

**Faro Mine Site
2003 Annual Environmental Report
Water Licence QZ95-003**

prepared for:

Deloitte & Touche Inc.

**(in their capacity as Interim Receiver for
Anvil Range Mining Corporation)**

prepared by:

Gartner Lee Limited

reference:

GLL 23-586

Date:

February 2004

distribution:

- 6 Yukon Water Board (plus electronic)**
- 9 Deloitte & Touche Inc. (plus electronic)**
- 1 Type II Mines Projects Office**
- 1 YTG, Water Resources**
- 2 Gartner Lee Limited**



Gartner Lee



Gartner Lee Limited

March 1, 2004

Yukon Territory Water Board
Suite 106 - 419 Range Road
Whitehorse, Yukon
Y1A 3V1

Dear Board:

Re: Water Licence QZ95-003, Annual Environmental Report

We are pleased to submit five bound copies and one unbound original of the report Faro Mine Site, 2003 Annual Environmental Report, Water Licence QZ95-003. Gartner Lee Limited has prepared this report on behalf of Deloitte & Touche Inc., in their capacity as Interim Receiver for Anvil Range Mining Corp. The report is also enclosed in electronic format.

Accompanying the above report are five bound plus one unbound copies of the report 2003 Instrumentation Data Review and Performance Review as prepared by BGC Engineering Inc. that describes the geotechnical performance of the Faro mine site according to the provisions of Schedule C of Water Licence QZ95-003.

These reports fulfill the annual reporting requirement for Water Licence QZ95-003 for 2003.

I trust that this information is self-explanatory. However, if you have any questions please do not hesitate to contact us.

Yours very truly,
GARTNER LEE LIMITED

For:

Eric Denholm
Senior Mining Consultant

Executive Summary

Water quality, biological, physical and closure monitoring programs were performed during 2003 in accordance with Water Licence QZ95-003 (the "Licence") and the site water monitoring protocol. This report presents the data that was gathered and an overview interpretation of the information.

Anvil Range Mining Corporation ("ARMC") entered into receivership in April 1998 and, since that time, management of the minesite has been under the direction of Deloitte and Touche Inc. acting as court appointed interim receiver.

Surface water monitoring was conducted in 2003 by ARMC according to or in excess of the requirements of Schedule A of the Licence for "temporary cessation of operations", as appropriate, and the results are presented in this report. The biological monitoring program described in Schedule B of the Licence was not required in 2003. The annual geotechnical/physical monitoring program described in Schedule C of the Licence was completed by BGC Engineering Inc. Their report describing the annual geotechnical performance review as prepared by BGC Engineering Inc. accompanies this report under separate cover. Seepage and ground water monitoring programs as described in Schedule D of the Licence were performed by ARMC and the results are presented in this report.

The concentrator plant and all milling activities were shut down in February 1998 and remained shut down through 2003. No tailings and process water were deposited into the mined-out Faro Main Pit or into the Down Valley tailings impoundments. The backfilled Faro Zone II Pit was dewatered into the Faro Main Pit as required to maintain an acceptable water level in the Zone II pit.

The recycle water system, which was installed to deliver water from the Faro Main pit to the mill for processing purposes or for discharge via the Down Valley tailings impoundments, was used to deliver water from the Faro Main pit for treatment and discharge to Rose Creek. The water level in the Faro Main pit was maintained within the established "safe" range through 2003 and adequate storage capacity was created in the Faro Main pit to accommodate the anticipated inflows. The two water treatment systems (mill and Down Valley) were successfully operated to achieve full compliance with the maximum allowable discharge criteria in the Licence. Water quality at the two effluent discharge locations (Cross Valley Pond outflow and Cross Valley Dam seepage) was in full compliance with the Licence.

Ground water quality in the Rose Creek valley generally indicated a continuation of the established trends showing elevated sulphate concentrations that decrease with distance downgradient of the tailings impoundments. Ground water quality in the vicinity of the rock dumps displayed variable sulphate and metal concentrations with some areas elevated.



Two substantial maintenance projects were undertaken in 2003. The Fresh Water Supply Dam was breached to original ground in December as means of eliminating the risk posed by this upstream structure. This project was conducted under its own Water Licence with its own reporting requirements and the work is not documented in this report. Maintenance to the Faro Creek diversion channel involved construction of a basal pilot channel to reduce the risk of ice blockage, channel widening to increase hydraulic capacity, installation of a low permeability liner to reduce leakage losses into the Faro Main Pit and placement of rip rap rock for erosion protection. Other maintenance work was completed as required to maintain all works in good condition and to ensure a continued high level of protection to the environment.



Table of Contents

Letter of Transmittal Executive Summary

	Page
1. Introduction.....	1
2. Water Use	3
2.1 Fresh Water.....	3
2.2 Faro Main Pit Water	3
2.3 Effluent Discharge	5
2.4 Faro Main And Zone II Pits	5
2.5 Rose Creek At X14	7
2.6 North Fork Of Rose Creek At R7	9
3. Water Quality Monitoring (Schedule 'A').....	10
3.1 Overview Of Water Quality Monitoring Program.....	10
3.2 Faro Pits And Rock Dumps (X22B, X23, X26, BH1, BH2, BH4).....	11
3.3 Intermediate Pond (X4)	16
3.4 Effluent Discharge (X5 And X13).....	18
3.5 Rose And Anvil Creeks	21
3.5.1 North Fork of Rose Creek (R7, FAROCR, R8, R9, R10, X2).....	21
3.5.2 Rose Creek Diversion Channel (X3, X10)	25
3.5.3 Rose Creek Immediately Downstream of Mine Discharges (X14)	26
3.5.4 Rose Creek to Anvil Creek / Anvil Creek (R2, R3, R4, R5, R6).....	29
3.6 Rose Creek Valley Ground Water Quality	30
4. Biological Monitoring (Schedule 'B').....	38
5. Geotechnical Monitoring (Schedule 'C')	39
6. Closure Monitoring (Schedule 'D').....	41
6.1 2003 Surface Seep Survey	41
6.2 2002 Ground Water Seep Monitoring.....	42
7. Site Maintenance.....	44
7.1 Radio-Isotope Sources	44
7.2 Zone II Downhole Pump.....	44
7.3 Intermediate and Cross Valley Dams	44
7.4 Contractor Yard at Copper Sulphate and Bulk Explosives Plants	45
7.5 Diesel Fuel Storage.....	45
7.6 Faro Creek Diversion.....	45
7.7 Fresh Water Supply Reservoir	46

List of Tables

Table 1: Water Quality Monitoring Locations.....	1
Table 2: Detailed Faro Main Pit Water Balance, 2003	8
Table 3: Total Zinc and Sulphate Concentrations in Rose Creek on July 23/24, 2002	29

List of Figures

Figure 1: Faro Mine Drainage and Water Monitoring Locations	3
Figure 2: Water Quality Monitoring Locations	4
Figure 3: Faro Main Pit Filling Curve, 1992 to 2003	4
Figure 4: Faro Main Pit Water Elevation, 2003 Detail	4
Figure 5: Faro Zone II Pit Water Elevation, 1997 to 2003	6
Figure 6: Rose Creek at Location X14 Flow Record.....	8
Figure 7: North Fork Rose Creek at Location R7 Flow Record	9
Figure 8: Faro Main Pit (X22B) Total and Dissolved Zinc	12
Figure 9: Faro Main Pit (X22B) Sulphate.....	12
Figure 10: Faro Zone II Pit (X26) Total and Dissolved Zinc	13
Figure 11: Faro Rock Dump Seepage (X23) Total Zinc.....	14
Figure 12: Faro Rock Dump Seepage (X23) Sulphate.....	15
Figure 13: Intermediate Pond (X4) Zinc.....	17
Figure 14: Intermediate Pond (X4) Sulphate	18
Figure 15: 2001 - 2003 Effluent (X5, X13) Total Zinc.....	20
Figure 16: North Fork Rose Creek (R7, R8, FAROCR) Total Zinc.....	22
Figure 17: North Fork Rose Creek (R8,R9,R10) Total Zinc	23
Figure 18: North Fork Rose Creek (R8,R9,R10) Sulphate	23
Figure 19: North Fork Rose Creek (X2) Total Zinc	24
Figure 20: North Fork Rose Creek (X2) Sulphate	25
Figure 21: Rose Creek Diversion Channel (X3,X10) Total Zinc	26
Figure 22: Rose Creek Diversion Channel (X3,X10) Sulphate	27
Figure 23: Rose Creek Immediately Downstream of Mine Site (X14) Total Zinc.....	28
Figure 24: Rose Creek Immediately Downstream of Mine Site (X14) Sulphate.....	28
Figure 25: Ground Water (X21B-96, X21C-96) Dissolved Zinc	31
Figure 26: Ground Water (X21B-96, X21C-96) Sulphate.....	31
Figure 27: Ground Water (X24A/B/C/D-96) Dissolved Zinc.....	32
Figure 28: Ground Water (X24A/B/C/D-96) Sulphate.....	33
Figure 29: Ground Water (X25A-96, X25B-96) Dissolved Zin	33
Figure 30: Ground Water (X25A-96, X25B-96) Sulphate.....	34

Figure 31: Ground Water (X16A, X16B) Dissolved Zinc.....	35
Figure 32: Ground Water (X16A, X16B) Sulphate	35
Figure 33: Ground Water (X18A, X18B) Dissolved Zinc.....	36
Figure 34: Ground Water (X18A, X18B) Sulphate	37

Appendices

1. 2003 Surface Water Quality Listing
2. 2003 Ground water Quality Listing
3. 2003 Bioassay Results

1. Introduction

This annual environmental report for the year 2003 has been prepared according to the provisions of Part A, Section 13 of Water Licence QZ95-003 (the "Licence"). This report provides water quantities used during the year and an interpretation of trends and variations in the water quality data. Anvil Range Mining Corporation entered into receivership in April 1998 and, since that time, the mine has been under the management of Deloitte and Touche Inc. as court appointed Interim Receiver of Anvil Range Mining Corp. (the "Interim Receiver"). This report, including all data presentations and interpretations, was prepared by Gartner Lee Limited ("Gartner Lee") based on information provided by Anvil Range Mining Corp. ("ARMC"), BGC Engineering Inc. and Laberge Environmental Services.

Since their appointment in April 1998, the Interim Receiver has successfully maintained compliance with the terms of the water licences by implementing a broad scope of tasks related to environmental protection and environmental monitoring, which have included:

- Pumping and treatment of water from the Faro Main pit and the Faro Zone II pit.
- Treatment of water in the Intermediate Pond (Rose Creek Tailings Facility).
- Compliance with the effluent discharge criteria in the water licences.
- Conversion of mill equipment for use as a water treatment plant.
- Water quality, biological and physical stability monitoring in accordance with and in excess of terms of the water licences.
- Preparation and submission to the Yukon Territory Water Board of monthly water quality reports and annual environmental reports.
- Assistance with large-scale DIAND scrap steel reclamation projects.
- Removal of laboratory and process chemicals, PCB containing equipment and used oil from the mine sites.
- Physical maintenance of water retention and diversion structures.
- Undertaking of a Comprehensive Risk Assessment with Annual Updates.
- Completion of a comprehensive hydrogeological and geochemical study of the Rose Creek Tailings Facility.
- Initiation of planning for long-term mine reclamation.
- Application for Renewal of the Water Licence.

This report presents results of water quality monitoring per Schedules A and D of the Licence. All of the field information presented in this report was gathered by ARMC except for the collection of ground water samples, which was conducted by Gartner Lee. The biological monitoring program described in Schedule B of the Licence is scheduled to be performed in every second year and was not required in 2003. The physical monitoring program described in Schedule C of the Licence was performed in 2003 by BGC Engineering Inc. and is summarized herein with the full report filed under separate cover as an accompanying document.

All milling and tailings deposition activities ceased in February 1998 and have remained suspended since that time. No freshwater from Rose Creek was required or used for industrial processing during 2003.

The recycle water system, which was installed to provide water from the Faro Main pit to the mill for processing or for discharge, was utilized during 2003 to pump water from the Faro Main pit for treatment and discharge to Rose Creek. The summer pumping program achieved the goal of lowering the water level in the Faro Main pit to a level where no further dewatering was scheduled until spring/summer of 2004. Certain equipment in the mill was converted, in 2001, for use as a lime treatment system for water pumped from the Faro Main pit with the effluent directed by gravity into either the Intermediate Dam outflow spillway or the Cross Valley Pond prior to release to Rose Creek. This new system presents many potential benefits over the previous treatment methods and was successfully utilized again in 2003. Several environmental benefits are realized as a direct result of the success of this system including: effluent zinc concentrations were reduced, the Intermediate and Cross Valley Ponds were managed below overflow elevations, less lime was used and less treatment sludge was generated.

The Interim Receiver, in consultation with Gartner Lee Limited, have established a site-specific water quality monitoring program which provides for:

1. Routine collection of the data specified in the Licence for temporary cessation of operations;
2. Routine collection of data in excess of the Licence requirements that is beneficial for efficiently managing the environmental protection programs and monitoring of local environmental effects; and
3. Flexibility to adapt to immediate information needs through the short-term incorporation of additional sampling locations.

As an example of data collected in excess of the requirements of the Licence, the monitoring program includes routine monthly sampling in Rose Creek downstream of the Rose Creek Tailings Facility (station X14) as a means of monitoring water quality downstream of the effluent mixing zone.

The monitoring program also makes extensive use of the unique capability for high-quality, on-site zinc analyses to provide immediate feedback to site managers regarding effluent quality. On-site analyses of effluent zinc concentrations are conducted on a daily, or more frequent, basis when treated effluent is being released on either the Faro or Vangorda Plateau mine sites.

Surface and ground water monitoring locations are illustrated on Figures 1 and 2 and are listed on Table 1. Water quality analytical results for 2002 for all locations sampled and parameters analysed are listed in Appendix 1 for surface water and Appendix 2 for ground water.

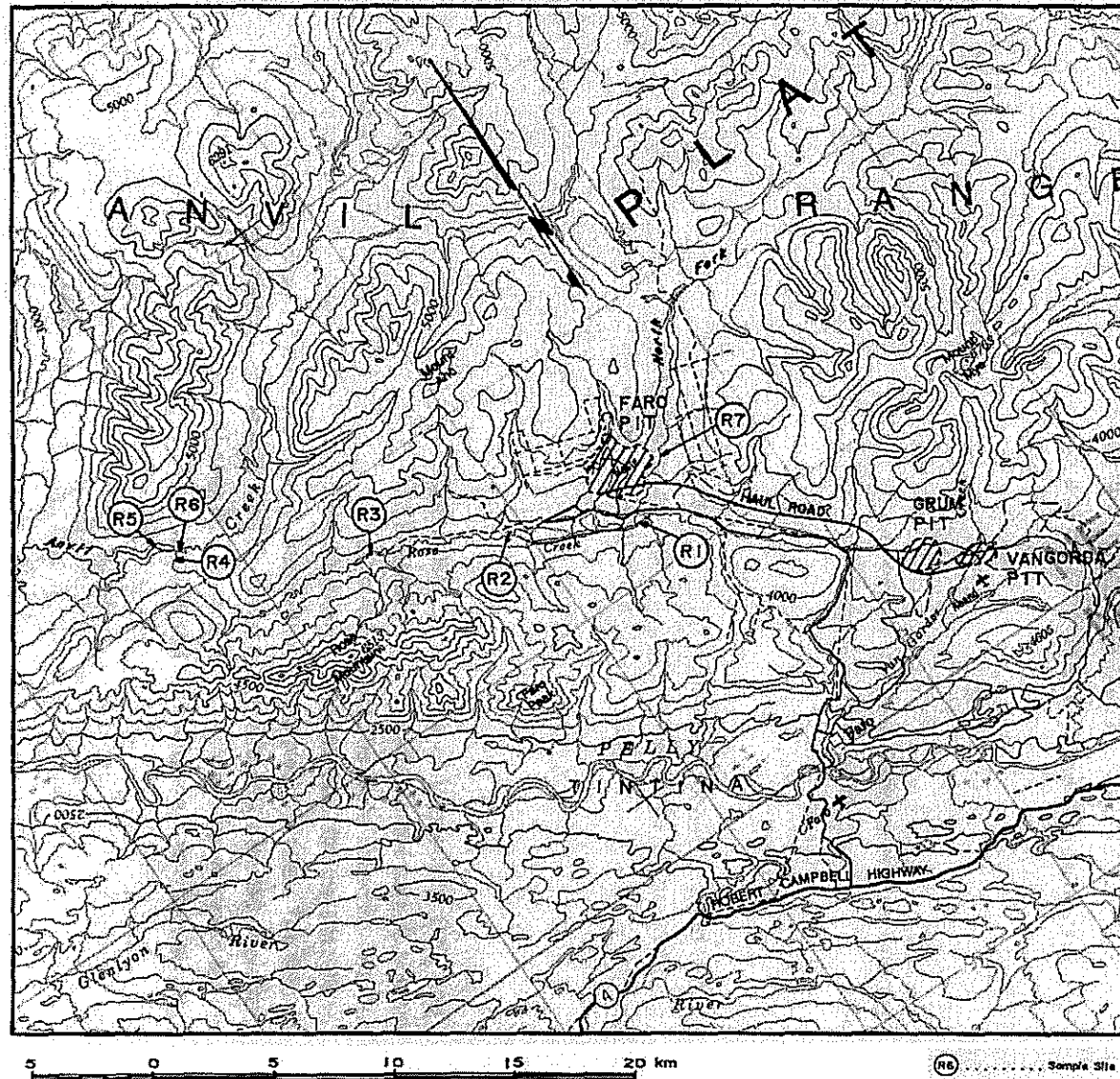


Figure 1: Faro Mine Drainage and Water Monitoring Locations



[illegible]

(23586 2003 Faro Env Rpt.doc)

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Table 1: Water Quality Monitoring Locations

LOCATION	DESCRIPTION
X1	Point of discharge over the second impoundment
X2	North Fork of Rose Creek at road bridge
X3	Rose Creek at freshwater pumphouse
X4	Intermediate dam decant, prior to water treatment
X4a	Intermediate dam decant, below water treatment
X5	Cross Valley dam decant
X10	Rose Creek diversion canal below weirs
X11	Seepage from north toe of the Cross Valley dam
X12	Seepage from south toe of the Cross Valley dam
X13	Combined seepage flows downstream from the culvert and upstream of confluence with the decant
X14	Rose Creek after mixing downstream of the diversion canal confluence
X16a	Ground water monitor well - K1 at depth of 5m
X16b	Ground water monitor well - K1 at depth of 30m
X17a	Ground water monitor well - K2 at depth of 5m
X17b	Ground water monitor well - K2 at depth of 20m
X18a	Ground water monitor well - K3 at depth of 10m
X18b	Ground water monitor well - K3 at depth of 20m
X19a	Ground water monitor well - K4 at depth of 12m
X19b	Ground water monitor well - K4 at depth of 27m
X20	Ground water monitor well - K5
X21a	Ground water monitor well - K6 at depth of 10m
X21b	Ground water monitor well - K6 at depth of 27m
X22b	Main Pit water
X22c	Main Pit at point of discharge
X23	Old Faro Creek channel near the toe of the south west rock dumps
X24a	Ground water monitor well Intermediate Dam, North Abutment-shallow sample
X24b	Ground water monitor well Intermediate Dam, North Abutment-deep sample
X25a	Ground water monitor well Intermediate Dam, South Abutment-shallow sample
X25b	Ground water monitor well Intermediate Dam, South Abutment-deep sample
X26	Zone II pit water
BH-1, BH-2, &BH-4	Boreholes southeast of Zone II pit, west of North Fork of Rose Creek
R4	Rose Creek just above Anvil Creek
R5	Anvil Creek just below the confluence of Rose Creek
R6	Anvil Creek immediately upstream of Rose Creek

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

- R7 North Fork of Rose Creek upstream of the confluence with the Faro diversion - background sample
- R8 North Fork of Rose Creek, 100 metres downstream of confluence with Faro Creek diversion
- R9 North Fork of Rose Creek, adjacent to BH-1 & BH-2
- R10 North Fork of Rose Creek, at least 100 metres upstream from maximum elevation of water impounded behind North Fork rock drain and 100 metres downstream of R9

2. Water Use

2.1 Fresh Water

The fresh water supply system remained largely in place through 2003, although some pump parts were previously removed for alternate use.

The fresh water supply system was previously used (during mine operations) to supply water to the mill from the Pumphouse Pond located near the confluence of the South and North Forks of Rose Creek. The pond can be supplied from three sources:

1. Water stored in the fresh water reservoir which is recharged from the South Fork of Rose Creek. In previous years, some control of the reservoir has been exercised with the use of stoplogs across the overflow spillway. Withdrawal of water during the winter season is through a low level outlet valve that is buried at the base of the fresh water supply dam;
2. The North Fork of Rose Creek. Flow is through the natural channel into the Pumphouse Pond; and
3. Two ground water wells, PW3 and PW6, located in the Rose Creek valley near the Pumphouse Pond.

During 2003, flow out of the pumphouse pond into the Rose Creek diversion channel was maintained at a rate greater than the minimum requirement in the Licence of 4.5 m³/min.

2.2 Faro Main Pit Water

The recycle water system which provides water from the Faro Main pit to the mill was installed during the summer of 1997 and was utilized to provide an estimated minimum 95% of the water required for processing while the mill was operating prior to February 1998. The system was utilized during 2003 to pump water from the Faro Main pit to the mill for treatment in order to maintain the in-pit water level within the pre-determined range.

The recycle water system is made up of the following primary components:

1. 3 electric pumps mounted on a floating barge in the pit rated at providing 5,000 USgpm each to the mill (only one or occasionally two pumps were utilized in 2002); and
2. 30" scilar pipeline from the barge to the mill with flexible sections near the barge which prevent damage to the pipeline which might otherwise result from vertical movement of the barge.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

The measured 2003 Faro Main pit water levels are illustrated on Figures 3 and 4. The filling curve shows the rate of filling prior to activation of the recycle water system in late July 1997 and the subsequent changes in the water level resulting from pumping for supply of water for processing and/or discharge.

Figure 3: Faro Main Pit Filling Curve, 1992 to 2003

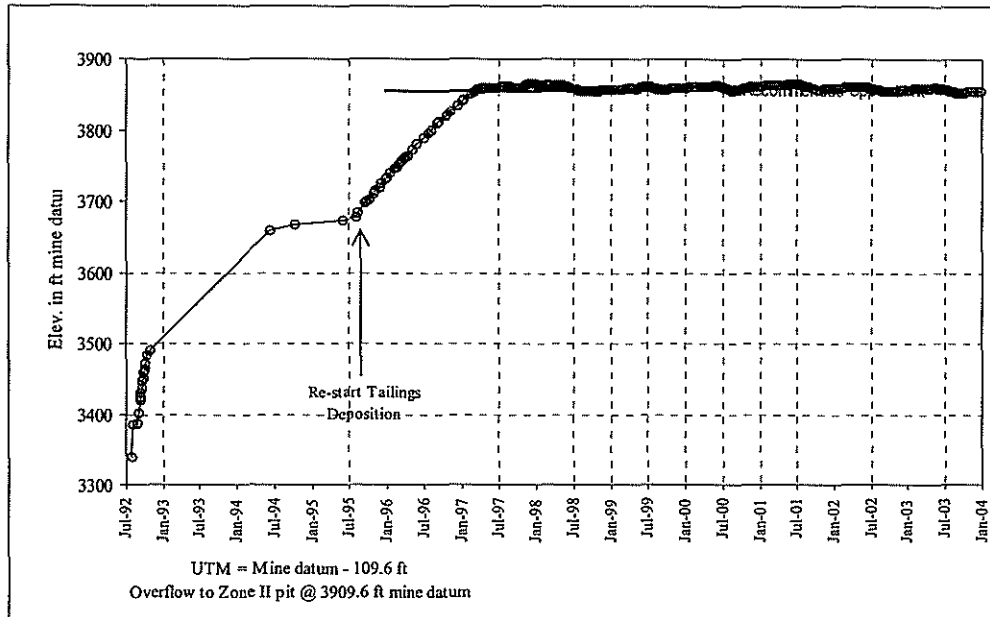
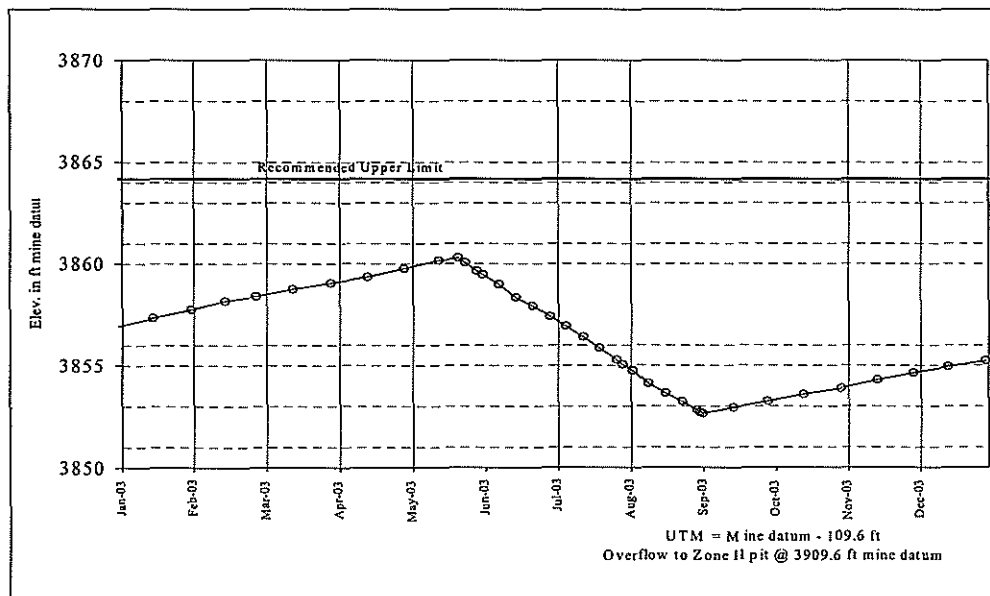


Figure 4: Faro Main Pit Water Elevation, 2003 Detail



Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

The targeted maximum elevation of 3750 feet above sea level ("asl") (3859 feet mine datum) as illustrated on Figures 3 and 4 is approximately 15.2 m (approximately 50 feet) below the low point in the pit perimeter where water would overflow from the Main pit into the Zone II pit. This safety margin was incorporated into the design of the recycle water system in order to provide containment for an unexpected breach of the Faro Creek diversion into the pit and to prevent a potential increase in seepage into the Zone II pit through the fractured and faulted wallrock that separates the two pits. Data regarding water volumes pumped from the Zone II pit on an annual basis indicate that there has not been a noticeable increase in the rate of seepage from the Main pit into the Zone II pit (Section 2.4).

2.3 Effluent Discharge

Effluent discharge to Rose Creek from the Faro minesite is limited to surface outflow from the Cross Valley pond (monitoring location X5) and seepage from the Cross Valley Dam (monitoring location X13). The surface outflow at location X5 was exclusively via syphon in 2003 (i.e. there was no overflow into the spillway). Ground water quality is monitored and reported on but is not considered an effluent discharge for these reporting purposes.

The primary source of water entering the Cross Valley pond is surface inflow from the Intermediate pond, which may include seepage from the Faro rock dumps, runoff from the plant site and runoff from the local drainage area, and water discharged from the Faro Main pit via the mill treatment system. Other sources of water entering the Cross Valley pond are local area runoff and direct precipitation.

The total volume of effluent that entered Rose Creek via location X13 in 2003 was estimated to be 1.8 million m³ at a rate of flow that varied from 38 to 86 Lps. The total volume of effluent discharged to Rose Creek via location X5 during 2003 was an estimated 5.0 million m³ with the flow rate varying from 0 to 1,000 Lps.

The total estimated effluent discharge to Rose Creek during 2003 (combined X5 and X13) was 6.8 million m³, which is approximately 124% of that reported for 2002 (5.5 million m³). This apparent increase is attributed to an increase in natural precipitation to 96% of "normal" in 2003 from only 81% of "normal" in 2002.

2.4 Faro Main And Zone II Pits

A simplified water balance has been described for the Faro Main pit wherein the known parameters are the quantities of: Zone II water inflow, net uncontrolled inflows (seepage in/out, runoff, precipitation, etc.) calculated from observed changes in the pit pond water elevation during strategic periods, and net inflow calculated from the net annual change in the Main pit water elevation. The unknown water quantities could be referred to as "water discharged" and would include water pumped from the main pit

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

and discharged to the tailings impoundments. The simplified water balance could be expressed as follows with application of the subsequent notes:

$$\text{Zone II Water}^1 + \text{Net Uncontrolled Inflows}^2 - \text{Water Discharged}^3 = \text{Net Inflow}^4$$

Therefore, the 2003 water balance for the Faro Main pit can be expressed as:

$$0.10 + 1.38 - \text{Water Discharged} = -0.28 \text{ (in millions m}^3\text{)}$$

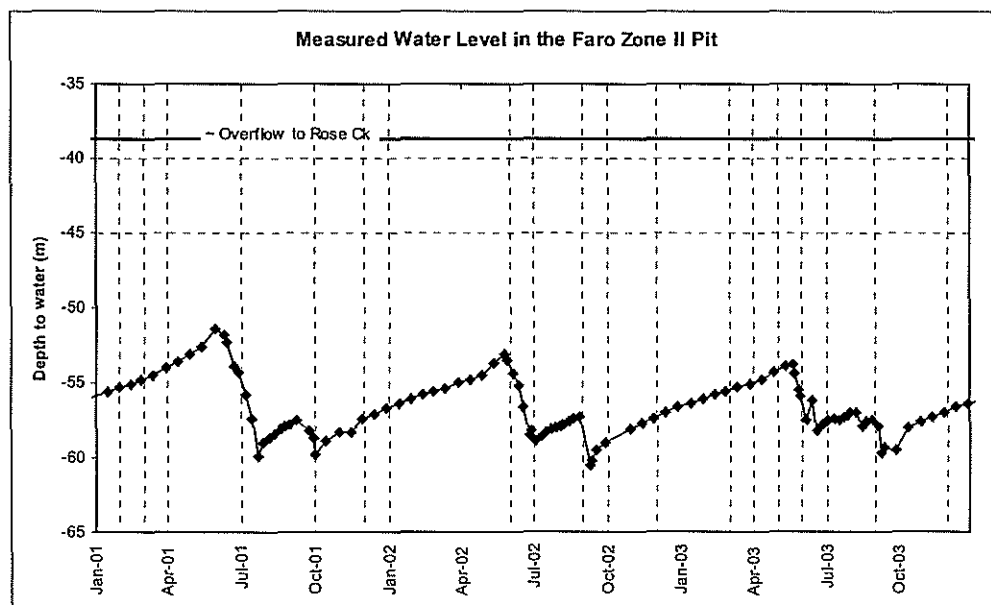
and the "Water Discharged" for 2003 is estimated at 1.76 million m³

Notes:

1. Water was pumped from the Zone II Pit into the Faro Pit during 2003. An open pipe was installed in the pumping well in March 1997 that allowed direct water level measurements. The measured water levels are illustrated on Figure 5. The total volume pumped during 2003 was estimated at 103,500 m³. This volume compares to estimates for recent years as follows:

- 1995: Zone II volume pumped = 139,000 m³
- 1996: Zone II volume pumped = 75,000 m³
- 1997: Zone II volume pumped = 51,000 m³
- 1998: Zone II volume pumped = 43,070 m³
- 1999: Zone II volume pumped = 73,457 m³
- 2000: Zone II volume pumped = 64,282 m³
- 2001: Zone II volume pumped = 85,000 m³
- 2002: Zone II volume pumped = 99,500 m³

Figure 5: Faro Zone II Pit Water Elevation, 1997 to 2003



Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

2. The calculated net volume of uncontrolled inflows entering the Main pit from direct precipitation, evaporation, local run off, seepage inflow and seepage losses was 1.4 million m³ for 2003 (avg. 3,769 m³/day). This estimate was developed from direct measurements of the in-pit water level during periods in 2003 where the only inflows/outflows were the uncontrolled water and inflow pumped from the Zone II pit. The estimate of net uncontrolled water inflows for 2003 is within the range of calculated values from 1995 to 2002 (1.0 to 2.0 million m³). Further information regarding this note is provided in Table 2 below.
3. Water was discharged from the Main pit to the Down Valley via the recycle water system in 2003. Two methods of calculating the volume pumped from the pit can be applied. One method utilizes the measured flow rate in the mill, which was as high as 6,100 USgpm in 2003, to estimate the total volume pumped based on pumping hours and average pumping rates. This method provides an estimate of approximately 2.4 million m³ pumped in 2003 (average 5,000 USgpm for 102 days at 85% utility). The second method, which is reported in the water balance above and in Table 2, utilizes the measured water elevations in the pit and as-built survey information (notes 1 to 4 above) to estimate the volume changes in the pit. This provides an estimate of approximately 1.8 million m³ pumped from the pit, implying an average pumping rate during the period of active pumping of 3,168 USgpm. The apparent discrepancy is the subject of additional data collection and investigation. Further detail regarding this note is provided in Table 2 below.
4. The net inflow of material entering the Main pit (for the year) is accurately tracked via the change in water elevation from January 1 to December 31. The water level elevations relate to a pit volume determined for those elevations from as-built survey information. The total net volume entering the pit includes tailings slurry, tailings solids, Zone II dewatering, direct precipitation, evaporation, local run off, seepage inflow, seepage losses, leakage from the Faro Creek diversion, and water pumped out to the mill or for treatment/discharge. The net change for 2003 was -0.28 million m³ for the year. The detailed filling curve for 2003 is illustrated on Figure 4. Further detail regarding this note is provided in Table 2 below.

In addition to the water balance information shown above, Table 2 provides further information regarding individual periods within the year 2003.

2.5 Rose Creek At X14

The water level at location X14 in Rose Creek downstream of the confluence with mine effluent discharged via locations X5 and X13 has been monitored on a continuous basis (excepting periods of malfunction or damage) using a pressure transducer and datalogger. A datalogger and transducer were installed in June 1999 as a replacement for the previous unit which had ceased data collection. The pressure transducer was again replaced in 2002. The datalogger was non-functional for a large part of

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

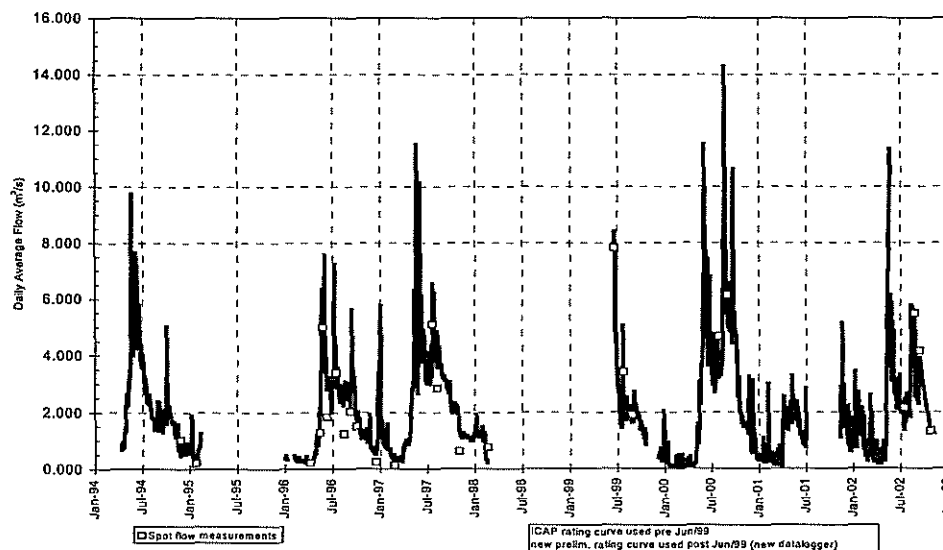
2003. Equipment and procedural upgrades are being implemented to improve the general performance of the installation at this location.

Table 2: Detailed Faro Main Pit Water Balance, 2003

Period	Elevation Change (ft mine datum)	Net Volume Change	Net Uncontrolled Inflows	ZoneII Inflow	Water Discharged OUT
Jan01- May23 (143)	3856.96 - 3860.28 (+0.28 in/day)	+553,524 m ³ (+3,871 m ³ /day)	+553,524 m ³ (+3,871 m ³ /day)	nil	nil
May23- Sep02 (102)	3860.28 - 3852.63 (-0.90 in/day)	-1,275,438 m ³ (-12,504 m ³ /day)	+383,724 m ³ (+3,762 m ³ /day) assumed	103,500 m ³	-1,762,662 m ³ (-17,281 m ³ /day) (-3,168 USgpm)
Sep02- Dec31 (120)	3852.63 - 3855.26 (+0.26 in/day)	+438,484 m ³ (+3,654 m ³ /day)	+438,484 m ³ (+3,654 m ³ /day)	nil	nil
Total 2002	3856.96 - 3855.26 (-0.06 in/day)	-283,430 m ³ (-776 m ³ /day)	1,375,732 m ³ (+3,769 m ³ /day)	103,500m ³ (+284 m ³ /day)	-1,762,662 m ³ (-4,829 m ³ /day) (-885 USgpm)

The X14 flow record is illustrated on Figure 6. Note that a new stage discharge curve was developed and used for calculation of flows post June 1999.

Figure 6: Rose Creek at Location X14 Flow Record

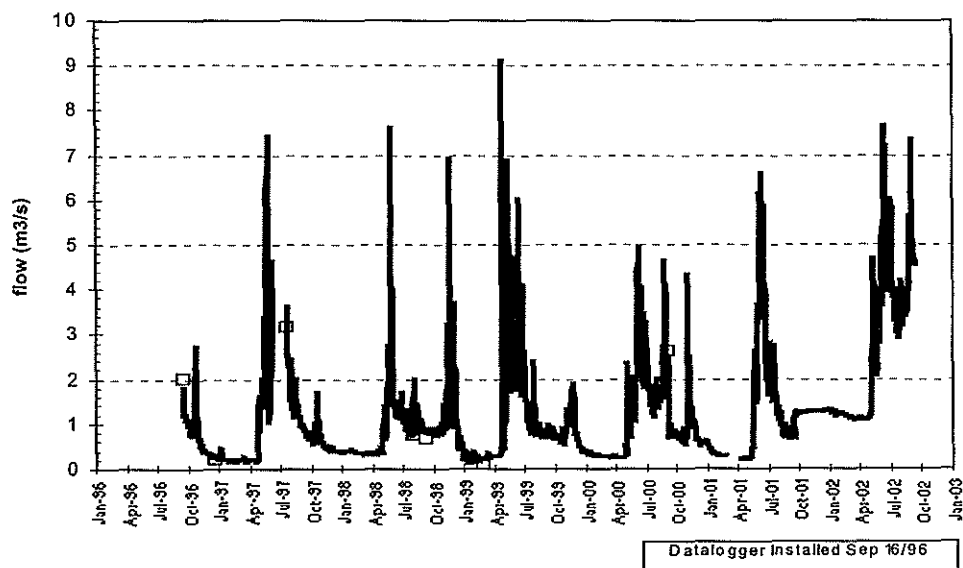


2.6 North Fork Of Rose Creek At R7

The water level at location R7 in the North Fork of Rose Creek upstream of the mine area has been monitored on a continuous basis (excepting brief periods of malfunction or damage) using a pressure transducer and datalogger. A datalogger and transducer were installed in September 1996 and has operated consistently since that time. Data for 2003 is undergoing quality control verification before being published.

The R7 flow record is illustrated on Figure 7.

Figure 7: North Fork Rose Creek at Location R7 Flow Record



3. Water Quality Monitoring (Schedule 'A')

3.1 Overview Of Water Quality Monitoring Program

Schedule A of the Licence requires the collection of samples from various locations around the mine, mill and tailings areas. These sites are listed in Table 1 and illustrated on Figures 1 and 2. A modified monitoring program which is to be applied during periods of temporary cessation of operations is described in Schedule A of the Licence. The modified program was followed or exceeded in 2003. All samples collected were grab samples with analyses carried out by either Cavendish Analytical Laboratory Ltd. of Vancouver B.C. or ALS Environmental Laboratories of Vancouver B.C.

The Interim Receiver, in consultation with Gartner Lee Limited, have established a site-specific water quality monitoring program which provides for:

- Routine collection of the data specified in the Licence for temporary cessation of operations.
- Routine collection of data in excess of the Licence requirements that is beneficial for efficiently managing the environmental protection programs and monitoring of local environmental effects.
- Flexibility to adapt to immediate information needs through the short-term incorporation of additional sampling locations.

As an example of data collected in excess of the requirements of the Licence, the monitoring program includes routine monthly sampling in Rose Creek downstream of the Rose Creek Tailings Facility (station X14) as a means of monitoring water quality downstream of the effluent mixing zone.

The monitoring program also makes extensive use of the unique capability for high-quality, on-site zinc analyses to provide immediate feedback to site managers regarding effluent quality. On-site analyses of effluent zinc concentrations are conducted on a daily, or more frequent, basis when treated effluent is being released on either the Faro or Vangorda Plateau mine sites.

The two surface effluent discharge points from the Faro mine site are locations X5 and X13, Cross Valley Pond outflow and seepage from the Cross Valley Dam, respectively. Surface drainage from the minesite, pre-treated water pumped from the Faro Main pit (location X22B) via the mill treatment system, seepage from the rock dumps (location X23), runoff from areas of exposed tailings in the Intermediate impoundment and other surface runoff water are released via one of these two locations. Location X4 is outflow from the Intermediate Dam and provides information on the quality of surface water in the Intermediate pond.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

The receiving water, Rose Creek, was monitored at numerous locations in both the North Fork and the South Fork upstream and downstream of the minesite/tailings areas.

Spring and fall ground water monitoring surveys provided information regarding ground water quality in critical areas within and downstream of the minesite/tailings areas as reported in Sections 3 and 6 of this report. New groundwater monitoring wells were installed in 2001 and 2003 as part of a comprehensive hydrogeological and geochemical investigation of the Rose Creek tailings impoundments. These investigations are documented and reported elsewhere.

The 2003 water quality data is listed in Appendices 1 and 2. The data listing includes all parameters for which analyses were performed including data collected in excess of the Licence requirements. Surface water quality data is listed in Appendix 1. Ground water quality data is listed in Appendix 2. Annual surface seep surveys and "extra" ground water monitoring that collected additional information around the mine area are described in Section 6 of this report.

3.2 Faro Pits And Rock Dumps (X22B, X23, X26, BH1, BH2, BH4)

Water chemistry in the near surface zone of the Faro Main Pit is monitored at location X22B. Although sampling at location X22B is not required under the Licence schedule for temporary cessation of operations, 12 samples (monthly) were collected in 2003. Information at this location was considered important to the general understanding of environmental conditions at the mine site and also to management of the annual Faro pit pumping program.

Water quality at location X22B in 2003 was generally indicative of buffered acid rock drainage with elevated metals and sulphate at neutral pH. This was as expected given the presence of mineralized rock dumps and pit walls in the drainage area and the inflow (to February 1998) of lime treated tailings slurry. It was anticipated that the elimination of the substantial inflow of high pH water via the tailings slurry would result in a progressive deterioration of water quality and indication of such a trend has been observed from 1998 to 2003.

The concentrations of total and dissolved zinc at location X22B ranged from 6.3 mg/L to 28.5 mg/L and from 6.1 mg/L to 28.4 mg/L, respectively, in 2003 with average annual concentrations of 14.1 mg/L and 13.8 mg/L, respectively, as illustrated on Figure 8. The concentrations of zinc observed in 2003 are within the range observed in previous recent years.

The concentration of sulphate at location X22B ranged from 132 mg/L to 657 mg/L in 2003 with an average for the year of 547 mg/L as illustrated on Figure 9. The 2003 range and average concentration were similar to observed from 1999 to 2002 with the exception of May (132 mg/L), which was unusually low for this location.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 8: Faro Main Pit (X22B) Total and Dissolved Zinc

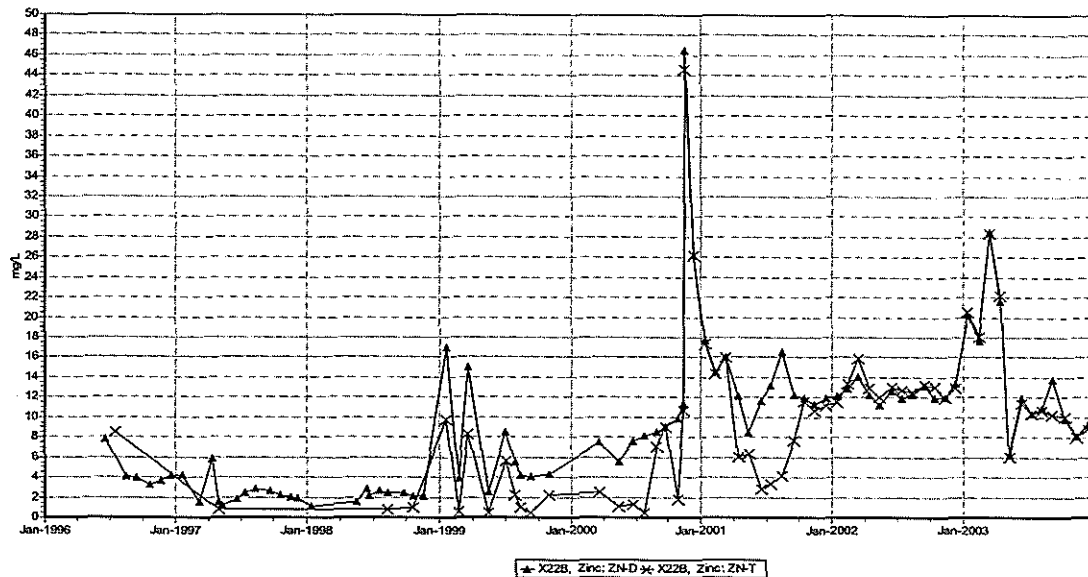
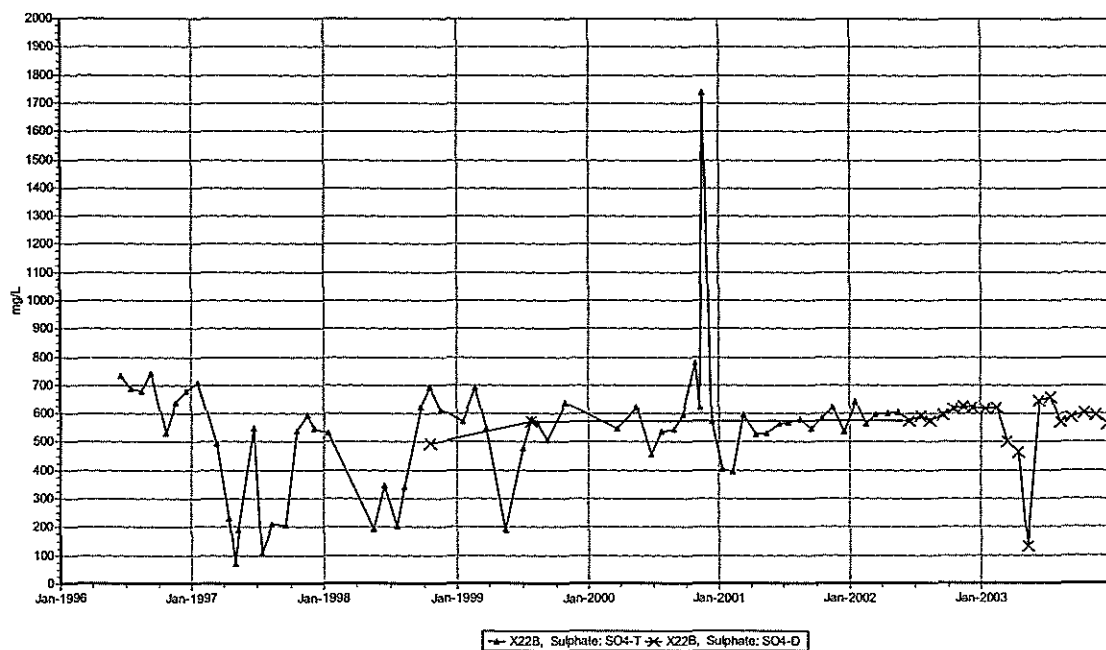


Figure 9: Faro Main Pit (X22B) Sulphate

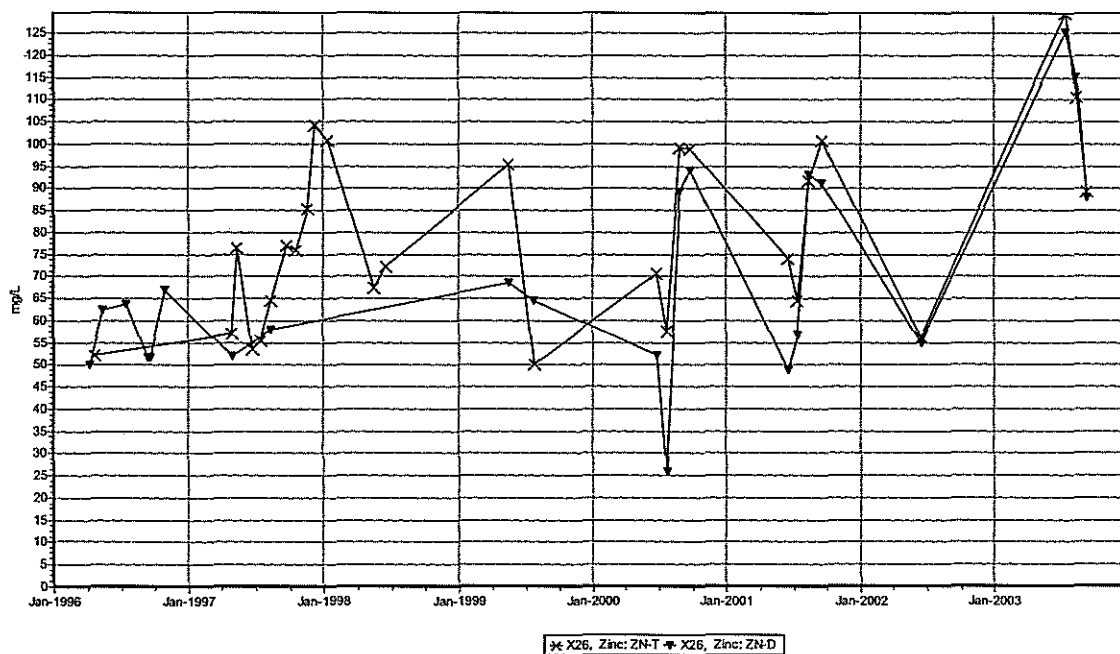


Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Water chemistry in the backfilled Zone II Pit is monitored at location X26, which is water pumped from the Zone II Pit into the Main Pit. Although sampling at location X26 is not required under the Licence schedule for temporary cessation of operations, three samples were collected in 2003, in July, August and September. Information at this location can help to identify significant changes in water chemistry that may be related to acceleration in the acid rock drainage process.

Water chemistry at location X26 in 2003 showed elevated metals and sulphate at neutral pH as was observed in the Main Pit; however, water quality was poorer in the Zone II Pit. The concentrations of total and dissolved zinc ranged from 89.3 mg/L to 129.6 mg/L and 88.0 mg/L to 125.2 mg/L, respectively, in 2003. These ranges are similar, but slightly higher than the ranges observed from 1999 to 2002. The available data for the Zone II pit suggests a somewhat consistent range for total and dissolved zinc since 1997 (Figure 10). A detailed analysis of variations in water quality must include the potential influences of changes in the in-pit water level due to pumping as the repeated flushing of rockfill would be expected to release contaminants into the water.

Figure 10: Faro Zone II Pit (X26) Total and Dissolved Zinc



Surface seepage from the toe of the main rock dump area is sampled at location X23 located in the old Faro Creek channel where a large portion of the seepage from the Main and Intermediate rock dumps is assumed to collect. This water is passed into the Intermediate Impoundment and receives treatment prior

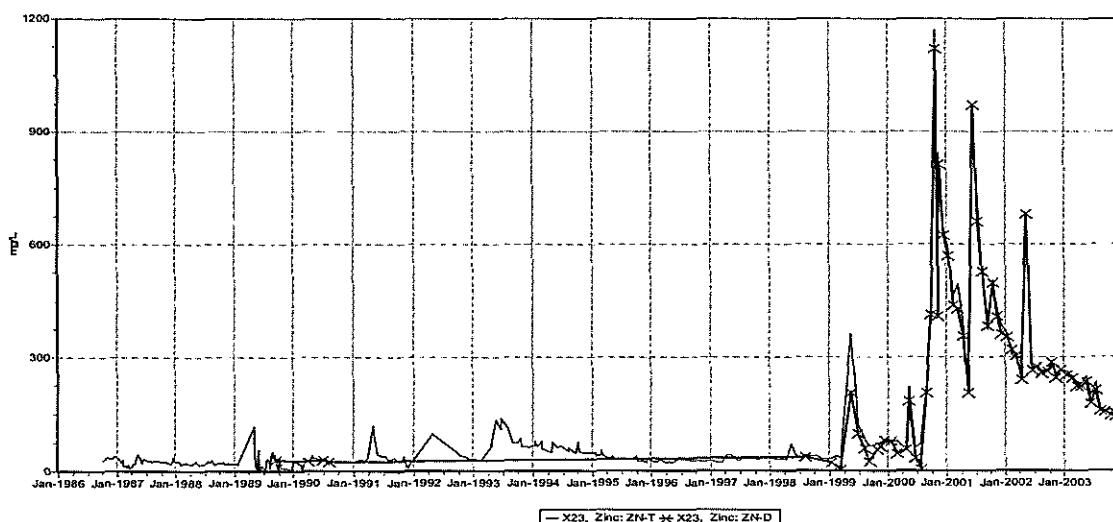
Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

to discharge. Water quality is typical of buffered acid rock drainage with elevated metals and sulphate at neutral pH. Location X23 is included in the Licence monitoring schedule for temporary cessation of operations and 12 samples were collected in 2003.

The concentrations of total and dissolved zinc at location X23 ranged from 147.2 mg/L to 264.8 mg/L and from 138.5 mg/L to 254.4 mg/L, respectively, in 2003. This range is very similar to that of 2002 when the single peak 2002 concentration is removed. The concentration of sulphate ranged from 3,128 mg/L to 4,511 mg/L, which was similar to the ranges observed from 1999 to 2002. The concentration of total ammonia was slightly elevated above background (0.06 to 0.83 mg/L in 2003) due, likely, to leaching of residual blasting agents from surrounding rock dumps.

The longer term trend in the concentration of total zinc at X23 is illustrated on Figure 11. The concentration of zinc was generally stable in a range from about 30 to 40 mg/L for two periods from 1986 through 1988 and from 1995 through 1998. During the period from 1989 through 1993, the concentration of zinc was more erratic and high spikes were observed up to about 125 mg/L. Active dewatering of the Faro pit during mine operations may have been the cause of the erratic concentrations. The concentration of zinc increased dramatically through 1999 and 2000, decreased slightly 2002 (i.e., approximately one order of magnitude greater than the typical concentrations observed prior to 1998) Zinc concentrations in 2003 continue the trend of steady decline since late 2001.

Figure 11: Faro Rock Dump Seepage (X23) Total Zinc

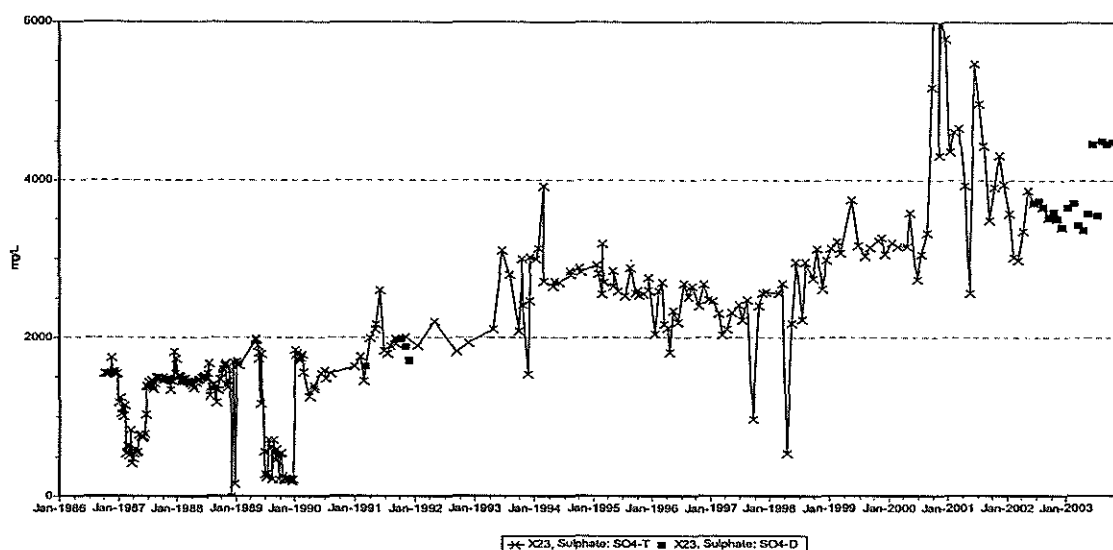


A stepped increase in the concentration of sulphate at location X23 is observed from around 1,500 mg/L during the period from 1986 to 1991 to around 2,500 mg/L from 1993 to 1998 as illustrated on Figure 12. This difference may be attributed to mining and, specifically, dewatering activities in the Faro Main pit.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

For example, the low 'troughs' in sulphate concentrations during early 1987 and second half 1989 may be related to dewatering of the Faro Main Pit, which could have resulted in some "extra" water passing location X23. An increasing trend was apparent from 1998 through 2001 followed by a subsequent slight decrease and stabilization of concentrations through 2002 and 2003 as observed in Figure 12.

Figure 12: Faro Rock Dump Seepage (X23) Sulphate



Shallow ground water seepage between the Zone II Pit and the North Fork of Rose Creek was monitored on two occasions during 2003 (June and September) at piezometers BH1, BH2 and BH4. These piezometers are not included in the Licence schedule for temporary cessation of operations. Piezometer BH3 was damaged at some time in the past and is no longer operable. Piezometer BH2 is closest to the Zone II Pit and BH4 is closest to the North Fork of Rose Creek.

Water quality is typically poorest in BH2 as compared to BH1 and BH4. The concentrations of dissolved zinc and sulphate for the June and September sampling was as follows:

- BH1, June / September dissolved zinc was 0.82 mg/L and 1.73 mg/L. Sulphate concentrations were 55 mg/L and 68 mg/L
- BH2, June / September dissolved zinc was 16.0 mg/L and 22.1 mg/L. Sulphate concentrations were 176 mg/L and 96 mg/L.
- BH4, June / September dissolved zinc was 2.82 mg/L and 1.42 mg/L. Sulphate concentrations were 118 mg/L and 96 mg/L.

The potential effects of this shallow ground water on the local surface water in the North Fork of Rose Creek is monitored at surface water sampling locations R8, R9 and R10, which are described in a following section of this report.

3.3 Intermediate Pond (X4)

Water quality exiting the Intermediate pond is monitored at location X4, which is outflow from the pond at the outflow spillway. Outflow may be via either surface overflow or syphon. Location X4 is included in the Licence schedule for temporary cessation of operations. A total of 12 samples (monthly) were collected in 2003 representing both periods of outflow (sampled per the Licence) and periods where no outflow was occurring but information was valuable to site management.

The Intermediate Impoundment was used for tailings deposition from approximately 1986 to 1992. Following the cessation of tailings deposition into the Down Valley Tailings facility in 1992 and until 1997, there was a general increase in the concentration of zinc in water flowing through the Intermediate pond. This was the anticipated trend attributed to:

- the removal of a large inflow of alkalinity that previously entered the pond via the tailings slurry;
- the continued inflow of contaminated rock dump seepage water via location X23; and
- the continued flushing of contaminants by run off over beached (exposed) tailings in the upstream portion of the Intermediate Impoundment.

Water treatment in the Down Valley was started in 1992 in order to ensure that surface outflow from the Cross Valley pond met the maximum allowable discharge limits and the practice of treating outflow from the Intermediate Pond for the removal of zinc continued, on an as-required basis, through 2003. The methods employed for the treatment have involved raising the pH of the Intermediate pond effluent with lime or sodium hydroxide and subsequently utilizing the Cross Valley pond for settlement of the treatment sediments. The pH modification has been accomplished at various times by:

- hauling lime slurry mixed in the mill to a gravity feed tank for addition into the outflow spillway;
- delivering lime slurry mixed in the mill to the outflow spillway via an overland pipeline;
- hauling lime slurry mixed in the Grum/Vangorda water treatment plant to the south abutment of the dam for addition into a syphon line;
- adding sodium hydroxide into a syphon line at the south abutment; and
- inflow into the upstream end of the Intermediate pond of water pumped from the Faro Main pit that was pre-treated with lime at the mill.

From 1998 to 2001, the Intermediate Pond received inflow of treated water pumped from the Faro Main pit on a seasonal basis and this periodic inflow of a relatively high volume of high pH water resulted in a general improvement in pond water quality. The method for treatment of water pumped from the Faro Main pit was improved in 2001 by construction and activation of a new treatment system in the mill that utilizes certain fixed equipment for lime treatment and settlement of sediments. Compliant effluent from the mill was delivered into the Intermediate Pond spillway in 2001 and 2002 (i.e. bypassing the Intermediate Pond), which resulted in an apparent negative impact on water quality in the Intermediate

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Pond due to the removal of the periodic inflow of high pH water. The introduction of compliant effluent from the mill into the Intermediate Pond spillway assisted with the treatment of water syphoned from the Intermediate pond and reduced the requirement for application of lime directly into the spillway.

Since 2002, water has been released from the Intermediate Pond exclusively by syphon (i.e. no overflow). This has allowed the pond water level to remain below overflow with the attendant benefits of increased dam safety and reduced risks of upset conditions affecting effluent quality.

The 2003 concentrations of total and dissolved zinc at location X4 ranged from 0.35 mg/L to 16.70 mg/L and from 0.33 mg/L to 15.90 mg/L, respectively, during 2003. The May 2003 analyses were substantially lower than normal or other 2003 concentrations and may be related to sampling of surficial ice melt that was not representative of the pond water. If the May results were removed from the dataset, the minimum total and dissolved zinc concentrations were 8.85 mg/L and 8.89 mg/L. The long term trend in the concentration of total zinc at location X4, as illustrated on Figure 13, shows an overall zinc concentration in 2003 which is below the range established since 2001.

The concentration of sulphate at location X4 ranged from 9 mg/L to 799 mg/L during 2003. The May 2003 concentration (9 mg/L) is substantially lower than normal or other 2003 concentration and may be related to sampling of surficial ice melt that was not representative of the pond water. The next lowest sulphate concentration in 2003 is 592 mg/L. The long term trend in the concentration of sulphate at location X4 is illustrated on Figure 14. Sulphate concentrations have remained somewhat stable from 2001 through 2003.

Figure 13: Intermediate Pond (X4) Zinc

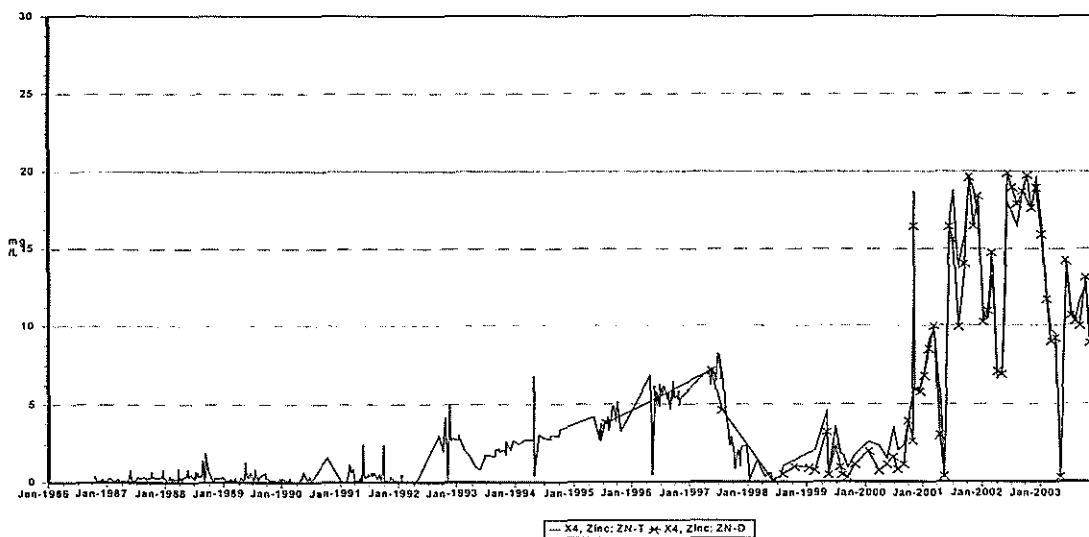
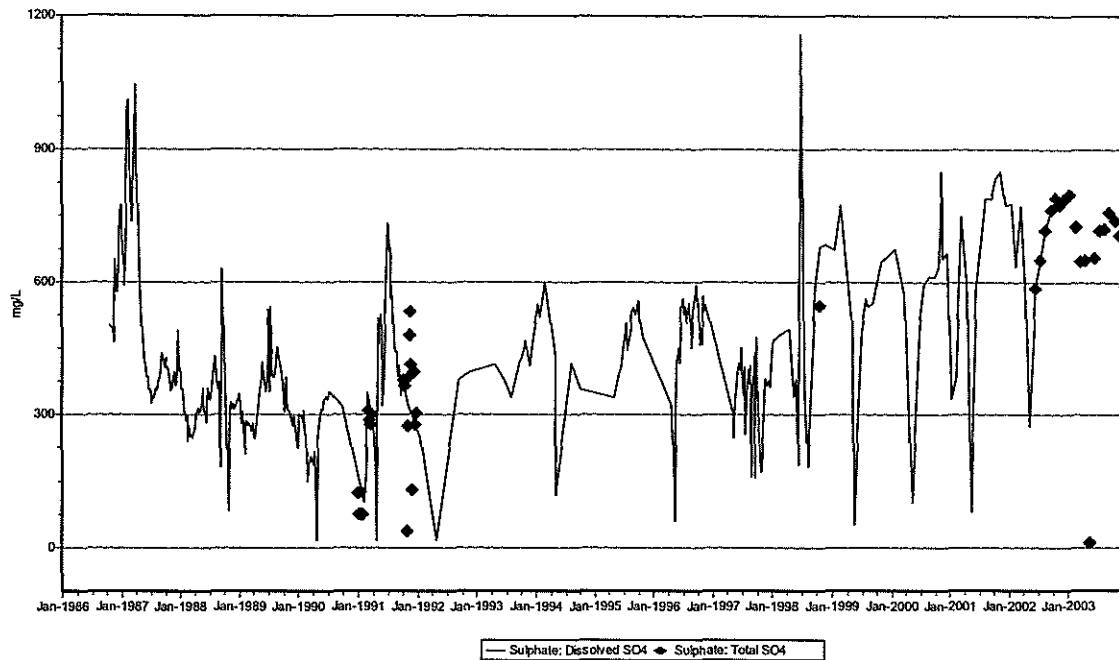


Figure 14: Intermediate Pond (X4) Sulphate



3.4 Effluent Discharge (X5 And X13)

The two surface effluent discharge locations are surface outflow from the Cross Valley Pond (location X5) and seepage discharge at the toe of the Cross Valley Dam (location X13) and these are included in the Licence schedule for temporary cessation of operations during periods of discharge. Additional information regarding flows at these locations is described in Sections 2 and 5 of this report.

Effluent seepage discharge via location X13 was continuous through 2003 and 12 samples (monthly) were collected. The significance of flow rates measured in 2003 at location X13 as regards the geotechnical performance of the Cross Valley dam is described in the accompanying geotechnical inspection report prepared by BGC Engineering Inc.

A total of 12 samples (monthly) were collected from location X5 in 2003 including both periods of effluent discharge (April through September 6) and periods where no discharge was taking place but where the information was valuable to site management. A brief 3-day release of compliant effluent was performed in February to increase the storage capacity for freshet inflows. The analytical data listed in Appendix 1 for location X5 includes all of the 2003 data.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

The Down valley and Mill water treatment systems were both successfully operated in 2003, according to the established operating procedures. The Down Valley system was operated to treat water syphoned from the Intermediate Pond into the Intermediate Dam spillway from late April to the end of June. The mill treatment system was operated to treat water pumped from the Faro Main pit from late May to September 2. Compliant effluent from the mill was released into the Intermediate Dam spillway to provide for final polishing in and release from the Cross Valley Pond.

In addition to the chemical analyses at the external laboratory, frequent in-house analyses for total zinc were performed on-site to provide site management with an immediate indication of effluent quality. This was appropriate because site-specific experience has shown that total zinc is the critical parameter for achieving compliance. The in-house analyses utilized professional level AA (atomic absorption) equipment operated by trained assayers. In-House analyses for zinc were conducted on a routine daily or more frequent basis during periods of discharge in 2003. The individual results are available at the mine site and were reviewed on a regular basis by DIAND Water Resources personnel.

The analytical results received for samples at locations X5 and X13 show that these discharges were within the maximum allowable discharge limits in 2003 and the maximum concentrations of total zinc were 0.41 mg/L and 0.019 mg/L, respectively. The single exception was one isolated concentration of total suspended solids (TSS) at location X13 which was 17 mg/L on July 14 versus the discharge criteria of 15 mg/L. This was an isolated event that is attributed to replacement of the flow monitoring weir plate located immediately upstream of the water sampling location. Replacement of the weir plate was undertaken as a maintenance task to ensure the continued collection of accurate flow measurements.

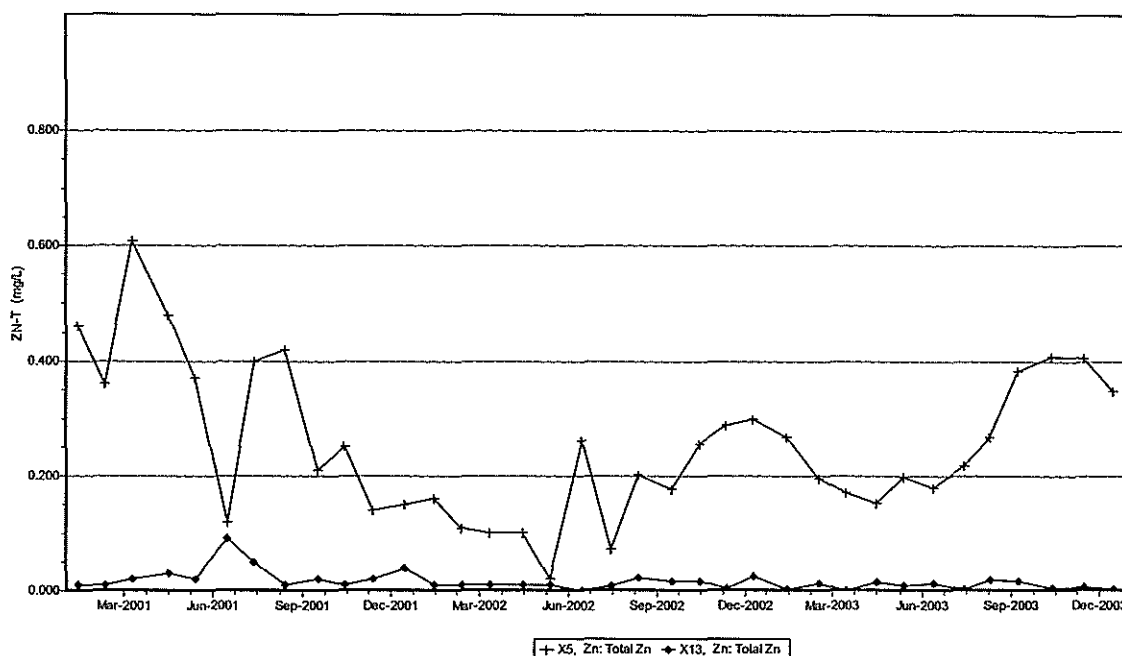
Figure 15 shows zinc concentrations during 2003 for both location X5 and location X13. The highest concentrations of total zinc in 2003 occurred in the latter months of the year as was also observed in 2002. Typically, as was the case in 2003, there was no flow from X5 during the later months of the year. Overall, concentrations were improved from recent years due to the successful operation of the mill treatment system, which provides more efficient treatment of water pumped from the Faro Main pit as compared to the treatment methods that were employed prior to 2001.

The measured 2003 Faro Main pit water levels are illustrated on Figures 3 and 4. The filling curve shows the rate of filling prior to activation of the recycle water system in late July 1997 and the subsequent changes in the water level resulting from pumping for supply of water for processing and/or discharge.

Quarterly bioassay samples for locations X5 and X13 were analysed for acute toxicity using the 96-hour, LC₅₀ method with rainbow trout. All samples returned results of "no mortalities" (i.e. none of the allowable 50% mortality rate was observed) as listed in Appendix 3.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 15: 2001 - 2003 Effluent (X5, X13) Total Zinc



There are three individual seepages that report to location X13, which are locations X11, X12 and WEIR3. Location X11 is the primary seepage stream and collects seepage from the north abutment of the Cross Valley dam and is suspected to also collect some seepage from the Cross Valley dam spillway during periods when there is overflow from the pond. Location X12 collects seepage from the south abutment of the Cross Valley dam. Location WEIR3 collects seepage from the central area between locations X11 and X12. Flow information and the implications of the flow information as regards the geotechnical performance of the Cross Valley dam are described in the accompanying geotechnical inspection report prepared by BGC Engineering Inc.

Locations X11 and X12 are included in the Licence monitoring schedule for temporary cessation of operations and were sampled 12 times in 2003. Location WEIR3 is not included in the Licence schedule but was sampled once in 2003 to provide additional information. All analytical results are listed in Appendix 1.

Water quality at locations X11, X12 and WEIR3 was generally consistent with that at location X13 (combined seepages). Concentrations of total zinc, sulphate and ammonia are typically greatest at location X11. Water quality at location X13 most closely resembles that at contributory location X11 due, presumably, to the greater proportion of flow that originates from location X11.

3.5 Rose And Anvil Creeks

3.5.1 North Fork of Rose Creek (R7, FAROCR, R8, R9, R10, X2)

The potential for impacts on surface water in the North Fork of Rose Creek from the Faro Creek diversion, seepage from the Zone II Pit, and certain rock dumps is monitored at locations R7 through R10 and location X2 in the North Fork of Rose Creek. Location R7 is located upstream of the confluence with the Faro Creek diversion and is representative of background conditions in the North Fork area. Location R8 is located downstream of the confluence of the North Fork with the Faro Creek diversion (location FAROCR) and upstream of the Zone II pit area. Location R9 is located approximately adjacent to the area of the Zone II pit. Location R10 is located downstream of the Zone II pit area and upstream of the rock drain in the Vangorda ore haul road. Location X2 is located at the crossing of the mine access road downstream of the rock drain and the rock dumps. Location FAROCR is located at the mouth of the Faro Creek diversion channel where the diversion channel enters the North Fork of Rose Creek between locations R7 and R8.

Location X2 is the only one of these locations that is included in the Licence monitoring schedule for temporary cessation of operations and 12 samples (monthly) were collected in 2003. Information from upstream locations R7 through R10 and FAROCR was considered important in identifying possible sources of surface water impacts. In 2003, R7 was sampled on two occasions, R8, R9 and FAROCR were all sampled on four occasions, and R10 was sampled three times.

Water quality information for location R7 suggests that there may be a natural seasonal trend in the concentration of total zinc with higher concentrations (up to approximately 0.05 mg/L) observed in the late summer/fall season. However, this is not clear for all years. The reasons for such a natural trend are not known.

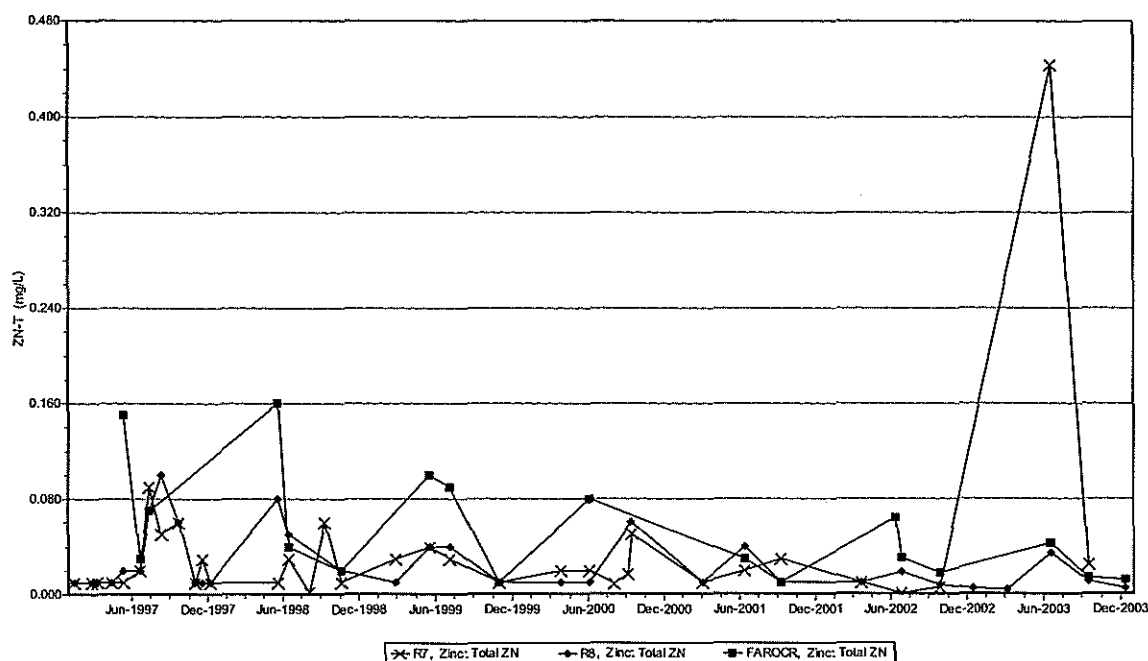
A comparison of water quality at locations R7 and R8 suggests that, in most years since 1997 spring spikes in the concentration of total zinc in the Faro Creek diversion caused brief observable responses at location R8, as illustrated on Figure 16. The concentrations of total zinc at locations R7, R8 and FAROCR on June 17, 2003 were 0.44 mg/L, 0.035, and 0.042 mg/L, respectively. The June 17, 2003 R7 total zinc concentration is many times above the recent characteristic of this and related sites and may be related to sample contamination or suggested by the high TSS concentration of 35 mg/L. The concentrations of dissolved zinc and sulphate were within the "normal" range in the June 17 samples. This "normal range" observation for dissolved zinc further suggests sediment contamination as the theory for the June 17th, R7 total zinc value. Dissolved zinc concentrations for R7, R8 and FAROCR on June 17, 2003 were 0.010 mg/L, 0.013 mg/L and 0.040 mg/L respectively.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

The concentrations of sulphate at locations R7, R8 and FAROCR on June 17, 2003 were 7, 7 and 4 mg/L, respectively.

A comparison of water quality at locations R8, R9 & R10 suggests that a seasonal (spring) trend has occurred in some years since 1997 wherein a slightly greater concentration of total zinc was observed in spring at downstream locations R9 and R10 than at upstream location R8 (Figure 17). This is attributed to the influence of surface run-off from the local rock dumps. The concentrations of total zinc at locations R8, R9 and R10 on June 17, 2003 were 0.035, 0.028 and 0.026 mg/L, respectively. Sulphate concentrations since 1997 have consistently been slightly greater at downstream locations R9 and R10 than at upstream location R8 with the peak concentrations (up to about 22 mg/L) typically occurring in the winter season (Figure 18). The concentrations of sulphate at locations R8, R9 and R10 on June 17, 2002 were 7, 8 and 8 mg/L, respectively.

Figure 16: North Fork Rose Creek (R7, R8, FAROCR) Total Zinc



Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 17: North Fork Rose Creek (R8,R9,R10) Total Zinc

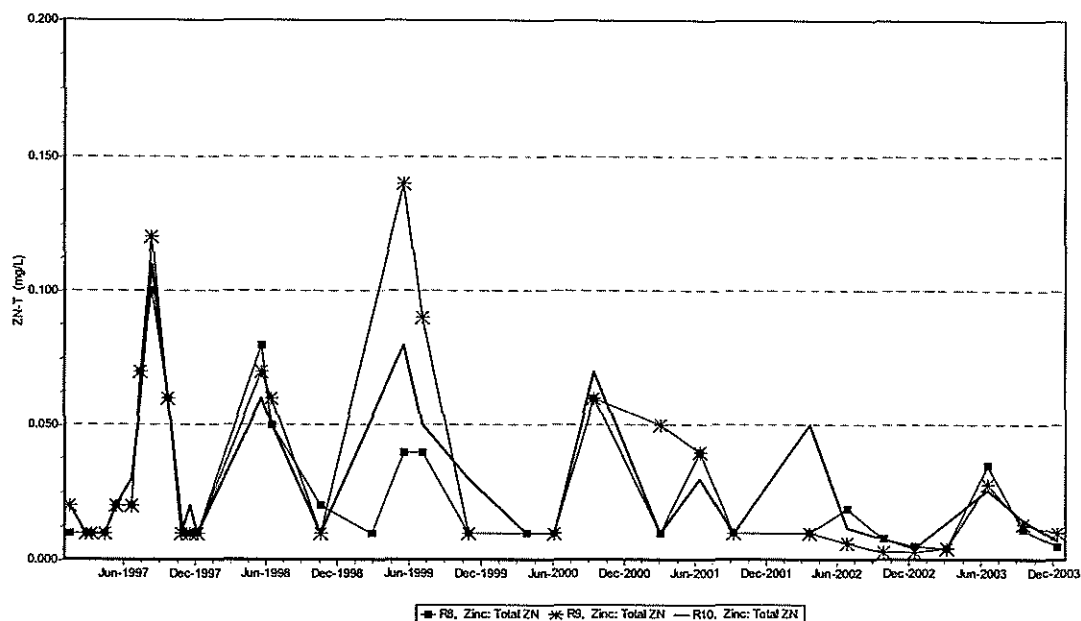
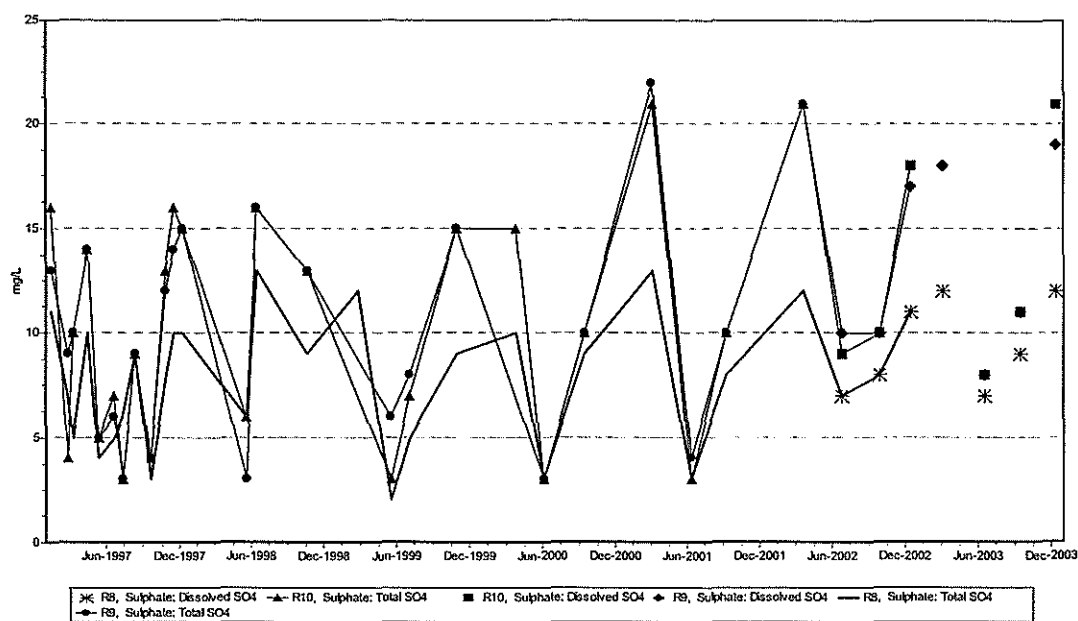


Figure 18: North Fork Rose Creek (R8,R9,R10) Sulphate

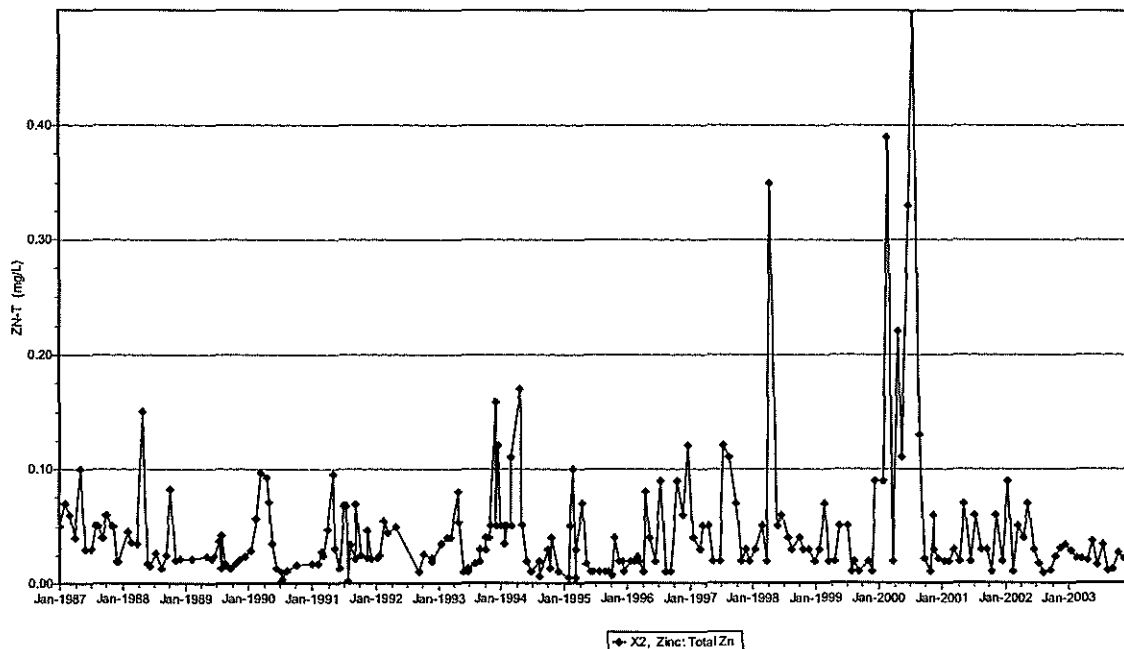


Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

The North Fork of Rose Creek is monitored at location X2 prior to joining with the South Fork. The additional minesite influences at location X2 which may not be present at upstream location R10 are surface run off and seepage from the eastern portion of the main rock dump and the rock drain in the Vangorda ore haul road. The monitoring record for location X2 is more extensive than that for upstream locations R7 through R10.

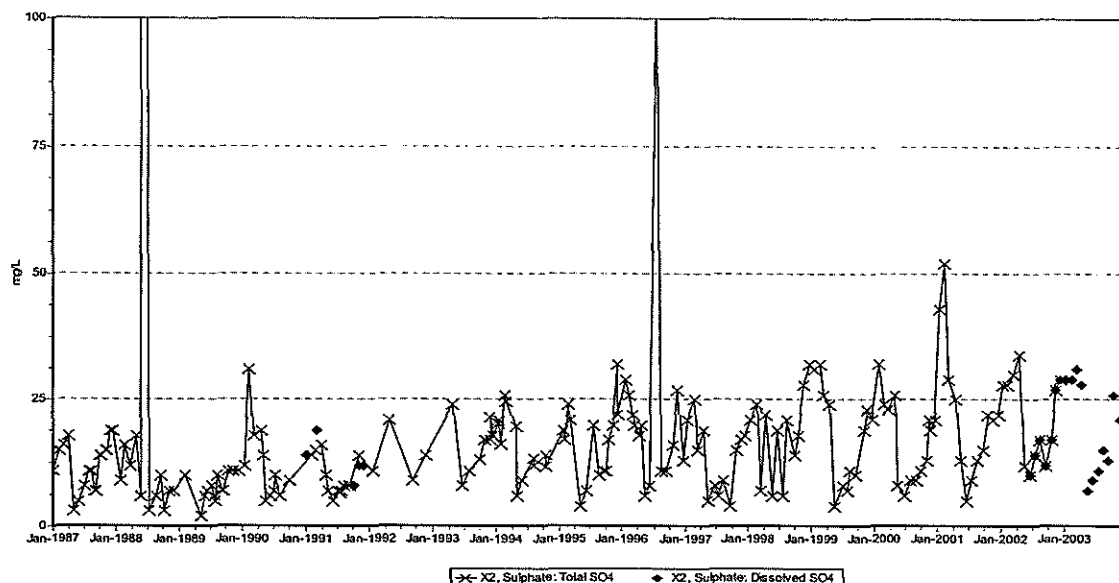
The concentration of total zinc at location X2 has been elevated above “background” with erratic spikes since 1988 as illustrated on Figure 19. Total zinc concentrations in 2003 were much less erratic than in previous years with all concentrations falling into a narrower range than previous years. The average and peak concentrations of total zinc in 2003 (0.022 mg/L and 0.037 mg/L) were similar to or slightly lower than the period of record since 2001. The direct source(s) of total zinc to location X2 have not been clearly identified.

Figure 19: North Fork Rose Creek (X2) Total Zinc



The concentration of sulphate at location X2 ranged from 7 mg/L to 31 mg/L in 2003 and no clear temporal trends are apparent over the period of record from 1988. Sulphate concentrations since 1988, as illustrated on Figure 20, display a general seasonal trend wherein higher concentrations are typically observed in the winter season. This observation suggests the signature of ground water entering the creek, which is masked in the summer season by higher dilution flows.

Figure 20: North Fork Rose Creek (X2) Sulphate



3.5.2 Rose Creek Diversion Channel (X3, X10)

Rose Creek is monitored at the upstream and downstream extents of the constructed diversion channel that passes Rose Creek around the Rose Creek tailings facility at locations X3 and X10, respectively. Although neither location X3 nor location X10 are included in the Licence monitoring schedule for temporary cessation of operations, information at these locations was considered important in assessing environmental conditions at the mine site. Therefore, 12 samples (monthly) were collected at each location in 2003.

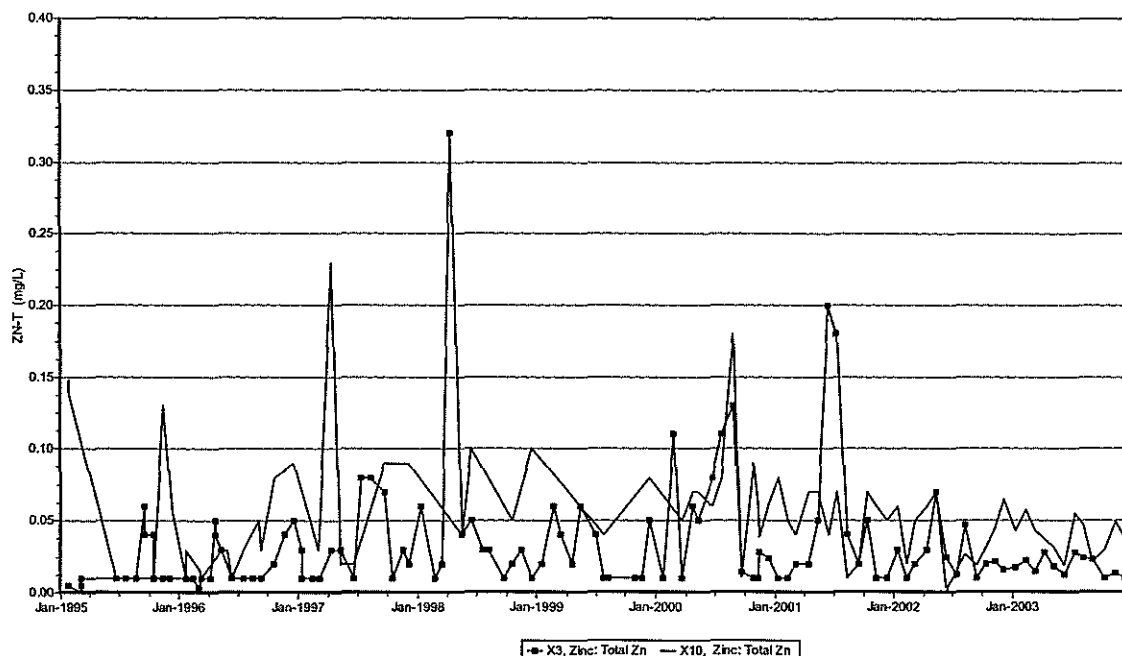
Location X3 is located at the outflow from the pumphouse pond. The water monitored at location X3 includes all flow from the South Fork of Rose Creek via the freshwater reservoir and a large portion the flow from the North Fork of Rose Creek via location X2. A small portion of the flow from the North Fork of Rose Creek (primarily during high flow events) bypasses the pumphouse pond via a secondary channel that was constructed in previous years. This "bypass" flow enters the Rose Creek diversion channel immediately downstream of the pumphouse pond.

Water chemistry at location X3 in 2003 was generally similar to that observed in recent years. The concentrations of total zinc ranged from 0.010 mg/L to 0.028 mg/L in 2003. The concentration of sulphate at location X3 in 2003 ranged from 8 mg/L to 29 mg/L. The trends in zinc and sulphate concentrations at location X3 generally mirror that at upstream location X2 at slightly lower concentrations.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Location X10 is located near the downstream extent of the Rose Creek diversion channel adjacent to piezometer X16. The trends in zinc and sulphate concentrations at location X10 generally mirror that at upstream location X3 but generally at concentrations that are very slightly greater (Figures 21 and 22). The concentrations of total zinc and sulphate at location X10 ranged from 0.019 mg/L to 0.058 mg/L and from 10 mg/L to 31 mg/L, respectively, in 2003.

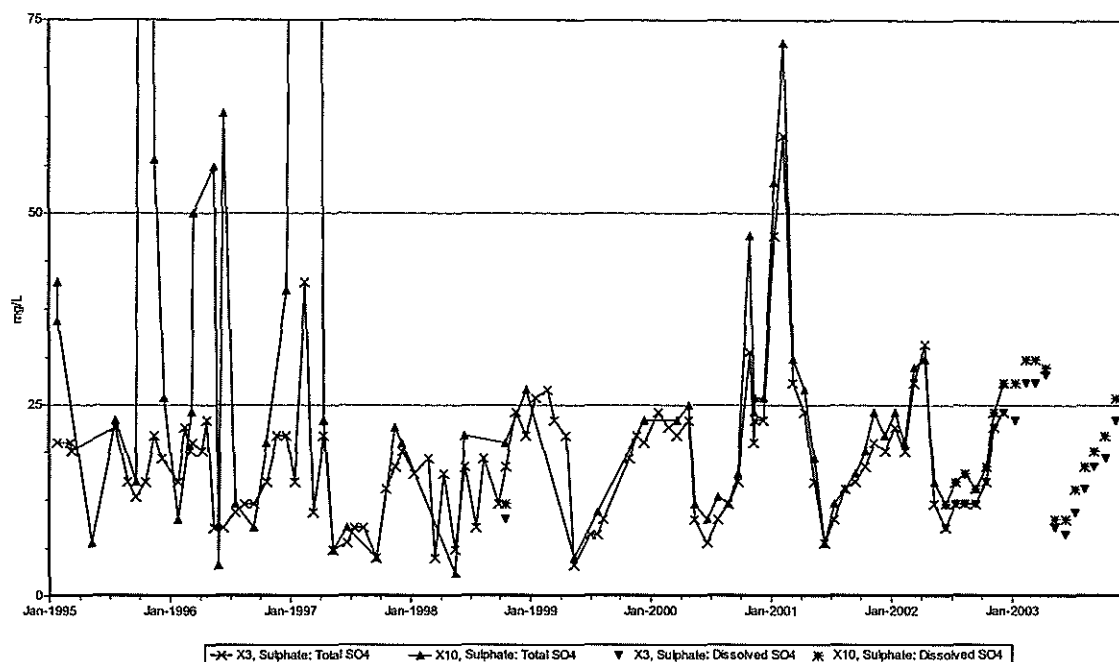
Figure 21: Rose Creek Diversion Channel (X3,X10) Total Zinc



3.5.3 Rose Creek Immediately Downstream of Mine Discharges (X14)

Rose Creek immediately downstream of the confluence with effluent discharges (locations X5 and X13) and downstream of the diversion channel (location X10) is monitored at location X14. Water chemistry at location X14 has typically shown the influence of effluent discharge through concentrations of sulphate and total zinc that have been elevated in concert with periods of effluent discharge. The highest concentrations of these parameters have generally corresponded to periods of peak volume discharge from the Cross Valley Pond. Although location X14 is not included in the Licence monitoring schedule for temporary cessation of operations, information at this location was considered important for assessing the influence of effluent discharge on Rose Creek and, therefore, 12 samples (monthly) were collected in 2003.

Figure 22: Rose Creek Diversion Channel (X3,X10) Sulphate



The concentration of sulphate at location X14 ranged from 42 mg/L to 186 mg/L in 2003 with an average of 111 mg/L, which were within the range observed since about 1995. The concentrations of total and dissolved zinc at location X14 ranged from 0.025 mg/L to 0.077 mg/L and from 0.017 mg/L to 0.061 mg/L, respectively, in 2003, which are similar to the ranges observed in recent previous years. The average concentration of total zinc for 2003, 0.037 mg/L, was less than 2002, 0.043 mg/L.

The long-term trends (from 1975) for concentrations of total zinc and sulphate at location X14 are illustrated on Figures 23 and 24, respectively. The information shows a seasonal cycling prior to 1998 with higher concentrations often observed during the winter seasons. The higher winter concentrations are attributed to lower dilution flows in Rose Creek during periods of effluent discharge. Subsequent to 1998, the seasonal (summer) discharge program related to pumping from the Faro Main pit was established and there was generally no effluent discharge (via location X5) during the winter season. The long term information illustrates several significant isolated events over the history of the mine operation including a tailings spill in the mid-1970's.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 23: Rose Creek Immediately Downstream of Mine Site (X14) Total Zinc

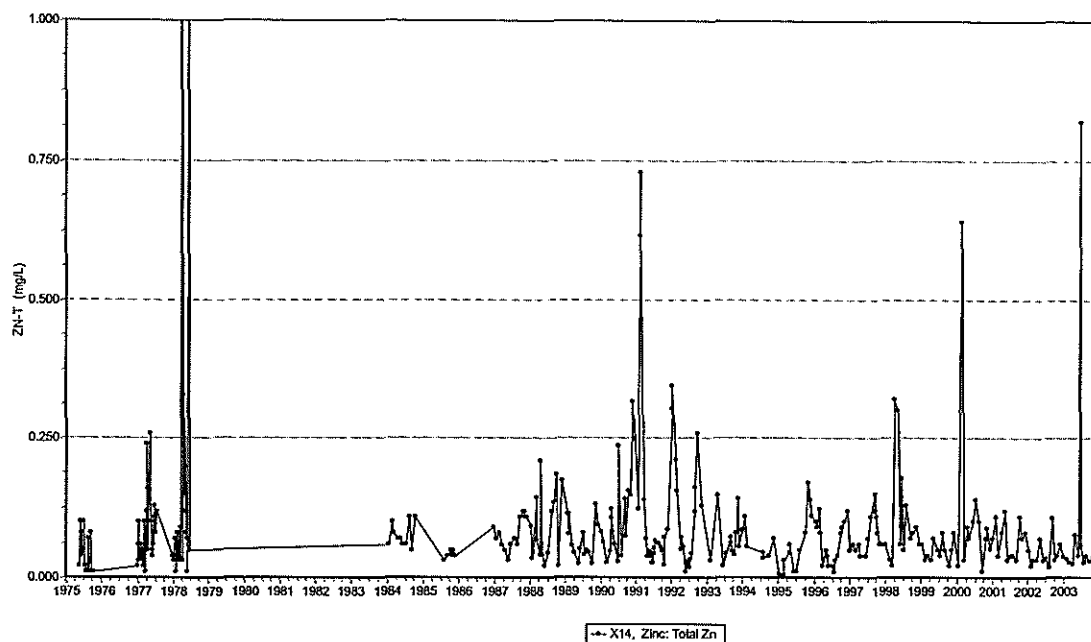
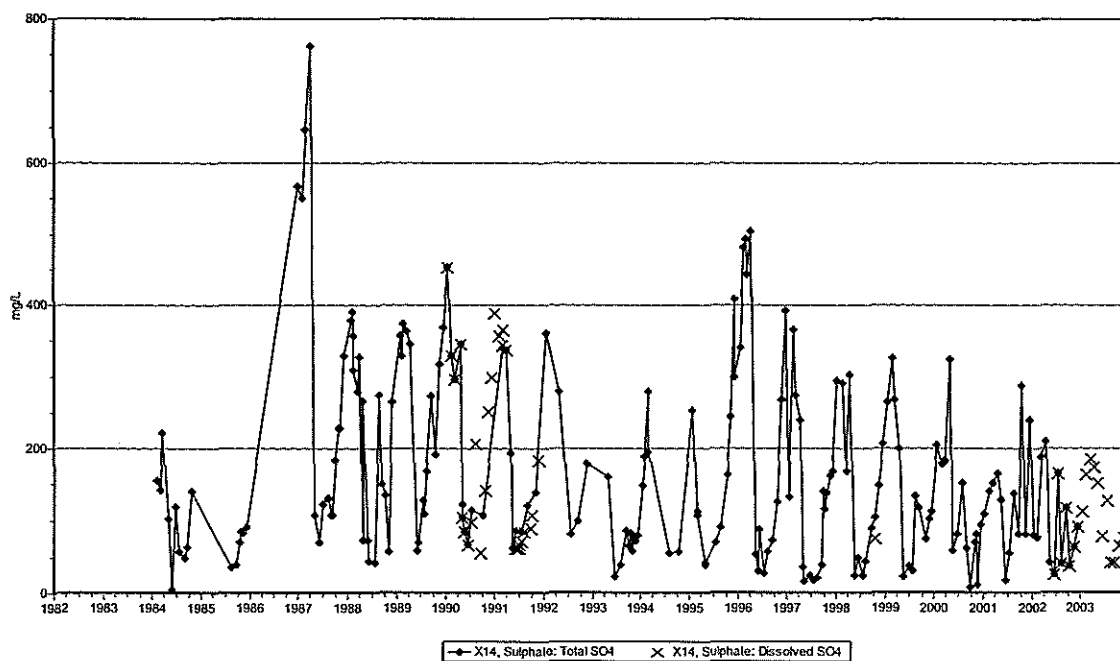


Figure 24: Rose Creek Immediately Downstream of Mine Site (X14) Sulphate



3.5.4 Rose Creek to Anvil Creek / Anvil Creek (R2, R3, R4, R5, R6)

Water sampling at locations R2 through R6 is included in the Licence monitoring schedule for temporary cessation of operations as part of the biological monitoring program that is conducted every second year. The biological program was conducted in 2002 and, therefore, water samples were collected. No sampling was conducted at these locations in 2003.

Location R2 approximately coincides with routine monitoring location X14 in Rose Creek below the effluent mixing zone. Location R2 is approximately 100 m downstream from location X14 with no significant surface inflows in between. Location R3 is in Rose Creek approximately mid-distance from location R2 to the mouth of Rose Creek at the confluence with Anvil Creek. Location R4 is at the mouth of Rose Creek approximately 26 km downstream of the tailings impoundments. Location R5 is in Anvil Creek downstream of the confluence with Rose Creek. Location R6 is in Anvil Creek upstream of the confluence with Rose Creek and is representative of background conditions in the Anvil Creek area.

The concentrations of total zinc and sulphate since 1996 at these locations in Rose Creek have displayed the following generally anticipated trends:

- concentrations are typically greatest at location R2 and typically decrease to downstream locations R3 and R4 due, presumably, to dilution.
- concentrations at R4 are typically greater than at R6 reflecting the signature of mine area runoff and effluent in Rose Creek.
- concentrations at R5 are typically between those at R4 and R6 reflecting the mixing of Rose and Anvil Creeks.

The trends described above are illustrated by 2002 data as listed in Table 3.

Table 3: Total Zinc and Sulphate Concentrations in Rose Creek on July 23/24, 2002

Location	Total Zinc (mg/L)	Sulphate (mg/L)
R2 (near mine)	0.030	258
R3 (mid-Rose Ck)	0.021	217
R4 (mouth Rose Ck)	0.010	50
R6 (Anvil Ck u/s Rose Ck)	0.002	21
R5 (Anvil Ck d/s Rose Ck)	0.006	23

3.6 Rose Creek Valley Ground Water Quality

Ground water within the tailings and in the aquifer underlying and downstream of the Down Valley tailings impoundments was monitored on two occasions in 2003 (spring and fall) at piezometers X16, X17, X18, X21-96, X24-96, and X25-96, per the requirements of the Licence. The "-96" label indicates that these piezometers were installed in 1996 as replacements for previously destroyed installations. These ground water monitoring locations are illustrated on Figure 2. Piezometers X19 and X20 are also included in the Licence schedule for temporary cessation of operations. However, piezometer X20 has not been located in the field and is assumed to be destroyed and piezometer X19 is not sampled because the wells are not open to depth due, presumably, to collapse or blockage.

Longer term results and observations for these licenced groundwater monitoring wells is described below.

Additional monitoring wells were installed in 2001 and 2003 as part of a comprehensive hydrogeological investigation of the Rose Creek Tailings Facility. These wells are located within, beneath and downgradient of the tailings deposits. Groundwater quality results for these wells is under review as part of the development of the Final Closure and Reclamation Plan being undertaken by the Yukon Type II Mines Projects Office and is not reported here.

Piezometers X21-96 (three installations) are located at the toe of the Second tailings impoundment and provide information within and immediately underlying the tailings mass. Piezometer X21A-96 is installed in the tailings mass. Piezometers X21B-96 and X21C-96 are installed in the underlying aquifer with X21C-96 at the greatest depth.

The concentrations of dissolved zinc and sulphate decreased with depth at location X21 in 2003. This is as expected given that tailings porewater is thought to be largely transported laterally in the upper zone of the aquifer underlying the tailings. The concentrations of dissolved zinc in June 2003 were 1.06 mg/L, 0.136 mg/L and <0.005 mg/L in X21A, X21B and X21C, respectively, and the concentrations of sulphate in June 2003 were 1,730 mg/L, 446 mg/L and 8 mg/L, respectively. Concentrations of dissolved zinc and sulphate for piezometers X21B-96 and X21C-96 are illustrated on Figures 25 and 26, respectively. The causes of the isolated spikes in the concentration of dissolved zinc in piezometers X21B-96 and X21C-96 in spring 1997, Autumn 2000 and winter 2001 is unknown. Also, the spike in the concentration of sulphate in X21C-96 in fall 1999 are unknown.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 25: Ground Water (X21B-96, X21C-96) Dissolved Zinc

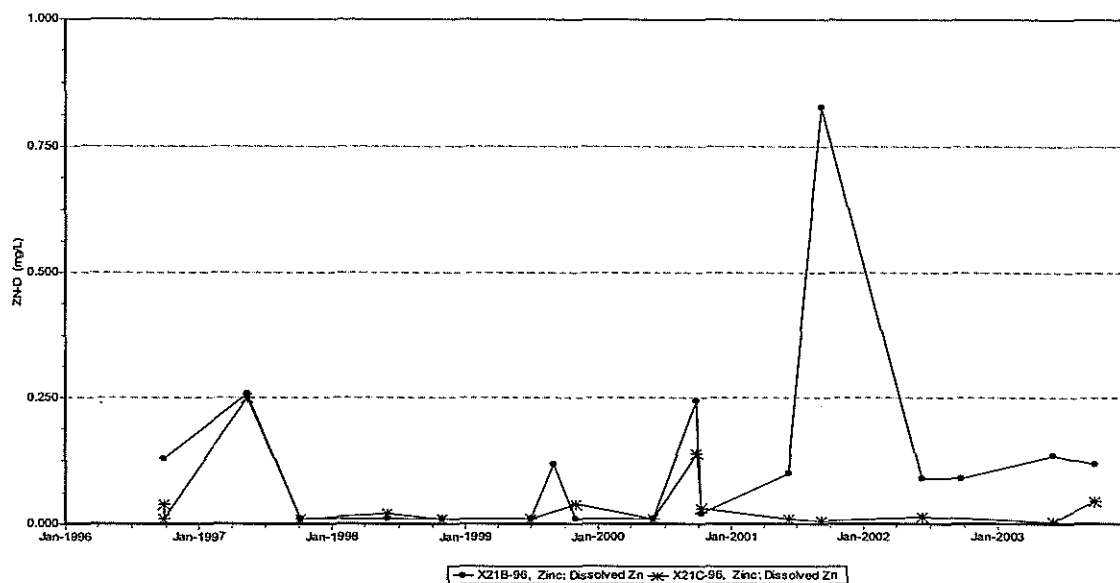
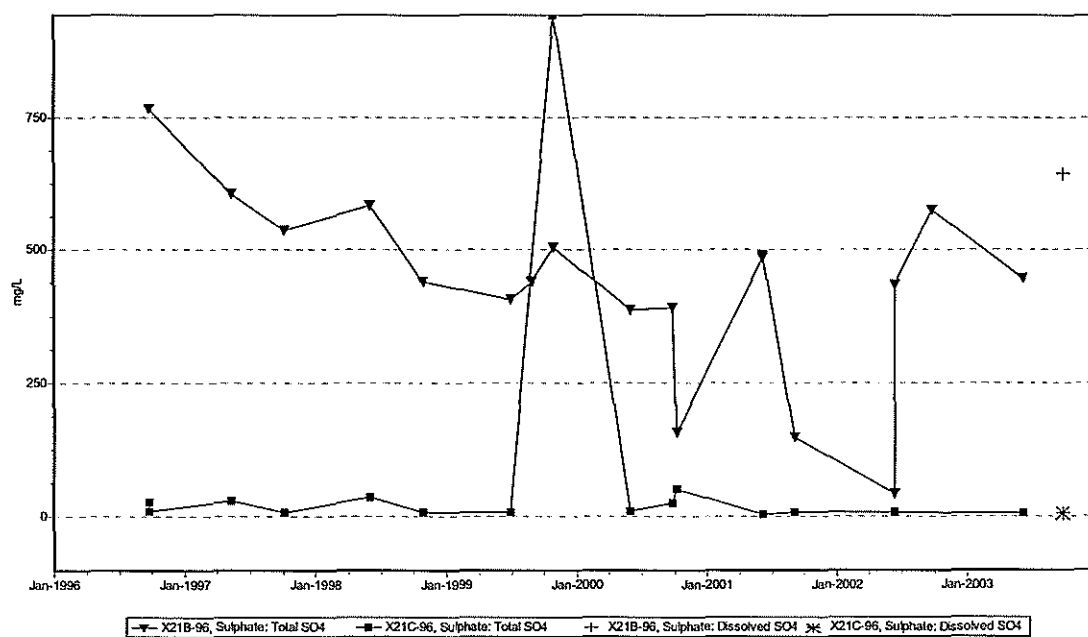


Figure 26: Ground Water (X21B-96, X21C-96) Sulphate

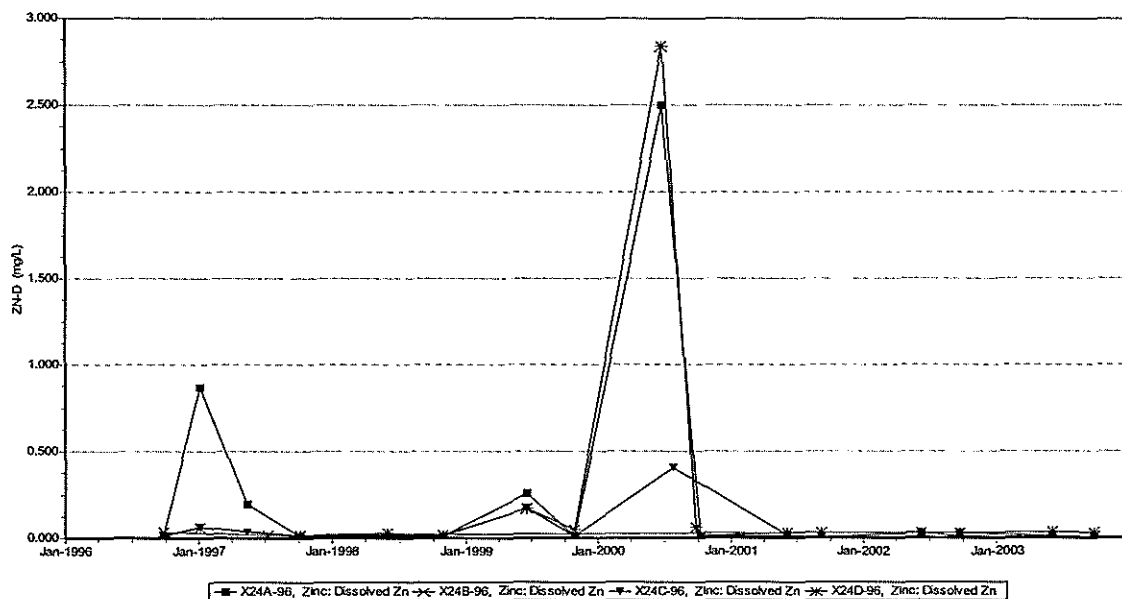


Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Piezometers X24-96 (four installations) and X25-96 (two installations) are located at the toe of the Intermediate dam and are installed at various depths up to 28 m into the aquifer. Piezometer X24 is located towards the north side of the valley and piezometer X25 is located near the centre. Ground water chemistry in these piezometers has generally been characterized by neutral pH, moderately elevated sulphate concentration and generally low dissolved zinc concentrations.

The concentrations of dissolved zinc and sulphate for locations X24-96 and X25-96 are illustrated on Figures 27 through 30. The high spikes in dissolved zinc that occurred in both piezometer nests in spring 2000 were not accompanied by corresponding spikes in the concentration of sulphate. A slight increasing trend with depth continued, in 2003, in both piezometer nests. Ground water quality in the X24 piezometers continued to be slightly poorer, in 2003, than that in the X25 piezometers. The causes of the isolated spikes and lows in the concentrations of dissolved zinc and sulphate are unknown.

Figure 27: Ground Water (X24A/B/C/D-96) Dissolved Zinc



Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 28: Ground Water (X24A/B/C/D-96) Sulphate

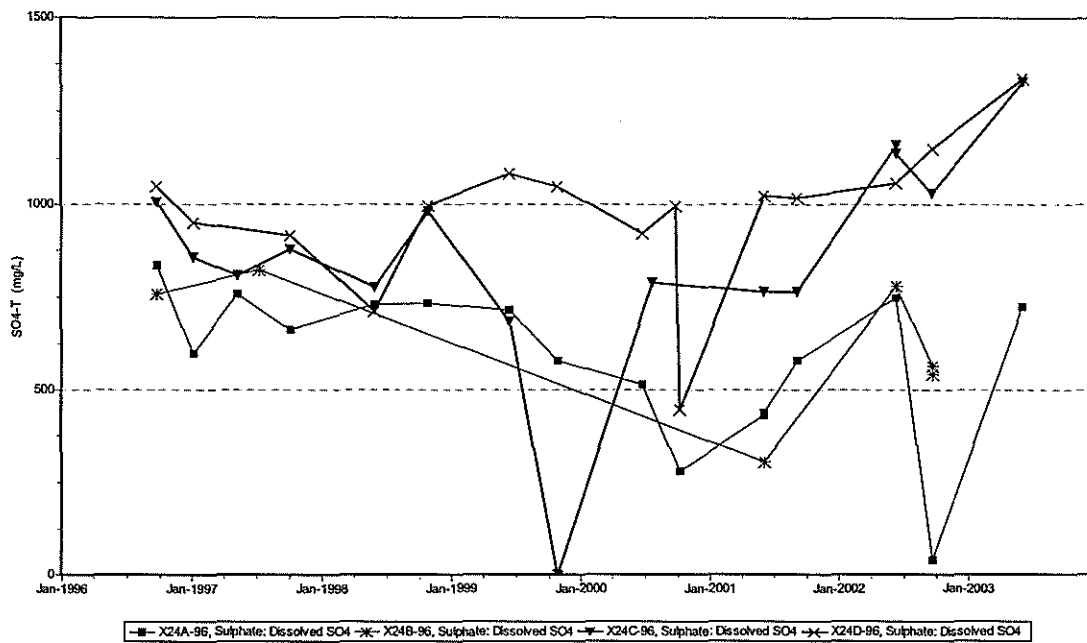
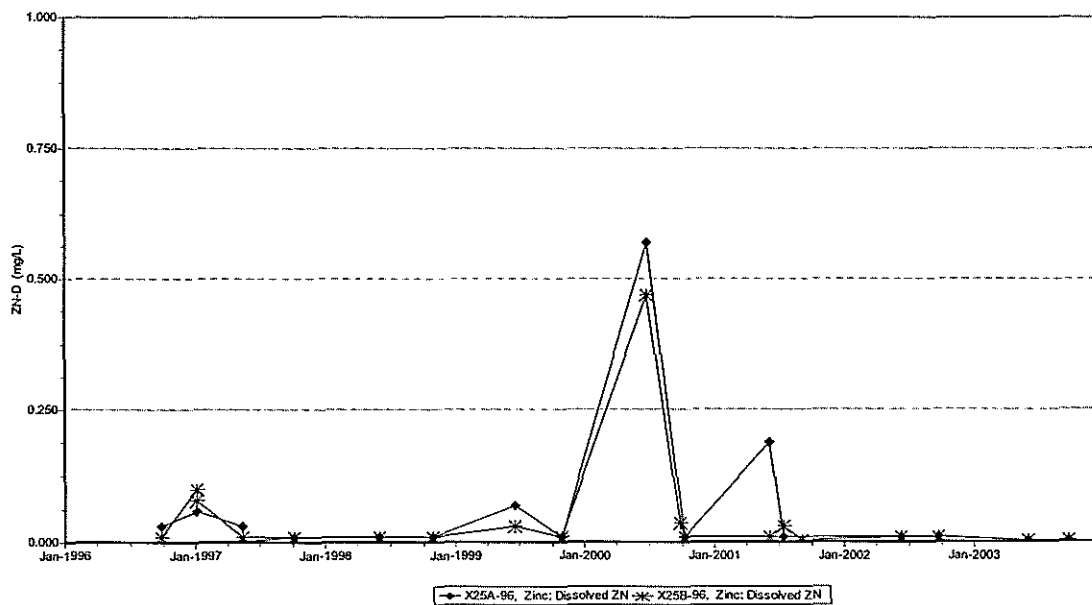
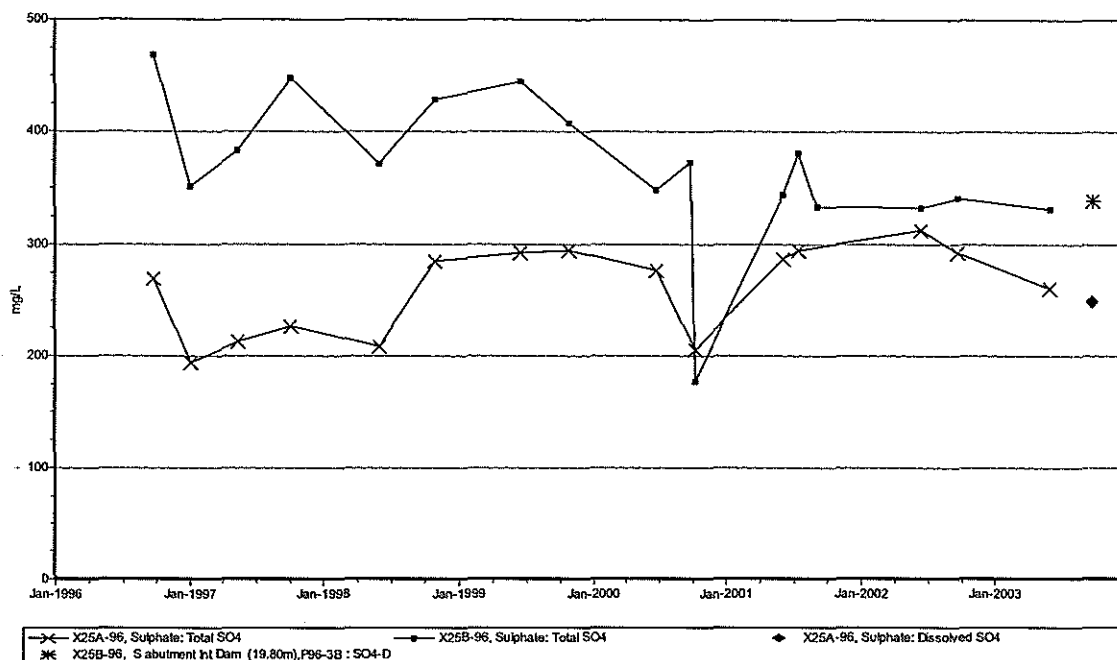


Figure 29: Ground Water (X25A-96, X25B-96) Dissolved Zinc



Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 30: Ground Water (X25A-96, X25B-96) Sulphate



Piezometers X16 and X17 (two installations each) are located downstream of the Cross Valley Dam. Ground water chemistry data from regular monitoring is available since 1987 and one data set is available from 1981. Piezometers X16 and X17 are approximately in the valley centre with X17 closer to the Cross Valley Dam and X16 further. Location X16 is considered to be most representative of downstream conditions due to greater depth and location.

The trends in ground water quality are generally similar in the X16 and X17 piezometers and are characterized by low sulphate concentrations (thought to be near "background") and low zinc concentrations near detection limits. There may be a trend of increasing sulphate concentration with time at location X16 that is not apparent at upgradient location X17. Concentrations of dissolved zinc and sulphate at location X16 are illustrated on Figures 31 and 32.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 31: Ground Water (X16A, X16B) Dissolved Zinc

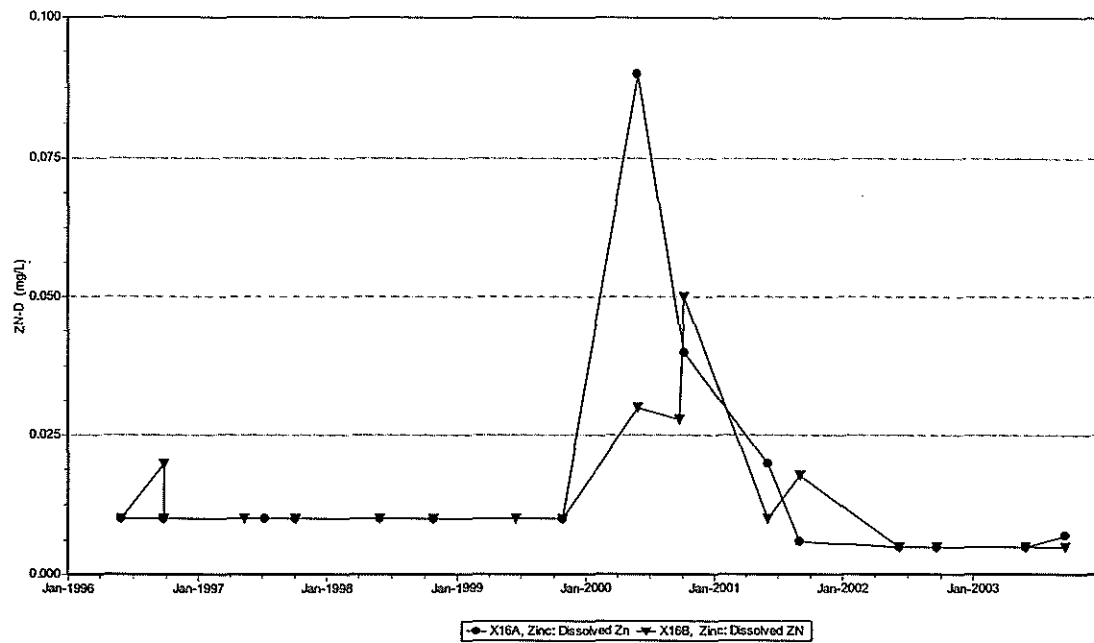
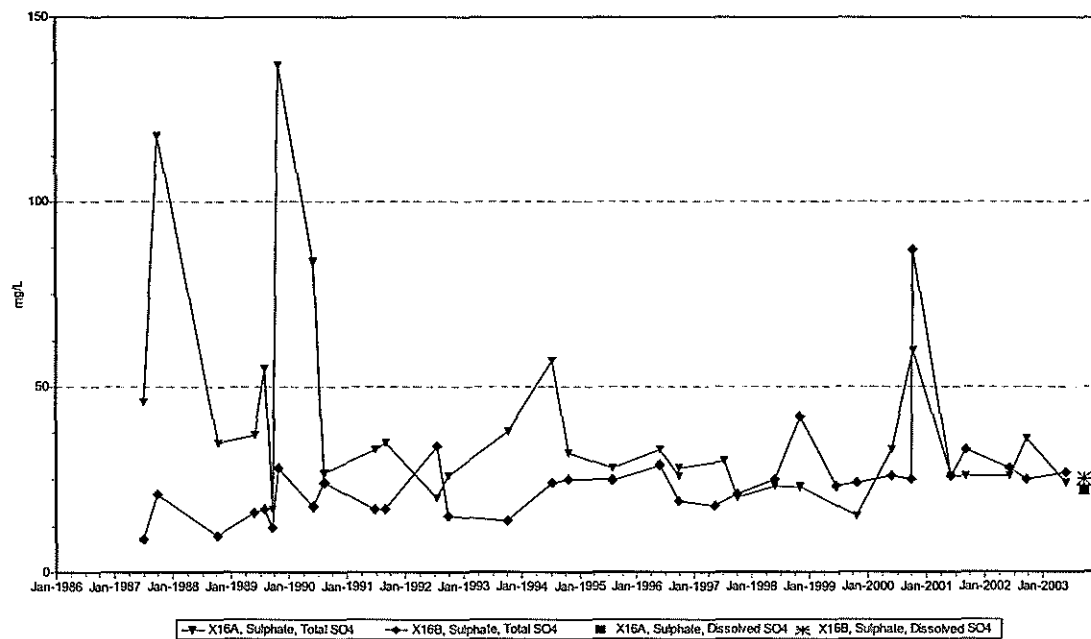


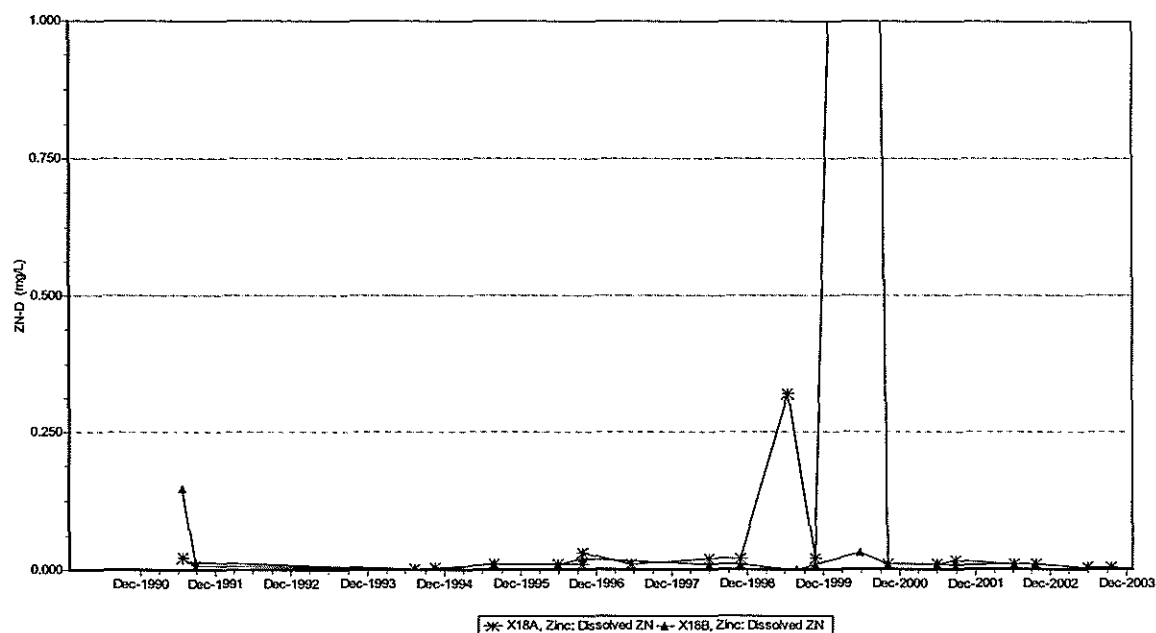
Figure 32: Ground Water (X16A, X16B) Sulphate



Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

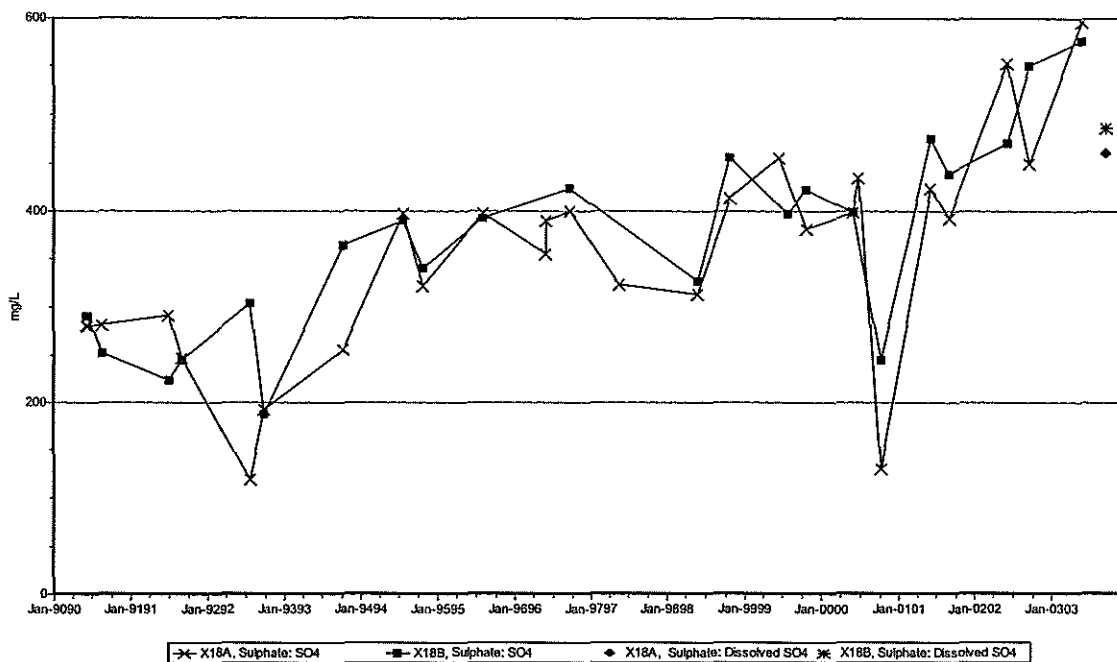
Piezometer X18 is located on the extreme north side of the Rose Creek Valley bottom downstream of the Cross Valley Dam. The off-centre location of this piezometer adds some uncertainty regarding the interpretation of the ground water information. In general, the concentrations of sulphate observed in the X18 piezometers has been greater and has followed different trends over the period of record than that observed in the other downstream piezometers (X16 and X17). For example, sulphate concentrations have generally increased with time at location X18. The source of the higher sulphate has not been clearly identified. Concentrations of dissolved zinc continued to be low in 2003 ranging from <0.005 mg/L to 0.005 mg/L. Concentrations of dissolved zinc and sulphate at location X18 are illustrated on Figures 33 and 34.

Figure 33: Ground Water (X18A, X18B) Dissolved Zinc



Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Figure 34: Ground Water (X18A, X18B) Sulphate



4. Biological Monitoring (Schedule 'B')

The biological monitoring program described under Schedule 'B' of the Licence is required to be performed every second year and was performed in 2002. Therefore, this program is next scheduled to be undertaken in 2004.

5. Geotechnical Monitoring (Schedule 'C')

The geotechnical monitoring program described under Schedule 'C' of the Licence was performed in 2003 by BGC Engineering Inc. (BGC). The full report prepared by BGC accompanies this report under separate cover. The geotechnical instrumentation installed in and around the Rose Creek Diversion Canal, the Intermediate Dam, the Cross Valley Dam and the Freshwater Dam was monitored by Anvil Range Mining Corp. personnel. The raw data and an interpretation of the data are included in the BGC report.

BGC presented their observations, conclusions and recommendations resulting from the field inspection and interpretation of instrumentation data in their report. Although the physical structures that were inspected appeared to be functioning acceptably well, some maintenance work was recommended.

The key recommendations that were made by BGC are summarized as follows:

- Perform routine maintenance on all structures;
- Upgrade culvert crossing near the downstream end of the North Wall Interceptor Ditch;
- Verify the Cross Valley Dam seepage weirs stage-discharge curves;
- Assess the hydraulic capacity of the Cross Valley Dam emergency spillway;
- Rehabilitate the Intermediate Dam spillway inlet per the recommendations of a separate study;
- Conduct a comprehensive professional review of all geotechnical monitoring instrumentation to ensure that critical areas are being adequately monitored, including consideration of dataloggers at key instruments;
- Ensure personnel familiarity with the Emergency Preparedness Plan and the Operations, Maintenance and Surveillance Manual;
- Continue routine inspections by site personnel;
- Perform monitoring of the pond level and flows through the flow-through rock drain;
- Continue instrument monitoring per the Water Licence and recommendations of the Engineer; and
- Continue annual professional geotechnical inspection.

BGC conducted an assessment of the hydraulic capacity of the Rose Creek Diversion Canal in 2003 at the request of the Interim Receiver. BGC's maintenance recommendations to restore the hydraulic capacity to safely pass the 1:500 year flood event are planned to be carried out in 2004. The 1:500 year flood event is the design event and corresponds to the design used for the 2003 breach of the Fresh Water Supply Dam, as reported in a separate report.

The complete breach of the Fresh Water Supply Dam was a project conducted under a separate Water Licence with its own monitoring and reporting requirements. Nonetheless, BGC provided several recommendations regarding the breached structure as follows:

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

- Rehabilitate piezometer BGC02-05 and monitor it and 85-1 and 85-6 once per month, between April and September;
- Monitor the flow quantity and Total Suspended Solids (TSS) at FWSD-1 and FWSD-5;
- Monitor and sample the run-off from FWSD-6 for acidity and metals as indicated in the water licence;
- Perform visual inspections of the performance of the sideslopes and constructed creek elements; and
- Perform visual inspection of the portion of the fresh water channel that was not modified as part of the breach construction (part of the adaptive management).

6. Closure Monitoring (Schedule 'D')

6.1 2003 Surface Seep Survey

A surface water sampling campaign was performed in 2003 as continuation of the seep surveys which were performed in previous years. The sampling locations are illustrated on Figure 2 and included Faro Creek Diversion, North Fork of Rose Creek, old Faro Creek channel above the Main pit, Upper Guardhouse Creek and seepage towards the North Fork of Rose Creek. The analytical results are included in Appendix 1.

The following general observations were made from the 2003 surface water chemistry data:

1. Water quality continued to show deterioration upon passage through the Faro Valley rock dump (locations FCO to A30), although not as severe as in previous recent years; in June 2003, the concentrations of sulphate and zinc increased from 27 mg/L to 147 mg/L and from 1.1 mg/L to 9.3 mg/L, respectively, with pH remaining neutral at 7.6 and 7.3, respectively.
2. The concentration of sulphate did not display an increase along the length of the Faro Creek diversion in June 2003, as had been observed in some previous years prior to 2002, but the concentration of zinc (total and dissolved) did display an increase; the concentration of total zinc in June 2003 was 0.016 mg/L at location FDU (above the Faro Valley rock dump), 0.052 mg/L at location FCD (adjacent to the NE rock dumps) and 0.042 mg/L at location FAROCR (above the confluence with the North Fork of Rose Creek).
3. Water quality in Guardhouse Creek upstream of the Intermediate Impoundment contained elevated concentrations of sulphate (437 mg/L), total zinc (1.78 mg/L) and dissolved zinc (1.64 mg/L) in June 2003.
4. Water quality at two small intermittent surface flows below the north east rock dumps (locations NE1, and NE2) sampled in June 2003 showed continued low concentrations of dissolved zinc at 0.020 mg/l and 0.021 mg/L, respectively; the concentrations of sulphate were 126 mg/L and 644 mg/L, which were within the ranges observed since 1996.
5. Water chemistry upstream and downstream of the Vangorda haul road rock drain (locations NF1 and NF2) showed that the rock drain was not impacting on surface water chemistry in June 2003; the concentrations of total suspended solids were very low at less than 4 mg/L at both locations; the concentrations of dissolved zinc decreased slightly from 0.015 mg/L on the upstream side (NF1) to 0.010 mg/L on the downstream side (NF2).

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

6. Water quality at location SP5-6 (intermittent surface flow from the north east rock dumps which reports to the main pit) in June 2003 was similar to that observed since 1996; the concentrations of total zinc, dissolved zinc and sulphate were 2.403 mg/L, 2.199 mg/L and 322 mg/L, respectively.
7. Water chemistry upstream and downstream of the northwest corner of the Northwest Rock Dump (locations W10 and W8) showed that the rock dump was not impacting on surface water chemistry in June 2003; the concentrations of total suspended solids were very low at 2 mg/L at both locations; the concentrations of sulphate were very low at 4 mg/L and 3 mg/L as were the concentrations of dissolved zinc at 0.011 mg/L and 0.014 mg/L on the upstream side (W10) and the downstream side (W8), respectively.

6.2 2002 Ground Water Seep Monitoring

Selected piezometers around the Faro mine site were monitored during 2003 as a continuation of the ground water surveys performed in previous years. The analytical results are included in Appendix 2 and the piezometer locations are illustrated on Figure 2. The ground water chemistry in some of these piezometers which are referenced in Part B or Schedule A of the Licence is described in Section 3 of this report. Specifically, the 'X' series piezometers in the Down Valley and the 1990 'BH' series piezometers (BH1, BH2 and BH4) are described in Section 3 of this report.

Ground water seepage at the toe of the northeast rock dump above the North Fork of Rose Creek was monitored on two occasions in 2003 (June and September) at piezometers BH12 and BH14 (two installations each). The concentrations of sulphate at BH12 remained generally similar to the concentrations observed since 1996 ranging from 358 mg/L to 1,270 mg/L in 2003. Further, the concentrations of sulphate in both BH12 wells were lower in fall than spring. The concentration of sulphate at location BH14 continued, in 2003, to be greater than at location BH12 and ranged from 1,550 to 1,740 mg/L. The concentration of dissolved zinc at BH12 (0.113 mg/L to 0.26 mg/L) continued, in 2003, to be greater than at location BH14 (0.03 mg/L to 0.11 mg/L). Ground water pH remained neutral in 2003 in a range from 7.5 to 8.0. The potential impact of this ground water flow on surface water was monitored at surface locations R8 and R9 as described in Section 3 of this report.

Ground water seepage from the main and intermediate rock dumps towards the North Fork of Rose Creek was monitored on two occasions in 2003 at piezometer P96-6 (one installation) located immediately above the Vangorda haul road. The concentrations of sulphate were 251 mg/L and 220 mg/L in June and September, respectively, which were within the range observed since 1996. The concentrations of dissolved zinc were 0.61 mg/L and 0.87 mg/L in June and September, respectively. Ground water pH continued to be neutral in 2003 at 7.0 and 8.1. The potential impact of this ground water flow on surface water was monitored at surface locations R10 and X2 as described in Section 3 of this report.

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

Ground water seepage from the main and intermediate rock dumps towards the North Fork of Rose Creek was monitored immediately below the Vangorda haul road at piezometers S1 (two installations), S2 (two installations) and S3 (one installation) on two occasions (June and September) in 2003. The concentrations of sulphate ranged from 1,050 mg/L to 4,380 mg/L in 2003 and the concentrations of dissolved zinc ranged from 0.07 mg/L to 92.6 mg/L in 2003. Ground water pH at these locations remained generally neutral in 2003 with a range from 6.7 to 7.5. The potential impact of this ground water flow on surface water was monitored at surface locations R10 and X2 as described in Section 3 of this report.

Ground water seepage from the central portion of the main and intermediate rock dumps was monitored close to the toe of the dumps at piezometer P96-7 (one installation) on two occasions in 2003. The concentrations of sulphate at this location were 2,020 mg/L and 2,060 mg/L in June and September, respectively, and the concentrations of dissolved zinc were 0.018 mg/L and <0.005 mg/L. Sulphate has shown a general increasing trend since approximately 1997. Ground water pH remained neutral in 2003 at 6.8 and 8.1.

Ground water that is assumed to include seepage from the majority of the main and intermediate rock dumps and, possibly, other rock dumps, was monitored on two occasions (June and September) in 2003 at piezometer P96-8 (two installations) located near the old Faro Creek channel and near surface monitoring location X23. Ground water at this location is of poorer quality than at other locations due to the concentration of seepage flow in the old Faro Creek channel. The concentrations of sulphate ranged from 3,610 mg/L to 4,800 mg/L in 2003 and the concentrations of dissolved zinc ranged from 149 mg/L to 235 mg/L. Ground water pH remained neutral in 2003 in a range from 7.1 to 7.9.

7. Site Maintenance

Some maintenance tasks are routine activities that are performed by on-site personnel on a routine basis. These may include:

- Mechanical maintenance of light and heavy equipment;
- Steaming of road culverts;
- Minor repairs and cleaning of debris and ice from ditches;
- Road grading and general road maintenance to maintain safe access;
- Repairs and maintenance of electrical instrumentation;
- Replacement and maintenance to flow monitoring weirs;
- Management provisions for a safe workplace; and
- Other routine activities.

These routine activities are not described further in this report. However, several more substantive maintenance tasks were undertaken in 2003 that are described below.

7.1 Radio-Isotope Sources

Equipment containing radio-isotope sources was removed from the mill in May and safely disposed of off-site according to regulatory requirements by a licenced contractor.

7.2 Zone II Downhole Pump

The downhole pump installed into the Zone II pit dewatering well was replaced in June with a new pump and electrical cable. The replacement was necessary due to electrical shorting of the previous installation.

7.3 Intermediate and Cross Valley Dams

The crest and downstream face of the Intermediate Dam were dressed in June, following from the recommendations of BGC Engineering. Numerous small erosion rills on the face were filled and the crest was bladed to fill small tension cracks where water could ingress into the dam.

The crest of the Cross Valley Dam was similarly graded at that time, including the placement of some fill materials over depressions in the crest following the recommendations of the geotechnical engineer.

The work was performed by Tim Moon Construction using personnel from the community of Ross River.

7.4 Contractor Yard at Copper Sulphate and Bulk Explosives Plants

The buildings and other debris and equipment were removed from this yard area in July and August. This work was undertaken by the contractors who owned the buildings, Brenntag Canada Inc., and Bulk Explosives Limited, at the request of the Interim Receiver. Non-salvageable materials were disposed into the Faro mine landfill.

In September, a portion of the required soil remediation work was carried out by Bulk Explosives Limited under the direction of Gartner Lee staff. Hydrocarbon contaminated soil related to two previous underground storage tanks was excavated and removed to the Faro rock dumps. The yard area was graded to fill potentially dangerous depressions and holes, including the small surface pond where the liner was first removed to the Faro mine landfill. In this way, the site was left in a safe condition for the winter after the disturbances of the building and soil removal.

Gartner Lee conducted further Environmental Site Assessment work on behalf of Brenntag Canada Inc. and Bulk Explosives Limited which is anticipated to be reported on in spring 2004 such that further remedial work may be undertaken during summer 2004.

The work was performed by Tim Moon Construction using personnel from the community of Ross River.

7.5 Diesel Fuel Storage

A new on-site diesel fuel storage and dispensing system was installed in July. The new system provides a more secure secondary containment berm and allows for the introduction of improved dispensing equipment and procedures that reduce the risk of small spills and drips.

The new system was put into service in September. The tanks had been previously registered with DIAND, Lands Department.

7.6 Faro Creek Diversion

Maintenance work that had been initiated in 2002 at the Faro Creek Diversion channel was completed in 2003. The objective of the work was to reduce, to as great an extent as practical, leakage of water from the channel into the Faro Main pit. Any leakage into the pit is clean water that becomes contaminated and, thereby, increases the treatment requirement.

The work focussed on the portion of the channel along the crest of the northeast wall of the Faro Main pit and included these tasks:

Vangorda Plateau Mine Site, 2003 Annual Environmental Report
Water Licence IN89-002

1. A pilot channel was excavated along the centreline of the ditch to reduce the risk of freezing to bottom in winter;
2. The channel was cleaned of debris and widened, where necessary, into the northeast bank;
3. A bentomat geosynthetic clay liner was laid in the ditch bottom; and
4. Rip rap rock was placed to protect the ditch bottom and sides from erosion.

The work was performed by Tim Moon Construction using personnel from the community of Ross River.

Initial visual observations by site personnel confirm that the maintenance work achieved its objectives through winter 2003. The observations have included: reduced seepage losses into the Faro Main Pit, no surface flow on top of ice, and no need for mechanical clearing of ice blockages as has been required in recent years.

7.7 Fresh Water Supply Reservoir

In response to geotechnical concerns regarding the physical stability of the Fresh Water Supply (FWS) dam and, specifically, the low level outlet pipe, an application for a Water Licence to completely breach the dam was made to the Yukon Water Board.

The Yukon Water Board issued a Water Licence in October such that the work was completed during November and December 2003.

The work was conducted according to the specific requirements of that Water Licence, which also includes monitoring and reporting requirements specific to that project. Therefore, reporting on the FWS dam breach project is provided under separate cover that fulfills the requirements of that Water Licence.

Appendices



Appendix 1

2003 Surface Water Quality Listing



2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	ALK-T mg/L	COND µS/cm	HARD mg/L	NH3-N mg/L	SO4-D mg/L	TSS mg/L	TEMP-C deg C	PH-F pH unit	ACIDITY mg/L
A30	Jun/15/2003	44				147	1	4.8	7.3	13
FAROCR	Jun/15/2003	9				2	3	6.6	8.0	2
	Jun/17/2003					4	3			
	Sep/15/2003					5	<1	1.0	7.6	
	Dec/12/2003							-5	7.5	
	Dec/13/2003					8	1			
	Average	9				5	2	2.4	7.7	2
	Median	9				4	2	1.0	7.6	2
	Minimum	9				2	1	-0.5	7.5	2
	Maximum	9				8	3	6.6	8.0	2
FCD	Jun/15/2003	9				2	2	6.3	8.0	2
FCO	Jun/15/2003	14				27	<1	5.7	7.6	3
FDU	Jun/15/2003	9				2	2	3.5	8.2	2
GHSCR1	Jun/15/2003	174				437	2	3.8	7.9	<1
NE1	Jun/15/2003	105				126	4	4.2	7.7	1
NE2	Jun/15/2003	199				644	61	3.3	7.4	1
NF1	Jun/15/2003	45				8	4	4.3	8.0	1
NF2	Jun/15/2003	45				7	3	4.1	7.9	1
R10	Jun/17/2003					8	3			
	Sep/15/2003					11	1	1.5	7.6	
	Dec/12/2003							-9	7.8	
	Dec/13/2003					21	1			
	Average					13	2	0.3	7.7	
	Median					11	1	0.3	7.7	
	Minimum					8	1	-0.9	7.6	
	Maximum					21	3	1.5	7.8	
R7	Jun/17/2003					7	35			
	Sep/15/2003					25	1	1.2	7.7	
R8	Mar/06/2003					12	4			
	Jun/17/2003					7	2			
	Sep/15/2003					9	2	1.9	7.7	
	Dec/12/2003							-3	7.6	
	Dec/13/2003					12	1			
	Average					10	2	0.8	7.6	
	Median					10	2	0.8	7.6	
	Minimum					7	1	-0.3	7.6	
	Maximum					12	4	1.9	7.7	
R9	Mar/06/2003					18	1			
	Jun/17/2003					8	4			
	Sep/15/2003					11	1	1.6	7.6	
	Dec/12/2003							-0.8	7.9	
	Dec/13/2003					19	1			
	Average					14	2	0.4	7.8	
	Median					14	1	0.4	7.8	
	Minimum					8	1	-0.8	7.6	
	Maximum					19	4	1.6	7.9	
SP5-6	Jun/15/2003	178				322	15	4.8	7.3	1
W10	Jun/15/2003	31				4	2	2.4	8.0	2
W8	Jun/15/2003	32				3	2	3.2	8.1	2

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	ALK-T mg/L	COND µS/cm	HARD mg/L	NH3-N mg/L	SO4-D mg/L	TSS mg/L	TEMP-C deg C	PH-F pH unit	ACIDITY mg/L
WEIR3	Mar/04/2003							3.1	7.4	
	Mar/12/2003							2.3	7.8	
	Mar/18/2003							2.6	7.5	
	Mar/25/2003							3.4	7.5	
	Apr/01/2003							2.6	7.7	
	Apr/08/2003							3.2	7.6	
	Apr/23/2003							2.9	7.8	
	Apr/30/2003							4.1	7.4	
	May/07/2003							3.7	7.7	
	May/21/2003							4.1	7.4	
	May/28/2003							5.3	7.3	
	Jun/15/2003	244			0.54	496	13	4.9	7.5	7
	Jul/02/2003							5.1	7.4	
	Jul/10/2003							7.4	7.3	
	Jul/20/2003							7.1	7.1	
	Jul/30/2003							6.1	7.1	
	Aug/05/2003							7.4	7.1	
	Aug/19/2003							7.6	7.2	
	Aug/26/2003							8.2	7.2	
	Oct/03/2003							4.8	7.0	
	Oct/10/2003							4.5	7.1	
	Oct/22/2003							3.5	7.1	
	Oct/31/2003							3.8	7.0	
	Nov/06/2003							3.0	7.0	
	Nov/20/2003							1.9	7.0	
	Nov/27/2003							1.6	7.0	
	Dec/04/2003							1.3	7.0	
	Dec/11/2003							2.9	7.1	
	Dec/22/2003							3.5	7.0	
	Dec/30/2003							2.0	7.0	
	Average							4.1	7.3	
	Median							3.6	7.2	
	Minimum							1.3	7.0	
	Maximum							8.2	7.8	
X10	Jan/14/2003					28	2	0.60	7.80	
	Feb/15/2003					31	2	.5	7.8	
	Mar/15/2003					31	1	0.3	7.7	
	Apr/15/2003					30	<1	0.5	8.0	
	May/13/2003					10	4	1.2	8.2	
	Jun/14/2003					10	5	6.9	8.2	
	Jul/14/2003					14	6	11.1	8.2	
	Aug/11/2003					17	2	9.9	8.2	
	Sep/08/2003					19	1	6.8	8.1	
	Oct/14/2003					21	2	0.9	7.9	
	Nov/15/2003					26	1	0.4	7.5	
	Dec/14/2003							0.0	7.5	
	Dec/15/2003				1	24				
	Average				1	22	2	3.26	7.92	
	Median				1	22	2	0.75	7.95	
	Minimum				1	10	1	0.00	7.50	
	Maximum				1	31	6	11.10	8.20	
X10-REP	Nov/15/2003					27	1	0.4	7.5	

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	ALK-T mg/L	COND µS/cm	HARD mg/L	NH3-N mg/L	SO4-D mg/L	TSS mg/L	TEMP-C deg C	PH-F pH unit	ACIDITY mg/L
X11	Jan/14/2003				0.90	813	14	2.90	7.30	
	Feb/15/2003				0.78	818	16	2.5	7.5	
	Mar/04/2003							2.6	7.4	
	Mar/12/2003							2.3	7.4	
	Mar/15/2003				0.81	744	7	1.8	7.3	
	Mar/18/2003							2.6	7.3	
	Mar/25/2003							2.9	7.5	
	Apr/01/2003							2.0	7.6	
	Apr/08/2003							2.8	7.7	
	Apr/15/2003				0.82	772	10	2.5	7.6	
	Apr/23/2003							2.5	7.8	
	Apr/30/2003							4.1	7.5	
	May/07/2003							3.6	7.7	
	May/13/2003				0.76	815	8	3.3	7.5	
	May/21/2003							3.8	7.6	
	May/28/2003							5.0	7.4	
	Jun/14/2003				0.80	873	12	4.3	7.5	
	Jun/14/2003							5.9	7.2	
	Jul/02/2003							4.2	7.4	
	Jul/10/2003							7.1	7.3	
	Jul/14/2003				0.71	890	10			
	Jul/20/2003							7.0	7.1	
	Jul/30/2003							5.5	7.1	
	Aug/05/2003							7.6	7.1	
	Aug/11/2003				0.78	892	3	6.0	7.1	
	Aug/19/2003							8.2	7.2	
	Aug/26/2003							8.2	7.1	
	Sep/02/2003							8.2	7.0	
	Sep/08/2003				0.68	909	4	5.3	7.1	
	Sep/16/2003							3.5	7.0	
	Sep/24/2003							4.3	7.1	
	Sep/30/2003							4.9	6.9	
	Oct/03/2003							4.8	6.9	
	Oct/10/2003							4.4	7.1	
	Oct/14/2003				0.77	933	8	3.8	7.2	
	Oct/22/2003							4.1	7.1	
	Oct/31/2003							3.8	7.0	
	Nov/06/2003							3.8	7.0	
	Nov/15/2003				0.76	870	8	3.0	7.0	
	Nov/20/2003							3.3	6.9	
	Nov/27/2003							3.0	6.9	
	Dec/04/2003							2.1	7.0	
	Dec/11/2003							3.2	7.1	
	Dec/14/2003							2.4	7.1	
	Dec/15/2003					797	7			
	Dec/22/2003							4.1	6.9	
	Dec/30/2003							3.0	6.9	
	Average					844	9	4.14	7.23	
	Median					844	8	3.80	7.10	
	Minimum					744	3	1.80	6.90	
	Maximum					933	16	8.20	7.80	

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	ALK-T mg/L	COND µS/cm	HARD mg/L	NH3-N mg/L	SO4-D mg/L	TSS mg/L	TEMP-C deg C	PH-F pH unit	ACIDITY mg/L
X12	Jan/14/2003				<0.05	330	11	1.60	7.60	
	Feb/15/2003				<0.05	359	3	1.5	7.5	
	Mar/04/2003							1.5	7.5	
	Mar/12/2003							1.0	7.8	
	Mar/15/2003				<0.05	355	3	0.8	7.5	
	Mar/18/2003							1.4	7.8	
	Mar/25/2003							1.5	7.8	
	Apr/01/2003							1.8	7.9	
	Apr/08/2003							1.8	7.9	
	Apr/15/2003				<0.05	394	4	1.4	7.8	
	Apr/23/2003							1.6	8.0	
	Apr/30/2003							1.7	8.0	
	May/07/2003							1.7	8.1	
	May/13/2003				<0.05	353	3	1.9	7.7	
	May/21/2003							2.7	7.7	
	May/28/2003							3.6	7.6	
	Jun/14/2003				<0.05	347	3	4.9	7.7	
	Jun/14/2003							7.1	7.4	
	Jul/02/2003							5.8	7.5	
	Jul/10/2003							7.1	7.5	
	Jul/14/2003				<0.05	346	9			
	Jul/20/2003							7.3	7.3	
	Jul/30/2003							7.0	7.2	
	Aug/05/2003							8.4	7.2	
	Aug/11/2003				<0.05	326	1	7.2	7.3	
	Aug/19/2003							8.3	7.4	
	Aug/26/2003							8.1	7.4	
	Sep/02/2003							7.2	7.3	
	Sep/08/2003				<0.05	346	1	6.4	7.2	
	Sep/16/2003							6.3	7.1	
	Sep/24/2003							6.0	7.3	
	Sep/30/2003							5.1	7.1	
	Oct/03/2003							5.0	7.2	
	Oct/10/2003							5.5	7.3	
	Oct/14/2003				<0.05	366	4	4.6	7.1	
	Oct/22/2003							3.6	7.3	
	Oct/31/2003							4.1	7.3	
	Nov/06/2003							2.7	7.2	
	Nov/15/2003				<0.05	310	3	2.1	7.1	
	Nov/20/2003							1.6	7.3	
	Nov/27/2003							1.5	7.2	
	Dec/04/2003							1.9	7.1	
	Dec/11/2003							2.9	7.2	
	Dec/14/2003							1.2	7.3	
	Dec/15/2003					306	9			
	Dec/22/2003							2.4	7.2	
	Dec/30/2003							1.5	7.2	
	Average					345	4	3.78	7.45	
	Median					346	3	2.70	7.30	
	Minimum					306	1	0.80	7.10	
	Maximum					394	11	8.40	8.10	

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	ALK-T mg/L	COND µS/cm	HARD mg/L	NH3-N mg/L	SO4-D mg/L	TSS mg/L	TEMP-C deg C	PH-F pH unit	ACIDITY mg/L
X13	Jan/14/2003				0.80	636	10	2.60	7.30	
	Feb/15/2003				0.74	715	9	2.4	7.5	
	Mar/04/2003							2.6	7.4	
	Mar/06/2003							2.0	7.4	
	Mar/12/2003							2.1	7.4	
	Mar/15/2003				0.79	670	7	1.8	7.3	
	Mar/18/2003							2.7	7.3	
	Mar/25/2003							3.0	7.5	
	Apr/01/2003							2.0	7.6	
	Apr/08/2003							2.9	7.6	
	Apr/15/2003				0.78	691	11	2.5	7.6	
	Apr/23/2003							2.8	7.8	
	Apr/30/2003							4.2	7.5	
	May/07/2003							3.8	7.7	
	May/13/2003				0.75	791	5	3.3	7.5	
	May/21/2003							3.9	7.5	
	May/28/2003							5.5	7.4	
	Jun/14/2003				0.81	798	16	6.0	7.2	
	Jul/02/2003							4.3	7.4	
	Jul/10/2003							7.1	7.4	
	Jul/14/2003				0.68	839	17			
	Jul/20/2003							6.7	7.2	
	Jul/30/2003							6.5	7.1	
	Aug/05/2003							6.9	7.2	
	Aug/11/2003				0.77	804	3	6.1	7.1	
	Aug/19/2003							7.9	7.2	
	Aug/26/2003							7.3	7.2	
	Sep/02/2003							5.7	7.0	
	Sep/08/2003				0.48	537	3	5.9	7.1	
	Sep/15/2003							3.0	7.1	
	Sep/16/2003							3.0	7.1	
	Sep/24/2003							3.9	7.3	
	Sep/30/2003							4.5	7.0	
	Oct/03/2003							4.5	7.0	
	Oct/10/2003							4.1	7.2	
	Oct/14/2003				0.64	676	6	3.2	7.0	
	Oct/22/2003							3.9	7.2	
	Oct/31/2003							4.0	7.2	
	Nov/06/2003							3.3	7.2	
	Nov/15/2003				0.66	595	7	2.5	7.1	
	Nov/20/2003							2.3	7.0	
	Nov/27/2003							2.1	7.0	
	Dec/04/2003							1.5	7.0	
	Dec/11/2003							2.4	7.2	
	Dec/12/2003							2.5	7.2	
	Dec/14/2003							2.2	7.3	
	Dec/15/2003					585	14			
	Dec/22/2003							3.7	7.1	
	Dec/30/2003							3.2	7.1	
	Average					695	9	3.83	7.28	
	Median					684	8	3.30	7.20	
	Minimum					537	3	1.50	7.00	
	Maximum					839	17	7.90	7.80	
X13-Rep	Sep/08/2003					555	8			

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	ALK-T mg/L	COND µS/cm	HARD mg/L	NH3-N mg/L	SO4-D mg/L	TSS mg/L	TEMP-C deg C	PH-F pH unit	ACIDITY mg/L
X14	Jan/14/2003			260		113	3	0.60	7.80	
	Feb/15/2003			332		165	7	0.6	7.8	
	Mar/15/2003					186	1	0.3	7.6	
	Apr/15/2003			348		175	5	1.8	7.9	
	May/13/2003			234		153	10	2.0	8.1	
	Jun/14/2003			137		79	10	7.4	8.1	
	Jul/14/2003			200		129	6	11.3	8.1	
	Aug/11/2003			135		43	6	10.0	8.0	
	Sep/02/2003							5.8	7.0	
	Sep/08/2003			140		42	2	7.1	8.0	
	Sep/16/2003							3.4	7.0	
	Sep/24/2003							4.7	7.1	
	Sep/30/2003							4.6	7.0	
	Oct/14/2003			173		66	3	0.8	7.8	
	Nov/15/2003			209		77	2	0.5	7.6	
	Dec/14/2003							0.7	7.6	
	Dec/15/2003			251		102	2			
	Average			220		111	5	3.85	7.66	
	Median			209		108	6	2.70	7.80	
	Minimum			135		42	1	0.30	7.00	
	Maximum			348		186	10	11.30	8.10	
X14-Rep	Sep/08/2003					41	2			
X2	Jan/14/2003		320		<0.05	29	1	0.70	7.80	
	Feb/15/2003		325		<0.05	29	2	.5	7.7	
	Mar/15/2003		349		<0.05	31	2	0.2	7.5	
	Apr/15/2003					28	1	0.4	8.1	
	May/13/2003		96		<0.05	7	5	0.6	8.2	
	Jun/14/2003		105		<0.05	9	9	4.4	7.8	
	Jul/14/2003				<0.05	11	4			
	Aug/11/2003		180		<0.05	15	2	6.8	7.7	
	Sep/08/2003		174		<0.05	13	1	5.3	7.6	
	Oct/14/2003		225		<0.05	26	1	0.8	7.4	
	Nov/15/2003				<0.05	21	2	0.2	7.0	
	Dec/14/2003							0.1	7.4	
	Dec/15/2003	275				18	2			
	Average	275				20	3	2.41	7.67	
	Median	275				20	2	0.65	7.70	
	Minimum	275				7	1	0.10	7.00	
	Maximum	275				31	9	8.90	8.20	
X22B	Jan/14/2003					616	3	0.70	7.50	
	Feb/15/2003					622	4	.5	7.5	
	Mar/15/2003			545		501	1	0.2	7.5	
	Apr/15/2003							0.4	7.5	
	Apr/15/2003					465	4			
	May/13/2003					132	3	1.1	7.8	
	Jun/14/2003					647	7	5.2	7.4	
	Jul/14/2003					657	9	8.9	7.4	
	Aug/11/2003					574	1	12.9	7.6	
	Sep/08/2003					588	1	10.4	7.7	
	Oct/14/2003					606	2	5.7	7.3	
	Nov/15/2003					597	1	0.5	7.1	
	Dec/14/2003							1.0	7.3	
	Dec/15/2003					564	1			
	Average			545		547	3	3.96	7.47	
	Median			545		592	3	1.05	7.50	
	Minimum			545		132	1	0.20	7.10	
	Maximum			545		657	9	12.90	7.80	

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	ALK-T mg/L	COND µS/cm	HARD mg/L	NH3-N mg/L	SO4-D mg/L	TSS mg/L	TEMP-C deg C	PH-F pH unit	ACIDITY mg/L
X23	Jan/14/2003		5950		0.06	3655	102	1.10	6.90	
	Feb/15/2003				0.78	3722	161	1.5	6.9	
	Mar/15/2003				0.77	3432	71	1.0	7.0	
	Apr/15/2003				0.83	3376	159	1.1	7.0	
	May/13/2003				0.71	3583	158	5.8	6.9	
	Jun/14/2003				0.75	4466	142	7.0	6.8	
	Jul/14/2003				0.70	3550	122	9.1	7.0	
	Aug/11/2003				0.71	4511	78	7.0	6.8	
	Sep/08/2003				0.61	4473	84	5.1	7.0	
	Oct/14/2003				0.71	4500	94	1.6	7.0	
	Nov/15/2003				0.73	3250	84	2.1	6.8	
	Dec/14/2003							0.8	7.0	
	Dec/15/2003					3128	74			
	Average					3804	114	3.60	6.93	
	Median					3619	102	1.85	6.95	
	Minimum				0.06	3128	71	0.80	6.80	
	Maximum				0.83	4511	161	9.10	7.00	
X26	Jul/14/2003					2355	62	4.2	6.3	
	Aug/11/2003					2858	40	3.6	6.1	
	Sep/08/2003					2509	56	2.7	6.2	
	Average					2574	53	3.5	6.2	
	Median					2509	56	3.6	6.2	
	Minimum					2355	40	2.7	6.1	
	Maximum					2858	62	4.2	6.3	
X3	Jan/14/2003					23	1	0.80	7.80	
	Feb/15/2003					28	1	.8	7.8	
	Mar/15/2003					28	1	0.4	7.5	
	Apr/15/2003							0.5	8.0	
	Apr/15/2003		349		<0.05	29	<1	0.5	8.0	
	May/13/2003					9	3	1.2	8.2	
	Jun/14/2003					8	8	6.7	7.9	
	Jun/14/2003							10.6	7.9	
	Jul/14/2003					11	4			
	Aug/11/2003					14	2	9.9	8.0	
	Sep/08/2003					17	3	6.9	7.8	
	Oct/14/2003					18	1	1.2	7.6	
	Nov/15/2003					23	1	0.0	7.0	
	Dec/14/2003							0.3	7.4	
	Dec/15/2003					21	1			
	Average		349			19	2	3.27	7.74	
	Median		349			20	1	1.00	7.80	
	Minimum		349			8	1	0.00	7.00	
	Maximum		349			29	8	10.60	8.20	
X4	Jan/14/2003				0.33	799	11	0.60	7.50	
	Feb/15/2003				0.24	727	10	.3	7.3	
	Mar/15/2003				0.24	649	15	0.3	7.3	
	Apr/15/2003				0.21	652	11	0.5	7.4	
	May/13/2003				0.06	9	1	1.2	8.1	
	Jun/14/2003				0.18	656	9	11.2	7.5	
	Jul/14/2003				0.16	719	6	16.1	7.5	
	Aug/11/2003				0.22	720	8	14.1	7.3	
	Sep/08/2003				0.15	759	2	10.4	7.5	
	Oct/14/2003				0.25	740	2	1.4	7.4	
	Nov/15/2003				0.09	709	1	0.5	7.1	
	Dec/14/2003							0.0	7.3	
	Dec/15/2003					592	2			
	Average					644	7	4.72	7.43	
	Median					714	8	0.90	7.40	
	Minimum					9	1	0.00	7.10	
	Maximum					799	15	16.10	8.10	

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	ALK-T mg/L	COND µS/cm	HARD mg/L	NH3-N mg/L	SO4-D mg/L	TSS mg/L	TEMP-C deg C	PH-F pH unit	ACIDITY mg/L
X5	Jan/14/2003				0.94	652	7	0.50	7.70	
	Feb/15/2003				0.73	580	10	0.3	7.6	
	Mar/06/2003							0.6	7.8	
	Mar/15/2003				0.90	542	6	0.1	7.3	
	Apr/15/2003							0.5	7.8	
	Apr/15/2003				0.88	488	6			
	May/13/2003				0.55	633	4	4.1	8.4	
	Jun/14/2003				0.67	559	6	10.6	8.3	
	Jul/14/2003				0.74	603	10	15.1	8.3	
	Aug/11/2003				0.91	611	2	13.9	7.8	
	Sep/08/2003				0.77	627	8	10.3	7.7	
	Sep/15/2003							7.1	7.5	
	Oct/14/2003				0.83	636	2	2.7	7.7	
	Nov/15/2003				0.89	597	2	0.5	7.6	
	Dec/12/2003							0.9	7.2	
	Dec/14/2003							0.4	7.5	
	Dec/15/2003				1.06	505				
	Average				0.90	586	6	4.51	7.75	
	Median				0.85	600	6	0.90	7.70	
	Minimum				0.55	488	2	0.10	7.20	
	Maximum				2.00	652	10	15.10	8.40	
X5-REP	Sep/08/2003					623	5			
	Nov/15/2003					616	3	0.5	7.6	

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Dissolved Metals

Gartner Lee		Dissolved Metals																																	
Station	Date	AG-D mg/L	AL-D mg/L	AS-D mg/L	B-D mg/L	BA-D mg/L	BE-D mg/L	BI-D mg/L	CA-D mg/L	CD-D mg/L	CO-D mg/L	CR-D mg/L	CU-D mg/L	FE-D mg/L	HG-D mg/L	K-D mg/L	LA-D mg/L	MG-D mg/L	MN-D mg/L	MO-D mg/L	NA-D mg/L	NI-D mg/L	P-D mg/L	PB-D mg/L	S-D mg/L	SB-D mg/L	SE-D mg/L	SI-D mg/L	SN-D mg/L	SR-D mg/L	TI-D mg/L	TL-D mg/L	V-D mg/L	W-D mg/L	ZN-D mg/L
A30	Jun/15/2003	<0.0002	0.017	0.008	0.06	0.027	<0.0002	<0.01	43.7	0.0080	<0.001	0.004	0.020	0.053		1.6	0.003	18.4	0.017	0.003	2.6	0.019	0.01	<0.002	47.1	<0.002	<0.005		<0.002	0.127	<0.001	<0.002	<0.001	<0.03	8.896
FAROCR	Jun/15/2003	<0.0002	0.098	<0.003	<0.05	0.012	<0.0002	<0.01	2.5	<0.0002	<0.001	<0.001	0.013	0.077		0.2	<0.001	0.6	0.005	<0.001	1.1	<0.001	<0.01	<0.002	0.9	<0.002	<0.005		<0.002	0.012	0.001	<0.002	<0.001	<0.03	0.030
	Jun/17/2003	<0.0002	0.073	<0.003	0.06	0.020	<0.0002	<0.01	5.4	<0.0002	<0.001	0.002	0.034	0.156		0.3	<0.001	1.1	0.009	<0.001	1.1	<0.001	<0.01	0.013	1.0	0.002	<0.005		<0.002	0.021	<0.001	<0.002	<0.001	<0.03	0.040
	Sep/15/2003	0.0002	0.114	0.009	0.06	0.02	<0.0002	<0.01	7.2	<0.0002	<0.001	<0.001	0.02	0.104		0.3	<0.001	1.7	0.014	<0.001	1.5	0.001	<0.01	0.008	1.6	<0.002	<0.005		<0.002	0.022	0.003	<0.002	<0.001	<0.03	0.012
	Dec/13/2003	<0.0002	0.030	<0.003	<0.05	0.032	<0.0002	<0.01	13.9	<0.0002	<0.001	<0.001	0.015	0.027	<0.0001	0.5	0.002	2.9	0.004	<0.001	1.9	<0.001	0.01	0.003	2.5	<0.002	<0.005		<0.002	0.051	<0.001	<0.002	<0.001	<0.03	0.008
	Average	0.0002	0.079	0.004	0.05	0.021	0.0002	0.01	7.2	0.0002	0.001	0.001	0.021	0.091	0.0001	0.3	0.001	1.6	0.008	0.001	1.4	0.001	0.01	0.007	1.5	0.002	0.005		0.002	0.026	0.002	0.002	0.001	0.03	0.023
	Median	0.0002	0.085	0.003	0.05	0.020	0.0002	0.01	6.3	0.0002	0.001	0.001	0.017	0.091	0.0001	0.3	0.001	1.4	0.007	0.001	1.3	0.001	0.01	0.006	1.3	0.002	0.005		0.002	0.021	0.001	0.002	0.001	0.03	0.021
	Minimum	0.0002	0.030	0.003	0.05	0.012	0.0002	0.01	2.5	0.0002	0.001	0.001	0.013	0.027	0.0001	0.2	0.001	0.6	0.004	0.001	1.1	0.001	0.01	0.002	0.9	0.002	0.005		0.002	0.012	0.001	0.002	0.001	0.03	0.008
	Maximum	0.0002	0.114	0.009	0.06	0.032	0.0002	0.01	13.9	0.0002	0.001	0.002	0.034	0.156	0.0001	0.5	0.002	2.9	0.014	0.001	1.9	0.001	0.01	0.013	2.5	0.002	0.005		0.002	0.051	0.003	0.002	0.001	0.03	0.040
FCD	Jun/15/2003	<0.0002	0.099	<0.003	<0.05	0.012	<0.0002	<0.01	2.5	<0.0002	<0.001	<0.001	0.030	0.080		0.2	<0.001	0.5	0.006	0.002	0.4	<0.001	<0.01	0.008	0.7	<0.002	<0.005		<0.002	0.012	0.001	<0.002	<0.001	<0.03	0.032
FCO	Jun/15/2003	0.0003	0.080	<0.003	0.05	0.036	<0.0002	<0.01	9.9	0.0013	<0.001	<0.001	0.038	0.133		0.5	<0.001	3.1	0.055	<0.001	1.7	<0.001	0.01	0.005	9.2	0.006	<0.005		<0.002	0.035	<0.001	<0.002	<0.001	<0.03	0.917
FDU	Jun/15/2003	<0.0002	0.088	<0.003	<0.05	0.008	<0.0002	<0.01	2.2	<0.0002	<0.001	<0.001	0.019	0.059		0.2	<0.001	0.5	0.003	<0.001	1.0	<0.001	<0.01	<0.002	0.6	<0.002	<0.005		<0.002	0.010	<0.001	<0.002	<0.001	<0.03	0.011
GHSCR1	Jun/15/2003	0.0007	0.013	0.028	0.06	0.041	<0.0002	<0.01	180.6	0.0016	<0.001	0.002	0.012	0.025		5.8	<0.001	40.1	0.034	0.001	8.5	0.002	<0.01	0.002	145.2	0.003	<0.005		0.003	0.626	<0.001	<0.002	<0.001	<0.03	1.641
NE1	Jun/15/2003	<0.0002	<0.001	0.013	<0.05	0.015	<0.0002	<0.01	67.9	<0.0002	<0.001	0.005	0.011	0.013		3.2	0.001	19.7	0.013	0.007	3.2	<0.001	<0.01	<0.002	42.2	<0.002	<0.005		0.004	0.244	<0.001	<0.002	<0.001	<0.03	0.020
NE2	Jun/15/2003	0.0007	0.058	0.024	<0.05	0.057	<0.0002	<0.01	174.2	<0.0002	<0.001	<0.001	0.004	0.042		5.4	<0.001	127.6	0.017	0.006	9.0	<0.001	<0.01	<0.002	212.3	0.004	<0.005		<0.002	0.711	0.001	<0.002	<0.001	<0.03	0.021
NF1	Jun/15/2003	0.0003	0.051	<0.003	<0.05	0.031	<0.0002	<0.01	17.3	<0.0002	<0.001	<0.001	0.028	0.095		0.6	<0.001	3.6	0.013	0.002	1.0	<0.001	<0.01	<0.002	2.5	<0.002	<0.005		<0.002	0.048	<0.001	<0.002	<0.001	<0.03	0.015
NF2	Jun/15/2003	<0.0002	0.045	0.007	<0.05	0.031	<0.0002	<0.01	16.9	<0.0002	<0.001	<0.001	0.038	0.102		0.6	0.001	3.4	0.008	0.002	0.9	<0.001	<0.01	0.008	2.3	<0.002	<0.005		<0.002	0.048	0.001	<0.002	<0.001	<0.03	0.010
R10	Jun/17/2003	<0.0002	0.029	<0.003	0.08	0.033	<0.0002	<0.01	20.5	<0.0002	0.001	<0.001	0.010	0.176		0.6	<0.001	4.2	0.005	<0.001	1.3	<0.001	0.01	<0.002	2.7	<0.002	<0.005		<0.002	0.055	<0.001	<0.002	<0.001	<0.03	0.008
	Sep/15/2003	<0.0002	0.031	<0.003	0.07	0.041	<0.0002	<0.01	27.4	<0.0002	<0.001	<0.001	0.009	0.092		0.7	<0.001	5	0.02	<0.001	1.6	<0.001	<0.01	<0.002	3.3	0.004	<0.005		<0.002	0.077	<0.001	<0.002	<0.001	<0.03	0.014
	Dec/13/2003	0.0002	0.020	<0.003	<0.05	0.063	<0.0002	<0.01	44.6	<0.0002	<0.001	<0.001	0.011	0.049	<0.0001	1.0	0.004	8.1	0.031	0.001	2.4	<0.001	<0.01	<0.002	6.2	<0.002	<0.005		<0.002	0.146	<0.001	<0.002	<0.001	<0.03	0.005
	Average	0.0002	0.027	0.003	0.07	0.046	0.0002	0.01	30.8	0.0002	0.001	0.001	0.010	0.106	0.0001	0.8	0.002	5.8	0.019	0.001	1.8	0.001	0.01	0.002	4.1	0.003	0.005		0.002	0.093	0.001	0.002	0.001	0.03	0.009
	Median	0.0002	0.029	0.003	0.07	0.041	0.0002	0.01	27.4	0.0002	0.001	0.001	0.010	0.092	0.0001	0.7	0.001	5.0	0.020	0.001	1.6	0.001	0.01	0.002	3.3	0.002	0.005		0.002	0.077	0.001	0.002	0.001	0.03	0.008
	Minimum	0.0002	0.020	0.003	0.05	0.033	0.0002	0.01	20.5.																										

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Dissolved Metals

[illegible]

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Dissolved Metals

Gartner Lee		Dissolved Metals																																	
Station	Date	AG-D mg/L	AL-D mg/L	AS-D mg/L	B-D mg/L	BA-D mg/L	BE-D mg/L	BI-D mg/L	CA-D mg/L	CD-D mg/L	CO-D mg/L	CR-D mg/L	CU-D mg/L	FE-D mg/L	HG-D mg/L	K-D mg/L	LA-D mg/L	MG-D mg/L	MN-D mg/L	MO-D mg/L	NA-D mg/L	NI-D mg/L	P-D mg/L	PB-D mg/L	S-D mg/L	SB-D mg/L	SE-D mg/L	SI-D mg/L	SN-D mg/L	SR-D mg/L	TI-D mg/L	TL-D mg/L	V-D mg/L	W-D mg/L	ZN-D mg/L
X2	Jan/14/2003	<0.0002	0.053	<0.003	0.11	0.182	<0.0002	<0.01	50.1	0.0009	<0.001	0.002	0.022	0.115		1.3	0.001	10.7	0.071	<0.001	3.9	<0.001	<0.01	<0.002	9.3	<0.002	<0.005	6.2	<0.002	0.203	0.002		<0.001	<0.03	0.035
	Feb/15/2003	0.0003	0.060	<0.003	0.12	0.193	<0.0002	<0.01	53.9	<0.0002	0.002	<0.001	0.011	0.089		1.5	0.006	11.3	0.071	0.001	4.2	<0.001	<0.01	0.004	9.5	<0.002	<0.005	7.0	<0.002	0.216	<0.001		<0.001	<0.03	0.036
	Mar/15/2003	0.0002	0.055	<0.003	0.08	0.178	<0.0002	<0.01	58.2	<0.0002	<0.001	0.004	0.026	0.110		1.8	0.002	12.4	0.083	0.003	4.8	0.003	<0.01	<0.002	10.5	0.002	<0.005	6.3	0.019	0.212	0.002		<0.001	<0.03	0.020
	Apr/15/2003	<0.0002	0.075	<0.003	0.21	0.191	<0.0002	<0.01	54.8	<0.0002	<0.001	<0.001	0.008	0.145		1.7	0.003	11.0	0.052	<0.001	4.3	0.003	0.01	0.006	10.0	<0.002	<0.005		<0.002	0.207	0.001	<0.002	<0.001	<0.03	0.026
	May/13/2003	0.0011	0.164	<0.003	0.11	0.19	<0.0002	0.01	16.2	0.0003	<0.001	<0.001	0.022	0.347		1.6	<0.001	3.2	0.017	<0.001	1.2	0.002	0.02	0.01	2.1	<0.002	<0.005		<0.002	0.054	0.004	<0.002	<0.001	<0.03	0.029
	Jun/14/2003	<0.0002	0.036	<0.003	0.11	0.028	<0.0002	<0.01	17.0	<0.0002	<0.001	<0.001	0.016	0.128		0.6	0.001	3.4	0.015	<0.001	1.1	<0.001	<0.01	<0.002	2.8	<0.002	<0.005		<0.002	0.049	0.002	<0.002	<0.001	<0.03	0.011
	Jul/14/2003	<0.0002	0.055	<0.003	0.10	0.036	<0.0002	<0.01	22.4	<0.0002	<0.001	0.001	0.020	0.137		0.6	0.001	4.5	0.022	<0.001	1.1	<0.001	0.01	0.005	3.2	<0.002	<0.005		0.006	0.068	<0.001	<0.002	<0.001	<0.03	0.022
	Aug/11/2003	<0.0002	0.021	0.005	<0.05	0.044	0.0003	<0.01	29.2	<0.0002	0.001	<0.001	0.014	0.151		0.7	<0.001	6.0	0.025	0.001	1.7	0.005	<0.01	<0.002	4.8	<0.002	<0.005		<0.002	0.083	<0.001	<0.002	<0.001	<0.03	0.010
	Sep/08/2003	0.0005	0.044	0.005	0.09	0.043	<0.0002	<0.01	30.7	<0.0002	0.001	<0.001	0.027	0.108		0.8	0.003	6	0.043	<0.001	1.8	0.001	<0.01	0.005	5.2	<0.002	<0.005		<0.002	0.09	0.004	<0.002	<0.001	<0.03	0.004
	Oct/14/2003	0.0007	0.026	<0.003	0.1	0.059	<0.0002	<0.01	39.6	<0.0002	<0.001	0.001	0.012	0.349		0.9	0.002	7.8	0.193	<0.001	2	0.003	<0.01	<0.002	7.9	0.003	<0.005		<0.002	0.11	0.001	0.002	<0.001	<0.03	0.026
	Nov/15/2003	<0.0002	0.02	<0.003	0.07	0.058	0.0002	<0.01	40.7	<0.0002	<0.001	<0.001	0.015	0.147	<0.0001	1	0.008	8.6	0.072	0.001	2.1	0.002	<0.01	<0.002	7.2	0.002	<0.005		0.006	0.132	0.002	<0.002	<0.001	<0.03	0.02
	Dec/15/2003	<0.0002	0.017	<0.003	0.06	0.061	<0.0002	0.01	44.2	<0.0002	<0.001	<0.001	0.011	0.128	<0.0001	1.1	0.007	9.1	0.057	<0.001	2.2	0.005	<0.01	<0.002	8.1	<0.002	<0.005		<0.002	0.147	0.002	<0.002	<0.001	<0.03	0.013
	Average	0.0003	0.052	0.003	0.10	0.105	0.0002	0.01	38.1	0.0003	0.001	0.001	0.017	0.163	0.0001	1.1	0.003	7.8	0.060	0.001	2.5	0.002	0.01	0.004	6.7	0.002	0.005	6.5	0.004	0.126	0.002	0.002	0.001	0.03	0.021
	Median	0.0002	0.048	0.003	0.10	0.060	0.0002	0.01	40.1	0.0002	0.001	0.001	0.016	0.133	0.0001	1.1	0.002	8.2	0.055	0.001	2.0	0.002	0.01	0.002	7.5	0.002	0.005	6.3	0.002	0.110	0.002	0.002	0.001	0.03	0.021
	Minimum	0.0002	0.017	0.003	0.05	0.028	0.0002	0.01	16.2	0.0002	0.001	0.001	0.008	0.089	0.0001	0.6	0.001	3.2	0.015	0.001	1.1	0.001	0.01	0.002	2.1	0.002	0.005	6.2	0.002	0.049	0.001	0.002	0.001	0.03	0.004
	Maximum	0.0011	0.164	0.005	0.21	0.193	0.0003	0.01	58.2	0.0009	0.002	0.004	0.027	0.349	0.0001	1.8	0.008	12.4	0.193	0.003	4.8	0.005	0.02	0.010	10.5	0.003	0.005	7.0	0.019	0.216	0.004	0.002	0.001	0.03	0.036
X22B	Jan/14/2003	<0.0002	0.057	0.009	0.10	0.066	<0.0002	<0.01	146.3	0.0183	0.041	<0.001	0.062	0.051		12.0	0.002	65.8	2.400	0.010	23.6	0.098	<0.01	<0.002	197.2	<0.002	<0.005	6.4	<0.002	0.609	<0.001		<0.001	<0.03	20.603
	Feb/15/2003	<0.0002	0.035	<0.003	0.09	0.061	<0.0002	<0.01	151.4	0.0175	0.045	<0.001	0.041	0.036		12.2	0.004	62.7	2.547	0.010	23.2	0.098	0.08	<0.002	198.5	0.006	<0.005	6.0	<0.002	0.488	<0.001		<0.001	<0.03	18.082
	Mar/15/2003	0.0004	0.064	<0.003	0.08	0.060	0.0003	0.01	120.1	0.0247	0.047	<0.001	0.060	0.026		8.3	<0.001	61.2	2.117	0.009	16.4	0.103	<0.01	0.005	172.8	<0.002	<0.005	8.0	0.005	0.442	<0.001		<0.001	<0.03	28.380
	Apr/15/2003	0.0003	0.056	<0.003	0.12	0.042	0.0003	<0.01	116.0	0.0222	0.037	<0.001	0.019	0.091		7.1	<0.001	57.2	1.919	0.007	14.3	0.083	0.01	<0.002	158.5	0.004	<0.005		<0.002	0.445	<0.001	<0.002	<0.001	<0.03	22.220
	May/13/2003	0.0006	0.077	<0.003	0.06	0.083	<0.0002	<0.01	33	0.006	0.011	0.003	0.006	0.028		1.8	<0.001	13.3	0.455	<0.001	2.9	0.022	<0.01	0.006	43	<0.002	<0.005		<0.002	0.109	<0.001	<0.002	<0.001	<0.03	6.057
	Jun/14/2003	<0.0002	<0.001	0.008	0.08	0.017	<0.0002	<0.01	158.8	0.0103	0.047	<0.001	0.014	0.048		14.9	<0.001	59.3	2.720	0.005	24.9	0.087	<0.01	0.004	201.1	0.004	<0.005		<0.002	0.464	<0.001	<0.002	<0.001	<0.03	11.372
	Jul/14/2003	<0.0002	0.010	<0.003	0.05	0.018	<0.0002	<0.01	164.2	0.0119	0.046	<0.001	0.028	0.033		15.2	<0.001	64.0	2.881	0.008	24.3	0.092	<0.01	0.003	225.0	0.010	<0.005		<0.002	0.506	<0.001	<0.002	<0.001	<0.03	10.441
	Aug/11/2003	<0.0002	0.010	0.003	<0.05	0.017	0.0003	<0.01	144.2	0.0123	0.045	0.002	0.018	0.056		11.9	<0.001	57.1	2.511	0.004	20.3	0.089	0.01	<0.002	187.3	0.008	<0.005		<0.002	0.435	<0.001	<0.002	<0.001	<0.03	10.746
	Sep/08/2003	0.0004	0.001	0.006	0.09	0.018	0.0003	<0.01	148.4	0.0115	0.045	<0.001	0.026	0.067		12.7	0.003	60.6	2.59	0.005	20.3	0.088													

Appendix 1, 2003 Surface Water Quality Listing - Total Metals

Gartner Lee		Total Metals																																		
Station	Date	AG-T mg/L	AL-T mg/L	AS-T mg/L	B-T mg/L	BA-T mg/L	BE-T mg/L	BI-T mg/L	CA-T mg/L	CD-T mg/L	CN-T mg/L	CO-T mg/L	CR-T mg/L	CU-T mg/L	FE-T mg/L	HG-T mg/L	K-T mg/L	LA-T mg/L	MG-T mg/L	MN-T mg/L	MO-T mg/L	NA-T mg/L	NI-T mg/L	P-T mg/L	PB-T mg/L	S-T mg/L	SB-T mg/L	SE-T mg/L	SI-T mg/L	SN-T mg/L	SR-T mg/L	TI-T mg/L	TL-T mg/L	V-T mg/L	W-T mg/L	ZN-T mg/L
X3	Jan/14/2003	0.0004	0.063	<0.003	0.10	0.165	<0.0002	<0.01	45.5	0.0004		<0.001	<0.001	0.021	0.125	1.4	0.002	8.9	0.043	0.003	3.4	0.002	0.03	0.003	7.9	<0.002	<0.005	5.7	<0.002	0.199	<0.001		<0.001	<0.03	0.017	
	Feb/15/2003	<0.0002	0.033	<0.003	0.09	0.186	<0.0002	<0.01	50.3	<0.0002		<0.001	<0.001	0.017	0.141	1.4	0.005	9.9	0.046	<0.001	4.0	0.002	0.02	0.007	8.7	<0.002	<0.005	6.2	0.002	0.212	<0.001		<0.001	<0.03	0.022	
	Mar/15/2003	0.0003	0.062	<0.003	0.09	0.179	<0.0002	<0.01	55.8	0.0003		<0.001	0.005	0.009	0.117	1.6	0.001	11.6	0.055	<0.001	4.5	<0.001	<0.01	0.006	10.0	<0.002	<0.005	6.6	0.003	0.219	<0.001		<0.001	<0.03	0.015	
	Apr/15/2003	0.0003	0.595	<0.003	0.20	0.207	0.0003	0.02	59.4	<0.0002	<0.01	0.004	0.001	0.011	0.287	1.7	<0.001	12.4	0.108	0.004	4.3	0.003	<0.01	0.012	10.2	0.009	<0.005		0.007	0.218	0.020	<0.002	<0.001	<0.03	0.028	
	May/13/2003	0.0004	0.199	<0.003	0.11	0.157	<0.0002	<0.01	22.2	<0.0002		<0.001	<0.001	0.014	0.429	1.7	<0.001	4.3	0.035	<0.001	1.2	<0.001	0.02	0.005	3.2	<0.002	<0.005		0.002	0.08	0.004	<0.002	<0.001	<0.03	0.018	
	Jun/14/2003	<0.0002	0.142	0.005	0.07	0.028	<0.0002	<0.01	15.9	<0.0002		<0.001	0.003	0.025	0.439	1.0	<0.001	3.0	0.034	<0.001	0.9	<0.001	0.01	0.006	2.5	<0.002	<0.005		0.004	0.049	0.007	<0.002	<0.001	<0.03	0.012	
	Jul/14/2003	<0.0002	0.080	<0.003	0.12	0.036	<0.0002	<0.01	22.8	0.0002		0.001	<0.001	0.019	0.211	0.7	<0.001	4.3	0.012	0.004	1.2	<0.001	<0.01	<0.002	3.4	0.002	<0.005		<0.002	0.075	0.003	<0.002	<0.001	<0.03	0.028	
	Aug/11/2003	<0.0002	0.020	<0.003	0.09	0.045	<0.0002	0.01	31.2	0.0003		<0.001	0.002	0.023	0.242	0.8	<0.001	5.6	0.053	0.002	1.8	0.001	0.02	<0.002	4.6	0.010	<0.005		<0.002	0.094	<0.001	0.002	<0.001	<0.03	0.024	
	Sep/08/2003	<0.0002	0.067	<0.003	0.11	0.05	<0.0002	<0.01	32.1	<0.0002		<0.001	0.002	0.082	0.395	0.9	0.003	5.8	0.114	<0.001	1.9	<0.001	<0.01	0.003	5.4	<0.002	<0.005		<0.002	0.104	0.002	<0.002	<0.001	<0.03	0.023	
	Oct/14/2003	0.0004	0.046	0.005	0.09	0.043	<0.0002	<0.01	34.8	<0.0002		<0.001	<0.001	0.026	0.327	0.9	0.002	6	0.115	<0.001	1.3	<0.001	<0.01	<0.002	6	0.005	<0.005		<0.002	0.108	<0.001	<0.002	<0.001	<0.03	0.01	
Nov/15/2003	<0.0002	0.02	<0.003	0.08	0.059	<0.0002	<0.01	43.5	<0.0002		<0.001	0.002	0.009	0.246	1.1	0.003	8.1	0.209	<0.001	2	<0.001	<0.01	<0.002	7.9	0.007	<0.005		0.003	0.149	<0.001	<0.002	<0.001	<0.03	0.013		
Dec/15/2003	0.0004	0.009	<0.003	0.05	0.068	<0.0002	<0.01	49.0	<0.0002		<0.001	<0.001	0.012	0.289	<0.0001	1.3	0.005	8.9	0.275	<0.001	2.5	0.001	0.03	0.003	8.8	<0.002	<0.005		<0.002	0.173	<0.001	0.002	<0.001	<0.03	0.010	
	Average	0.0003	0.111	0.003	0.10	0.102	0.0002	0.01	38.5	0.0002	0.01	0.001	0.002	0.022	0.271	0.0001	1.2	0.002	7.4	0.092	0.002	2.4	0.001	0.02	0.004	6.6	0.004	0.005	6.2	0.003	0.135	0.004	0.002	0.001	0.03	0.018
	Median	0.0002	0.062	0.003	0.09	0.064	0.0002	0.01	39.1	0.0002	0.01	0.001	0.001	0.018	0.267	0.0001	1.2	0.002	7.1	0.054	0.001	1.9	0.001	0.01	0.003	7.0	0.002	0.005	6.2	0.002	0.108	0.001	0.002	0.001	0.03	0.018
	Minimum	0.0002	0.009	0.003	0.05	0.028	0.0002	0.01	15.9	0.0002	0.01	0.001	0.001	0.009	0.117	0.0001	0.7	0.001	3.0	0.012	0.001	0.9	0.001	0.01	0.002	2.5	0.002	0.005	5.7	0.002	0.049	0.001	0.002	0.001	0.03	0.010
	Maximum	0.0004	0.595	0.005	0.20	0.207	0.0003	0.02	59.4	0.0004	0.01	0.004	0.005	0.082	0.439	0.0001	1.7	0.005	12.4	0.275	0.004	4.5	0.003	0.03	0.012	10.2	0.010	0.005	6.6	0.007	0.219	0.020	0.002	0.001	0.03	0.028
X4	Jan/14/2003	0.0003	0.049	0.034	0.09	0.099	0.0002	0.02	201.6	0.0069	<0.01	0.050	<0.001	0.013	10.881	6.5	<0.001	56.2	12.939	0.007	18.1	0.050	<0.01	0.006	252.4	0.003	<0.005	5.7	<0.002	0.684	<0.001		<0.001	<0.03	16.695	
	Feb/15/2003	0.0002	0.062	0.021	0.07	0.091	<0.0002	<0.01	199.0	0.0043	<0.01	0.045	<0.001	0.018	19.080	6.1	<0.001	46.1	13.188	0.004	16.6	0.042	<0.01	0.007	229.3	<0.002	<0.005	6.7	<0.002	0.636	<0.001		<0.001	<0.03	11.905	
	Mar/15/2003	0.0006	0.076	0.005	0.10	0.114	0.0004	<0.01	210.8	0.0033	<0.01	0.042	<0.001	0.017	15.890	7.0	<0.001	45.6	14.380	0.006	18.3	0.039	<0.01	0.007	227.7	<0.002	<0.005	8.0	0.003	0.690	<0.001		<0.001	<0.03	9.697	
	Apr/15/2003	<0.0002	0.242	0.006	0.19	0.115	0.0006	0.01	206.9	0.0003	<0.01	0.057	0.004	0.013	17.040	6.9	<0.001	42.9	14.067	0.002	16.5	0.054	0.01	0.009	227.4	0.008	0.005		0.004	0.672	0.062	<0.002	<0.001	<0.03	9.439	
	May/13/2003	<0.0002	0.097	<0.003	0.11	0.17	<0.0002	0.01	3.0	0.0002	<0.01	0.002	<0.001	0.034	0.295	0.5	<0.001	0.5	0.154	<0.001	0.8	<0.001	<0.01	0.006	2.9	<0.002	<0.005		<0.002	0.009	<0.001	<0.002	<0.001	<0.03	0.353	
	Jun/14/2003	<0.0002	0.051	0.008	0.08	0.066	<0.0002	<0.01	163.4	0.0072	<0.01	0.042	0.002	0.021	1.254	4.7	<0.001	44.0	9.093	0.003	11.5	0.044	0.02	0.026	200.0	<0.002	<0.005		<0.002	0.496	0.004	<0.002	<0.001	<0.03	14.101	
	Jul/14/2003	<0.0002	0.022	0.003	0.12	0.054	<0.0002	<0.01	183.6	0.0068	<0.01	0.040	<0.001	0.019	0.189	5.2	<0.001	50.7	10.238	0.004	13.1	0.042	<0.01	0.056	237.0	<0.002	<0.005		<0.002	0.573	0.001	<0.002	0.002	<0.03	11.000	
	Aug/11/2003	<0.0002	0.060	0.023	0.06	0.016	0.0003	<0.01	185.1	0.0066	<0.01	0.043	<0.001	0.021	0.389	5.3	<0.001	51.5	11.208	<0.001	13.5	0.045	0.01	0.016	237.5	0.007	<0.005		<0.002	0.552	0.005	<0.002	<0.001	<0.03	10.396	
	Sep/08/2003	<0.0002	0.074	0.007	0.11	0.017	0.0003	<0.01	184.3	0.0063	<0.01	0.042	<0.001	0.03	0.275	5.2	0.002	53.7	10.891	0.002	13.5	0.041	0.02	0.026	236.9	<0.002	<0.005		<0.002	0.578	0.004	<0.002	0.004	<0.03	11.697	
	Oct/14/2003	0.0006	0.01	0.007	0.11	0.011	0.0002	<0.01	201	0.0062	<0.01	0.043	<0.001	0.025	0.124	5.6	0.001	56	11.502	0.005	14.1	0.042	<0.01	0.009	236	<0.002	<0.005		0.003	0.584	<0.001	<0.002	<0.001	<0.03	12.521	
Nov/15/2003	<0.0002	<0.001	0.004	0.08	0.008	0.0003	<0.01	198.5	0.0063	<0.01	0.044	<0.001	0.02	0.102	6.1	0.002	57.4	11.972	0.005	15.5	0.045	<0.01	0.004	246.1	<0.002	<0.005		<0.002	0.644	<0.001	<0.002	<0.001	<0.03	8.854		
Dec/15/2003	0.0006	<0.001	0.004	0.07	0.008	<0.0002	<0.01	201.1	0.0059	<0.01	0.043	<0.001	0.010	0.347	<0.0001	6.1	<0.001	53.7	12.036	0.004	15.5	0.046	0.02	0.007	247.7	<0.002	<0.005		<0.002	0.660	<0.001	<0.002	<0.001	<0.03	9.395	
	Average	0.0003	0.062	0.010	0.10	0.064	0.0003	0.01	178.2	0.0052	0.01	0.041	0.001	0.020	5.489	0.0001	5.4	0.001	46.5	10.972	0.004	13.9	0.041	0.01	0.015	215.1	0.003	0.005	6.8	0.002	0.565	0.006	0.002	0.001	0.03	10.504
	Median	0.0002	0.055	0.007	0.10	0.060	0.0002	0.01	198.8	0.0063	0.01	0.043	0.001	0.019	0.368	0.0001	5.8	0.001	51.1	11.737	0.004	14.8	0.043	0.01	0.008	236.4	0.002	0.005	6.7	0.002	0.584	0.001	0.002	0.001	0.03	10.698
	Minimum	0.0002	0.001	0.003	0.06	0.008	0.0002	0.01	3.0	0.0002	0.01	0.002	0.001	0.010	0.102	0.0001	0.5	0.001	0.5	0.154	0.001	0.8	0.001	0.01	0.004	2.9	0.002	0.005	5.7	0.002	0.009	0.001	0.002	0.001	0.03	0.353
	Maximum	0.0006	0.242	0.034	0.19	0.170	0.0006	0.02	210.8	0.0072	0.01	0.057	0.004	0.034	19.080	0.0001	7.0	0.002	57.4	14.380	0.007	18.3	0.054	0.02	0.056	252.4	0.008	0.005	8.0	0.004	0.690	0.062	0.002	0.004	0.03	16.695
X5	Jan/14/2003	0.0007	0.045	0.030	0.10	0.116	0.0003	0.02	203.7	0.0004	<0.01	0.007	<0.001	0.024	0.198	9.9	<0.001	48.1	4.471	0.006	29.6	0.011	<0.01	<0.002	208.4	0.009	<0.005	5.8	0.008	0.582	&					

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Dissolved Metals

Gartner Lee		Dissolved Metals																																	
Station	Date	AG-D mg/L	AL-D mg/L	AS-D mg/L	B-D mg/L	BA-D mg/L	BE-D mg/L	BI-D mg/L	CA-D mg/L	CD-D mg/L	CO-D mg/L	CR-D mg/L	CU-D mg/L	FE-D mg/L	HG-D mg/L	K-D mg/L	LA-D mg/L	MG-D mg/L	MN-D mg/L	MO-D mg/L	NA-D mg/L	NI-D mg/L	P-D mg/L	PB-D mg/L	S-D mg/L	SB-D mg/L	SE-D mg/L	SI-D mg/L	SN-D mg/L	SR-D mg/L	TI-D mg/L	TL-D mg/L	V-D mg/L	W-D mg/L	ZN-D mg/L
A30	Jun/15/2003	<0.0002	0.017	0.008	0.06	0.027	<0.0002	<0.01	43.7	0.0080	<0.001	0.004	0.020	0.053		1.6	0.003	18.4	0.017	0.003	2.6	0.019	0.01	<0.002	47.1	<0.002	<0.005	<0.002	0.127	<0.001	<0.002	<0.001	<0.03	8.896	
FAROGR	Jun/15/2003	<0.0002	0.098	<0.003	<0.05	0.012	<0.0002	<0.01	2.5	<0.0002	<0.001	<0.001	0.013	0.077		0.2	<0.001	0.6	0.005	<0.001	1.1	<0.001	<0.01	<0.002	0.9	<0.002	<0.005	<0.002	0.012	0.001	<0.002	<0.001	<0.03	0.030	
	Jun/17/2003	<0.0002	0.073	<0.003	0.06	0.020	<0.0002	<0.01	5.4	<0.0002	<0.001	0.002	0.034	0.156		0.3	<0.001	1.1	0.009	<0.001	1.1	<0.001	<0.01	0.013	1.0	0.002	<0.005	<0.002	0.021	<0.001	<0.002	<0.001	<0.03	0.040	
	Sep/15/2003	0.0002	0.114	0.009	0.06	0.02	<0.0002	<0.01	7.2	<0.0002	<0.001	<0.001	0.02	0.104		0.3	<0.001	1.7	0.014	<0.001	1.5	0.001	<0.01	0.008	1.6	<0.002	<0.005	<0.002	0.022	0.003	<0.002	<0.001	<0.03	0.012	
	Dec/13/2003	<0.0002	0.030	<0.003	<0.05	0.032	<0.0002	<0.01	13.9	<0.0002	<0.001	<0.001	0.015	0.027	<0.0001	0.5	0.002	2.9	0.004	<0.001	1.9	<0.001	0.01	0.003	2.5	<0.002	<0.005	<0.002	0.051	<0.001	<0.002	<0.001	<0.03	0.008	
	Average	0.0002	0.079	0.004	0.05	0.021	0.0002	0.01	7.2	0.0002	0.001	0.001	0.021	0.091	0.0001	0.3	0.001	1.6	0.008	0.001	1.4	0.001	0.01	0.007	1.5	0.002	0.005	0.002	0.026	0.002	0.002	0.001	0.03	0.023	
	Median	0.0002	0.085	0.003	0.05	0.020	0.0002	0.01	6.3	0.0002	0.001	0.001	0.017	0.091	0.0001	0.3	0.001	1.4	0.007	0.001	1.3	0.001	0.01	0.006	1.3	0.002	0.005	0.002	0.021	0.001	0.002	0.001	0.03	0.021	
	Minimum	0.0002	0.030	0.003	0.05	0.012	0.0002	0.01	2.5	0.0002	0.001	0.001	0.013	0.027	0.0001	0.2	0.001	0.6	0.004	0.001	1.1	0.001	0.01	0.002	0.9	0.002	0.005	0.002	0.012	0.001	0.002	0.001	0.03	0.008	
	Maximum	0.0002	0.114	0.009	0.06	0.032	0.0002	0.01	13.9	0.0002	0.001	0.002	0.034	0.156	0.0001	0.5	0.002	2.9	0.014	0.001	1.9	0.001	0.01	0.013	2.5	0.002	0.005	0.002	0.051	0.003	0.002	0.001	0.03	0.040	
FCD	Jun/15/2003	<0.0002	0.099	<0.003	<0.05	0.012	<0.0002	<0.01	2.5	<0.0002	<0.001	<0.001	0.030	0.080		0.2	<0.001	0.5	0.006	0.002	0.4	<0.001	<0.01	0.008	0.7	<0.002	<0.005	<0.002	0.012	0.001	<0.002	<0.001	<0.03	0.032	
FCO	Jun/15/2003	0.0003	0.080	<0.003	0.05	0.036	<0.0002	<0.01	9.9	0.0013	<0.001	<0.001	0.038	0.133		0.5	<0.001	3.1	0.055	<0.001	1.7	<0.001	0.01	0.005	9.2	0.006	<0.005	<0.002	0.035	<0.001	<0.002	<0.001	<0.03	0.917	
FDU	Jun/15/2003	<0.0002	0.088	<0.003	<0.05	0.008	<0.0002	<0.01	2.2	<0.0002	<0.001	<0.001	0.019	0.059		0.2	<0.001	0.5	0.003	<0.001	1.0	<0.001	<0.01	<0.002	0.6	<0.002	<0.005	<0.002	0.010	<0.001	<0.002	<0.001	<0.03	0.011	
GHSCR1	Jun/15/2003	0.0007	0.013	0.028	0.06	0.041	<0.0002	<0.01	180.6	0.0016	<0.001	0.002	0.012	0.025		5.8	<0.001	40.1	0.034	0.001	8.5	0.002	<0.01	0.002	145.2	0.003	<0.005	0.003	0.626	<0.001	<0.002	<0.001	<0.03	1.641	
NE1	Jun/15/2003	<0.0002	<0.001	0.013	<0.05	0.015	<0.0002	<0.01	67.9	<0.0002	<0.001	0.005	0.011	0.013		3.2	0.001	19.7	0.013	0.007	3.2	<0.001	<0.01	<0.002	42.2	<0.002	<0.005	0.004	0.244	<0.001	<0.002	<0.001	<0.03	0.020	
NE2	Jun/15/2003	0.0007	0.058	0.024	<0.05	0.057	<0.0002	<0.01	174.2	<0.0002	<0.001	<0.001	0.004	0.042		5.4	<0.001	127.6	0.017	0.006	9.0	<0.001	<0.01	<0.002	212.3	0.004	<0.005	<0.002	0.711	0.001	<0.002	<0.001	<0.03	0.021	
NF1	Jun/15/2003	0.0003	0.051	<0.003	<0.05	0.031	<0.0002	<0.01	17.3	<0.0002	<0.001	<0.001	0.028	0.095		0.6	<0.001	3.6	0.013	0.002	1.0	<0.001	<0.01	<0.002	2.5	<0.002	<0.005	<0.002	0.048	<0.001	<0.002	<0.001	<0.03	0.015	
NF2	Jun/15/2003	<0.0002	0.045	0.007	<0.05	0.031	<0.0002	<0.01	16.9	<0.0002	<0.001	<0.001	0.038	0.102		0.6	0.001	3.4	0.008	0.002	0.9	<0.001	<0.01	0.008	2.3	<0.002	<0.005	<0.002	0.048	0.001	<0.002	<0.001	<0.03	0.010	
R10	Jun/17/2003	<0.0002	0.029	<0.003	0.08	0.033	<0.0002	<0.01	20.5	<0.0002	0.001	<0.001	0.010	0.176		0.6	<0.001	4.2	0.005	<0.001	1.3	<0.001	0.01	<0.002	2.7	<0.002	<0.005	<0.002	0.055	<0.001	<0.002	<0.001	<0.03	0.008	
	Sep/15/2003	<0.0002	0.031	<0.003	0.07	0.041	<0.0002	<0.01	27.4	<0.0002	<0.001	<0.001	0.009	0.092		0.7	<0.001	5	0.02	<0.001	1.6	<0.001	<0.01	<0.002	3.3	0.004	<0.005	<0.002	0.077	<0.001	<0.002	<0.001	<0.03	0.014	
	Dec/13/2003	0.0002	0.020	<0.003	<0.05	0.063	<0.0002	<0.01	44.6	<0.0002	<0.001	<0.001	0.011	0.049	<0.0001	1.0	0.004	8.1	0.031	0.001	2.4	<0.001	<0.01	<0.002	6.2	<0.002	<0.005	<0.002	0.146	<0.001	<0.002	<0.001	<0.03	0.005	
	Average	0.0002	0.027	0.003	0.07	0.046	0.0002	0.01	30.8	0.0002	0.001	0.001	0.010	0.106	0.0001	0.8	0.002	5.8	0.019	0.001	1.8	0.001	0.01	0.002	4.1	0.003	0.005	0.002	0.093	0.001	0.002	0.001	0.03	0.009	
	Median	0.0002	0.029	0.003	0.07	0.041	0.0002	0.01	27.4	0.0002	0.001	0.001	0.010	0.092	0.0001	0.7	0.001	5.0	0.020	0.001	1.6	0.001	0.01	0.002	3.3	0.002	0.005	0.002	0.077	0.001	0.002	0.001	0.03	0.008	
	Minimum	0.0002	0.020	0.003	0.05	0.033	0.0002	0.01	20.5	0.0002	0.001	0.001	0.009	0.049	0.0001	0.6	0.001	4.2	0.005	0.001	1.3	0.001	0.01												

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Dissolved Metals

Gartner Lee		Dissolved Metals																																	
Station	Date	AG-D mg/L	AL-D mg/L	AS-D mg/L	B-D mg/L	BA-D mg/L	BE-D mg/L	BI-D mg/L	CA-D mg/L	CD-D mg/L	CO-D mg/L	CR-D mg/L	CU-D mg/L	FE-D mg/L	HG-D mg/L	K-D mg/L	LA-D mg/L	MG-D mg/L	MN-D mg/L	MO-D mg/L	NA-D mg/L	NI-D mg/L	P-D mg/L	PB-D mg/L	S-D mg/L	SB-D mg/L	SE-D mg/L	SI-D mg/L	SN-D mg/L	SR-D mg/L	TI-D mg/L	TL-D mg/L	V-D mg/L	W-D mg/L	ZN-D mg/L
X11	Jan/14/2003	0.0005	0.032	0.035	0.11	0.125	0.0002	<0.01	272.5	<0.0002	0.015	<0.001	0.026	0.110		9.5	<0.001	55.3	12.996	0.003	41.5	0.018	<0.01	0.005	268.9	0.005	<0.005	9.3	<0.002	0.751	<0.001		<0.001	<0.03	0.008
	Feb/15/2003	<0.0002	0.008	0.026	0.10	0.066	0.0003	<0.01	272.9	<0.0002	0.015	<0.001	0.016	0.239		9.5	<0.001	55.9	12.522	0.003	40.6	0.014	<0.01	0.007	264.7	<0.002	0.005	9.9	0.002	0.720	<0.001		<0.001	<0.03	<0.001
	Mar/15/2003	0.0013	0.032	0.006	0.10	0.075	0.0003	<0.01	269.2	<0.0002	0.014	<0.001	0.013	0.095		9.4	<0.001	57.6	12.697	0.004	41.4	0.016	<0.01	<0.002	261.4	0.004	<0.005	9.7	<0.002	0.773	<0.001		0.003	<0.03	0.084
	Apr/15/2003	0.0004	0.042	0.007	0.15	0.046	0.0005	<0.01	277.2	0.0002	0.013	<0.001	0.005	0.266		9.5	<0.001	60.0	13.286	0.003	41.5	0.006	<0.01	0.003	273.3	<0.002	0.005		<0.002	0.799	<0.001	<0.002	0.004	<0.03	0.010
	May/13/2003	0.0005	0.047	0.016	0.08	0.04	<0.0002	<0.01	279.2	<0.0002	0.015	<0.001	0.016	0.225		9.6	<0.001	59.7	12.842	0.004	40.6	0.015	<0.01	<0.002	274.9	0.003	<0.005		<0.002	0.758	<0.001	<0.002	0.003	<0.03	0.013
	Jun/14/2003	0.0004	0.003	0.009	0.10	0.051	<0.0002	<0.01	285.0	<0.0002	0.015	<0.001	0.003	0.085		9.1	<0.001	59.9	12.612	<0.001	38.7	0.013	<0.01	<0.002	277.4	<0.002	<0.005		<0.002	0.757	<0.001	<0.002	0.002	<0.03	0.011
	Jul/14/2003	<0.0002	0.012	0.006	0.09	0.057	0.0003	<0.01	297.4	0.0002	0.015	0.001	0.017	0.311		9.5	<0.001	64.2	13.081	0.004	37.8	0.014	<0.01	<0.002	307.0	<0.002	<0.005		<0.002	0.816	<0.001	<0.002	0.001	<0.03	0.008
	Aug/11/2003	<0.0002	<0.001	0.019	0.06	0.055	0.0005	<0.01	285.4	<0.0002	0.017	<0.001	0.010	0.165		9.5	<0.001	61.8	13.790	<0.001	38.8	0.019	<0.01	<0.002	290.5	<0.002	<0.005		0.002	0.756	<0.001	<0.002	<0.001	<0.03	<0.001
	Sep/08/2003	0.0007	0.005	0.007	0.09	0.052	0.0004	<0.01	283	<0.0002	0.016	<0.001	0.019	0.109		9.4	<0.001	62.7	13.454	0.001	38.3	0.014	<0.01	0.006	291.7	<0.002	<0.005		<0.002	0.798	<0.001	<0.002	0.002	<0.03	0.022
	Oct/14/2003	0.0002	0.006	0.007	0.08	0.057	0.0003	<0.01	311.4	<0.0002	0.018	<0.001	0.013	0.362		10.1	<0.001	66.9	14.746	0.005	40.3	0.019	<0.01	0.008	296.9	<0.002	<0.005		<0.002	0.847	<0.001	<0.002	0.002	<0.03	0.004
Nov/15/2003	0.0005	<0.001	0.006	0.09	0.058	0.0004	<0.01	304.5	<0.0002	0.019	<0.001	0.014	0.06	<0.0001	9.9	<0.001	70.6	14.944	0.004	40.5	0.021	<0.01	<0.002	293.5	<0.002	<0.005		0.008	0.85	<0.001	<0.002	<0.001	<0.03	0.008	
Dec/15/2003	0.0004	<0.001	0.004	0.07	0.056	<0.0002	<0.01	299.6	0.0003	0.018	<0.001	0.007	0.117	<0.0001	9.6	<0.001	63.6	14.772	0.002	38.9	0.021	<0.01	<0.002	291.2	<0.002	<0.005		<0.002	0.842	<0.001	<0.002	0.004	<0.03	0.003	
	Average	0.0004	0.016	0.012	0.09	0.061	0.0003	0.01	286.4	0.0002	0.016	0.001	0.013	0.179	0.0001	9.5	0.001	61.5	13.479	0.003	39.9	0.016	0.01	0.004	282.6	0.003	0.005	9.6	0.002	0.791	0.001	0.002	0.002	0.03	0.014
	Median	0.0004	0.007	0.007	0.09	0.057	0.0003	0.01	284.0	0.0002	0.015	0.001	0.014	0.141	0.0001	9.5	0.001	60.9	13.184	0.003	40.4	0.016	0.01	0.002	283.9	0.002	0.005	9.7	0.002	0.798	0.001	0.002	0.002	0.03	0.008
	Minimum	0.0002	0.001	0.004	0.06	0.040	0.0002	0.01	269.2	0.0002	0.013	0.001	0.003	0.060	0.0001	9.1	0.001	55.3	12.522	0.001	37.8	0.006	0.01	0.002	261.4	0.002	0.005	9.3	0.002	0.720	0.001	0.002	0.001	0.03	0.001
	Maximum	0.0013	0.047	0.035	0.15	0.125	0.0005	0.01	311.4	0.0003	0.019	0.001	0.026	0.362	0.0001	10.1	0.001	70.6	14.944	0.005	41.5	0.021	0.01	0.008	307.0	0.005	0.008	9.9	0.002	0.850	0.001	0.002	0.004	0.03	0.084
X12	Jan/14/2003	0.0006	0.050	<0.003	0.10	0.090	<0.0002	<0.01	143.2	0.0004	<0.001	<0.001	0.016	0.059		6.6	<0.001	32.5	0.204	0.003	23.5	<0.001	<0.01	0.008	109.1	<0.002	<0.005	7.0	<0.002	0.438	<0.001		<0.001	<0.03	0.001
	Feb/15/2003	0.0006	0.041	<0.003	0.10	0.073	<0.0002	<0.01	158.4	<0.0002	0.001	<0.001	0.013	0.045		6.8	0.005	32.7	0.278	0.002	23.6	<0.001	<0.01	0.002	115.7	<0.002	<0.005	7.5	0.002	0.450	<0.001		<0.001	<0.03	0.003
	Mar/15/2003	<0.0002	0.044	0.004	0.09	0.079	0.0002	<0.01	156.2	<0.0002	<0.001	<0.001	0.012	0.018		7.4	<0.001	35.9	0.382	0.002	26.0	0.002	<0.01	<0.002	122.6	<0.002	<0.005	7.1	0.004	0.467	<0.001		0.001	<0.03	<0.001
	Apr/15/2003	<0.0002	0.062	0.004	0.13	0.053	0.0004	0.01	166.3	<0.0002	<0.001	<0.001	0.008	0.078		7.8	<0.001	37.9	0.425	0.001	26.2	0.005	<0.01	<0.002	135.5	<0.002	<0.005		<0.002	0.494	<0.001	<0.002	<0.001	<0.03	0.009
	May/13/2003	0.0003	0.073	0.003	0.07	0.053	<0.0002	<0.01	146.3	0.0002	<0.001	<0.001	0.011	0.024		7.5	<0.001	33.1	0.282	<0.001	22.3	0.002	0.02	<0.002	116.3	<0.002	<0.005		<0.002	0.42	<0.001	<0.002	<0.001	<0.03	0.02
	Jun/14/2003	<0.0002	0.007	0.004	0.08	0.039	<0.0002	<0.01	146.4	<0.0002	0.001	<0.001	0.002	0.008		7.0	<0.001	31.2	0.295	<0.001	20.6	<0.001	0.01	<0.002	110.5	<0.002	<0.005		<0.002	0.404	<0.001	<0.002	<0.001	<0.03	0.008
	Jul/14/2003	<0.0002	0.019	<0.003	0.08	0.046	0.0003	<0.01	158.7	<0.0002	0.001	<0.001	0.015	0.036																					

2003 Faro Annual Environmental Report, Water Licence QZ95-003

[illegible]

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 1, 2003 Surface Water Quality Listing - Dissolved Metals

[illegible]

Appendix 2

2003 Groundwater Quality Listing



2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 2, 2003 Ground Water Quality Listing - Routine Parameters

Gartner Lee		Routine Parameters								
Station	Date	HARD-T mg/L	ALK-T mg/L	TEMP deg C	COND-F µS/cm	COND-L µS/cm	PH-F pH unit	PH-L pH unit	SO4-T mg/L	SWL meters
BH1	Jun/05/2003	175	150	2.9	396	373	6.1	6.62	55	2.95
	Sep/25/2003	205	131	2.00	393	350	4.72	7.64	68	3.34
BH12A	Jun/06/2003	1450	231	3.9	2500	2340	6.3	7.54	1270	1.47
	Sep/25/2003	576	184	2.70	1070	1040	6.45	7.88	358	1.37
BH12B	Jun/06/2003	1400	235	2.5	2461	1130	6.3	7.74	1210	1.48
	Sep/25/2003	568	185	3.80	1048	967	6.79	8.04	369	1.38
BH14A	Jun/05/2003	2390	377	2.7	3602	3190	6.9	7.93	1690	4.65
	Sep/25/2003	2490	380	4.30	3060	3320	6.20	7.91	1860	-0.16
BH14B	Jun/05/2003	2120	365	1.8	3501	3290	6.8	7.52	1740	4.69
	Sep/25/2003	2220	349	3.70	2822	3110	6.80	7.81	1550	3.51
BH2	Jun/05/2003	234	101	4.8	519	531	6.2	8	176	2.71
	Sep/25/2003	211	112	4.40	471	390	5.70	7.73	96	4.28
BH4	Jun/05/2003	182	97	1.8	454	421	5.7	6.33	118	1.71
	Sep/25/2003	185	100	4.10	348	389	5.64	7.2	96	1.84
P01-01A	Jun/02/2003	693	199	2.6	1156	1190	7.3	8.05	580	3.14
	Sep/22/2003	684	199	3.40	1285	1250	7.14	7.96	520	3.27
	Sep/24/2003	459	380	4.30	1052	1000	7.66	8.27	212	
P01-01B	Jun/02/2003	591	228	3.0	1040	1070	6.7	8.09	399	3.28
	Sep/22/2003	585	228	3.80	1132	1090	7.14	8.1	413	3.43
P01-02A	Jun/03/2003	333	195		608	599	7.1	8.11	143	
	Sep/22/2003	305	200	3.90	624	611	7.69	8.23	134	
	Sep/24/2003	701	440	2.40	1165	1160	7.40	8.12	281	4.47
P01-02B	Jun/03/2003	276	178	4.0	557	541	6.8	8.13	125	1.57
	Sep/22/2003	275	178	4.20	564	548	7.63	8.12	119	1.07
	Sep/24/2003	980	438	2.60	1353	1310	7.20	7.94	383	4.46
P01-03	Sep/22/2003	1270	313	2.80	2138	2170	6.55	7.91	1130	
P01-04A	Jun/06/2003	525	293	5.1	1197	1090	6.8	7.81	191	0.98
	Sep/23/2003	565	288	2.80	1206	1150	7.08	8.03	399	
P01-04B	Jun/03/2003	562	595	3.1	1160	1140	6.5	7.84	50	0.57
	Sep/23/2003	558	700	3.00	1177	1190	6.29	8.06	43	1.23
P01-05A	Jun/04/2003	683	30	2.5	1015	1720	6.1	7.25	1020	2.93
	Sep/23/2003	315	41	5.00	1187	1420	7.70	7.28	729	2.94
P01-05B	Jun/04/2003	836	218	3.1	1629	1530	6.7	7.94	814	3.28
	Sep/23/2003	659	232	3.10	1541	1530	6.90	8.01	714	3.26
P01-06	Jun/04/2003	1140	49	2.5	2640	2270	6.4	5.67	1620	4.77
	Sep/23/2003	1080	36	2.40	2501	2600	6.29	5.88	1910	4.71
P01-07A	Jun/03/2003	24.2	288	3.7	1748	1710	9.6	9.06	636	11.12
	Sep/23/2003	14.7	280	3.20	1332	1530	9.70	8.6	432	10.94
P01-07B	Jun/03/2003	189	373	3.7	1589	1680	8.2	8.26	498	11.11
	Sep/24/2003	161	352	4.10	1686	1690	6.98	7.82	601	11.04
P01-07C	Jun/02/2003	666	169			1180		7.54	662	
	Jun/03/2003			3.1	1348		6.8			10.98
	Sep/23/2003	601	190	3.20	1401	1380	6.83	7.96	701	10.98
P01-07D	Jun/02/2003	999	151			1750		7.07	1070	
	Jun/03/2003			3.3	1822		6.5			11.30
	Sep/23/2003	972	140	2.20	1716	1840	6.45	7.77	1050	11.30
P01-07E	Jun/02/2003	948	140			1650		7.02	1020	
	Jun/03/2003	843	139	3.6	1734	1680	6.4	7.49	973	11.41
	Sep/24/2003	1030	122	2.50	1806	1830	6.06	7.7	1130	11.18
P01-08A	Jun/04/2003	16.6	130	4.2	757	1100	7.4	7.87	239	12.27
	Sep/24/2003	27.9	117	0.80	764	763	7.72	7.64	239	12.25
P01-08B	Jun/04/2003	393	57	1.9	920	788	6.5	8.53	375	12.34
	Sep/24/2003	431	68	1.40	897	801	6.92	7.23	376	12.34
P01-09A	Jun/04/2003	3560	<1	4.0	35040	826	5.9	7.32	56600	6.06
	Sep/24/2003	3840	<1	3.20	18100	35900	5.90	3.34	77600	5.95
P01-09B	Jun/04/2003	276	9	4.2	1506	1360	5.4	5.26	913	6.12
	Sep/24/2003	483	9	3.30	1832	1910	5.25	5.46	1390	6.37

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 2, 2003 Ground Water Quality Listing - Routine Parameters

 Gartner Lee		Routine Parameters								
Station	Date	HARD-T mg/L	ALK-T mg/L	TEMP deg C	COND-F µS/cm	COND-L µS/cm	PH-F pH unit	PH-L pH unit	SO4-T mg/L	SWL meters
P01-09C	Jun/05/2003	203	14	4.4	833	781	5.7	5.97	416	6.23
	Sep/24/2003	384	9	3.40	1628	1590	5.50	5.67	1120	6.55
P01-09D	Jun/05/2003	354	7	4.1	1913	1840	5.5	5.51	1560	6.67
	Sep/24/2003	553	11	3.50	1926	1950	5.41	5.6	1390	7.06
P01-10A	Jun/04/2003	1680	102	5.2	4055	3780	8.4	7.96	2460	9.52
	Sep/25/2003	1650	116	2.80	3701	3720	7.15	7.98	2380	9.23
P01-10B	Jun/04/2003	307	291	3.7	733	681	6.9	8.05	113	10.03
	Sep/24/2003	294	236	3.00	781	712	7.02	7.84	168	10.07
P01-11	Jun/02/2003	922	268			1580		7.33	812	
	Jun/03/2003			3.6	1588		6.7			0.08
	Sep/22/2003	935	274	4.50	1782	1770	7.16	7.86	862	0.07
P96-6	Jun/06/2003	562	312	4.6	1107	913	5.8	7	251	11.06
	Sep/25/2003	472	266	3.20	826	855	6.15	8.09	220	12.24
P96-7	Jun/06/2003	1740	222	2.4	3020	4960	6.7	6.82	2020	7.95
	Sep/26/2003	2080	163	1.80	3050	3070	6.30	8.09	2060	4.93
P96-8A	Jun/05/2003	3320	192	2.7	5030	4580	6.2	7.89	3610	
	Sep/26/2003	3960	265	6.20	4751	5170	6.30	7.25	3950	
P96-8B	Jun/05/2003	4530	356	3.8	6180	5500	6.2	7.12	4800	
	Sep/26/2003	4400	386	5.00	5230	5610	5.90	7.29	4380	
S1A	Jun/06/2003	4150	198	1.8	5200	2410	6.0	7.53	4040	2.84
	Sep/25/2003	4190	197	2.20	3962	5230	5.81	7.6	4380	3.02
S1B	Jun/06/2003	1040	159	3.7	1212	1820	6.2	6.97	1050	
	Sep/25/2003	896	115	3.20	2780	2450	6.27	6.98	1630	
S2A	Jun/06/2003	3140	260	3.1	4325	3110	6.0	7.39	2400	3.21
	Sep/25/2003	3790	233	3.30	3448	3260	5.90	7.38	2410	2.27
S2B	Jun/06/2003	2050	44	4.1	3869	3200	6.4	6.69	2490	3.16
	Sep/25/2003	1970	87	3.40	2491	3150	6.16	7.35	2410	4.54
S3	Jun/06/2003	3460	165	1.9	4639	4200	5.9	7.09	3440	
	Sep/25/2003	4120	175	4.30	4000	4790	5.70	7.19	4080	
TH86-17	Jun/03/2003	96.2	84	1.4	198	196	7.2	7.87	16	5.95
	Sep/23/2003	75	76	4.50	193	188	7.12	8.07	15	7.49
X16A	Jun/02/2003	167	144	3.3	297	303	7.0	8.04	24	2.67
	Sep/22/2003	168	150	4.50	325	318	7.59	8.15	22	2.88
X16B	Jun/02/2003	222	190	3.9	376	376	6.9	8.18	27	2.64
	Sep/22/2003	217	193	3.90	410	399	7.35	8.2	25	3.32
X17A	Jun/02/2003	279	249	3.0	473	483	7.0	8.16	54	1.55
	Sep/22/2003	245	207	3.40	453	435	7.68	8.24	35	1.62
X17B	Jun/02/2003	343	436	4.0	579	829	6.8	8	65	1.55
	Sep/22/2003	310	280	3.60	580	563	7.25	8.07	35	1.63
X18A	Jun/02/2003	738	211	4.3	1193	1200	6.6	8.05	596	3.54
	Sep/22/2003	641	210	2.90	1235	1200	7.07	7.95	461	3.86
X18B	Jun/02/2003	676	209	3.7	1127	1200	6.7	8.01	577	
	Sep/22/2003	608	203	3.00	1227	1190	7.02	8.11	487	3.57
X21A-96	Jun/04/2003	923	38	2.5	1587	2290	6.1	5.64	1730	4.12
	Sep/23/2003	5040	7	3.00	5340	8350	6.09	3.24	8170	4.07
X21B-96	Jun/04/2003	515	170	3.2	690	1100	6.5	7.62	446	4.10
	Sep/23/2003	564	145	2.70	1323	1280	6.96	7.82	644	4.03
X21C-96	Jun/04/2003	187	181	2.9	201	1760	7.8	7.49	8	4.08
	Sep/23/2003	181	183	2.60	520	342	7.70	8.35	8	4.03
X24A-96	Jun/02/2003	866	268			1470		7.3	725	
	Jun/03/2003			3.0	1558		6.7			2.41
	Sep/22/2003	1200	316	3.30	2016	2070	6.68	7.87	1050	3.18
X24C-96	Jun/02/2003	1410	319			2170		7.05	1330	
	Jun/03/2003			2.9	2294		6.6			2.47
	Sep/22/2003	1260	319	3.50	2073	2110	6.65	7.77	1090	3.23
X24D-96	Jun/02/2003	1590	346			2300		7.07	1340	
	Jun/03/2003			3.6	2413		6.6			2.33
	Sep/22/2003	1420	342	2.70	2334	2420	6.56	7.57	1340	3.09

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 2, 2003 Ground Water Quality Listing - Routine Parameters

 Gartner Lee		Routine Paramaters								
Station	Date	HARD-T mg/L	ALK-T mg/L	TEMP deg C	COND-F µS/cm	COND-L µS/cm	PH-F pH unit	PH-L pH unit	SO4-T mg/L	SWL meters
X25A-96	Jun/02/2003	424	247			1020		7.9	261	
	Jun/03/2003			3.2	896		7.1			1.76
	Sep/23/2003	404	255	3.10	862	852	6.73	8.2	249	2.52
X25B-96	Jun/02/2003	497	273			864		7.63	332	
	Jun/03/2003			3.2	1068		7.1			1.69
	Sep/23/2003	505	274	2.40	1116	1040	7.00	8.02	339	2.43

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 2, 2003 Ground Water Listing - Dissolved Metals

Gartner Lee		Dissolved Metals																										
Station	Date	AG-D mg/L	AL-D mg/L	AS-D mg/L	B-D mg/L	BA-D mg/L	BE-D mg/L	CA-D mg/L	CD-D mg/L	CO-D mg/L	CR-D mg/L	CU-D mg/L	FE-D mg/L	HG-D mg/L	K-D mg/L	MG-D mg/L	MN-D mg/L	MO-D mg/L	NA-D mg/L	NI-D mg/L	PB-D mg/L	SB-D mg/L	SE-D mg/L	SN-D mg/L	TI-D mg/L	TL-D mg/L	V-D mg/L	ZN-D mg/L
BH1	Jun/05/2003	<0.00002	0.02	<0.0005	<0.1	0.04	<0.001	50.4	0.00339	0.002	<0.001	0.004	<0.03	<0.00005	<2	12	0.512	<0.001	5	0.006	0.0019	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	0.823
	Sep/25/2003	<0.00002	0.042	<0.0005	<0.1	0.04	<0.001	59.7	0.00562	0.0039	<0.001	0.005	<0.03	<0.00005	2	13.6	0.88	<0.001	5	0.011	0.0028	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	1.73
BH12A	Jun/06/2003	<0.0001	<0.03	<0.003	<0.1	0.08	<0.005	358	0.0005	<0.002	<0.005	<0.005	<0.03	<0.00005	4	136	<0.002	<0.005	11	0.019	<0.003	<0.003	0.008	<0.003	<0.01	<0.001	<0.03	0.23
	Sep/25/2003	<0.00004	0.03	<0.001	<0.1	0.03	<0.002	134	0.0002	<0.0006	<0.002	0.002	0.09	<0.00005	3	58.8	0.0021	<0.002	6	0.008	<0.001	<0.001	<0.002	<0.001	<0.01	<0.0004	<0.03	0.113
BH12B	Jun/06/2003	<0.0001	<0.03	<0.003	<0.1	0.08	<0.005	338	0.0005	<0.002	<0.005	<0.005	<0.03	<0.00005	2	134	0.008	<0.005	11	0.019	<0.003	<0.003	0.006	<0.003	<0.01	<0.001	<0.03	0.26
	Sep/25/2003	<0.00004	0.62	<0.001	<0.1	0.04	<0.002	132	0.0003	<0.0006	<0.002	0.004	0.84	<0.00005	3	57.8	0.0228	<0.002	6	0.01	0.008	<0.001	<0.002	<0.001	0.03	<0.0004	<0.03	0.135
BH14A	Jun/05/2003	<0.0002	<0.05	<0.005	<0.1	<0.02	<0.01	604	<0.0005	<0.003	<0.01	<0.01	<0.03	<0.00005	4	214	<0.003	<0.01	30	<0.01	<0.005	<0.005	<0.01	<0.005	<0.01	<0.002	<0.03	0.016
	Sep/25/2003	<0.0002	1.64	<0.005	<0.1	0.04	<0.01	632	<0.0005	<0.003	<0.01	<0.01	1.21	<0.00005	5	222	0.052	<0.01	16	<0.01	0.013	<0.005	<0.01	<0.005	0.02	<0.002	<0.03	0.03
BH14B	Jun/05/2003	<0.0002	<0.05	<0.005	<0.1	<0.02	<0.01	521	<0.0005	<0.003	<0.01	<0.01	0.24	<0.00005	3	198	0.015	<0.01	15	<0.01	<0.005	<0.005	<0.01	<0.005	<0.01	<0.002	<0.03	0.11
	Sep/25/2003	<0.0002	3.31	<0.005	<0.1	0.04	<0.01	557	<0.0005	<0.003	<0.01	<0.01	3.19	<0.00005	4	202	0.219	<0.01	15	<0.01	0.046	<0.005	<0.01	<0.005	0.01	<0.002	<0.03	0.05
BH2	Jun/05/2003	<0.0001	<0.03	<0.003	<0.1	0.06	<0.005	61.4	0.0181	<0.002	<0.005	<0.005	0.04	<0.00005	<2	19.6	0.01	<0.005	4	0.066	<0.003	<0.003	<0.005	<0.003	<0.01	<0.001	<0.03	16
	Sep/25/2003	<0.0001	0.1	<0.003	<0.1	0.04	<0.005	53.6	0.0225	<0.002	<0.005	<0.005	0.07	<0.00005	<2	18.6	0.027	<0.005	4	0.083	<0.003	<0.003	<0.005	<0.003	<0.01	<0.001	<0.03	22.1
BH4	Jun/05/2003	<0.00002	0.713	<0.0005	<0.1	0.02	<0.001	51.7	0.00426	0.0147	<0.001	0.013	<0.03	<0.00005	<2	12.9	0.186	<0.001	5	0.027	0.0005	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	2.82
	Sep/25/2003	<0.00002	0.053	<0.0005	<0.1	<0.02	<0.001	52.7	0.00194	0.0069	<0.001	0.003	<0.03	<0.00005	<2	13.1	0.0863	<0.001	5	0.015	<0.0005	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	1.42
P01-01A	Jun/02/2003	<0.00004	<0.01	<0.001	<0.1	0.09	<0.002	208	<0.0001	<0.0006	<0.002	<0.002	<0.03	<0.00005	6	42	0.137	<0.002	23	<0.002	<0.001	<0.001	<0.002	<0.001	<0.01	<0.0004	<0.03	<0.005
	Sep/22/2003	<0.0001	<0.03	<0.003	<0.1	0.1	<0.005	202	<0.0003	<0.002	<0.005	<0.005	<0.03	<0.00005	5	44	0.316	<0.005	25	<0.005	<0.003	<0.003	<0.005	<0.003	<0.01	<0.001	<0.03	<0.005
	Sep/24/2003	0.00004	3.8	0.016	<0.1	0.08	<0.002	96.5	0.0008	0.0049	0.015	0.024	5.92	<0.00005	3	52.9	0.623	0.026	85	0.024	0.014	<0.001	<0.002	<0.001	0.03	<0.0004	<0.03	0.068
P01-01B	Jun/02/2003	<0.00004	<0.01	0.016	<0.1	0.08	<0.002	179	<0.0001	<0.0006	<0.002	<0.002	1.38	<0.00005	4	34.7	0.13	<0.002	23	<0.002	<0.001	<0.001	<0.002	<0.001	<0.01	<0.0004	<0.03	<0.005
	Sep/22/2003	<0.00004	<0.01	0.006	<0.1	0.08	<0.002	175	<0.0001	<0.0006	<0.002	<0.002	0.68	<0.00005	4	36	0.12	<0.002	26	<0.002	<0.001	<0.001	<0.002	<0.001	<0.01	<0.0004	<0.03	<0.005
P01-02A	Jun/03/2003	<0.00002	<0.005	0.0008	<0.1	0.05	<0.001	95.7	0.0001	0.0004	<0.001	<0.001	<0.03	<0.00005	3	22.8	0.476	0.002	14	0.002	<0.0005	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	0.014
	Sep/22/2003	<0.00002	<0.005	0.0006	<0.1	0.05	<0.001	86.8	0.00006	0.0003	<0.001	<0.001	<0.03	<0.00005	2	21.3	0.543	0.002	12	0.002	<0.0005	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	<0.005
	Sep/24/2003	<0.00004	<0.01	0.043	<0.1	0.04	<0.002	136	<0.0001	<0.0006	<0.002	<0.002	3.16	<0.00005	6	88	0.404	0.007	11	<0.002	0.002	<0.001	<0.002	<0.001	<0.01	<0.0004	<0.03	0.005
P01-02B	Jun/03/2003	<0.00002	<0.005	0.0031	<0.1	0.03	<0.001	67.7	<0.00005	0.0005	<0.001	<0.001	0.24	<0.00005	3	25.9	0.217	<0.001	16	0.002	<0.0005	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	<0.005
	Sep/22/2003	<0.00002	0.029	0.0031	<0.1	0.03	<0.001	66.9	<0.00005	0.0005	<0.001	<0.001	0.33	<0.00005	<2	26.1	0.232	<0.001	16	0.002	0.0006	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	<0.005
	Sep/24/2003	0.0001	12.6	0.062	<0.1	0.08	<0.005	221	0.0013	0.015	0.028	0.068	21.5	<0.00005	6	104	1.37	<0.005	12	0.041	0.335	<0.003	<0.005	<0.003	0.02	<0.001	<0.03	0.234
P01-03	Sep/22/2003	<0.0002	1.33	<0.005	<0.1	0.03	<0.01	375	0.0011	0.039	<0.01	<0.01	1.55	<0.00005	6	81.9	36.6	<0.01	41	0.07	<0.005	<0.005	<0.01	<0.005	0.02	<0.002	<0.03	0.011
P01-04A	Jun/06/2003	0.0002	<0.03	<0.003	<0.1	0.04	<0.005	164	<0.0003	<0.002	<0.005	<0.																

2003 Faro Annual Environmental Report, Water Licence QZ95-003
Appendix 2, 2003 Ground Water Listing - Dissolved Metals

Gartner Lee		Dissolved Metals																										
Station	Date	AG-D mg/L	AL-D mg/L	AS-D mg/L	B-D mg/L	BA-D mg/L	BE-D mg/L	CA-D mg/L	CD-D mg/L	CO-D mg/L	CR-D mg/L	CU-D mg/L	FE-D mg/L	HG-D mg/L	K-D mg/L	MG-D mg/L	MN-D mg/L	MO-D mg/L	NA-D mg/L	NI-D mg/L	PB-D mg/L	SB-D mg/L	SE-D mg/L	SN-D mg/L	TI-D mg/L	TL-D mg/L	V-D mg/L	ZN-D mg/L
P01-10A	Jun/04/2003	<0.0002	<0.05	<0.005	<0.1	<0.02	<0.01	88.4	<0.0005	<0.003	<0.01	<0.01	0.08	<0.00005	17	355	0.145	0.04	402	<0.01	0.055	0.028	<0.01	<0.005	<0.01	<0.002	<0.03	0.016
	Sep/25/2003	<0.0002	0.21	0.006	<0.1	0.06	<0.01	92.1	0.0011	0.003	<0.01	0.02	1.71	<0.00005	16	344	0.171	0.04	363	<0.01	0.216	0.029	<0.01	<0.005	<0.01	<0.002	<0.03	0.58
P01-10B	Jun/04/2003	<0.00004	<0.01	0.009	<0.1	0.26	<0.002	99.9	<0.0001	0.001	<0.002	<0.002	4.92	<0.00005	3	14	6.15	0.009	45	<0.002	<0.001	<0.001	<0.002	<0.001	<0.01	<0.0004	<0.03	<0.005
	Sep/24/2003	<0.00004	0.74	0.012	<0.1	0.14	<0.002	81.7	0.0004	0.0018	0.002	0.006	25.7	<0.00005	3	22	5.43	0.008	47	0.003	0.131	<0.001	<0.002	<0.001	0.01	<0.0004	<0.03	0.404
P01-11	Jun/02/2003	<0.0001	<0.03	0.03	<0.1	0.05	<0.005	287	<0.0003	<0.002	<0.005	<0.005	20.3	<0.00005	6	49.6	10.7	<0.005	43	<0.005	<0.003	<0.003	<0.005	<0.003	<0.01	<0.001	<0.03	0.007
	Sep/22/2003	0.0003	0.29	0.033	<0.1	0.05	<0.005	288	<0.0003	0.002	<0.005	<0.005	20.9	<0.00005	6	52.6	13.9	<0.005	45	0.005	<0.003	<0.003	<0.005	<0.003	<0.01	<0.001	<0.03	<0.005
P96-6	Jun/06/2003	<0.00004	0.03	<0.001	<0.1	0.03	<0.002	145	0.0005	<0.0006	<0.002	0.002	0.21	<0.00005	4	48.7	0.0873	<0.002	8	0.021	<0.001	<0.001	0.002	<0.001	<0.01	<0.0004	<0.03	0.87
	Sep/25/2003	0.00014	0.06	<0.001	<0.1	0.02	<0.002	121	0.001	0.0007	<0.002	0.004	1.31	<0.00005	3	41.5	0.0947	<0.002	5	0.011	0.004	<0.001	0.003	<0.001	<0.01	<0.0004	<0.03	0.612
P96-7	Jun/06/2003	<0.0002	<0.05	<0.005	<0.1	<0.02	<0.01	504	<0.0005	<0.003	<0.01	<0.01	<0.03	<0.00005	6	118	0.007	<0.01	18	<0.01	<0.005	<0.005	<0.01	<0.005	<0.01	<0.002	<0.03	0.018
	Sep/26/2003	<0.0002	<0.05	<0.005	<0.1	<0.02	<0.01	616	<0.0005	<0.003	<0.01	<0.01	<0.03	<0.00005	6	131	<0.003	<0.01	24	<0.01	<0.005	<0.005	<0.01	<0.005	<0.01	<0.002	<0.03	<0.005
P96-8A	Jun/05/2003	<0.001	<0.3	<0.03	<0.1	0.02	<0.05	383	0.084	<0.02	<0.05	<0.05	<0.03	<0.00005	11	573	46.6	<0.05	46	0.75	<0.03	<0.03	<0.05	<0.03	<0.01	<0.01	<0.03	235
	Sep/26/2003	<0.001	<0.3	<0.03	<0.1	<0.02	<0.05	455	0.08	<0.02	<0.05	<0.05	0.08	<0.00005	15	687	47	<0.05	54	0.63	<0.03	<0.03	<0.05	<0.03	<0.01	<0.01	<0.03	205
P96-8B	Jun/05/2003	<0.001	<0.3	<0.03	<0.1	0.03	<0.05	523	0.025	0.1	<0.05	<0.05	0.06	<0.00005	13	784	48.7	<0.05	52	0.56	<0.03	<0.03	<0.05	<0.03	<0.01	<0.01	<0.03	149
	Sep/26/2003	<0.0004	<0.1	<0.01	<0.2	<0.04	<0.02	525	0.023	0.1	<0.02	<0.02	0.62	<0.00005	13	749	47.1	<0.02	46	0.52	<0.01	<0.01	<0.02	<0.01	<0.02	<0.004	<0.06	152
S1A	Jun/06/2003	<0.0004	<0.1	<0.01	<0.1	<0.02	<0.02	576	0.007	0.009	<0.02	<0.02	0.03	<0.00005	10	658	34.8	<0.02	31	0.9	<0.01	<0.01	<0.02	<0.01	<0.01	<0.004	<0.03	57.3
	Sep/25/2003	<0.0004	<0.1	<0.01	<0.1	<0.02	<0.02	580	0.008	0.01	<0.02	<0.02	<0.03	<0.00005	10	665	43.2	<0.02	28	0.98	<0.01	<0.01	<0.02	<0.01	<0.01	<0.004	<0.03	79.7
S1B	Jun/06/2003	<0.0001	<0.03	<0.003	<0.1	0.02	<0.005	287	0.0009	<0.002	<0.005	<0.005	0.06	<0.00005	3	78.4	0.888	<0.005	38	0.009	<0.003	<0.003	<0.005	<0.003	<0.01	<0.001	<0.03	0.07
	Sep/25/2003	<0.0001	0.15	<0.003	<0.1	0.03	<0.005	247	0.0004	<0.002	<0.005	<0.005	0.22	<0.00005	4	67.9	0.082	<0.005	47	0.009	<0.003	<0.003	<0.005	<0.003	<0.01	<0.001	<0.03	0.073
S2A	Jun/06/2003	<0.0002	<0.05	<0.005	<0.1	<0.02	<0.01	448	0.0081	0.004	<0.01	<0.01	0.99	<0.00005	8	490	28.3	<0.01	23	0.6	<0.005	<0.005	<0.01	<0.005	<0.01	<0.002	<0.03	48.5
	Sep/25/2003	<0.0004	0.1	<0.01	<0.1	<0.02	<0.02	515	0.012	0.006	<0.02	<0.02	1.17	<0.00005	10	607	47.6	<0.02	23	0.94	<0.01	<0.01	<0.02	<0.01	<0.01	<0.004	<0.03	92.6
S2B	Jun/06/2003	<0.0002	<0.05	<0.005	<0.1	0.05	<0.01	631	<0.0005	0.008	<0.01	<0.01	134	<0.00005	5	117	13.9	<0.01	15	0.02	<0.005	<0.005	<0.01	<0.005	<0.01	<0.002	<0.03	0.9
	Sep/25/2003	<0.0002	8.42	0.021	<0.1	0.05	<0.01	572	0.0129	0.014	0.03	0.04	121	<0.00005	4	131	11	<0.01	14	0.04	0.031	<0.005	<0.01	<0.005	0.1	<0.002	<0.03	0.73
S3	Jun/06/2003	<0.0002	<0.05	0.016	<0.1	0.04	<0.01	436	<0.0005	0.025	<0.01	<0.01	7.85	<0.00005	10	575	29.1	<0.01	19	0.32	<0.005	<0.005	<0.01	<0.005	<0.01	<0.002	<0.03	43.1
	Sep/25/2003	0.0004	27	0.05	<0.1	0.05	<0.02	510	0.004	0.056	0.06	0.12	33.2	<0.00005	14	692	45.7	<0.02	22	0.52	0.09	<0.01	<0.02	<0.01	0.34	<0.004	0.05	68.2
TH86-17	Jun/03/2003	<0.00002	<0.005	<0.0005	<0.1	0.05	<0.001	29.2	<0.00005	<0.0003	<0.001	0.002	0.05	<0.00005	<2	5.7	0.0121	<0.001	2	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	0.01
	Sep/23/2003	<0.00002	0.029	<0.0005	<0.1	0.04	<0.001	22.1	<0.00005	<0.0003	<0.001	0.005	2.5	<0.00005	<2	4.8	0.0355	<0.001	<2	0.005	0.0006	<0.0005	<0.001	<0.0005	<0.01	<0.0002	<0.03	0.009
X16A	Jun/02/2003	<0.00002	<0.005	<0.0005	<0.1	0.09	<0.001	49.4	<0.00005	<0.0003	<0.001	<0.001	<0.03	<0.00005	<2	10.6	0.0013	0.003	<2	<0.001	<0.0005	<0.0005	0.001	<0.0005	<0.01	<0.0002	<0.03	0.005
	Sep/22/2003	<0.00002	<0.005	<0.0005	<0.1	0.09	<0.001	48.6	0.00009	<0.0003	<0.001	<0.001	<0.03	<0.00005	<2	11.4	0.0006	0.003	<2	<0.001	<0.0005	<0.0005	0.001	<0.0005	<0.01	<0.0002	<0.03	0.007
X16B	Jun/02/2003	<																										

Appendix 3

2003 Bioassay Results



1650 Pandora Street, Vancouver, B.C. V5L 1L6

Postal Bag 1000

Date Received: 3/10/2003

Ph: 604-251-4456 Fax: 604-258-9497

Faro YK Canada

Date Out: 3/12/2003

www.cavendish.ca info@cavendish.ca

Attention: Mr. Dana Hagggar

Project: March 06 2003 quarterly

Certificate of Analysis: 030310A

Sample Type: Water Total

BIOASSAY	
SAMPLE NAME	X-5
SAMPLE DATE	March 10 2003
DATE RECEIVED	March 06 2003
ANALYSIS	96 HOUR Rainbow trout TOXICITY
96 HOUR RESULTS	100% trout alive in all concentrations. The 96 hour LC50 was greater than 100%
SAMPLE NAME	X-13
SAMPLE DATE	March 10 2003
DATE RECEIVED	March 06 2003
ANALYSIS	96 HOUR Rainbow trout TOXICITY
96 HOUR RESULTS	100% trout alive in all concentrations. The 96 hour LC50 was greater than 100%

CAVE SHA YTIC ABC DRY
1650 Pandora Street, Vancouver, B.C. V5L 1L6
Ph: 604-251-4456 Fax: 604-258-9497
www.cavendish.ca info@cavendish.ca

An nge g
Postal Bag 1000
Faro YK Canada
Attention: Mr. Dana Haggar
Project: June 17/03 Quarterly

es: 2
Date Received: 6/20/2003
Date Out: 6/25/2003

Certificate of Analysis: 030620A

Sample Type: Water Total

BIOASSAY	
SAMPLE NAME	X5
SAMPLE DATE	June 17 2003
DATE RECEIVED	June 20 2003
ANALYSIS	96 HOUR Rainbow trout TOXICITY
96 HOUR RESULTS	100% trout alive in all concentrations. The 96 hour LC50 was greater than 100%
SAMPLE NAME	X13
SAMPLE DATE	June 17 2003
DATE RECEIVED	June 20 2003
ANALYSIS	96 HOUR Rainbow trout TOXICITY
96 HOUR RESULTS	100% trout alive in all concentrations. The 96 hour LC50 was greater than 100%

IVE HAI TIC BOI RYI
400 - 2389 Health Sciences Mall, Vancouver, B.C. V6T 1Z4
Ph: 604-251-4456 Fax: 604-258-9497
www.cavendish.ca info@cavendish.ca

T vil R Mini
Postal Bag 1000
Faro YT Canada
Attention: Mr. Dana Haggard
Project: September 2003 Quarterly

es: 2
Date Received: 9/22/2003
Date Out: 2/27/2004

Certificate of Analysis:

030922G

Sample Type: Water Total

BIOASSAY	
SAMPLE NAME	X5
SAMPLE DATE	Sept 16/03
DATE RECEIVED	Sept 22/03
ANALYSIS	96 HOUR Rainbow trout TOXICITY
96 HOUR RESULTS	100% trout alive in all concentrations. The 96 hour LC50 was greater than 100%
SAMPLE NAME	X13
SAMPLE DATE	Sept 16/03
DATE RECEIVED	Sept 22/03
ANALYSIS	96 HOUR Rainbow trout TOXICITY
96 HOUR RESULTS	100% trout alive in all concentrations. The 96 hour LC50 was greater than 100%

CAVE H A Y TIC ABO DRY
400 - 2389 Health Sciences Mall, Vancouver, B.C. V6T 1Z4
Ph: 604-251-4456 Fax: 604-258-9497
www.cavendish.ca info@cavendish.ca

Attention: Mr. Dana Haggar
Project: December 2003/Quarterlies

Ses: 2
Date Received: 12/16/2003
Date Out: 12/31/2003

Certificate of Analysis: 031216A

Sample Type: Water Total

Units -	
Sample Name	Bioassay
SAMPLE NAME	X5
SAMPLE DATE	Dec 13 2003
DATE RECEIVED	Dec 16 2003
ANALYSIS	96 HOUR Rainbow trout LC50 TOXICITY
96 HOUR RESULTS	100% trout alive in 100% concentrations. The 96 hour LC50 was greater than 100%
SAMPLE NAME	X13
SAMPLE DATE	Dec 13 2003
DATE RECEIVED	Dec 16 2003
ANALYSIS	96 HOUR Rainbow trout LC50 TOXICITY
96 HOUR RESULTS	100% trout alive in 100% concentrations. The 96 hour LC50 was greater than 100%

