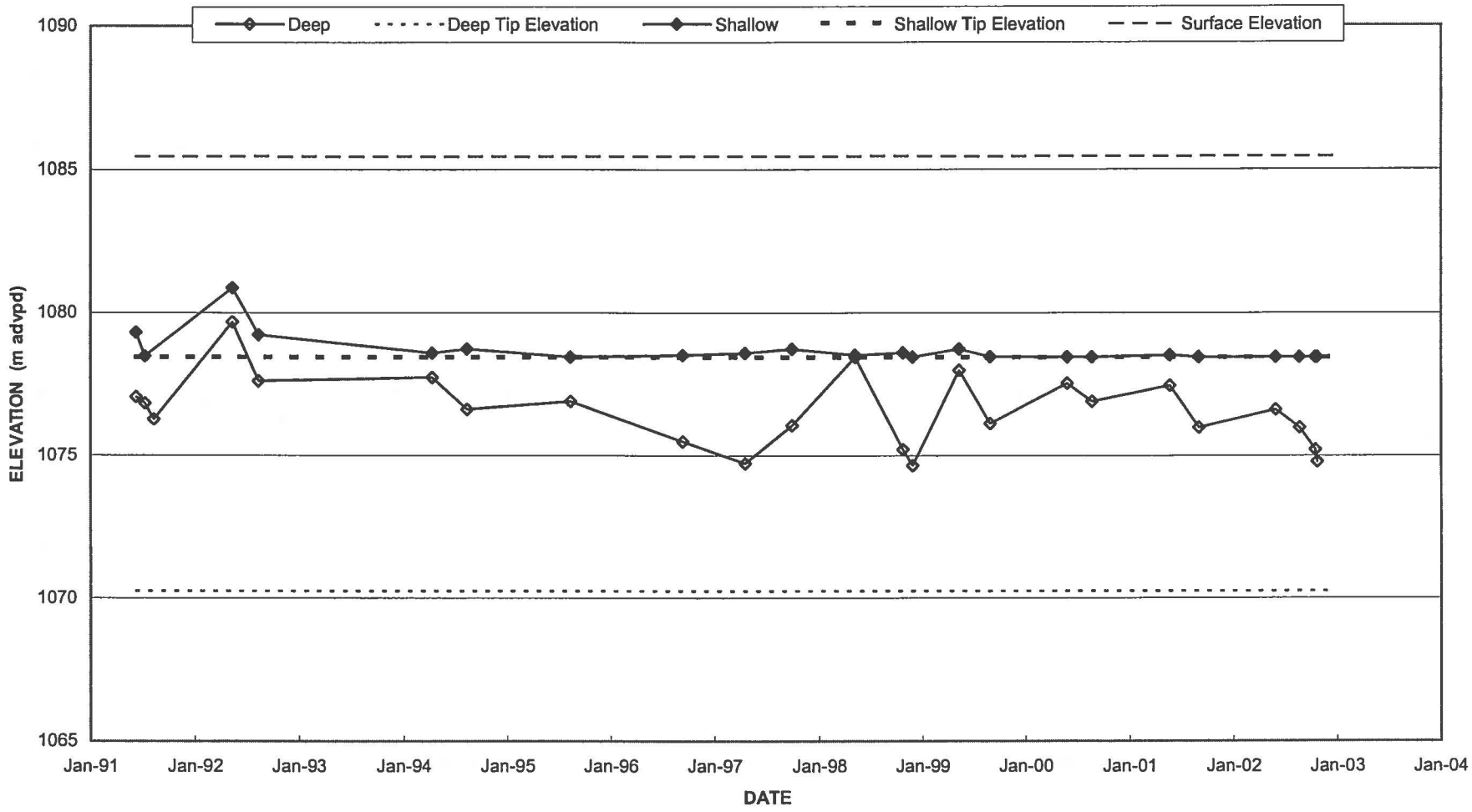
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID3 Pneumatic Piezometer (Shallow Tip)
(South Abutment of Dam)



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

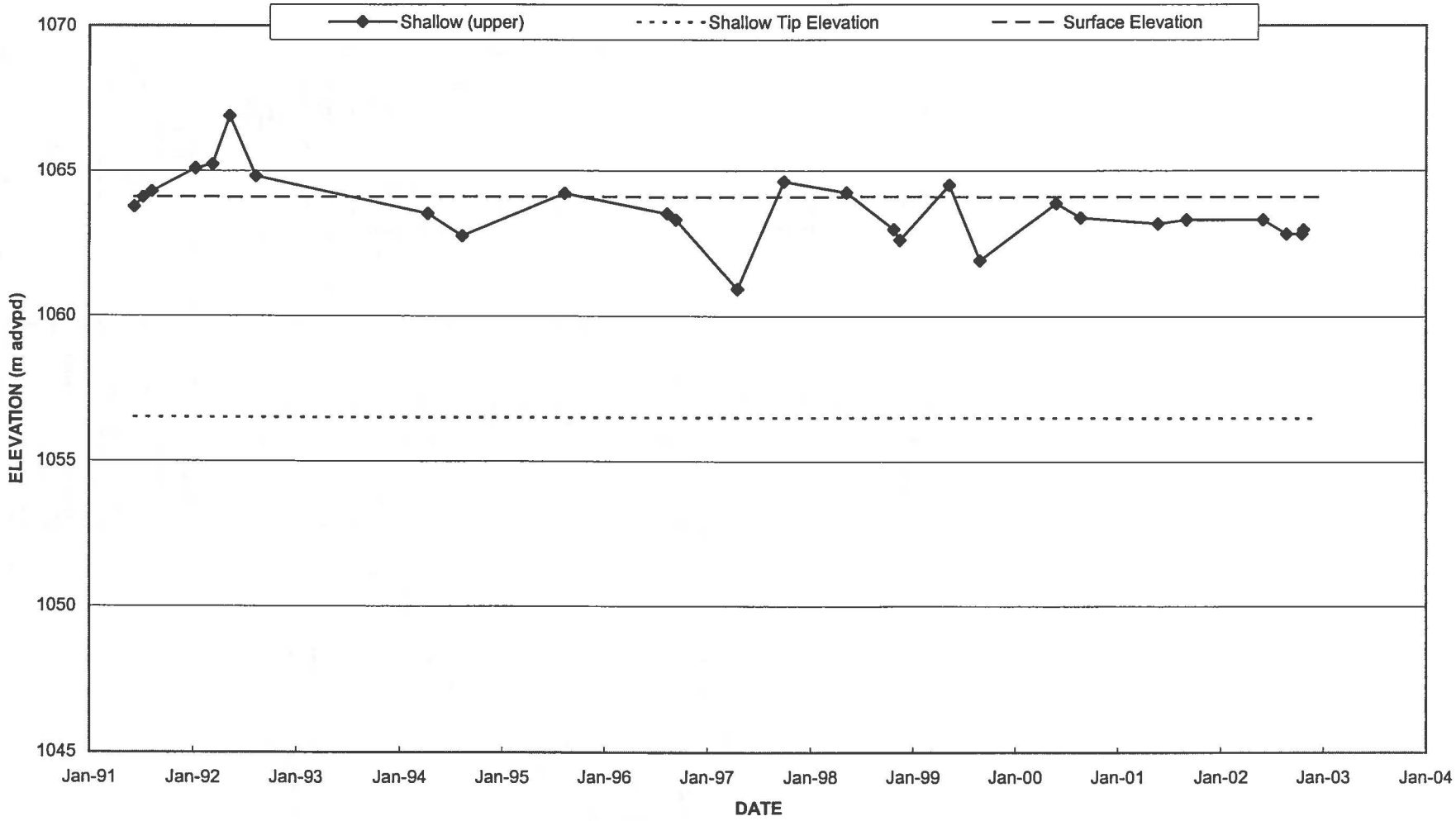


INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID3 Pneumatic Piezometer (Both Tips)
(South Abutment of Dam)

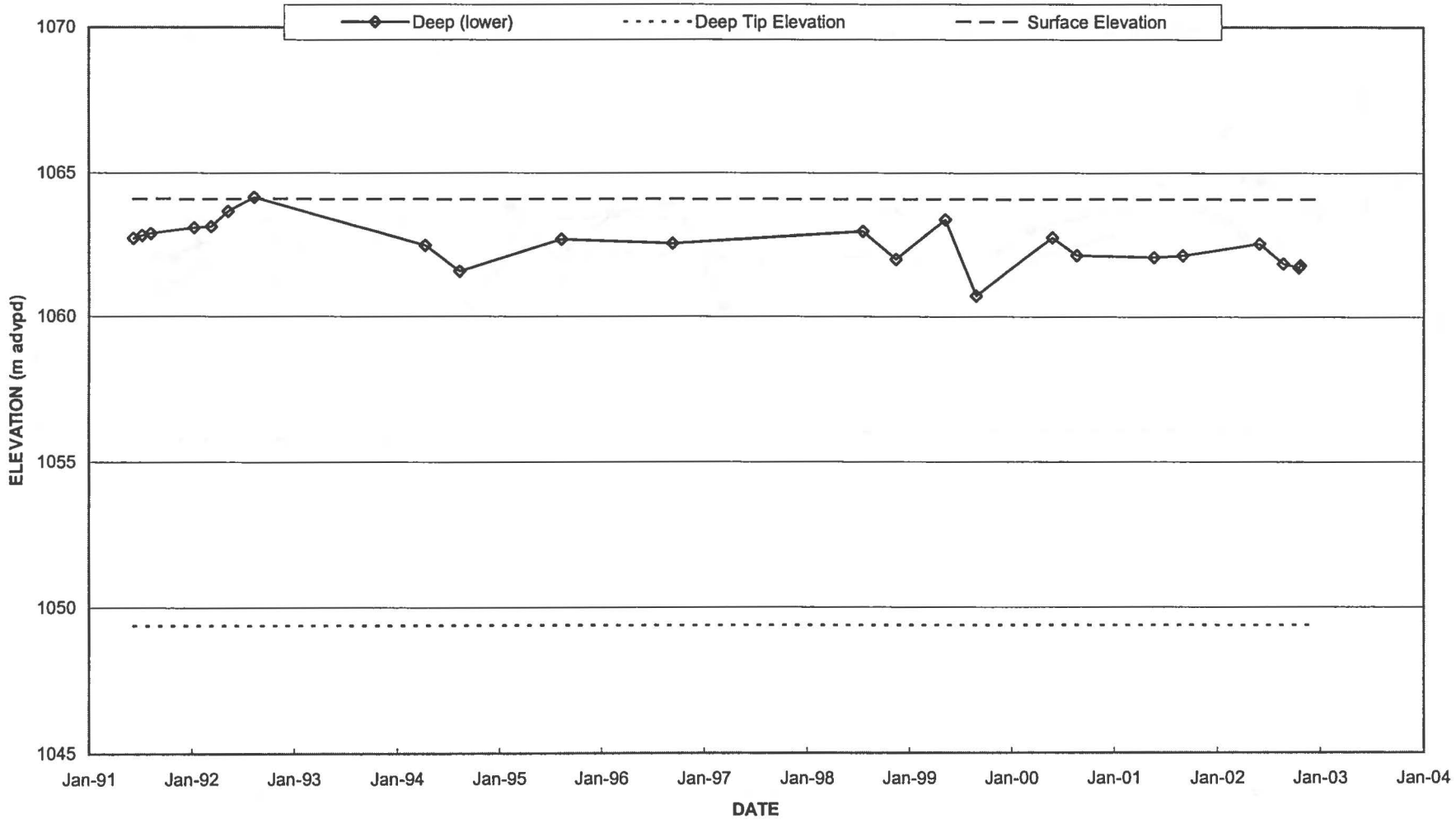


BH91-ID4		Location:	Intermediate Dam Toe @St.0+567				Coordinates:	unknown
					Surface Elevation: (m advpd)	1064.10		
					Shallow Tip Elevation: (m advpd)	1056.52		
		Date Installed:	1991		Deep Tip Elevation: (m advpd)	1049.38	Surface Protector:	yes
Date		Reading (psi)			Piezometric Elevation (m advpd)			Pond El. (m advpd)
		Shallow (upper)	Deep (lower)		Shallow (upper)	Deep (lower)		
Jul-91		10.34	19.06		1063.76	1062.72		~1074.5
Aug-91		10.81	19.20		1064.09	1062.82		~1074.5
Sep-91		11.10	19.30		1064.29	1062.89		~1074.5
Feb-92		12.24	19.59		1065.09	1063.09		1080.0
Apr-92		12.44	19.64		1065.23	1063.13		1080.0
Jun-92		14.80	20.40		1066.88	1063.66		1080.0
Sep-92		11.86	21.10		1064.82	1064.15		1080.0
May-94		10.00	18.70		1063.52	1062.47		1080.0
Sep-94		8.90	17.40		1062.75	1061.56		1080.0
Sep-95		11.00	19.00		1064.22	1062.68		1080.0
Sep-96		10.00			1063.52			1080.4
Oct-96		9.7	18.8		1063.31	1062.54		
May-97		6.3			1060.93			
Oct-97		11.58			1064.63			
May-98		11.04			1064.25			1080.4
Aug-98			19.4			1062.96		1080.4
12-Nov-98		9.22			1062.97			1080.1
4-Dec-98		8.7	18.0		1062.61	1061.98		1080.1
29-May-99		11.40	20.00		1064.5	1063.38		1080.3
16-Sep-99		7.7	16.2		1061.91	1060.72		1080.0
14-Jun-00		10.5	19.1		1063.87	1062.75		1079.9
9-Sep-00		9.8	18.2		1063.38	1062.12		
10-Jun-01		9.50	18.1		1063.17	1062.05		
20-Sep-01		9.70	18.2		1063.31	1062.12		
18-Jun-02		9.70	18.80		1063.31	1062.54		
10-Sep-02		9.00	17.80		1062.82	1061.84		
4-Nov-02		9.00	17.60		1062.82	1061.7		
10-Nov-02		9.20	17.7		1062.96	1061.77		

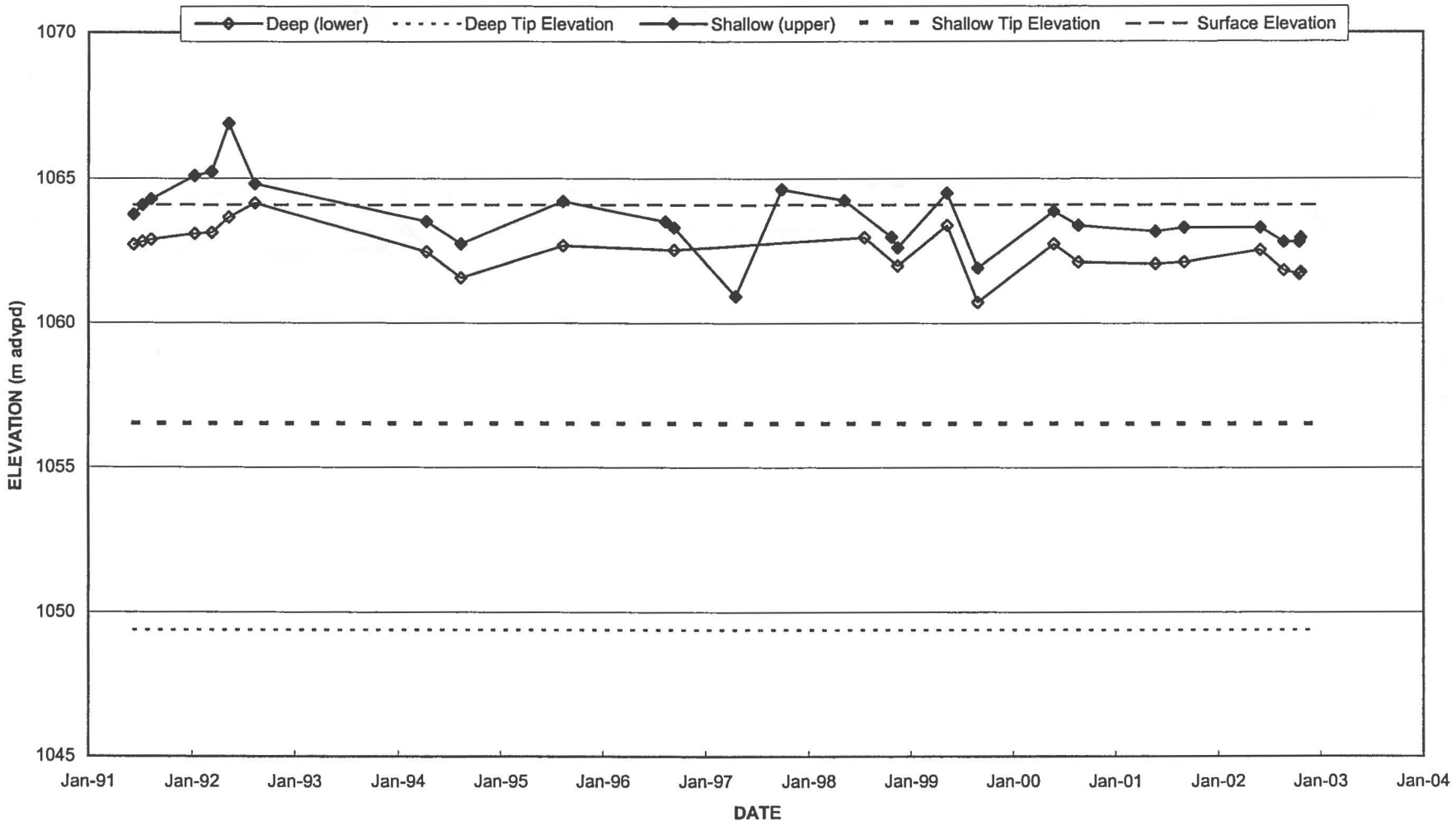
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID4 Pneumatic Piezometer (Shallow Tip)
(Toe of Dam)



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



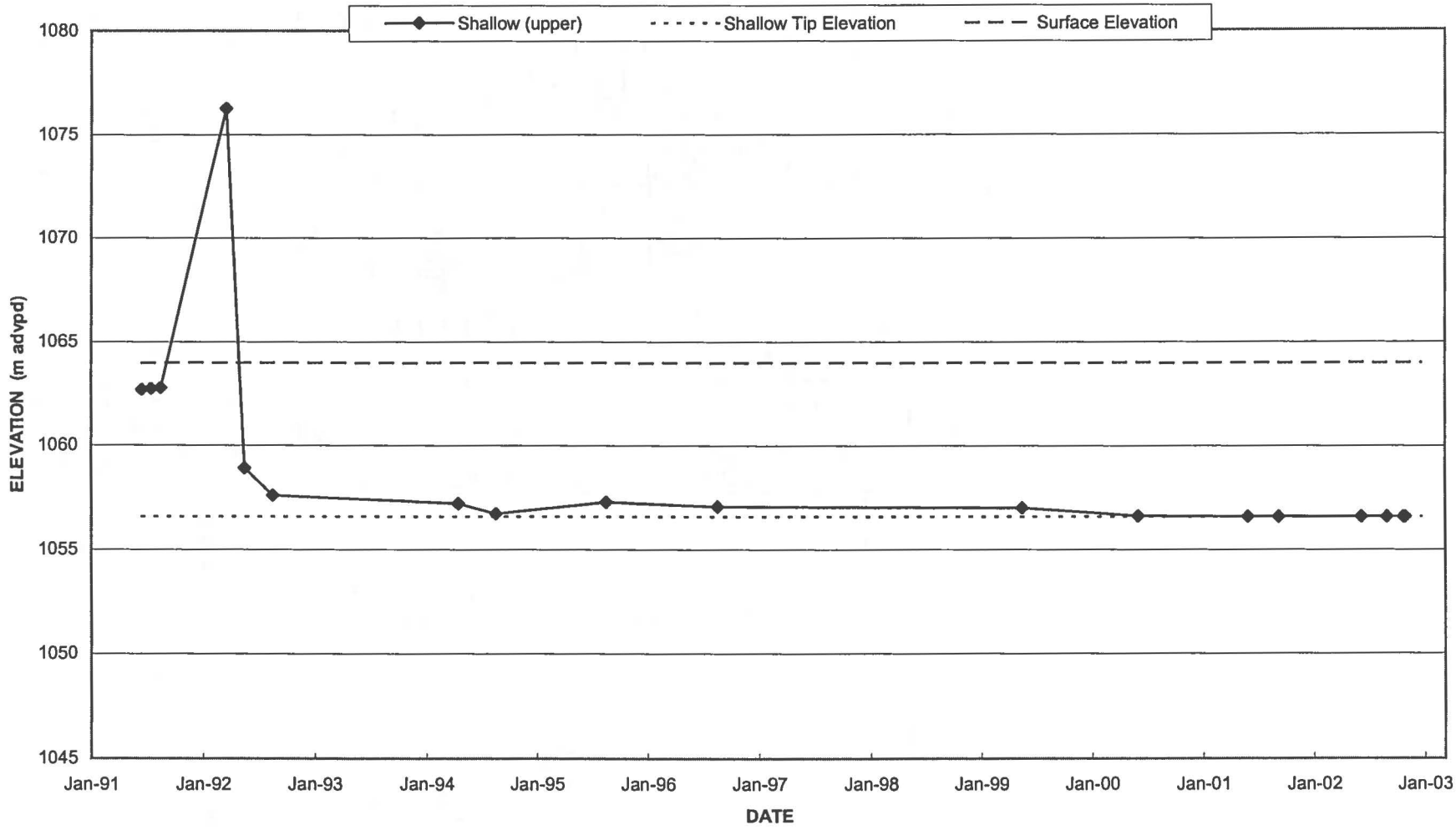
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID4 Pneumatic Piezometer (Deep Tip)
(Toe of Dam)



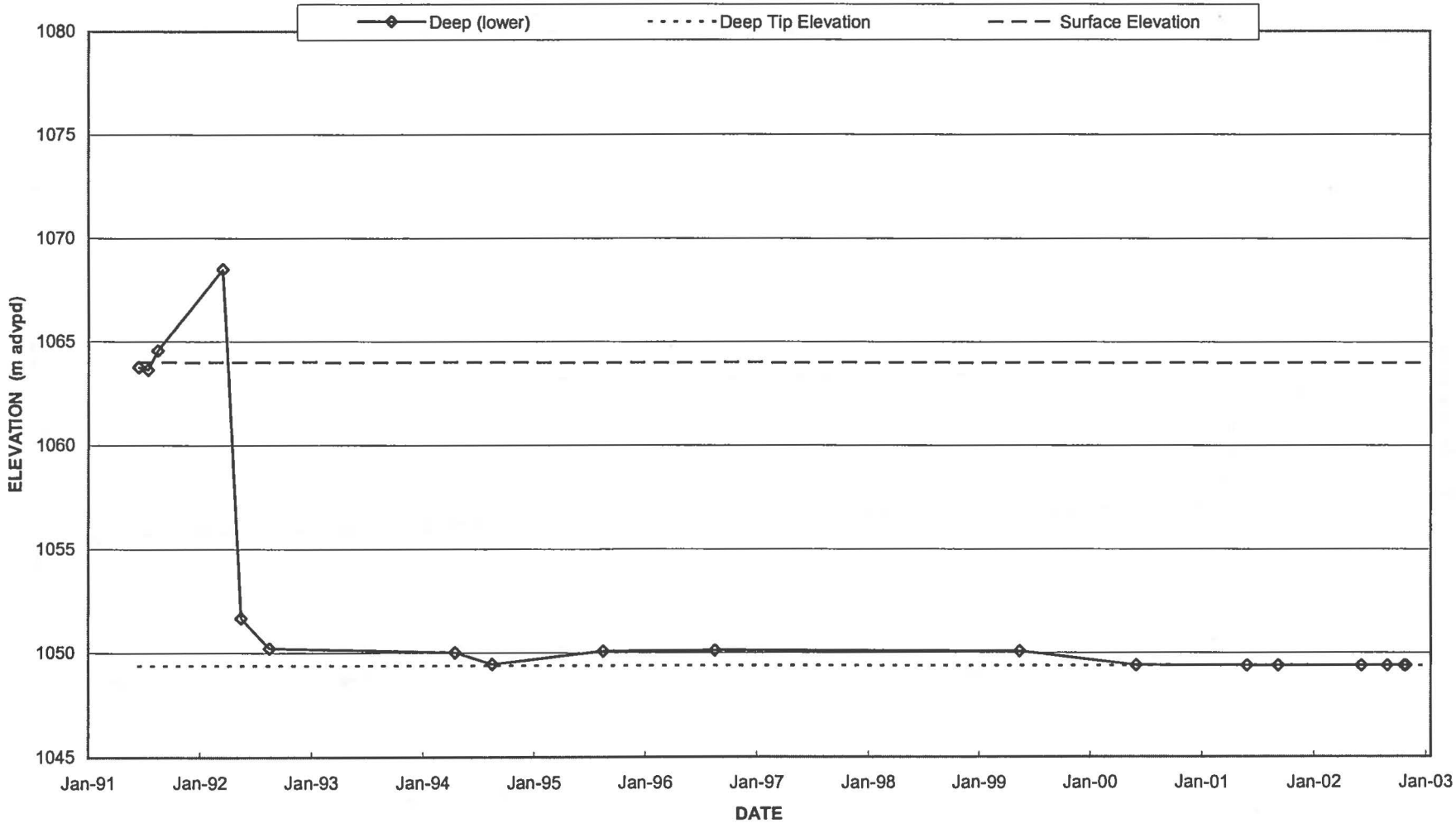
BH91-ID5		Location:	Intermediate Dam Toe @ St.0+625			Coordinates:	unknown
				Surface Elevation: (m advpd)	1064.00		
				Shallow Tip Elevation: (m advpd)	1056.60		
		Date Installed:	1991	Deep Tip Elevation: (m advpd)	1049.38	Surface Protector:	yes
Date		Reading (psi)			Piezometric Elevation (m advpd)		Pond El. (m advpd)
		Shallow (upper)	Deep (lower)		Shallow (upper)	Deep (lower)	
Jul-91		8.67	20.54		1062.67	1063.76	~1074.5
Aug-91		8.76	20.36		1062.73	1063.63	~1074.5
Sep-91		8.80	21.70		1062.76	1064.57	~1074.5
Feb-92							
Apr-92		28.10	27.30		1076.27	1068.49	1080.0
Jun-92		3.30	3.30		1058.91	1051.69	1080.0
Sep-92		1.46	1.20		1057.62	1050.22	1080.0
May-94		0.90	0.90		1057.23	1050.01	1080.0
Sep-94		0.20	0.10		1056.74	1049.45	1080.0
Sep-95		1.00	1.00		1057.3	1050.08	1080.0
Sep-96		0.7	1.05		1057.09	1050.115	1080.4
7-May-97		no reading					
17-Oct-97		no reading					
27-May-98		n.r.					
29-May-99		0.60	1.00		1057.02	1050.08	1080.3
16-Sep-99		no reading; no bubbles					
14-Jun-00		0.03	0.03		1056.621	1049.401	1079.9
10-Jun-01		0.00	0		1056.6	1049.38	
20-Sep-01		0.00	0.00		1056.6	1049.38	
18-Jun-02		0.00	0		1056.6	1049.38	
10-Sep-02		0.00	0		1056.6	1049.38	
4-Nov-02		0.00	0		1056.6	1049.38	
10-Nov-02		0.00	0		1056.6	1049.38	

Note: Both tips have leaking leads as of June, 1992.

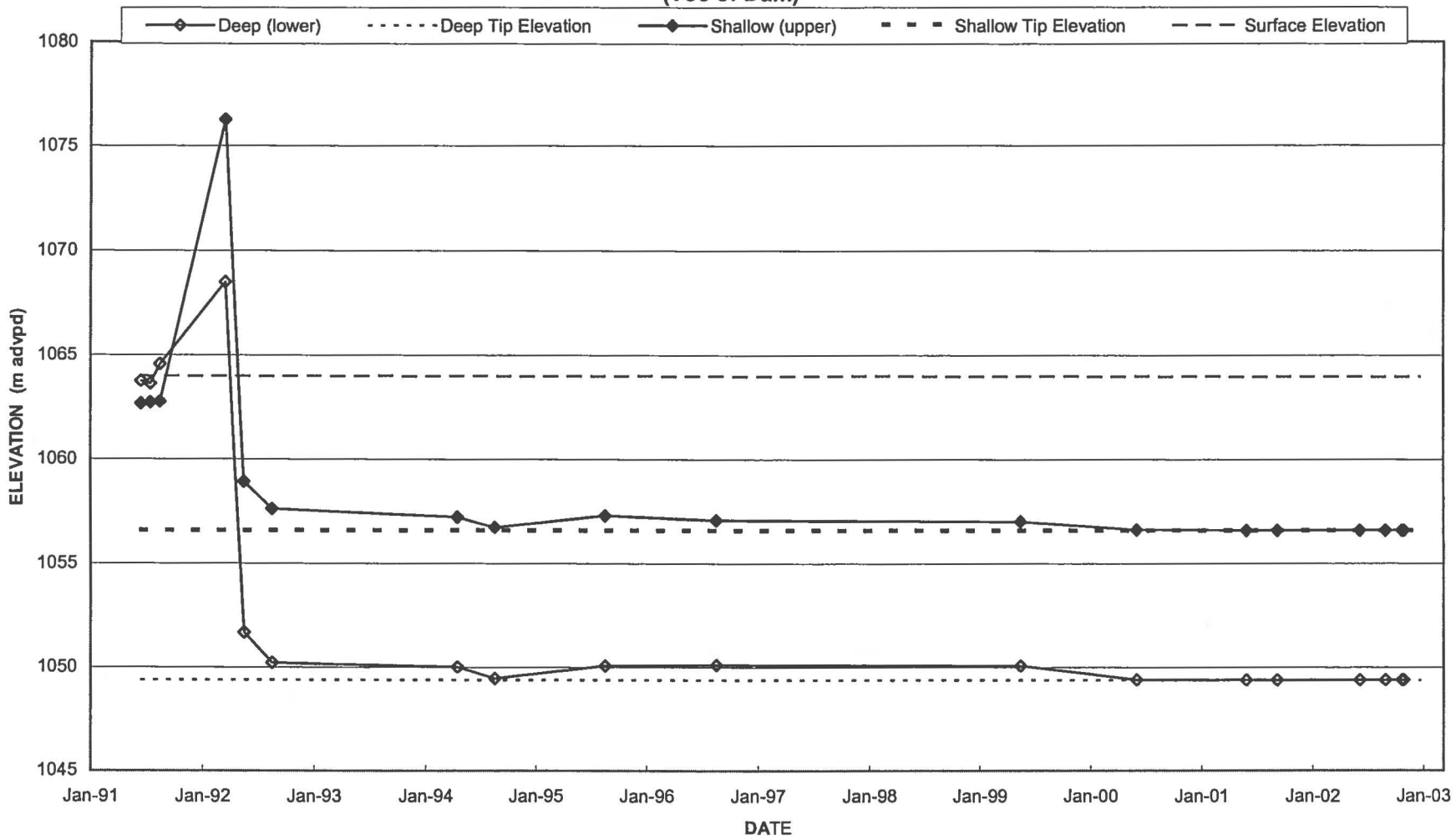
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID5 Pneumatic Piezometer (Shallow Tip)
(Toe of Dam)



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

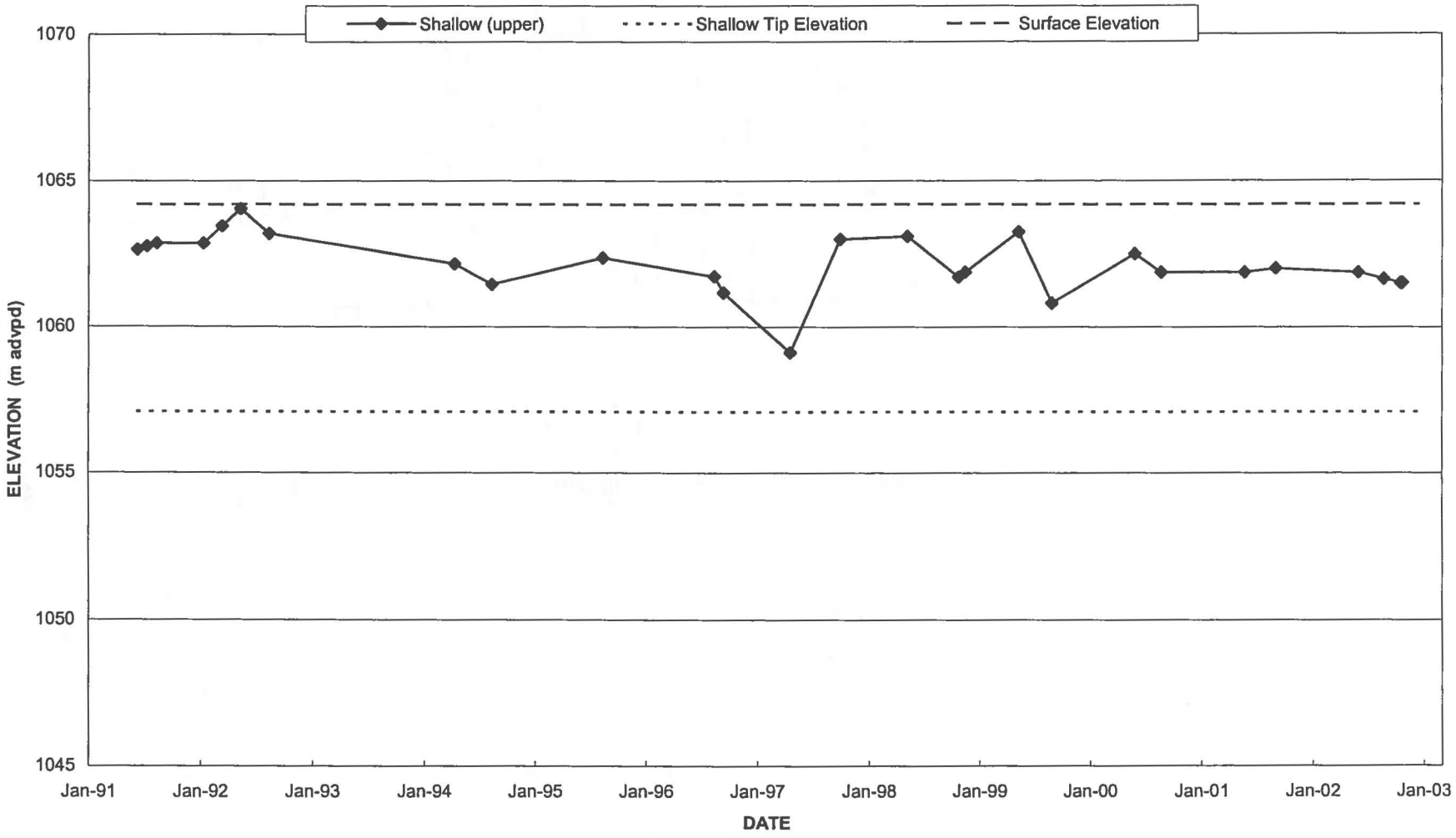


INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID5 Pneumatic Piezometer (Both Tips)
(Toe of Dam)

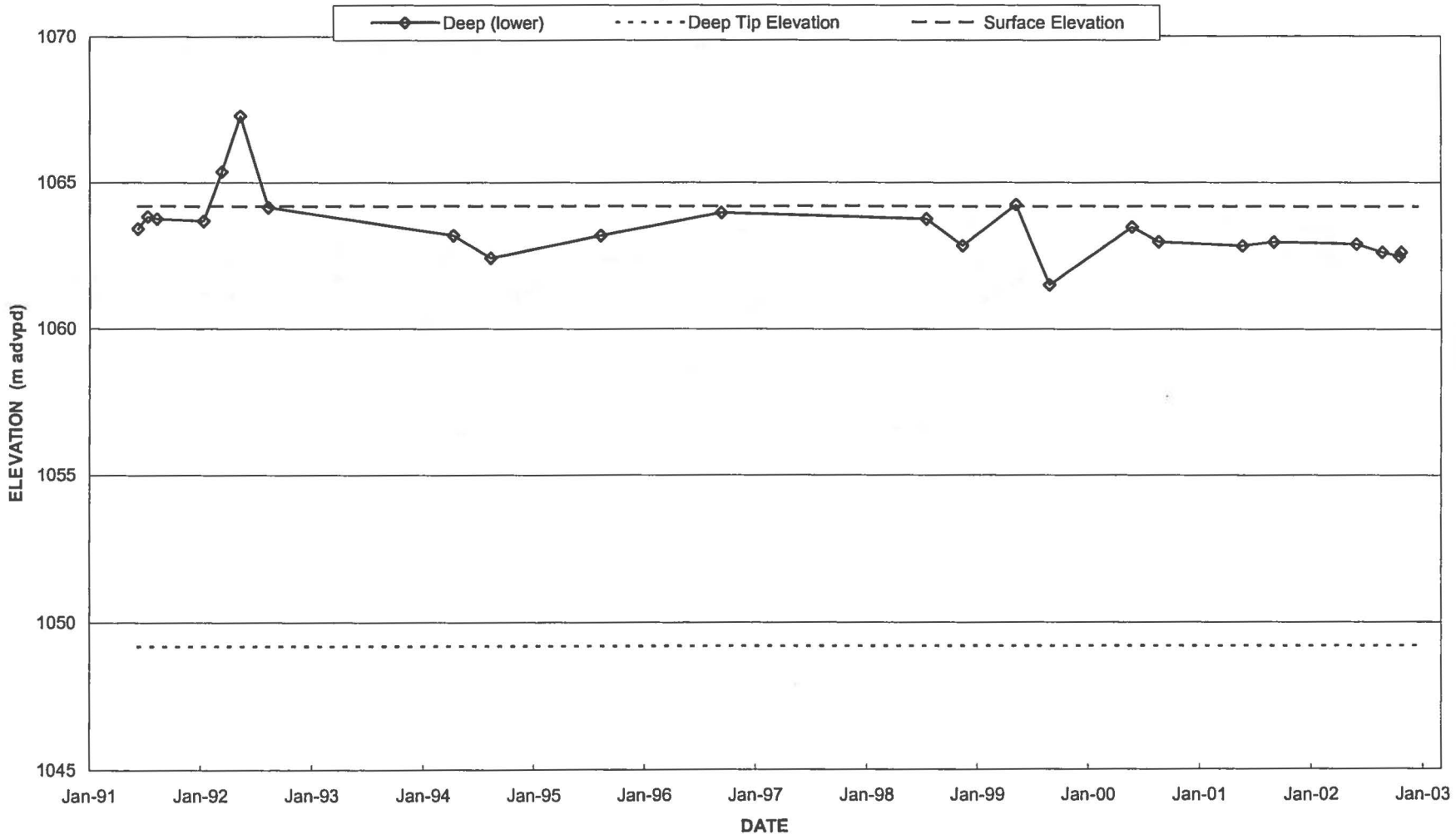


BH91-ID6		Location:	Intermediate Dam Toe @St.0+630				Coordinates:	unknown
					Surface Elevation: (m advpd)	1064.20		
					Shallow Tip Elevation: (m advpd)	1057.10		
		Date Installed:	1991		Deep Tip Elevation: (m advpd)	1049.20	Surface Protector:	yes
Date		Reading (psi)			Piezometric Elevation (m advpd)			Pond El. (m advpd)
		Shallow (upper)	Deep (lower)		Shallow (upper)	Deep (lower)		
Jul-91		7.89	20.33		1062.62	1063.43		~1074.5
Aug-91		8.06	20.91		1062.74	1063.84		~1074.5
Sep-91		8.20	20.80		1062.84	1063.76		~1074.5
Feb-92		8.20	20.70		1062.84	1063.69		1080.0
Apr-92		9.06	23.10		1063.44	1065.37		1080.0
Jun-92		9.91	25.80		1064.04	1067.26		1080.0
Sep-92		8.67	21.36		1063.17	1064.15		1080.0
May-94		7.20	20.00		1062.14	1063.2		1080.0
Sep-94		6.20	18.90		1061.44	1062.43		1080.0
Sep-95		7.50	20.00		1062.35	1063.2		1080.0
Sep-96		6.6			1061.72			1080.4
Oct-96		5.8	21.1		1061.16	1063.97		
7-May-97		2.9			1059.13			
17-Oct-97		8.41			1062.99			
27-May-98		8.56			1063.09			1080.4
7-Aug-98			20.8			1063.76		1080.4
12-Nov-98		6.57			1061.70			1080.1
4-Dec-98		6.8	19.5		1061.86	1062.85		1080.1
29-May-99		8.78	21.50		1063.25	1064.25		1080.3
16-Sep-99		5.3	17.60		1060.81	1061.52		1080.0
14-Jun-00		7.7	20.41		1062.49	1063.487		1079.9
9-Sep-00		6.8	19.70		1061.86	1062.99		
10-Jun-01		6.80	19.50		1061.86	1062.85		
20-Sep-01		7.00	19.70		1062.00	1062.99		
18-Jun-02		6.80	19.60		1061.86	1062.92		
10-Sep-02		6.50	19.20		1061.65	1062.64		
4-Nov-02		6.30	19.00		1061.51	1062.5		
10-Nov-02		6.30	19.2		1061.51	1062.64		

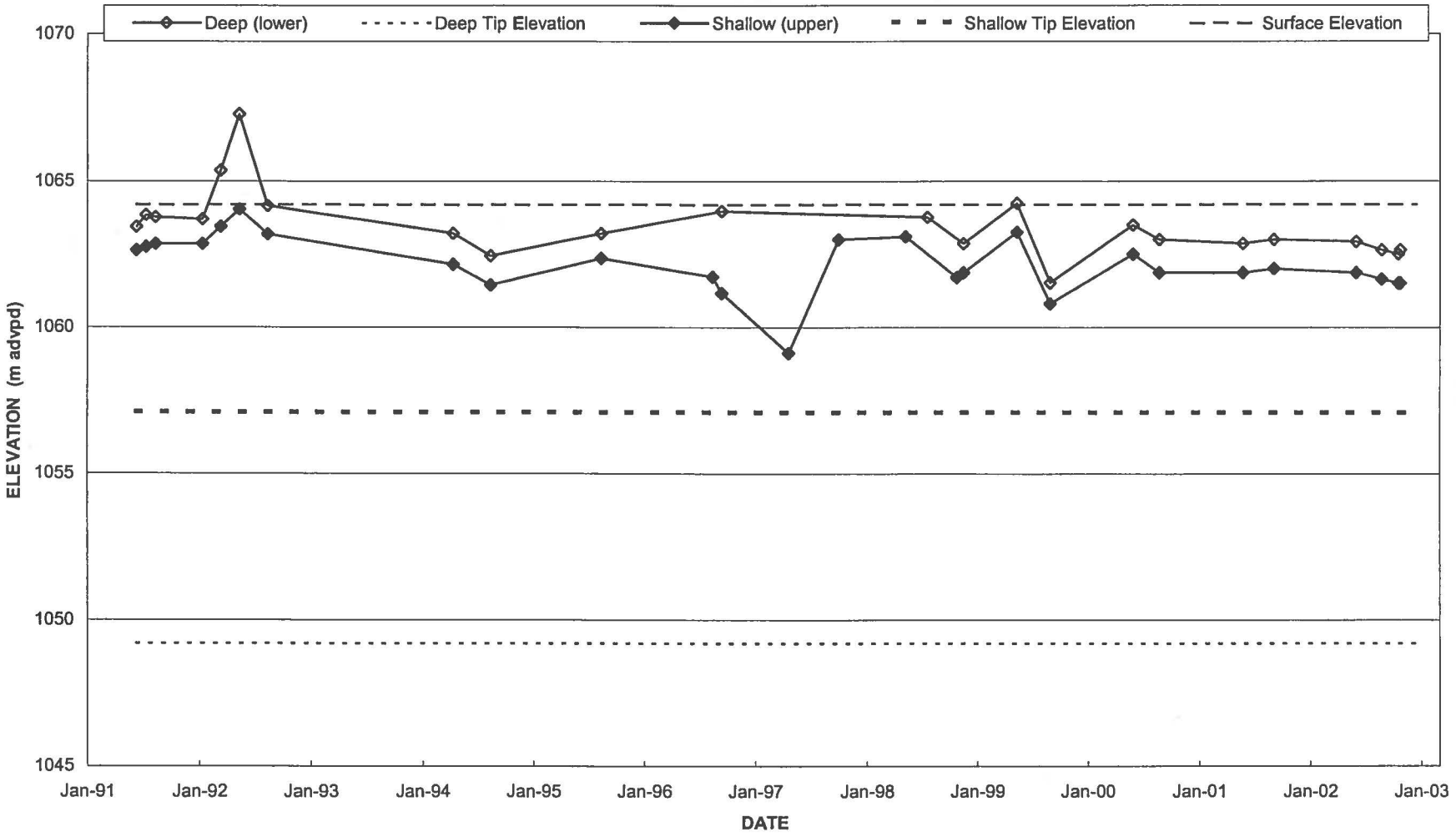
INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID6 Pneumatic Piezometer (Shallow Tip)
(Toe of Dam)



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

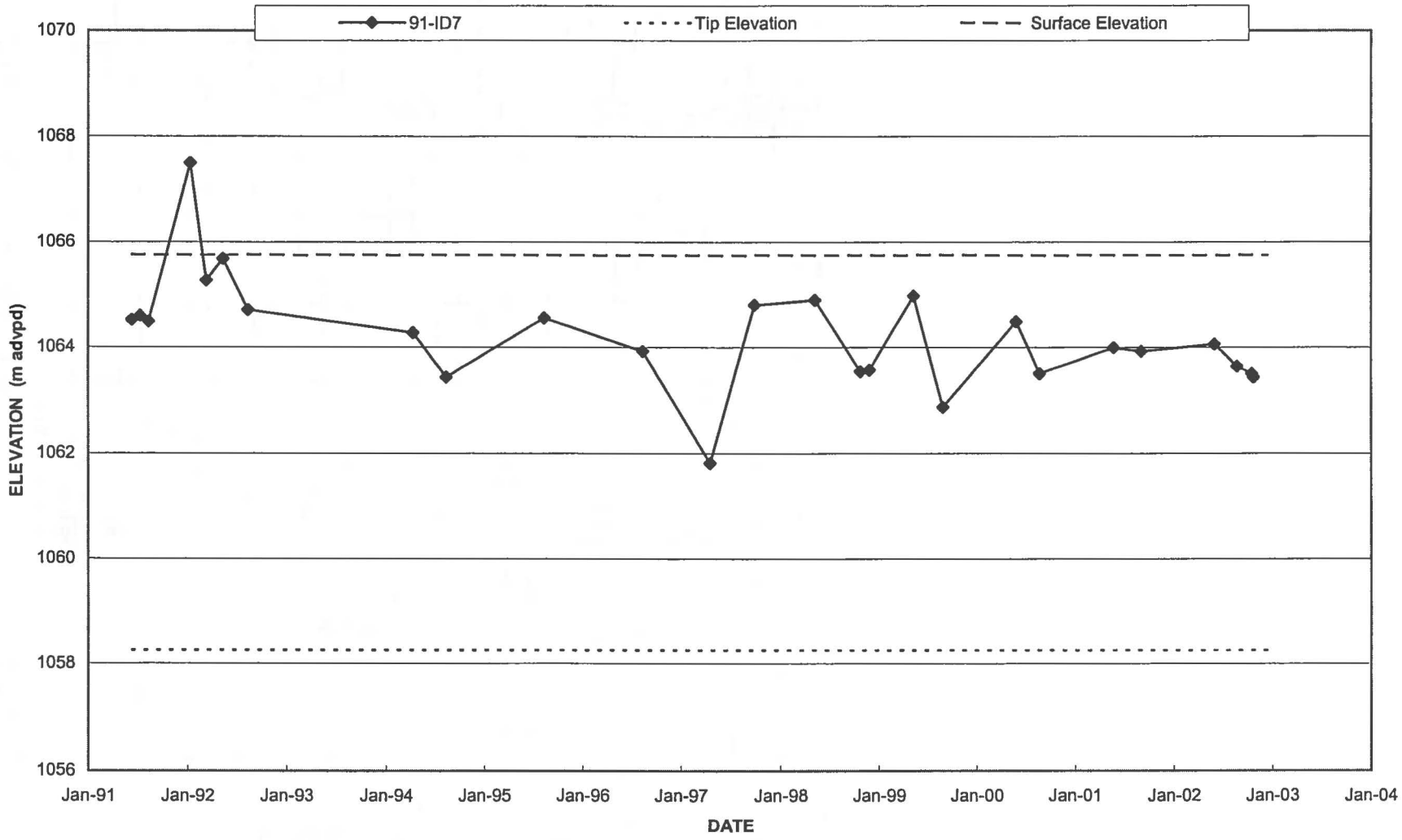


INTERMEDIATE DAM
Piezometric Monitoring
BH91-ID6 Pneumatic Piezometer (Both Tips)
(Toe of Dam)



BH91-ID7		Location:	Intermediate Dam Toe @St.0+759					Coordinates:	unknown
						Ground Elevation: (advpd)	1065.75		
		Date Installed:	1991			Tip Elevation: (m advpd)	1058.25	Surface Protector:	yes
Date		Reading (psi)				Piezometric Elevation (m advpd)			Pond El. (m advpd)
Jul-91		8.94				1064.51			~1074.5
Aug-91		9.06				1064.59			~1074.5
Sep-91		8.90				1064.48			~1074.5
Feb-92		13.21				1067.50			1080.0
Apr-92		10.01				1065.26			1080.0
Jun-92		10.61				1065.68			1080.0
Sep-92		9.21				1064.70			1080.0
May-94		8.60				1064.27			1080.0
Sep-94		7.40				1063.43			1080.0
Sep-95		9.00				1064.55			1080.0
Sep-96		8.1				1063.92			1080.4
May-97		5.1				1061.82			
Oct-97		9.36				1064.80			
May-98		9.49				1064.89			1080.4
12-Nov-98		7.56				1063.54			1080.1
16-Dec-98		7.6				1063.57			1080.1
29-May-99		9.60				1064.97			1080.3
16-Sep-99		6.6				1062.87			1080.0
14-Jun-00		8.9				1064.48			1079.9
9-Sep-00		7.5				1063.50			
10-Jun-01		8.20				1063.99			
20-Sep-01		8.10				1063.92			
18-Jun-02		8.30				1064.06			
10-Sep-02		7.70				1063.64			
4-Nov-02		7.50				1063.5			
10-Nov-02		7.40				1063.43			

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

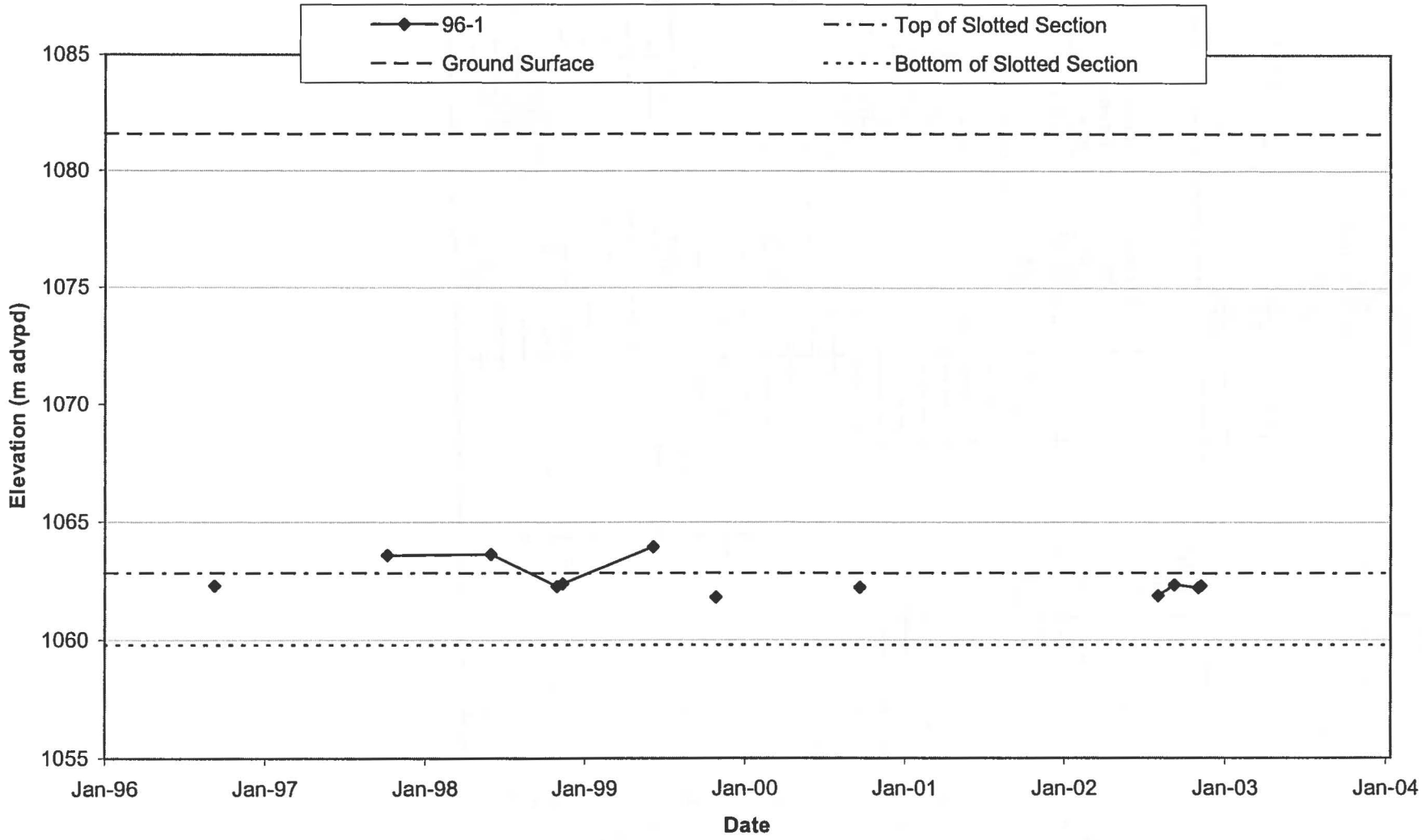


BH94-IDC-1		Location:	Intermediate Dam Crest					Coordinates:	unknown
						Surface Elevation:	N/A		
		Date Installed:	1994			Tip Elevation:	N/A	Surface Protector:	
						Stick Up:	0.37		
Date			Water level from top of pipe (m)			Piezometric Elevation (m)			Pond El. (m advpd)
Jun-94				dry					1080.0
Sep-94				dry					1080.0
Sep-95				dry					1080.0
Sep-96				dry					1080.4
May-98				dry					1080.4
Nov-98			14.10	dry					1080.1
Jun-99			14.10	dry					1080.1
Sep-99			14.18	dry					1080.0
Jun-00			14.11	dry					1079.9
Sep-00			14.11	H2O					1079.9
Jun-01			14.11						1079.9
Aug-01			14.11	dry					1079.9
Jun-02			14.11	dry					
Aug-02			14.19	dry					
Sep-02			14.11	dry					
Nov-02			14.11	dry					
Nov-02			14.11	dry					

BH96-1		Location:	Intermediate Dam Crest					Coordinates:	unknown
						Surface Elevation: (m amsl)	1049.3		
						Surface Elevation: (m advpd)	1081.60		
		Date Installed:	1996			Screened Interval: (m bgs)	18.77 - 21.80	Surface Protector:	yes
						Tip Elevation (m advpd)	1059.80		
						Stick Up:	0.75		

Date			Water level from top of pipe (m)			Piezometric Elevation (m amsl)	Piezometric Elevation (m advpd)		Pond El. (m advpd)
8-Sep-96			20.06			1029.99	1062.29		
26-Sep-96									
27-Sep-96									
13-May-97									
6-Jun-97									
11-Jul-97									
7-Oct-97			18.77			1031.28	1063.58		
1-Jun-98			18.73			1031.32	1063.62		
31-Oct-98			20.08			1029.97	1062.27		
13-Nov-98			19.97			1030.08	1062.38		
8-Jun-99			18.4			1031.65	1063.95		
19-Jun-99									
3-Jul-99									
29-Oct-99			20.55			1029.50	1061.80		
31-Oct-99									
31-May-00									
27-Jun-00									
25-Jul-00									
21-Sep-00			20.13			1029.92	1062.22		
10-Oct-00									
6-Jun-01									
15-Jul-01									
5-Sep-01									
18-Jun-02									
5-Aug-02			20.48			1029.57	1061.87		
10-Sep-02			20.02			1030.03	1062.33		
4-Nov-02			20.14			1029.91	1062.21		
10-Nov-02			20.06			1029.99	1062.29		

INTERMEDIATE DAM
Piezometric Monitoring
96-1 Monitoring Well (Robertson, 1996)
(Dam Crest)

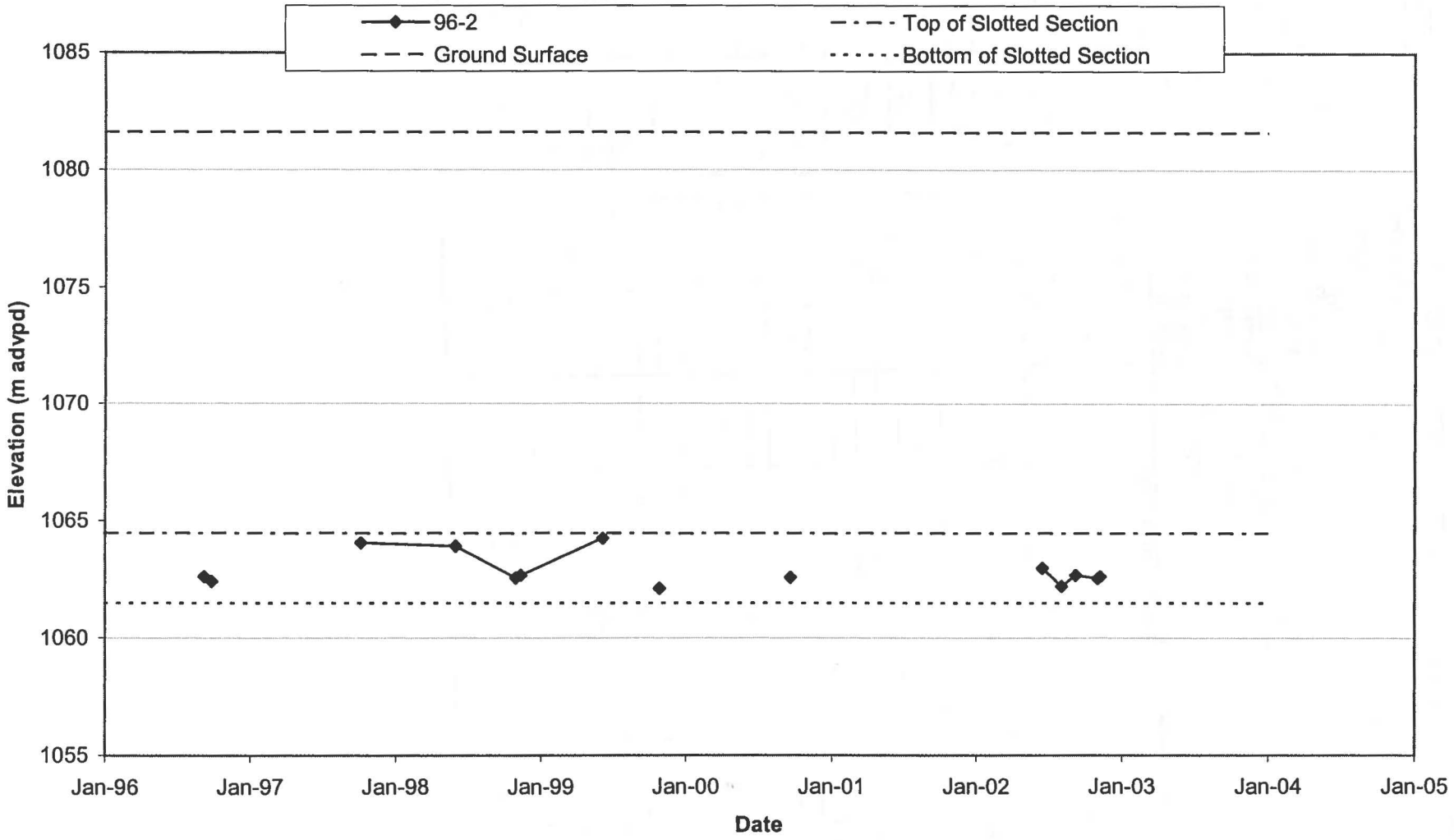


Faro Mine Instrumentation Intermediate Dam

BH96-2		Location:	Intermediate Dam Crest					Coordinates:	unknown
						Surface Elevation: (m amsl)	1049.3		
						Surface Elevation: (m advpd)	1081.60		
		Date Installed:	1996			Screened Interval: (m bgs)	17.13 - 20.12	Surface Protector:	yes
						Tip Elevation (m advpd)	1061.48		
						Stick Up:	0.75		

Date			Water level from top of pipe (m)			Piezometric Elevation (m amsl)	Piezometric Elevation (m advpd)		Pond El. (m advpd)
8-Sep-96			19.74			1030.31	1062.61		
26-Sep-96									
27-Sep-96			19.94			1030.11	1062.41		
13-May-97									
6-Jun-97									
11-Jul-97									
7-Oct-97			18.3			1031.75	1064.05		
1-Jun-98			18.44			1031.61	1063.91		
31-Oct-98			19.8			1030.25	1062.55		
13-Nov-98			19.69			1030.36	1062.66		
8-Jun-99			18.11			1031.94	1064.24		
19-Jun-99									
3-Jul-99									
29-Oct-99			20.25			1029.80	1062.10		
31-Oct-99									
31-May-00									
27-Jun-00									
25-Jul-00									
21-Sep-00			19.78			1030.27	1062.57		
10-Oct-00									
6-Jun-01									
15-Jul-01									
5-Sep-01									
18-Jun-02			19.375			1030.68	1062.98		
5-Aug-02			20.15			1029.90	1062.20		
10-Sep-02			19.68			1030.37	1062.67		
4-Nov-02			19.815			1030.24	1062.54		
10-Nov-02			19.73			1030.32	1062.62		

Intermediate Dam
Piezometric Monitoring
96-2 Monitoring Well (Robertson, 1996)
(Dam Crest)

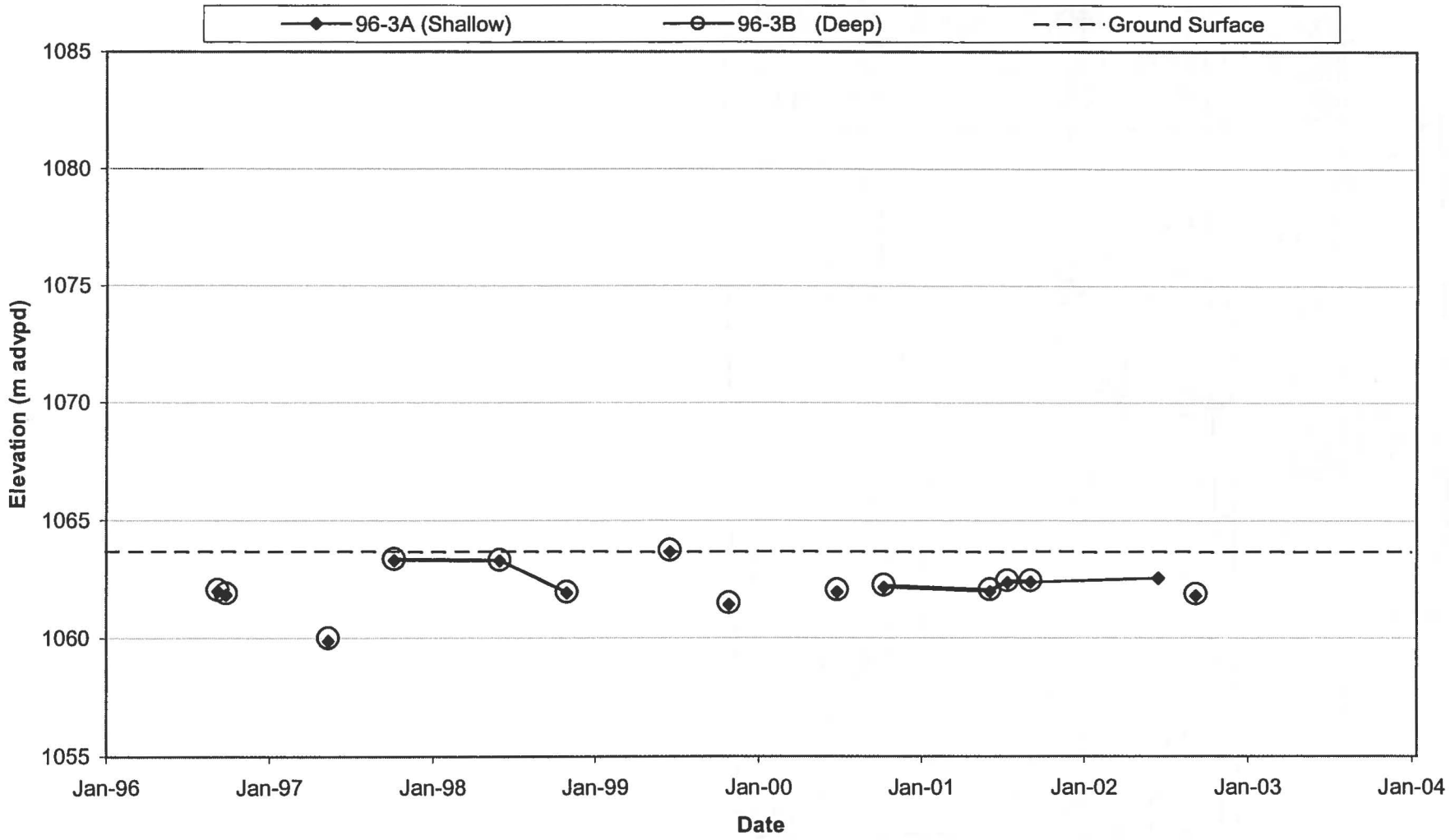


Faro Mine Instrumentation Intermediate Dam

BH96-3		Location:	Intermediate Dam Toe near the North Abutment					Coordinates:	unknown
						Surface Elevation: (m amsl)	1031.4		
						Surface Elevation: (m advpd)	1063.70		
		Date Installed:	1996	Tip Elevation (m advpd)	1054.73	Screened Interval - A Shallow: (m bgs)	7.44 - 8.97	Surface Protector:	yes
				Tip Elevation (m advpd)	1044.53	Screened Interval - B Deep: (m bgs)	17.7 - 19.17		
						Stick Up (A): (m)	0.68		
						Stick Up (B): (m)	0.63		

Date			Water level from top of pipe (m)			Piezometric Elevation (m amsl)		Piezometric Elevation (m advpd)	
			A	B		A	B	96-3A (Shallow)	96-3B (Deep)
8-Sep-96			2.37	2.25		1029.71	1029.78	1062.01	1062.08
26-Sep-96			2.53	2.4		1029.55	1029.63	1061.85	1061.93
27-Sep-96									
13-May-97			4.5	4.32		1027.58	1027.71	1059.88	1060.01
6-Jun-97									
11-Jul-97									
7-Oct-97			1.06	0.95		1031.02	1031.08	1063.32	1063.38
1-Jun-98			1.07	0.99		1031.01	1031.04	1063.31	1063.34
31-Oct-98			2.44	2.34		1029.64	1029.69	1061.94	1061.99
13-Nov-98									
8-Jun-99									
19-Jun-99			0.7	0.58		1031.38	1031.45	1063.68	1063.75
3-Jul-99									
29-Oct-99			2.94	2.82		1029.14	1029.21	1061.44	1061.51
31-Oct-99									
31-May-00									
27-Jun-00			2.41	2.26		1029.67	1029.77	1061.97	1062.07
25-Jul-00									
21-Sep-00									
10-Oct-00			2.2	2.05		1029.88	1029.98	1062.18	1062.28
6-Jun-01			2.38	2.24		1029.70	1029.79	1062.00	1062.09
15-Jul-01			2.00	1.86		1030.08	1030.17	1062.38	1062.47
5-Sep-01			1.98	1.86		1030.10	1030.17	1062.40	1062.47
18-Jun-02			1.81			1030.27		1062.57	
5-Aug-02									
10-Sep-02			2.565	2.42		1029.52	1029.61	1061.82	1061.91
4-Nov-02									
10-Nov-02									

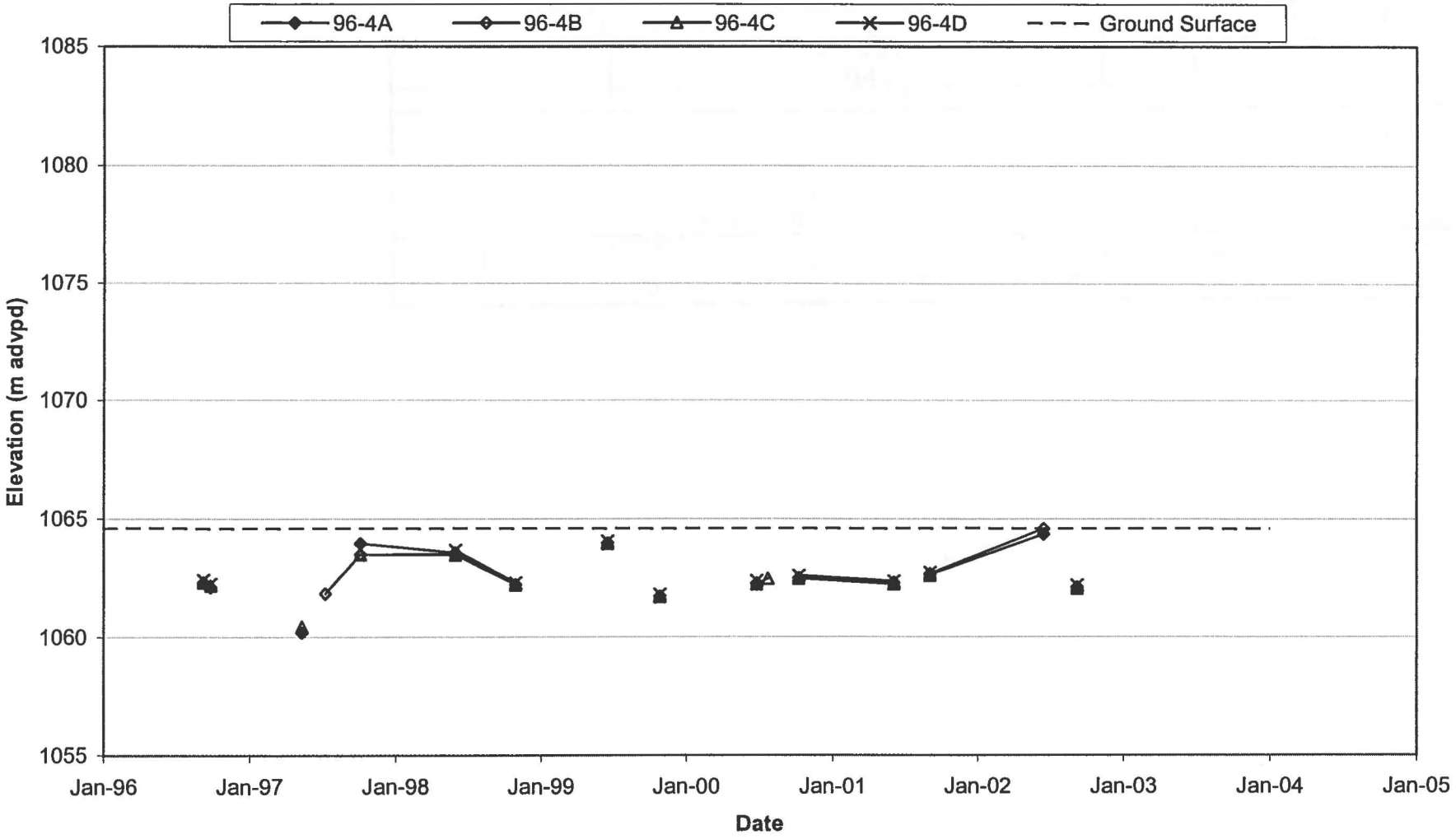
INTERMEDIATE DAM
Piezometric Monitoring
96-3 Monitoring Well (Robertson, 1996)
(Toe of Dam - North Abutment)



BH96-4		Location:	Intermediate Dam Toe near South Abutment									
						Surface Elevation: (m amsl)		1032.3				
		Date				Surface Elevation: (m advpd)		1064.6				
		Installed:	1996			Screened Interval - A: (m bgs)		5.7-6.48	Screened Interval - C: (m bgs)			14.97-16.47
						Screened Interval - B: (m bgs)		9.8-11.3	Screened Interval - D: (m bgs)			26.84-28.34
						Stick Up (A): (m)		0.80	Stick Up (C): (m)		0.70	
						Stick Up (B): (m)		0.75	Stick Up (D): (m)		0.70	

Date	Water level from top of pipe (m)				Piezometric Elevation (m amsl)				Piezometric Elevation (m advpd)			
	A	B	C	D	A	B	C	D	96-4A	96-4B	96-4C	96-4D
8-Sep-96	3.11	3.04	2.98	2.88	1029.99	1030.01	1030.02	1030.12	1062.29	1062.31	1062.32	1062.42
26-Sep-96	3.27	3.25	3.12	3.05	1029.83	1029.80	1029.88	1029.95	1062.13	1062.10	1062.18	1062.25
27-Sep-96												
13-May-97	5.21		4.85		1027.89		1028.15		1060.19		1060.45	
6-Jun-97												
11-Jul-97		3.51				1029.54				1061.84		
7-Oct-97	1.45	1.87	1.82		1031.65	1031.18	1031.18		1063.95	1063.48	1063.48	
1-Jun-98	1.84	1.84	1.83	1.62	1031.26	1031.21	1031.17	1031.38	1063.56	1063.51	1063.47	1063.68
31-Oct-98	3.18	3.15	3.09	3.01	1029.92	1029.90	1029.91	1029.99	1062.22	1062.20	1062.21	1062.29
13-Nov-98												
8-Jun-99												
19-Jun-99	1.43	1.38	1.36	1.25	1031.67	1031.67	1031.64	1031.75	1063.97	1063.97	1063.94	1064.05
3-Jul-99												
29-Oct-99	3.68	3.62	3.6	3.48	1029.42	1029.43	1029.40	1029.52	1061.72	1061.73	1061.70	1061.82
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	1062.26	1062.27	1062.23	1062.37
25-Jul-00			2.84				1030.16				1062.46	
21-Sep-00												
10-Oct-00	2.92	2.85	2.83	2.71	1030.18	1030.20	1030.17	1030.29	1062.48	1062.50	1062.47	1062.59
6-Jun-01	3.13	3.04	3.06	2.94	1029.97	1030.01	1029.94	1030.06	1062.27	1062.31	1062.24	1062.36
15-Jul-01												
5-Sep-01	2.77	2.68	2.71	2.57	1030.33	1030.37	1030.29	1030.43	1062.63	1062.67	1062.59	1062.73
18-Jun-02	1.06	0.77			1032.04	1032.28			1064.34	1064.58		
5-Aug-02												
10-Sep-02	3.305	3.235	3.25	3.105	1029.80	1029.82	1029.75	1029.90	1062.10	1062.12	1062.05	1062.20
4-Nov-02												
10-Nov-02												

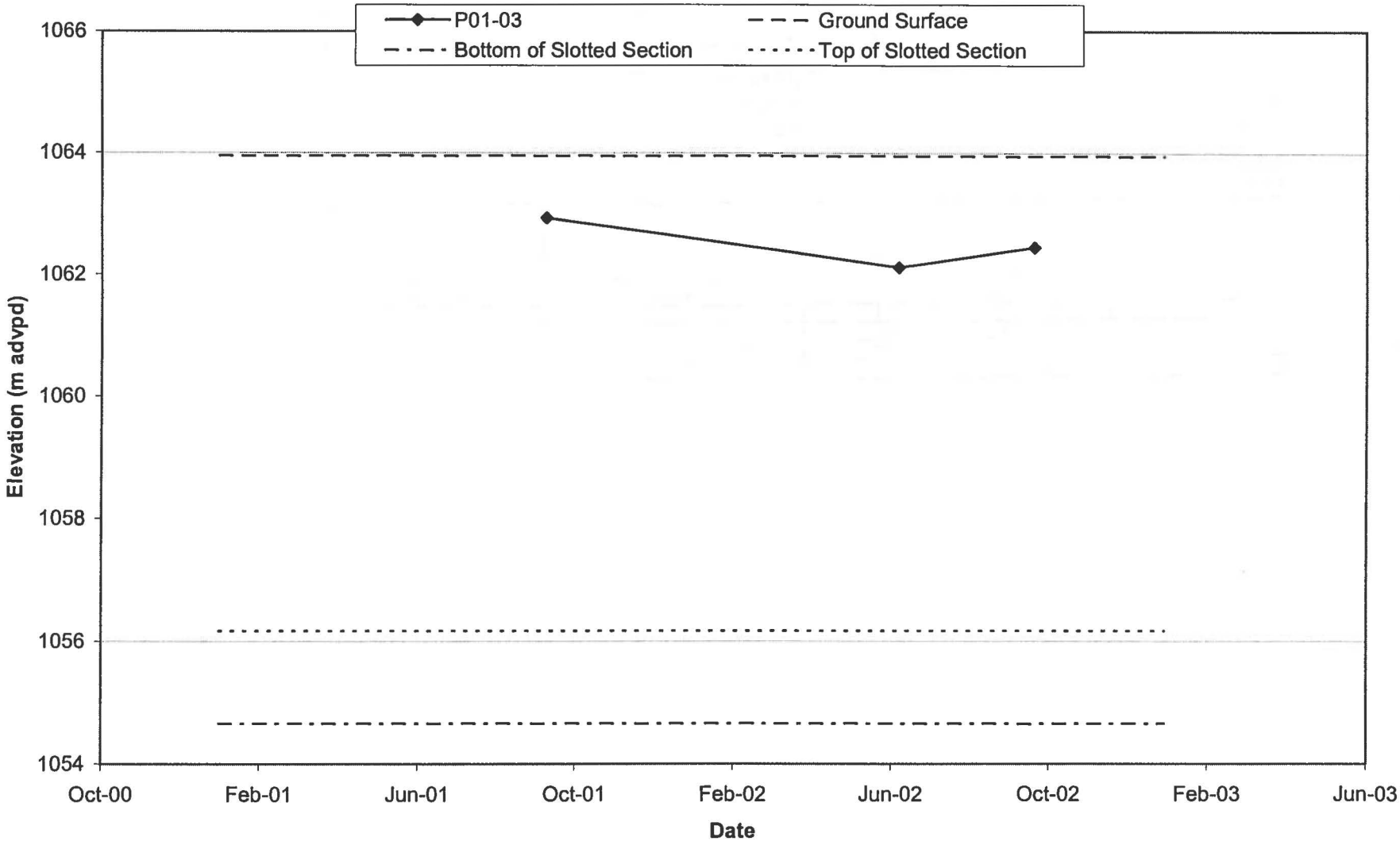
INTERMEDIATE DAM
Piezometric Monitoring
96-4 Monitoring Well (Robertson, 1996)
(Toe of Dam - South Abutment)



Faro Mine Instrumentation Intermediate Dam

P01-03		Location:	Intermediate Dam Toe					Coordinates:	unknown
						Surface Elevation: (m amsl)	1031.652		
						Surface Elevation: (m advpd)	1063.95		
		Date Installed:	1996			Screened Interval: (m bgs)	7.78 - 9.30	Surface Protector:	yes
						Tip Elevation (m advpd)	1054.65		
						Stick Up:	0.56		
Date			Water level from top of pipe (m)			Piezometric Elevation (m amsl)	Piezometric Elevation (m advpd)		Pond El. (m advpd)
11-Sep-01			1.58			1030.63	1062.93		
10-Jun-02			2.39			1029.82	1062.12		
23-Sep-02			2.06			1030.15	1062.45		

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

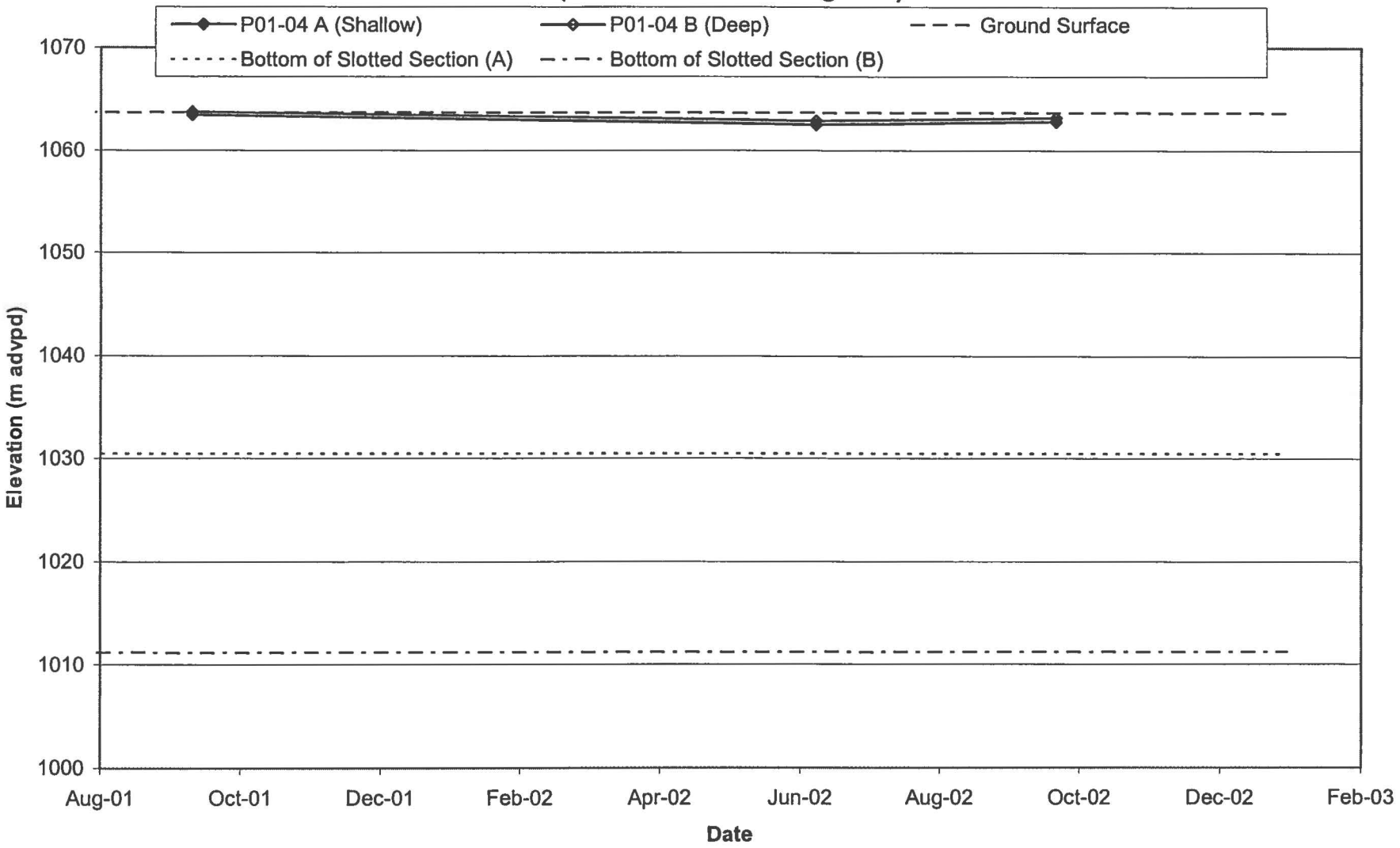


Faro Mine Instrumentation Intermediate Dam

P01-04		Location:	Intermediate Dam Toe					Coordinates:	unknown
						Surface Elevation: (m amsl)	1031.39		
						Surface Elevation: (m advpd)	1063.69		
		Date Installed:	1996			Tip Elevation (A) (m advpd)	1030.47	Surface Protector:	yes
						Tip Elevation (B) (m advpd)	1011.19		
		Screened Interval (A): (m bgs)	31.7 - 33.22			Stick Up (A): (m)	0.51		
		Screened Interval (B): (m bgs)	51.0 - 52.5			Stick Up (B): (m)	0.50		

Date	Water level from top of pipe (m)		Piezometric Elevation (m amsl)		Piezometric Elevation (m advpd)	
	A	B	A	B	A	B
11-Sep-01	0.78	0.43	1031.12	1031.46	1063.42	1063.8
10-Jun-02	1.67	1.29	1030.23	1030.60	1062.53	1062.9
23-Sep-02	1.39	1.00	1030.51	1030.89	1062.81	1063.2

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



FRESH WATER SUPPLY DAM

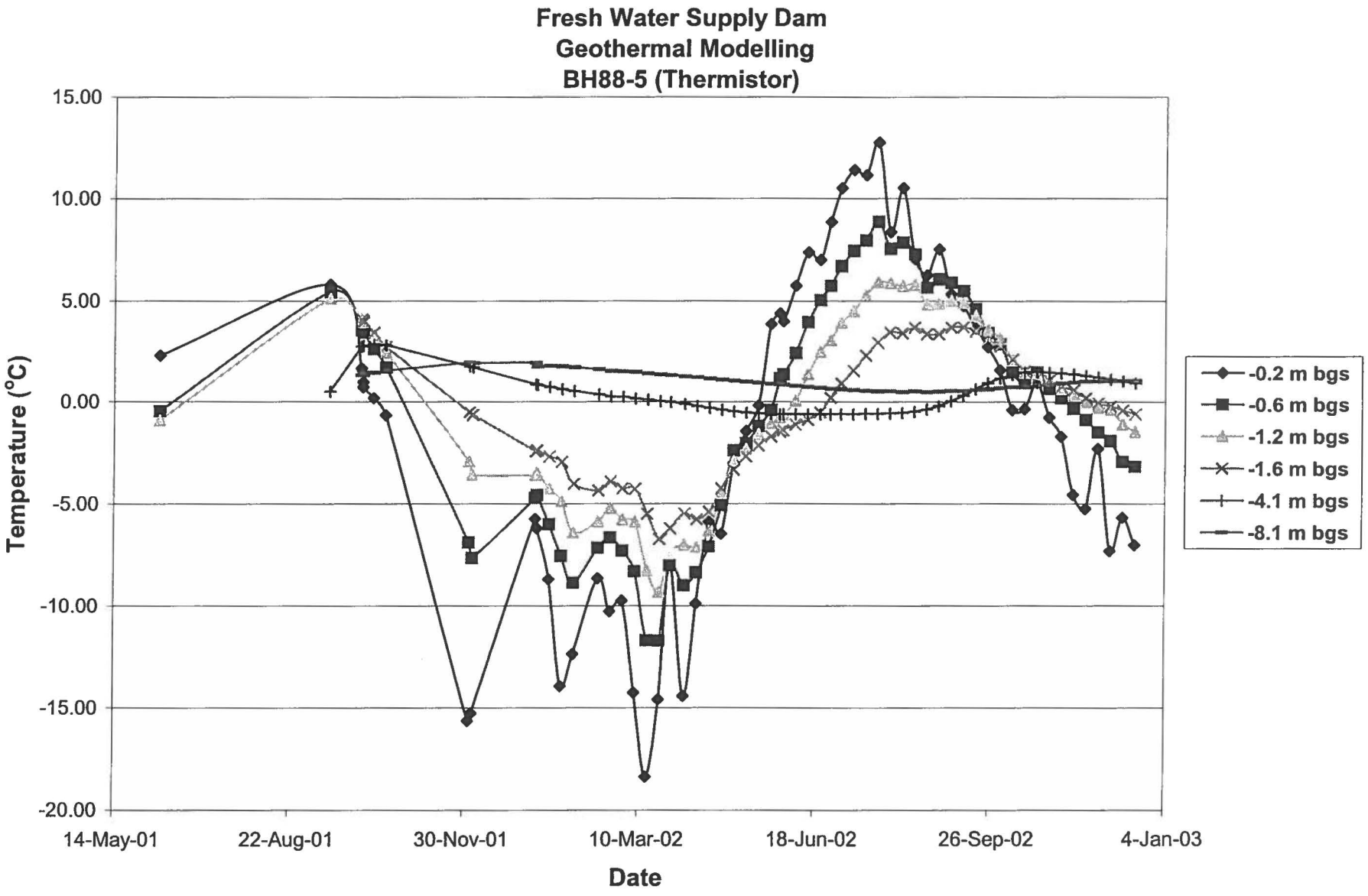
FRESH WATER DAM
Geothermal Monitoring
BH85-5

BH 85-5		Location:	Fr. Water Supply Dam Crest		Elevation:	1098.74	Coordinates:	not available																											
		Data Installed:	1985		Thermistor Type:	Cantec Controls YSI 44007	Ice-Bath Calibration:	not applied	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)	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)	20-Apr-89	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	5-May-97	14-Nov-97	27-May-98	16-Nov-98	29-May-99	11-Sep-99	8-Jun-00	9-Jun-01	14-Sep-01	2-Oct-01	3-Oct-01	3-Oct-01	9-Oct-01	16-Oct-01	3-Dec-01	5-Dec-01	10-Jan-02	11-Jan-02	18-Jan-02	25-Jan-02	1-Feb-02	15-Feb-02	22-Feb-02	1-Mar-02	8-Mar-02	15-Mar-02	22-Mar-02	28-Mar-02	5-Apr-02	12-Apr-02	19-Apr-02
0.2	-0.2	16.54	12.63	13.07	11.96	12.21	16.07	23.92	10.55	25.56	13.79	11.70	13.53	14.49	12.17	14.96	15.49	15.69	16.13	16.85	37.77	36.98	21.94	22.49	25.72	34.29	31.42	25.64	27.99	27.21	34.91	44.2	35.58	24.62	35.25	27.41	22.11
0.6	-0.6	17.89	14.34	11.61	12.03	12.50	16.87	16.89	14.09	17.41	15.31	11.99	15.76	16.61	12.34	13.55	13.62	13.63	14.20	14.87	23.23	24.19	20.70	20.54	22.15	24.07	25.84	23.57	22.95	23.75	25.07	30.13	30.17	24.68	26.02	25.14	23.49
1.2	-1.2	18.45	15.74	11.32	12.10	12.89	17.24	16.20	16.44	16.04	16.63	12.45	16.97	17.08	12.61	13.27	13.34	13.35	13.78	14.39	18.94	19.59	19.81	19.5	20.31	20.98	22.78	22.11	21.35	22.01	22.14	25.13	26.61	24.04	23.51	23.67	22.66
1.6	-1.6	18.53	16.69	11.36	12.32	13.38	17.50	15.80	16.95	15.48	17.03			24.00	24.00	13.25	13.31	13.33	13.68	14.17	16.73	16.83	18.42	16.39	18.68	18.95	20.05	20.39	19.93	20.28	20.29	21.66	23.13	22.5	21.64	21.98	21.54
2.2	-2.2	18.22	16.68	11.40	12.42	13.66	17.26	15.23	16.79	14.82		13.81	16.80	16.92	13.68																					
3.1	-3.1	16.93	16.64	12.47	13.33	15.20	17.03	14.90	16.81	14.47	16.87	14.66	16.35	16.47	14.51	13.64	13.64	13.64	13.74	13.91	15.38	15.44	16.24	16.25	16.35	16.42	16.49	16.64	16.71								
4.1	-4.1	15.84	16.02	13.39	13.86	15.57	16.34	14.53	16.27	14.12	16.37				15.86	14.16	14.14	14.14	14.11	14.12	14.88	14.92	15.57	15.59	15.68	15.76	15.54	15.98	16.06	16.11	16.18	16.23	16.29	16.33	16.41	16.5	16.58
6.2	-6.2	14.96	15.22									15.13	15.05	15.29	15.39								15.65												16.46		
8.1	-8.1	14.16	14.22	14.16	14.25	14.72	14.77	14.38	14.87	14.12	14.90					15.22	15.21	15.13	15.12	15.04	14.74	14.75	14.75	14.69	14.86	14.88	14.92	14.99	15.05	15.07	15.09	15.15	15.19	15.22	15.26	15.29	15.35

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)	Resistivity (kOhms)	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)	20-Apr-89	31-May-94	13-Sep-94	20-Sep-95	11-Sep-96	5-May-97	14-Nov-97	27-May-98	16-Nov-98	29-May-99	11-Sep-99	8-Jun-00	9-Jun-01	14-Sep-01	2-Oct-01	3-Oct-01	3-Oct-01	9-Oct-01	16-Oct-01	3-Dec-01	5-Dec-01	10-Jan-02	11-Jan-02	18-Jan-02	25-Jan-02	1-Feb-02	15-Feb-02	22-Feb-02	1-Mar-02	8-Mar-02	15-Mar-02	22-Mar-02	28-Mar-02	5-Apr-02	12-Apr-02	19-Apr-02
0.2	-0.2	-0.30	5.06	4.37	6.16	5.74	0.27	-7.35	8.73	-8.58	3.29	6.61	3.67	2.31	5.81	1.88	0.99	0.74	0.19	-0.66	-15.64	-15.27	-5.73	-8.19	-8.70	-13.93	-12.36	-8.64	-10.25	-9.74	-14.25	-18.39	-14.58	-7.89	-14.42	-9.67	-5.87
0.6	-0.6	-1.90	2.43	6.68	5.96	5.27	-0.68	-0.71	2.86	-1.30	1.22	6.03	0.57	-0.46	5.45	3.58	3.46	3.45	2.63	1.71	-6.88	-7.64	-4.70	-4.58	-5.98	-7.54	-6.86	-7.15	-6.85	-7.29	-8.30	-11.68	-11.70	-8.01	-8.99	-8.35	-7.09
1.2	-1.2	-2.40	0.69	7.30	5.94	4.85	-1.11	0.11	-0.18	0.30	-0.40	5.37	-0.78	-0.90	5.11	4.08	3.98	3.96	3.33	2.46	-2.90	-3.55	-3.57	-3.46	-4.24	-4.86	-6.41	-5.85	-5.19	-5.77	-5.88	-9.25	-9.31	-7.42	-7.00	-7.13	-6.31
1.6	-1.6	-2.50	-0.47	7.21	5.56	3.90	-1.40	0.60	-0.78	1.00	-0.87					4.09	4.00	3.97	3.45	2.75	-0.52	-0.64	-2.39	-2.36	-2.66	-2.93	-4.02	-4.34	-3.90	-4.23	-4.24	-5.48	-6.72	-6.20	-5.47	-5.76	-5.38
2.2	-2.2	-2.10	-0.38	7.22	5.48	3.48	-1.13	1.32	-0.59	1.86		3.34	-0.52	-0.66	3.53																							
3.1	-3.1	-0.70	-0.37	5.36	4.02	1.36	-0.87	1.75	-0.61	2.33	-0.68	2.13	-0.02	-0.17	2.33	3.58	3.56	3.56	3.42	3.17	1.18	1.10	0.11	0.10	-0.02	-0.11	-0.19	-0.37	-0.45								
4.1	-4.1	0.50	0.40	3.95	3.26	0.89	-0.06	2.25	0.02	2.82	-0.10				0.52	2.77	2.79	2.79	2.84	2.82	1.78	1.73	0.89	0.86	0.75	0.65	0.55	0.38	0.28	0.27	0.18	0.12	0.05	0.00	-0.09	-0.20	-0.30
6.2	-6.2	1.70	1.35									1.47	1.58	1.26	1.14																			-0.15		
8.1	-8.1	2.80	2.74	2.83	2.70	2.00	1.93	2.46	1.79	2.82	1.75					1.33	1.35	1.45	1.46	1.57	1.97	1.94	1.95	1.77	1.81	1.78	1.73	1.84	1.56	1.53	1.50	1.43	1.37	1.33	1.28	1.24	1.17

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)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)	Resistivity (kOhms)
(m)	(m)	26-Apr-02	3-May-02	10-May-02	17-May-02	24-May-02	29-May-02	31-May-02	7-Jun-02	14-Jun-02	21-Jun-02	27-Jun-02	3-Jul-02	10-Jul-02	17-Jul-02	24-Jul-02	31-Jul-02	7-Aug-02	14-Aug-02	21-Aug-02	28-Aug-02	4-Sep-02	11-Sep-02	18-Sep-02	25-Sep-02	2-Oct-02	9-Oct-02	16-Oct-02	23-Oct-02	30-Oct-02	6-Nov-02	13-Nov-02	20-Nov-02	27-Nov-02	4-Dec-02	11-Dec-02	18-Dec-02
0.2	-0.2	22.82	19	17.54	16.43	13.4	13.05	13.31	12.2	11.26	11.47	10.48	9.68	9.28	9.39	8.7	10.73	9.68	11.44	11.9	11.18	12.45	12.82	13.54	14.18	15.02	16.62	16.58	15.51	16.94	17.76	20.82	21.38	18.32	23.87	21.87	23.5
0.6	-0.6	21.09	18.32	18.01	17.24	16.56	15.27	15.12	14.34	13.28	12.58	12.15	11.59	11.18	10.9	10.43	11.12	10.95	11.27	12.2	11.96	12.06	12.3	12.85	13.64	14.02	15.04	15.45	15.04	15.68	16.07	16.5	16.97	17.51	17.89	18.85	19.09
1.2	-1.2	20.55	18.93	18.35	17.68	17.21	16.95	16.83	16.25	15.2	14.36	13.97	13.37	12.99	12.49	12.1	12.13	12.22	12.18	12.78	12.76	12.65	12.73	13.13	13.6	13.91	14.86	15.14	15.18	15.44	15.76	16.05	16.29	16.54	16.82	17.24	17.57
1.6	-1.6	20.28	19.35	18.68	18.16	17.76	17.55	17.48	17.24	17.02	16.71	16.11	15.53	15.04	14.48	14.03	13.67	13.7	13.51	13.73	13.73	13.52	13.49	13.64	13.92	14.15	14.62	15.05	15.3	15.41	15.68	15.8	16.12	16.33	16.46	16.63	16.79
2.2	-2.2																																				
3.1	-3.1																																				
4.1	-4.1	16.66	16.73	16.78	16.81	16.83	16.84	16.84	16.84	16.84	16.84	16.84	16.84	16.84	16.82	16.82	16.8	16.78	16.73	16.64	16.49	16.28	16.06	15.79	15.56	15.37	15.23	15.14	15.12	15.14	15.17	15.21	15.27	15.33	15.41	15.48	15.56
6.2	-6.2									17.06		17.16	17.17				17.22	17.21							16.81					16.39		16.34					
8.1	-8.1	15.39	15.43	15.47	15.51	15.55	15.57	15.58	15.63	15.67	15.71	15.74	15.76	15.79	15.82	15.84	15.83	15.87	15.84	15.87	15.85	15.82	15.83	15.78	15.76	15.72	15.68	15.65	15.6	15.57	15.52	15.49	15.45	15.44	15.42	15.42	15.41

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)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)	Temperature (C)
(m)	(m)	26-Apr-02	3-May-02	10-May-02	17-May-02	24-May-02	29-May-02	31-May-02	7-Jun-02	14-Jun-02	21-Jun-02	27-Jun-02	3-Jul-02	10-Jul-02	17-Jul-02	24-Jul-02	31-Jul-02	7-Aug-02	14-Aug-02	21-Aug-02	28-Aug-02	4-Sep-02	11-Sep-02	18-Sep-02	25-Sep-02	2-Oct-02	9-Oct-02	16-Oct-02	23-Oct-02	30-Oct-02	6-Nov-02	13-Nov-02	20-Nov-02	27-Nov-02	4-Dec-02	11-Dec-02	18-Dec-02
0.2	-0.2	-6.47	-2.98	-1.44	-0.17	3.87	4.40	4.00	5.76	7.39	7.01	8.86	10.51	11.39	11.14	12.74	8.38	10.51	7.06	6.26	7.53	5.35	4.76	3.66	2.74	1.60	-0.39	-0.35	0.96	-0.76	-1.70	-4.55	-5.24	-2.28	-7.31	-5.66	-7.02
0.6	-0.6	-5.06	-2.36	-2.03	-1.19	-0.40	1.19	1.38	2.43	3.97	5.06	5.78	6.72	7.45	7.97	8.88	7.56	7.88	7.29	5.68	6.08	5.91	5.51	4.63	3.43	2.86	1.49	0.96	1.49	0.67	0.19	-0.33	-0.88	-1.49	-1.90	-2.91	-3.16
1.2	-1.2	-4.46	-2.89	-2.29	-1.58	-1.05	-0.76	-0.62	0.07	1.38	2.51	3.05	3.93	4.51	5.30	5.94	5.89	5.74	5.81	4.84	4.87	5.04	4.92	4.30	3.59	3.14	2.10	1.46	1.41	1.07	0.67	0.31	0.02	-0.28	-0.37	-1.09	-1.45
1.6	-1.6	-4.23	-3.34	-2.66	-2.11	-1.68	-1.45	-1.37	-1.11	-0.86	-0.50	0.22	0.94	1.57	2.32	2.95	3.47	3.42	3.70	3.38	3.38	3.69	3.73	3.51	3.11	2.78	2.13	1.56	1.23	1.09	0.77	0.60	0.20	-0.05	-0.20	-0.40	-0.59
2.2	-2.2																																				
3.1	-3.1																																				
4.1	-4.1	-0.39	-0.47	-0.53	-0.56	-0.59	-0.60	-0.60	-0.60	-0.60	-0.60	-0.60	-0.60	-0.60	-0.58	-0.58	-0.55	-0.53	-0.47	-0.37	-0.19	0.06	0.33	0.66	0.95	1.19	1.37	1.49	1.51	1.49	1.45	1.40	1.32	1.24	1.14	1.05	0.95
6.2	-6.2																																				
8.1	-8.1	1.12	1.06	1.01	0.96	0.91	0.89	0.87	0.81	0.76	0.71	0.67	0.65	0.61	0.57	0.55	0.56	0.51	0.55	0.51	0.54	0.57	0.56	0.62	0.65	0.70	0.75	0.79	0.85	0.89	0.95	0.99	1.04	1.05	1.08	1.08	1.09


Fresh Water Supply Dam
Geothermal Modelling
BH88-5 (Thermistor)
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
Temperature (°C)
14-May-01
22-Aug-01
30-Nov-01
10-Mar-02
18-Jun-02
26-Sep-02
4-Jan-03
Date
-0.2 m bgs
-0.6 m bgs
-1.2 m bgs
-1.6 m bgs
-4.1 m bgs
-8.1 m bgs