ALEXCO RESOURCE CORP.

Brewery Creek Mine

2009 ANNUAL WATER LICENSE REPORT

Submitted to the Yukon Water Board

Water Use License QZ96-007

2009 ANNUAL QUARTZ MINING LICENSE REPORT

Submitted to Yukon Government Energy Mines and Resources

Yukon Quartz Mining License A99-001

Distribution:

Yukon Territory Water Board	5 copies unbound
Yukon EMR Mineral Resources	2 copies
	1 copy unbound
Alexco, Corporate	2 copies
Tr'ondek Hwech'in First Nation	1 copy
Dawson Community Library	1 copy

February 2010

Executive Summary

The Brewery Creek Mine, owned and operated by Alexco Resource Corp., is located in central Yukon approximately 55 kilometres east of Dawson City. The mine operates under Class 'A' Water Use License QZ96-007, originally issued as QZ94-003 in August 1995 and under Yukon Quartz Mining License A99-001 issued in 1999.

This report summarizes 2009 monitoring data and activities relevant to both the Water Use and Quartz Mining Licenses.

During 2009 no mining operations were conducted. The heap leach pad was detoxified in 2002 and drained down in 2003. Throughout 2009, all assays for Total cyanide remained below 2.0 mg/l.

During 2009, minor maintenance seeding and fertilization was completed, primarily in and around the reclaimed process ponds. The annual revegetation monitoring program was completed.

The large scale lysimeter constructed in the Blue WRSA was monitored for chemistry and infiltration during 2009.

No direct surface release of heap solution was made in 2009. No land application of solution occurred in 2009.

Final reclamation of the ponds was completed in 2008 through removal of all liners, resloping and scarification of the edges and side slopes. Additional erosion control and maintenance seeding/fertilization was completed in 2009.

Whenever flow and climatic conditions permitted, all monitoring required under QZ96-007 was carried out.

There was no surface discharge of accumulated waters from any of the 6 pits (Pacific, Blue, Moosehead, Kokanee, South Golden and Lucky). All water in the pits either evaporates or infiltrates into the ground.

Stream sediment sampling was completed in 2009. Benthic monitoring was conducted as 2009 and was the last year required for both sediment and benthic monitoring.

A revegetation assessment was completed by Laberge Environmental Services in August 2009.

SRK Consulting completed an independent analysis of the reclamation activities and remaining liabilities in August 2009. The inspection also served as the annual geotechnical inspection report. At the time of submittal of this annual report, SRK had not yet submitted their formal geotech report and therefore it is not included in the annual report submission but it will be as soon as it is received.

No recordable spills occurred in 2009.

Table of Contents

Page

List of Tables

List of Figures

APPENDICES

Appendix A: Climate

- 2009 Summary (table & figure)
- 2009 Climate Data by Month
- 2009 Pan Evaporation Data
- 2009 Pan Evaporation Data Summary

Appendix B: Water Quality

- Station Descriptions & Coordinates
- Monitoring Schedule
- Water Quality Results: Surface Water, In-Pit and Groundwater
- 1991-2009 SW Historical Comparison of TSS – Graphs
- 1991-2009 SW Historical Comparison of Nitrate – Graphs
- 1991-2009 SW Historical Comparison of Ammonia – Graphs
- 1991-2009 SW Historical Comparison of Metals – Graphs
- 1991-2009 SW Historical Comparison of Ammonia – Graphs
- 1991-2009 GW Historical Comparison for Metals (BC28a, BC19, BC21 and BC27)

Appendix C Hydrology

- 2009 Hydrology Data

Appendix D Stream Sediment and Biological Monitoring Programs

Appendix E Revegetation Assessment

Appendix F Bio-Assay Reports

1 INTRODUCTION

The Brewery Creek Mine, owned and operated by Alexco Resource Corp., is located in central Yukon approximately 55 kilometers east of Dawson City. The mine is a conventional open pit heap leach operation that operated continuously from 1996 – 2001. The mine was permanently shut down in 2002. With the exception of some remaining site facilities, the mine has been fully reclaimed.

The mine operates under Class 'A' Water Use License QZ96-007, originally issued as QZ94-003 in August 1995 and under Quartz Mining License A99-001 issued in June 1999.

This report summarizes 2009 monitoring data and activities relevant to the Water Use and Quartz Mining Licenses.

2 2009 OVERVIEW OF ACTIVITIES

The following tasks and activities were completed in 2009:

January 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Site visits for security and wildlife protection were conducted on a bi-weekly basis during the month.
- No other site activity was completed.

February 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Bi-weekly site visits for security and wildlife protection were conducted during the month.
- No other site activity was completed.

March 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- March sampling included quarterly monitoring.
- Bi-weekly site visits for security and wildlife protection were conducted during the month.

April 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Bi-weekly site visits for security and wildlife protection were conducted during the month.
- No other site activity was completed.

May 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Fresh water that was collected in the pregnant pond as the result of surface runoff during the spring freshet was released by siphoning from the pond.
- No surface discharge of heap effluent was completed in the month. Clean surface water from the heap was directed into the pregnant pond which now serves as a sediment settling pond. Water in the settling pond infiltrated into the ground.

June 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Sludge collected from the bottom of the pregnant pond and bagged in 2008 was rebagged and stored on the concrete slab adjacent to the warehouse building in preparation for transportation offsite.

July 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- The leach pad dyke on the corner of Cell 1 was breached as per the Decommissioning and Reclamation Plan. The breach prevents any water from ponding behind the dyke and is a long-term closure requirement. Additional rip rap material was placed on the spillway from the heap leach pad to the sediment settling pond.
- Erosion maintenance was completed on the pond areas after removal of the liners in 2008. Additional seeding and fertilization was complete.
- Laberge Environmental completed a revegetation survey in the month. The results of the survey are attached in Appendix E.

August 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- A joint inspection was completed by SRK Consulting, Alexco Resource Corp., and Yukon Government for the purposes of determining the remaining closure liability as well as the SRK report serving as the annual geotechnical inspection.

September 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Following the joint Alexco/SRK/YG reclamation inspection in August, additional erosion maintenance and diversion was completed at the base of the Blue WRSA as well down-gradient from the Blue Pit outlet channel.
- True North Mining Corp. began surface exploration trenching and drilling program at Brewery Creek. Alexco has signed a joint venture agreement with True North for exploration on the property.

October 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Sludge removed from the pregnant pond in 2008 was shipped offsite for metals recovery and disposal. Approximately 80 bags were shipped and there is no sludge remaining on site.

November 2009

- No activity or site visits.
- Monthly monitoring has been discontinued and the property has moved to quarterly monitoring frequency as per the monitoring schedule in Water License QZ096-007.

December 2009

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- No other site activity was completed.

3 WATER USE

In 2009, no water was withdrawn from Laura Creek or BC-23.

4 MONITORING

4.1 Climate

Temperatures that are variable and extreme, with warm summers and prolonged extreme cold spells in winter characterize climate at the Brewery Creek Mine site. Typical of northern interior regions, most precipitation occurs as summer rain.

The 2009 climate monitoring data is summarized in Appendix A. 2009 climate data was collected manually during the period from January through December. Due to the infrequent schedule for site monitoring, no temperature data was recorded during Jan – April. Once site activity resumed in April, more continuous data is available and presented. End of month precipitation was recorded through a single site visit on the last day of the winter months (Jan – Apr) and is presented as a monthly total however daily data is not available.

4.1.1 Temperature

August was the warmest month of the year with a recorded high of 31.2°C. November was the coldest month with a recorded minimum temperature of –24.2°C. 2009 monthly climate data is presented in Appendix A. No climate data was collected in Jan - April 2009 as the weekly site visits have been discontinued and the site is now on a quarterly monitoring program as per license conditions.

Brewery Creek data, collected since 1991, is summarized in Appendix A (table and graph).

4.1.2 Precipitation

Total 2009 precipitation measured at the mine site was 322 mm (see Appendix A).

4.1.3 Snow Survey

The results of the annual Blue Pit and Blue WRSA snow monitoring survey are presented in Appendix A.

4.2 Water Quality and Hydrology

4.2.1 Water Quality Monitoring

Water quality sampling was performed as required by Schedule B of Water License QZ96-007. Appendix B presents a monthly summary of compliance sampling.

Components and procedures of the Brewery Creek Mine (BCM) water quality sampling program are summarized below.

Water Quality Laboratories:

Maxxam Analytics

8577 Commerce Court, Burnaby, BC

Sampling Equipment:

Bottles: Bottles are supplied by the principal laboratory, arrive on site in coolers, and are stored in coolers. A running inventory of approximately 50 (1L) CN, 50 (1L) standard analytical, and 50 (250 ml) metals sample bottles are maintained on open shelves in the administration building warehouse.

Gloves: Sampling gloves are often used when taking surface water samples. Either neoprene or rubber panner's gloves are used.

Groundwater Bailers: Single Sample ™ disposable polyethylene bailers, 0.75" to 1.5" diameter are used.

Sampling Procedure:

Surface Water Sampling:

Both the outside of cyanide sampling bottle, and the sampling glove, are rinsed prior to opening the sample bottle. The bottle is opened; care is taken to not touch bottle rim or inside of cap. If stream depth permits, bottle is submerged with top facing upstream and allowed to fill. For shallower sites, the bottle is only partially submerged. Non-cyanide bottles and cap are rinsed twice with water from the sampling site. Rinse water is discarded downstream. Cyanide bottles are not rinsed prior to

filling. The bottle is filled and tightly capped. Prior to capping total metals sample, a nitric acid preservative (supplied by the principal analysis lab) is added to the bottle.

Groundwater Sampling, Using Bailers:

The sample bottle is opened, and care is taken to not touch bottle rim or inside of cap. The bailer is emptied through the top of the bailer, into the bottle. Non-cyanide bottles and cap are rinsed twice with water from the sampling site. Rinse water is discarded on the ground. Cyanide bottles are not rinsed prior to filling. The bottle is filled, and cap is placed tightly on bottle.

Dissolved metals samples are filtered in the field using a disposable filter apparatus. The filter apparatus is attached to a sterile collection bottle. Once filtered, a nitric acid preservative is added to the filtrate, and the cap is placed tightly on the bottle.

Occasionally the principal analysis lab performs the filtering and preserving of dissolved metals samples.

Dissolved metals samples are either filtered in the field using a disposable filter apparatus or filtered at the onsite mine environmental laboratory. The filter apparatus is attached to a sterile collection bottle. Once filtered, a nitric acid preservative is added to the filtrate, and the cap is placed tightly on the bottle.

Sample Labeling:

Sample bottles are labeled with the sample location, site name, date sampled, company name and parameters to be analyzed for.

Sample Storage:

Samples are stored in high density plastic sample jars and placed in a cooler until shipping.

Sample Shipping:

Surface and groundwater compliance samples are shipped either the day of, or the day following sampling. Samples are placed in coolers with one or more refrigeration packs, and shipped via

courier, or with the samplers when they return to Whitehorse, and airfreight to Vancouver. The coolers are delivered to the principal laboratory.

4.2.2 Surface Water Quality Results

Locations and descriptions of surface water quality stations are given in Appendix B. 2009 surface water quality results are tabulated by station. Certain key parameters including total suspended solids (TSS), nitrogen species (ammonia), and selected metals are graphically compared to historical data. A major forest fire came through the Brewery Creek Mine in 2004 and most notably burned extremely hot through the Laura Creek watershed. The sampling results for total suspended solids (TSS) are evidence of the influence of the forest fires on water quality in the Laura Creek stations in 2005. TSS at stations BC-1, 2 and 3 are all elevated over historic levels. TSS at BC-1 during 2009 showed significant spikes in the late spring and summer period, consistent with the annual spring freshet. The same trends with TSS were exhibited at station BC-2 during 2009. TSS at station BC-3 was consistently low throughout the 2009 period. Ammonia at stations BC-1, 2 and 3 were consistently low throughout the year suggesting the effects of the 2004 fire are now negligible.

Arsenic and zinc concentrations at stations BC-1, 2 and 3 are similar to levels experienced in the past several years. No significant trends either up or down appear in any of the stations for the parameters arsenic and zinc. Occasional spikes occur at various stations but these are not associated with any trends.

Copper and lead levels at most stations are within historic levels and there is evidence that past spikes have diminished.

Selenium levels at stations BC-1, 2 and 3 show consistent trends from previous years. There were higher spikes of selenium at BC-2 in 2007 but they are lower than other historic selenium spikes at this station. Selenium at station BC-39 continues to be below the site specific criteria established (3.8 ug/l) for that station. Only one selenium value was reported at station BC-39 in 2009 (June) as the site was dry for most of the year; it measured at 1.26 ug/l. The level of selenium at BC-39 is consistent with closure predictions indicating the heap closure measures have been effective.

4.2.3 Groundwater Quality Results

Locations and descriptions of groundwater quality stations are given in Appendix B. Water quality sampling from the groundwater stations is required on a quarterly basis as per the Water License. There are 7 groundwater piezometers and 1 deep groundwater well (BC-23) located downgradient of the leach pad. All of the stations are sampled on a quarterly basis but some of these stations continue to be dry and no sample is obtained. This is recorded in the sampling results in Appendix B. Station BC-20 contains frozen water on a year round basis. This station historically collected water but it became permanently frozen a few years ago. Attempts are made each quarter to collect a sample and the condition is continuously noted. Antimony, arsenic and cadmium levels at BC-19 showed no increasing trends in 2009. Copper levels at BC-19 appear to have decreased from the previous increasing trend exhibited in 2005 and 2006. Other parameters of note including mercury, silver, lead, iron, zinc and selenium continue to show no noticeable trends in BC-19.

Antimony, arsenic and cadmium levels at BC-21 showed no increasing trends in 2009 and are comparable to previous years. Copper levels at BC-21 exhibited a decrease in the previous trend of increasing values seen in 2005 and 2006. Other parameters of note including mercury, nickel, silver, lead, iron, zinc and selenium continue to show no noticeable trends of increasing levels in BC-21.

Arsenic at station BC-27 (Golden) showed significant variations in 2009. Other parameters at BC-27 such as antimony, cadmium, copper, silver, lead and selenium exhibit the same or a decreasing trend from previous years.

4.2.4 In-Pit Monitoring Stations Water Quality Results

Mined out pits were used effectively as sediment control basins. Snow melt and precipitation run-off was directed to the closest inactive pit. Samples from all pits were taken from surface standing water within each pit.

In-pit samples were taken from the west end of Pacific Pit (BC-51), Blue (BC-12), Moosehead Pit (BC-15), Kokanee Phase 3 (BC-10), South Golden Pit (BC-17), and Lucky (BC-18).

Samples collected from the Kokanee Phase 3 and Golden pits (BC-10 and BC-17 respectively), show no abnormal values. Pacific Pit (BC-51) showed a lower pH and ranged from 3.14 – 4.4 during the

sampling period. PH values in the Blue Pit (BC-12) ranged from 5.55 – 7.4 throughout the 12 month sampling period. These pH values are considerably higher than historic levels in the Blue Pit and suggest pit chemistry is stable and not trending towards any ARD concerns. Neither the Pacific or Blue Pits discharges to surface and all water infiltrates through the pit bottom. Previous years sampling in Moosehead showed higher levels of selenium. This trend appears to have reversed and selenium levels in Moosehead during 2009 continued to be below 0.05 mg/l, with an average in 2009 of 0.03mg/L. As is the case for all other pits, the water is contained in the pit and either exfiltrates or evaporates. The Lucky Pit (station BC-18) has generally been dry during the scheduled quarterly sampling events and this continued in 2009 where no water was found during any of the sampling events. Overall, the results of the pit water sampling indicate no significant trends or changes from previous years.

4.2.5 Monitoring Conformance

Throughout the year certain monitoring stations or frequencies were not sampled due to various reasons. The following summarizes stations, frequencies or parameters that were not achieved in 2009:

BC-1: Flow measurements were not recorded in March 2009 due to very low or no water and significant ice and glacial cover.

BC-2: Flow measurements were not recorded in March 2009 due to very low or no water and significant ice and glacial cover.

BC-3: Flow measurements were not recorded in March 2009 due to very low or no water and significant ice and glacial cover.

BC-5: Flow measurements were not recorded in March 2009 due to significant ice and glacial cover.

BC-6: Flow measurements were not recorded during the winter months due to significant ice cover. Flow measurements were not recorded in the open water season because of safety concerns with personnel entering this large fast moving water body during open water season.

BC-9: This in pit station is Fosters Pit and has not had any water for several years and this continued in 2008 and no samples were collected.

BC-11: This station is an intermittent seep at the toe of the Blue WRSA and there was no visible flow during the scheduled quarterly monitoring periods. No samples were collected here during the 2009 monitoring period as no water was ever found.

BC-13: This station is the Moosehead West Waste Dump and no longer exists and there is no visible flow to monitor.

BC-14: This station is the Moosehead East Waste Dump and no longer exists and there is no visible flow to monitor.

BC-16: This station is an intermittent surface flow below the Pacific Pit.

BC-18: This station is water in the Lucky Pit. It is generally dry and no sample can be obtained. During the 2009 monitoring year this location was dry during each of the four quarterly sampling periods.

BC-20: This station is a piezometer below the leach pad and similar to previous years no water is found in this piezometer.

BC-23: This station is a deep well below the process area. The pump installed in BC-23 stopped functioning in 2004. An attempt was made to remove the pump and discharge pipe using the company's crane. During this exercise, the discharge pipe broke approximately 20 feet below the casing elevation. Further attempts to remove the pipe and pump have not been successful. Consequently there are no samples reported for BC-23.

BC-24: This station is a piezometer below the leach pad and similar to previous years no water is found in this piezometer.

BC-25: This station is a piezometer below the leach pad and similar to previous years no water is found in this piezometer.

BC-26: This station is a piezometer below the leach pad and similar to previous years no water is found in this piezometer.

4.2.6 Hydrology

Stream flow measurements for Laura Creek, Golden Creek, Lucky Creek, Lee Creek, and Pacific Creek stations were measured in 2009 during the regularly scheduled monitoring period. All data are presented in Appendix C. Inspection of the discharge channel from the outflow of the Overflow Pond siphon pipe has demonstrated each year that the discharge water goes to ground and does not enter any receiving water directly. No direct surface water discharge was initiated in 2009 as the pond liners were removed in 2008 and the heap effluent meets water license criteria and now infiltrates into the ground within the reclaimed ponds. Daily flows at the "pumphouse" (BC-1) were not recorded on a daily basis during the year since no direct surface discharge was completed. Based on past experience, inspections and monitoring, it has been demonstrated that significant flows at BC-1 are evident and selenium criteria at BC-39 have been well under the license condition and therefore daily changes in the discharge rates to match BC-1 flows has never been necessary.

4.3 Benthic Monitoring

As specified in Part F, Clause 45, of Water License QZ96-007 benthic monitoring was required in 2009. Benthic monitoring was completed by Laberge Environmental Services in September 2009. This is the last year of benthic monitoring required under the license monitoring schedule. Results of the 2009 benthic monitoring program are presented by Laberge in Appendix D.

4.4 Sediment Monitoring

Laberge Environmental Services completed that annual stream sediment monitoring program in September 2009 along with the third quarterly sampling event. Sediment samples were collected from within the active channel of the streams, using an aluminum scoop. The samples were dried and screened using stainless steel sieves at ASTM mesh number 10, 20, 40, 60, 100, 140 and 270. Fraction weights were recorded. A minus 100-mesh sub-sample was analyzed for 33-element ultratrace ICP at Norwest Labs, Surrey British Columbia. Loss-on-ignition (LOI) was determined by heating the sample to 600°C. Results are presented and discussed in Appendix D. 2009 was the last year of sediment monitoring required under the water license conditions.

Some obvious and notable decreasing trends are exhibited across a number of stations. Many parameters show levels have decreased back to pre mining conditions and baseline conditions. Arsenic, antimony and mercury are some of the best indicators and examples of decreasing metals in sediments over the past 10 years since mining ceased and the last 7 years since the major reclamation and stabilization work was completed.

4.5 Revegetation Monitoring

A revegetation monitoring and assessment report was completed by Laberge Environmental Services in July 2009. The assessment included permanent monitoring plots and other revegetated areas across the property. The Laberge report is included in Appendix E. Conclusions and recommendations are included in the report.

4.6 Bioassay Monitoring

Bioassays were collected from station BC-28a for each of the four quarterly monitoring sessions. Results were compliant on each occasion and are presented in Appendix F.

4.7 Leak Detection and Recovery Systems

Monitoring of (LDRS) systems was discontinued in 2005, consistent with long-term closure plans and the fact the heap has been fully decommissioned and drained. The leak detection piping and collection system remains intact however.

4.8 Air Quality

No air quality monitoring for mercury emissions was conducted in 2009 due to the dismantling of the ADR facility in 2004 and the cessation of refining. No further air quality monitoring is anticipated.

4.9 Effects on Wildlife

4.9.1 Process-Related Mortalities

No wildlife process – related mortalities occurred during 2009. The fence constructed in June 2006 to prevent wildlife from entering the process ponds was removed in 2008 during the final reclamation of the ponds. There is no liner remaining on site to pose any wildlife entrampment risk.

4.10 Reclamation Activities Report

An inspection of the reclamation activities and remaining liabilities was completed by SRK Consulting and Yukon Government during August 2009. The SRK inspection serves as the annual geotechnical report as well as a status of the reclamation progress to date.

The only reclamation activities remaining at the site include dismantling the existing warehouse. No date has been set for this activity and the building is currently being used by True North for their exploration program.

5 REAGENT AND WASTE MANAGEMENT

5.1 Spill Occurrence and Response

No reportable spills occurred in 2009.

5.2 Reagent Storage and Handling

Other than some miscellaneous laboratory chemicals, there are no reagents or chemicals in storage at the Brewery Creek Mine. During the removal of the liner in the pregnant pond, approximately 70 bags of sludge/carbon was removed. This material was rebagged and shipped offsite in October 2009 for recovery of metals and final disposal.

6 WATER MANAGEMENT

6.1 Direct Release

No direct surface release of compliant solution was completed in 2009. Heap drainage is diverted into the barren pond (biological treatment cell) and overflows into the overflow pond where it infiltrates into the ground. The infiltrating water meets water license discharge criteria. Heap surface water is directed to the pregnant pond (now sediment settling pond) where it likewise infiltrates into the ground. All samples from BC-28a (heap effluent) were below 2.0 ppm total cyanide in 2009. The first sample from the heap below 2.0 ppm total cyanide was in February 2002. All samples subsequently taken have returned a total cyanide value below 2.0 ppm. This constitutes 92 consecutive months where the total cyanide from the heap has been less than 2.0 ppm. It is not expected that any direct surface water discharge will be required at Brewery Creek in the future and the long-term passive water management program as presented in the Decommissioning and Reclamation Plan has now been achieved.

Table 6-1 Solution Release 2009

Month	Process Solution Direct Release (m^3)	Fresh Water Direct Release (m^3)	Land App Release (m^3)	TOTAL (m^3)
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	0	0	0	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
August	0	0	0	0
September	0	0	0	0
October	0	0	0	0
November	0	0	0	0
December	0	0	0	0
Totals 2009	**0**	**0**	**0**	**0**
Totals To 2002 - 2009	**183,509**	**80,221**	**151,796**	**415,526**
Remaining Permitted	**n/a**	**n/a**	**248,204**	

6.2 Selenium Criteria

Water quality results for BC-39 are indicated in Appendix B. All sampling periods at BC-39 returned a selenium concentration at or below the water license criteria for site specific levels. The site specific selenium criteria for compliance at station BC-39 is 3.8 ug/l. The highest selenium measured at station BC-39 during 2009 was 1.26 ug/ l.

6.3 Heap Cover Infiltration

The water license requires an annual update to the heap cover infiltration model. The ability of the lined process ponds to contain solution was critical to accurately tracking the solution inventory from the heap which forms the basis for the amount of water leaving the heap both from surface runoff and

cover infiltration. Once the liners were removed in 2008 and the ponds no longer hold water but rather infiltrate into the ground, the ability to track the volume of water leaving the heap has been lost. Table 6-2 summarizes the annual heap infiltration calculations over the past 5 years. As shown, the rate of infiltration has been fairly consistent.

The average heap infiltration over the 5 year period when accurate heap discharge measurements were available is 22.1%. The lower infiltration recorded in 2008 was likely a result of lost solution inventory in the ponds after the liners were removed. The estimated heap cover infiltration that was modeled during the development of the Decommissioning and Reclamation Plan was 30%. The actual performance of the cover versus model estimates is better than expected and the overall conclusion is the heap cover is performing as expected and estimated in the DRP.

Table 6-2 Heap Infiltration Summary

Year	Heap Infiltration %
2004	21.1%
2005	24.1%
2006	27.3%
2007	24.1%
2008	13.7%
Average	22.1%

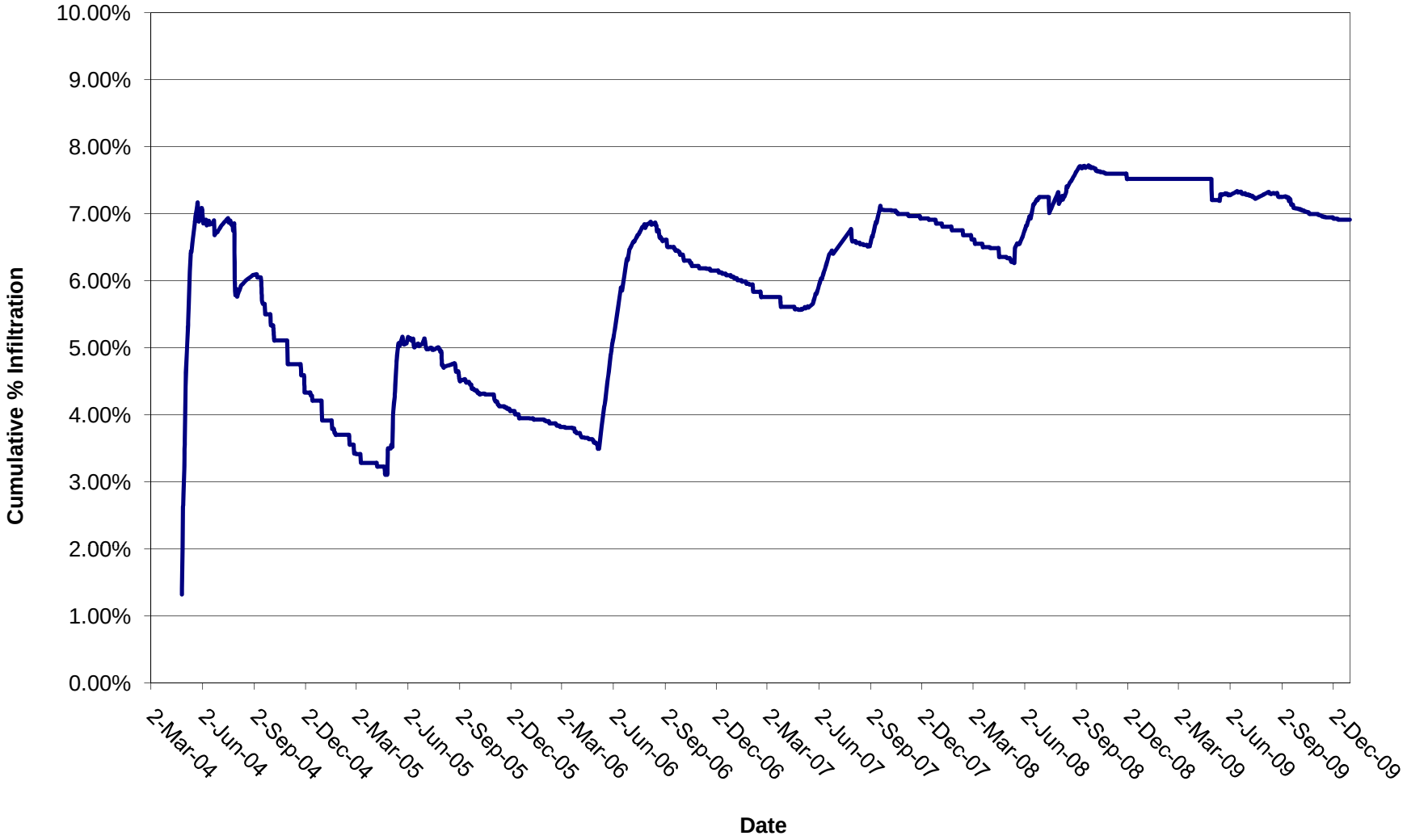
6.4 Blue WRSA Lysimeter

A large scale lysimeter was constructed in 2003 to measure and collect precipitation as it passes through the 0.5 meter soil cover. Water quality samples are collected and analyzed. These results are included in Appendix B. The water quality from the large scale lysimeter is consistent with predictions made by SRK Consulting and there is no evidence of metal leaching or transport from the Blue WRSA material within the lysimeter.

The lysimeter also provides a mechanism to measure the overall level of precipitation infiltrating through the soil cover. A tank installed at the base of the Blue WRSA captures and measures the volume of solution that has passed through the cover. Precipitation levels throughout the year are measured and the percent infiltration can be calculated. The cumulative infiltration through the Blue WRSA lysimeter over the period 2004 – 2009 is estimated at 6.9%%. The infiltration during this period is significantly less than the predicted rates from the modeling. Figure 6-1 graphically presents the infiltration rates through the Blue WRSA cover.

Based on the water quality from the lysimeter and the infiltration rate through the cover, the remediation measures implemented in the Blue WRSA are demonstrated to be effective.

Figure 6.1 Blue WRSA Lysimeter



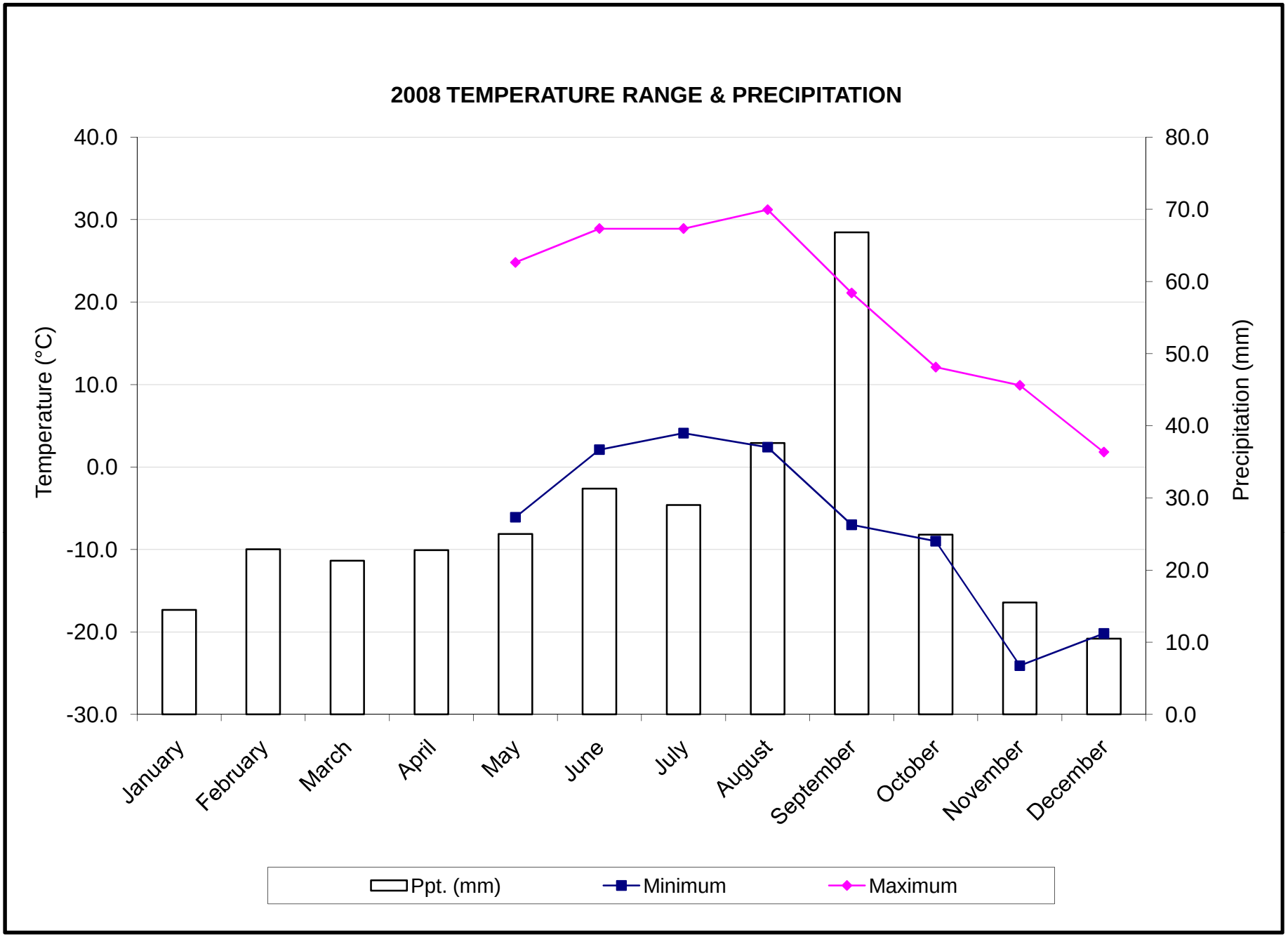
Appendix A

2009 Climate Data

Brewery Creek Mine

Climate Data - Summary 2009

Date	Temperature °C			Precipitation (mm)
	Max.	Min.	Avg.	
January				14.5
February				22.9
March				21.3
April				22.8
May	24.8	-6.1	11.5	25.0
June	28.9	2.1	15.5	31.3
July	28.9	4.1	17.2	29.0
August	31.2	2.4	11.9	37.6
September	21.1	-7.0	7.8	66.8
October	12.1	-9.0	-1.3	24.9
November	9.9	-24.1	-12.1	15.5
December	1.8	-20.2	-10.0	10.5
Summary				**322.0**


2008 TEMPERATURE RANGE & PRECIPITATION
Temperature (°C)
Precipitation (mm)
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
January
February
March
April
May
June
July
August
September
October
November
December
Ppt. (mm)
Minimum
Maximum

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - January 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Jan-09	**No data recorded due to no site activity or presence**			
2-Jan-09				
3-Jan-09				
4-Jan-09				
5-Jan-09				
6-Jan-09				
7-Jan-09				
8-Jan-09				
9-Jan-09				
10-Jan-09				
11-Jan-09				
12-Jan-09				
13-Jan-09				
14-Jan-09				
15-Jan-09				
16-Jan-09				
17-Jan-09				
18-Jan-09				
19-Jan-09				
20-Jan-09				
21-Jan-09				
22-Jan-09				
23-Jan-09				
24-Jan-09				
25-Jan-09				
26-Jan-09				
27-Jan-09				
28-Jan-09				
29-Jan-09				
30-Jan-09				
31-Jan-09				

Monthly Min. Temp.	no data	°C
Monthly Max. Temp.	no data	°C
Average Temperature	no data	°C
Total AWS Precipitation	14.5	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - February 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Feb-09	**No data recorded due to no site activity or presence**			
2-Feb-09				
3-Feb-09				
4-Feb-09				
5-Feb-09				
6-Feb-09				
7-Feb-09				
8-Feb-09				
9-Feb-09				
10-Feb-09				
11-Feb-09				
12-Feb-09				
13-Feb-09				
14-Feb-09				
15-Feb-09				
16-Feb-09				
17-Feb-09				
18-Feb-09				
19-Feb-09				
20-Feb-09				
21-Feb-09				
22-Feb-09				
23-Feb-09				
24-Feb-09				
25-Feb-09				
26-Feb-09				
27-Feb-09				
28-Feb-09				

Monthly Min. Temp.	no data	°C
Monthly Max. Temp.	no data	°C
Average Temperature	no data	°C
Total AWS Precipitation	22.9	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - March 2008

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Mar-09	**No data recorded due to no site activity or presence**			
2-Mar-09				
3-Mar-09				
4-Mar-09				
5-Mar-09				
6-Mar-09				
7-Mar-09				
8-Mar-09				
9-Mar-09				
10-Mar-09				
11-Mar-09				
12-Mar-09				
13-Mar-09				
14-Mar-09				
15-Mar-09				
16-Mar-09				
17-Mar-09				
18-Mar-09				
19-Mar-09				
20-Mar-09				
21-Mar-09				
22-Mar-09				
23-Mar-09				
24-Mar-09				
25-Mar-09				
26-Mar-09				
27-Mar-09				
28-Mar-09				
29-Mar-09				
30-Mar-09				
31-Mar-09				

Monthly Min. Temp.	0.0	°C
Monthly Max. Temp.	0.0	°C
Average Temperature	#DIV/0!	°C
Total AWS Precipitation	21.3	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - April 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Apr-09	**No data recorded due to no site activity or presence**			
2-Apr-09				
3-Apr-09				
4-Apr-09				
5-Apr-09				
6-Apr-09				
7-Apr-09				
8-Apr-09				
9-Apr-09				
10-Apr-09				
11-Apr-09				
12-Apr-09				
13-Apr-09				
14-Apr-09				
15-Apr-09				
16-Apr-09				
17-Apr-09				
18-Apr-09				
19-Apr-09				
20-Apr-09				
21-Apr-09				
22-Apr-09				
23-Apr-09				
24-Apr-09				
25-Apr-09				
26-Apr-09				
27-Apr-09				
28-Apr-09				
29-Apr-09				
30-Apr-09				

Monthly Min. Temp.	no data	°C
Monthly Max. Temp.	no data	°C
Average Temperature	no data	°C
Total AWS Precipitation	22.8	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - May 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-May-09				
2-May-09				
3-May-09				
4-May-09				
5-May-09				
6-May-09				
7-May-09				
8-May-09				
9-May-09				
10-May-09				
11-May-09				
12-May-09				
13-May-09	11.7	-4.0	3.9	3.0
14-May-09	11.0	-4.0	3.5	
15-May-09	11.6	-4.8	3.4	
16-May-09	13.0	-6.1	3.5	4.5
17-May-09				
18-May-09				
19-May-09	24.8	-4.0	10.4	
20-May-09	23.9	7.6	15.8	3.0
21-May-09	22.4	9.3	15.9	
22-May-09	23.9	9.5	16.7	
23-May-09				
24-May-09				
25-May-09	24.1	7.3	15.7	5.5
26-May-09	24.0	9.1	16.6	
27-May-09	23.4	9.0	16.2	2.0
28-May-09	23.9	6.9	15.4	
29-May-09	19.9	6.4	13.2	7.0
30-May-09				
31-May-09				

Monthly Min. Temp.	-6.1	°C
Monthly Max. Temp.	24.8	°C
Average Temperature	11.5	°C
Total AWS Precipitation	25.0	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - June 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Jun-09	20.3	4.4	12.4	3.8
2-Jun-09	24.1	8.7	16.4	
3-Jun-09	26.7	9.8	18.3	
4-Jun-09	28.9	11.6	20.3	
5-Jun-09	28.9	15.8	22.4	
6-Jun-09	26.9	12.1	19.5	0.6
7-Jun-09				
8-Jun-09	24.3	7.4	15.9	
9-Jun-09	23.4	8.1	15.8	
10-Jun-09	26.3	6.9	16.6	
11-Jun-09	24.6	9.3	17.0	
12-Jun-09	25.0	11.4	18.2	
13-Jun-09				
14-Jun-09				
15-Jun-09	22.6	7.4	15.0	6.5
16-Jun-09	20.1	8.4	14.3	
17-Jun-09	21.3	5.9	13.6	
18-Jun-09	20.9	8.5	14.7	
19-Jun-09	17.9	8.1	13.0	2.0
20-Jun-09				
21-Jun-09				
22-Jun-09	21.9	7.9	14.9	7.8
23-Jun-09	22.3	11.4	16.9	2.0
24-Jun-09	19.9	4.8	12.4	1.8
25-Jun-09	18.6	4.8	11.7	
26-Jun-09	20.1	7.8	14.0	
27-Jun-09				
28-Jun-09				
29-Jun-09	19.1	2.1	10.6	5.8
30-Jun-09	18.5	5.8	12.2	1.0

Monthly Min. Temp.	2.1	°C
Monthly Max. Temp.	28.9	°C
Average Temperature	15.5	°C
Total AWS Precipitation	31.3	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - July 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Jul-09	23.4	10.5	17.0	2.6
2-Jul-09	23.9	10.7	17.3	
3-Jul-09				
4-Jul-09				
5-Jul-09	25.9	9.1	17.5	5.5
6-Jul-09	26.2	11.6	18.9	
7-Jul-09	26	15	20.5	
8-Jul-09	26	12.7	19.35	2.5
9-Jul-09	19.1	10.3	14.7	3.2
10-Jul-09				
11-Jul-09				
12-Jul-09	22.1	8.1	15.1	5.5
13-Jul-09	26.3	13.4	19.85	2.5
14-Jul-09	28.9	11.6	20.25	
15-Jul-09	17.5	4.1	10.8	5.0
16-Jul-09	21.9	7.4	14.65	4.8
17-Jul-09				
18-Jul-09				
19-Jul-09				
20-Jul-09				
21-Jul-09				
22-Jul-09				
23-Jul-09				
24-Jul-09				
25-Jul-09				
26-Jul-09				
27-Jul-09				
28-Jul-09				
29-Jul-09				
30-Jul-09				
31-Jul-09				

Monthly Min. Temp.	4.1	°C
Monthly Max. Temp.	28.9	°C
Average Temperature	17.2	°C
Total AWS Precipitation	29.0	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - August 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Aug-09				
2-Aug-09				
3-Aug-09				
4-Aug-09				
5-Aug-09				
6-Aug-09				
7-Aug-09				
8-Aug-09				
9-Aug-09				
10-Aug-09	31.2	2.4	16.8	7.5
11-Aug-09	16.4	2.4	9.4	
12-Aug-09	17.5	6.6	12.1	3.0
13-Aug-09	13.5	4.9	9.2	3.7
14-Aug-09	16.0	7.8	11.9	
15-Aug-09				
16-Aug-09				
17-Aug-09				
18-Aug-09				
19-Aug-09	19.0	5.1	12.1	3.9
20-Aug-09				
21-Aug-09				
22-Aug-09				
23-Aug-09				
24-Aug-09				
25-Aug-09	19.1	4.8	12.0	12.0
26-Aug-09	14.7	6.8	10.8	5.5
27-Aug-09	16.6	7.6	12.1	
28-Aug-09	16.6	8.7	12.7	2.0
29-Aug-09				
30-Aug-09				
31-Aug-09				

Monthly Min. Temp.	2.4	°C
Monthly Max. Temp.	31.2	°C
Average Temperature	11.9	°C
Total AWS Precipitation	37.6	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - September 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Sep-09	12.3	7.6	9.95	1.8
2-Sep-09	17.5	6.3	11.9	
3-Sep-09	18.7	5.9	12.3	
4-Sep-09	18.5	8.1	13.3	
5-Sep-09				
6-Sep-09				
7-Sep-09				
8-Sep-09	21.1	4.4	12.8	1.0
9-Sep-09				
10-Sep-09	18.9	7.8	13.4	5.0
11-Sep-09				
12-Sep-09				
13-Sep-09				
14-Sep-09	15.9	4.8	10.4	16.5
15-Sep-09				
16-Sep-09	16.5	6.6	11.6	
17-Sep-09	14.0	6.4	10.2	13.0
18-Sep-09	8.1	2.8	5.5	12.0
19-Sep-09				
20-Sep-09				
21-Sep-09				
22-Sep-09	11.1	2.7	6.9	14.0
23-Sep-09	11.7	4.6	8.2	
24-Sep-09	10.2	-3.0	3.6	1.0
25-Sep-09	6.1	2.4	4.3	1.0
26-Sep-09				
27-Sep-09				
28-Sep-09	7.9	-7.0	0.5	1.5
29-Sep-09	1.9	-7	-2.55	
30-Sep-09	2.9	-3	-0.05	

Monthly Min. Temp.	-7.0	°C
Monthly Max. Temp.	21.1	°C
Average Temperature	7.8	°C
Total AWS Precipitation	66.8	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - October 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Oct-09	5.3	-1	2.15	2
2-Oct-09				
3-Oct-09				
4-Oct-09				
5-Oct-09	4.6	-6.0	-0.7	4.0
6-Oct-09				
7-Oct-09				
8-Oct-09	12.1	-4.0	4.05	3.5
9-Oct-09	-1.8	-4.0	-2.9	
10-Oct-09				
11-Oct-09				
12-Oct-09	4.3	-4.0	0.15	3.0
13-Oct-09	3.5	-6.0	-1.25	1.0
14-Oct-09	1.6	-7.0	-2.7	
15-Oct-09	2.0	-7.6	-2.8	1.0
16-Oct-09	3.5	-8.0	-2.25	2.2
17-Oct-09				
18-Oct-09				
19-Oct-09	2.4	-7.0	-2.3	
20-Oct-09	0.2	6.0	3.1	7.2
21-Oct-09	0.2	-3.1	-1.45	
22-Oct-09	3.7	-1.0	1.35	1.0
23-Oct-09	4.9	0.8	2.85	
24-Oct-09				
25-Oct-09				
26-Oct-09	3.1	-1.7	0.7	
27-Oct-09	-1.0	-3.6	-2.3	
28-Oct-09	-4.1	-9.0	-6.55	
29-Oct-09	-4.1	-9	-6.55	
30-Oct-09	-5.9	-9	-7.45	

Monthly Min. Temp.	-9.0	°C
Monthly Max. Temp.	12.1	°C
Average Temperature	-1.3	°C
Total AWS Precipitation	24.9	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - November 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Nov-09				
2-Nov-09	-6.7	-14	-10.4	
3-Nov-09	-8.5	-12.3	-10.4	
4-Nov-09	-6.3	-12.1	-9.2	
5-Nov-09	-0.8	-14.2	-7.5	3.0
6-Nov-09	5.1	-16.3	-5.6	1.5
7-Nov-09				
8-Nov-09				
9-Nov-09	-15.7	-23.0	-19.4	1.0
10-Nov-09	-15.1	-19.1	-17.1	2.5
11-Nov-09	-13.3	-22.1	-17.7	2.0
12-Nov-09				
13-Nov-09	9.9	-18.2	-4.2	2.0
14-Nov-09				
15-Nov-09				
16-Nov-09	-6.9	-21.2	-14.1	2.5
17-Nov-09	-14.9	-24.1	-19.5	
18-Nov-09	-20.1	-24.0	-22.1	
19-Nov-09	-19.0	-20.2	-19.6	1.0
20-Nov-09	-16.9	-24.0	-20.5	
21-Nov-09	-14.5	-19.2	-16.9	
22-Nov-09				
23-Nov-09	-7.9	-20.1	-14.0	
24-Nov-09	-5.2	-15.7	-10.5	
25-Nov-09	4.0	-8.0	-2.0	
26-Nov-09	-3.8	-8.1	-6.0	
27-Nov-09	-3.8	-5.0	-4.4	
28-Nov-09	-2.8	-6.1	-4.5	
29-Nov-09				
30-Nov-09				

Monthly Min. Temp.	-24.1	°C
Monthly Max. Temp.	9.9	°C
Average Temperature	-12.1	°C
Total AWS Precipitation	15.5	mm

Brewery Creek Mine
Monitoring Pursuant to Water License QZ96-007

Climate Data - December 2009

Date	Temperature °C			Ppt. (mm)
	Max.	Min.	Avg.	
1-Dec-09				
2-Dec-09	-0.8	-11	-5.9	
3-Dec-09	1.8	-8.2	-3.2	6
4-Dec-09	-4.1	-15.3	-9.7	
5-Dec-09				
6-Dec-09				
7-Dec-09				
8-Dec-09				
9-Dec-09				
10-Dec-09	-11.9	-20.2	-16.1	
11-Dec-09	-12.9	-17.0	-15.0	4.5
12-Dec-09				
13-Dec-09				
14-Dec-09				
15-Dec-09				
16-Dec-09				
17-Dec-09				
18-Dec-09				
19-Dec-09				
20-Dec-09				
21-Dec-09				
22-Dec-09				
23-Dec-09				
24-Dec-09				
25-Dec-09				
26-Dec-09				
27-Dec-09				
28-Dec-09				
29-Dec-09				
30-Dec-09				

Monthly Min. Temp.	-20.2	°C
Monthly Max. Temp.	1.8	°C
Average Temperature	-10.0	°C
Total AWS Precipitation	10.5	mm

Blue Pit and Blue WRSA Monitoring Program: 2009 Snow Survey

Conducted by: Durand Cornett, Kurt Neunherz 19-Mar-2009

Blue Dump

Site #	Depth in cm	Weight in kg*	Comments
1	38	0.191	WP Blue1
2	22	0.160	WP Blue2
3	28	0.107	WP Blue3
4	29	0.122	WP Blue4
5	37	0.093	WP Blue5
6	74	0.289	WP Blue6
7	76	0.280	WP Blue7
8	66	0.245	WP Blue8
9	81	0.268	WP Blue9
10	35	0.060	WP Blue10

Leach Pad

Site #	Depth in cm	Weight in kg*	Comments
1	28	0.065	WP LP1
2	26	0.080	WP LP2
3	37	0.153	WP LP3
4	40	0.182	WP LP4
5	65	0.407	WP LP5
6	47	0.161	WP LP6
7	35	0.123	WP LP7
8	53	0.161	WP LP8
9	57	0.206	WP LP9
10	65	0.240	WP LP10
11	94	0.347	WP LP11
12	62	0.210	WP LP12

*without bag

Size of pipe for testing 1.5" or 3.8 cm dia.

Appendix B

2009 Water Quality Monitoring Program Results

	Station Name	BC-01	BC-02	BC-03	BC-04	BC-05	BC-06	BC-10	BC-11	BC-12	BC-13	BC-14	BC-15	BC-16	BC-17	BC-18S	BC-18N	BC-19	BC-20	BC-21
	Description	Laura Creek, 50m u/s from Ditch Road	Carolyn Creek, u/s from Laura Creek	Laura Creek, above confluence w/ Carolyn Creek	Lucky Creek d/s from Luck Pit	Pacific Creek u/s from confluence w/ Lee Creek	South Klondike R. d/s from confluence w/ Lee Creek	Kokanee Pit and Dump	Blue Waste Dump	Blue Pit	Moosehead West Waste Dump	Moosehead East Waste Dump	Moosehead Pit discharge	Pacific Gulch - 300m above Laura Creek	Golden Pit and Dump	Lucky Pit and Dump - south end	Lucky Pit and Dump - north end	Piezometer RC94-843	Piezometer RC94-844	Piezometer RC95-1354
	Sample Date				18-Mar-2009		18-Mar-2009	18-Mar-2009		18-Mar-2009			18-Mar-2009		18-Mar-2009			17-Mar-2009		17-Mar-2009
	Lab Report No				1200900		1200900	1200900		1200900			1200900		1200900			1200900		1200900
Discharge																				
pH, Field	pH units				7.26		7.05	7.71		6.3			7.02		7.87					
Conductivity Field	µS/cm				921		183								939					
Aluminum, dissolved	mg/L																	<0.005		0.015
Antimony, dissolved	mg/L																	0.0007		0.0011
Arsenic, dissolved	mg/L																	0.0009		0.0017
Barium, dissolved	mg/L																	0.016		0.146
Beryllium, dissolved	mg/L																	<0.00004		0.00004
Bismuth, dissolved	mg/L																	<0.0001		<0.0001
Boron, dissolved	mg/L																	0.02		0.008
Cadmium, dissolved	mg/L																	0.00048		0.00095
Calcium, dissolved	mg/L																	82.3		40.4
Chromium, dissolved	mg/L																	0.0022		0.0016
Cobalt, dissolved	mg/L																	0.00036		0.00069
Copper, dissolved	mg/L																	0.006		0.003
Iron, dissolved	mg/L																	<0.01		<0.01
Lead, dissolved	mg/L																	0.0001		0.0003
Lithium, dissolved	mg/L																	0.031		0.015
Magnesium, dissolved	mg/L																	39.8		16.1
Manganese, dissolved	mg/L																	0.0598		0.207
Molybdenum, dissolved	mg/L																	0.0001		<0.00002
Nickel, dissolved	mg/L																	0.009		0.043
Potassium, dissolved	mg/L																	2.4		2.5
Selenium, dissolved	mg/L																	<0.0006		<0.0006
Silicon, dissolved	mg/L																	11.4		12.1
Silver, dissolved	mg/L																	<0.00001		<0.00001
Sodium, dissolved	mg/L																	9.7		7.2
Strontium, dissolved	mg/L																	0.305		0.243
Sulphur, Dissolved	mg/L																	48.2		4.3
Thallium, dissolved	mg/L																	<0.00001		0.00007
Tin, dissolved	mg/L																	0.0001		<0.0001
Titanium, dissolved	mg/L																	0.0006		0.0008
Uranium, dissolved	mg/L																	<0.0004		<0.0004
Vanadium, dissolved	mg/L																	0.00022		0.0001
Zinc, dissolved	mg/L																	0.051		0.037
Zirconium, dissolved	mg/L																	<0.0001		<0.0001
Aluminum, total	mg/L				0.013		0.013	0.017		2.09			0.014		<0.005					
Antimony, total	mg/L				0.0042		0.0002	0.0621		0.02			0.003		0.0392					
Arsenic, total	mg/L				0.0015		0.0004	0.0177		0.0299			0.026		0.0141					
Barium, total	mg/L				0.093		0.052	0.05		0.021			0.039		0.027					
Beryllium, total	mg/L	Frozen - No Water Found	Frozen - No Water Found	Frozen - No Water Found	<0.00004	Frozen - No Water Found	<0.00004	<0.00004	Dry - No Water Found	0.0037	Dry - No Water Found	Dry - No Water Found	<0.00004	Dry - No Water Found	<0.00004	Dry - No Water Found	Dry - No Water Found		Piezometer Not Functioning - Not Possible to Obtain a Sample	
Bismuth, total	mg/L				<0.0001		<0.0001	<0.0001		<0.0001			<0.0001		<0.0001					
Boron, total	mg/L				0.01		<0.005	<0.005		0.022			0.005		<0.005					
Cadmium, total	mg/L				0.00018		0.00007	0.00005		0.00411			0.00036		0.00007					
Calcium, total	mg/L				135		53	64.7		322			163		114					
Chromium, total	mg/L				0.0006		<0.0004	0.0007		0.0009			0.0013		0.0005					
Cobalt, total	mg/L				0.00618		0.00006	0.00004		0.069			0.00012		0.00006					
Copper, total	mg/L				<0.001		<0.001	<0.001		0.095			0.004		<0.001					
Iron, total	mg/L				0.11		0.05	0.01		2.01			0.03		0.01					
Lead, total	mg/L				0.0002		0.0003	0.0003		0.0006			0.001		0.0001					
Lithium, total	mg/L				0.012		0.003	0.004		0.01			0.001		0.009					
Magnesium, total	mg/L				68.9		16.7	26.9		142			88.8		45.5					
Manganese, total	mg/L				0.552		0.004	0.0028		2.87			0.0148		0.0075					
Molybdenum, total	mg/L				0.0061		0.00069	0.00526		0.00105			0.00073		0.00576					
Nickel, total	mg/L				0.027		0.002	0.001		0.192			0.002		0.001					
Potassium, total	mg/L				2.2		0.7	1.1		4.6			2		1.4					
Selenium, total	mg/L				0.005		0.0007	0.0058		<0.0006			0.0433		0.003					
Silicon, total	mg/L				6.08		4.49	5.61		7.17			4.2		5.06					
Silver, total	mg/L				<0.00001		<0.00001	<0.00001		<0.00001			<0.00001		<0.00001					
Sodium, total	mg/L				3.53		4.38	2.17		3.39			2.29		2.92					
Strontium, total	mg/L				0.764		0.228	0.502		1.76			1.3		0.737					
Sulphur, Total	mg/L				111		27.3	32.6		444			187		82.4					
Thallium, total	mg/L				0.00002		<0.00001	0.00005		0.00025			0.00006		0.00008					
Tin, total	mg/L				<0.0001		<0.0001	<0.0001		<0.0001			<0.0001		<0.0001					
Titanium, total	mg/L				0.001		0.0009	0.0006		0.0055			0.0007		0.0006					
Uranium, total	mg/L				0.0068		0.001	0.0075		0.0045			0.0037		0.0128					
Vanadium, total	mg/L				0.00036		0.00044	0.00024		0.0004			0.0002		0.0002					
Zinc, total	mg/L				0.046		0.011	0.014		0.421			0.032		0.008					
Zirconium, total	mg/L				0.0008		<0.0001	<0.0001		0.0001			0.0001		<0.0001					
pH, Laboratory	pH units				7.6		7.35	7.78		5.55			7.6		7.76			6.92		5.82
Conductivity - Lab	µS/cm				962		365	462		2050			1230		793			692		433
Hardness calculated from dissolved metal scan	mgCaCO3/L																	369		167
Hardness calcualted from total metal scan.	mgCaCO3/L				621		201	272		1390			773		472					
Alkalinity, Total	mgCaCO3/L				250		113	156		30			150		213			232		6
Alkalinity, Hydroxide OH	mgCaCO3/L				<5		<5	<5		<5			<5		<5			<5		<5
Alkalinity, Carbonate CaCO3	mgCaCO3/L				<6		<6	<6		<6			<6		<6			<6		8
Alkalinity, Bicarbonate	mgCaCO3/L				300		140	190		40			180		260			280		<5
Total Dissolved Solids	mg/L				724		258	316		2130			1030		568			484		376
Total Suspended Solids	mg/L				8		<2	2		12			2		<2			8		18
Chloride	mg/L				0.2		0.38	0.31		3.08			1.9		1.52			1.1		135
Sulphate, Dissolved	mg/L				306		71	94		1340			577		212			138		13.6
Ammonium Nitrogen (NH3, NH4+), as N	mg/L				0.02		0.01	0.02		0.17			0.09		0.02			0.03		0.01
Nitrate Nitrogen, as N	mg/L				0.19		0.19	0.44		0.25			1.28		0.07			0.38		1.17
Cyanide, Total	mg/L				<0.001		<0.001											<0.001		<0.001
Cyanide, Weak Acid Dissociable	mg/L				0.002		0.002											0.002		0.002

	Station Name	BC-22	BC-23	BC-24	BC-25	BC-26	BC-27		BC-28a	BC-34	BC-51W	BC-65	BC-66	BC-67	BC-68	BC-69
	Description	Piezometer RC95-1357	Piezometer RC95-1370	Piezometer RC95-1400	Piezometer RC96-1608	Piezometer RC 97-2024	Piezometer RC97-2026		Discharge from heap	Lee Creek at Ditch Road	Pacific Pit - west side	Land Application Piezometer	Land Application Piezometer	Blue WRSA Piezometer	Blue WRSA Piezometer	Blue WRSA Piezometer
	Sample Date	17-Mar-2009					19-Mar-2009		19-Mar-2009	17-Mar-2009	18-Mar-2009	17-Mar-2009	17-Mar-2009	18-Mar-2009		19-Mar-2009
	Lab Report No	1200900					1200900		1200900	1200900	1200900	1200900	1200900	1200900		1200900
Discharge																
pH, Field	pH units								7.52		4.93			7.12		7.44
Conductivity Field	µS/cm															
Aluminum, dissolved	mg/L	0.447					<0.005					<0.005	0.009	0.007		0.007
Antimony, dissolved	mg/L	0.0005					0.0003					0.0024	0.0076	0.0147		0.0046
Arsenic, dissolved	mg/L	0.0019					0.0391					0.0007	0.0047	0.003		0.0241
Barium, dissolved	mg/L	0.01					0.014					0.013	0.046	0.056		0.038
Beryllium, dissolved	mg/L	0.00018					<0.00004					<0.00004	<0.00004	<0.00004		<0.00004
Bismuth, dissolved	mg/L	<0.0001					<0.0001					<0.0001	<0.0001	<0.0001		<0.0001
Boron, dissolved	mg/L	0.034					0.006					0.019	0.005	0.013		<0.004
Cadmium, dissolved	mg/L	0.0127					0.00002					0.00001	0.00038	0.00004		0.0004
Calcium, dissolved	mg/L	203					93.1					51.7	40.6	80.9		91.3
Chromium, dissolved	mg/L	0.0018					0.0018					0.0011	0.002	0.0029		0.0022
Cobalt, dissolved	mg/L	0.00834					0.00017					0.00003	0.0577	0.00008		0.00004
Copper, dissolved	mg/L	0.008					<0.001					<0.001	0.008	<0.001		<0.001
Iron, dissolved	mg/L	<0.01					<0.01					<0.01	<0.01	0.01		0.01
Lead, dissolved	mg/L	0.0003					<0.0001					<0.0001	0.0002	0.0002		0.0005
Lithium, dissolved	mg/L	0.074					0.01					0.028	0.012	0.008		0.009
Magnesium, dissolved	mg/L	71.3					37.8					8.1	18.1	31.3		63.6
Manganese, dissolved	mg/L	0.833					0.193					0.0011	0.0185	0.0241		0.0015
Molybdenum, dissolved	mg/L	<0.00002					0.0132					0.00058	0.00218	0.00024		0.00027
Nickel, dissolved	mg/L	0.138					0.003					<0.001	0.004	0.003		0.003
Potassium, dissolved	mg/L	4.5					1.4					1.6	2	1.8		6.6
Selenium, dissolved	mg/L	0.0974					<0.0006					<0.0006	0.0096	<0.0006		0.0028
Silicon, dissolved	mg/L	18.8					5.97					10	9.13	5.44		4.62
Silver, dissolved	mg/L	<0.00001					<0.00001					<0.00001	<0.00001	<0.00001		<0.00001
Sodium, dissolved	mg/L	17.3					2					5.9	24.1	3		2.4
Strontium, dissolved	mg/L	0.386					0.688					0.202	0.197	0.463		0.503
Sulphur, Dissolved	mg/L	234					72.7					13.4	6.7	16.1		53.8
Thallium, dissolved	mg/L	0.00008					<0.00001					<0.00001	0.00001	0.00004		0.00022
Tin, dissolved	mg/L	<0.0001					<0.0001					<0.0001	0.0002	<0.0001		<0.0001
Titanium, dissolved	mg/L	0.0014					0.0003					0.0012	0.0098	0.0006		0.0005
Uranium, dissolved	mg/L	<0.0004					0.0077					0.0004	0.0007	0.0028		0.0035
Vanadium, dissolved	mg/L	0.00017					0.00009					0.00033	0.00031	0.00019		0.0003
Zinc, dissolved	mg/L	0.323					0.006					0.003	0.029	0.01		0.07
Zirconium, dissolved	mg/L	<0.0001					<0.0001					<0.0001	<0.0001	0.0001		0.0002
Aluminum, total	mg/L								0.005	0.526	14.7					
Antimony, total	mg/L								1.62	0.0006	0.0049					
Arsenic, total	mg/L								0.277	0.0011	0.0163					
Barium, total	mg/L								0.049	0.082	0.048					
Beryllium, total	mg/L		Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample			<0.00004	<0.00004	0.0267					
Bismuth, total	mg/L							Not Active	<0.0001	<0.0001	<0.0001				Frozen - No Water Found	
Boron, total	mg/L								0.006	<0.005	0.01					
Cadmium, total	mg/L								0.00012	0.00049	0.00917					
Calcium, total	mg/L								376	95.1	114					
Chromium, total	mg/L								0.0006	0.0017	0.005					
Cobalt, total	mg/L								0.896	0.00077	0.122					
Copper, total	mg/L								0.002	0.005	0.922					
Iron, total	mg/L								0.36	1.12	14					
Lead, total	mg/L								<0.0001	0.0076	0.0002					
Lithium, total	mg/L								0.004	0.003	0.019					
Magnesium, total	mg/L								81.4	36.5	61.3					
Manganese, total	mg/L								0.0117	0.126	7.6					
Molybdenum, total	mg/L								0.0226	0.00109	0.00005					
Nickel, total	mg/L								0.007	0.006	0.34					
Potassium, total	mg/L								6.5	0.9	1.9					
Selenium, total	mg/L								0.161	0.0021	0.0061					
Silicon, total	mg/L								3.82	5.92	19.8					
Silver, total	mg/L								<0.00001	0.00021	<0.00001					
Sodium, total	mg/L								563	3.36	2.31					
Strontium, total	mg/L								1.67	0.334	0.704					
Sulphur, Total	mg/L								254	65.2	210					
Thallium, total	mg/L								0.00031	0.00002	0.00019					
Tin, total	mg/L								<0.0001	<0.0001	<0.0001					
Titanium, total	mg/L								0.0007	0.0166	0.0014					
Uranium, total	mg/L								0.0208	0.0026	0.0094					
Vanadium, total	mg/L								0.00026	0.00498	0.00029					
Zinc, total	mg/L								0.004	0.048	0.964					
Zirconium, total	mg/L								<0.0001	0.0001	<0.0001					
pH, Laboratory	pH units	5.94					7.48		7.77	7.47	3.14	7.63	7.06	7.24		7.23
Conductivity - Lab	µS/cm	1400					693		4380	633	1270	331	429	586		845
Hardness calculated from dissolved metal scan	mgCaCO3/L	800					388					162	176	331		490
Hardness calcualted from total metal scan.	mgCaCO3/L								1270	388	536					
Alkalinity, Total	mgCaCO3/L	93					162		104	173	<5	133	115	288		324
Alkalinity, Hydroxide OH	mgCaCO3/L	<5					<5		<5	<5	<5	<5	<5	<5		<5
Alkalinity, Carbonate CaCO3	mgCaCO3/L	<6					<6		<6	<6	<6	<6	<6	<6		<6
Alkalinity, Bicarbonate	mgCaCO3/L	100					200		130	210	<5	160	140	350		400
Total Dissolved Solids	mg/L	1230					514		3740	446	1000	232	304	388		578
Total Suspended Solids	mg/L	3					6		2	42	<2	12	27	1070		449
Chloride	mg/L	1.03					1.27		41	0.24	1.67	0.24	5.28	0.31		1.2
Sulphate, Dissolved	mg/L	647					208		709	172	698	38	20.2	49		158
Ammonium Nitrogen (NH3, NH4+), as N	mg/L	0.14					0.09		<0.01	<0.01	0.15	0.01	0.01	<0.01		0.01
Nitrate Nitrogen, as N	mg/L	3.25					0.06		402	0.35	0.46	0.09	21.9	0.24		1.5
Cyanide, Total	mg/L	<0.001					<0.001		1.2			<0.001	0.07	<0.001		<0.001
Cyanide, Weak Acid Dissociable	mg/L	0.002					0.002		0.3			<0.002	0.03	0.002		0.002

	Station Name	BC-01	BC-02	BC-03	BC-04	BC-05	BC-06	BC-9	BC-10	BC-11	BC-12	BC-13	BC-14
	Description	Laura Creek, 50m u/s from Ditch Road	Carolyn Creek, u/s from Laura Creek	Laura Creek, above confluence w/ Carolyn Creek	Lucky Creek d/s from Luck Pit	Pacific Creek u/s from confluence w/ Lee Creek	South Klondike R. d/s from confluence w/ Lee Creek	Fosters Pit and Dump (upper)	Kokanee Pit and Dump	Blue Waste Dump	Blue Pit	Moosehead West Waste Dump	Moosehead East Waste Dump
	Smpl Date	3-Jun-2009	3-Jun-2009	3-Jun-2009	3-Jun-2009	3-Jun-2009	3-Jun-2009		2-Jun-2009		2-Jun-2009		
Flow rate, volumetric, in-field	L/s	95.32		134.7425	37.7655	89.13							
pH, in-field	pH units	7.43	7.48	7.62	7.27	7.53	7.02		8.41		6.06		
Conductivity, in-field	µS/cm	1203	1368	1229	1439	1206	986		718		2110		
Temperature, in-field	C	1	1.5	0.5	1	0.5	5.1		13.8		16.9		
pH, Laboratory	pH units	8.2	8.2	8.3	8.3	8.2	8.2		8.2		7.4		
Conductivity, Laboratory	µS/cm	430	530	440	560	430	340		290		910		
Hardness calcualted from total metal scan	mgCaCO3/L	215	247	225	292	224	170		140		476		
Hardness calculated from dissolved metal scan	mgCaCO3/L												
Alkalinity, Total	mgCaCO3/L	120	95	120	130	120	99		78		13		
Alkalinity, Hydroxide OH	mgCaCO3/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5		
Alkalinity, Carbonate	mgCaCO3/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5		
Alkalinity, Bicarbonate	mgCaCO3/L	140	120	150	160	150	120		95		16		
Total Dissolved Solids	mg/L	290	380	320	380	320	240		190		740		
Total Suspended Solids	mg/L	39	**160**	**56**	15	2	3		7		6		
Chloride	mg/L	1	1.7	1	1	1	0.9		0.7		1.2		
Sulphate, Dissolved	mg/L	110	160	110	160	110	75		71		460		
Ammonium Nitrogen (NH3, NH4+), as N	mg/L	<0.005	0.007	<0.005	<0.005	<0.005	<0.005		0.044		0.007		
Nitrate Nitrogen, as N	mg/L	0.21	2.47	0.06	0.19	<0.02	0.1		<0.02		0.34		
Cyanide, Total	mg/L	0.001	0.0037	0.0007	<0.0005	<0.0005	<0.0005						
Cyanide, Weak Acid Dissociable.	mg/L	0.0005	0.0011	<0.0005	<0.0005	<0.0005	<0.0005						
Calcium, total	mg/L	54.2	60.7	56.1	68.8	57.5	44.6		34.8		120		
Magnesium, total	mg/L	19.3	23.3	20.5	29.2	19.4	14.3		12.9		42.5		
Sodium, total	mg/L	3.57	11.8	2.53	1.85	1.18	1.4		0.47		0.91		
Potassium, total	mg/L	1.32	1.41	1.38	1.29	0.83	0.58		1.87		2.11		
Copper, total	mg/L	0.00181	0.00391	0.00267	0.0012	0.00158	0.0012		0.00093		0.00978		
Arsenic, total	mg/L	0.00592	0.00205	0.00798	0.00464	0.0006	0.00045		0.0107		0.00676		
Antimony, total	mg/L	0.00371	0.00196	0.00515	0.00363	0.00046	0.00025		0.0962		0.0322		
Mercury, total	mg/L	0.00002	0.00001	0.00001	0.00002	0.00001	0.00002		0.00002		0.00001		
Zinc, total	mg/L	0.0039	0.0096	0.0098	0.0125	0.0111	0.004		0.0029		0.201		
Selenium, total	mg/L	0.00152	0.00397	0.0013	0.00426	0.00132	0.00108	Dry - No Water Found	0.00407	Dry - No Water Found	0.0025	Dry - No Water Found	Dry - No Water Found
Lead, total	mg/L	0.000475	0.00191	0.000976	0.000419	0.00018	0.000089		0.000303		0.000098		
Aluminum, total	mg/L	0.239	0.695	0.319	0.163	0.0303	0.0352		0.103		0.0788		
Bismuth, total	mg/L	0.000005	0.000012	<0.000005	0.000017	<0.000005	<0.000005		<0.000005		<0.000005		
Cadmium, total	mg/L	0.000077	0.000102	0.000151	0.00015	0.000095	0.000057		0.000055		0.00239		
Chromium, total	mg/L	0.0006	0.0015	0.0007	0.0004	0.0002	0.0002		<0.0001		<0.0001		
Iron, total	mg/L	0.569	**2.05**	**1.12**	0.603	0.096	0.085		0.062		0.65		
Manganese, total	mg/L	0.128	0.278	0.213	0.168	0.0142	0.00824		0.00485		1.27		
Molybdenum, total	mg/L	0.00257	0.0004	0.00199	0.00284	0.00268	0.00107		0.00304		0.00074		
Nickel, total	mg/L	0.00277	0.00361	0.00435	0.00793	0.00431	0.00165		0.00223		0.0961		
Silver, total	mg/L	<0.000005	0.000009	<0.000005	<0.000005	<0.000005	<0.000005		0.000008		0.000006		
Calcium, dissolved	mg/L												
Magnesium, dissolved	mg/L												
Sodium, dissolved	mg/L												
Potassium, dissolved	mg/L												
Copper, dissolved	mg/L												
Arsenic, dissolved	mg/L												
Antimony, dissolved	mg/L												
Mercury, dissolved	mg/L												
Zinc, dissolved	mg/L												
Selenium, dissolved	mg/L												
Lead, dissolved	mg/L												
Aluminum, dissolved	mg/L												
Bismuth, dissolved	mg/L												
Cadmium, dissolved	mg/L												
Chromium, dissolved	mg/L												
Iron, dissolved	mg/L												
Manganese, dissolved	mg/L												
Molybdenum, dissolved	mg/L												
Nickel, dissolved	mg/L												
Silver, dissolved	mg/L												
Sulphur, Dissolved	mg/L												

	Station Name	BC-15	BC-16	BC-17	BC-18S	BC-18N	BC-19	BC-20	BC-21	BC-22	BC-23	BC-24	BC-25
	Description	Moosehead Pit discharge	Pacific Gulch - 300m above Laura Creek	Golden Pit and Dump	Lucky Pit and Dump - south end	Lucky Pit and Dump - north end	Piezometer RC94-843	Piezometer RC94-844	Piezometer RC95-1354	Piezometer RC95-1357	Piezometer RC95-1370	Piezometer RC95-1400	Piezometer RC96-1608
	Smpl Date	2-Jun-2009		2-Jun-2009			3-Jun-2009		2-Jun-2009	3-Jun-2009			
Flow rate, volumetric, in-field	L/s												
pH, in-field	pH units	7.58		8.14			6.16		6.38	**5.49**			
Conductivity, in-field	µS/cm	1020		1404			1782		1062	3440			
Temperature, in-field	C	14.2		12			3.5		8.7	5.5			
pH, Laboratory	pH units	8		8.3			8.2		6.8	7.6			
Conductivity, Laboratory	µS/cm	390		540			710		450	1500			
Hardness calcualted from total metal scan	mgCaCO3/L	191		284									
Hardness calculated from dissolved metal scan	mgCaCO3/L						360		158	805			
Alkalinity, Total	mgCaCO3/L	47		120			230		6	93			
Alkalinity, Hydroxide OH	mgCaCO3/L	<0.5		<0.5			<0.5		<0.5	<0.5			
Alkalinity, Carbonate	mgCaCO3/L	<0.5		1.2			<0.5		<0.5	<0.5			
Alkalinity, Bicarbonate	mgCaCO3/L	57		150			280		7.4	110			
Total Dissolved Solids	mg/L	270		380			450		410	1200			
Total Suspended Solids	mg/L	6		5			10		50	6			
Chloride	mg/L	0.5		1.1			1.3		110	1.8			
Sulphate, Dissolved	mg/L	140		160			160		13	750			
Ammonium Nitrogen (NH3, NH4+), as N	mg/L	<0.005		0.018			<0.005		<0.005	0.146			
Nitrate Nitrogen, as N	mg/L	0.21		0.06			0.16		0.78	3.3			
Cyanide, Total	mg/L						<0.0005		<0.0005	<0.0005			
Cyanide, Weak Acid Dissociable.	mg/L						<0.0005		<0.0005	<0.0005			
Calcium, total	mg/L	44.4		72.6									
Magnesium, total	mg/L	19.4		24.9									
Sodium, total	mg/L	0.23		1.04									
Potassium, total	mg/L	0.57		1.33									
Copper, total	mg/L	0.0004		0.00071									
Arsenic, total	mg/L	0.0418		0.0232									
Antimony, total	mg/L	0.00305		0.0618									
Mercury, total	mg/L	0.00001		0.00001									
Zinc, total	mg/L	0.0013		0.0034				Piezometer Not Functioning - Not Possible to Obtain a Sample			Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample
Selenium, total	mg/L	0.0129	Dry - No Water Found	0.00304	Dry - No Water Found	Dry - No Water Found							
Lead, total	mg/L	0.000158		0.000554									
Aluminum, total	mg/L	0.0482		0.0478									
Bismuth, total	mg/L	<0.000005		<0.000005									
Cadmium, total	mg/L	0.000032		0.000056									
Chromium, total	mg/L	<0.0001		<0.0001									
Iron, total	mg/L	0.021		0.103									
Manganese, total	mg/L	0.00324		0.0218									
Molybdenum, total	mg/L	0.00069		0.00523									
Nickel, total	mg/L	0.00073		0.00097									
Silver, total	mg/L	0.000005		<0.000005									
Calcium, dissolved	mg/L						82.1		38.7	210			
Magnesium, dissolved	mg/L						37.7		14.9	68			
Sodium, dissolved	mg/L						9.62		6.83	16.9			
Potassium, dissolved	mg/L						2.31		2.56	4.64			
Copper, dissolved	mg/L						0.0042		0.00385	0.00871			
Arsenic, dissolved	mg/L						0.00071		0.00246	0.00041			
Antimony, dissolved	mg/L						0.00057		0.00082	0.00042			
Mercury, dissolved	mg/L						0.00002		<0.00001	0.00001			
Zinc, dissolved	mg/L						0.034		0.0379	**0.304**			
Selenium, dissolved	mg/L						0.00064		0.00042	0.087			
Lead, dissolved	mg/L						0.000602		0.000317	0.000372			
Aluminum, dissolved	mg/L						0.012		0.0244	0.455			
Bismuth, dissolved	mg/L						0.000008		<0.000005	<0.000005			
Cadmium, dissolved	mg/L						0.000456		0.000758	0.0135			
Chromium, dissolved	mg/L						0.0005		0.0002	0.0005			
Iron, dissolved	mg/L						0.048		0.014	0.013			
Manganese, dissolved	mg/L						0.0432		0.175	0.838			
Molybdenum, dissolved	mg/L						0.00014		<0.00005	0.00014			
Nickel, dissolved	mg/L						0.00606		0.0383	0.145			
Silver, dissolved	mg/L						0.00001		0.000009	<0.000005			
Sulphur, Dissolved	mg/L						56		3	259			

	Station Name	BC-26	BC-27	BC-28	BC-28a	BC-31	BC-34	BC-39	BC-51W	BC-65	BC-66	BC-67	BC-68
	Description	Piezometer RC 97-2024	Piezometer RC97-2026	Overflow Pond Decant	Discharge from heap	Golden Creek above confluence w/ South Klondike R.	Lee Creek at Ditch Road	Laura Creek in side channel of South Klondike R.	Pacific Pit - west side	Land Application Piezometer	Land Application Piezometer	Blue WRSA Piezometer	Blue WRSA Piezometer
	Smpl Date		2-Jun-2009		4-Jun-2009	3-Jun-2009	2-Jun-2009	3-Jun-2009	2-Jun-2009	3-Jun-2009	3-Jun-2009	2-Jun-2009	
Flow rate, volumetric, in-field	L/s					457.075	1999.425	6.54					
pH, in-field	pH units		7.02		7.56	7.81	7.67	7.27	**3.63**	8.26	7.2	6.68	
Conductivity, in-field	µS/cm		1612		4900	1264	984	1059	622	837	476	1313	
Temperature, in-field	C		6.4		6.1	1.5	6.2	6	15.5	7	8.5	9	
pH, Laboratory	pH units		8.2		8.1	8.3	8.2	8.3	**4.4**	8.4	8.2	8.2	
Conductivity, Laboratory	µS/cm		720		3500	450	380	400	240	360	220	550	
Hardness calcualted from total metal scan	mgCaCO3/L				965	234	186	196	72.2				
Hardness calculated from dissolved metal scan	mgCaCO3/L		382							172	96.6	292	
Alkalinity, Total	mgCaCO3/L		160		110	130	110	110	<0.5	140	97	250	
Alkalinity, Hydroxide OH	mgCaCO3/L		<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Alkalinity, Carbonate	mgCaCO3/L		<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	
Alkalinity, Bicarbonate	mgCaCO3/L		200		140	160	130	130	<0.5	170	120	310	
Total Dissolved Solids	mg/L		520		3000	320	260	270	160	210	120	350	
Total Suspended Solids	mg/L		16		1	4	7	20	10	24	21	**2200**	
Chloride	mg/L		1.3		26	0.7	1	1.2	1.2	1.1	2.2	2	
Sulphate, Dissolved	mg/L		230		640	110	87	97	94	43	11	48	
Ammonium Nitrogen (NH3, NH4+), as N	mg/L		0.136		<0.005	<0.005	<0.005	<0.005	0.162	0.04	<0.005	<0.005	
Nitrate Nitrogen, as N	mg/L		0.03		285	0.09	0.1	0.15	0.18	0.08	0.29	1.12	
Cyanide, Total	mg/L		<0.0005		0.762	<0.0005		0.0011		<0.0005	0.0013	0.0012	
Cyanide, Weak Acid Dissociable.	mg/L		<0.0005		0.0471	<0.0005		0.0007		<0.0005	<0.0005	<0.0005	
Calcium, total	mg/L				292	56.9	47.4	49.9	17.7				
Magnesium, total	mg/L				57.6	22.3	16.5	17.4	6.81				
Sodium, total	mg/L				364	1.6	1.15	3.15	0.64				
Potassium, total	mg/L				4.3	0.88	0.62	1.24	2.31				
Copper, total	mg/L				0.002	0.00145	0.00168	0.00118	0.145				
Arsenic, total	mg/L				0.301	0.00068	0.00033	0.00357	0.0126				
Antimony, total	mg/L				**1.69**	0.00065	0.00025	0.0034	0.00545				
Mercury, total	mg/L				<0.0002	0.00002	<0.00001	0.00001	0.00002				
Zinc, total	mg/L	**Piezometer Not Functioning - Not Possible to Obtain a Sample**			0.006	0.0036	0.0075	0.0016	0.116				
Selenium, total	mg/L			**Not Active**	0.15	0.00128	0.00134	0.00126	0.00157				**Frozen - No Water Found**
Lead, total	mg/L				<0.0001	0.000115	0.00011	0.000165	0.000409				
Aluminum, total	mg/L				<0.004	0.0355	0.0492	0.0897	**2.02**				
Bismuth, total	mg/L				<0.0001	0.000005	<0.000005	<0.000005	<0.000005				
Cadmium, total	mg/L				0.0002	0.000052	0.000139	0.000037	0.00141				
Chromium, total	mg/L				<0.002	0.0002	<0.0001	0.0003	0.0009				
Iron, total	mg/L				0.166	0.126	0.13	0.221	**1.64**				
Manganese, total	mg/L				0.022	0.0182	0.0149	0.0134	0.568				
Molybdenum, total	mg/L				0.023	0.00138	0.00113	0.00234	0.0001				
Nickel, total	mg/L				0.0071	0.00208	0.00243	0.00157	0.0442				
Silver, total	mg/L				<0.0001	<0.000005	<0.000005	<0.000005	0.000012				
Calcium, dissolved	mg/L		95.6							54.4	27.9	73	
Magnesium, dissolved	mg/L		34.8							8.7	6.54	26.7	
Sodium, dissolved	mg/L		2.17							6.12	5.87	3.03	
Potassium, dissolved	mg/L		1.72							1.76	2.11	1.65	
Copper, dissolved	mg/L		0.00207							0.00109	0.00635	0.0008	
Arsenic, dissolved	mg/L		0.158							0.0008	0.00347	0.00219	
Antimony, dissolved	mg/L		0.00111							0.00292	0.0447	0.00457	
Mercury, dissolved	mg/L		<0.00001							<0.00001	0.00001	<0.00001	
Zinc, dissolved	mg/L		0.0333							0.0032	0.0172	0.0111	
Selenium, dissolved	mg/L		<0.00004							0.00008	0.00064	0.00011	
Lead, dissolved	mg/L		0.000994							0.00015	0.000853	0.000097	
Aluminum, dissolved	mg/L		0.0148							0.0128	0.133	0.0082	
Bismuth, dissolved	mg/L		<0.000005							0.000018	0.000057	<0.000005	
Cadmium, dissolved	mg/L		0.000097							0.000035	0.000191	0.000062	
Chromium, dissolved	mg/L		0.0003							0.0003	0.0009	<0.0001	
Iron, dissolved	mg/L		1.65							0.02	0.139	0.011	
Manganese, dissolved	mg/L		0.206							0.00302	0.00791	0.0922	
Molybdenum, dissolved	mg/L		0.0137							0.00048	0.00837	0.00016	
Nickel, dissolved	mg/L		0.0025							0.00079	0.00397	0.00166	
Silver, dissolved	mg/L		0.000022							<0.000005	0.000011	<0.000005	
Sulphur, Dissolved	mg/L		78							14	<3	13	

		BC-01	BC-02	BC-03	BC-04	BC-05	BC-06	BC-9	BC-10	BC-11	BC-12	BC-13	BC-14	BC-15
		Laura Creek, 50m u/s from Ditch Road	Carolyn Creek, u/s from Laura Creek	Laura Creek, above confluence w/ Carolyn Creek	Lucky Creek d/s from Luck Pit	Pacific Creek u/s from confluence w/ Lee Creek	South Klondike R. d/s from confluence w/ Lee Creek	Fosters Pit and Dump (upper)	Kokanee Pit and Dump	Blue Waste Dump	Blue Pit	Moosehead West Waste Dump	Moosehead East Waste Dump	Moosehead Pit discharge
		1-Sep-2009	1-Sep-2009	1-Sep-2009	2-Sep-2009	2-Sep-2009	2-Sep-2009		3-Sep-2009		3-Sep-2009			3-Sep-2009
Discharge, volumetric, in-field	L/s	85.7425	5	57.38										
pH, in-field	pH units	7.72	7.3	7.67	7.41	7.7	7.52		7.83		6.4			7.6
Conductivity, in-field	µS/cm	454	614	459	495	502	268		424		1155			1035
Temperature, in-field	C	3.8	5	4.2	3.1	4	6.5		12		13.5			11.8
pH, Laboratory	pH units	8.1	7.9	8	8	8	7.9		8.1		6.7			8
Conductivity, Laboratory	µS/cm	442	606	446	479	493	269		433		1200			1060
Hardness calcualted from total metal scan	mg/L	226	280	226	236	242	126		211		689			600
Hardness calculated from dissolved metal scan	mg/L													
Alkalinity, Total	mg/L	130	120	130	120	140	80		120		8.5			120
Alkalinity, Hydroxide OH	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5			<0.5
Alaklinity, Carbonate CO3	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5			<0.5
Alkalinity, Bicarbonate HCO3	mg/L	150	140	160	140	170	98		150		10			150
Total Dissolved Solids	mg/L	270	410	290	310	330	150		260		980			850
Total Suspended Solids	mg/L	6	43	12	10	<1	3		3		3			<1
Chloride	mg/L	<0.5	0.8	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5			<0.5
Sulphate, Dissolved	mg/L	93	160	86	110	100	49		91		590			440
Ammonium Nitrogen (NH3, NH4+), as N	mg/L	<0.005	0.124	<0.005	<0.005	<0.005	<0.005		0.009		<0.005			0.006
Nitrate Nitrogen, as N	mg/L	0.18	1.01	0.16	0.16	0.07	0.07		<0.02		<0.02			0.27
Cyanide, Total	mg/L	0.0008	0.0038	<0.0005	<0.0005	<0.0005	<0.0005							
Cyanide, Weak Acid Dissociable	mg/L	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005							
Calcium, total	mg/L	56.5	66.9	56.2	52.9	59.3	34.6		50.9		171			132
Magnesium, total	mg/L	20.5	27.5	20.8	25.2	22.9	9.61		20.3		63.7			65.6
Sodium, total	mg/L	3.57	11.5	2.67	2.12	1.47	1.91		0.75		1.28			0.52
Potassium, total	mg/L	1.14	1.16	1.19	0.92	0.64	0.43		1.79		2.68			1.16
Copper, total	mg/L	0.00174	0.00188	0.00182	0.00122	0.00171	0.00069		0.00087		0.0179			0.00049
Arsenic, total	mg/L	0.00415	0.00133	0.00324	0.00249	0.00056	0.00083		0.0107		0.00265			0.0345
Antimony, total	mg/L	0.00438	0.00169	0.0053	0.00381	0.00061	0.00023		0.161		0.0444			0.00445
Zinc, total	mg/L	0.0032	0.0038	0.0044	0.0125	0.0086	0.0015		0.0012		0.241			0.0012
Selenium, total	mg/L	0.00164	0.00401	0.0015	0.00305	0.00179	0.00051	Dry - No Water Found	0.00476	Dry - No Water Found	0.0008	Dry - No Water Found	Dry - No Water Found	0.0292
Lead, total	mg/L	0.000212	0.000647	0.000252	0.000128	0.000017	0.000049		0.000121		0.000034			0.000053
Aluminum, total	mg/L	0.088	0.244	0.13	0.107	0.0238	0.022		0.0475		0.219			0.0183
Bismuth, total	mg/L	0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005		<0.000005		<0.000005			0.000009
Cadmium, total	mg/L	0.00005	0.000046	0.00006	0.000161	0.000056	0.000031		0.000041		0.00266			0.00004
Chromium, total	mg/L	0.0003	0.0005	0.0003	0.0002	<0.0001	<0.0001		<0.0001		<0.0001			<0.0001
Iron, total	mg/L	0.261	1.27	0.332	0.516	0.1	0.054		0.032		0.631			0.02
Manganese, total	mg/L	0.0414	0.191	0.0515	0.125	0.00767	0.00723		0.0143		1.71			0.00276
Molybdenum, total	mg/L	0.00266	0.00054	0.0022	0.00267	0.00316	0.00047		0.00344		0.00063			0.00092
Nickel, total	mg/L	0.00222	0.00251	0.00322	0.00749	0.00356	0.00062		0.00078		0.134			0.00068
Silver, total	mg/L	<0.000005	0.000005	<0.000005	<0.000005	<0.000005	<0.000005		<0.000005		<0.000005			<0.000005
Calcium, dissolved	mg/L													
Magnesium, dissolved	mg/L													
Sodium, dissolved	mg/L													
Potassium, dissolved	mg/L													
Copper, dissolved	mg/L													
Arsenic, dissolved	mg/L													
Antimony, dissolved	mg/L													
Zinc, dissolved	mg/L													
Selenium, dissolved	mg/L													
Lead, dissolved	mg/L													
Aluminum, dissolved	mg/L													
Bismuth, dissolved	mg/L													
Cadmium, dissolved	mg/L													
Chromium, dissolved	mg/L													
Iron, dissolved	mg/L													
Manganese, dissolved	mg/L													
Molybdenum, dissolved	mg/L													
Nickel, dissolved	mg/L													
Silver, dissolved	mg/L													
Sulphur, Dissolved	mg/L													

		BC-16	BC-17	BC-18S	BC-18N	BC-19	BC-20	BC-21	BC-22	BC-23	BC-24	BC-25	BC-26	BC-27
		Pacific Gulch - 300m above Laura Creek	Golden Pit and Dump	Lucky Pit and Dump - south end	Lucky Pit and Dump - north end	Piezometer RC94-843	Piezometer RC94-844	Piezometer RC95-1354	Piezometer RC95-1357	Piezometer RC95-1370	Piezometer RC95-1400	Piezometer RC96-1608	Piezometer RC 97-2024	Piezometer RC97-2026
			3-Sep-2009			3-Sep-2009		3-Sep-2009	3-Sep-2009					3-Sep-2009
Discharge, volumetric, in-field	L/s													
pH, in-field	pH units		7.62			6.43		6.05	5.7					7.17
Conductivity, in-field	µS/cm		722			713		439	1502					731
Temperature, in-field	C		12			2.8		3.8	5.5					5.8
pH, Laboratory	pH units		8.1			7.7		6.7	6.9					7.9
Conductivity, Laboratory	µS/cm		726			703		417	1420					716
Hardness calcualted from total metal scan	mg/L		391											
Hardness calculated from dissolved metal scan	mg/L					369		161	821					401
Alkalinity, Total	mg/L		170			230		9.8	94					160
Alkalinity, Hydroxide OH	mg/L		<0.5			<0.5		<0.5	<0.5					<0.5
Alaklinity, Carbonate CO3	mg/L		<0.5			<0.5		<0.5	<0.5					<0.5
Alkalinity, Bicarbonate HCO3	mg/L		210			280		12	110					200
Total Dissolved Solids	mg/L		490			440		370	1200					500
Total Suspended Solids	mg/L		<1			11		17	14					16
Chloride	mg/L		<0.5			<0.5		96	1.3					<0.5
Sulphate, Dissolved	mg/L		180			130		16	680					180
Ammonium Nitrogen (NH3, NH4+), as N	mg/L		<0.005			0.014		<0.005	0.215					0.071
Nitrate Nitrogen, as N	mg/L		<0.02			0.14		0.81	3.27					0.05
Cyanide, Total	mg/L					<0.0005		<0.0005	<0.0005					<0.0005
Cyanide, Weak Acid Dissociable	mg/L					<0.0005		<0.0005	<0.0005					<0.0005
Calcium, total	mg/L		92.9											
Magnesium, total	mg/L		38.7											
Sodium, total	mg/L		1.6											
Potassium, total	mg/L		1.61											
Copper, total	mg/L		0.00074											
Arsenic, total	mg/L		0.027											
Antimony, total	mg/L		0.0623											
Zinc, total	mg/L		0.0018				Piezometer Not Functioning - Not Possible to Obtain a Sample			Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample	
Selenium, total	mg/L	Dry - No Water Found	0.00237	Dry - No Water Found	Dry - No Water Found									
Lead, total	mg/L		0.000082											
Aluminum, total	mg/L		0.0206											
Bismuth, total	mg/L		<0.000005											
Cadmium, total	mg/L		0.000021											
Chromium, total	mg/L		<0.0001											
Iron, total	mg/L		0.023											
Manganese, total	mg/L		0.0111											
Molybdenum, total	mg/L		0.00631											
Nickel, total	mg/L		0.00065											
Silver, total	mg/L		<0.000005											
Calcium, dissolved	mg/L					85.4		39.4	215					100
Magnesium, dissolved	mg/L					37.9		15.1	69					36.5
Sodium, dissolved	mg/L					9.35		6.87	17.4					1.83
Potassium, dissolved	mg/L					2.4		2.67	4.92					1.51
Copper, dissolved	mg/L					0.00548		0.00448	0.00918					0.00023
Arsenic, dissolved	mg/L					0.00067		0.00219	0.00033					0.0515
Antimony, dissolved	mg/L					0.00081		0.00091	0.00044					0.00072
Zinc, dissolved	mg/L					0.0241		0.0379	0.316					0.0038
Selenium, dissolved	mg/L					0.00159		0.00083	0.0842					<0.00004
Lead, dissolved	mg/L					0.000081		0.000114	0.000362					0.000005
Aluminum, dissolved	mg/L					0.0051		0.0129	0.464					0.0027
Bismuth, dissolved	mg/L					<0.000005		<0.000005	<0.000005					<0.000005
Cadmium, dissolved	mg/L					0.00043		0.000873	0.0138					0.000038
Chromium, dissolved	mg/L					<0.0001		0.0002	0.0003					<0.0001
Iron, dissolved	mg/L					0.005		0.004	0.01					0.007
Manganese, dissolved	mg/L					0.0274		0.192	0.847					0.209
Molybdenum, dissolved	mg/L					0.00014		0.00006	0.00013					0.0138
Nickel, dissolved	mg/L					0.00329		0.0344	0.135					0.00244
Silver, dissolved	mg/L					<0.000005		<0.000005	<0.000005					<0.000005
Sulphur, Dissolved	mg/L					57		6	276					84

		BC-28	BC-28a	BC-31	BC-34	BC-39	BC-51W	BC-65	BC-66	BC-67	BC-68	BC-69
		Overflow Pond Decant	Discharge from heap	Golden Creek above confluence w/ South Klondike R.	Lee Creek at Ditch Road	Laura Creek in the side channel of the South Klondike River	Pacific Pit - west side	Land Application Piezometer	Land Application Piezometer	Blue WRSA Piezometer	Blue WRSA Piezometer	Blue WRSA Piezometer
			3-Sep-2009	2-Sep-2009	1-Sep-2009		3-Sep-2009	3-Sep-2009	3-Sep-2009	3-Sep-2009		3-Sep-2009
Discharge, volumetric, in-field	L/s			65.71	2670.925							
pH, in-field	pH units		6.59	7.62	7.7		3.05	7.17	7.2	6.88		6.81
Conductivity, in-field	µS/cm		4630	454	467		609	374	267	609		924
Temperature, in-field	C		5.5	3.1	5.8		13.2	3.5	3	4.6		4.5
pH, Laboratory	pH units		7.9	8.1	8.1		3.4	8	7.8	7.9		8
Conductivity, Laboratory	µS/cm		3880	441	455		949	343	228	591		858
Hardness calcualted from total metal scan	mg/L		1050	227	234		328					
Hardness calculated from dissolved metal scan	mg/L							171	100	344		491
Alkalinity, Total	mg/L		130	140	130		<0.5	140	99	280		340
Alkalinity, Hydroxide OH	mg/L		<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5		<0.5
Alaklinity, Carbonate CO3	mg/L		<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5		<0.5
Alkalinity, Bicarbonate HCO3	mg/L		160	170	160		<0.5	170	120	340		420
Total Dissolved Solids	mg/L		3200	270	290		630	180	110	330		530
Total Suspended Solids	mg/L		<1	1	3		4	38	48	2700		290
Chloride	mg/L		28	<0.5	<0.5		1.4	<0.5	1.6	<0.5		0.6
Sulphate, Dissolved	mg/L		640	89	94		360	35	9.8	46		130
Ammonium Nitrogen (NH3, NH4+), as N	mg/L		<0.005	<0.005	<0.005		<0.005	0.028	0.013	<0.005		<0.005
Nitrate Nitrogen, as N	mg/L		325	0.13	0.13		<0.02	0.02	0.88	0.04		0.05
Cyanide, Total	mg/L		1.18	<0.0005	<0.0005			<0.0005	0.0012	<0.0005		<0.0005
Cyanide, Weak Acid Dissociable	mg/L		0.0517	<0.0005	<0.0005			<0.0005	<0.0005	<0.0005		<0.0005
Calcium, total	mg/L		310	53.2	59.2		73.5					
Magnesium, total	mg/L		68.1	22.8	20.9		35.1					
Sodium, total	mg/L		404	1.7	1.35		3.1					
Potassium, total	mg/L		4.8	0.72	0.64		3.08					
Copper, total	mg/L		0.004	0.00205	0.00164		0.563					
Arsenic, total	mg/L		0.31	0.0006	0.00023		0.0185					
Antimony, total	mg/L		1.87	0.00079	0.00033		0.0044					
Zinc, total	mg/L		0.011	0.0042	0.0074		0.618					
Selenium, total	mg/L	**Not Active**	0.168	0.00145	0.00225	**Dry - No Water Found**	0.00532				**Frozen - No Water Found**	
Lead, total	mg/L		0.0001	0.000052	0.000047		0.00429					
Aluminum, total	mg/L		0.02	0.0356	0.0245		7.8					
Bismuth, total	mg/L		<0.0001	<0.000005	<0.000005		<0.000005					
Cadmium, total	mg/L		0.0003	0.00005	0.000096		0.00718					
Chromium, total	mg/L		<0.002	<0.0001	<0.0001		0.0054					
Iron, total	mg/L		0.336	0.098	0.082		10.1					
Manganese, total	mg/L		0.031	0.00862	0.00939		3.5					
Molybdenum, total	mg/L		0.021	0.00153	0.00162		0.0021					
Nickel, total	mg/L		0.0084	0.00218	0.00226		0.214					
Silver, total	mg/L		0.0002	<0.000005	<0.000005		0.000093					
Calcium, dissolved	mg/L							54.9	29.1	87		98.1
Magnesium, dissolved	mg/L							8.27	6.72	30.9		59.7
Sodium, dissolved	mg/L							5.79	7.09	2.66		2.22
Potassium, dissolved	mg/L							2.09	2.13	1.93		6.94
Copper, dissolved	mg/L							0.00303	0.00646	0.00062		0.00119
Arsenic, dissolved	mg/L							0.00045	0.00375	0.00134		0.019
Antimony, dissolved	mg/L							0.00246	0.0413	0.00591		0.00421
Zinc, dissolved	mg/L							0.0115	0.0112	0.0065		0.0777
Selenium, dissolved	mg/L							0.00006	0.0011	<0.00004		0.00206
Lead, dissolved	mg/L							0.000104	0.000158	0.00001		0.000045
Aluminum, dissolved	mg/L							0.0396	0.0336	0.0081		0.0086
Bismuth, dissolved	mg/L							<0.000005	<0.000005	<0.000005		0.000018
Cadmium, dissolved	mg/L							0.000152	0.000186	0.000051		0.000591
Chromium, dissolved	mg/L							0.0004	0.0004	<0.0001		<0.0001
Iron, dissolved	mg/L							0.036	0.033	0.004		0.009
Manganese, dissolved	mg/L							0.00922	0.00402	0.053		0.0324
Molybdenum, dissolved	mg/L							0.00019	0.00774	0.0002		0.00042
Nickel, dissolved	mg/L							0.00176	0.00328	0.00224		0.00323
Silver, dissolved	mg/L							<0.000005	<0.000005	<0.000005		<0.000005
Sulphur, Dissolved	mg/L							16	5	19		59

		BC-1	BC-2	BC-3	BC-4	BC-5	BC-6	BC-9	BC-10	BC-12	BC-13
		Laura Creek, 50m u/s from Ditch Road	Carolyn Creek, u/s from Laura Creek	Laura Creek, above confluence w/ Carolyn Creek	Lucky Creek d/s from Lucky Pit	Pacific Creek u/s from confluence w/ Lee Creek	South Klondike R. d/s from confluence w/ Lee Creek	Fosters Pit and Dump (Upper)	Kokanee Pit and Dump	Blue Pit	Moosehead West Waste Dump
		9-Dec-2009		8-Dec-2009	11-Dec-2009	11-Dec-2009	11-Dec-2009		8-Dec-2009	8-Dec-2009	
Flow	L/s	overflow sample		n/a	n/a	n/a	n/a		n/a	n/a	
Water Level, Gauge reading, Piezometric reading	m	n/a		n/a	n/a	n/a	n/a		n/a	n/a	
pH, in-field	pH units	8.27		8.07	7.65	7.68	7.3		7.29	5.14	
pH, Laboratory	pH units	8.1		8.2	8	8.1	8		8.2	6.5	
Conductivity, in-field	µS/cm	301		362	742	682	288		139	286	
Conductivity, Laboratory	µS/cm	564		668	760	715	331		499	1500	
Temperature, in-field	C	0.1		0.1	0.2	0	0		0.2	0.1	
Hardness calcualted from total metal scan	mg/L	287		343	408	383	162		272	916	
Hardness calculated from dissolved metal scan	mg/L										
Alkalinity, Total	mg/L	160		180	200	210	100		140	31	
Alkalinity, Hydroxide OH	mg/L	<0.5		<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	
Alaklinity, Carbonate CO3	mg/L	<0.5		<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	
Alkalinity, Bicarbonate HCO3	mg/L	190		220	240	260	120		170	37	
Total Dissolved Solids	mg/L	330		450	530	470	190		320	1300	
Total Suspended Solids	mg/L	48		<1	460	<1	<1		1	3	
Chloride	mg/L	2.5		0.9	<0.5	<0.5	<0.5		0.7	9.5	
Sulphate, Dissolved	mg/L	130		160	190	160	63		120	800	
Ammonia Nitrogen (NH3), as N	mg/L	0.01		0.012	<0.005	<0.005	<0.005		0.012	0.09	
Nitrate Nitrogen, as N	mg/L	0.22		0.24	0.27	0.6	0.2		0.08	0.05	
Cyanide, Total	mg/L	<0.0005		<0.0005	0.0008	0.0007	<0.0005				
Cyanide, Weak Acid Dissociable.	mg/L	<0.0005		<0.0005	0.0006	0.0005	<0.0005				
Calcium, total	mg/L	70.8		85.5	95.3	94.9	43.3		64.2	231	
Magnesium, total	mg/L	26.8		31.6	41.2	35.6	13		27.3	82.5	
Sodium, total	mg/L	4.27		3.93	1.98	2.02	2.38		0.98	2.49	
Potassium, total	mg/L	1.33		1.56	1.42	0.9	0.49		1.99	3.42	
Copper, total	mg/L	0.00366		0.00063	0.00874	0.00157	0.00045		0.0005	0.062	
Arsenic, total	mg/L	0.00896		0.00148	0.0557	0.00058	0.00038		0.011	0.0293	
Antimony, total	mg/L	0.00351		0.00499	0.00495	0.00004	0.00019		0.175	0.036	
Zinc, total	mg/L	0.0107		0.003	0.129	0.0137	0.0022		0.0025	0.236	
Selenium, total	mg/L	0.00204	Creek Frozen - No Sample Obtained	0.0019	0.00599	0.00237	0.00098	Dry - No Water Found	0.0052	0.00046	Dry - No Water Found
Lead, total	mg/L	0.00106		0.00002	0.00391	0.000136	0.00001		0.00013	0.000115	
Aluminum, total	mg/L	0.503		0.0097	1.1	0.0607	0.0034		0.011	0.821	
Bismuth, total	mg/L	<0.000005		<0.000005	0.000009	<0.000005	<0.000005		<0.00003	<0.000005	
Cadmium, total	mg/L	0.000166		0.000042	0.00259	0.000106	0.000029		<0.00003	0.00287	
Chromium, total	mg/L	0.0012		0.0001	0.0023	0.0002	<0.0001		<0.0005	0.0002	
Iron, total	mg/L	1.17		0.062	14.8	0.173	0.018		0.019	0.523	
Manganese, total	mg/L	0.126		0.0604	0.67	0.0272	0.00282		0.0019	1.87	
Molybdenum, total	mg/L	0.00278		0.00231	0.00331	0.00277	0.00066		0.0039	0.0013	
Nickel, total	mg/L	0.00366		0.00216	0.0311	0.00263	0.00059		0.0008	0.13	
Silver, total	mg/L	0.000012		<0.000005	0.000013	<0.000005	<0.000005		<0.00003	<0.000005	
Calcium, dissolved	mg/L										
Magnesium, dissolved	mg/L										
Sodium, dissolved	mg/L										
Potassium, dissolved	mg/L										
Copper, dissolved	mg/L										
Arsenic, dissolved	mg/L										
Antimony, dissolved	mg/L										
Zinc, dissolved	mg/L										
Selenium, dissolved	mg/L										
Lead, dissolved	mg/L										
Aluminum, dissolved	mg/L										
Bismuth, dissolved	mg/L										
Cadmium, dissolved	mg/L										
Chromium, dissolved	mg/L										
Iron, dissolved	mg/L										
Manganese, dissolved	mg/L										
Molybdenum, dissolved	mg/L										
Nickel, dissolved	mg/L										
Silver, dissolved	mg/L										
Sulphur, Dissolved	mg/L										

		BC-14	BC-15	BC-16	BC-17	BC-18	BC-19	BC-20	BC-21	BC-22	BC-23
		Moosehead East Waste Dump	Moosehead Pit discharge	Pacific Gulch	Golden Pit and Dump	Lucky Pit and Dump	Piezometer RC94-843	Piezonmeter RC94-844	Piezometer RC95-1354	Piezometer RC95-1357	Piezometer RC95-1370
			8-Dec-2009		9-Dec-2009		11-Dec-2009		9-Dec-2009		
Flow	L/s		n/a		n/a		n/a		n/a		
Water Level, Gauge reading, Piezometric reading	m		n/a		n/a		n/a		n/a		
pH, in-field	pH units		6.09		8.59		7.33		6.8		
pH, Laboratory	pH units		8		8.1		7.6		6.6		
Conductivity, in-field	µS/cm		375		320		674		278		
Conductivity, Laboratory	µS/cm		1450		748		715		331		
Temperature, in-field	C		0		0.1		1.2		0.1		
Hardness calcualted from total metal scan	mg/L		948		401						
Hardness calculated from dissolved metal scan	mg/L						368		117		
Alkalinity, Total	mg/L		210		190		240		8		
Alkalinity, Hydroxide OH	mg/L		<0.5		<0.5		<0.5		<0.5		
Alaklinity, Carbonate CO3	mg/L		<0.5		<0.5		<0.5		<0.5		
Alkalinity, Bicarbonate HCO3	mg/L		260		230		290		9.8		
Total Dissolved Solids	mg/L		1200		500		440		270		
Total Suspended Solids	mg/L		<1		2		83		41		
Chloride	mg/L		2.8		0.6		0.9		76		
Sulphate, Dissolved	mg/L		650		200		140		12		
Ammonia Nitrogen (NH3), as N	mg/L		0.056		<0.005		<0.005		<0.005		
Nitrate Nitrogen, as N	mg/L		0.71		0.14		0.2		0.59		
Cyanide, Total	mg/L						0.0006		0.0006		
Cyanide, Weak Acid Dissociable.	mg/L						<0.0005		<0.0005		
Calcium, total	mg/L		213		99.6						
Magnesium, total	mg/L		101		37.1						
Sodium, total	mg/L		0.74		1.76						
Potassium, total	mg/L		1.39		1.19						
Copper, total	mg/L		0.00045		0.00032						
Arsenic, total	mg/L		0.0417		0.0294						
Antimony, total	mg/L		0.00432		0.0482						
Zinc, total	mg/L		0.0022		0.0047						
Selenium, total	mg/L		0.0456		0.00345						
Lead, total	mg/L		0.000084		0.000136						
Aluminum, total	mg/L		0.0119		0.0052						
Bismuth, total	mg/L		0.000007		<0.000005						
Cadmium, total	mg/L		0.00007		0.000084						
Chromium, total	mg/L		0.0004		0.0002						
Iron, total	mg/L		0.03		0.015						
Manganese, total	mg/L		0.0124		0.0143						
Molybdenum, total	mg/L		0.00097		0.00733						
Nickel, total	mg/L		0.00122		0.00059						
Silver, total	mg/L		<0.000005		<0.000005						
Calcium, dissolved	mg/L						84.9		29.4		
Magnesium, dissolved	mg/L						37.8		10.7		
Sodium, dissolved	mg/L						9.58		5.72		
Potassium, dissolved	mg/L						2.47		1.97		
Copper, dissolved	mg/L						0.00846		0.00139		
Arsenic, dissolved	mg/L						0.00117		0.00095		
Antimony, dissolved	mg/L						0.00126		0.00173		
Zinc, dissolved	mg/L						0.0428		0.0231		
Selenium, dissolved	mg/L						0.00164		0.00019		
Lead, dissolved	mg/L						0.000045		0.000042		
Aluminum, dissolved	mg/L						0.0035		0.0116		
Bismuth, dissolved	mg/L						<0.000005		0.000094		
Cadmium, dissolved	mg/L						0.000604		0.000549		
Chromium, dissolved	mg/L						0.0006		<0.0001		
Iron, dissolved	mg/L						0.004		0.004		
Manganese, dissolved	mg/L						0.0536		0.154		
Molybdenum, dissolved	mg/L						0.00021		<0.00005		
Nickel, dissolved	mg/L						0.00615		0.0316		
Silver, dissolved	mg/L						<0.000005		<0.000005		
Sulphur, Dissolved	mg/L						58		5		

Dry - No Water Found

Dry - No Water Found

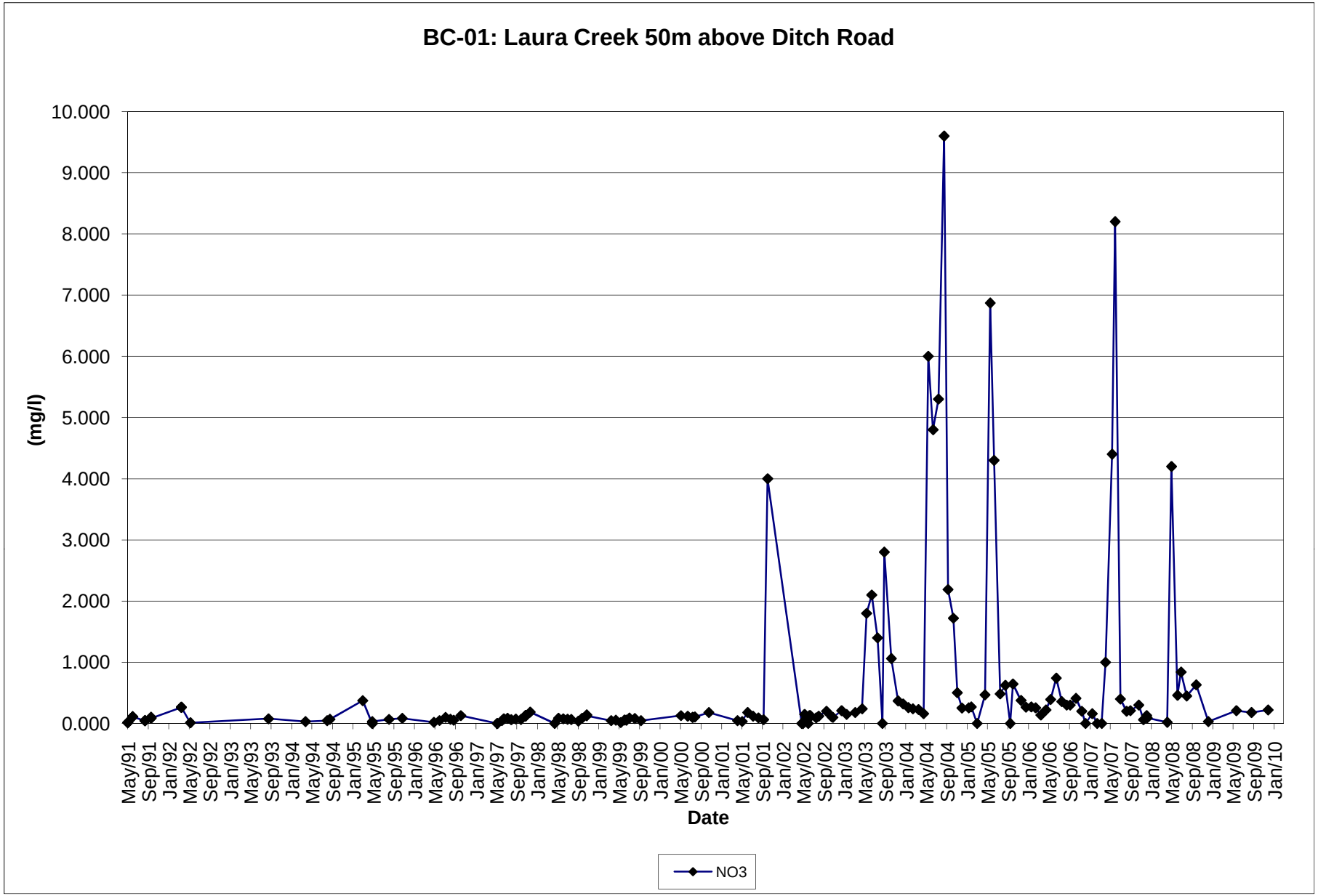
Dry - No Water Found

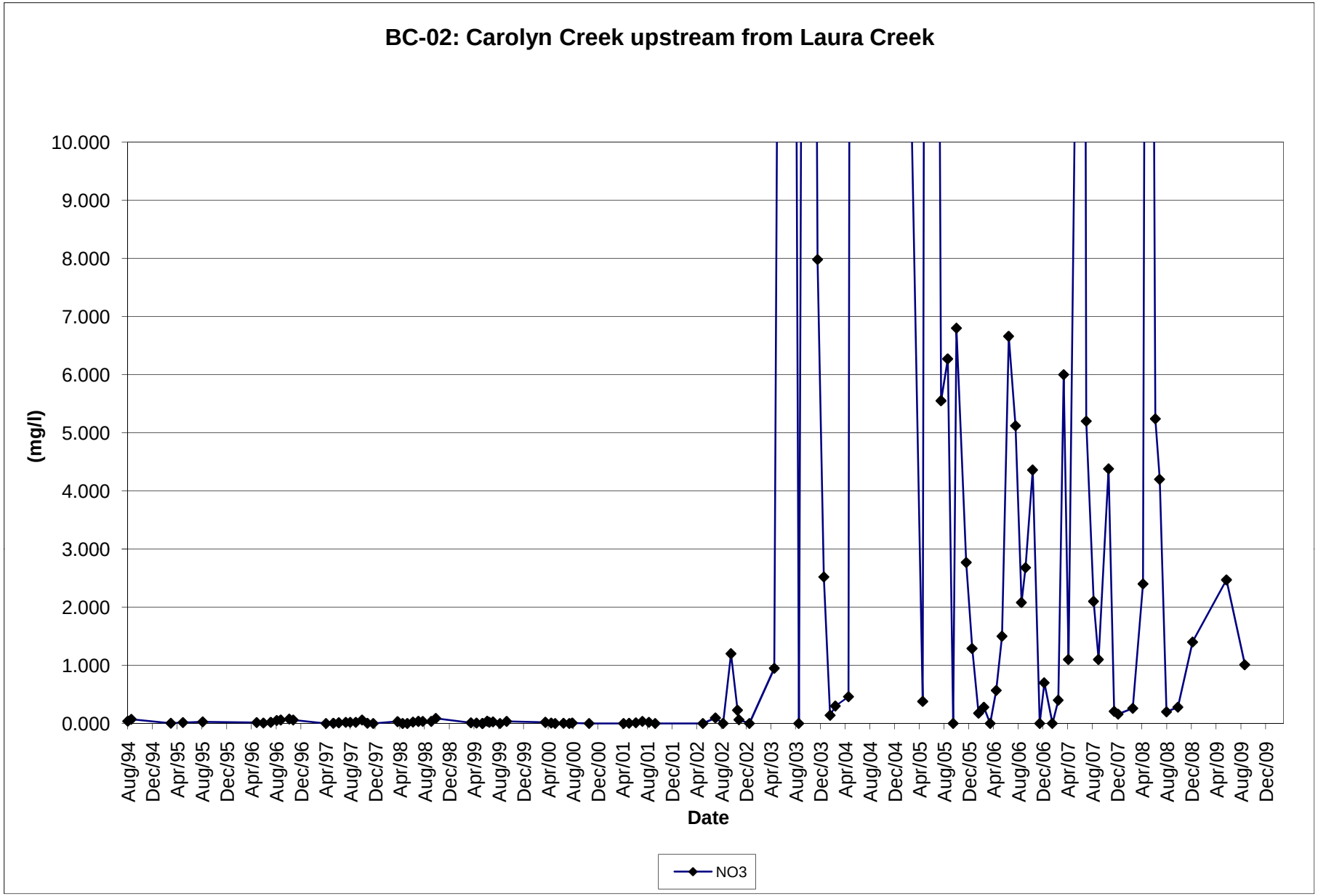
Capping Frozen on Pipe - Not Possible to Obtain a Sample

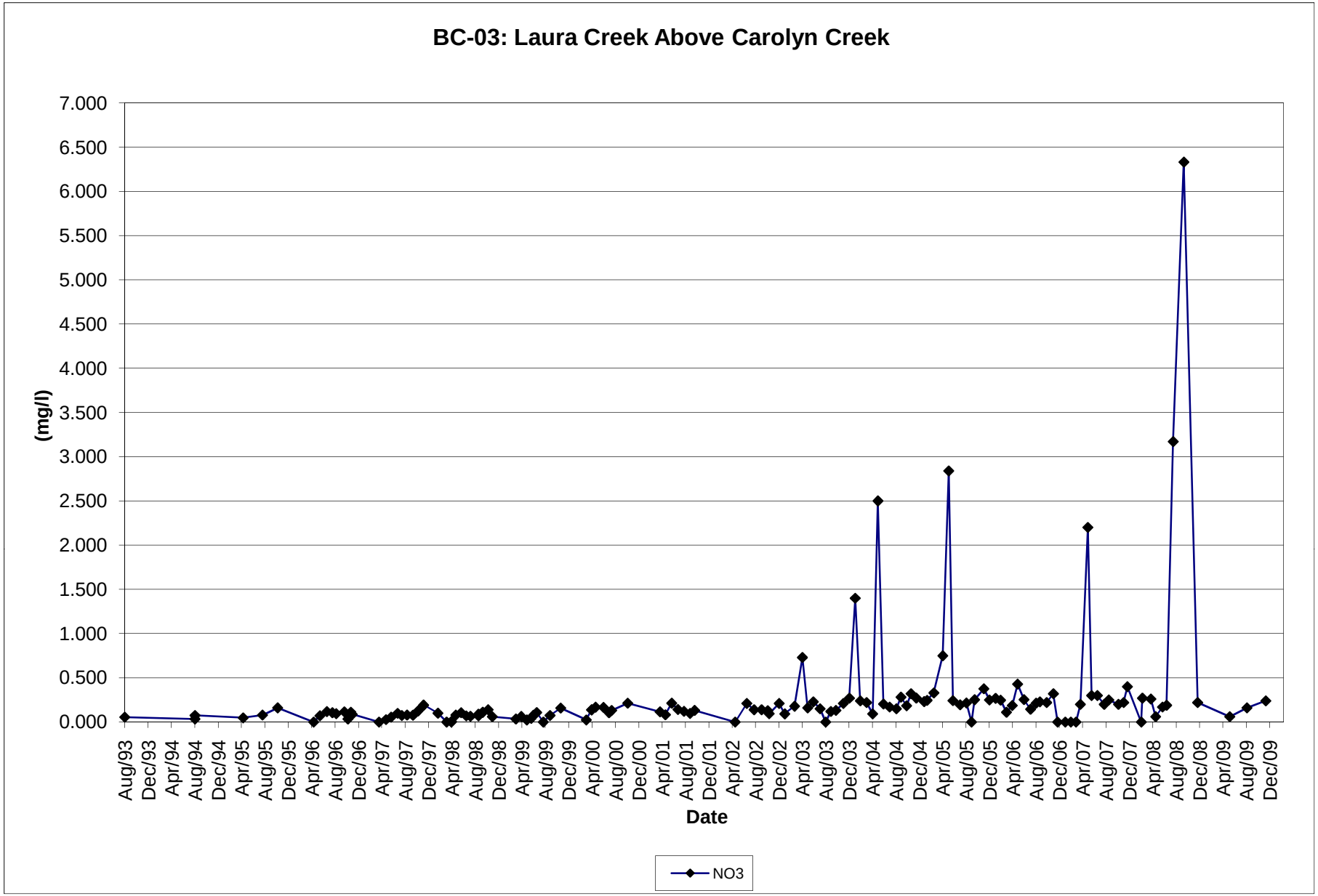
Piezometer Not Functioning - Not Possible to Obtain a Sample

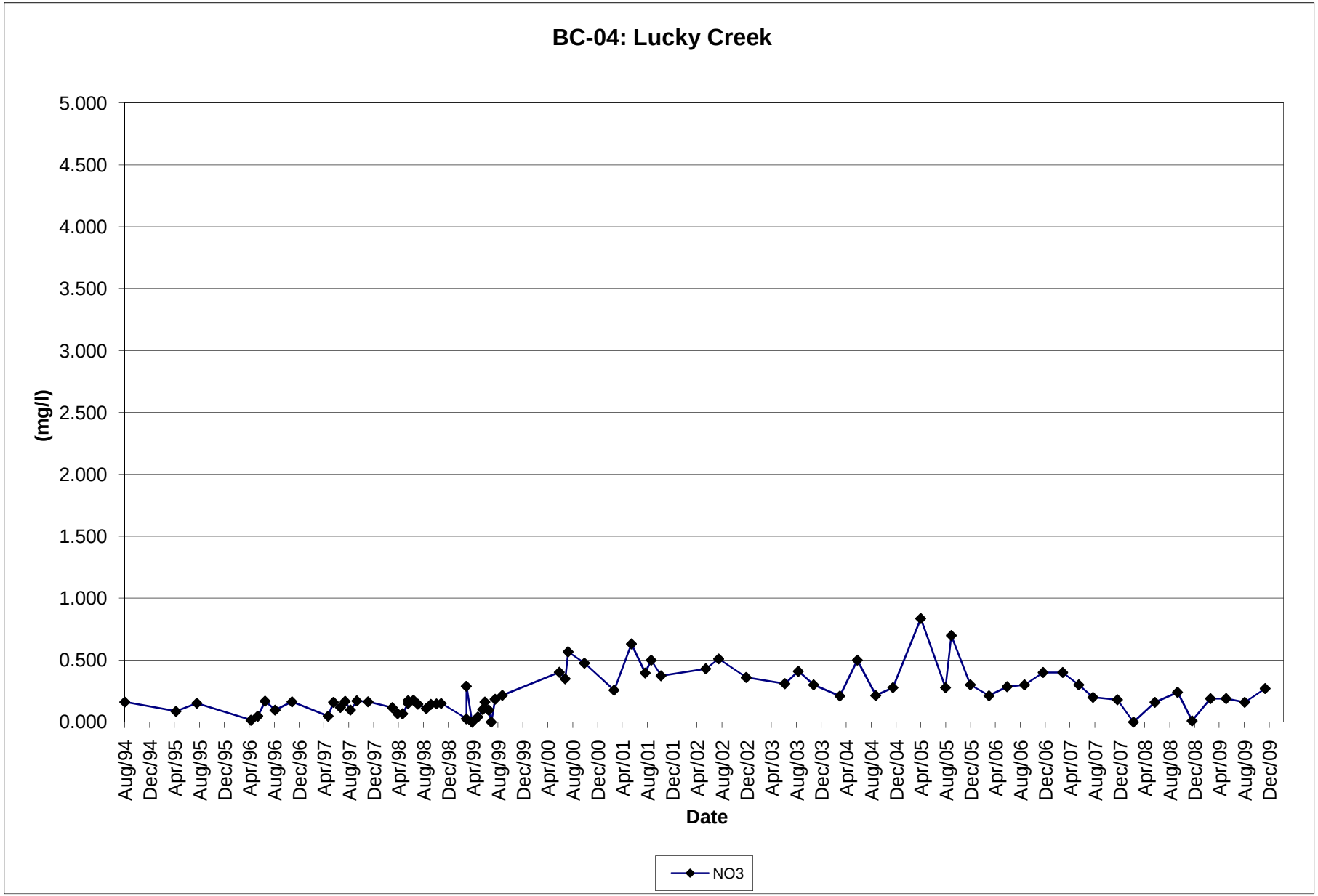
Piezometer Not Functioning - Not Possible to Obtain a Sample

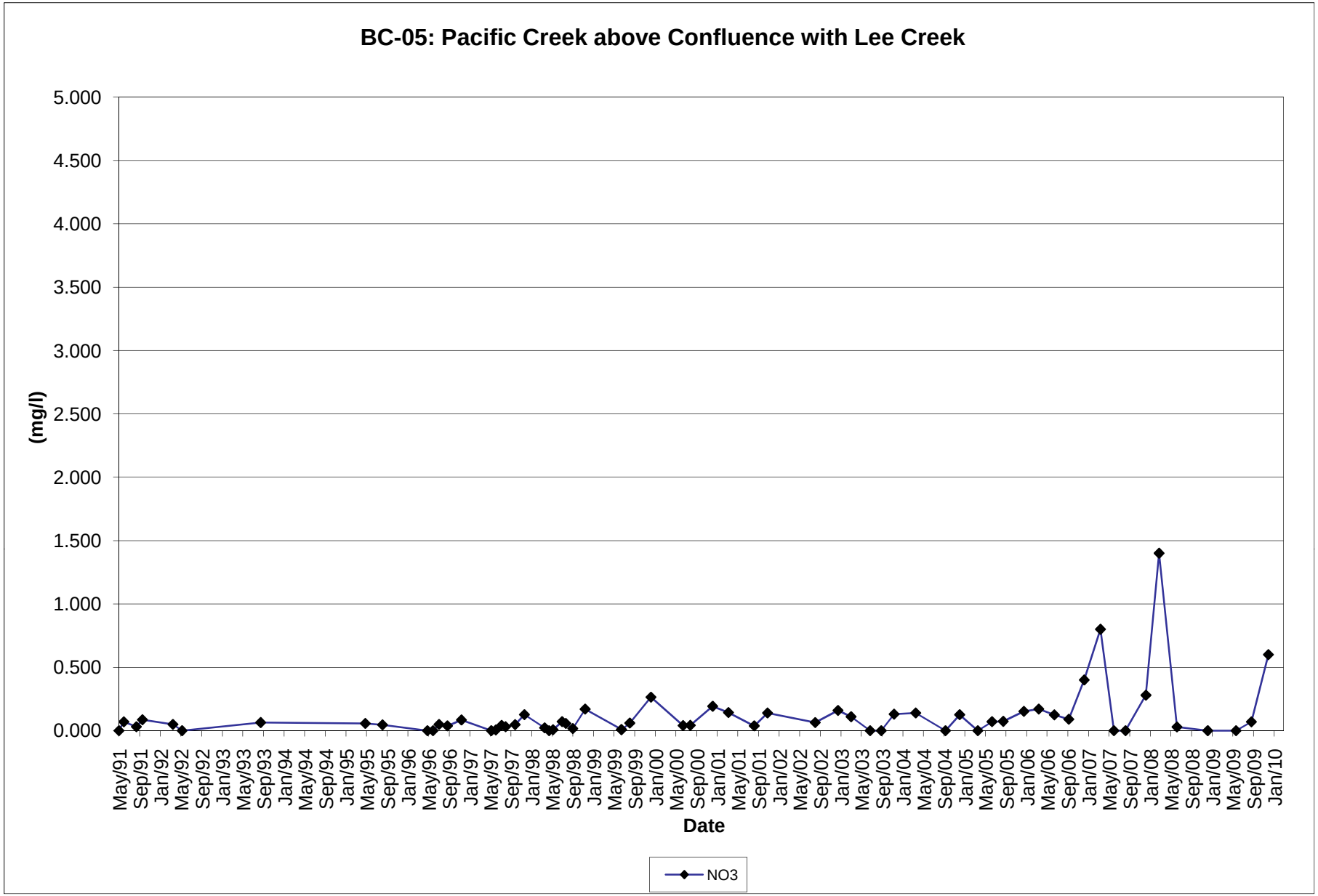
		BC-24	BC-25	BC-26	BC-27	BC-28	BC-28a	BC-31	BC-34	BC-39	BC-51W
		Piezometer RC951400	Piezometer RC96-1608	Piezometer RC97-2024	Piezometer RC97-2026	Overflow Pond Decant	Discharge from heap	Golden Creek above confluence w/ South Klondike R.	Lee Creek at Ditch Road	Laura Creek in side channel of South Klondike River	Pacific Pit - west side
					9-Dec-2009		11-Dec-2009	11-Dec-2009	9-Dec-2009		8-Dec-2009
Flow	L/s				n/a		n/a	n/a	n/a		n/a
Water Level, Gauge reading, Piezometric reading	m				n/a		n/a	n/a	n/a		n/a
pH, in-field	pH units				7.68		7.71	8.03	8.07		3.7
pH, Laboratory	pH units				7.9		7.9	8.2	8		3.4
Conductivity, in-field	µS/cm				653		3200	681	314		566
Conductivity, Laboratory	µS/cm				717		4240	697	542		1060
Temperature, in-field	C				2.1		0.5	0.1	0.2		0.3
Hardness calcualted from total metal scan	mg/L						1160	362	286		389
Hardness calculated from dissolved metal scan	mg/L				400						
Alkalinity, Total	mg/L				160		110	200	150		<0.5
Alkalinity, Hydroxide OH	mg/L				<0.5		<0.5	<0.5	<0.5		<0.5
Alaklinity, Carbonate CO3	mg/L				<0.5		<0.5	<0.5	<0.5		<0.5
Alkalinity, Bicarbonate HCO3	mg/L				200		140	250	180		<0.5
Total Dissolved Solids	mg/L				520		3300	500	320		730
Total Suspended Solids	mg/L				11		<1	<1	<1		<1
Chloride	mg/L				0.5		31	<0.5	2.5		1.1
Sulphate, Dissolved	mg/L				200		780	170	130		440
Ammonia Nitrogen (NH3), as N	mg/L				0.122		<0.005	<0.005	<0.005		0.049
Nitrate Nitrogen, as N	mg/L				<0.02		360	0.34	0.25		<0.02
Cyanide, Total	mg/L				0.0006		0.786	<0.0005	<0.0005		
Cyanide, Weak Acid Dissociable.	mg/L				<0.0005		0.044	<0.0005	<0.0005		
Calcium, total	mg/L						345	86	70.8		87.3
Magnesium, total	mg/L						73.1	35.7	26.5		41.5
Sodium, total	mg/L						444	2.42	1.59		2.06
Potassium, total	mg/L						5.1	0.93	0.66		2.47
Copper, total	mg/L						0.001	0.00094	0.00102		0.62
Arsenic, total	mg/L						0.324	0.00056	0.00019		0.0175
Antimony, total	mg/L						1.91	0.00087	0.00024		0.00361
Zinc, total	mg/L	Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample	Piezometer Not Functioning - Not Possible to Obtain a Sample			0.004	0.0047	0.0079	Dry - No Water Found	0.731
Selenium, total	mg/L					Not Active	0.194	0.0028	0.00231		0.005
Lead, total	mg/L						<0.0001	0.000019	0.00002		0.00142
Aluminum, total	mg/L						0.01	0.0072	0.0112		8.63
Bismuth, total	mg/L						<0.0001	<0.000005	<0.000005		<0.000005
Cadmium, total	mg/L						<0.0001	0.000052	0.000087		0.00805
Chromium, total	mg/L						<0.002	0.0002	0.0001		0.0047
Iron, total	mg/L						0.398	0.017	0.029		9.14
Manganese, total	mg/L						0.013	0.00353	0.00682		4.23
Molybdenum, total	mg/L						0.024	0.00174	0.00144		0.00039
Nickel, total	mg/L						0.0068	0.00151	0.0017		0.253
Silver, total	mg/L						<0.0001	<0.000005	<0.000005		0.00001
Calcium, dissolved	mg/L				98.9						
Magnesium, dissolved	mg/L				37.1						
Sodium, dissolved	mg/L				1.88						
Potassium, dissolved	mg/L				1.5						
Copper, dissolved	mg/L				0.00033						
Arsenic, dissolved	mg/L				0.053						
Antimony, dissolved	mg/L				0.00041						
Zinc, dissolved	mg/L				0.0029						
Selenium, dissolved	mg/L				0.00004						
Lead, dissolved	mg/L				0.000005						
Aluminum, dissolved	mg/L				0.0039						
Bismuth, dissolved	mg/L				<0.000005						
Cadmium, dissolved	mg/L				0.000009						
Chromium, dissolved	mg/L				<0.0001						
Iron, dissolved	mg/L				0.004						
Manganese, dissolved	mg/L				0.228						
Molybdenum, dissolved	mg/L				0.014						
Nickel, dissolved	mg/L				0.00311						
Silver, dissolved	mg/L				<0.000005						
Sulphur, Dissolved	mg/L				82						

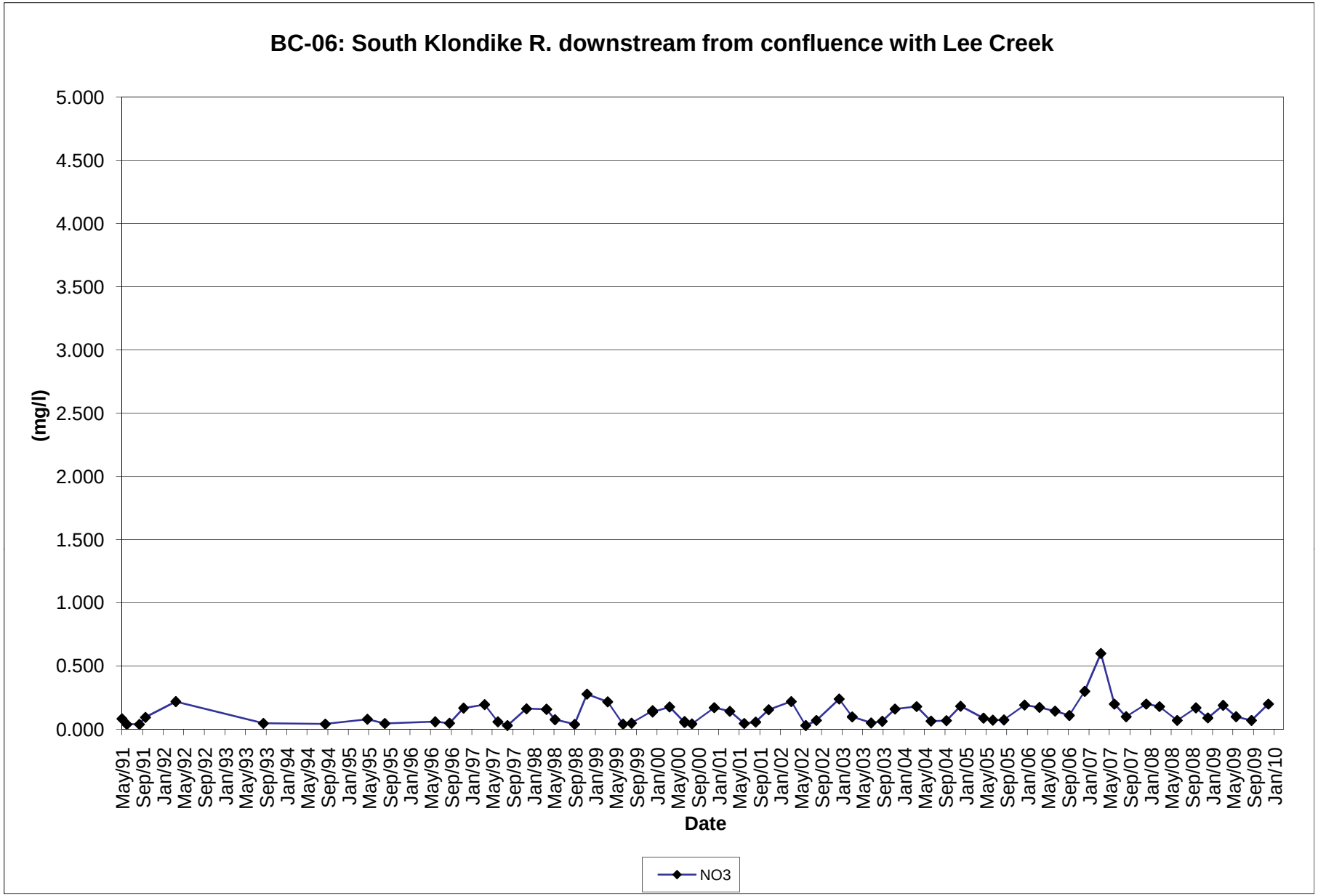

BC-01: Laura Creek 50m above Ditch Road
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
NO3

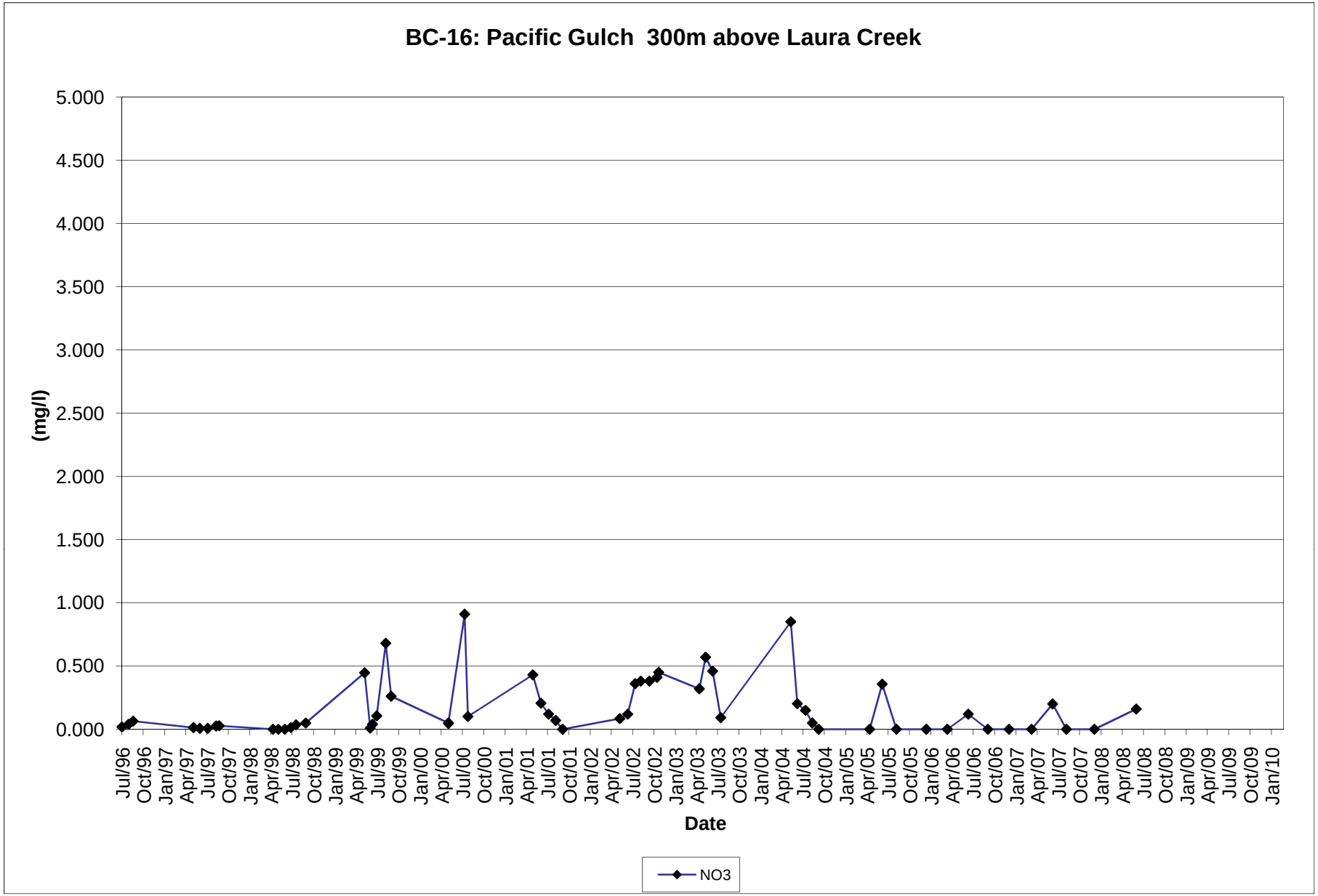

BC-02: Carolyn Creek upstream from Laura Creek
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
(mg/l)
Aug/94
Dec/94
Apr/95
Aug/95
Dec/95
Apr/96
Aug/96
Dec/96
Apr/97
Aug/97
Dec/97
Apr/98
Aug/98
Dec/98
Apr/99
Aug/99
Dec/99
Apr/00
Aug/00
Dec/00
Apr/01
Aug/01
Dec/01
Apr/02
Aug/02
Dec/02
Apr/03
Aug/03
Dec/03
Apr/04
Aug/04
Dec/04
Apr/05
Aug/05
Dec/05
Apr/06
Aug/06
Dec/06
Apr/07
Aug/07
Dec/07
Apr/08
Aug/08
Dec/08
Apr/09
Aug/09
Dec/09
Date
NO3

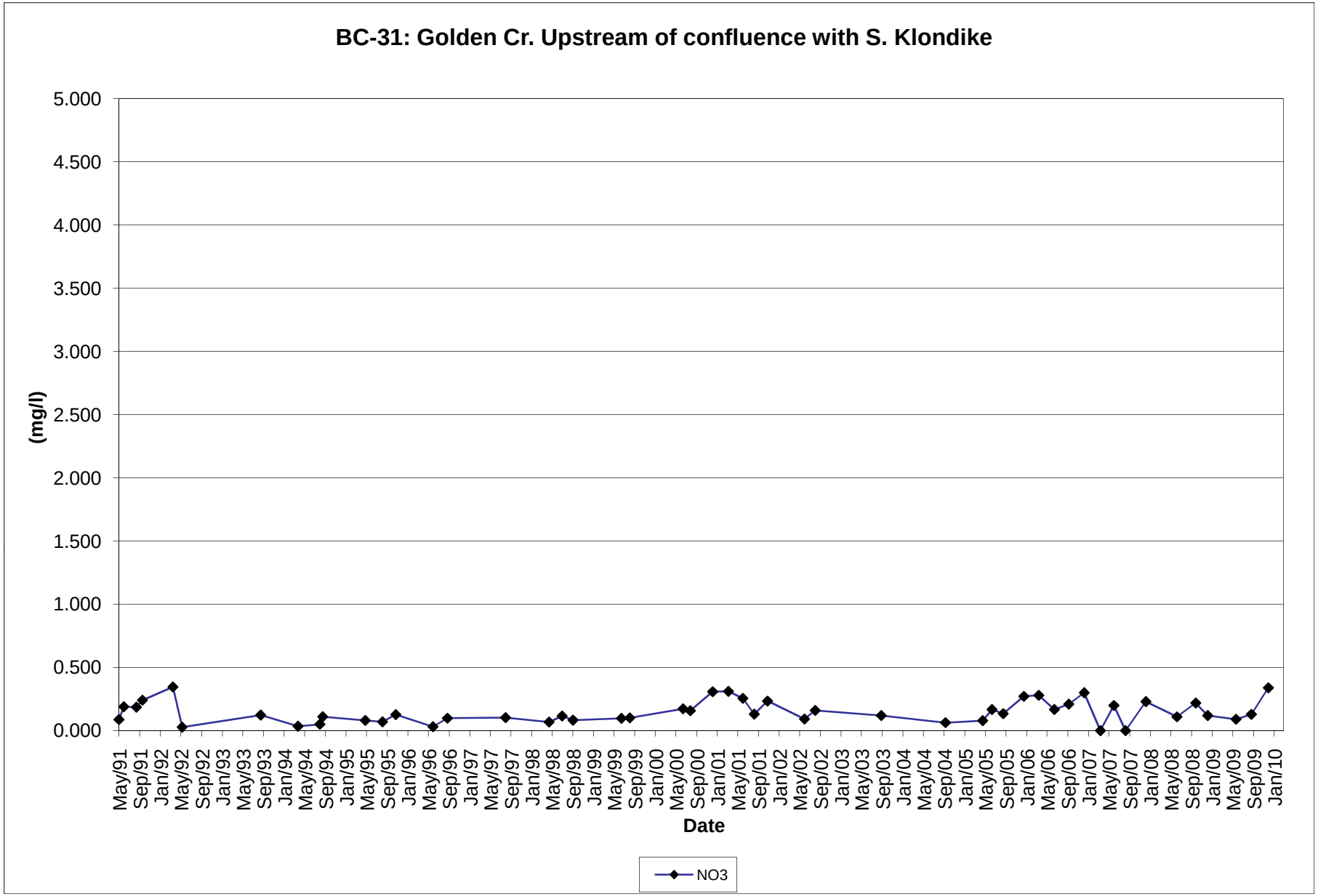

BC-03: Laura Creek Above Carolyn Creek
7.000
6.500
6.000
5.500
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
(mg/l)
Aug/93
Dec/93
Apr/94
Aug/94
Dec/94
Apr/95
Aug/95
Dec/95
Apr/96
Aug/96
Dec/96
Apr/97
Aug/97
Dec/97
Apr/98
Aug/98
Dec/98
Apr/99
Aug/99
Dec/99
Apr/00
Aug/00
Dec/00
Apr/01
Aug/01
Dec/01
Apr/02
Aug/02
Dec/02
Apr/03
Aug/03
Dec/03
Apr/04
Aug/04
Dec/04
Apr/05
Aug/05
Dec/05
Apr/06
Aug/06
Dec/06
Apr/07
Aug/07
Dec/07
Apr/08
Aug/08
Dec/08
Apr/09
Aug/09
Dec/09
Date
NO3

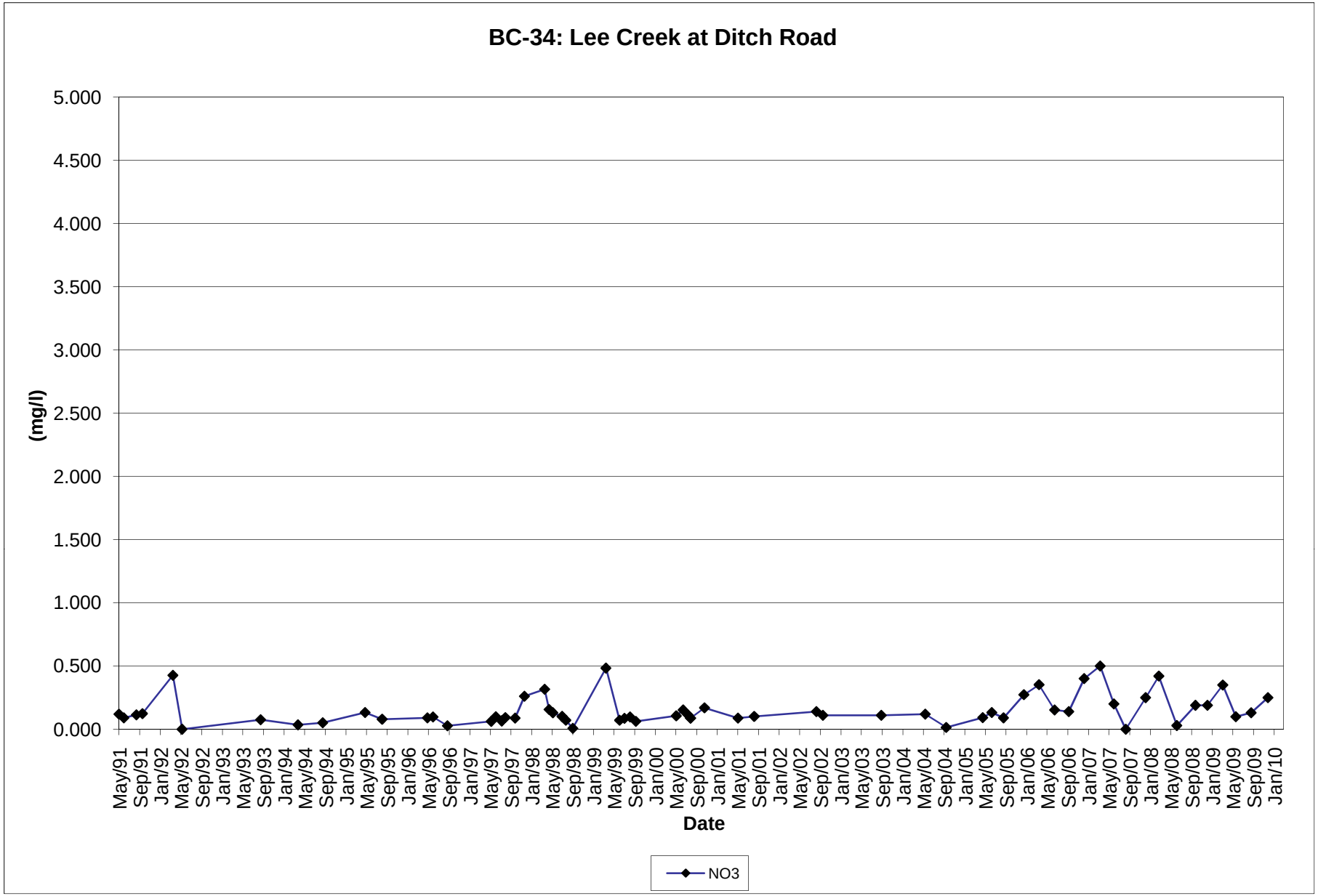

BC-04: Lucky Creek
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
(mg/l)
Aug/94
Dec/94
Apr/95
Aug/95
Dec/95
Apr/96
Aug/96
Dec/96
Apr/97
Aug/97
Dec/97
Apr/98
Aug/98
Dec/98
Apr/99
Aug/99
Dec/99
Apr/00
Aug/00
Dec/00
Apr/01
Aug/01
Dec/01
Apr/02
Aug/02
Dec/02
Apr/03
Aug/03
Dec/03
Apr/04
Aug/04
Dec/04
Apr/05
Aug/05
Dec/05
Apr/06
Aug/06
Dec/06
Apr/07
Aug/07
Dec/07
Apr/08
Aug/08
Dec/08
Apr/09
Aug/09
Dec/09
Date
NO3

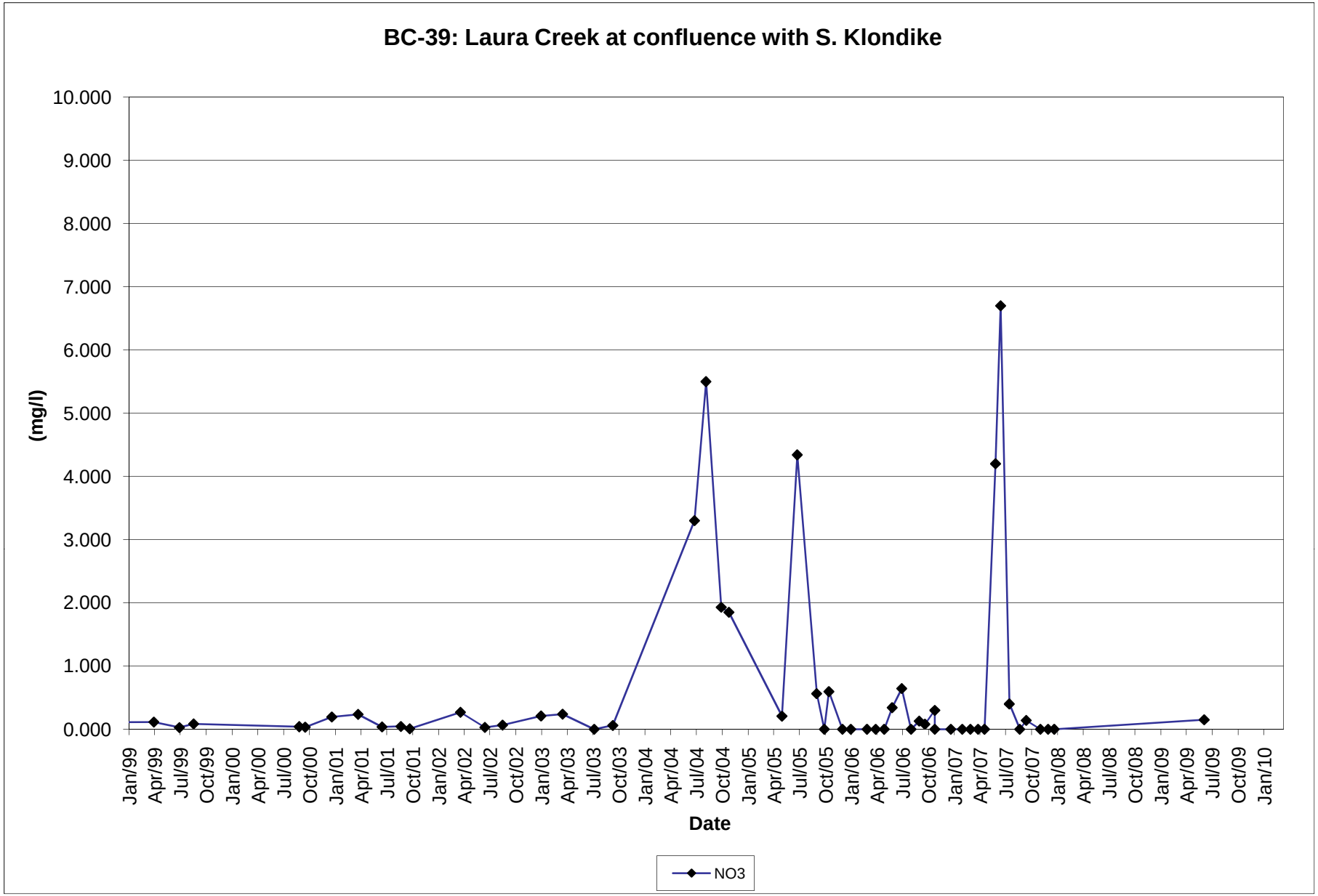

BC-05: Pacific Creek above Confluence with Lee Creek
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
NO3

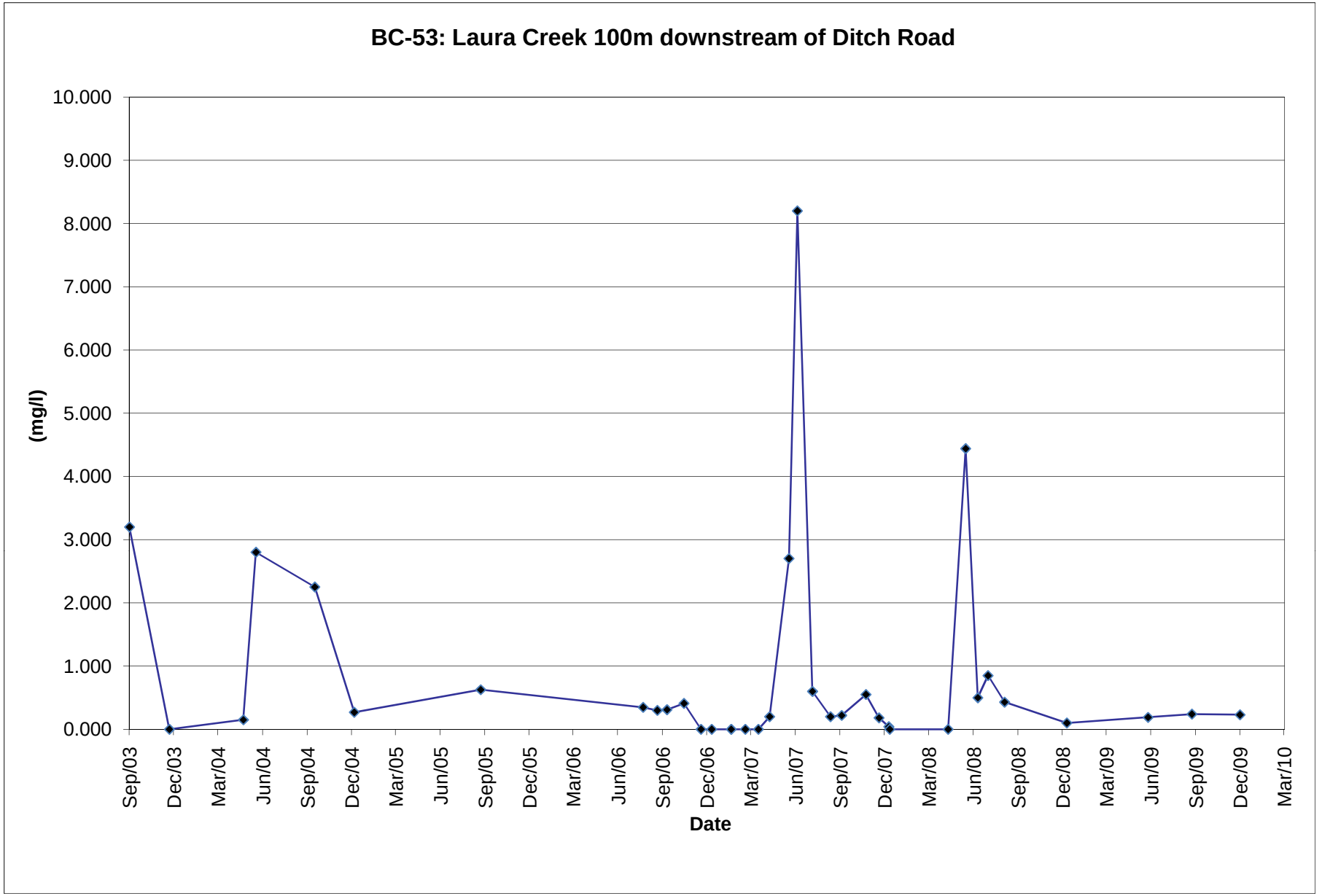

BC-06: South Klondike R. downstream from confluence with Lee Creek
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
NO3

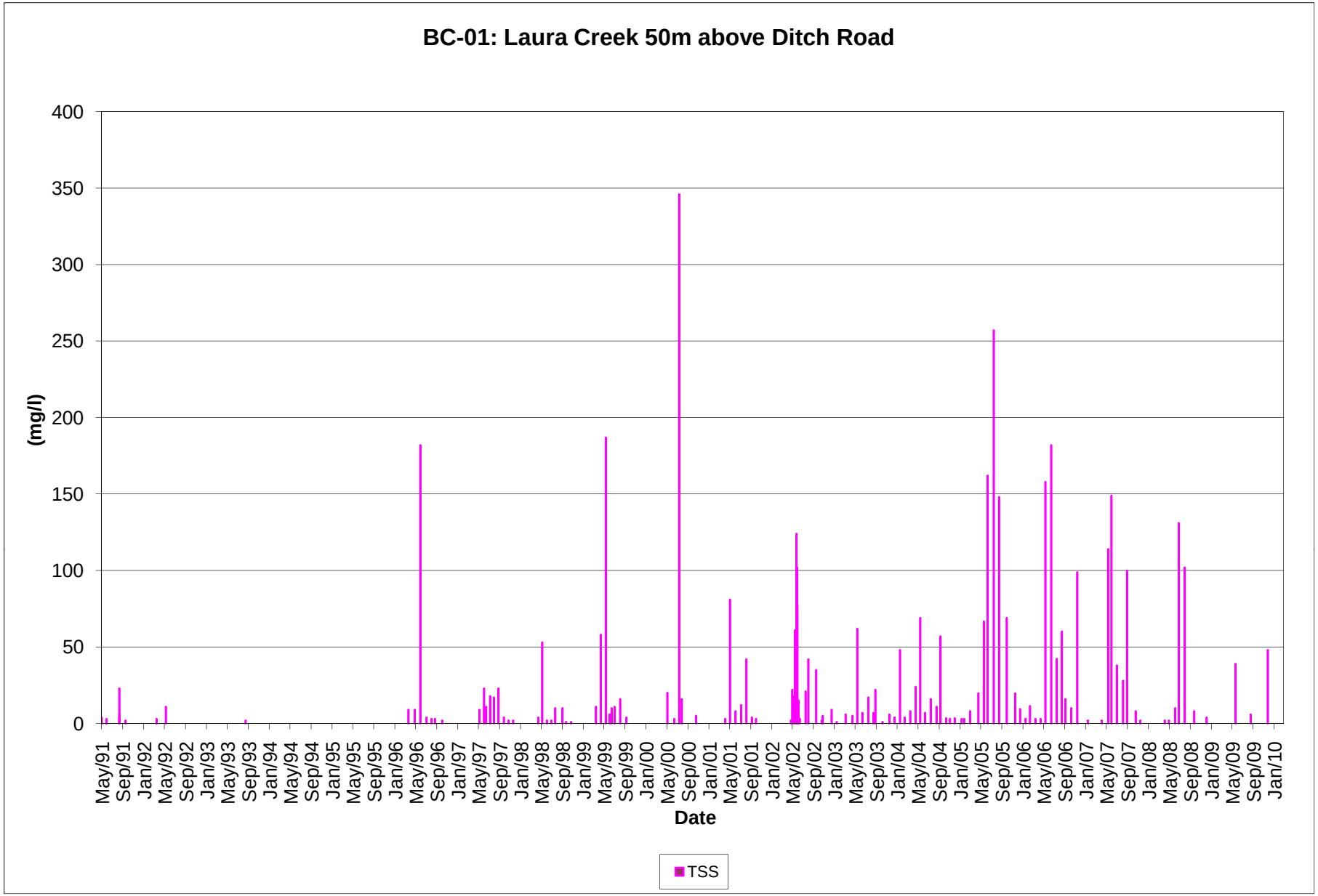

BC-16: Pacific Gulch 300m above Laura Creek
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
(mg/l)
Jul/96
Oct/96
Jan/97
Apr/97
Jul/97
Oct/97
Jan/98
Apr/98
Jul/98
Oct/98
Jan/99
Apr/99
Jul/99
Oct/99
Jan/00
Apr/00
Jul/00
Oct/00
Jan/01
Apr/01
Jul/01
Oct/01
Jan/02
Apr/02
Jul/02
Oct/02
Jan/03
Apr/03
Jul/03
Oct/03
Jan/04
Apr/04
Jul/04
Oct/04
Jan/05
Apr/05
Jul/05
Oct/05
Jan/06
Apr/06
Jul/06
Oct/06
Jan/07
Apr/07
Jul/07
Oct/07
Jan/08
Apr/08
Jul/08
Oct/08
Jan/09
Apr/09
Jul/09
Oct/09
Jan/10
Date
NO3

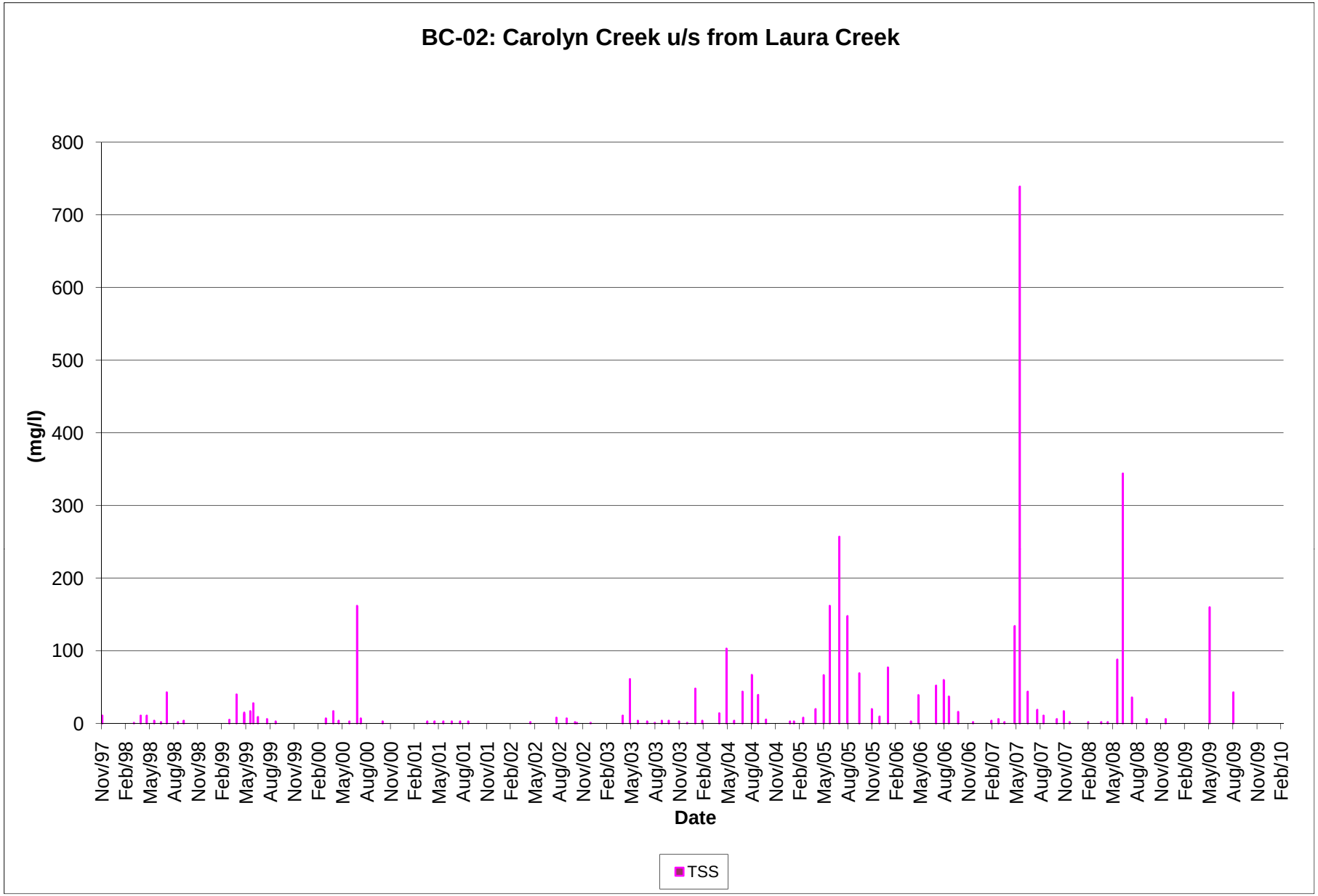

BC-31: Golden Cr. Upstream of confluence with S. Klondike
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
NO3

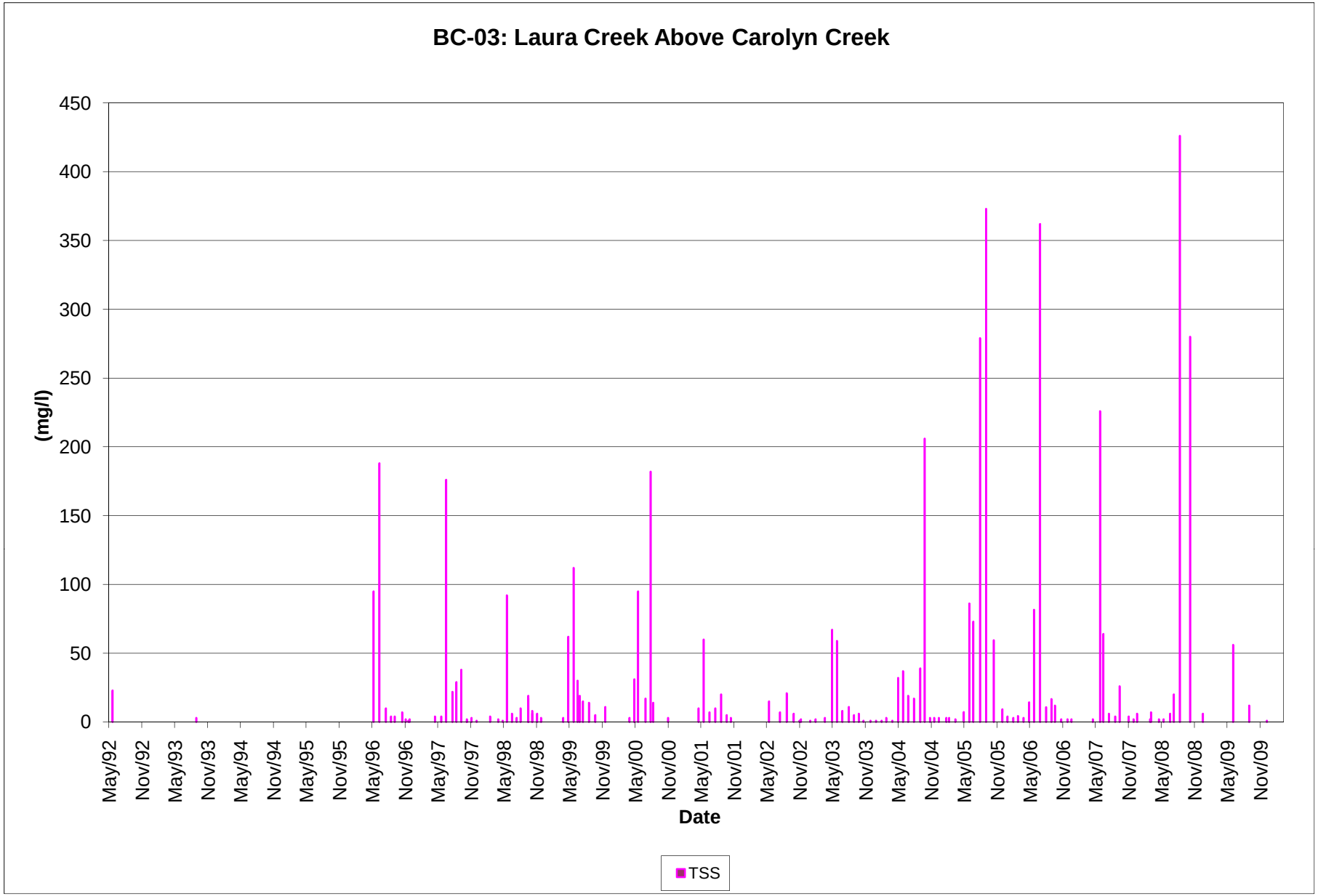

BC-34: Lee Creek at Ditch Road
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
NO3

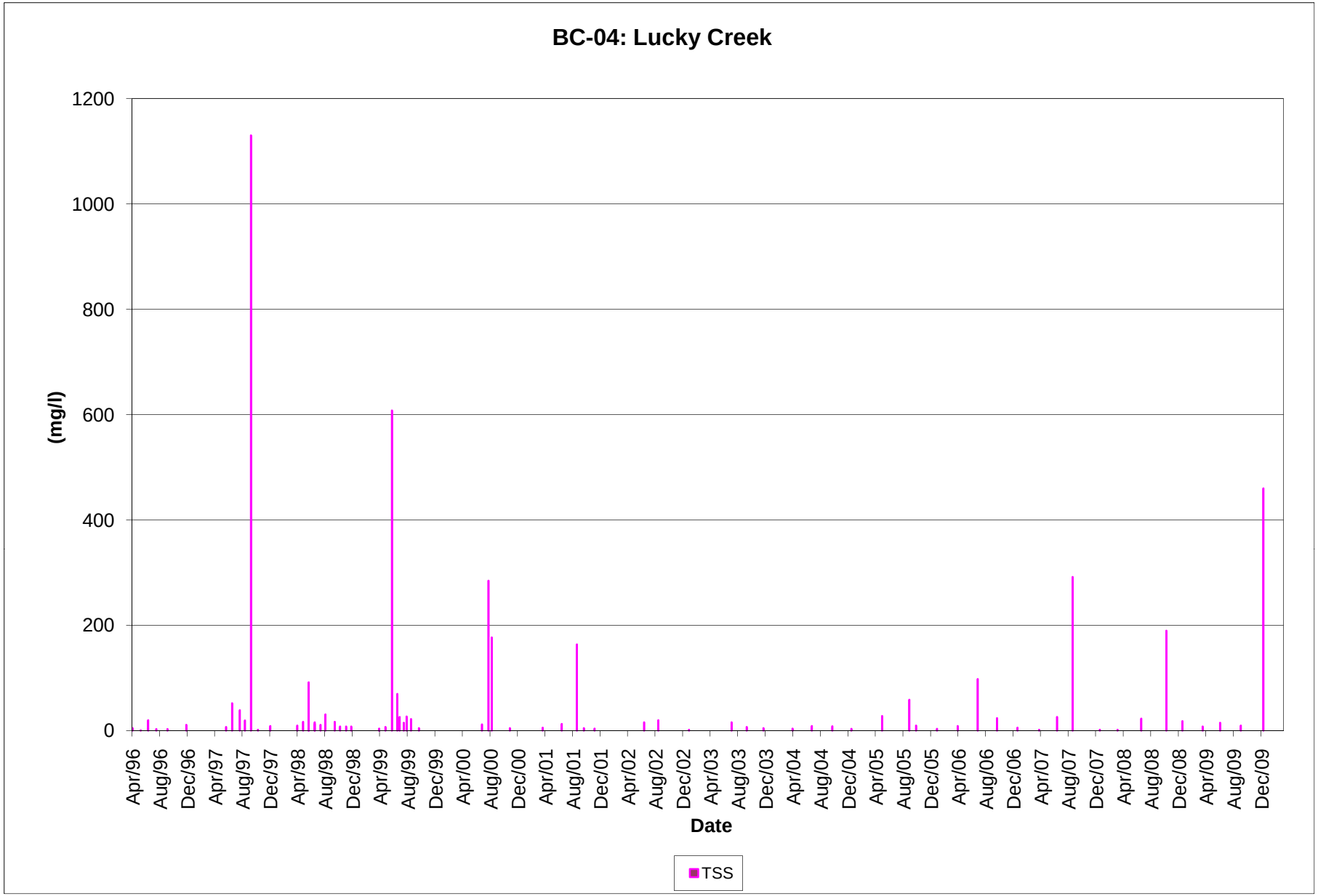

BC-39: Laura Creek at confluence with S. Klondike
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
(mg/l)
Jan/99
Apr/99
Jul/99
Oct/99
Jan/00
Apr/00
Jul/00
Oct/00
Jan/01
Apr/01
Jul/01
Oct/01
Jan/02
Apr/02
Jul/02
Oct/02
Jan/03
Apr/03
Jul/03
Oct/03
Jan/04
Apr/04
Jul/04
Oct/04
Jan/05
Apr/05
Jul/05
Oct/05
Jan/06
Apr/06
Jul/06
Oct/06
Jan/07
Apr/07
Jul/07
Oct/07
Jan/08
Apr/08
Jul/08
Oct/08
Jan/09
Apr/09
Jul/09
Oct/09
Jan/10
Date
NO3

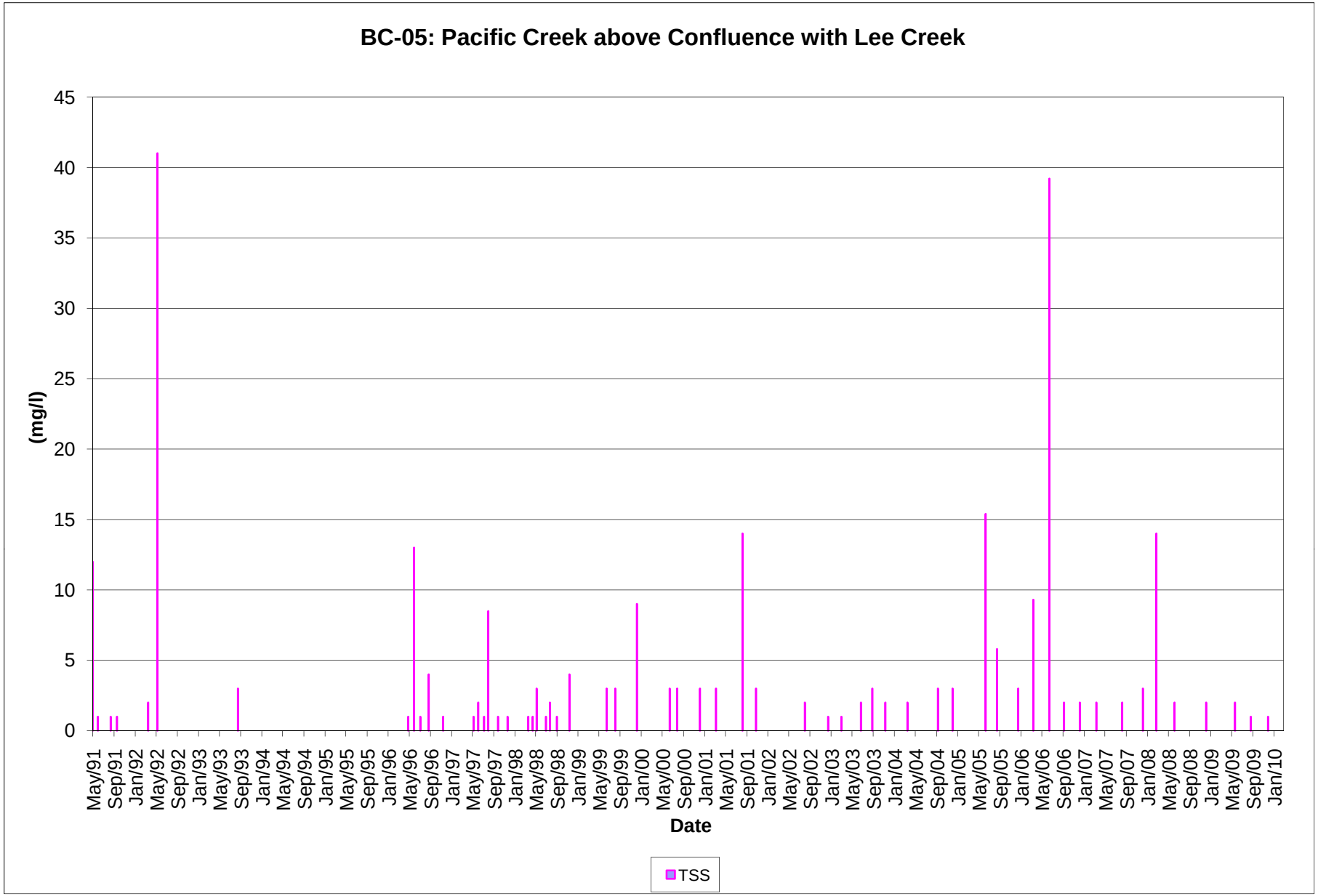

BC-53: Laura Creek 100m downstream of Ditch Road
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
(mg/l)
Sep/03
Dec/03
Mar/04
Jun/04
Sep/04
Dec/04
Mar/05
Jun/05
Sep/05
Dec/05
Mar/06
Jun/06
Sep/06
Dec/06
Mar/07
Jun/07
Sep/07
Dec/07
Mar/08
Jun/08
Sep/08
Dec/08
Mar/09
Jun/09
Sep/09
Dec/09
Mar/10
Date

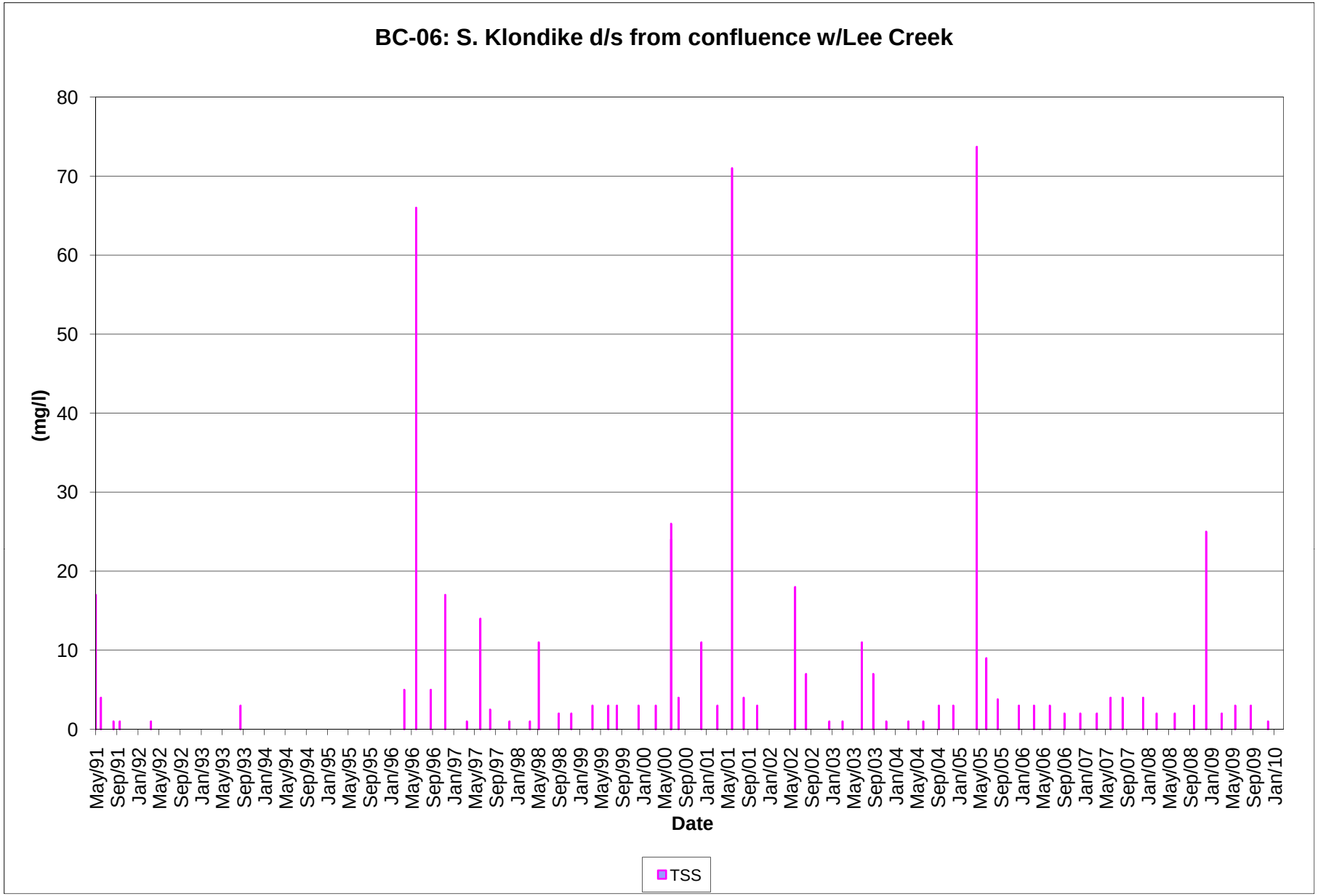

BC-01: Laura Creek 50m above Ditch Road
400
350
300
250
200
150
100
50
0
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
TSS

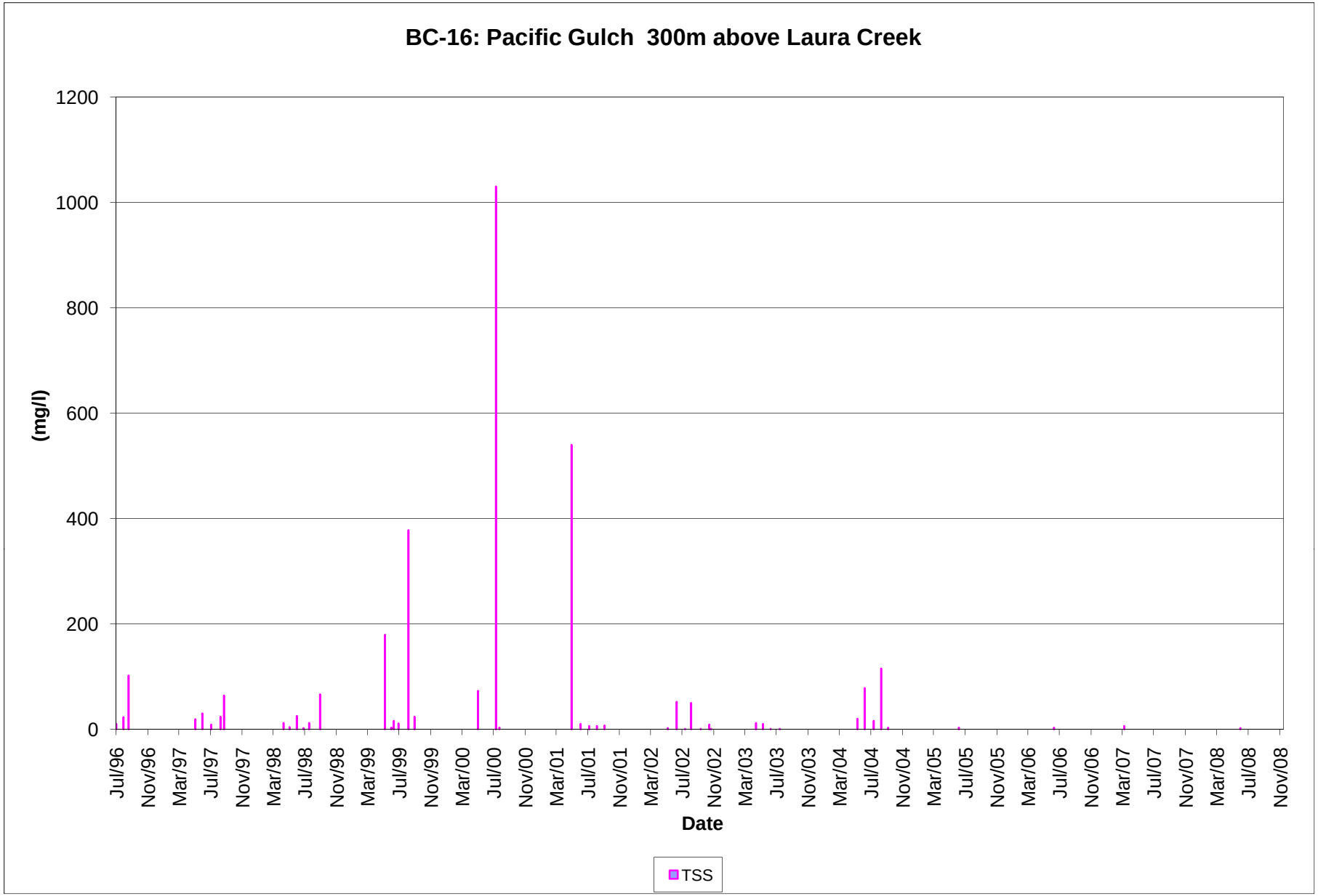

BC-02: Carolyn Creek u/s from Laura Creek
800
700
600
500
400
300
200
100
0
(mg/l)
Nov/97
Feb/98
May/98
Aug/98
Nov/98
Feb/99
May/99
Aug/99
Nov/99
Feb/00
May/00
Aug/00
Nov/00
Feb/01
May/01
Aug/01
Nov/01
Feb/02
May/02
Aug/02
Nov/02
Feb/03
May/03
Aug/03
Nov/03
Feb/04
May/04
Aug/04
Nov/04
Feb/05
May/05
Aug/05
Nov/05
Feb/06
May/06
Aug/06
Nov/06
Feb/07
May/07
Aug/07
Nov/07
Feb/08
May/08
Aug/08
Nov/08
Feb/09
May/09
Aug/09
Nov/09
Feb/10
Date
TSS

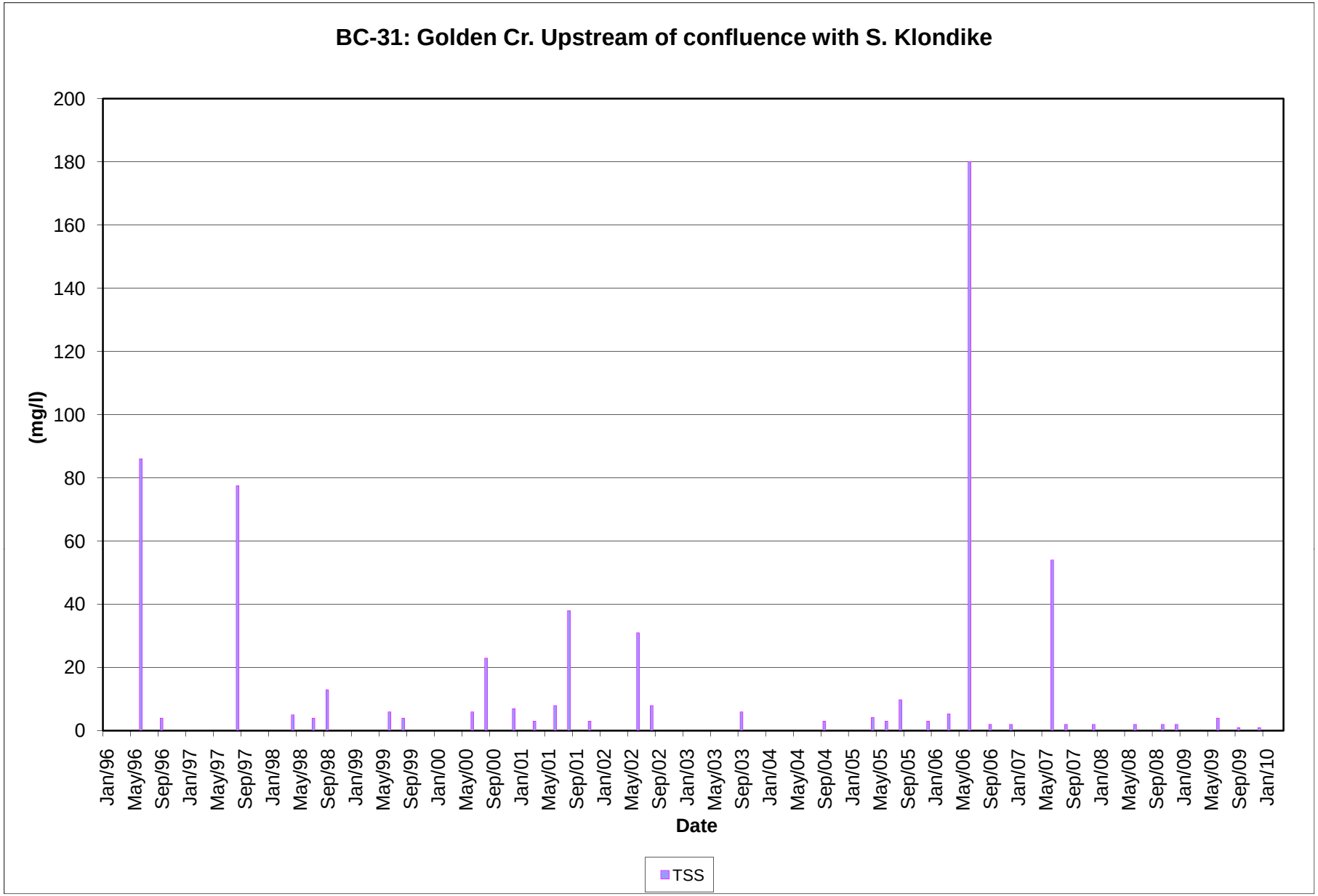

BC-03: Laura Creek Above Carolyn Creek
(mg/l)
450
400
350
300
250
200
150
100
50
0
May/92
Nov/92
May/93
Nov/93
May/94
Nov/94
May/95
Nov/95
May/96
Nov/96
May/97
Nov/97
May/98
Nov/98
May/99
Nov/99
May/00
Nov/00
May/01
Nov/01
May/02
Nov/02
May/03
Nov/03
May/04
Nov/04
May/05
Nov/05
May/06
Nov/06
May/07
Nov/07
May/08
Nov/08
May/09
Nov/09
Date
TSS

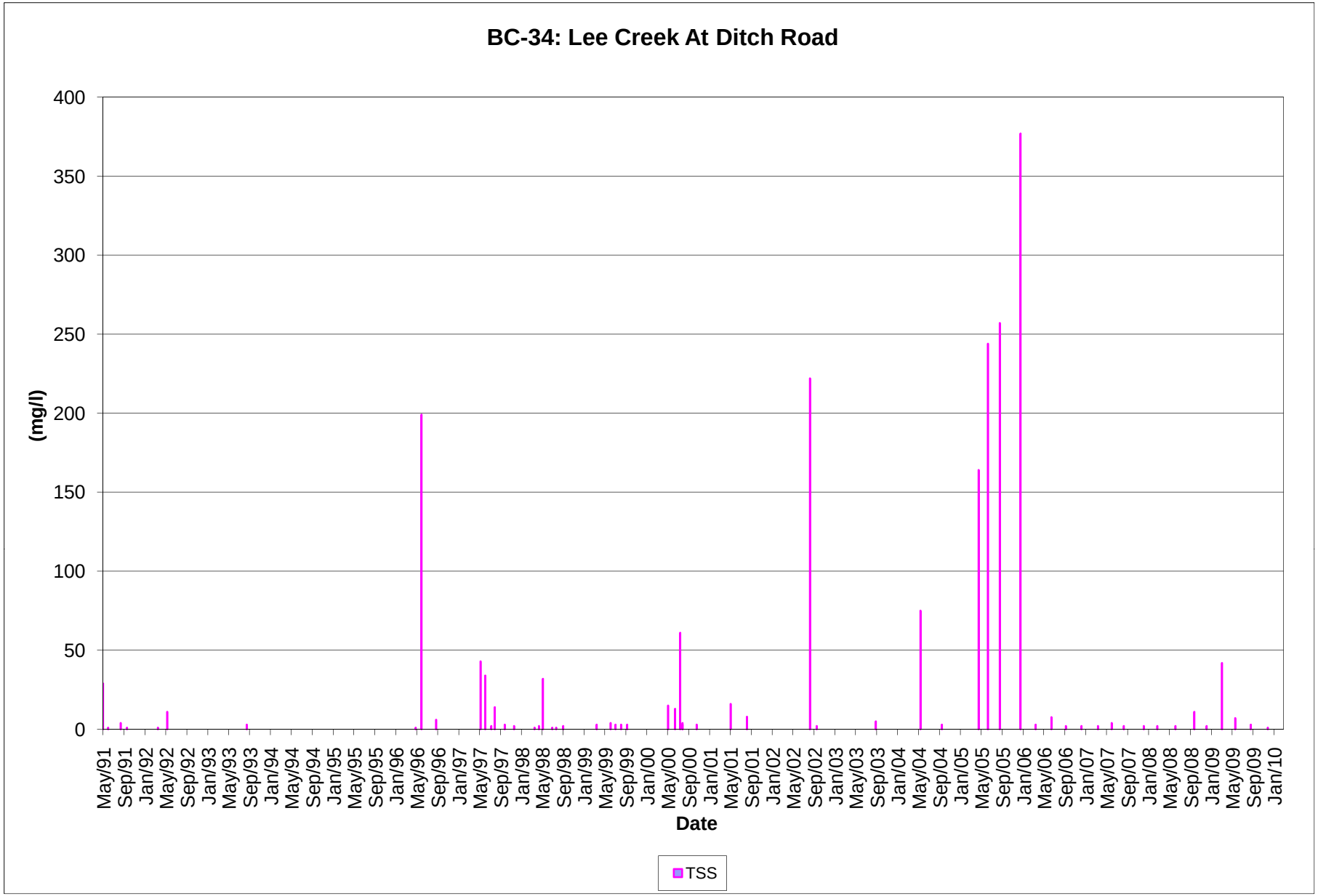

BC-04: Lucky Creek
1200
1000
800
600
400
200
0
(mg/l)
Apr/96
Aug/96
Dec/96
Apr/97
Aug/97
Dec/97
Apr/98
Aug/98
Dec/98
Apr/99
Aug/99
Dec/99
Apr/00
Aug/00
Dec/00
Apr/01
Aug/01
Dec/01
Apr/02
Aug/02
Dec/02
Apr/03
Aug/03
Dec/03
Apr/04
Aug/04
Dec/04
Apr/05
Aug/05
Dec/05
Apr/06
Aug/06
Dec/06
Apr/07
Aug/07
Dec/07
Apr/08
Aug/08
Dec/08
Apr/09
Aug/09
Dec/09
Date
TSS

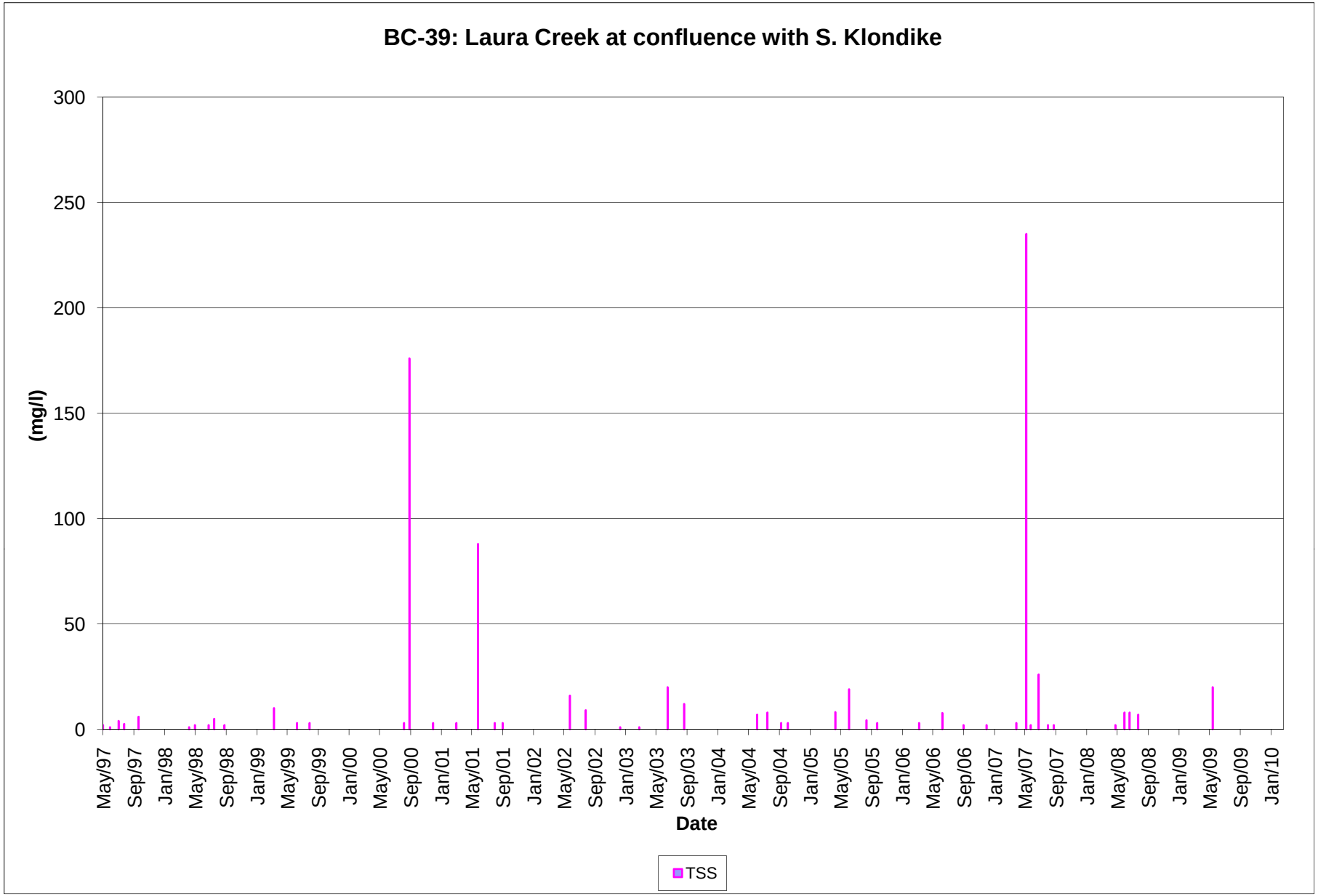

BC-05: Pacific Creek above Confluence with Lee Creek
45
40
35
30
25
20
15
10
5
0
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
TSS

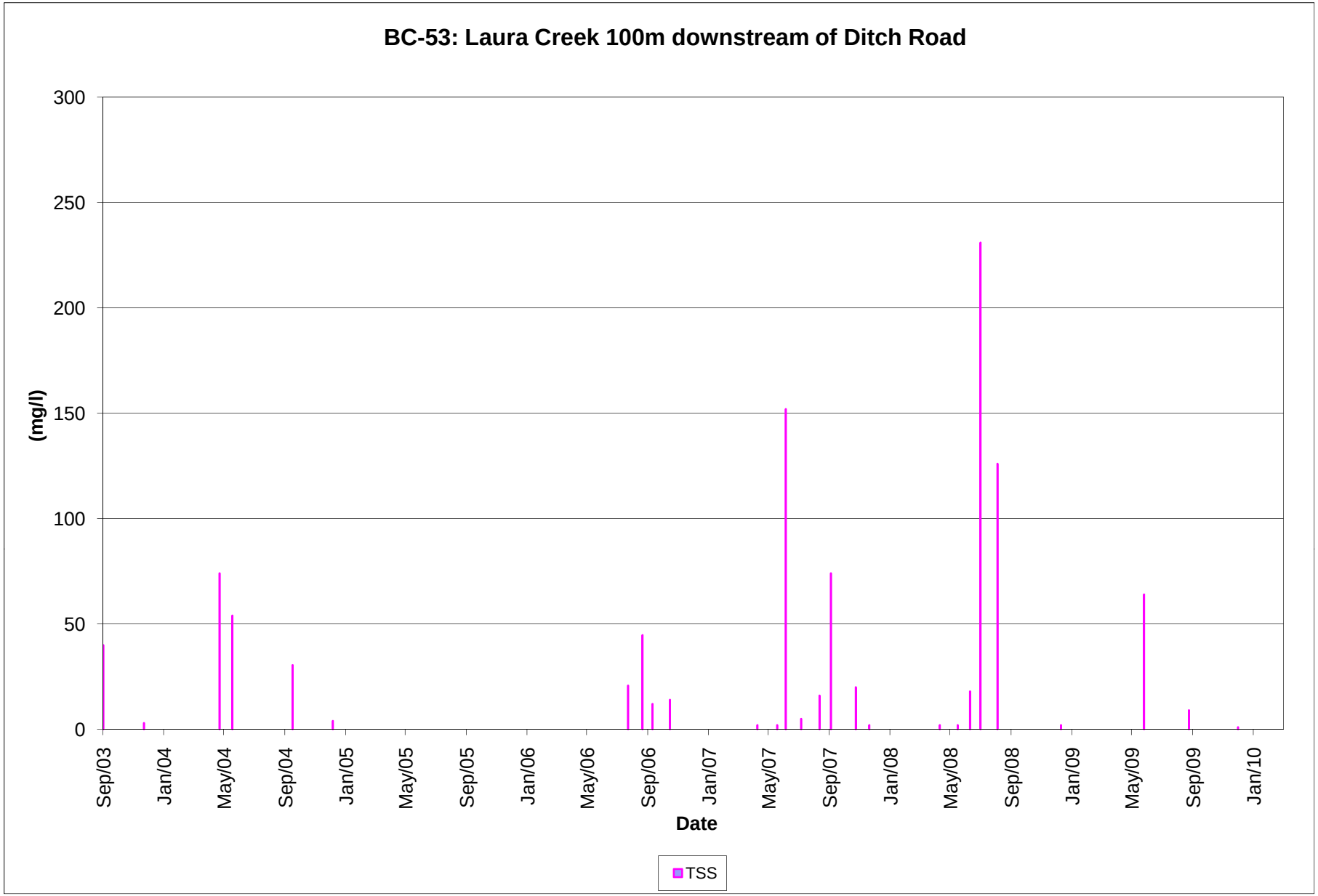

BC-06: S. Klondike d/s from confluence w/Lee Creek
(mg/l)
80
70
60
50
40
30
20
10
0
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
TSS

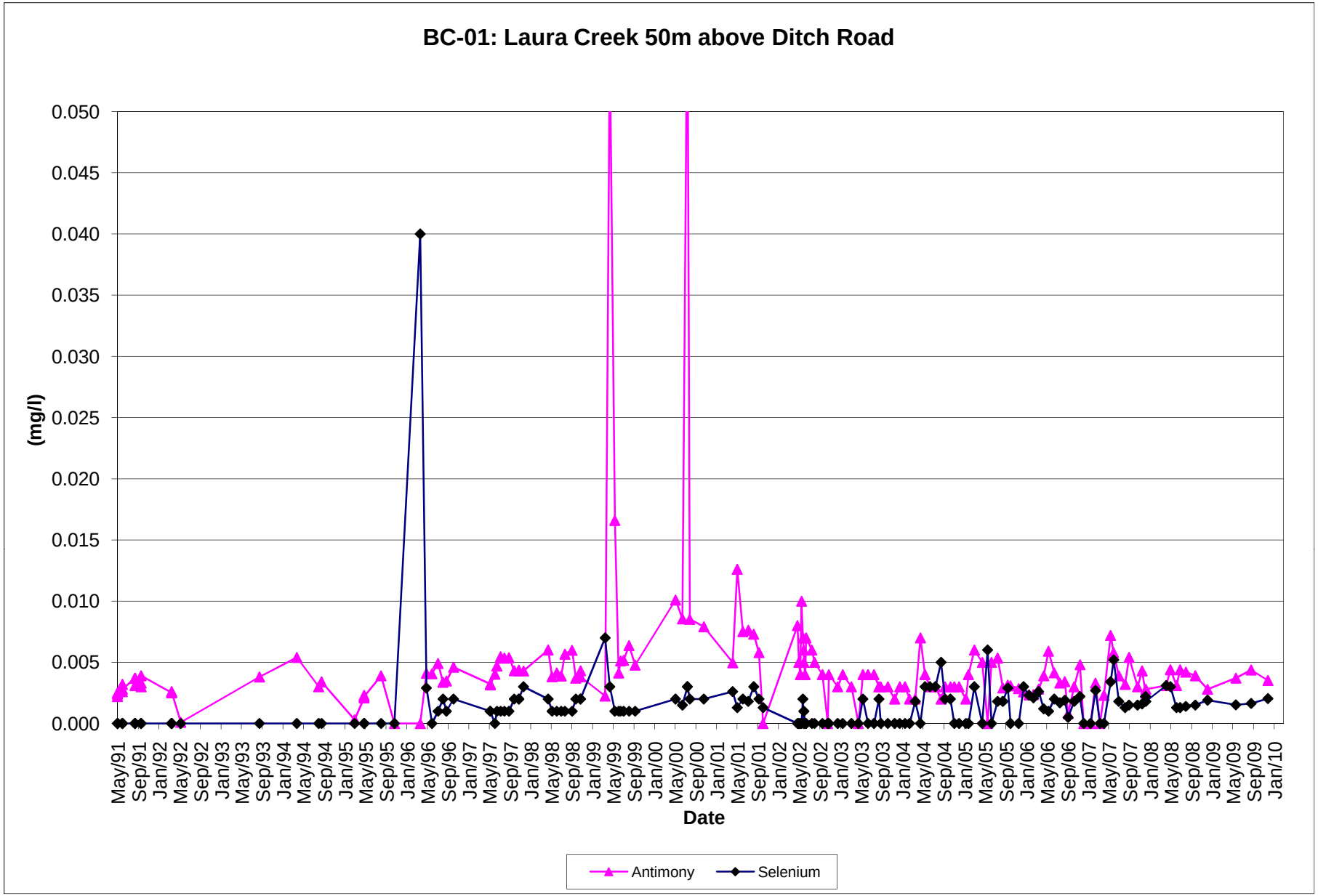

BC-16: Pacific Gulch 300m above Laura Creek
1200
1000
800
600
400
200
0
(mg/l)
Jul/96
Nov/96
Mar/97
Jul/97
Nov/97
Mar/98
Jul/98
Nov/98
Mar/99
Jul/99
Nov/99
Mar/00
Jul/00
Nov/00
Mar/01
Jul/01
Nov/01
Mar/02
Jul/02
Nov/02
Mar/03
Jul/03
Nov/03
Mar/04
Jul/04
Nov/04
Mar/05
Jul/05
Nov/05
Mar/06
Jul/06
Nov/06
Mar/07
Jul/07
Nov/07
Mar/08
Jul/08
Nov/08
Date
TSS

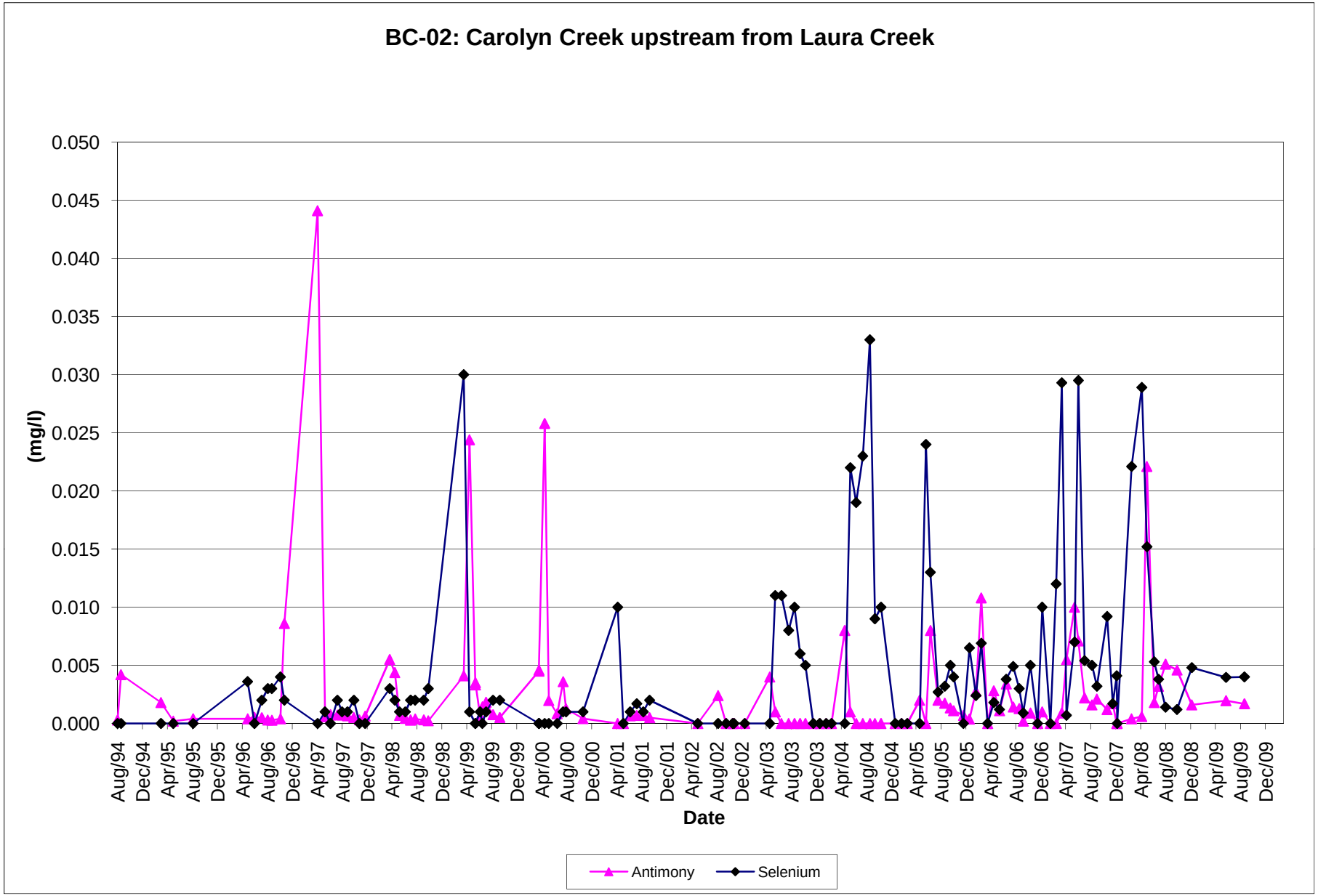

BC-31: Golden Cr. Upstream of confluence with S. Klondike
(mg/l)
200
180
160
140
120
100
80
60
40
20
0
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
TSS

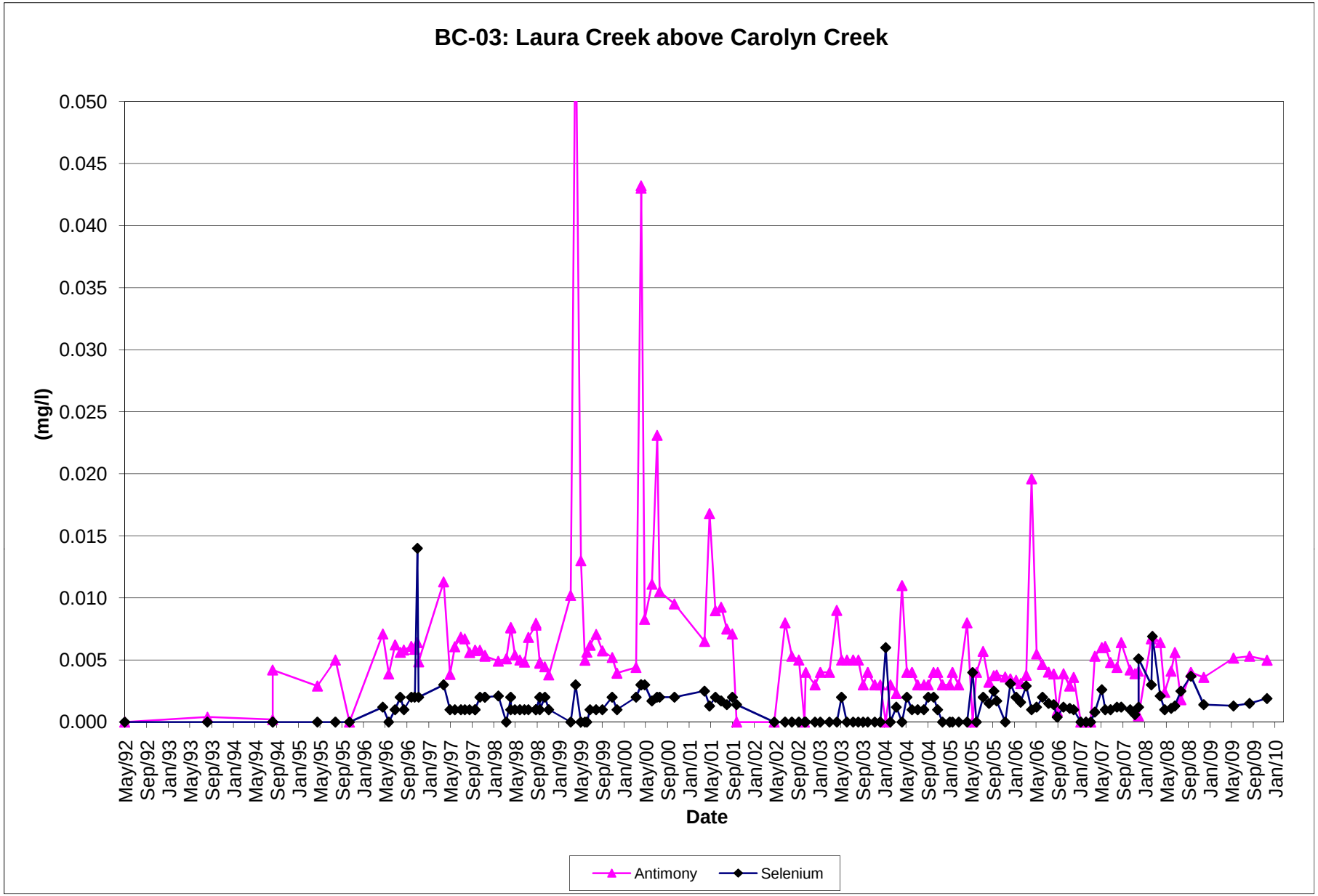

BC-34: Lee Creek At Ditch Road
400
350
300
250
200
150
100
50
0
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
TSS

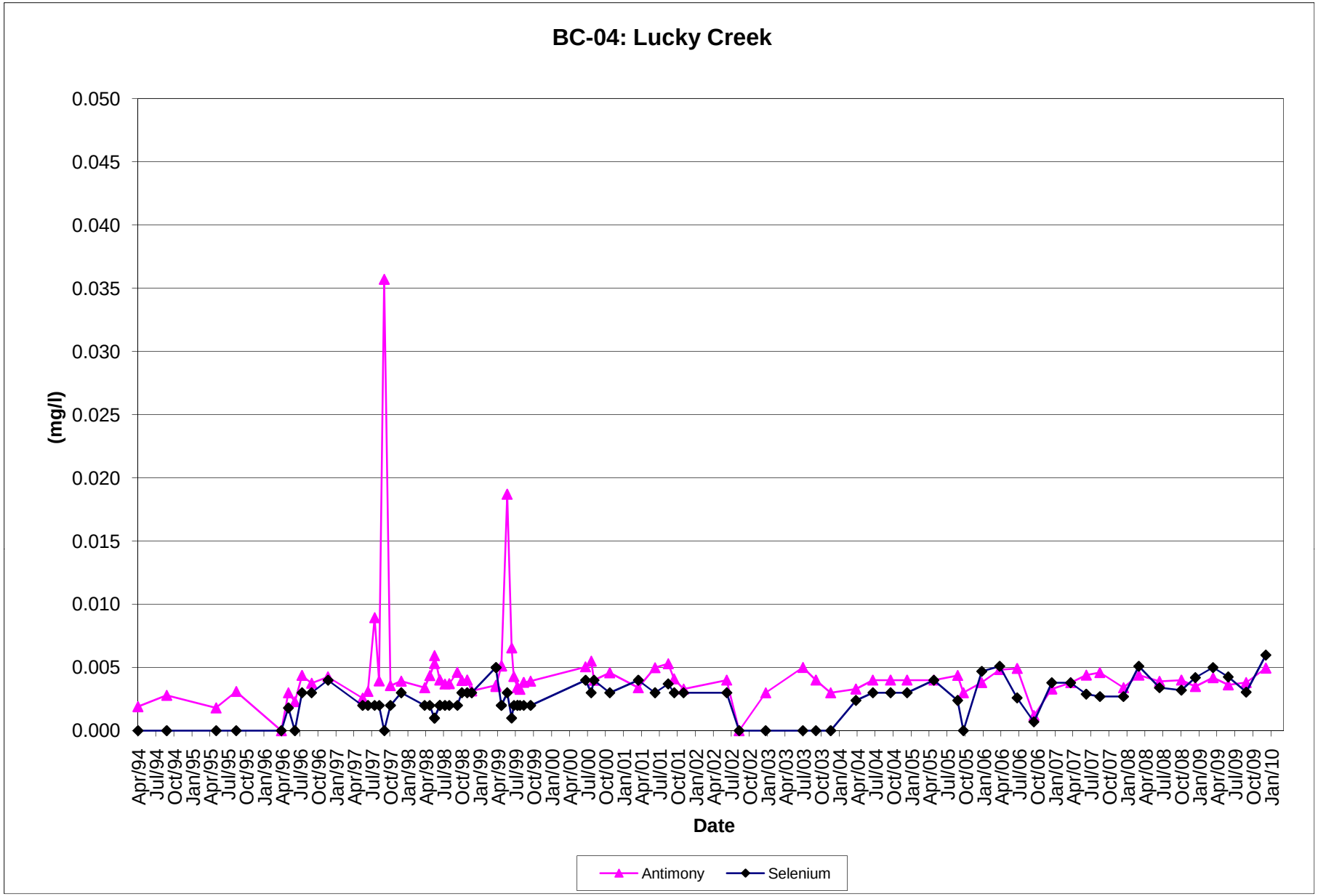

BC-39: Laura Creek at confluence with S. Klondike
300
250
200
150
100
50
0
(mg/l)
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
TSS

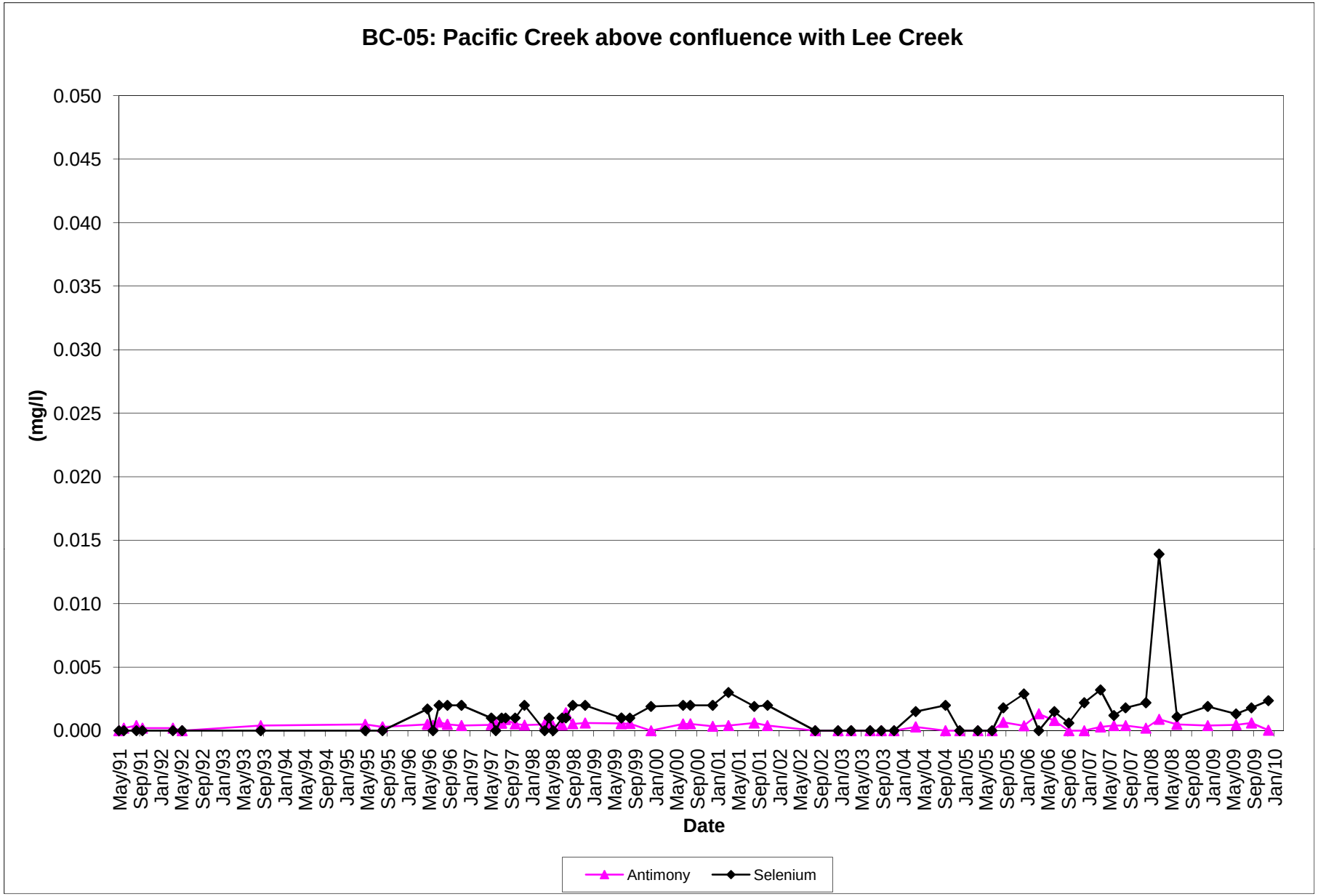

BC-53: Laura Creek 100m downstream of Ditch Road
300
250
200
150
100
50
0
(mg/l)
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
TSS

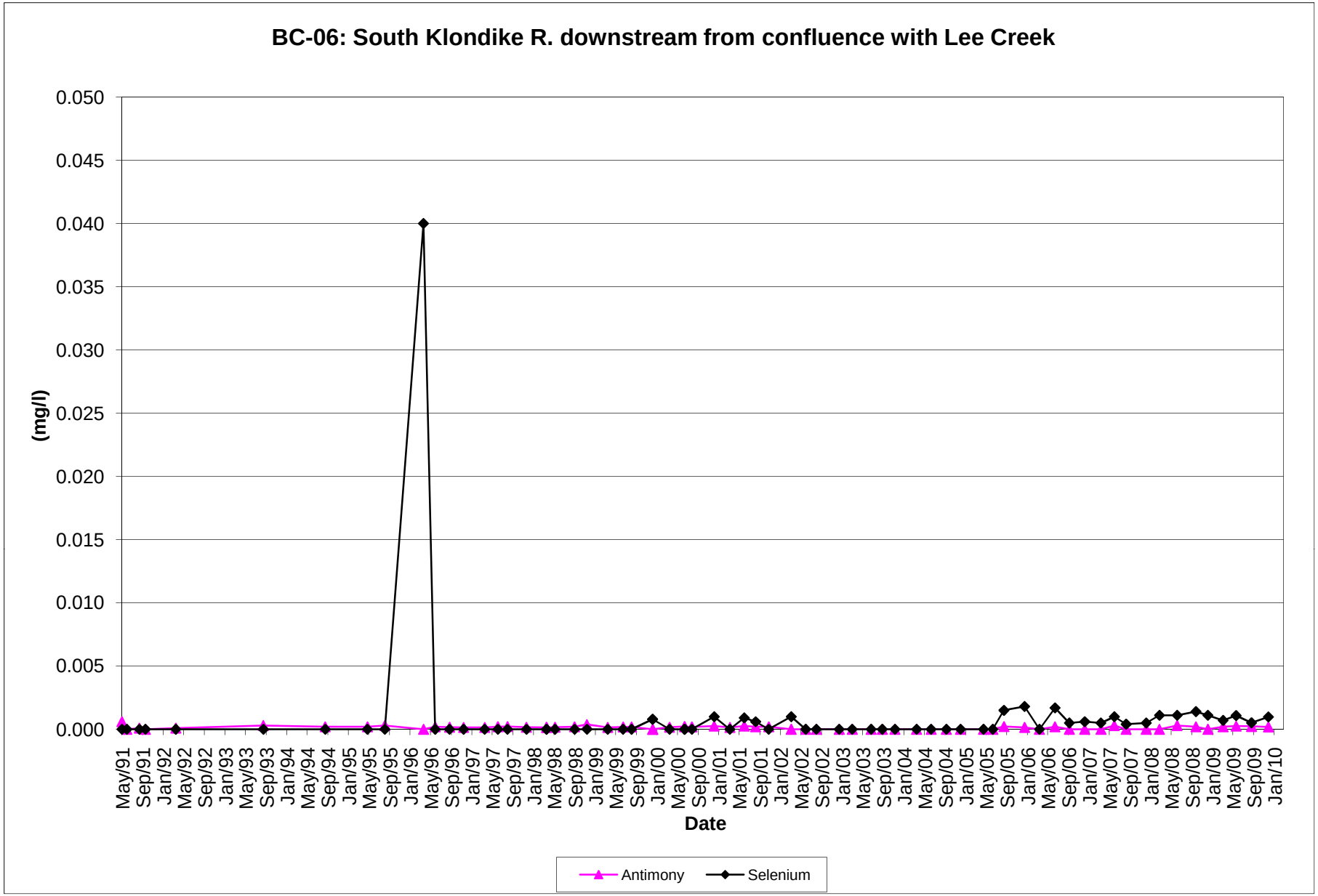

BC-01: Laura Creek 50m above Ditch Road
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Antimony
Selenium

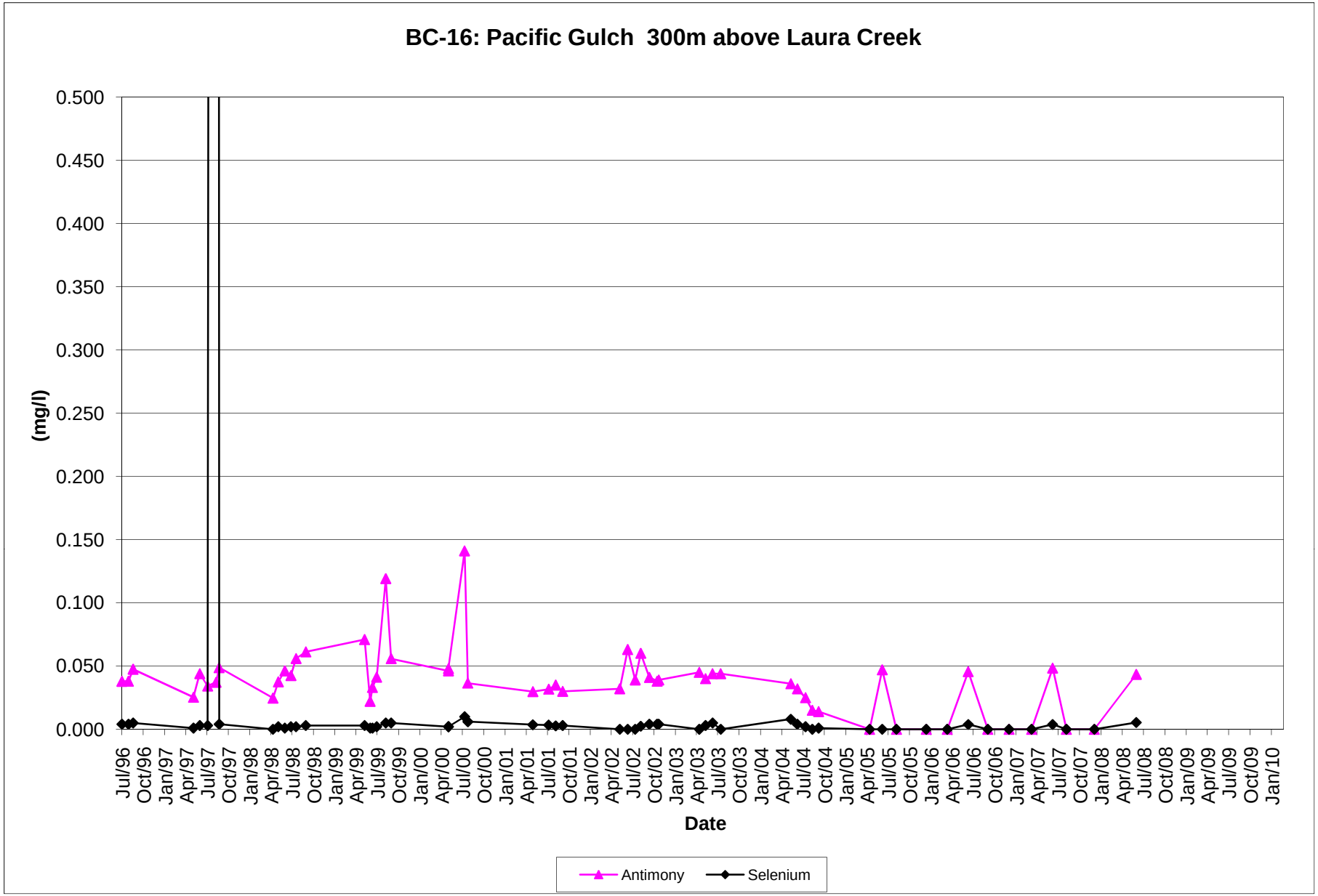

BC-02: Carolyn Creek upstream from Laura Creek
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
Aug/94
Dec/94
Apr/95
Aug/95
Dec/95
Apr/96
Aug/96
Dec/96
Apr/97
Aug/97
Dec/97
Apr/98
Aug/98
Dec/98
Apr/99
Aug/99
Dec/99
Apr/00
Aug/00
Dec/00
Apr/01
Aug/01
Dec/01
Apr/02
Aug/02
Dec/02
Apr/03
Aug/03
Dec/03
Apr/04
Aug/04
Dec/04
Apr/05
Aug/05
Dec/05
Apr/06
Aug/06
Dec/06
Apr/07
Aug/07
Dec/07
Apr/08
Aug/08
Dec/08
Apr/09
Aug/09
Dec/09
Date
Antimony
Selenium

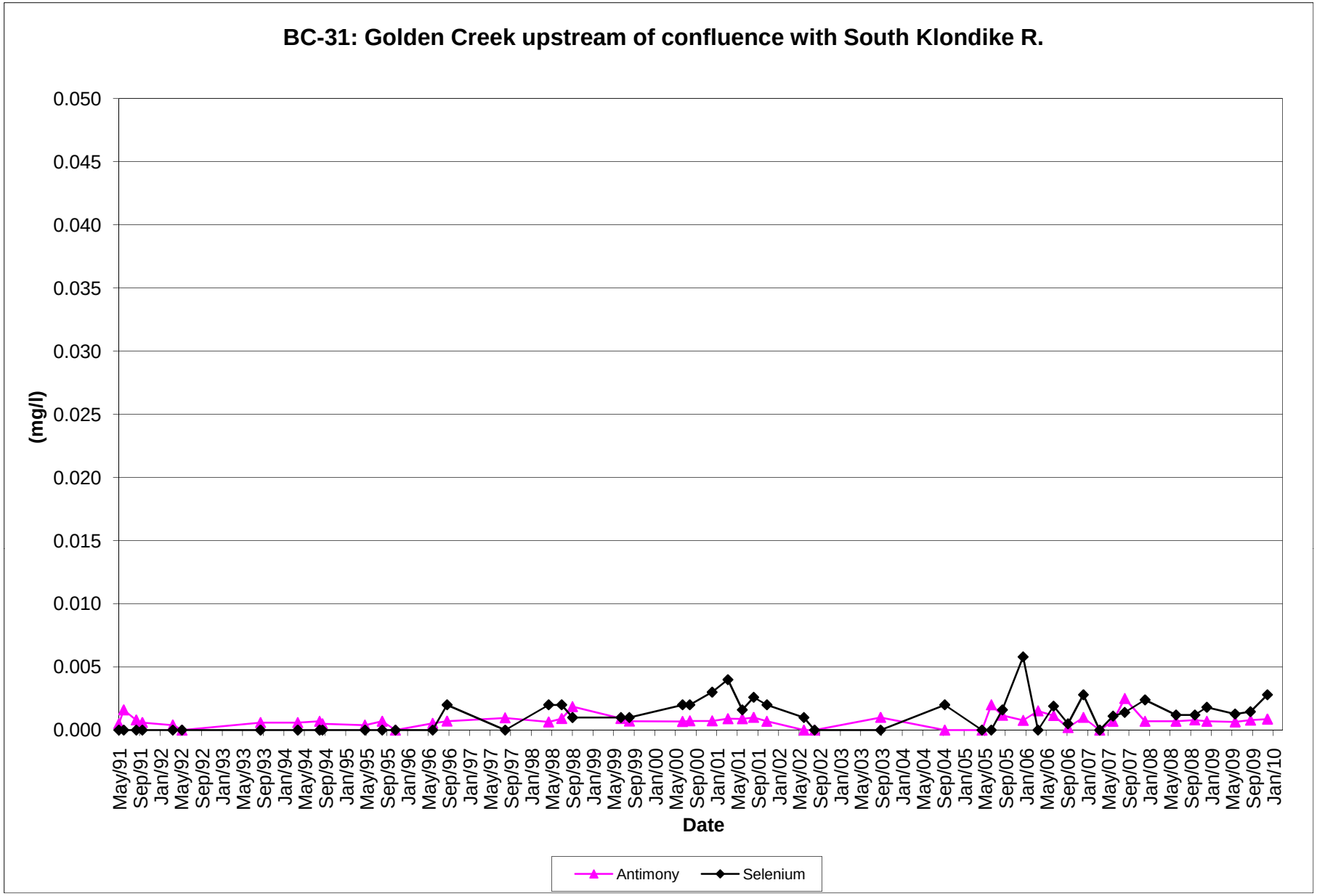

BC-03: Laura Creek above Carolyn Creek
(mg/l)
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Antimony
Selenium

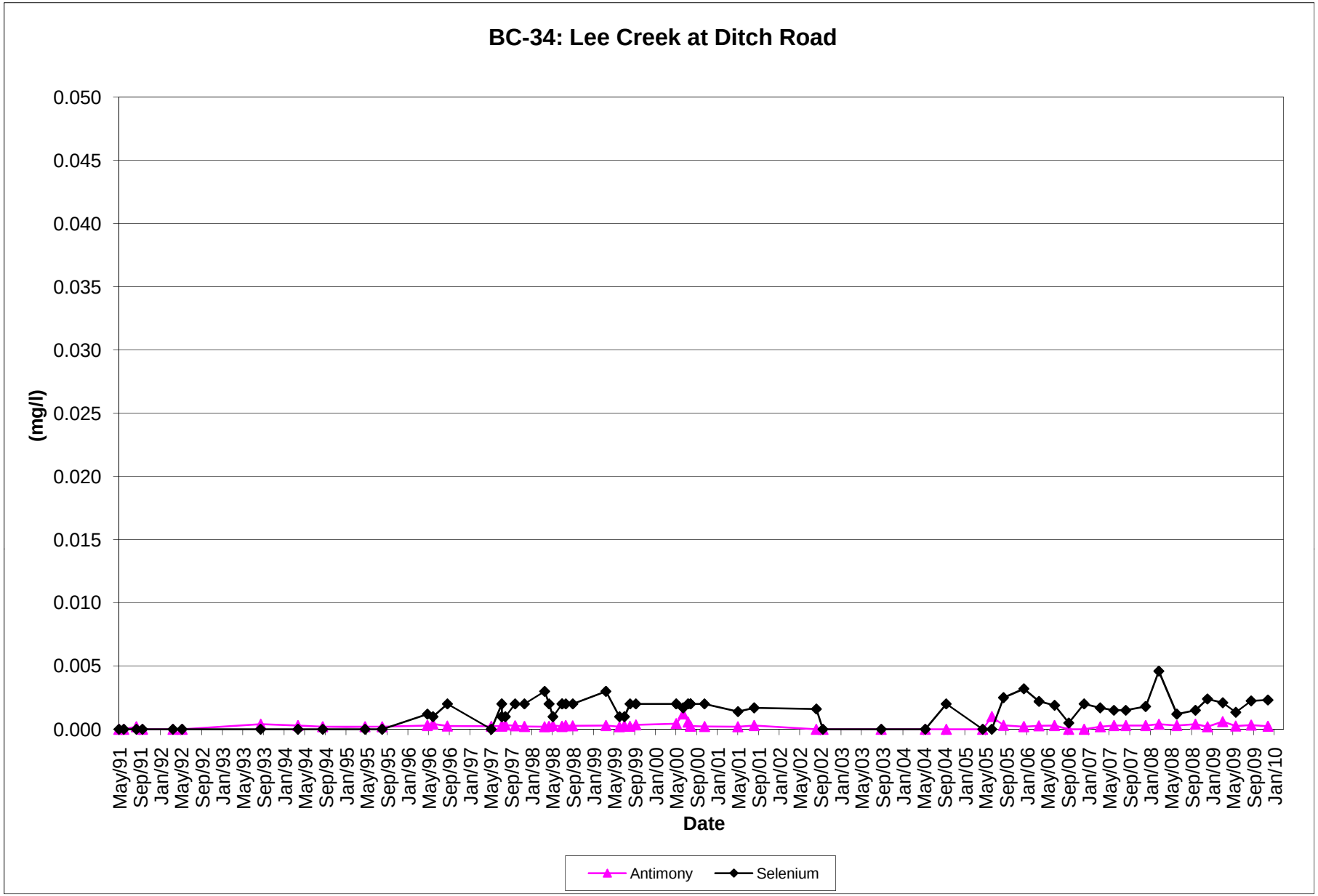

BC-04: Lucky Creek
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
Apr/94
Jul/94
Oct/94
Jan/95
Apr/95
Jul/95
Oct/95
Jan/96
Apr/96
Jul/96
Oct/96
Jan/97
Apr/97
Jul/97
Oct/97
Jan/98
Apr/98
Jul/98
Oct/98
Jan/99
Apr/99
Jul/99
Oct/99
Jan/00
Apr/00
Jul/00
Oct/00
Jan/01
Apr/01
Jul/01
Oct/01
Jan/02
Apr/02
Jul/02
Oct/02
Jan/03
Apr/03
Jul/03
Oct/03
Jan/04
Apr/04
Jul/04
Oct/04
Jan/05
Apr/05
Jul/05
Oct/05
Jan/06
Apr/06
Jul/06
Oct/06
Jan/07
Apr/07
Jul/07
Oct/07
Jan/08
Apr/08
Jul/08
Oct/08
Jan/09
Apr/09
Jul/09
Oct/09
Jan/10
Date
Antimony
Selenium

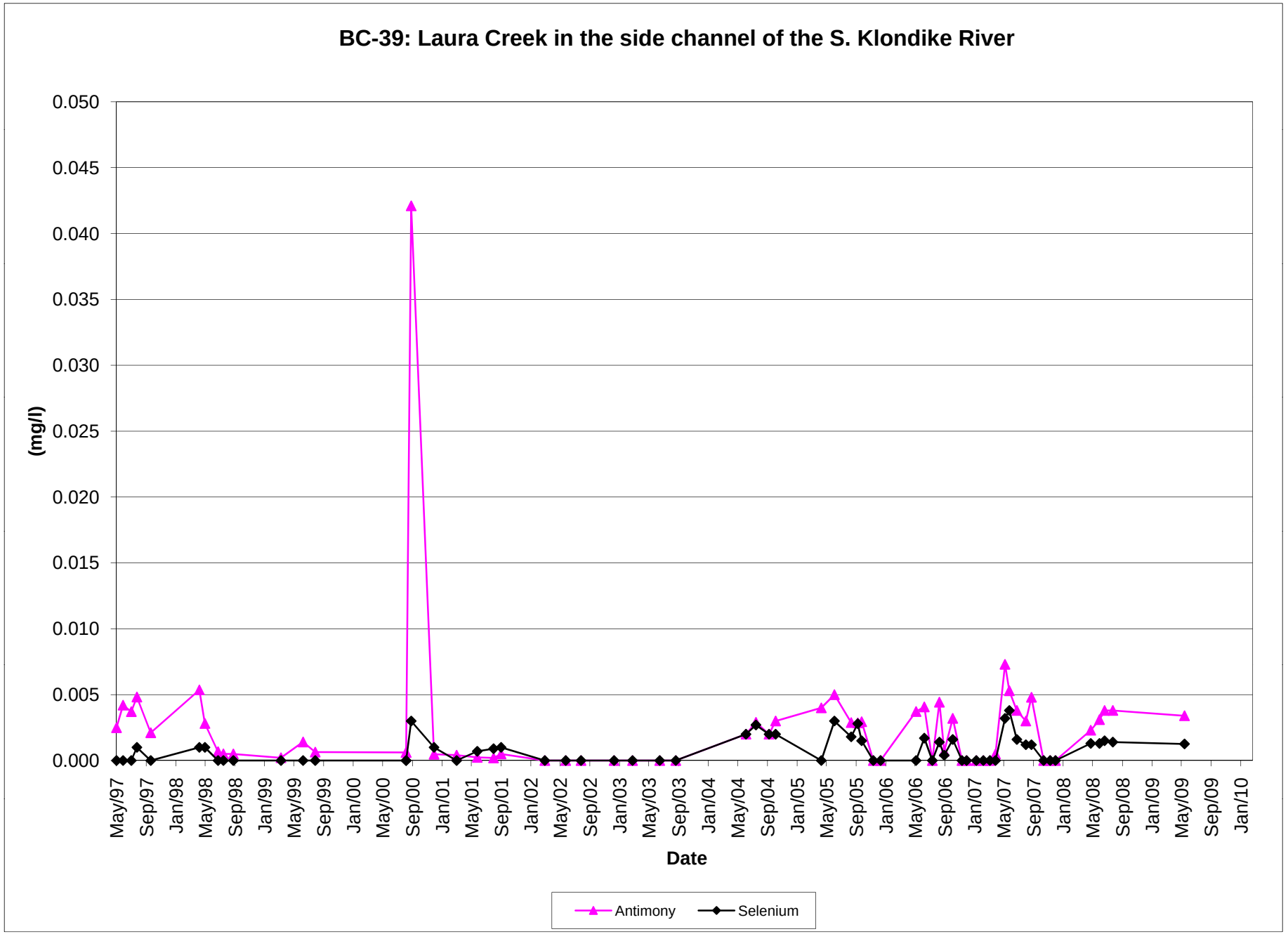

BC-05: Pacific Creek above confluence with Lee Creek
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Antimony
Selenium

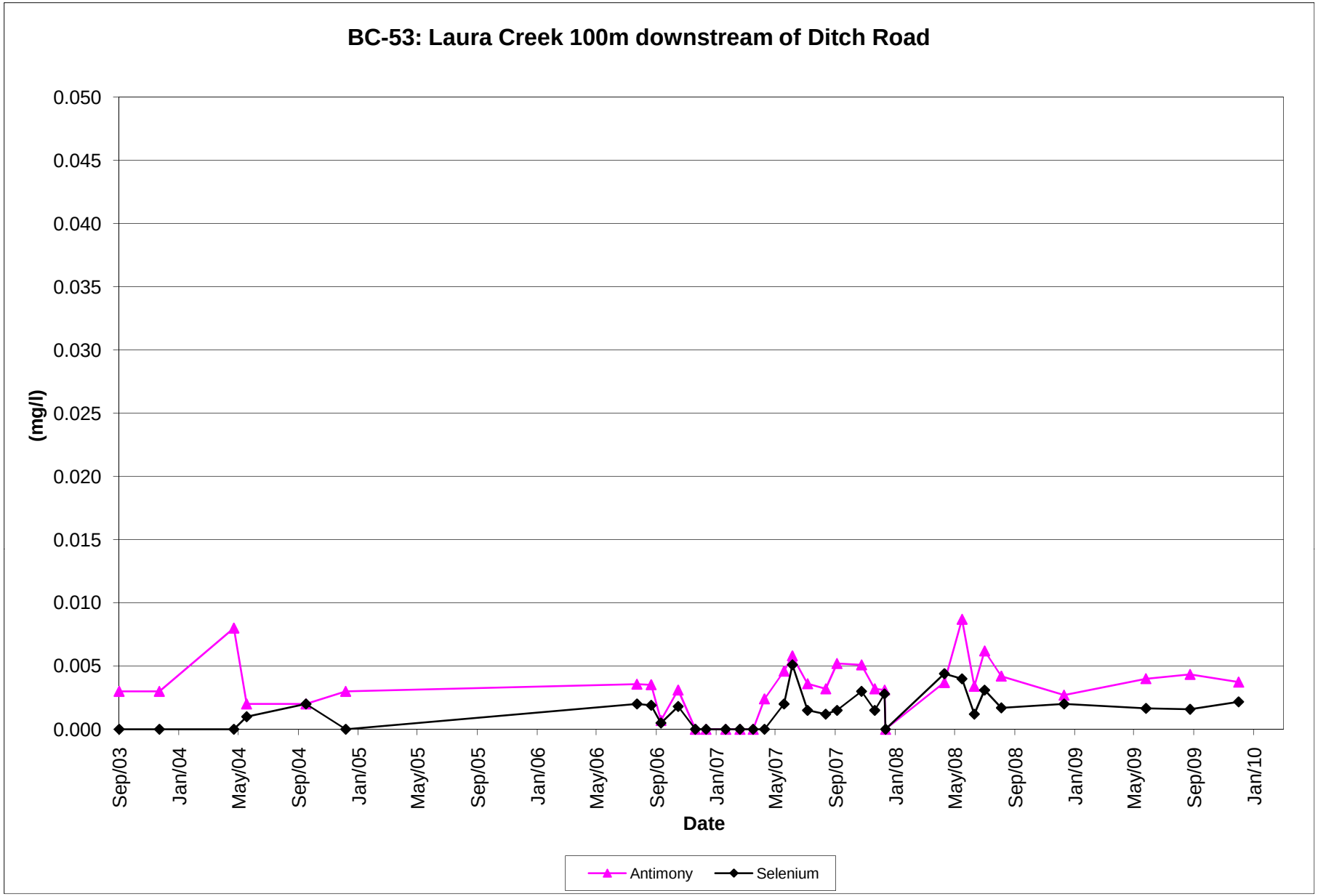

BC-06: South Klondike R. downstream from confluence with Lee Creek
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Antimony
Selenium

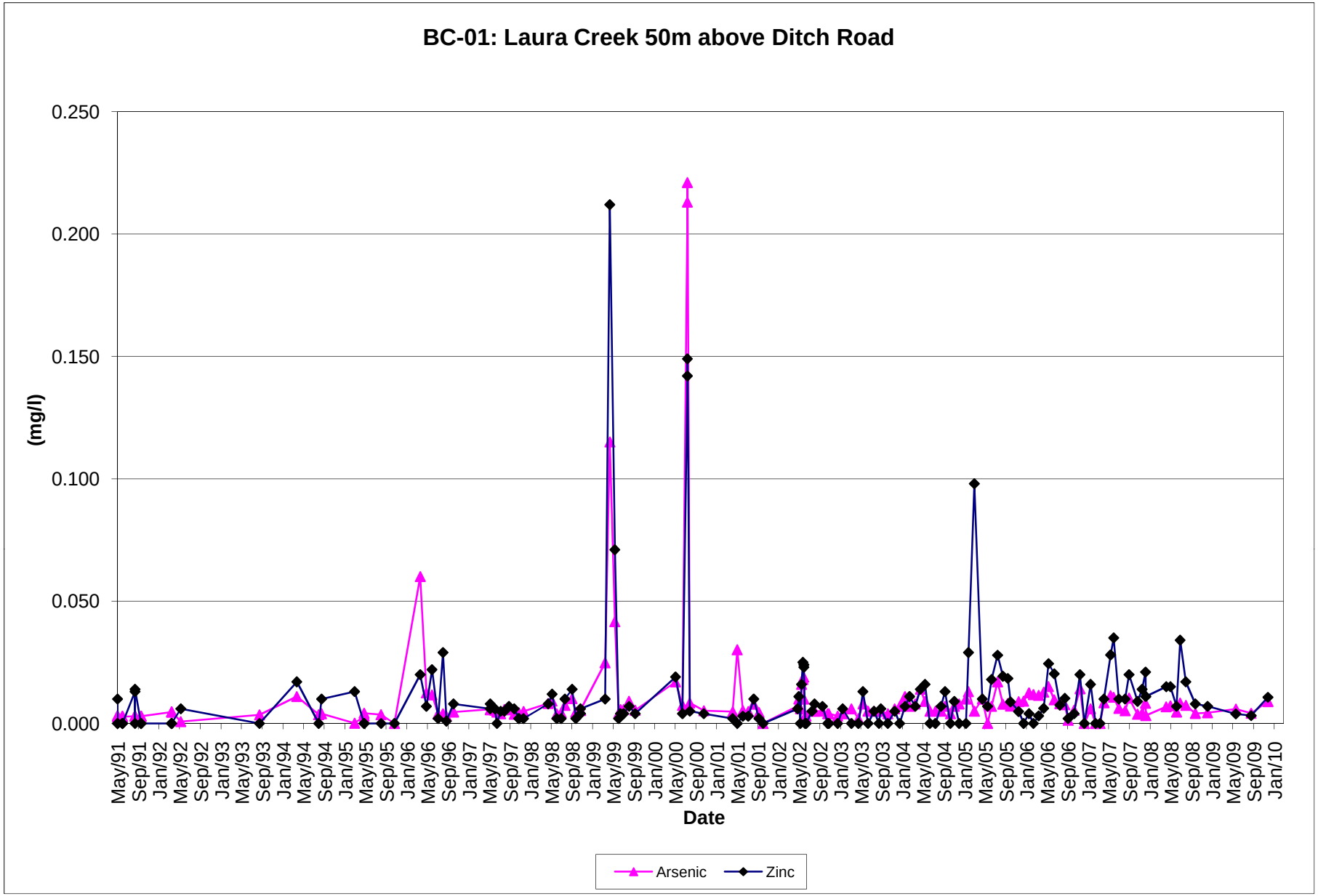

BC-16: Pacific Gulch 300m above Laura Creek
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
(mg/l)
Jul/96
Oct/96
Jan/97
Apr/97
Jul/97
Oct/97
Jan/98
Apr/98
Jul/98
Oct/98
Jan/99
Apr/99
Jul/99
Oct/99
Jan/00
Apr/00
Jul/00
Oct/00
Jan/01
Apr/01
Jul/01
Oct/01
Jan/02
Apr/02
Jul/02
Oct/02
Jan/03
Apr/03
Jul/03
Oct/03
Jan/04
Apr/04
Jul/04
Oct/04
Jan/05
Apr/05
Jul/05
Oct/05
Jan/06
Apr/06
Jul/06
Oct/06
Jan/07
Apr/07
Jul/07
Oct/07
Jan/08
Apr/08
Jul/08
Oct/08
Jan/09
Apr/09
Jul/09
Oct/09
Jan/10
Date
Antimony
Selenium

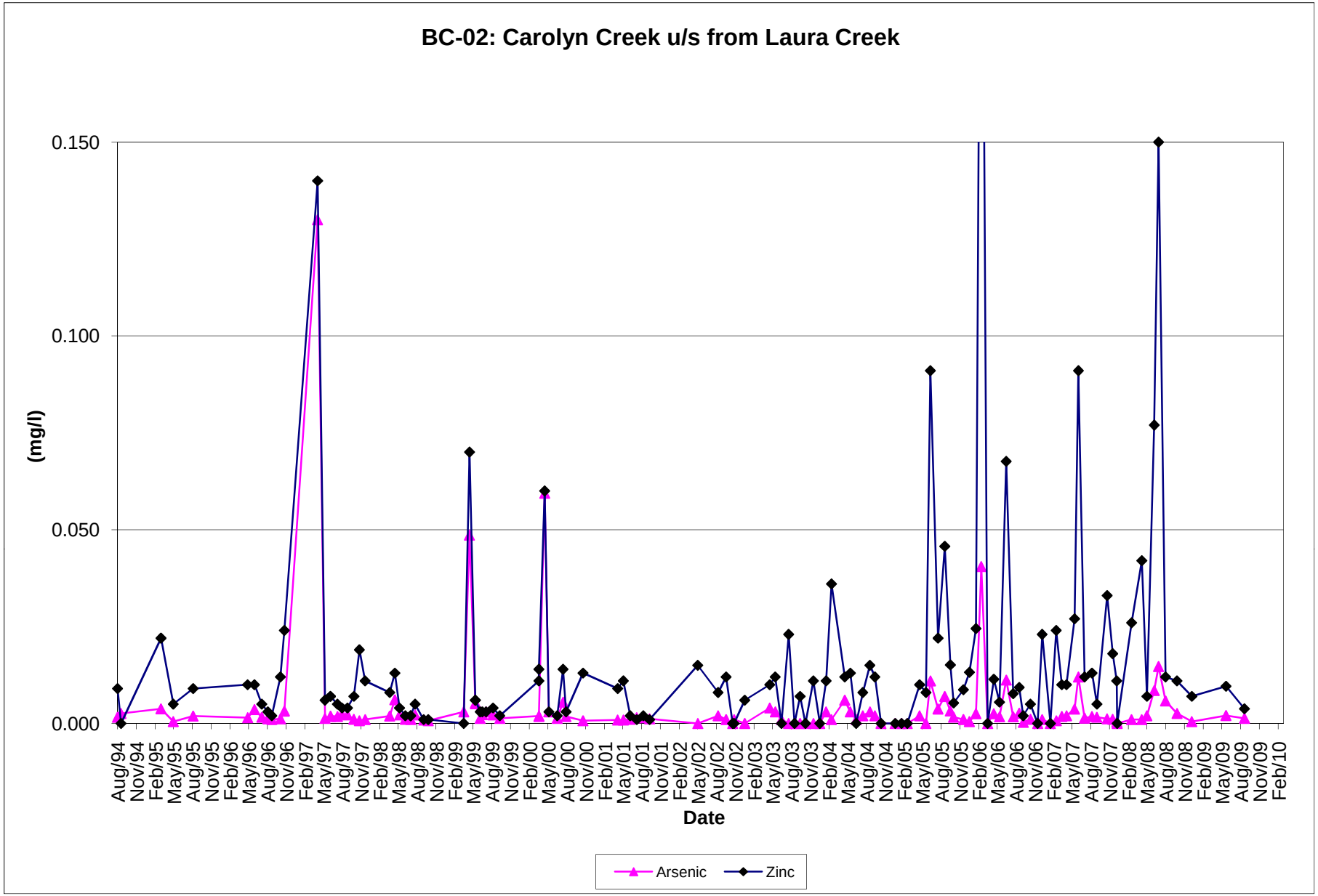

BC-31: Golden Creek upstream of confluence with South Klondike R.
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Antimony
Selenium

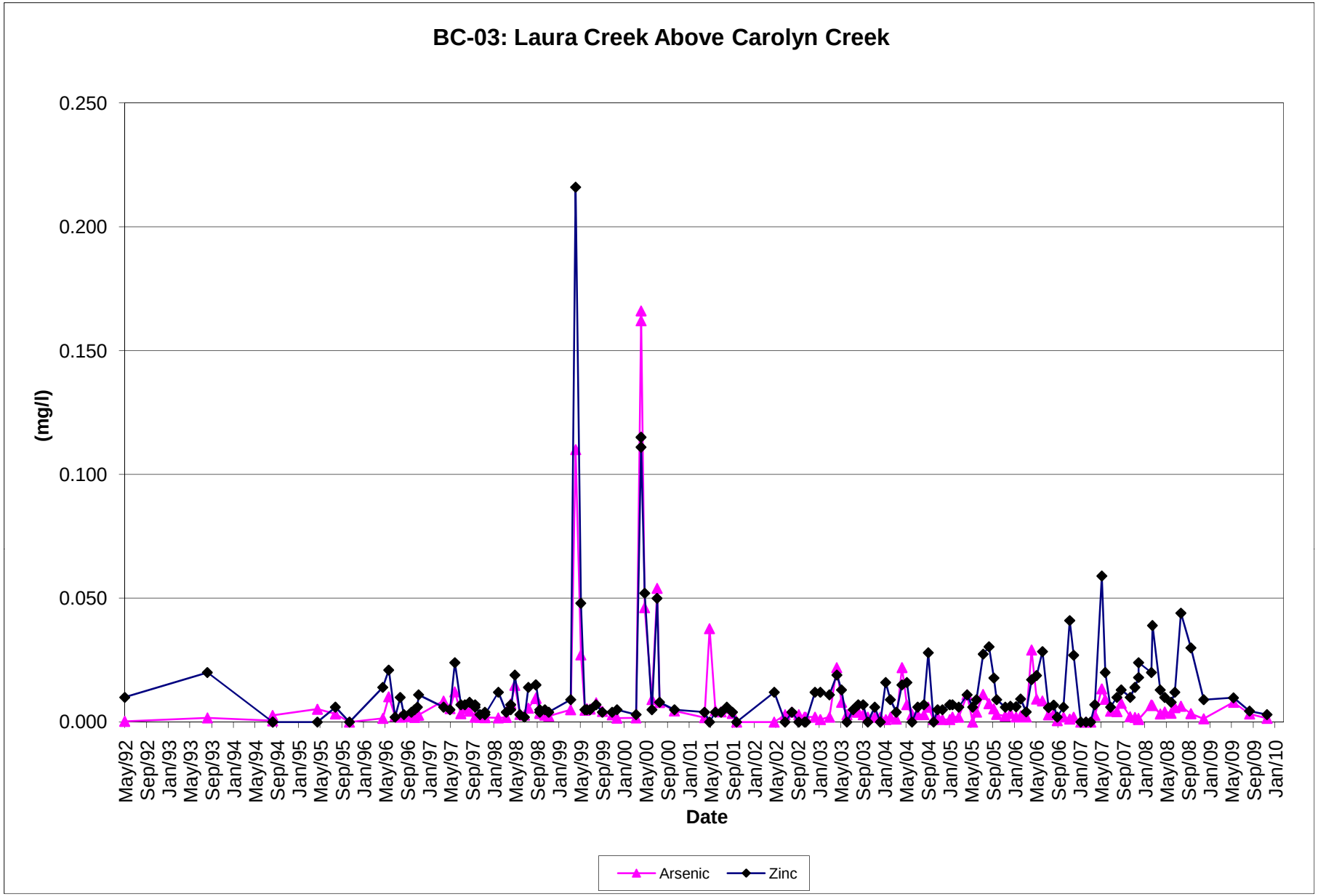

BC-34: Lee Creek at Ditch Road
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Antimony
Selenium

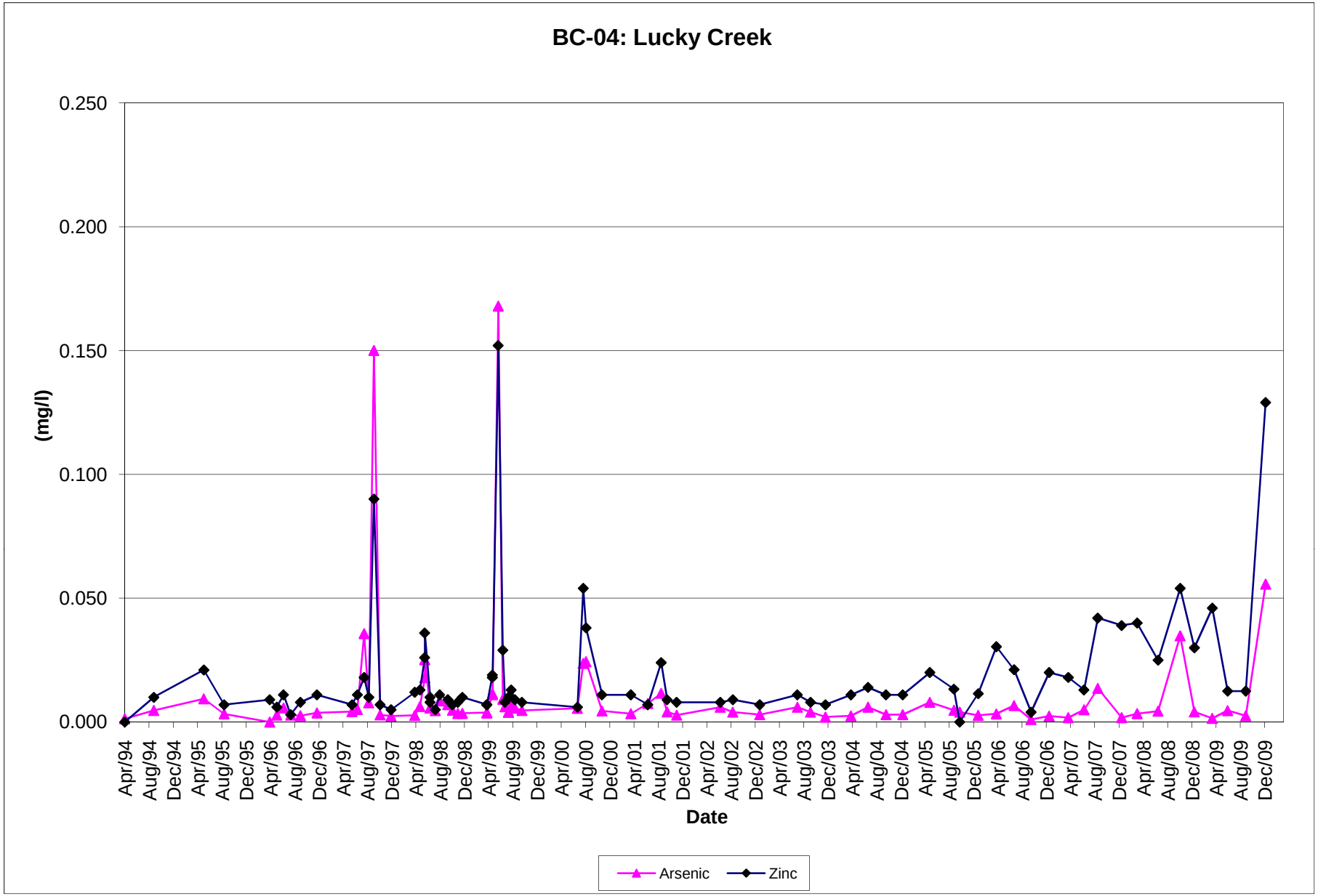

BC-39: Laura Creek in the side channel of the S. Klondike River
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Antimony
Selenium

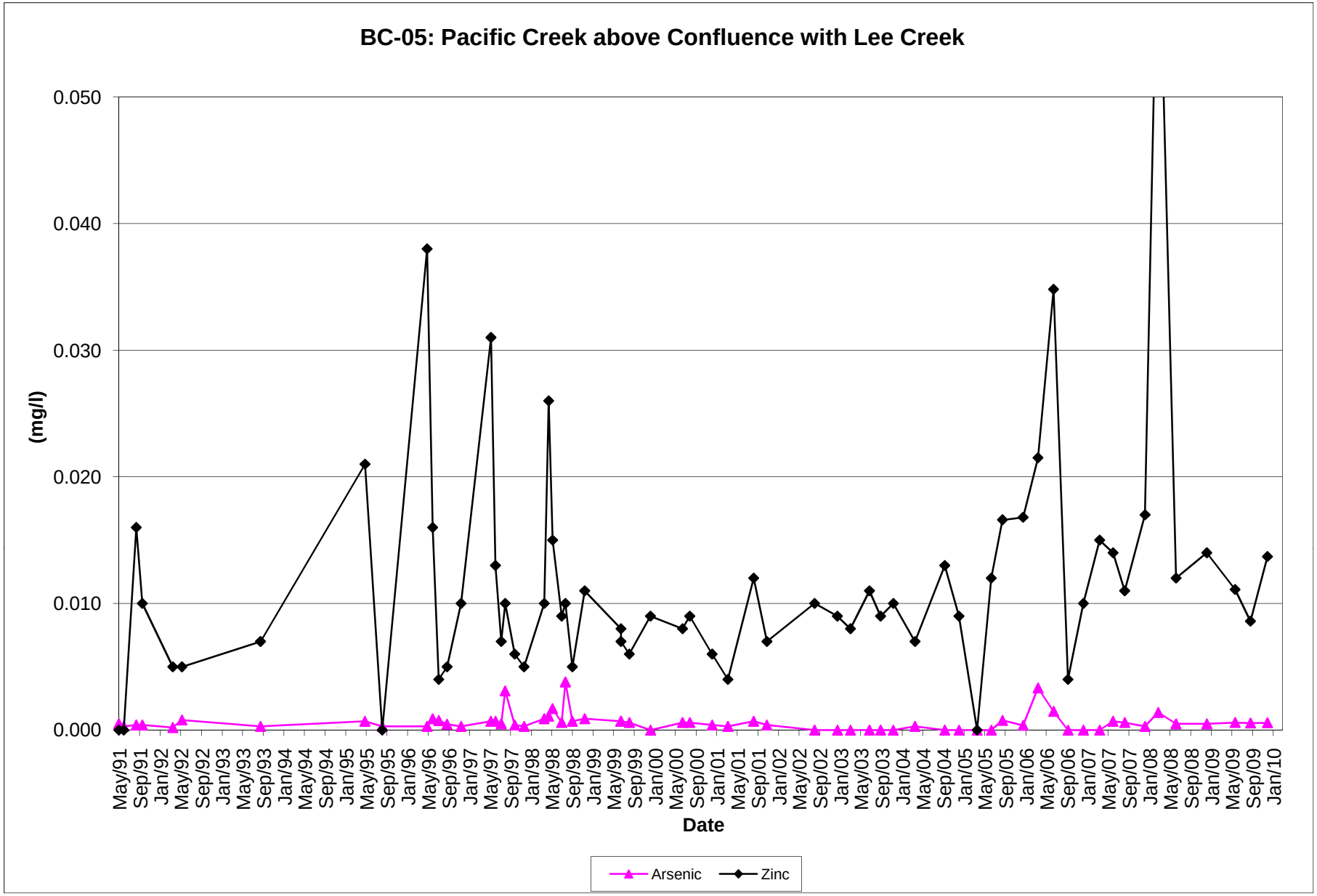

BC-53: Laura Creek 100m downstream of Ditch Road
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Antimony
Selenium

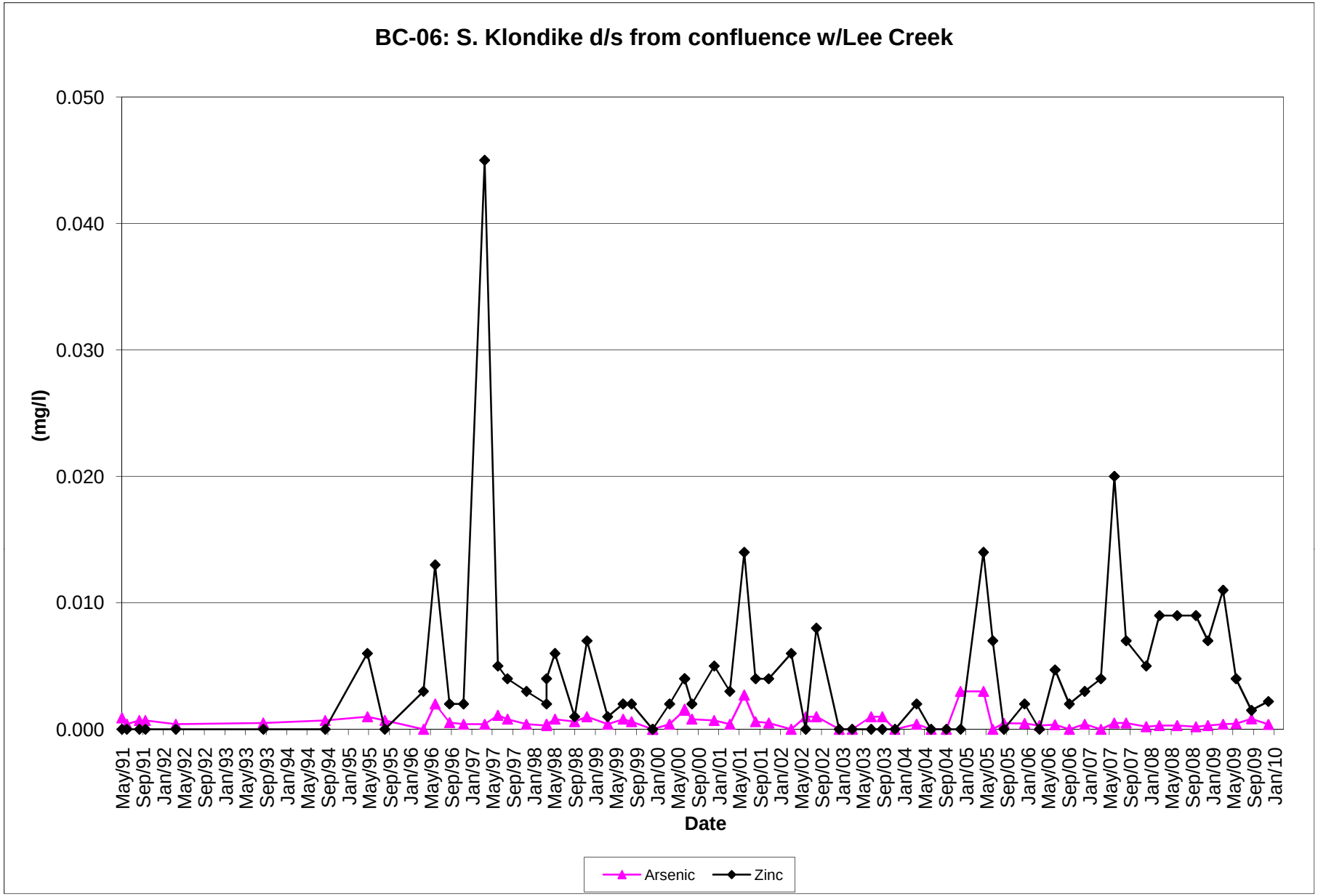

BC-01: Laura Creek 50m above Ditch Road
0.250
0.200
0.150
0.100
0.050
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Arsenic
Zinc

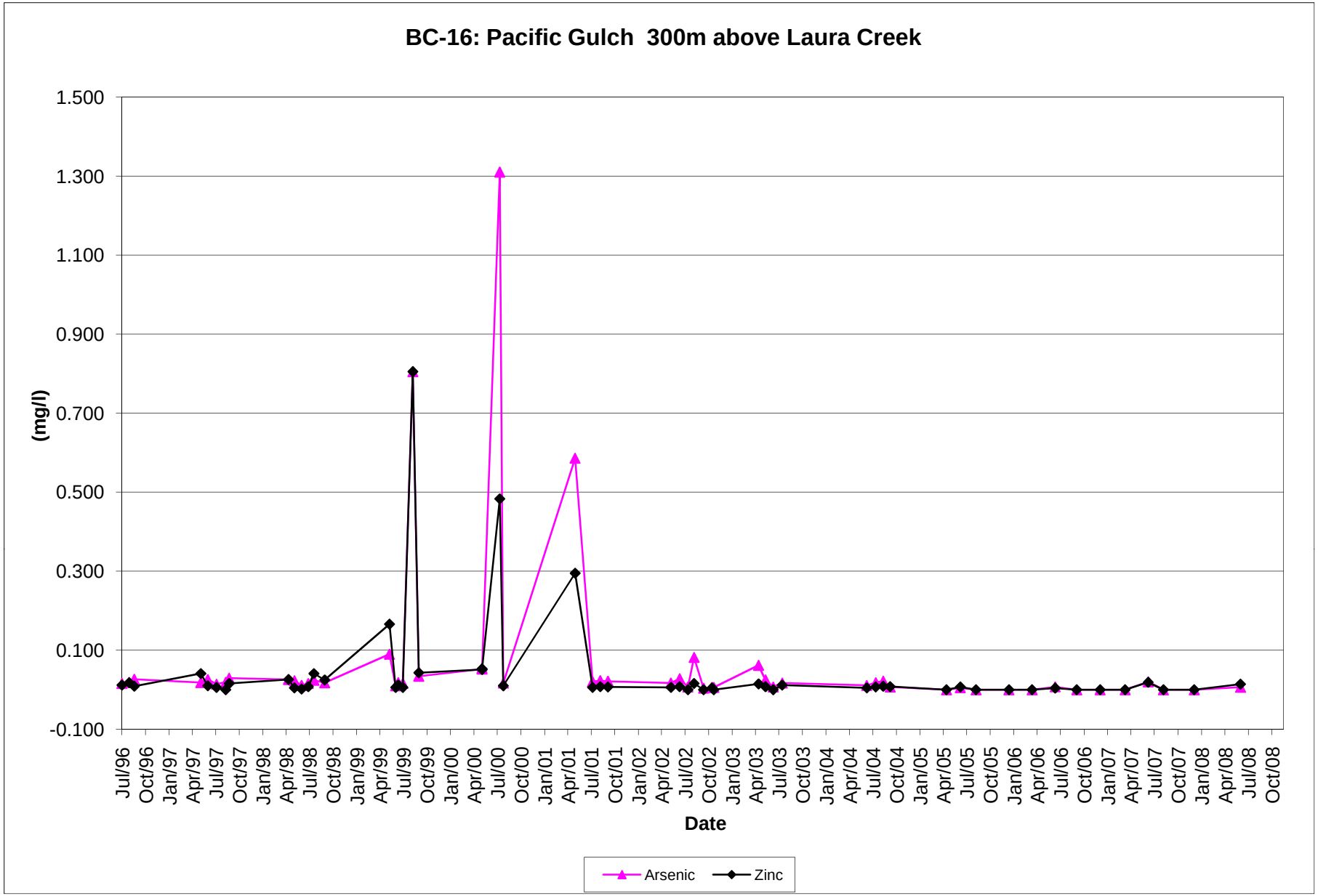

BC-02: Carolyn Creek u/s from Laura Creek
0.150
0.100
0.050
0.000
(mg/l)
Aug/94
Nov/94
Feb/95
May/95
Aug/95
Nov/95
Feb/96
May/96
Aug/96
Nov/96
Feb/97
May/97
Aug/97
Nov/97
Feb/98
May/98
Aug/98
Nov/98
Feb/99
May/99
Aug/99
Nov/99
Feb/00
May/00
Aug/00
Nov/00
Feb/01
May/01
Aug/01
Nov/01
Feb/02
May/02
Aug/02
Nov/02
Feb/03
May/03
Aug/03
Nov/03
Feb/04
May/04
Aug/04
Nov/04
Feb/05
May/05
Aug/05
Nov/05
Feb/06
May/06
Aug/06
Nov/06
Feb/07
May/07
Aug/07
Nov/07
Feb/08
May/08
Aug/08
Nov/08
Feb/09
May/09
Aug/09
Nov/09
Feb/10
Date
Arsenic
Zinc

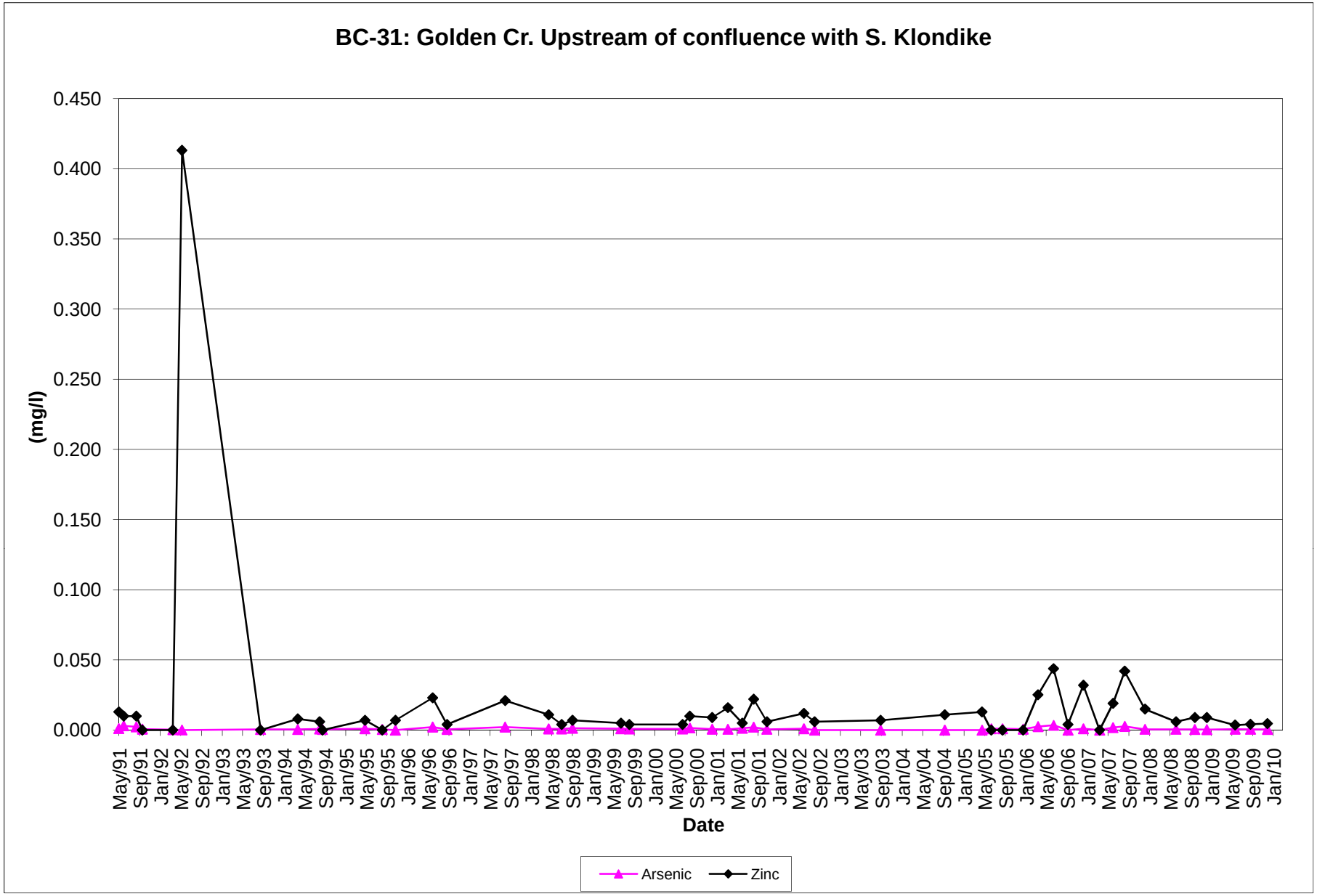

BC-03: Laura Creek Above Carolyn Creek
0.250
0.200
0.150
0.100
0.050
0.000
(mg/l)
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Arsenic
Zinc

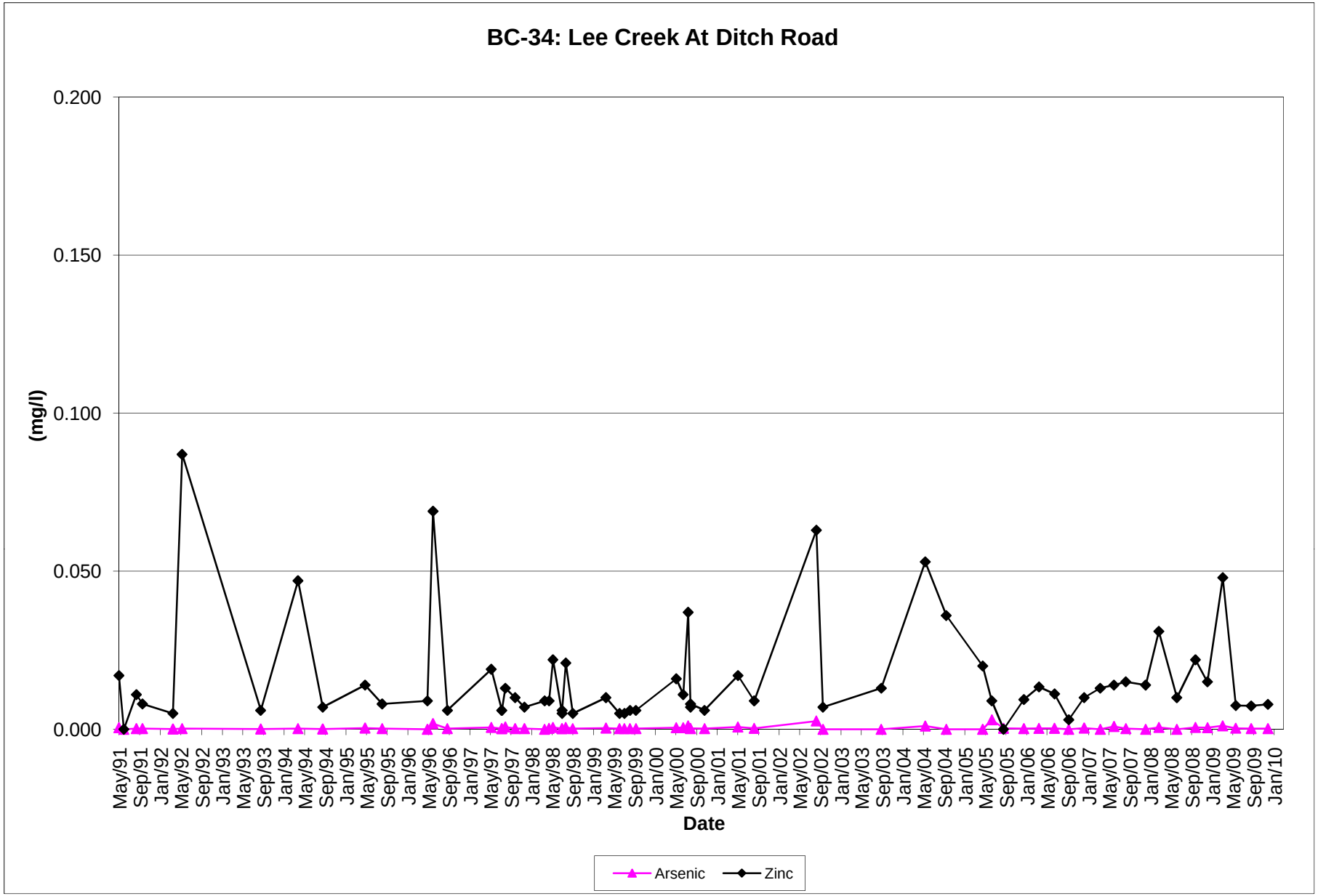

BC-04: Lucky Creek
0.250
0.200
0.150
0.100
0.050
0.000
(mg/l)
Apr/94
Aug/94
Dec/94
Apr/95
Aug/95
Dec/95
Apr/96
Aug/96
Dec/96
Apr/97
Aug/97
Dec/97
Apr/98
Aug/98
Dec/98
Apr/99
Aug/99
Dec/99
Apr/00
Aug/00
Dec/00
Apr/01
Aug/01
Dec/01
Apr/02
Aug/02
Dec/02
Apr/03
Aug/03
Dec/03
Apr/04
Aug/04
Dec/04
Apr/05
Aug/05
Dec/05
Apr/06
Aug/06
Dec/06
Apr/07
Aug/07
Dec/07
Apr/08
Aug/08
Dec/08
Apr/09
Aug/09
Dec/09
Date
Arsenic
Zinc

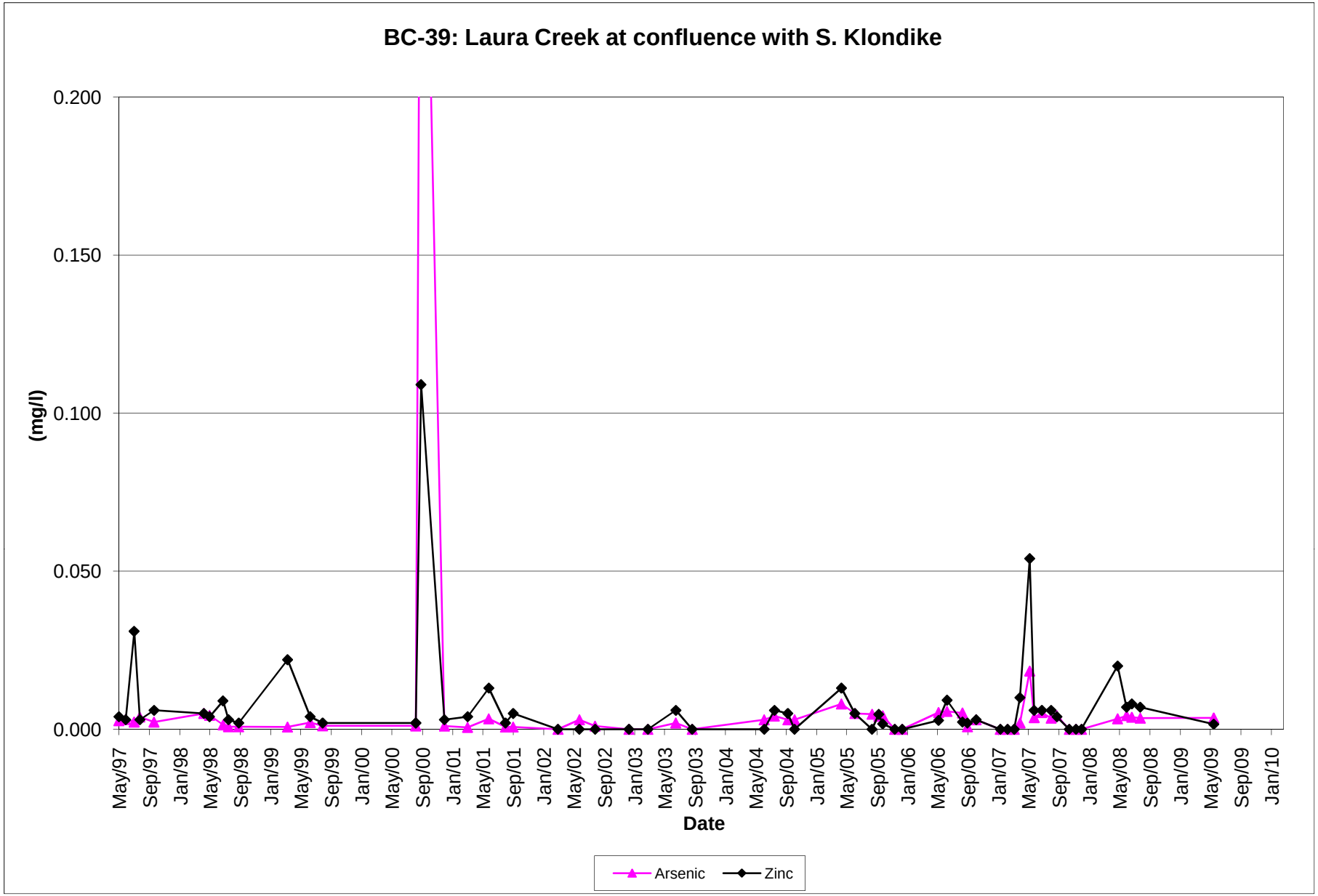

BC-05: Pacific Creek above Confluence with Lee Creek
0.050
0.040
0.030
0.020
0.010
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Arsenic
Zinc

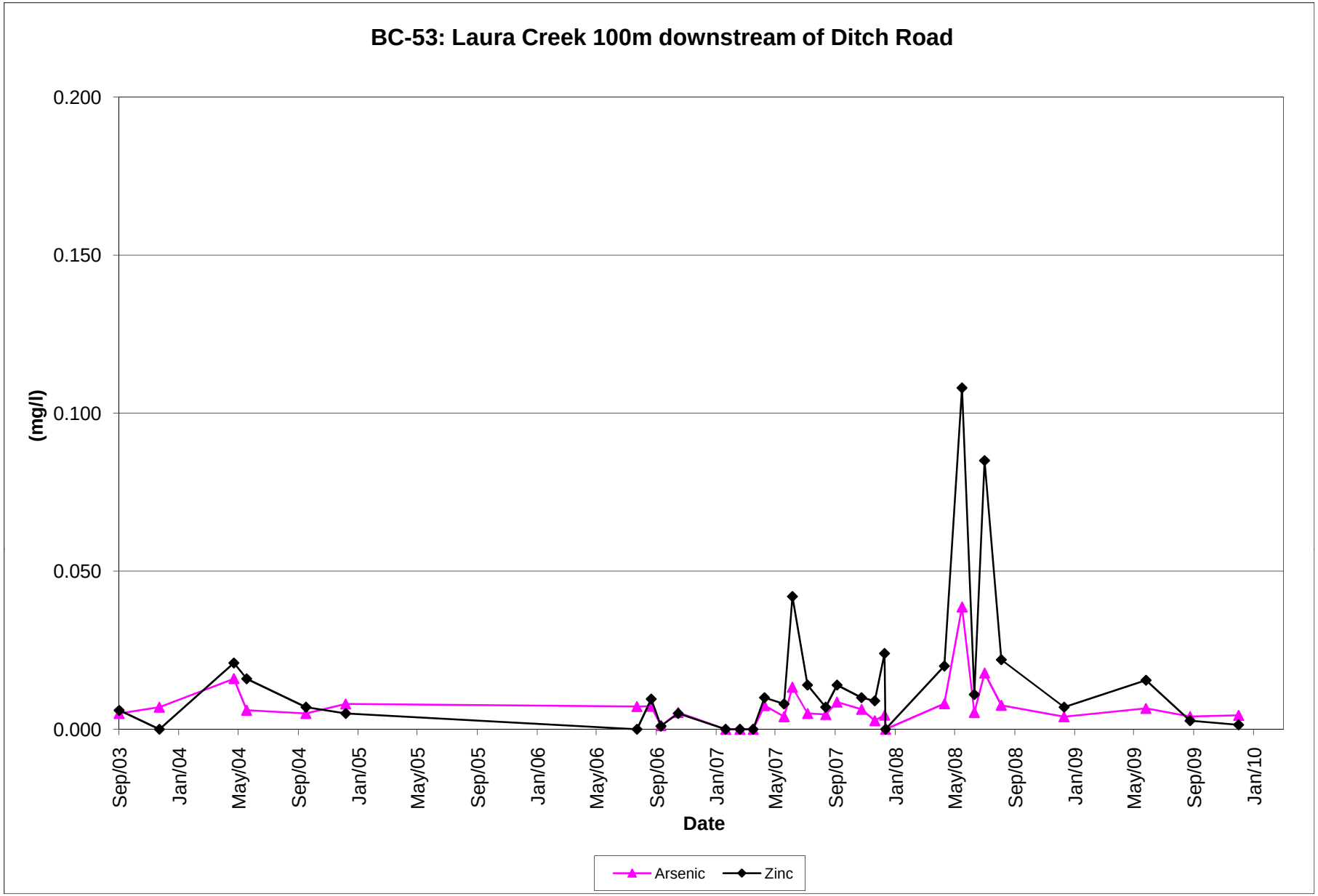

BC-06: S. Klondike d/s from confluence w/Lee Creek
0.050
0.040
0.030
0.020
0.010
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Arsenic
Zinc

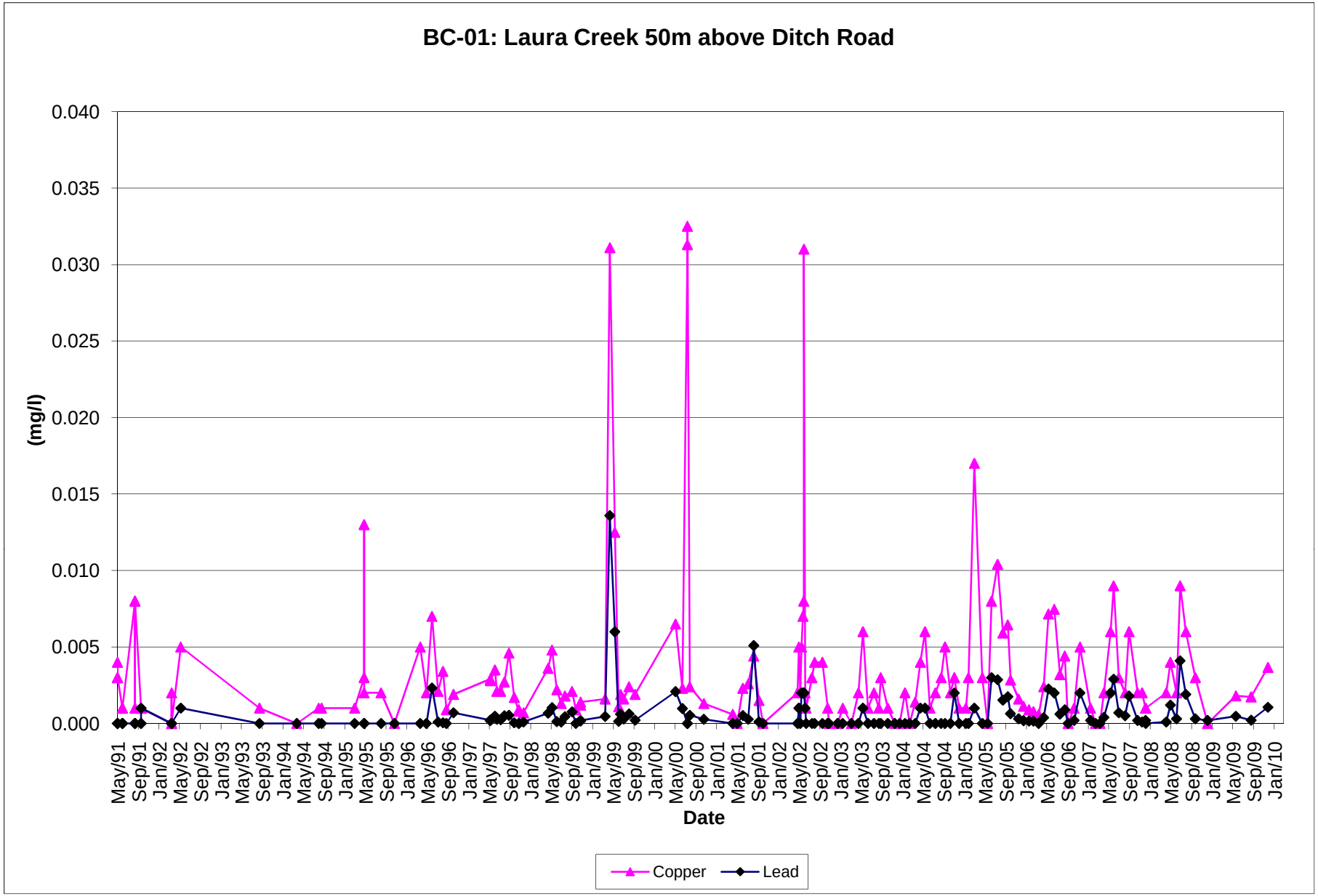

BC-16: Pacific Gulch 300m above Laura Creek
1.500
1.300
1.100
0.900
0.700
0.500
0.300
0.100
-0.100
(mg/l)
Jul/96
Oct/96
Jan/97
Apr/97
Jul/97
Oct/97
Jan/98
Apr/98
Jul/98
Oct/98
Jan/99
Apr/99
Jul/99
Oct/99
Jan/00
Apr/00
Jul/00
Oct/00
Jan/01
Apr/01
Jul/01
Oct/01
Jan/02
Apr/02
Jul/02
Oct/02
Jan/03
Apr/03
Jul/03
Oct/03
Jan/04
Apr/04
Jul/04
Oct/04
Jan/05
Apr/05
Jul/05
Oct/05
Jan/06
Apr/06
Jul/06
Oct/06
Jan/07
Apr/07
Jul/07
Oct/07
Jan/08
Apr/08
Jul/08
Oct/08
Date
Arsenic
Zinc

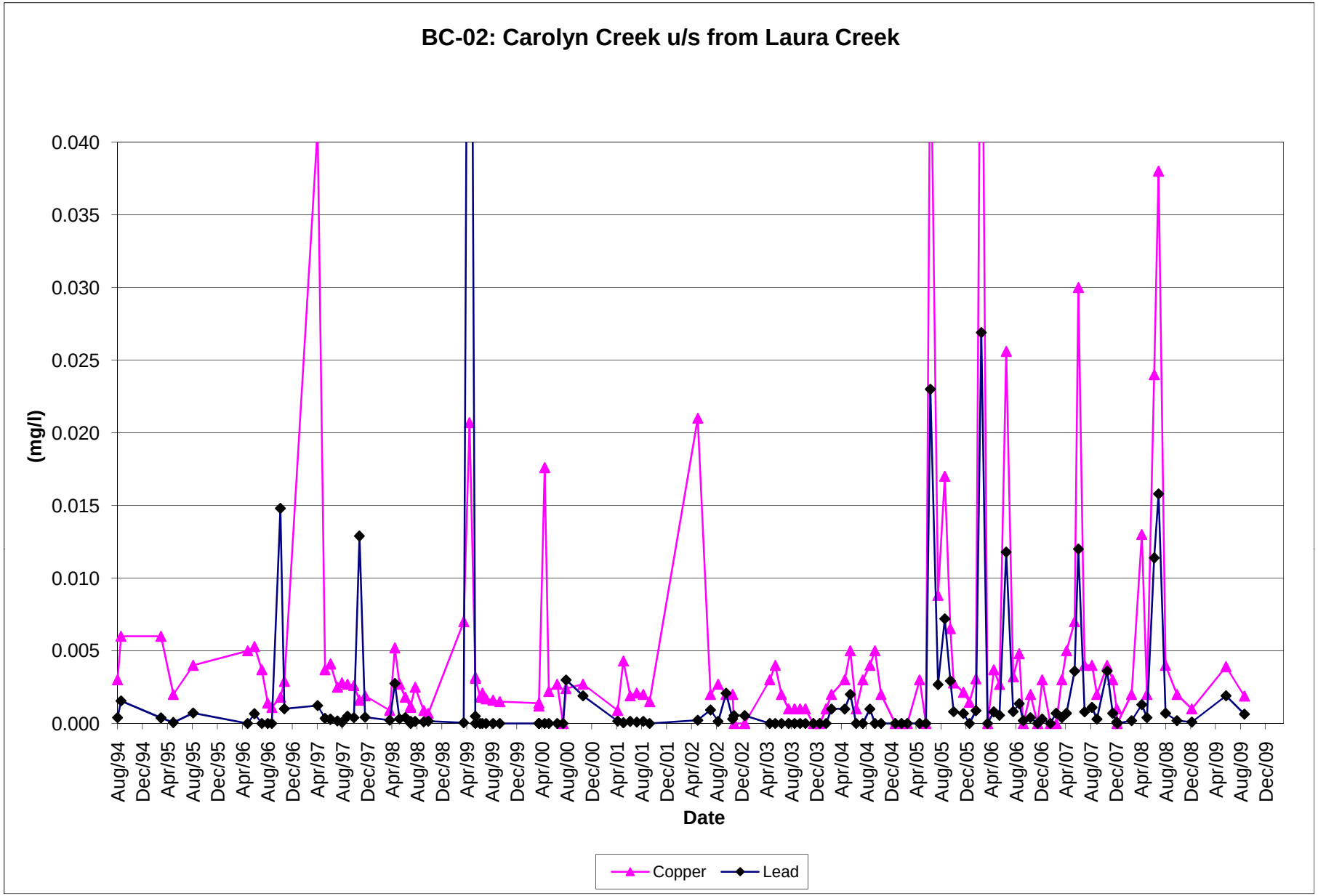

BC-31: Golden Cr. Upstream of confluence with S. Klondike
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Arsenic
Zinc

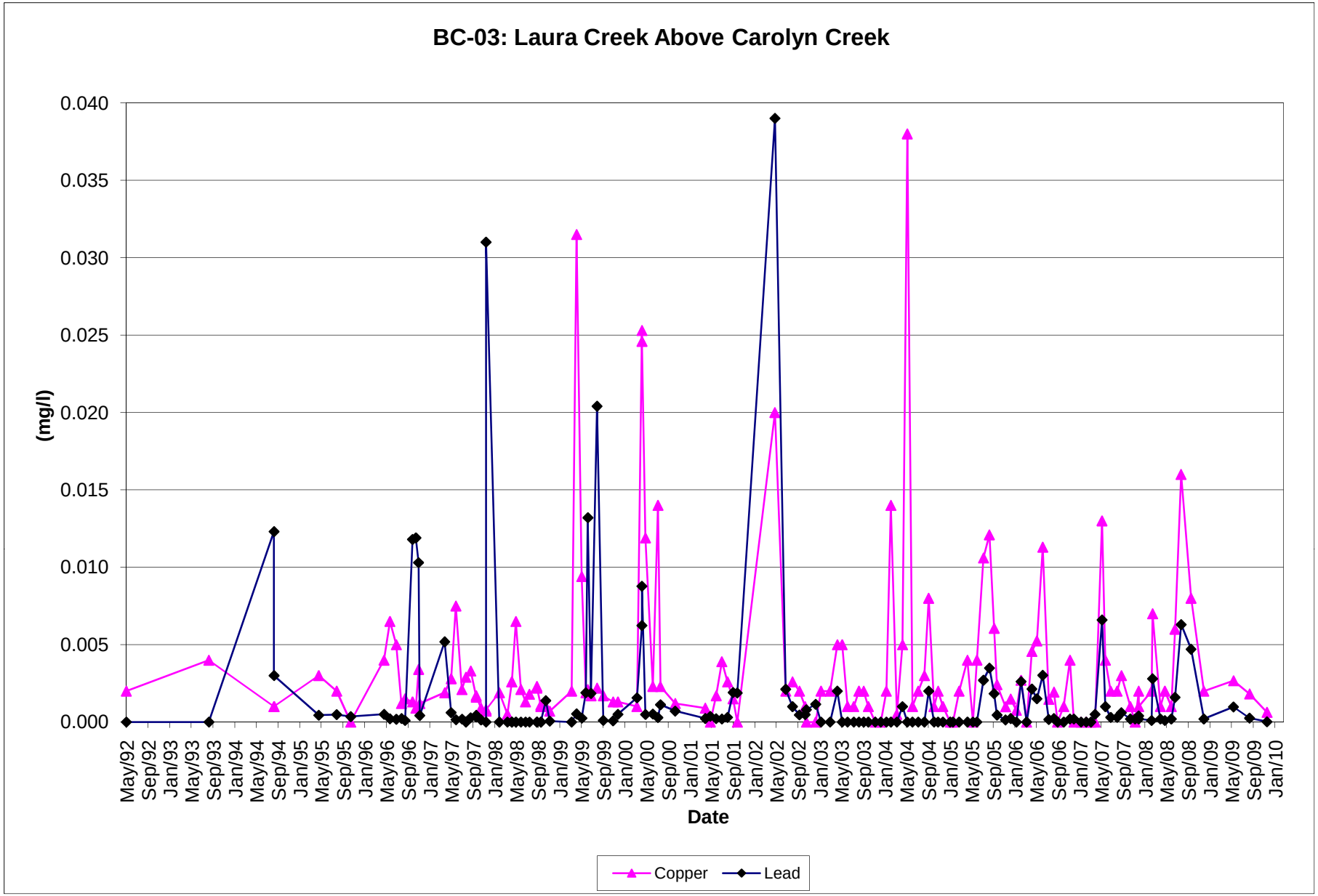

BC-34: Lee Creek At Ditch Road
0.200
0.150
0.100
0.050
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Arsenic
Zinc

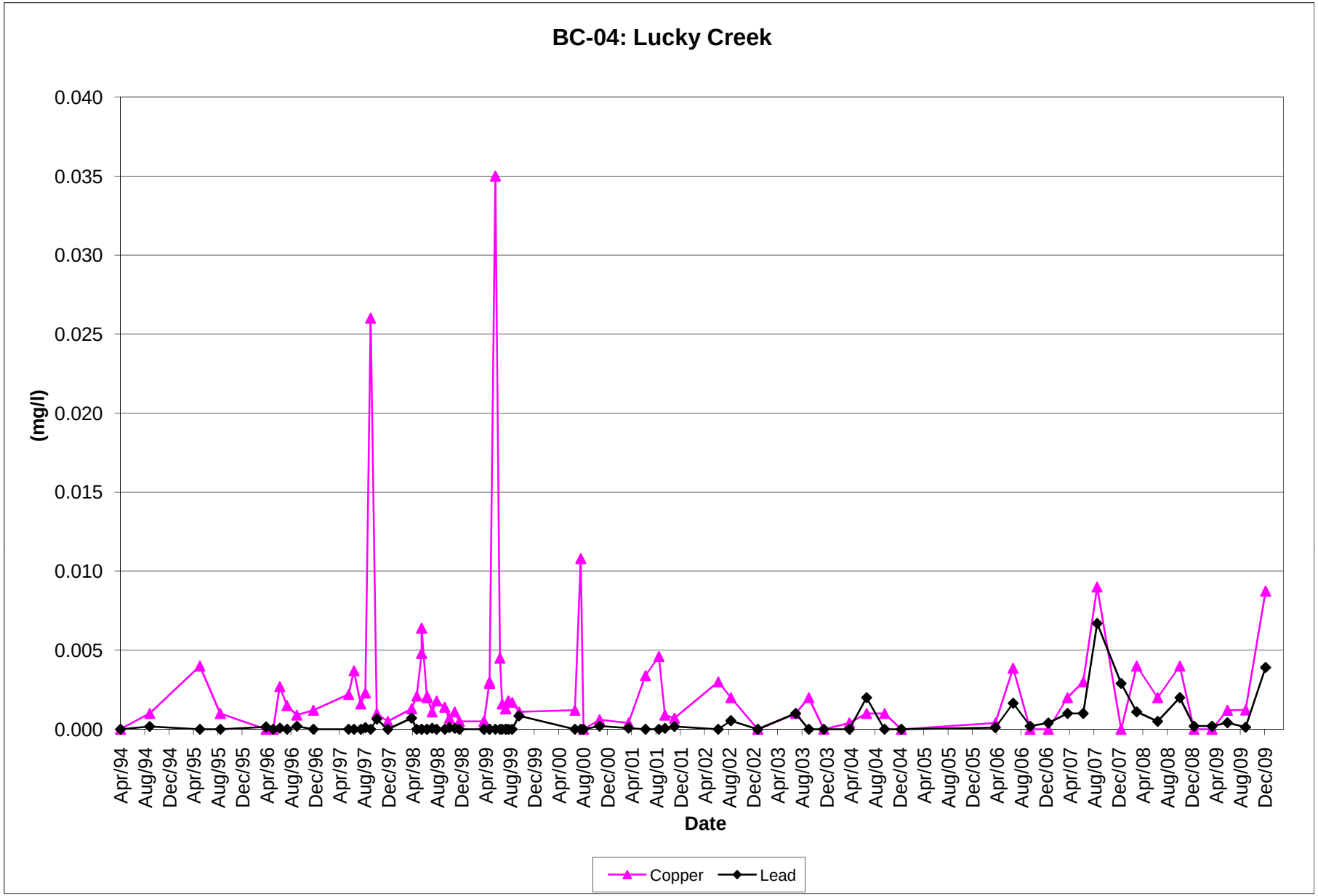

BC-39: Laura Creek at confluence with S. Klondike
0.200
0.150
0.100
0.050
0.000
(mg/l)
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Arsenic
Zinc

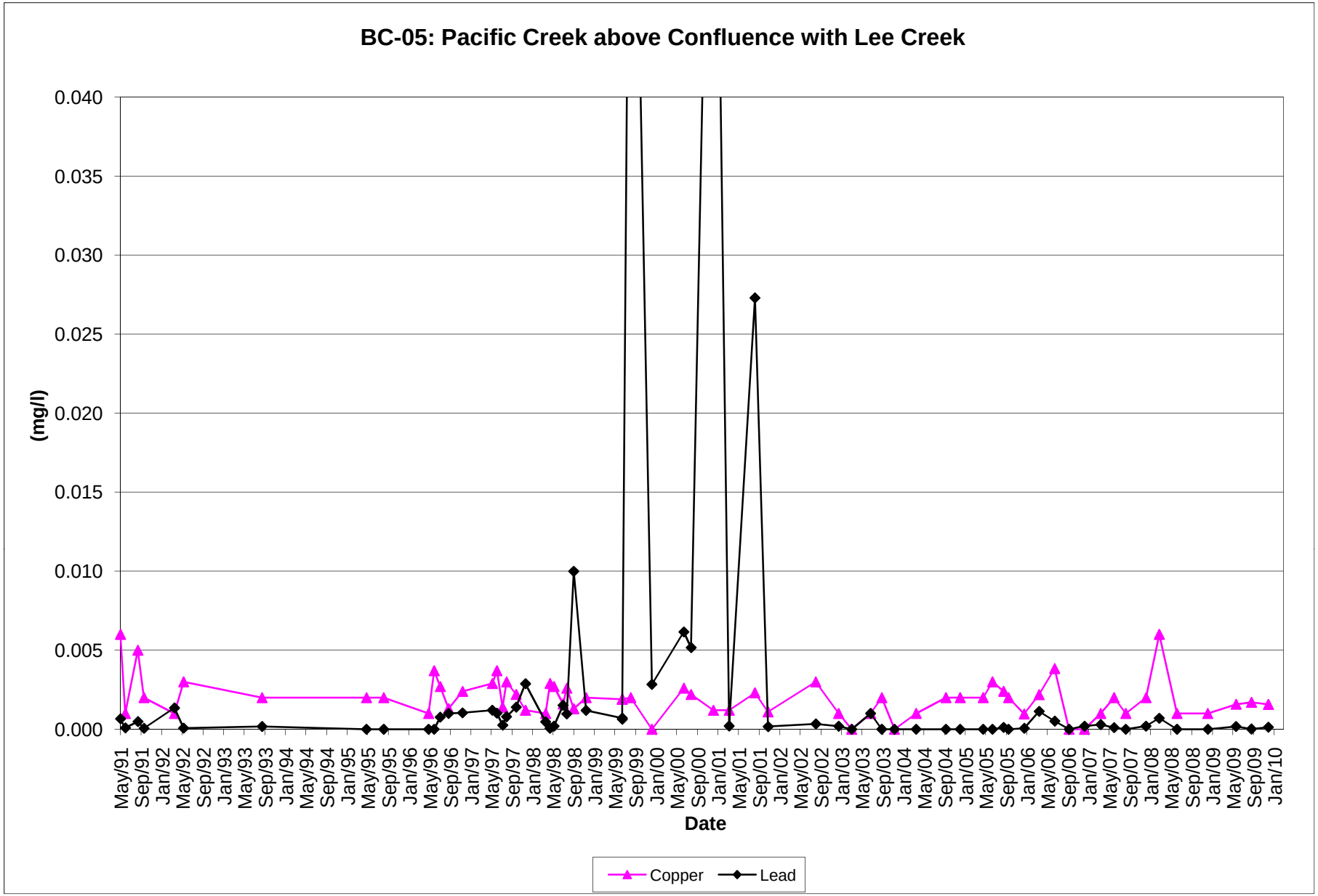

BC-53: Laura Creek 100m downstream of Ditch Road
0.200
0.150
0.100
0.050
0.000
(mg/l)
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Arsenic
Zinc

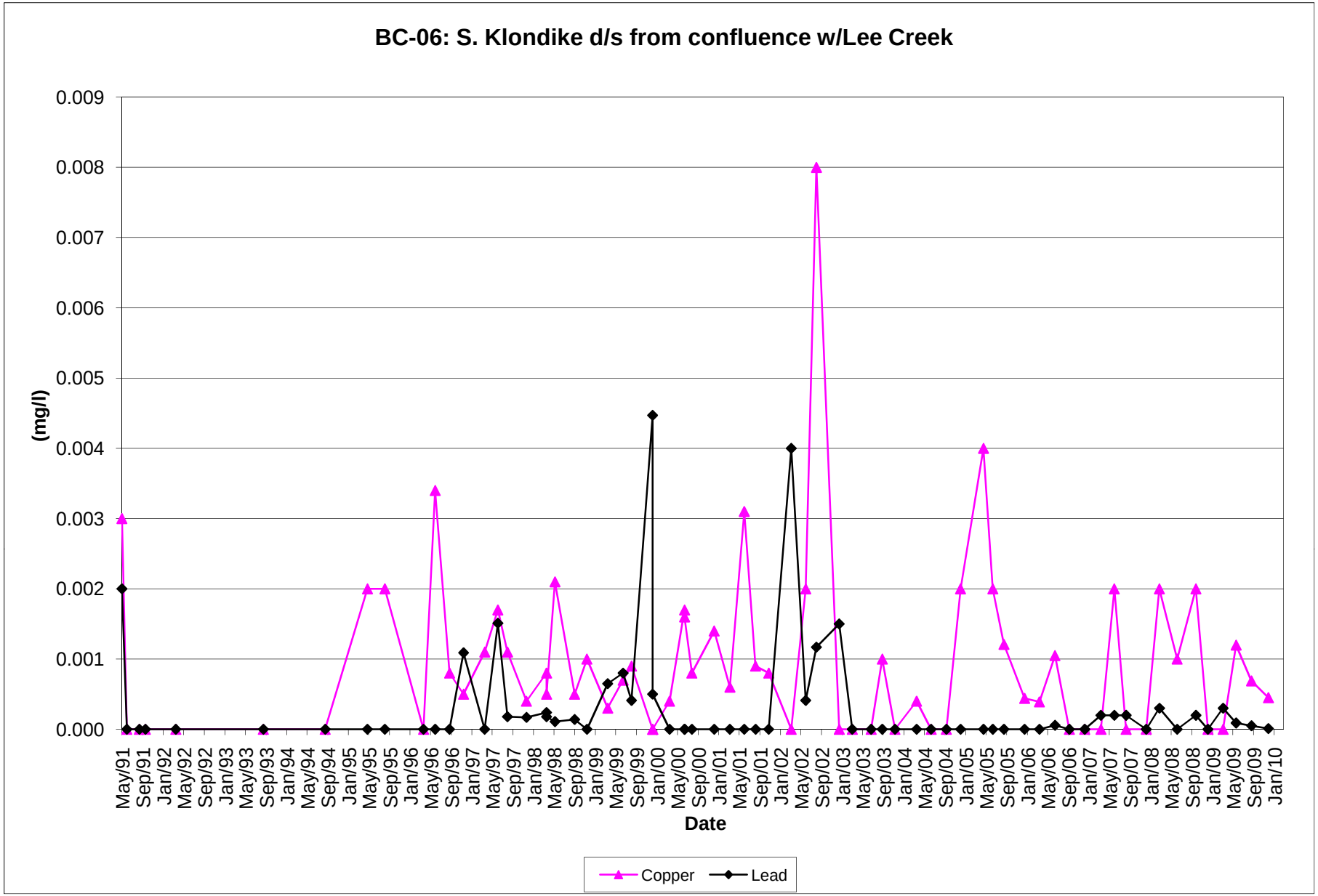

BC-01: Laura Creek 50m above Ditch Road
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Copper
Lead

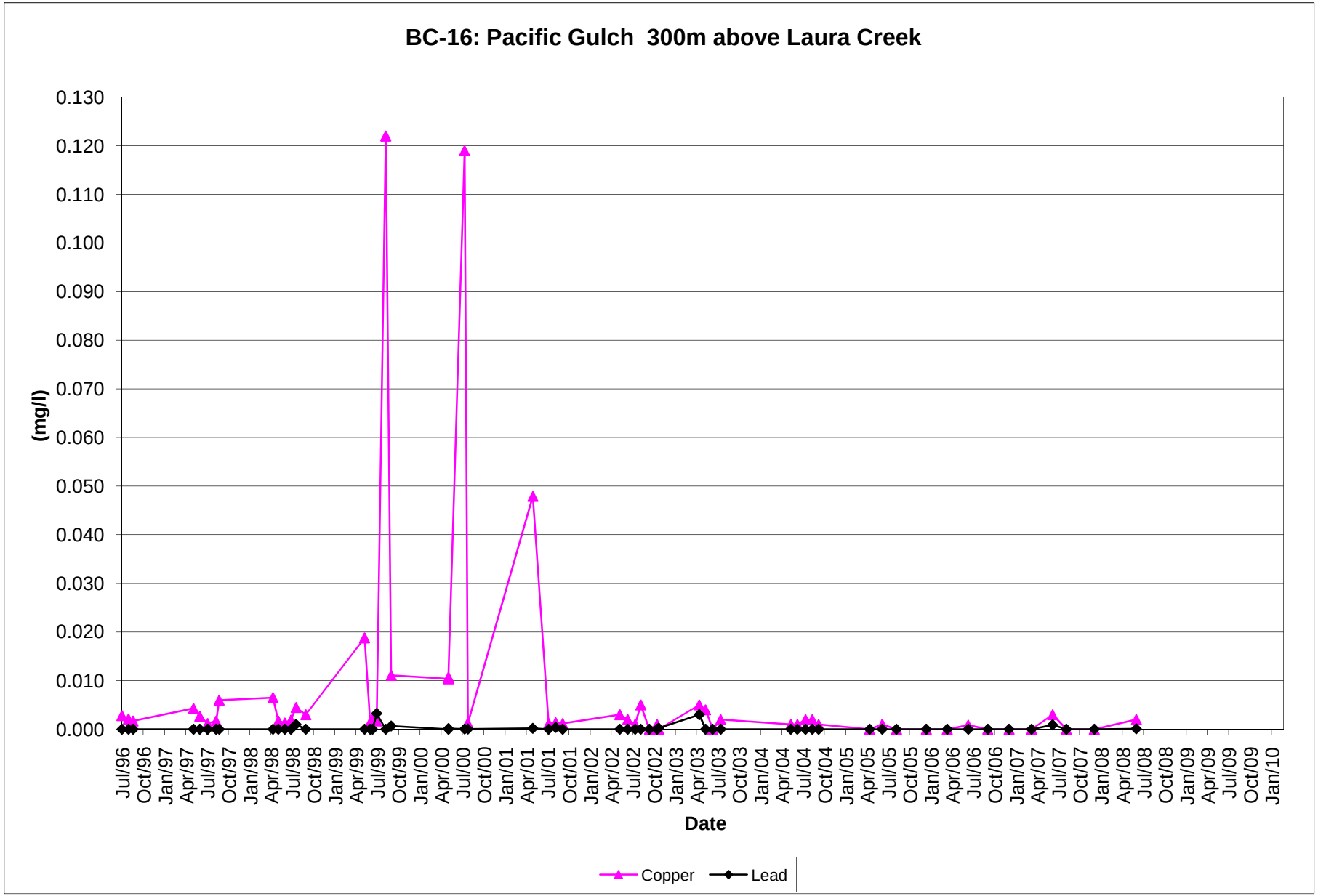

BC-02: Carolyn Creek u/s from Laura Creek
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
Aug/94
Dec/94
Apr/95
Aug/95
Dec/95
Apr/96
Aug/96
Dec/96
Apr/97
Aug/97
Dec/97
Apr/98
Aug/98
Dec/98
Apr/99
Aug/99
Dec/99
Apr/00
Aug/00
Dec/00
Apr/01
Aug/01
Dec/01
Apr/02
Aug/02
Dec/02
Apr/03
Aug/03
Dec/03
Apr/04
Aug/04
Dec/04
Apr/05
Aug/05
Dec/05
Apr/06
Aug/06
Dec/06
Apr/07
Aug/07
Dec/07
Apr/08
Aug/08
Dec/08
Apr/09
Aug/09
Dec/09
Date
Copper
Lead

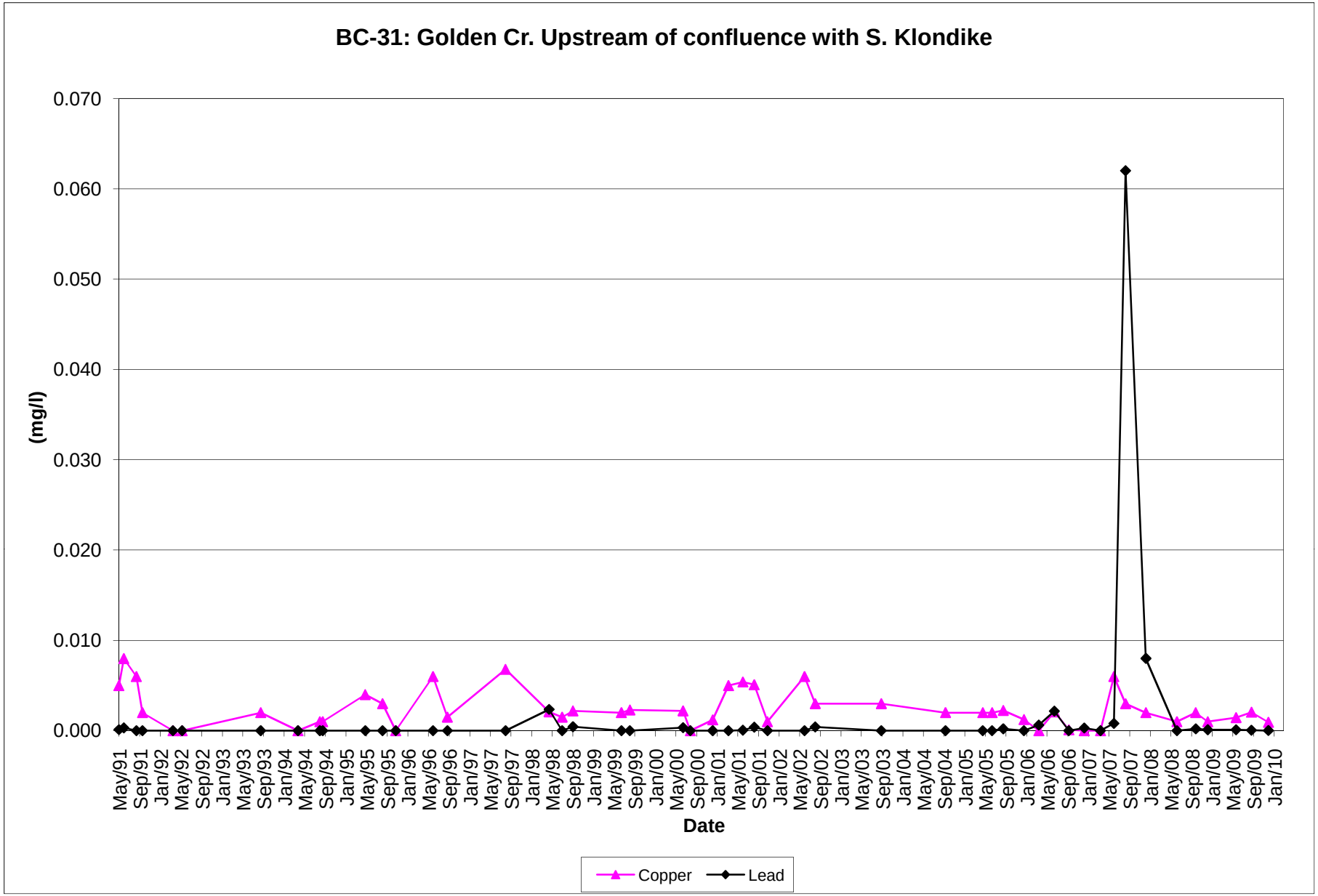

BC-03: Laura Creek Above Carolyn Creek
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Copper
Lead

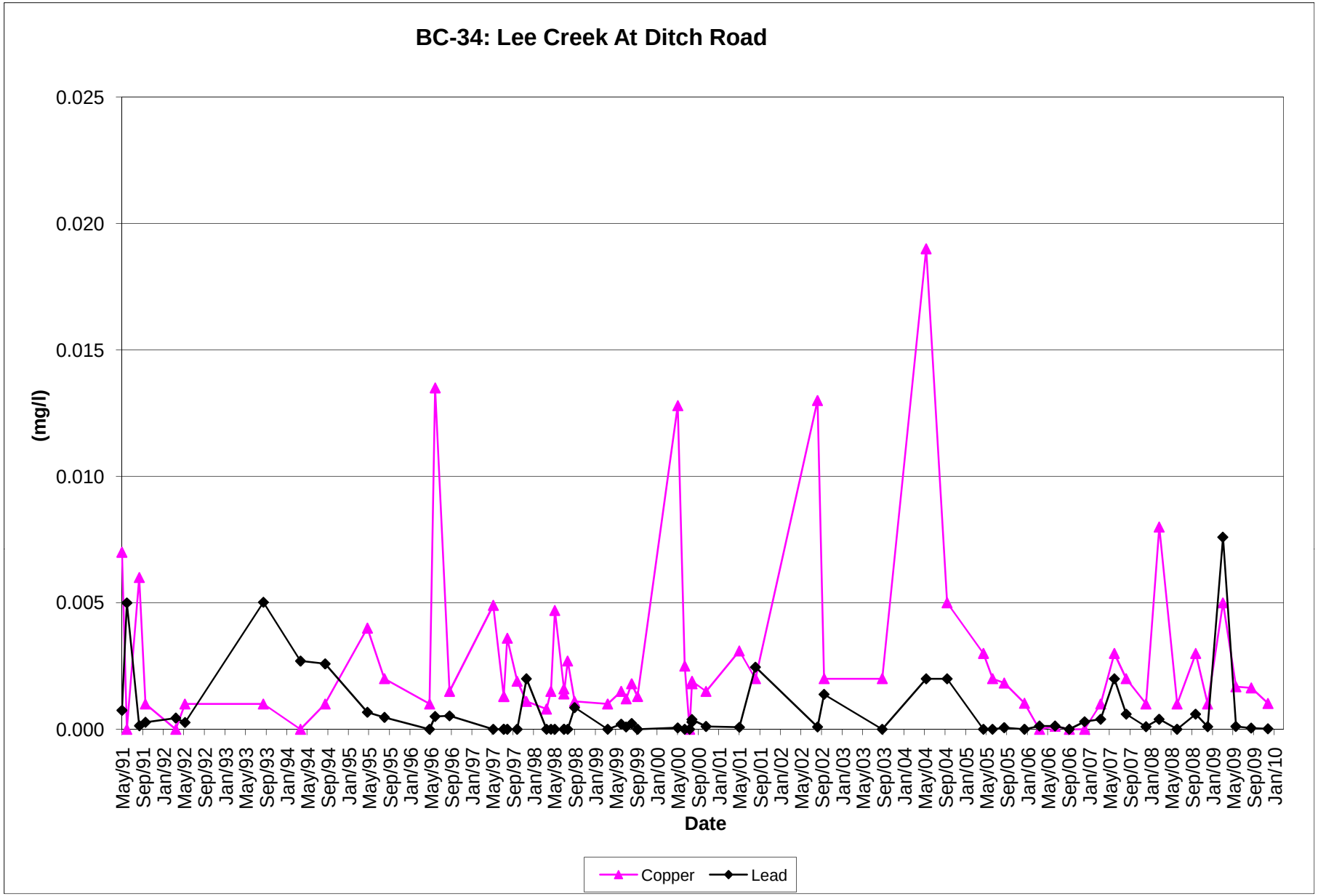

BC-04: Lucky Creek
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
Apr/94
Aug/94
Dec/94
Apr/95
Aug/95
Dec/95
Apr/96
Aug/96
Dec/96
Apr/97
Aug/97
Dec/97
Apr/98
Aug/98
Dec/98
Apr/99
Aug/99
Dec/99
Apr/00
Aug/00
Dec/00
Apr/01
Aug/01
Dec/01
Apr/02
Aug/02
Dec/02
Apr/03
Aug/03
Dec/03
Apr/04
Aug/04
Dec/04
Apr/05
Aug/05
Dec/05
Apr/06
Aug/06
Dec/06
Apr/07
Aug/07
Dec/07
Apr/08
Aug/08
Dec/08
Apr/09
Aug/09
Dec/09
Date
Copper
Lead

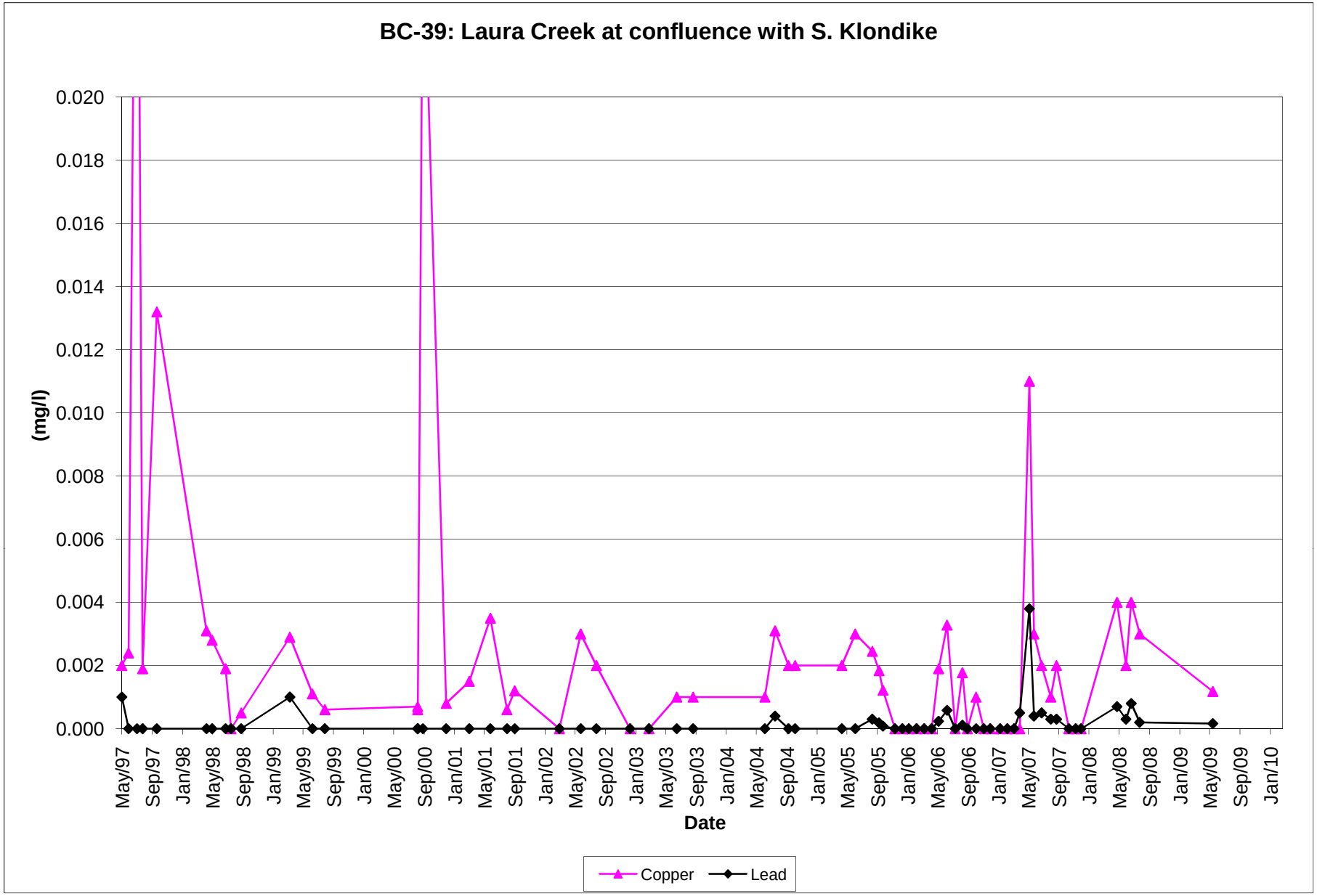

BC-05: Pacific Creek above Confluence with Lee Creek
(mg/l)
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Copper
Lead

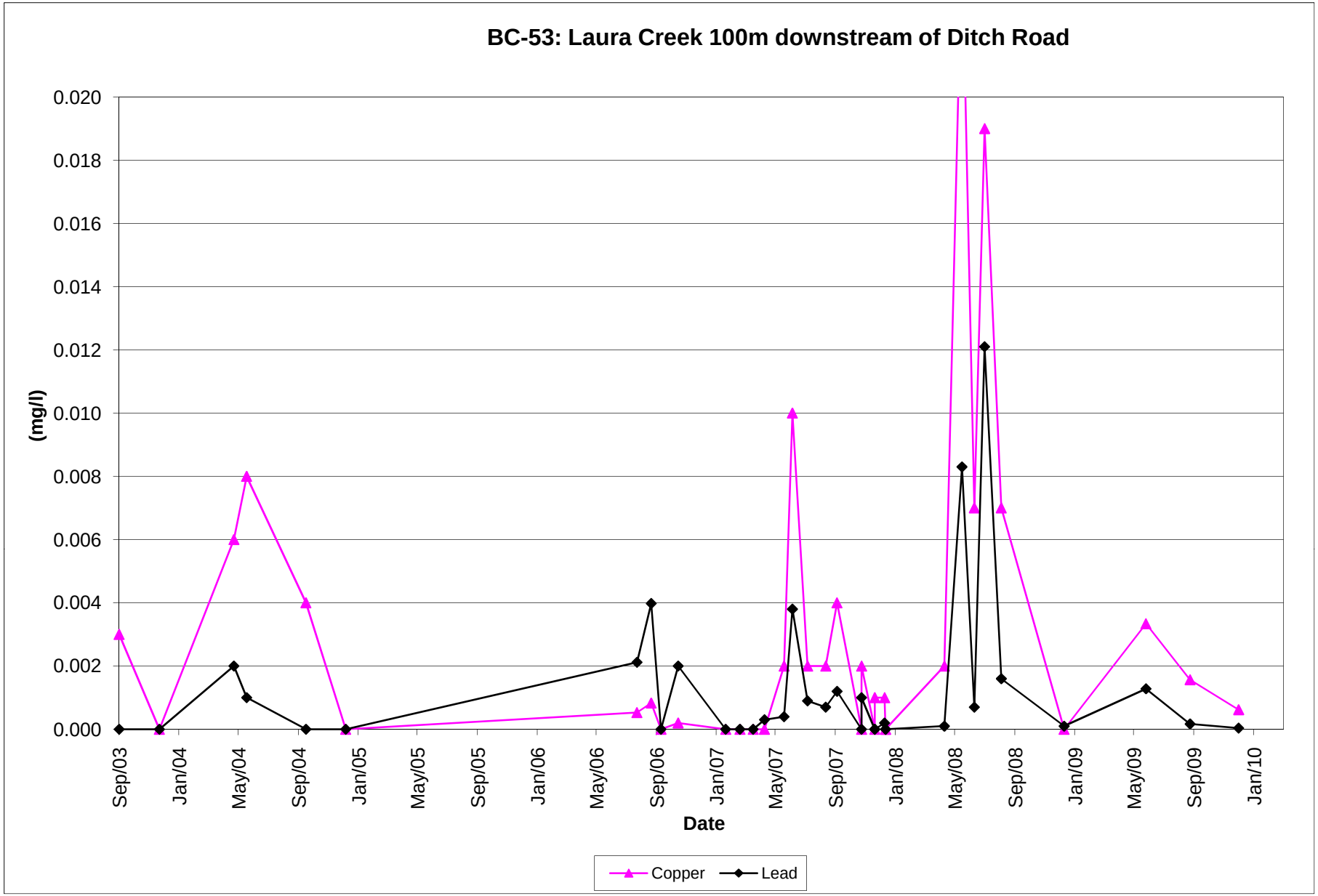

BC-06: S. Klondike d/s from confluence w/Lee Creek
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Copper
Lead

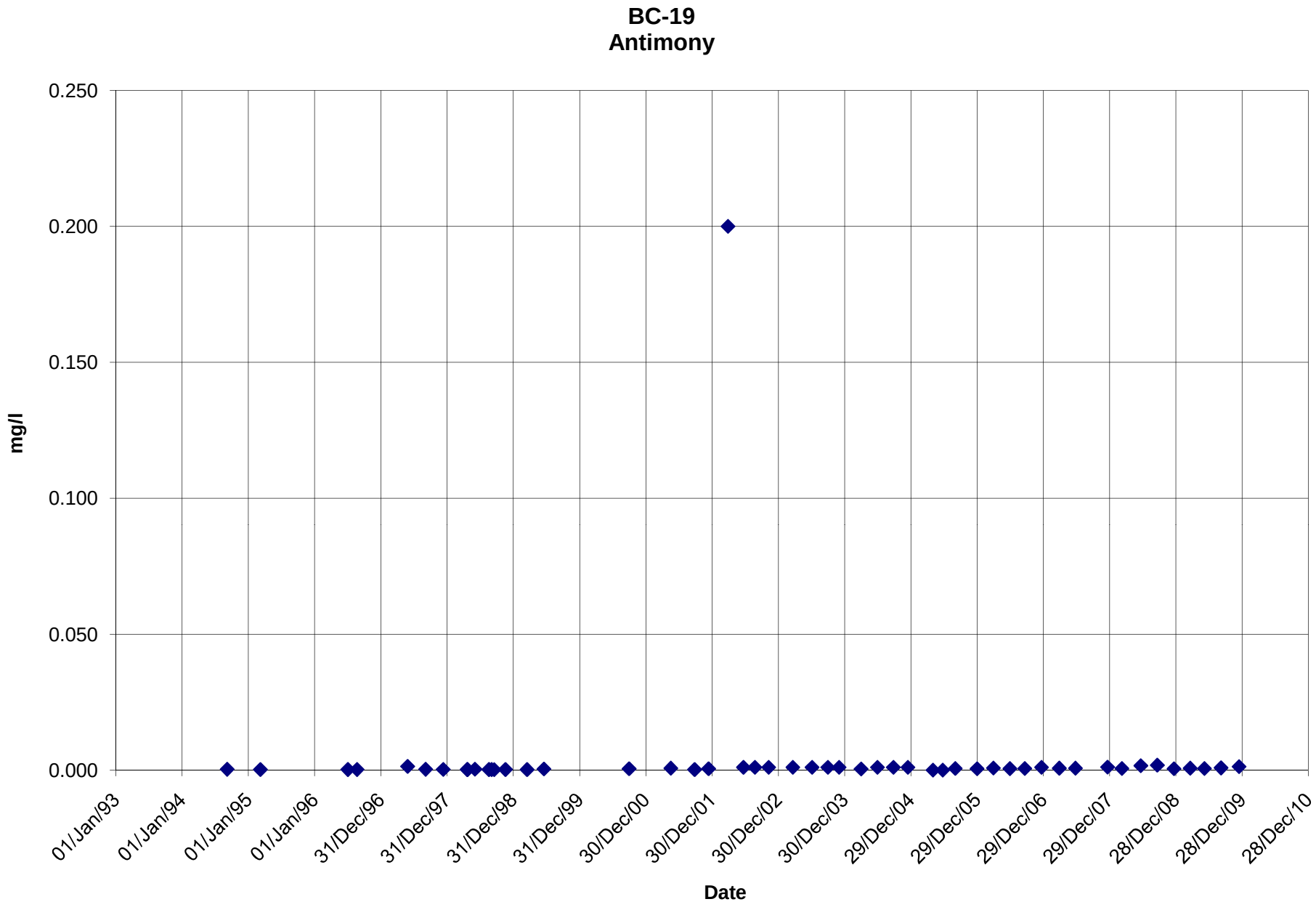

BC-16: Pacific Gulch 300m above Laura Creek
0.130
0.120
0.110
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
(mg/l)
Jul/96
Oct/96
Jan/97
Apr/97
Jul/97
Oct/97
Jan/98
Apr/98
Jul/98
Oct/98
Jan/99
Apr/99
Jul/99
Oct/99
Jan/00
Apr/00
Jul/00
Oct/00
Jan/01
Apr/01
Jul/01
Oct/01
Jan/02
Apr/02
Jul/02
Oct/02
Jan/03
Apr/03
Jul/03
Oct/03
Jan/04
Apr/04
Jul/04
Oct/04
Jan/05
Apr/05
Jul/05
Oct/05
Jan/06
Apr/06
Jul/06
Oct/06
Jan/07
Apr/07
Jul/07
Oct/07
Jan/08
Apr/08
Jul/08
Oct/08
Jan/09
Apr/09
Jul/09
Oct/09
Jan/10
Date
Copper
Lead

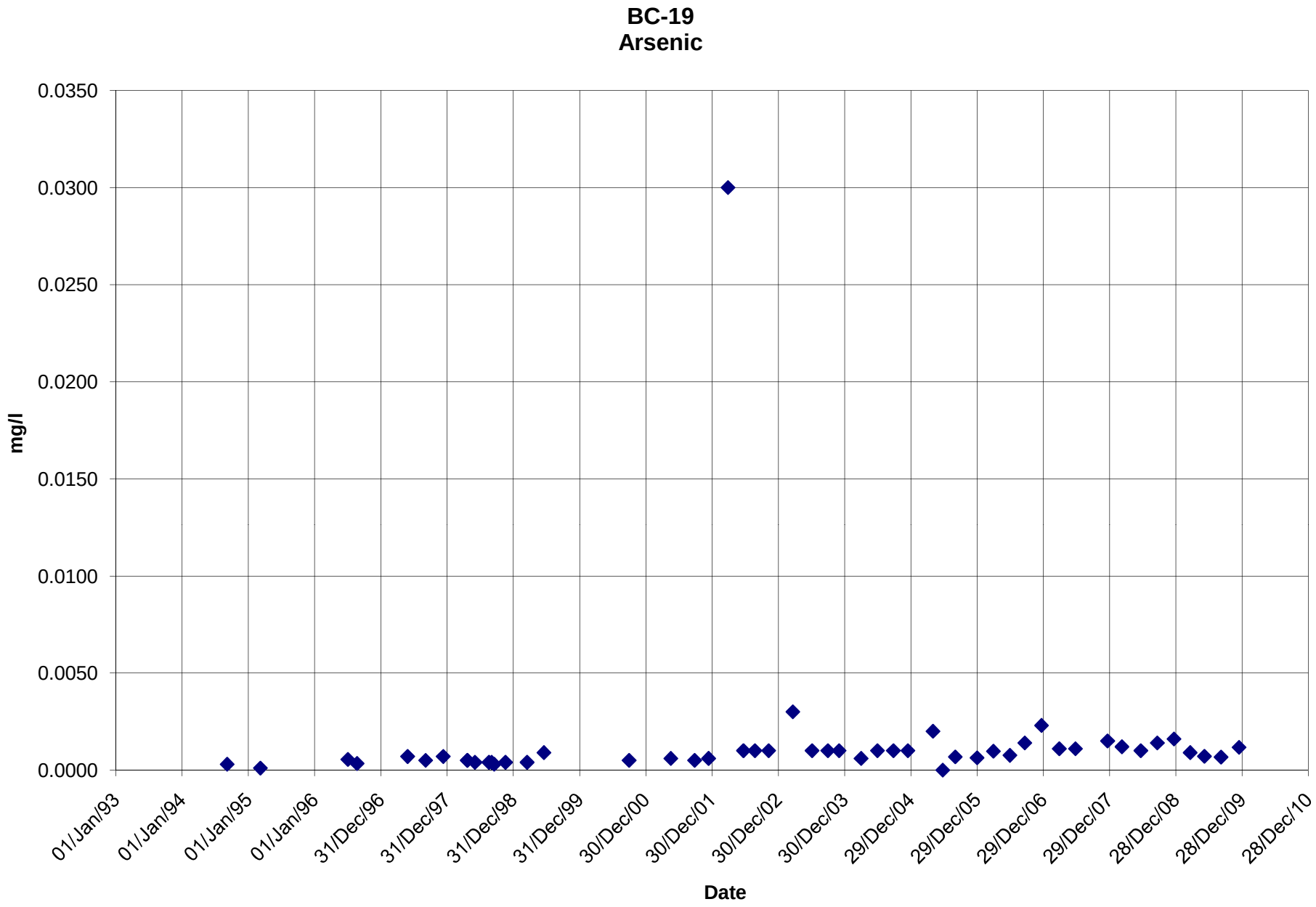

BC-31: Golden Cr. Upstream of confluence with S. Klondike
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Copper
Lead

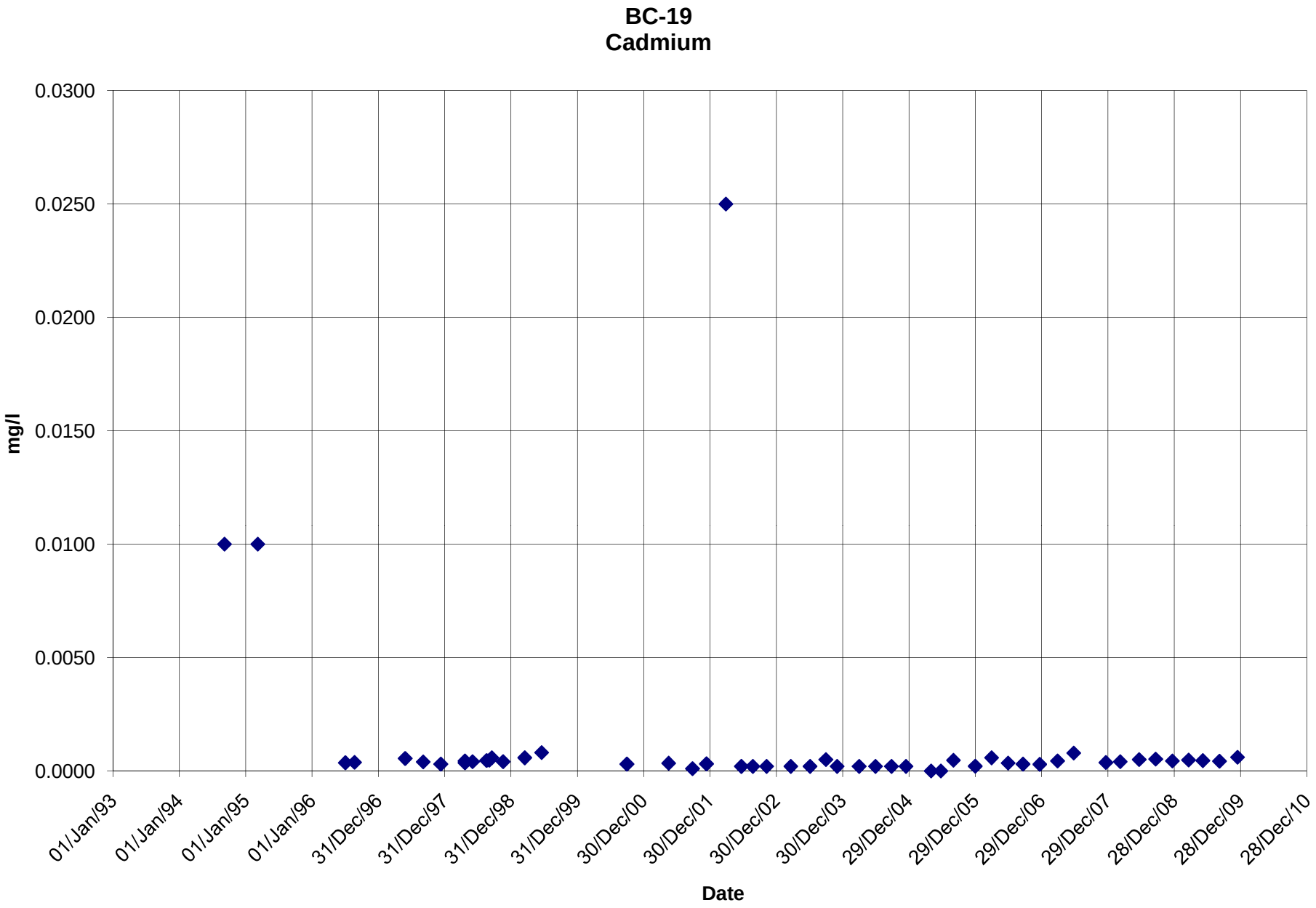

BC-34: Lee Creek At Ditch Road
0.025
0.020
0.015
0.010
0.005
0.000
(mg/l)
May/91
Sep/91
Jan/92
May/92
Sep/92
Jan/93
May/93
Sep/93
Jan/94
May/94
Sep/94
Jan/95
May/95
Sep/95
Jan/96
May/96
Sep/96
Jan/97
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Copper
Lead

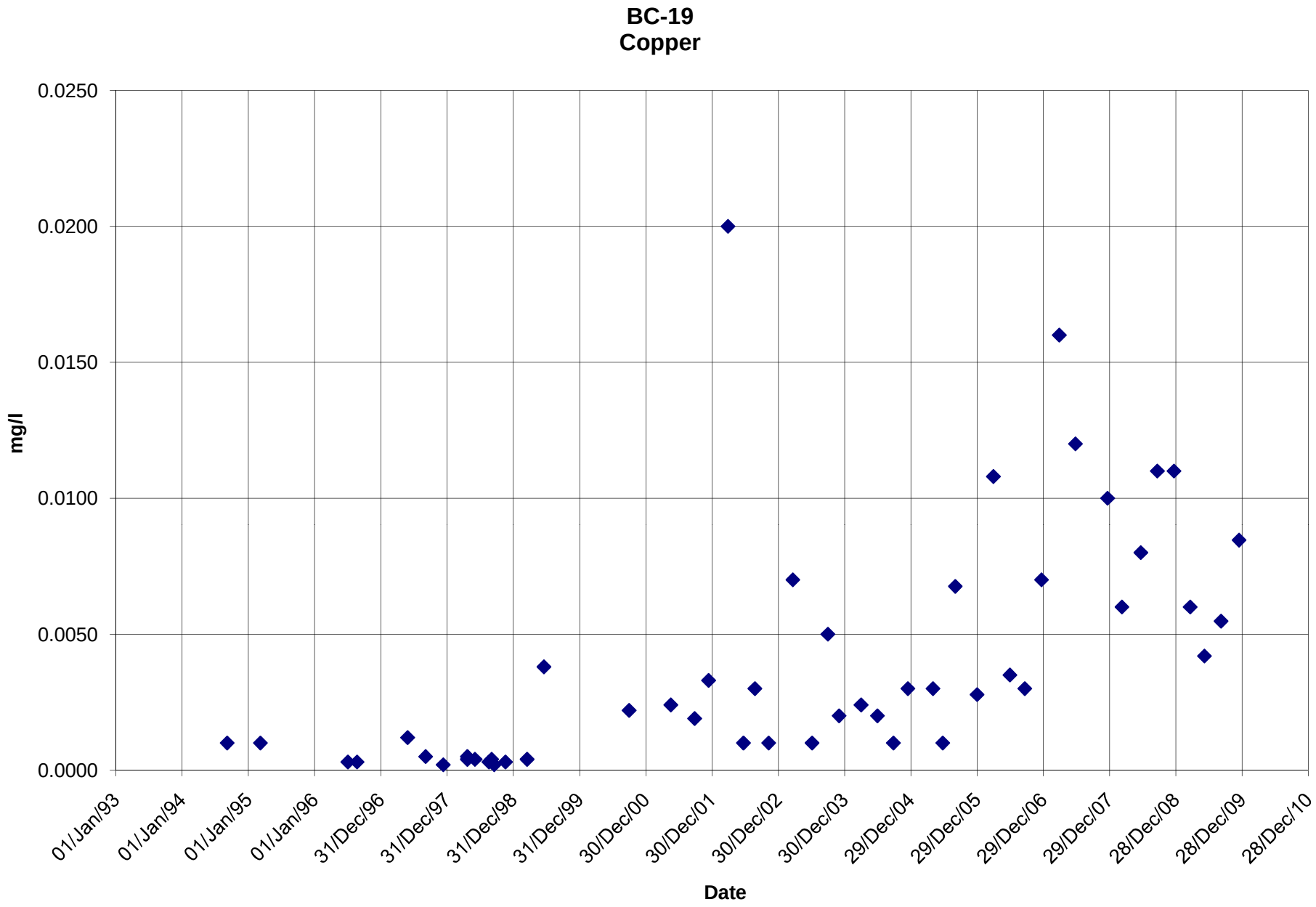

BC-39: Laura Creek at confluence with S. Klondike
0.020
0.018
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
(mg/l)
May/97
Sep/97
Jan/98
May/98
Sep/98
Jan/99
May/99
Sep/99
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Copper
Lead

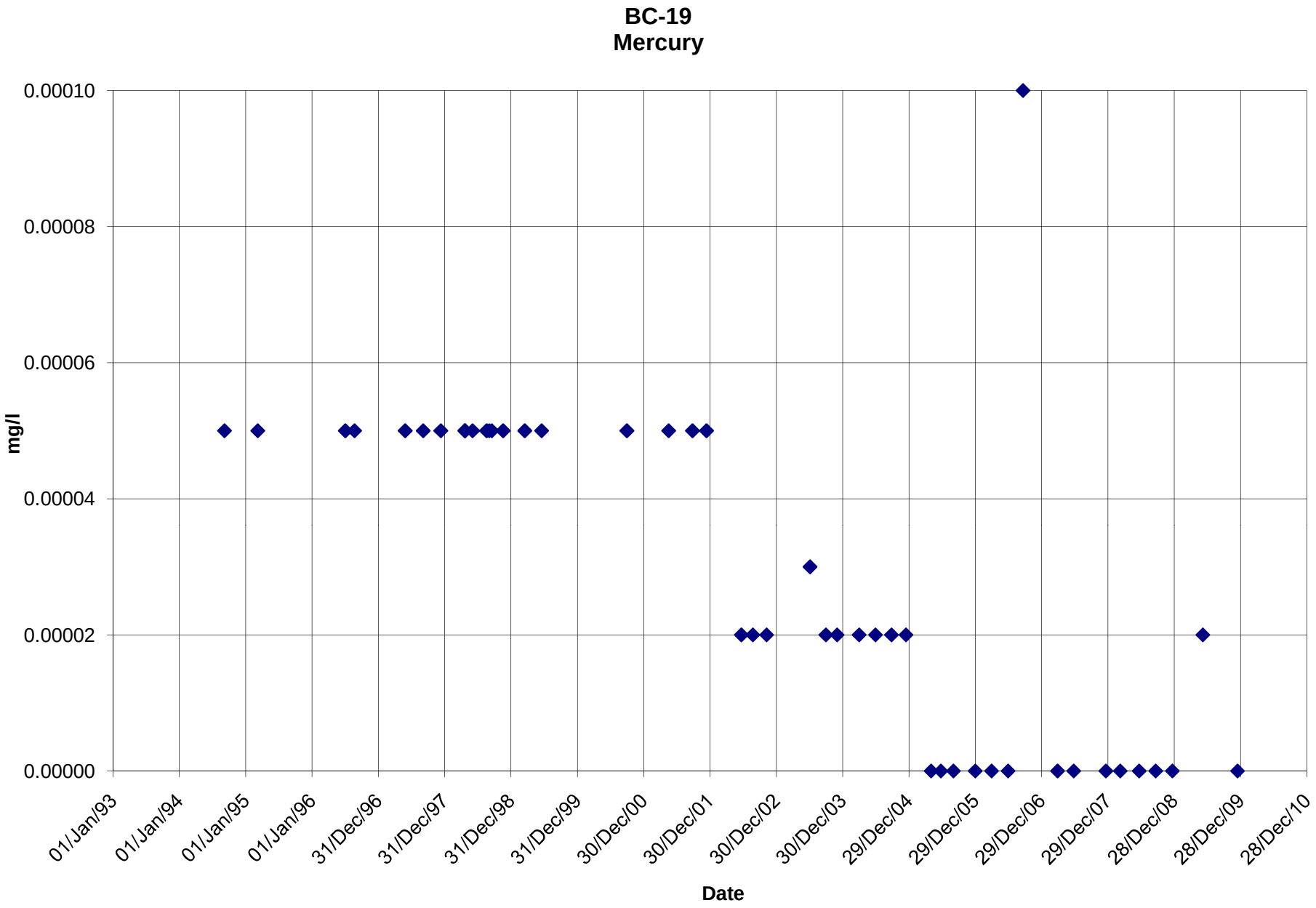

BC-53: Laura Creek 100m downstream of Ditch Road
0.020
0.018
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
(mg/l)
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
Date
Copper
Lead

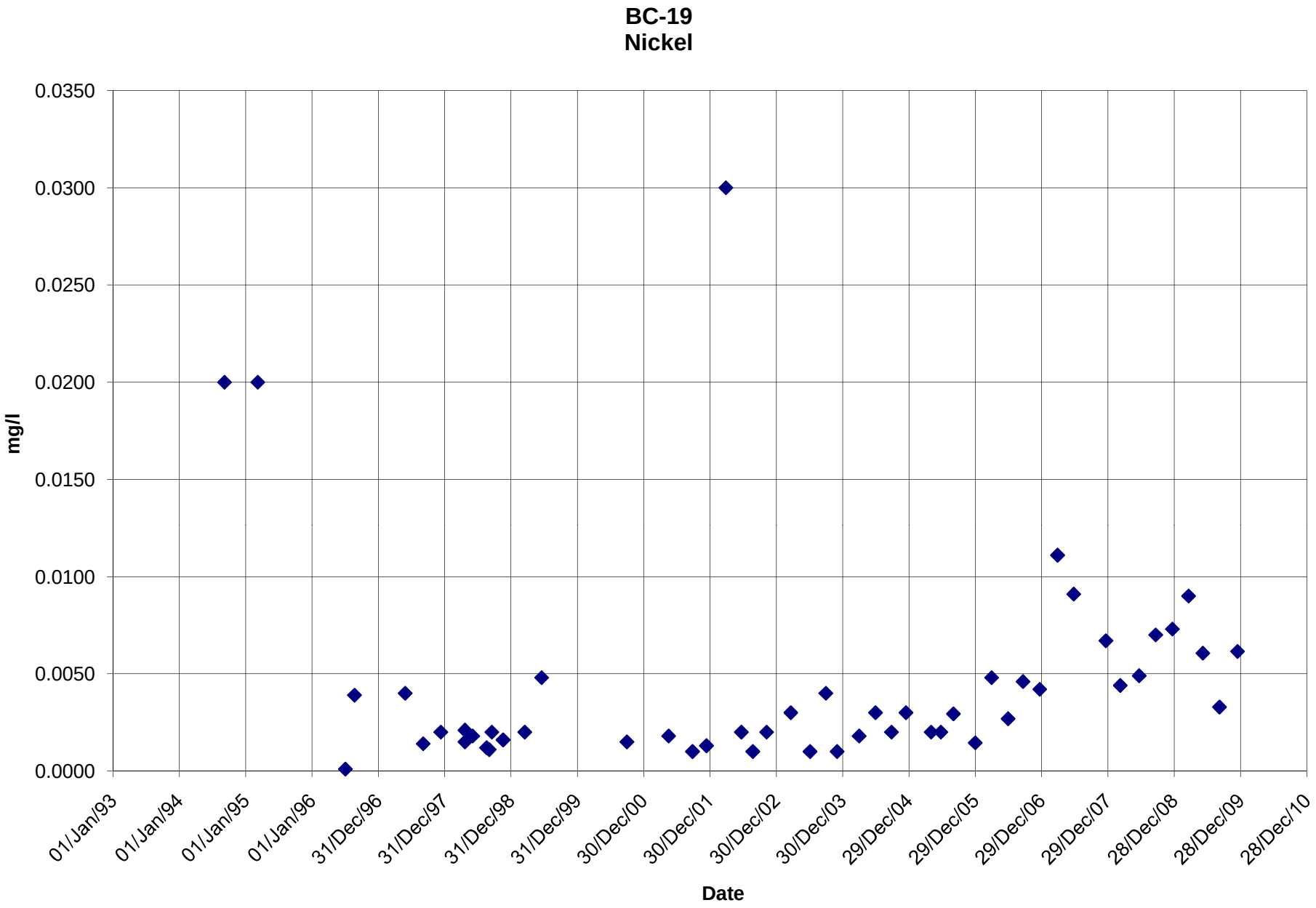

BC-19
Antimony
0.250
0.200
0.150
0.100
0.050
0.000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

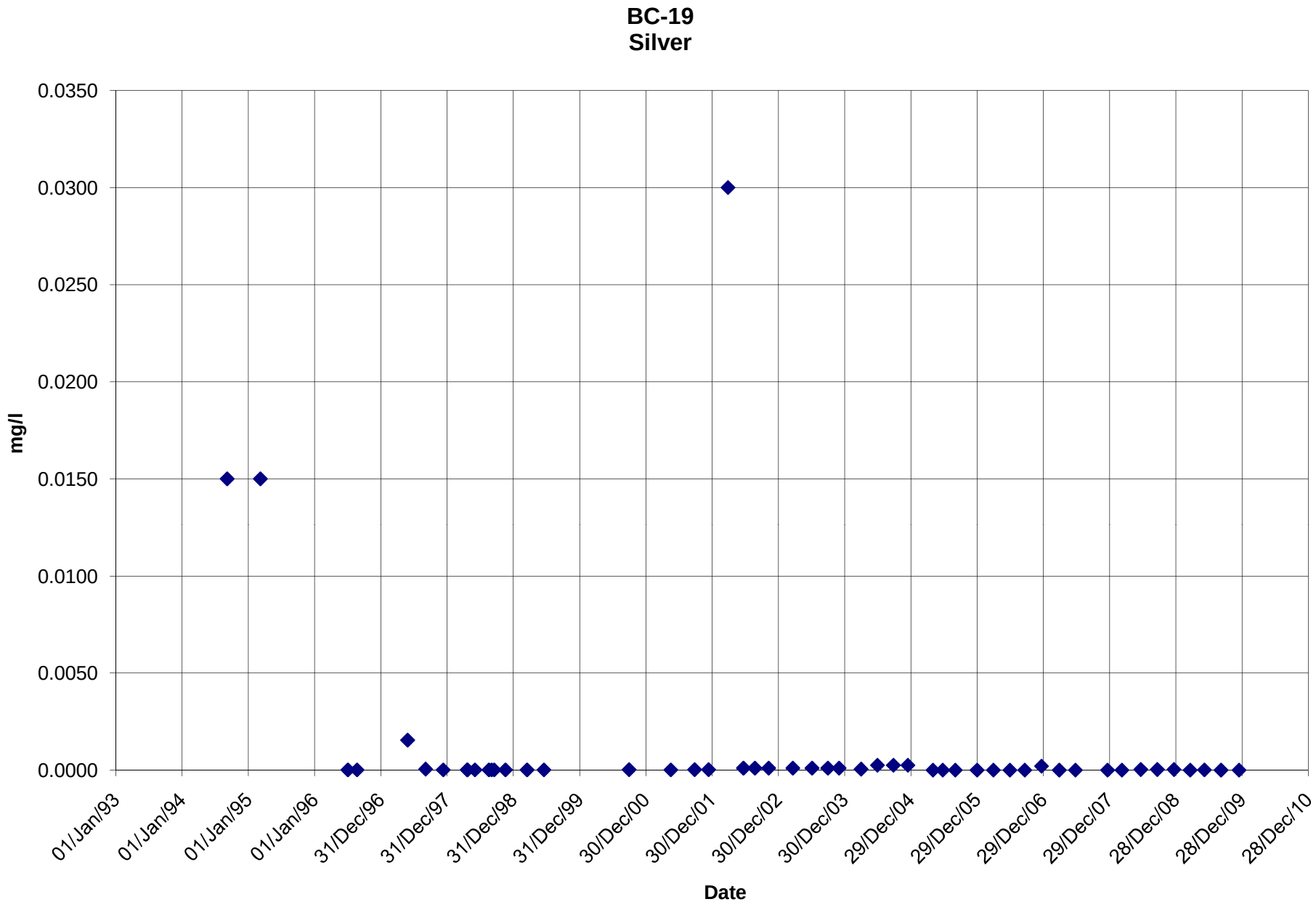

BC-19
Arsenic
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

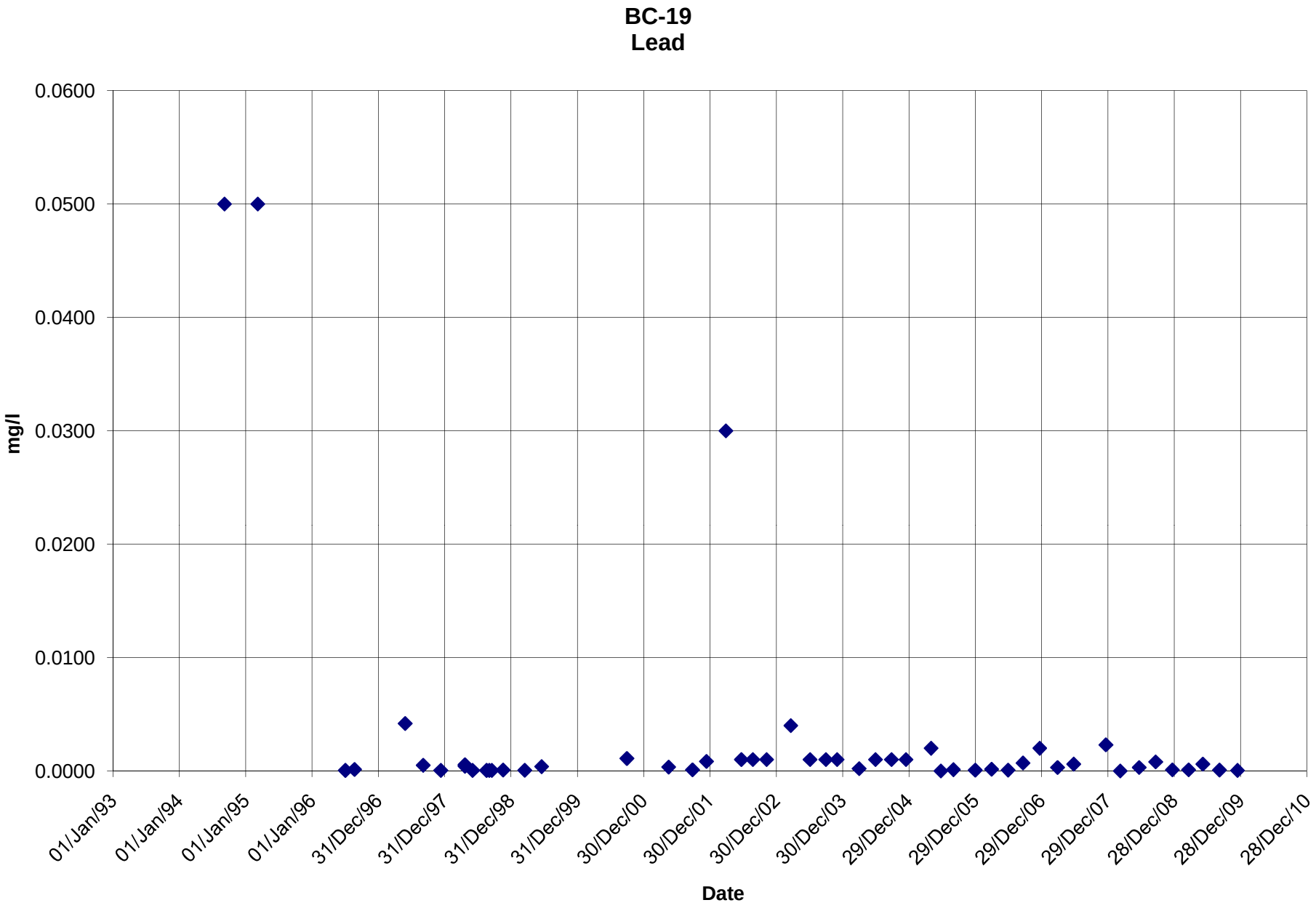

BC-19
Cadmium
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

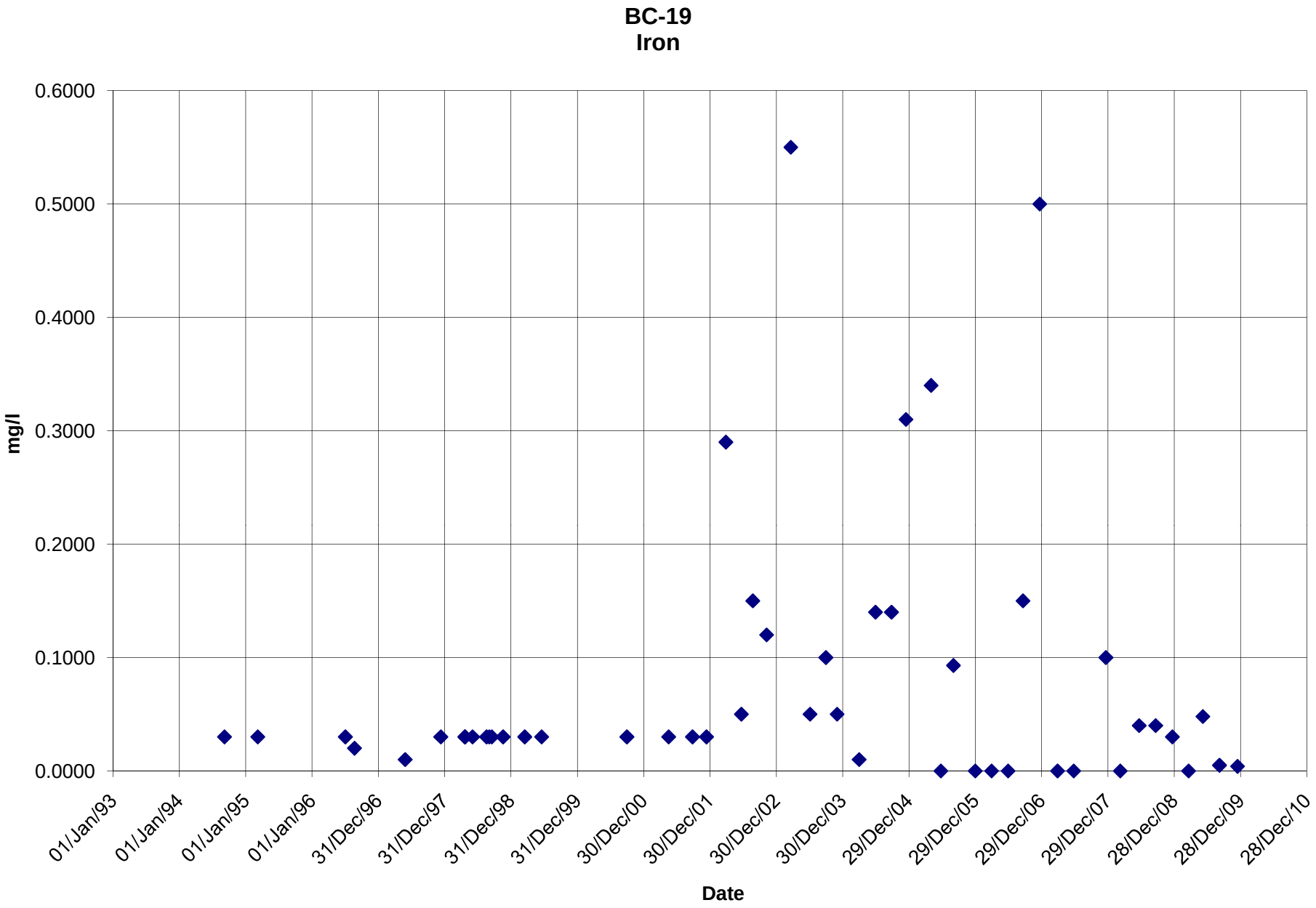

BC-19
Copper
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

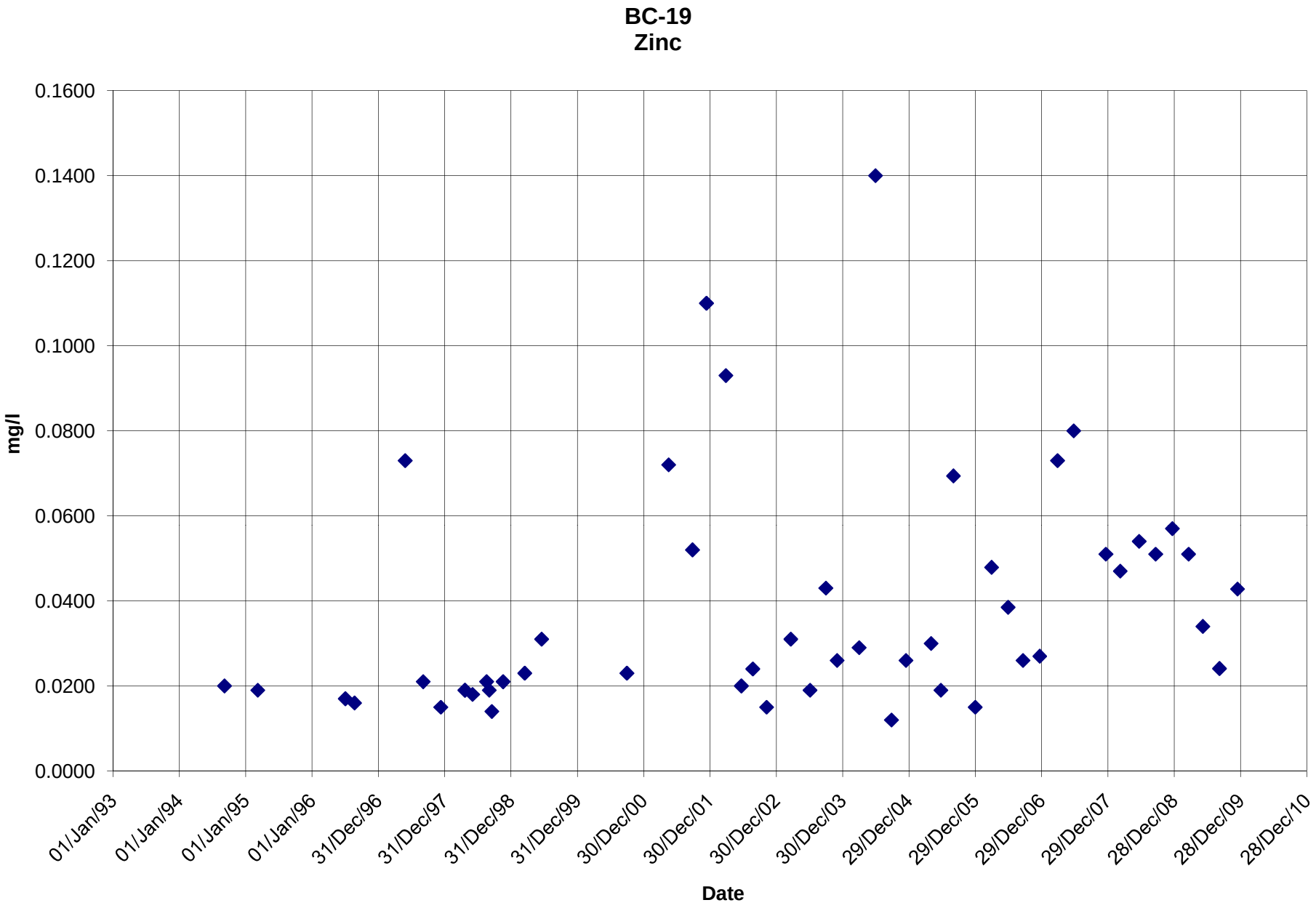

BC-19
Mercury
0.00010
0.00008
0.00006
0.00004
0.00002
0.00000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

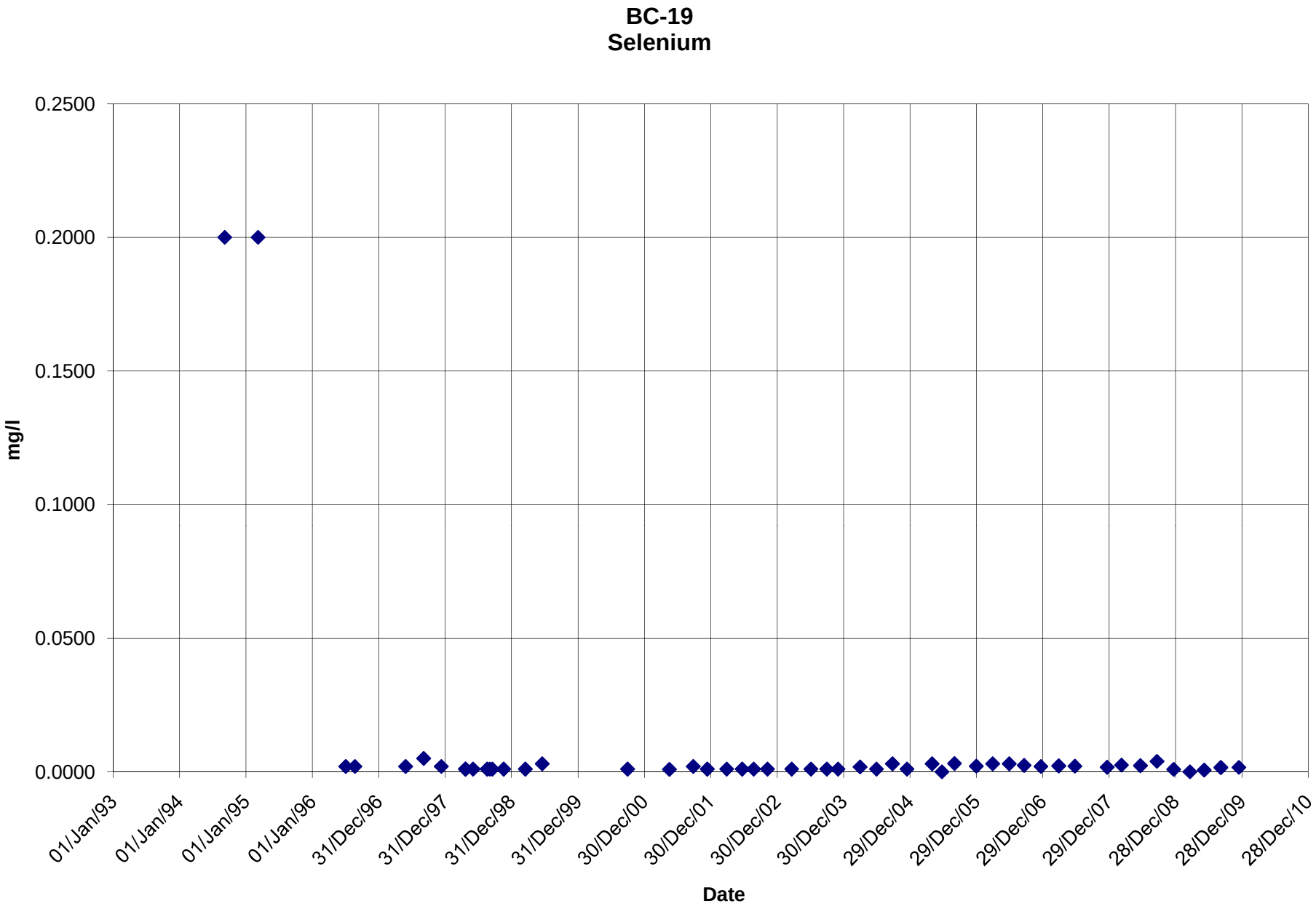

BC-19
Nickel
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

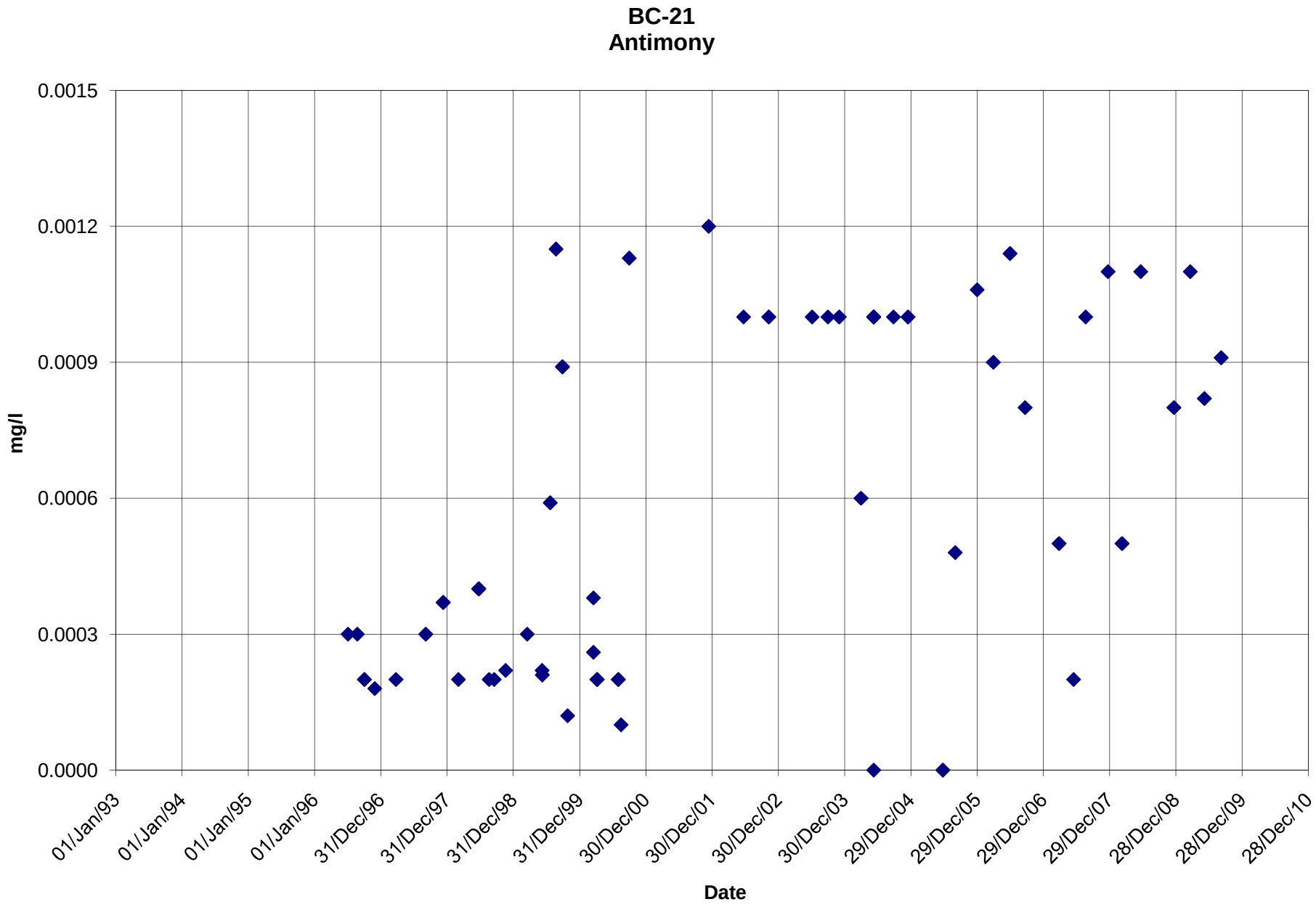

BC-19
Silver
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

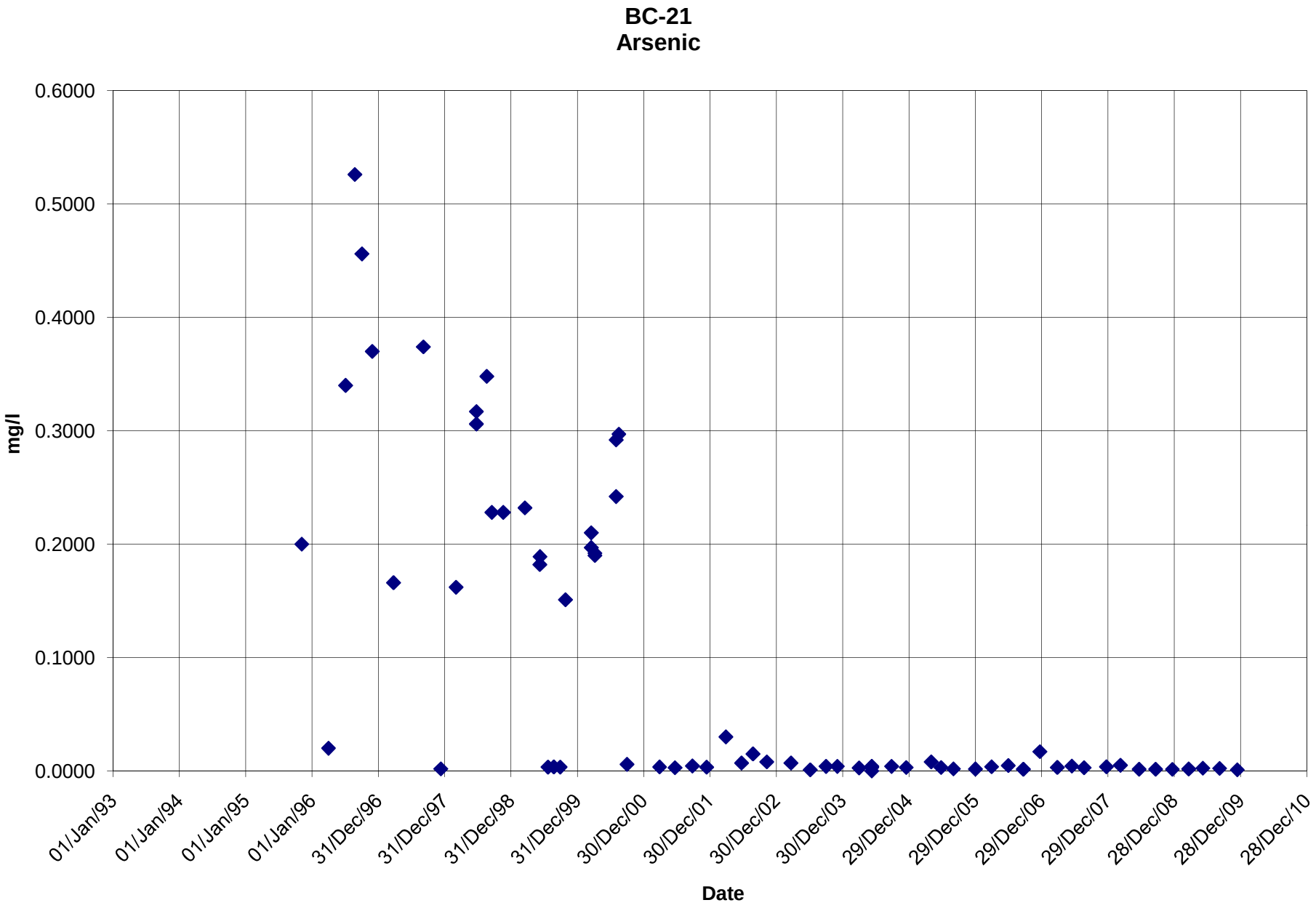

BC-19
Lead
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

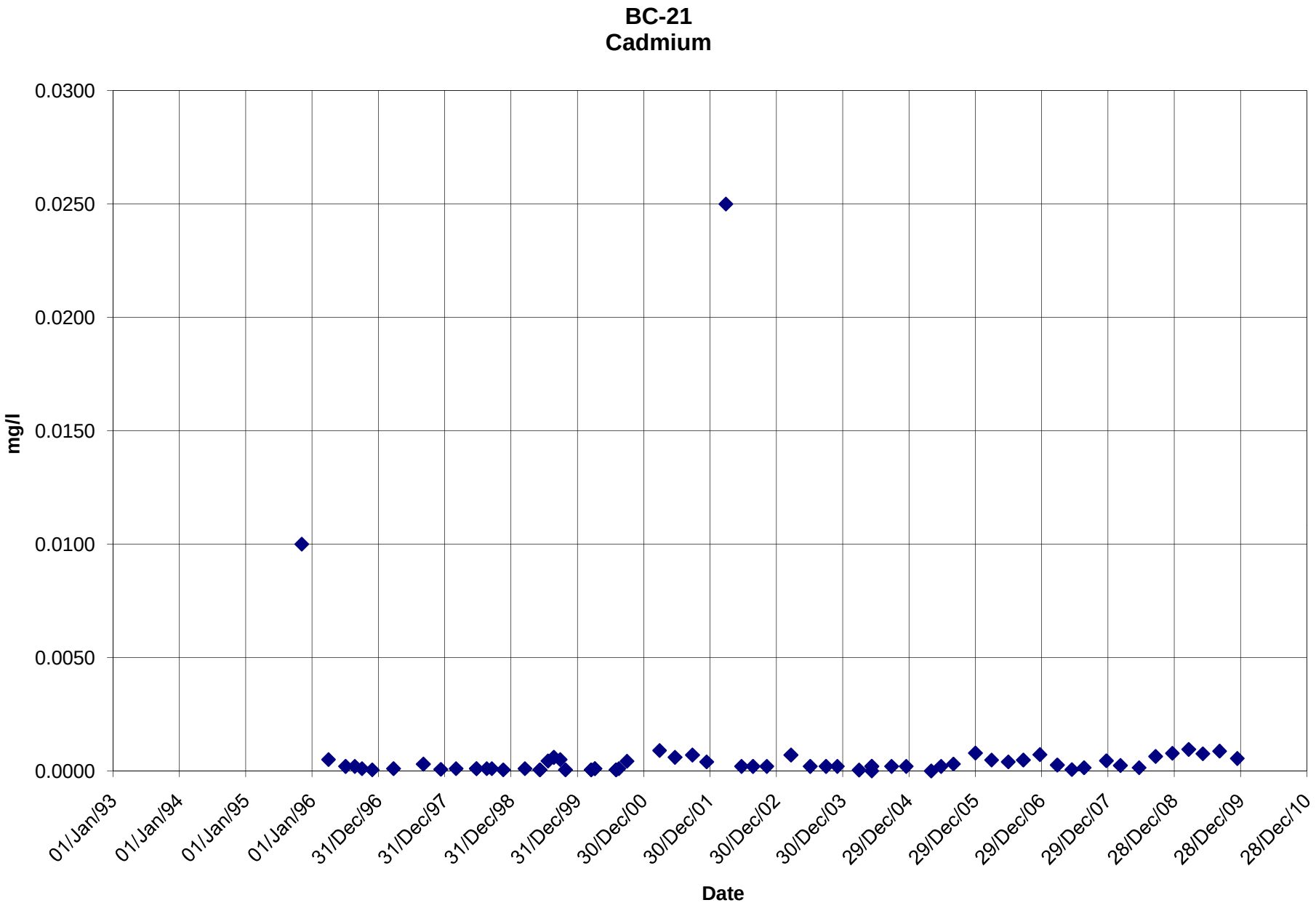

BC-19
Iron
0.6000
0.5000
0.4000
0.3000
0.2000
0.1000
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

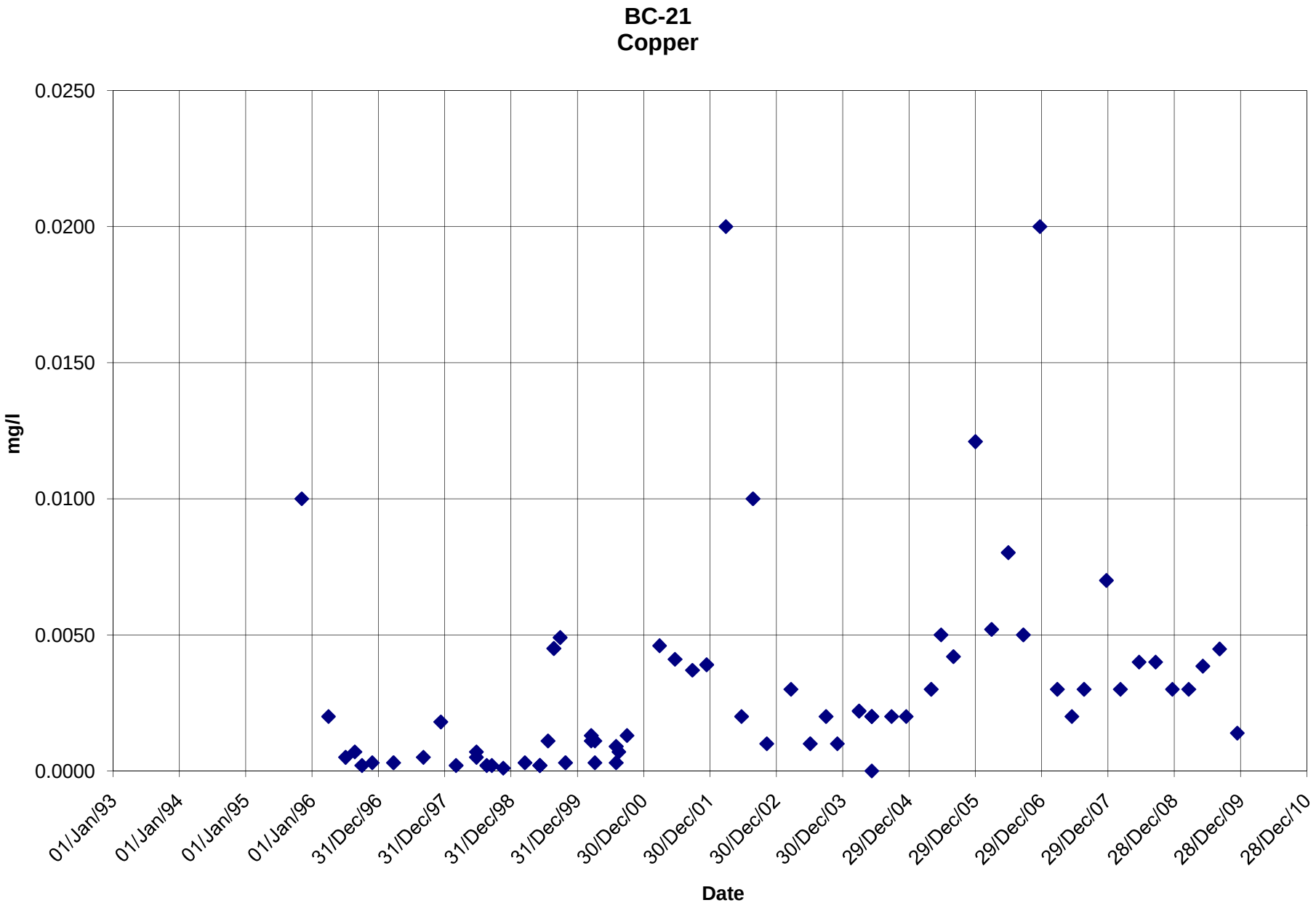

BC-19
Zinc
0.1600
0.1400
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

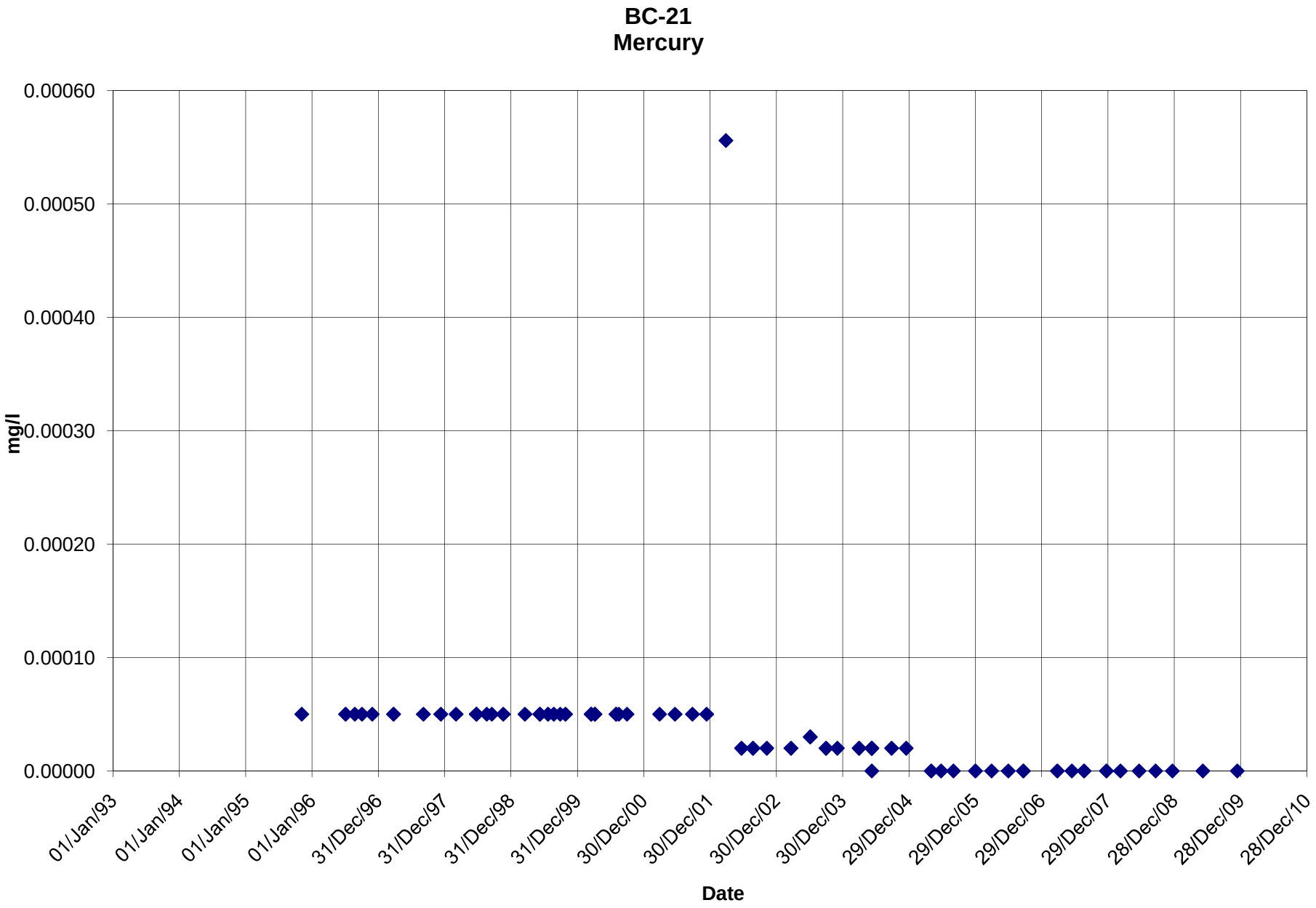

BC-19
Selenium
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

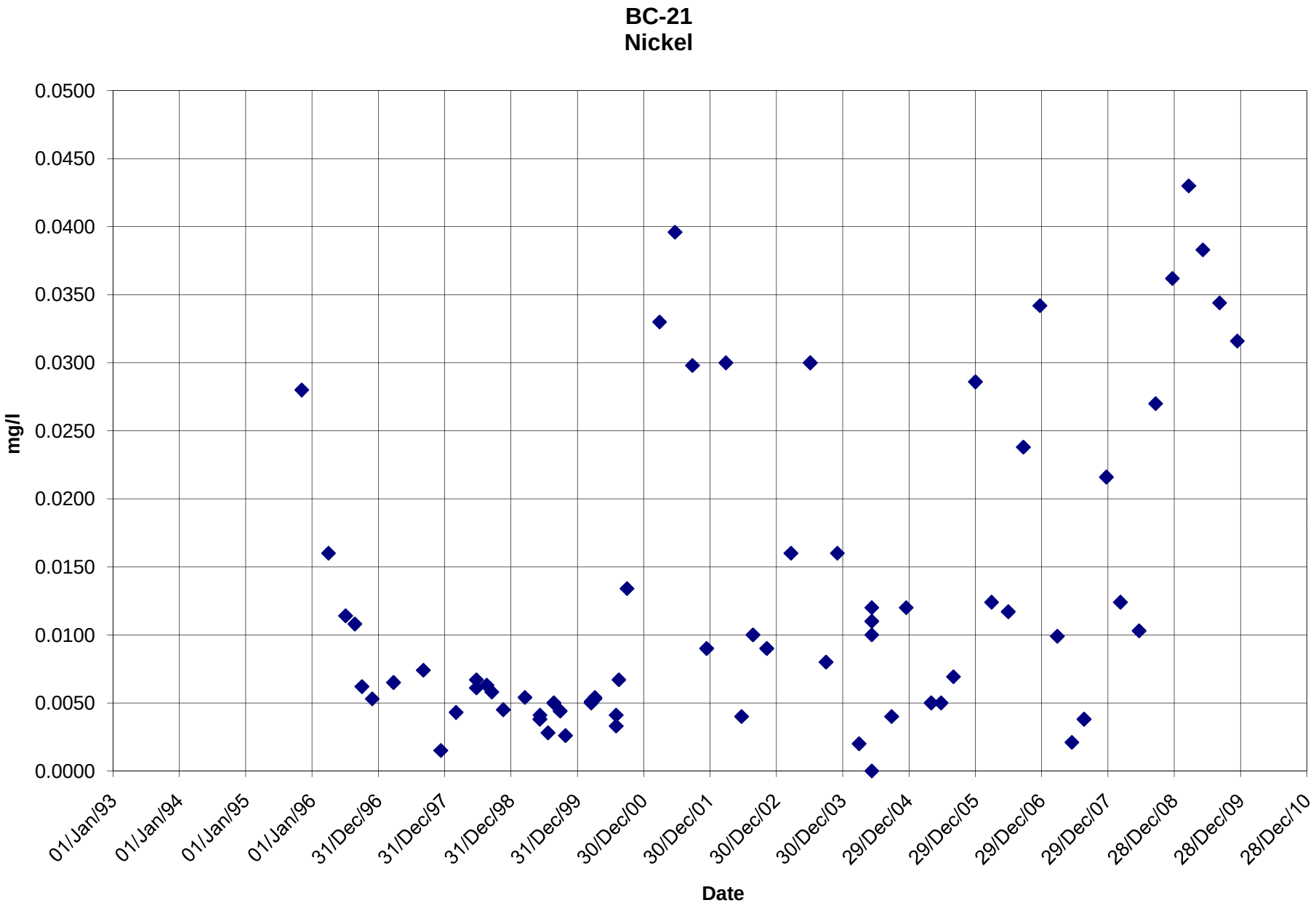

BC-21
Antimony
0.0015
0.0012
0.0009
0.0006
0.0003
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

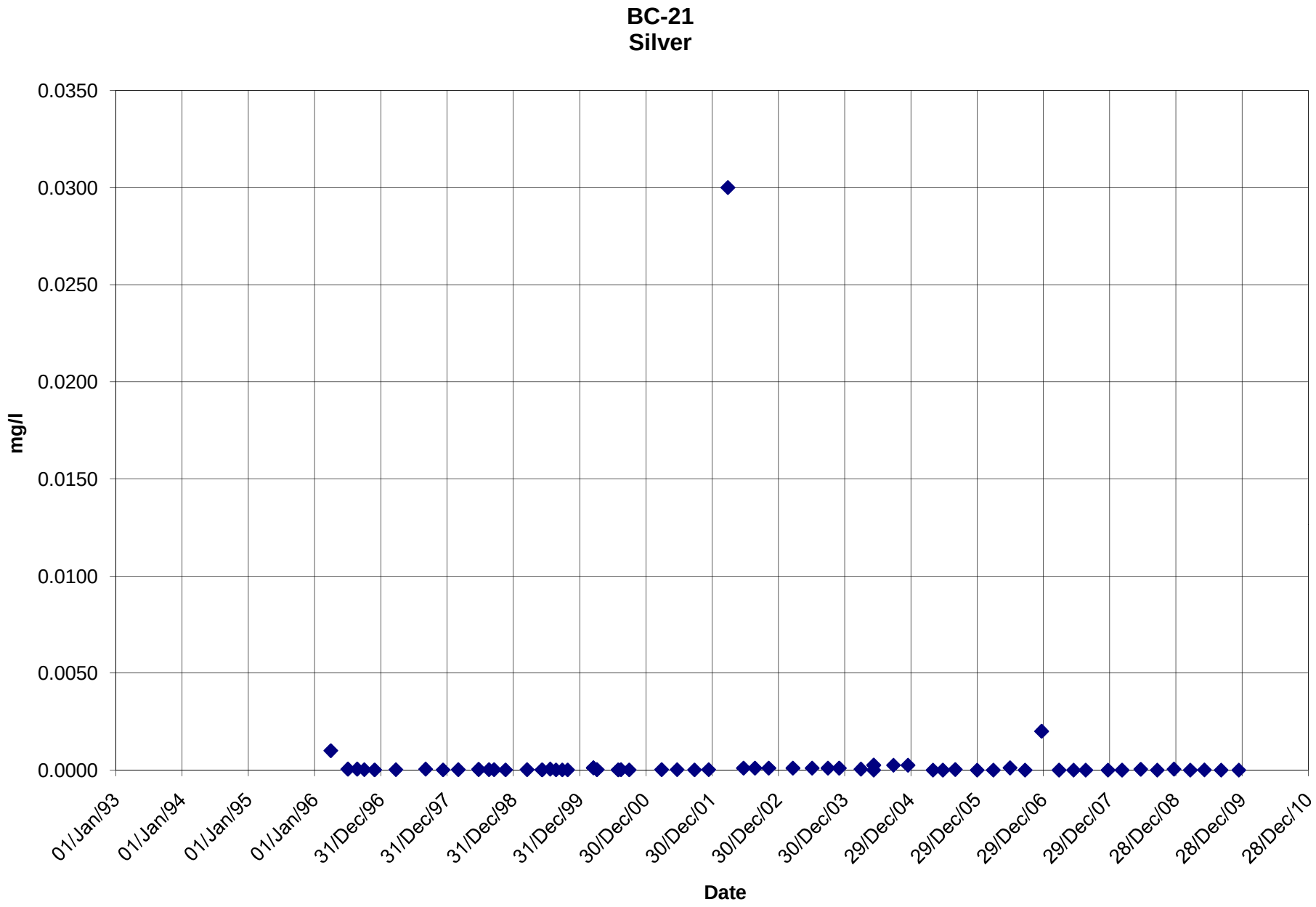

BC-21
Arsenic
0.6000
0.5000
0.4000
0.3000
0.2000
0.1000
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

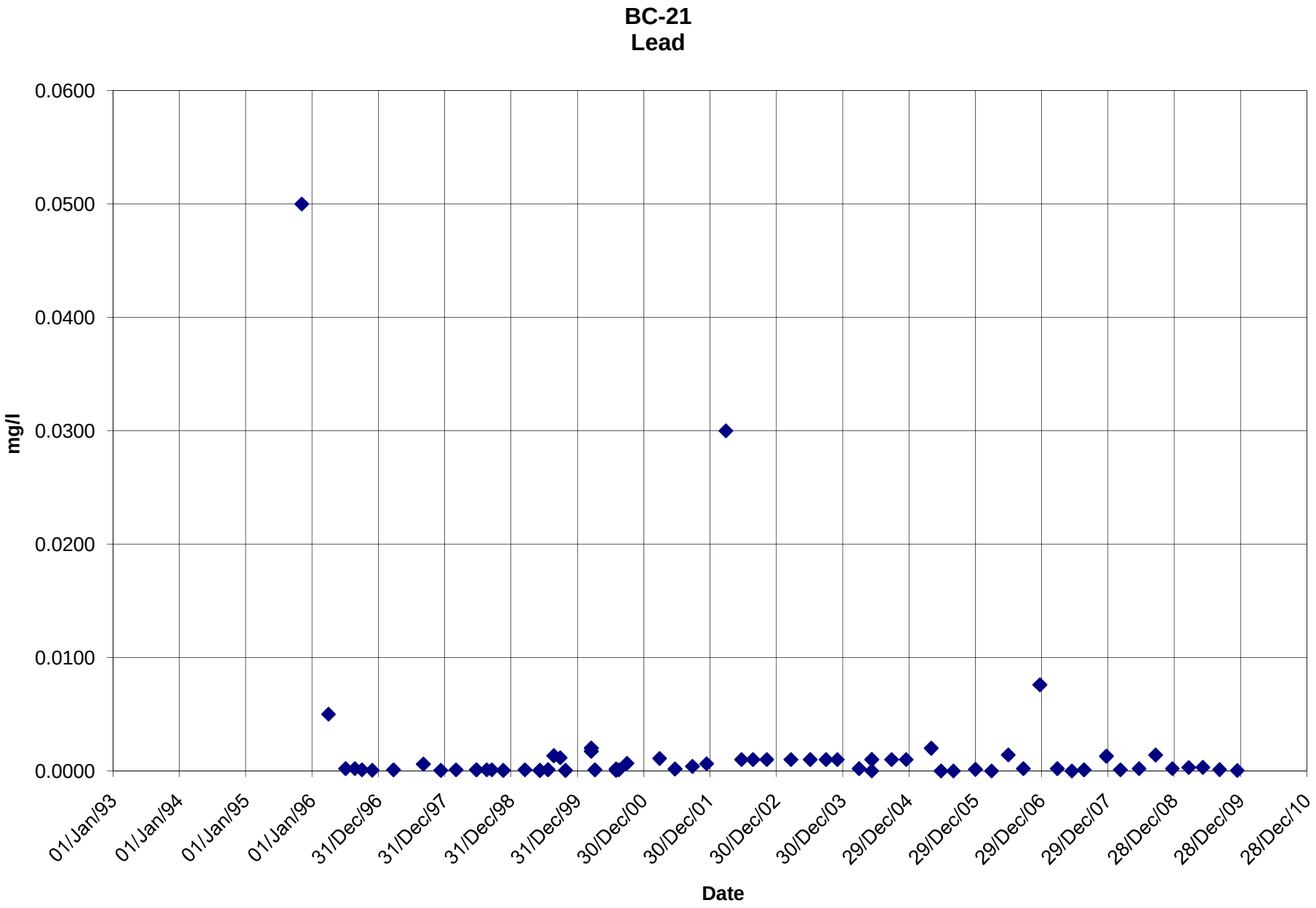

BC-21
Cadmium
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

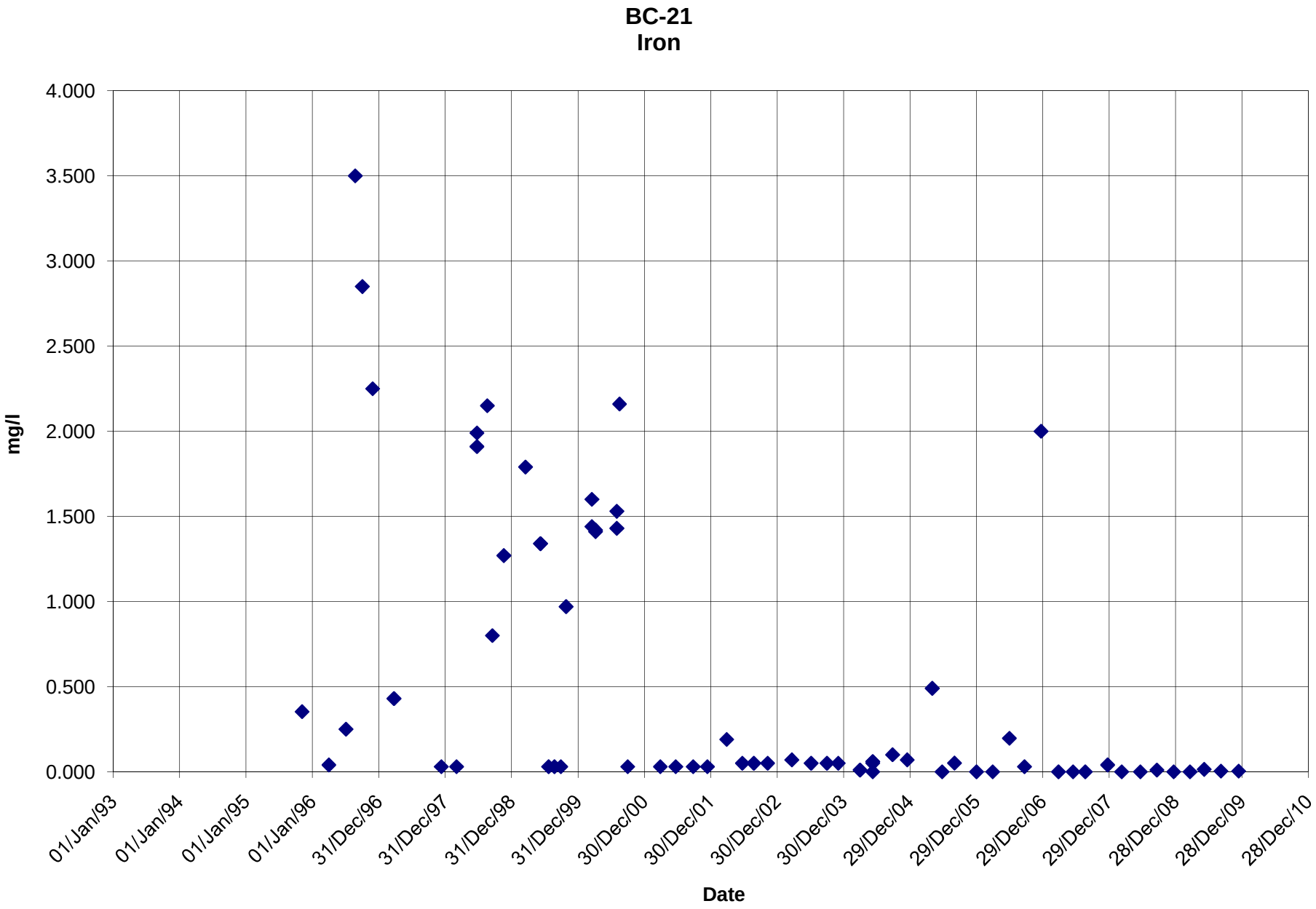

BC-21
Copper
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

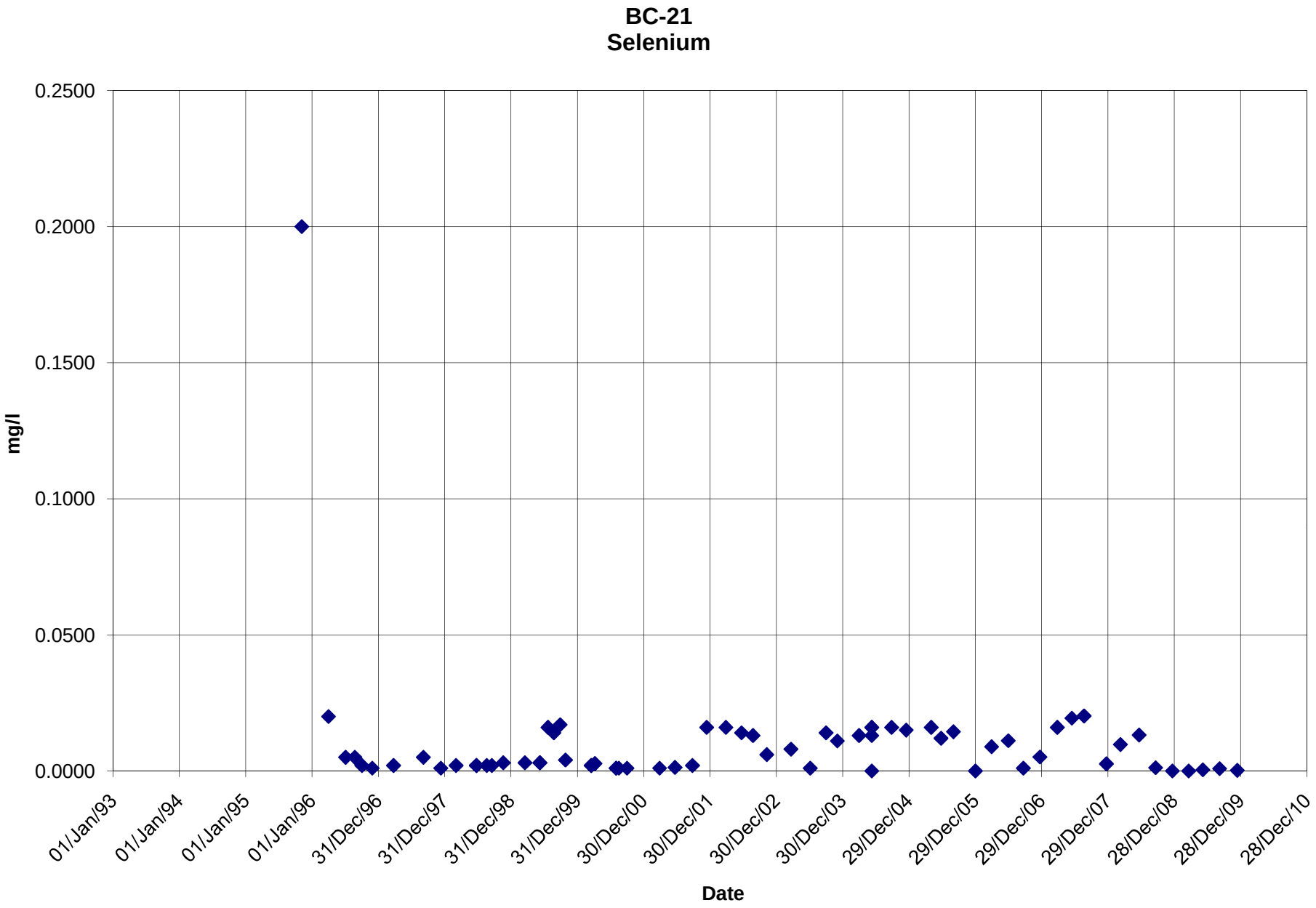

BC-21
Mercury
0.00060
0.00050
0.00040
0.00030
0.00020
0.00010
0.00000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

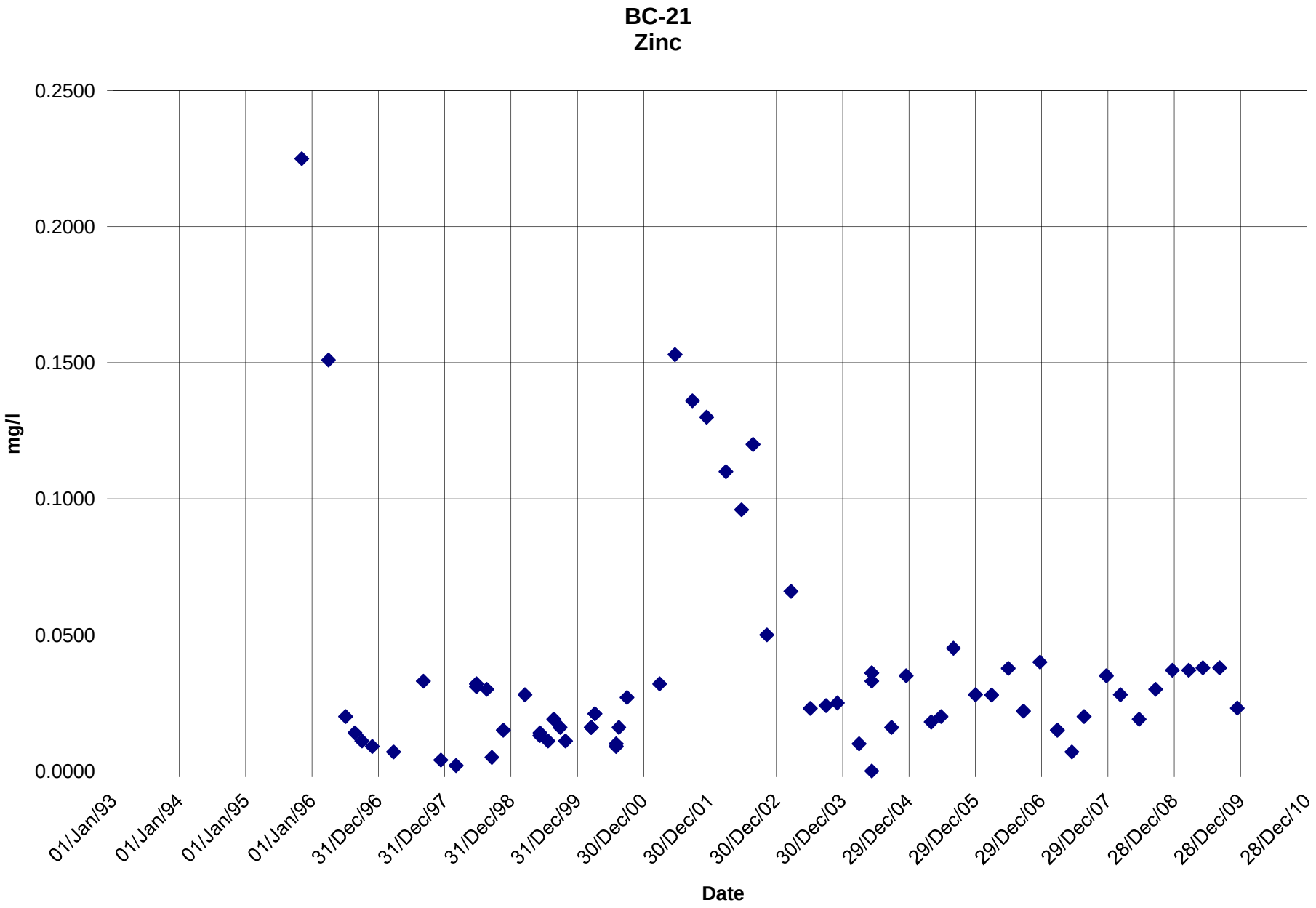

BC-21
Nickel
0.0500
0.0450
0.0400
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

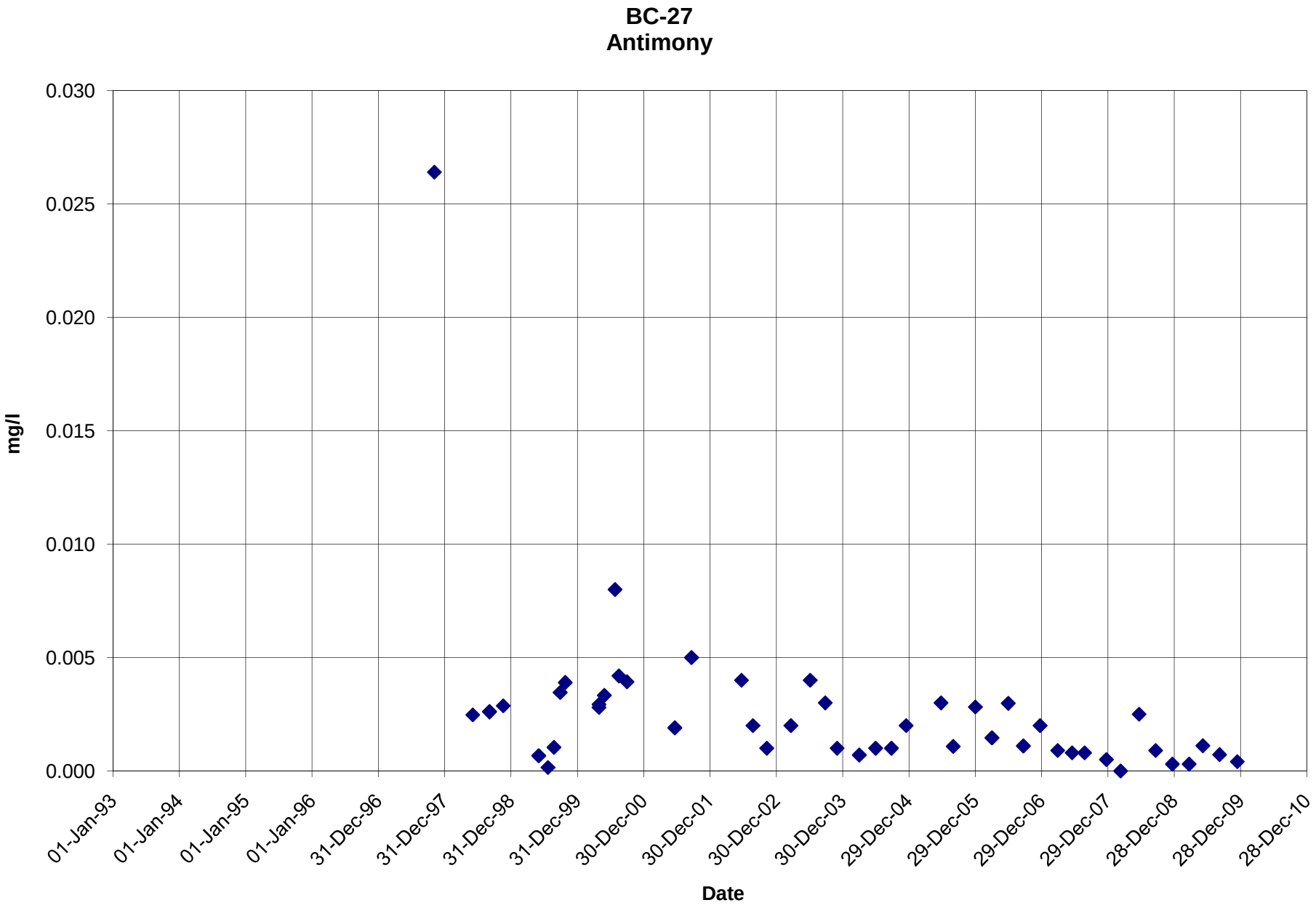

BC-21
Silver
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

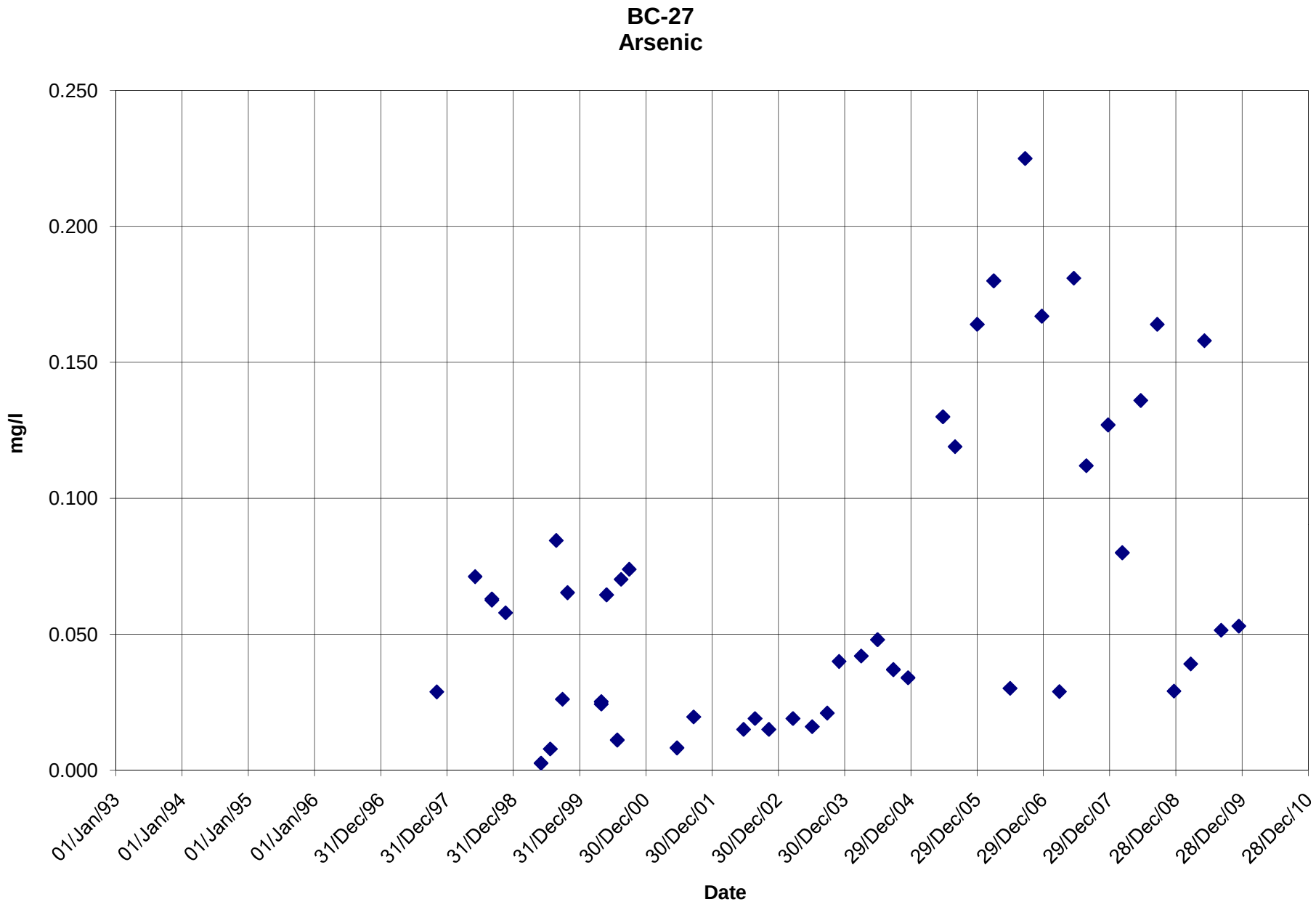

BC-21
Lead
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

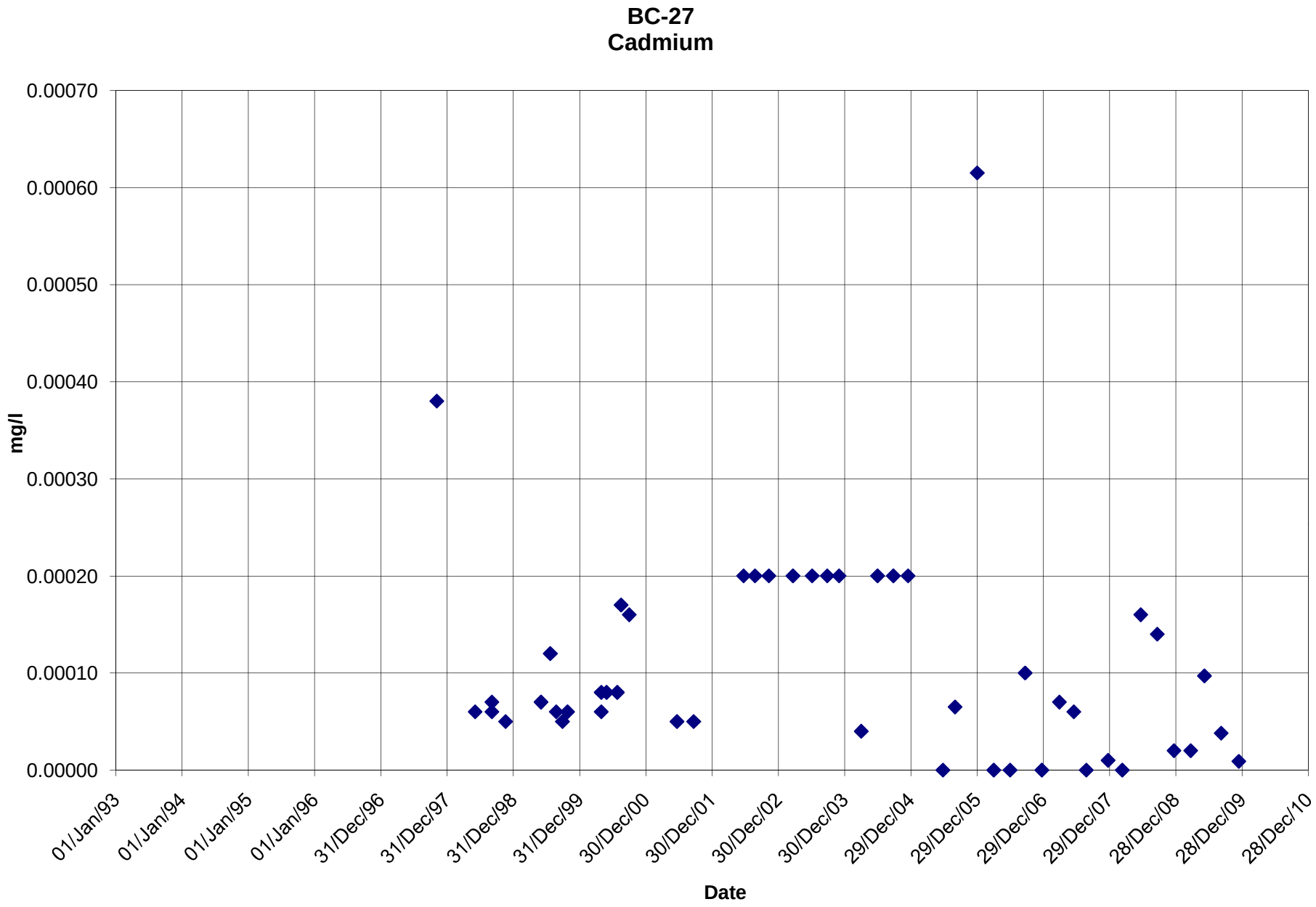

BC-21
Iron
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

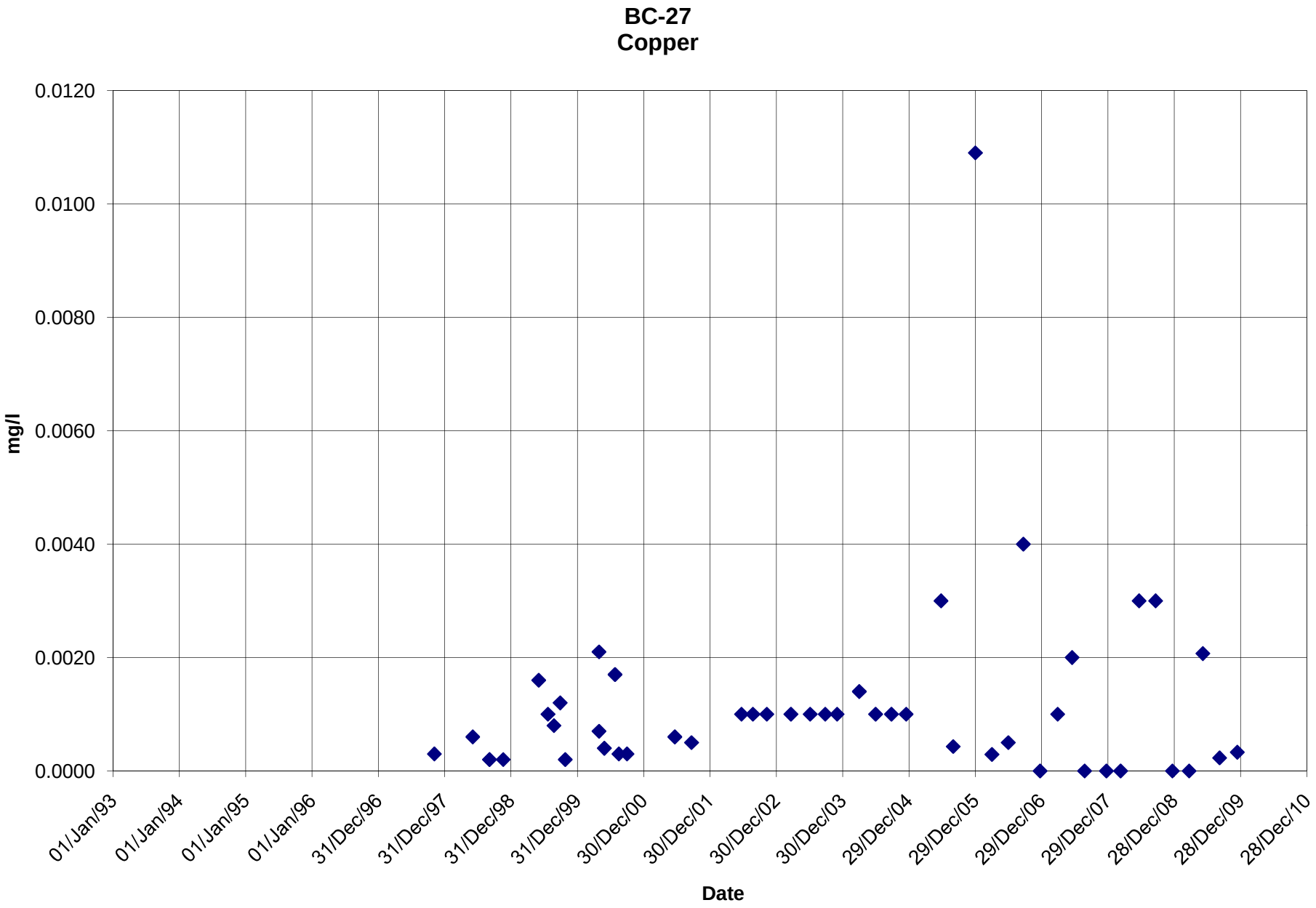

BC-21
Selenium
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

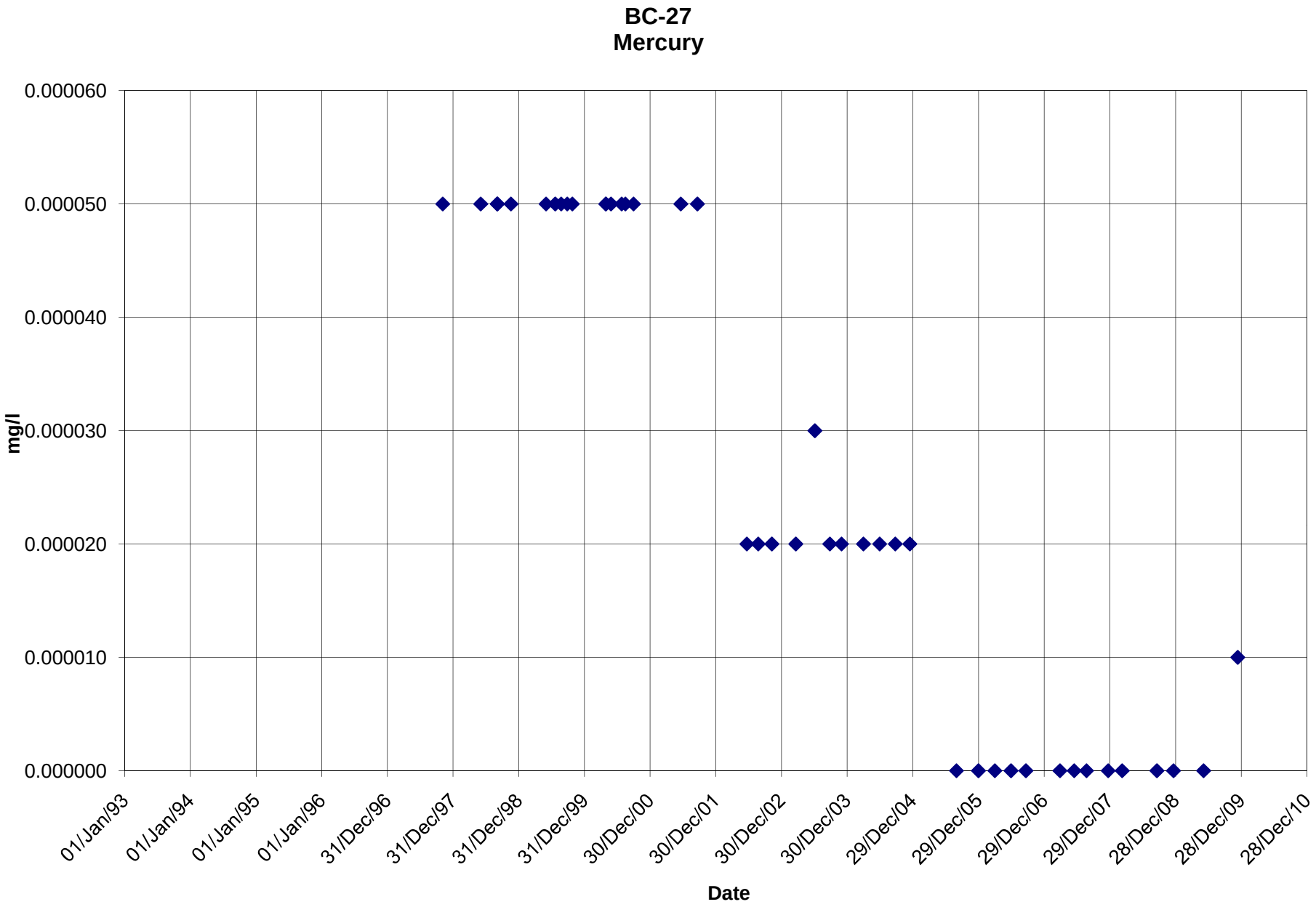

BC-21
Zinc
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

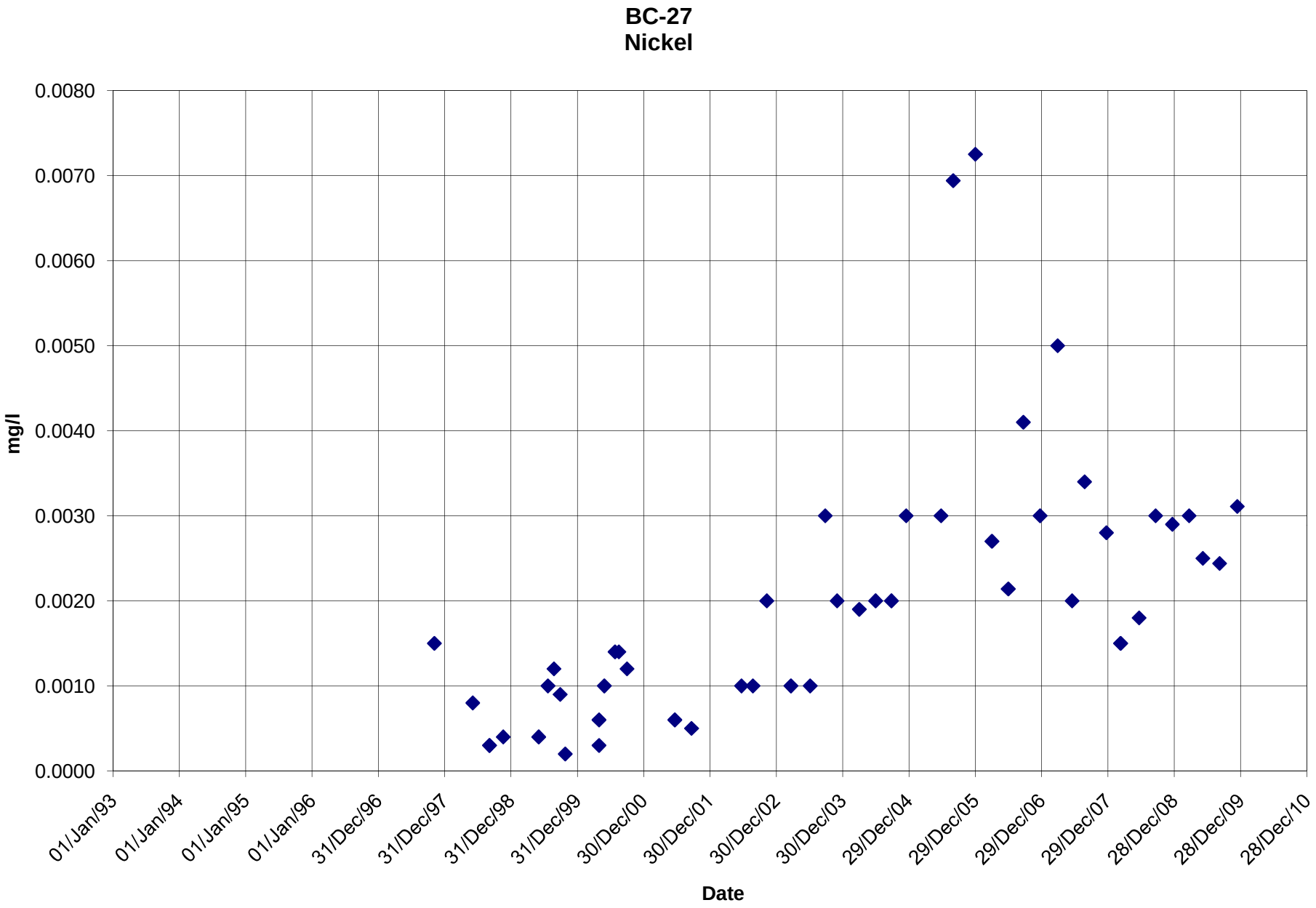

BC-27
Antimony
0.030
0.025
0.020
0.015
0.010
0.005
0.000
mg/l
01-Jan-93
01-Jan-94
01-Jan-95
01-Jan-96
31-Dec-96
31-Dec-97
31-Dec-98
31-Dec-99
30-Dec-00
30-Dec-01
30-Dec-02
30-Dec-03
29-Dec-04
29-Dec-05
29-Dec-06
29-Dec-07
28-Dec-08
28-Dec-09
28-Dec-10
Date

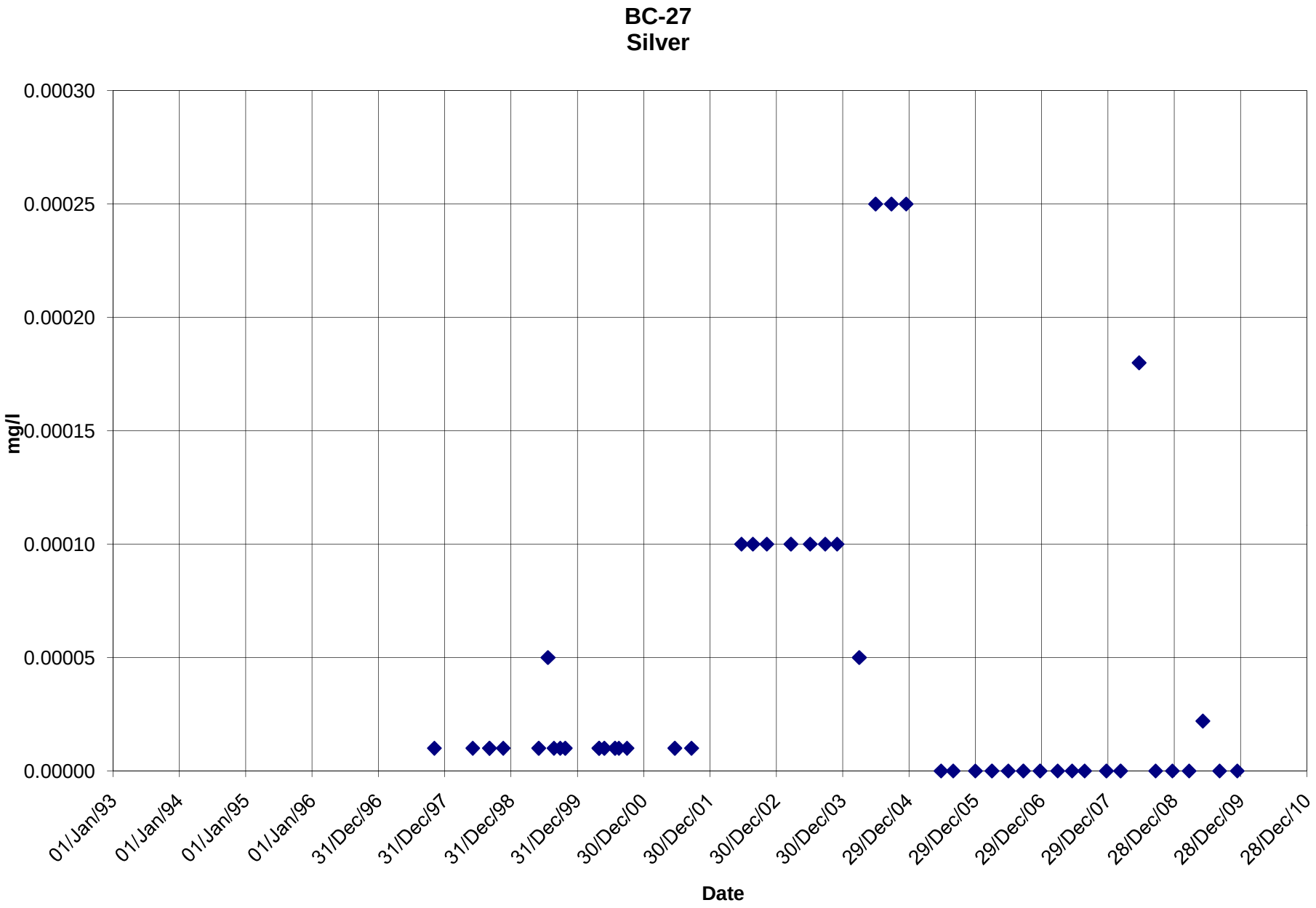

BC-27
Arsenic
0.250
0.200
0.150
0.100
0.050
0.000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

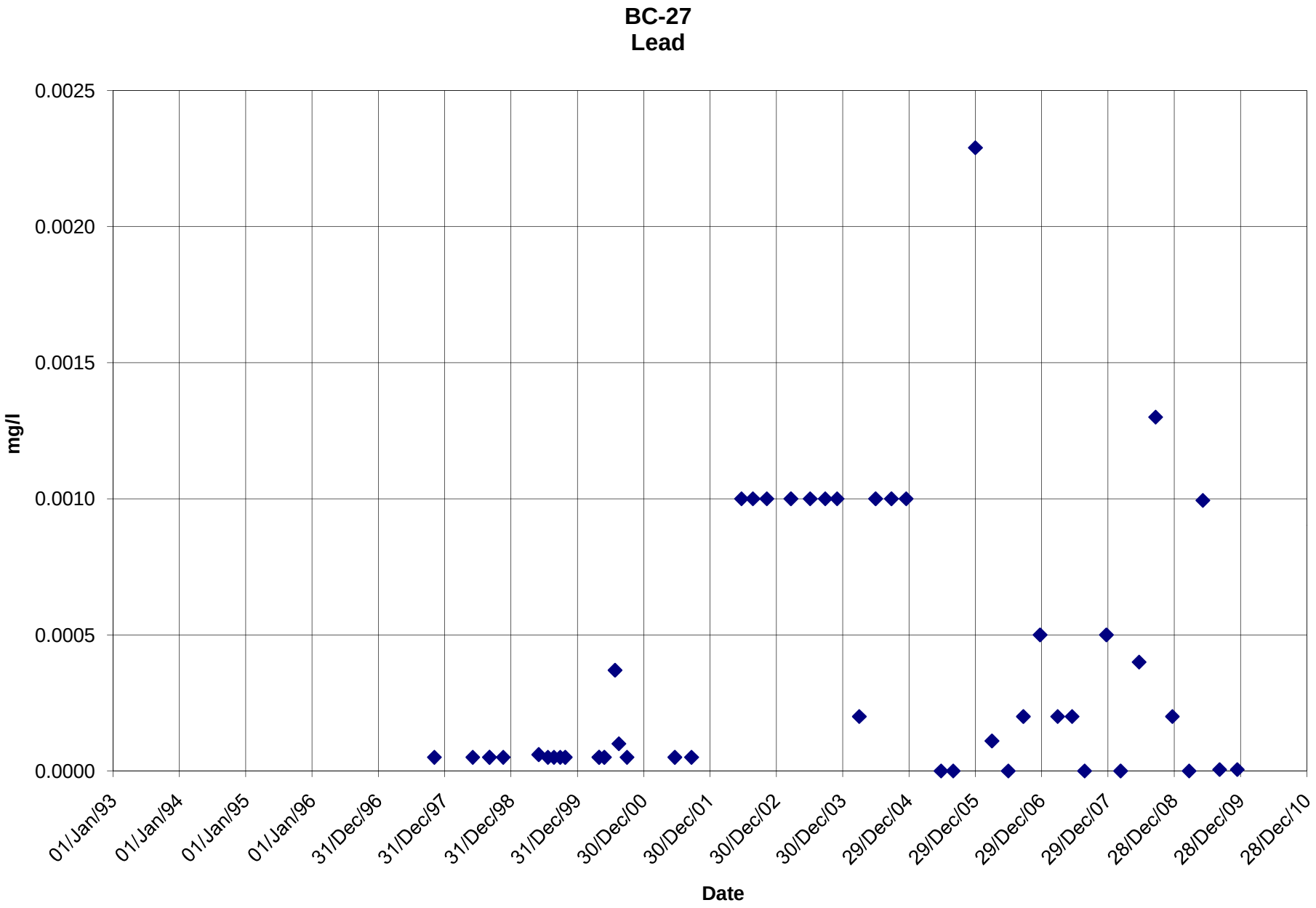

BC-27
Cadmium
0.00070
0.00060
0.00050
0.00040
0.00030
0.00020
0.00010
0.00000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

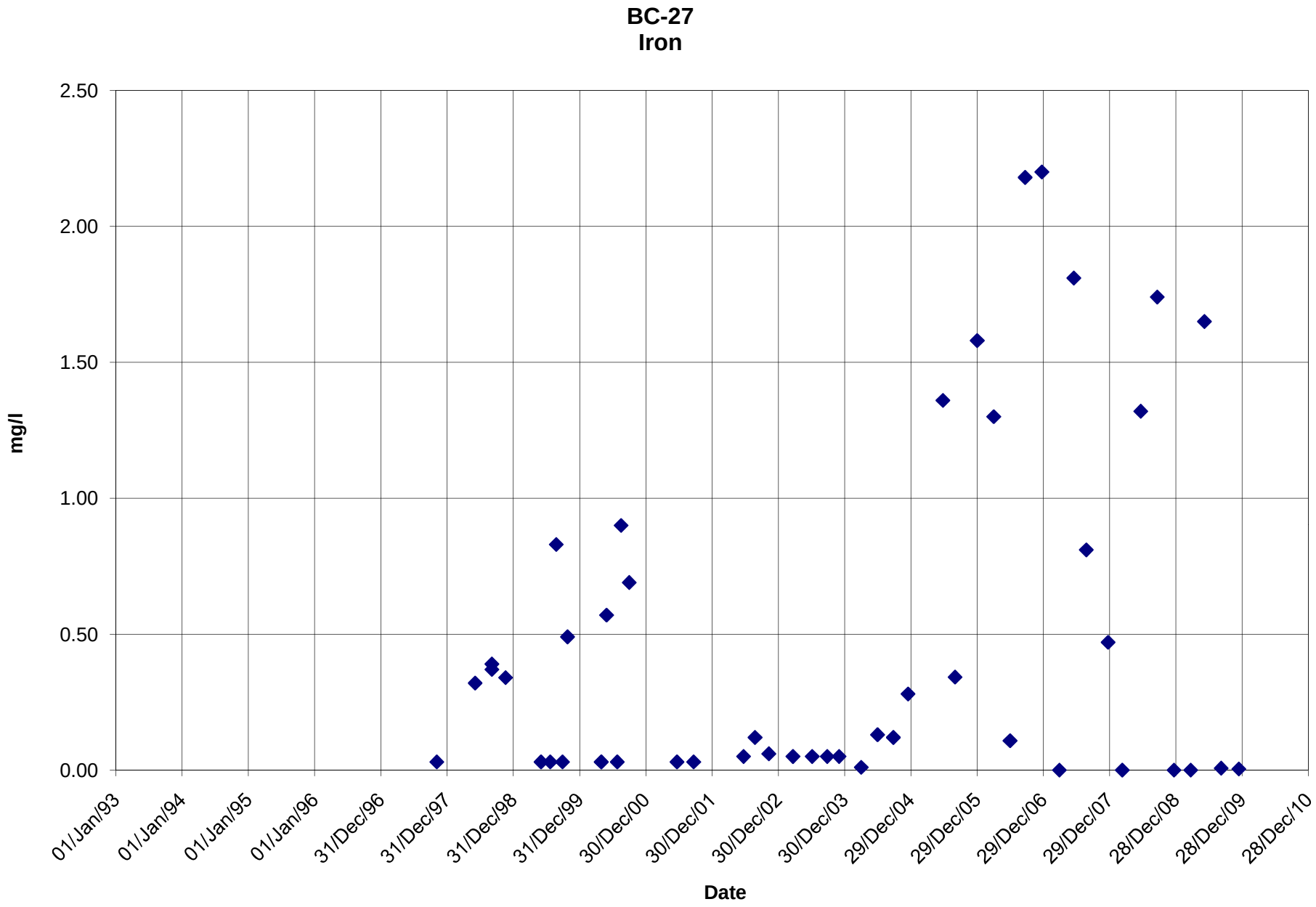

BC-27
Copper
0.0120
0.0100
0.0080
0.0060
0.0040
0.0020
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

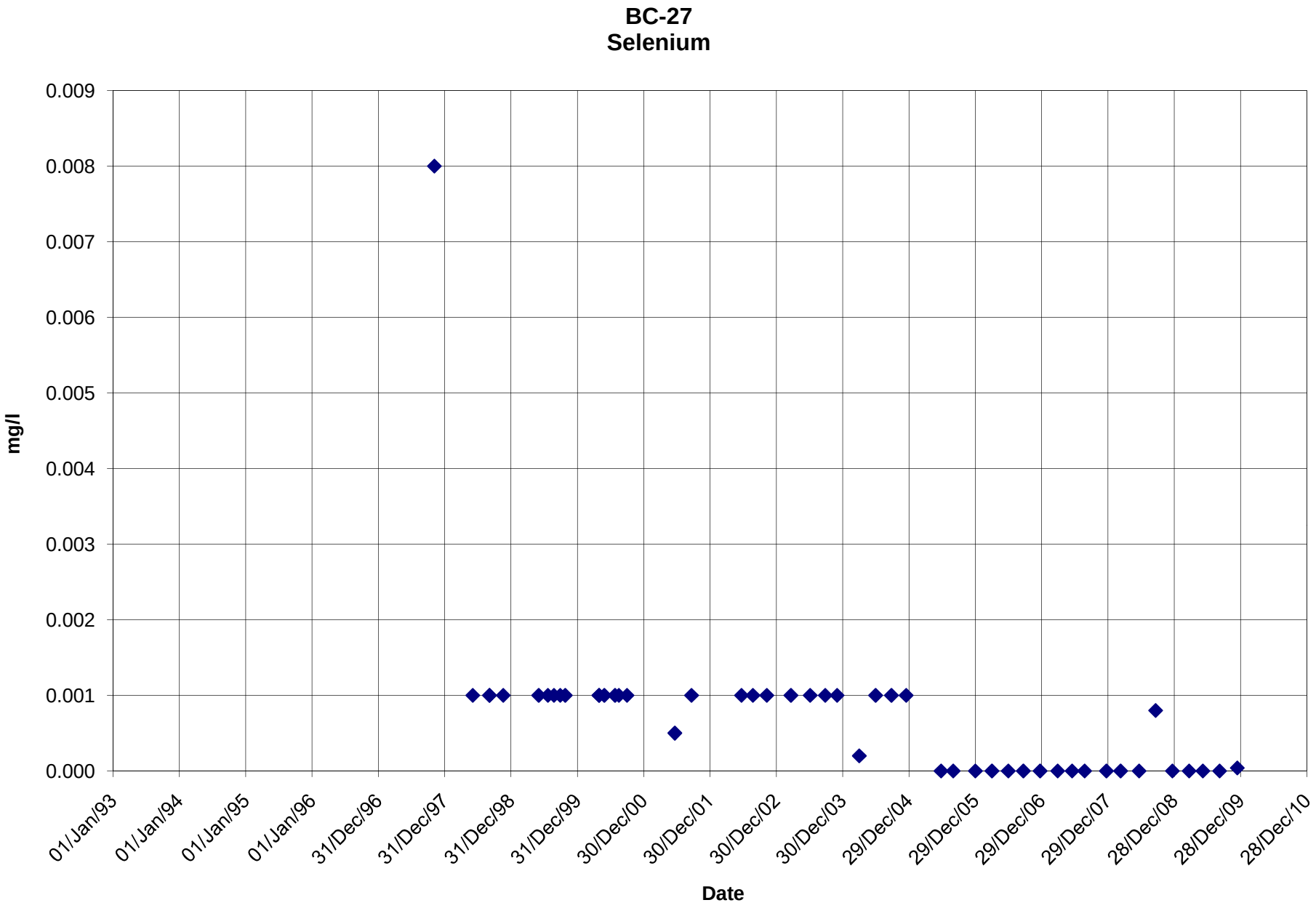

BC-27
Mercury
0.000060
0.000050
0.000040
0.000030
0.000020
0.000010
0.000000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

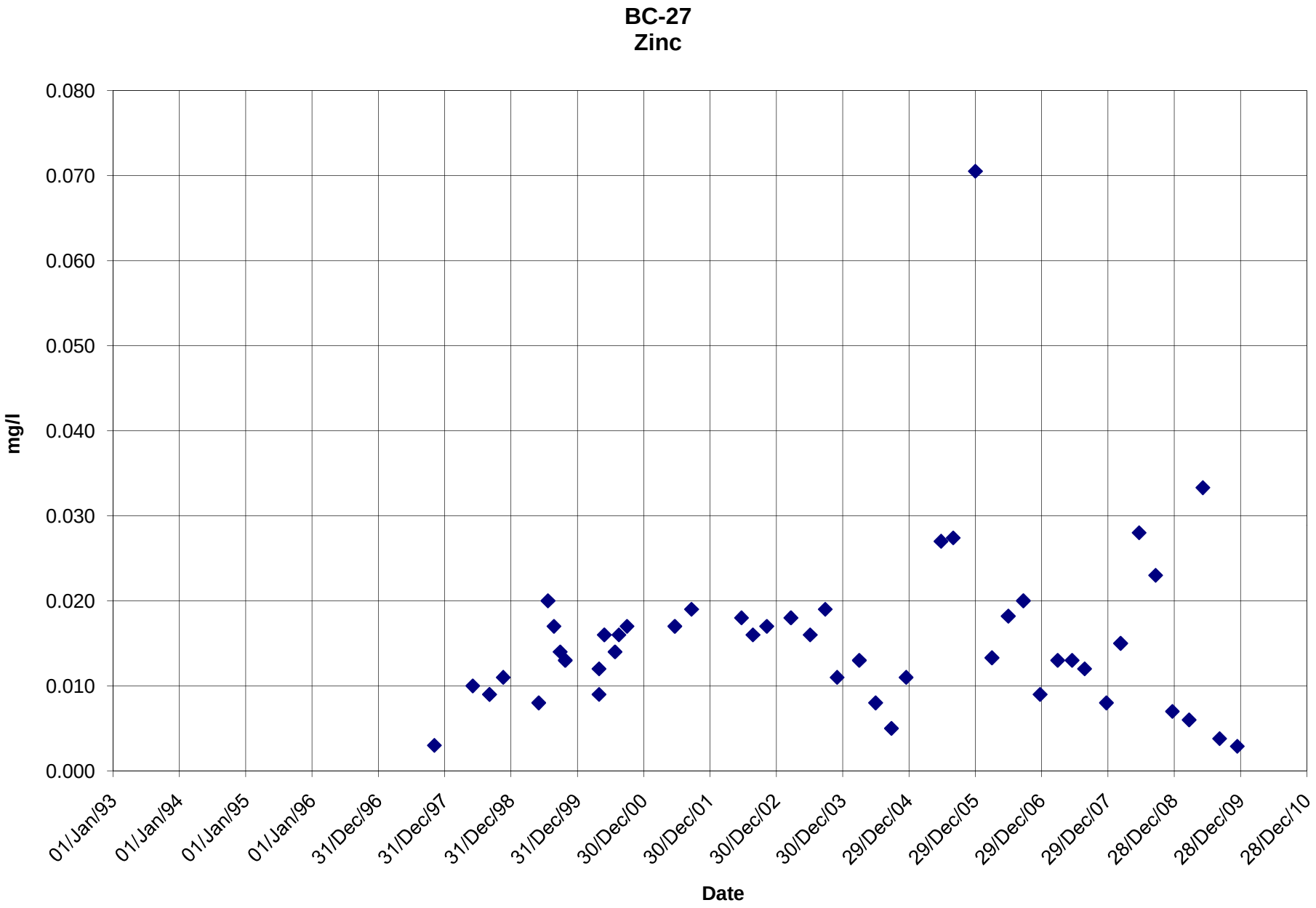

BC-27
Nickel
0.0080
0.0070
0.0060
0.0050
0.0040
0.0030
0.0020
0.0010
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

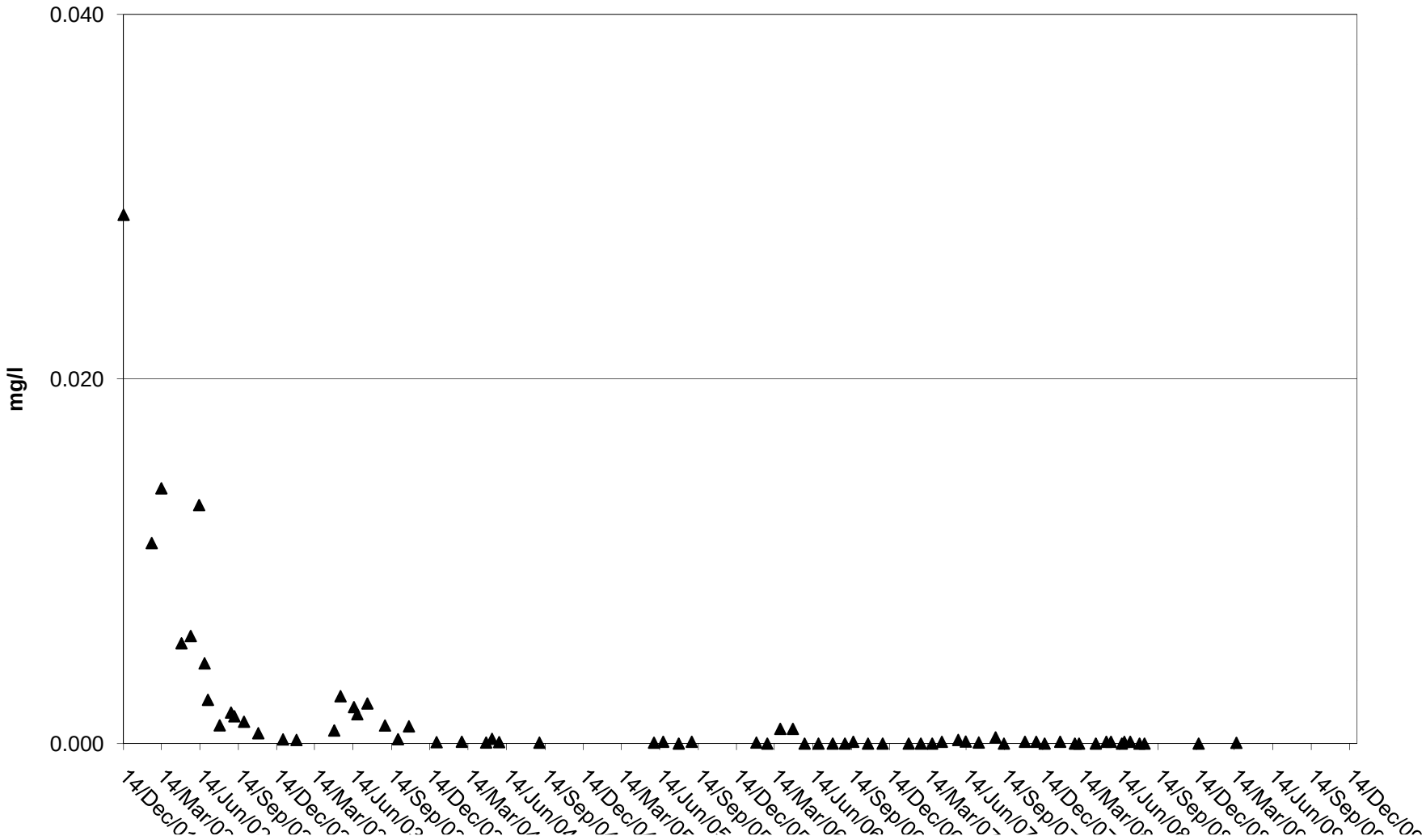

BC-27
Silver
0.00030
0.00025
0.00020
0.00015
0.00010
0.00005
0.00000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date


BC-27
Lead
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

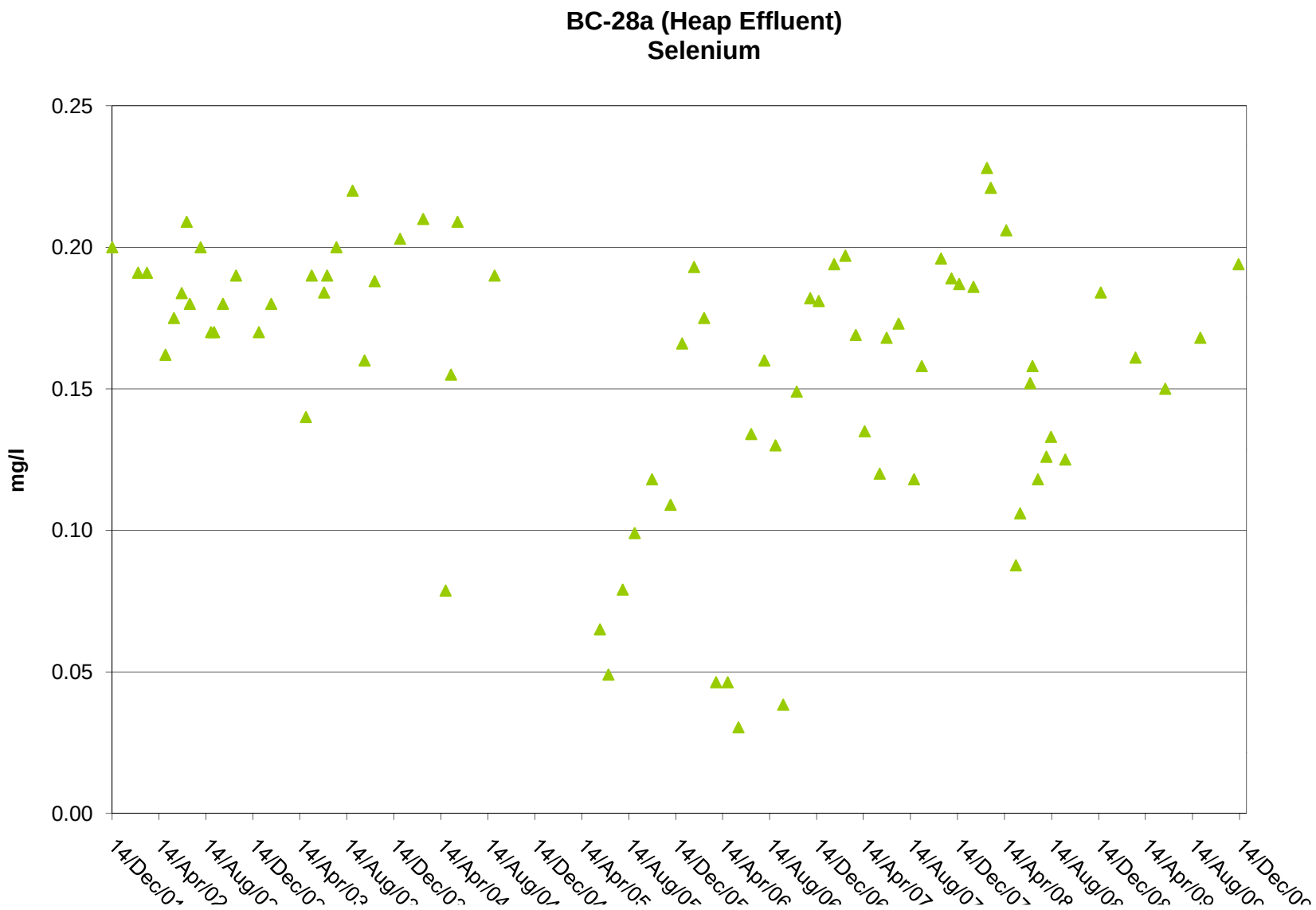

BC-27
Iron
2.50
2.00
1.50
1.00
0.50
0.00
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date


BC-27
Selenium
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0.000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date

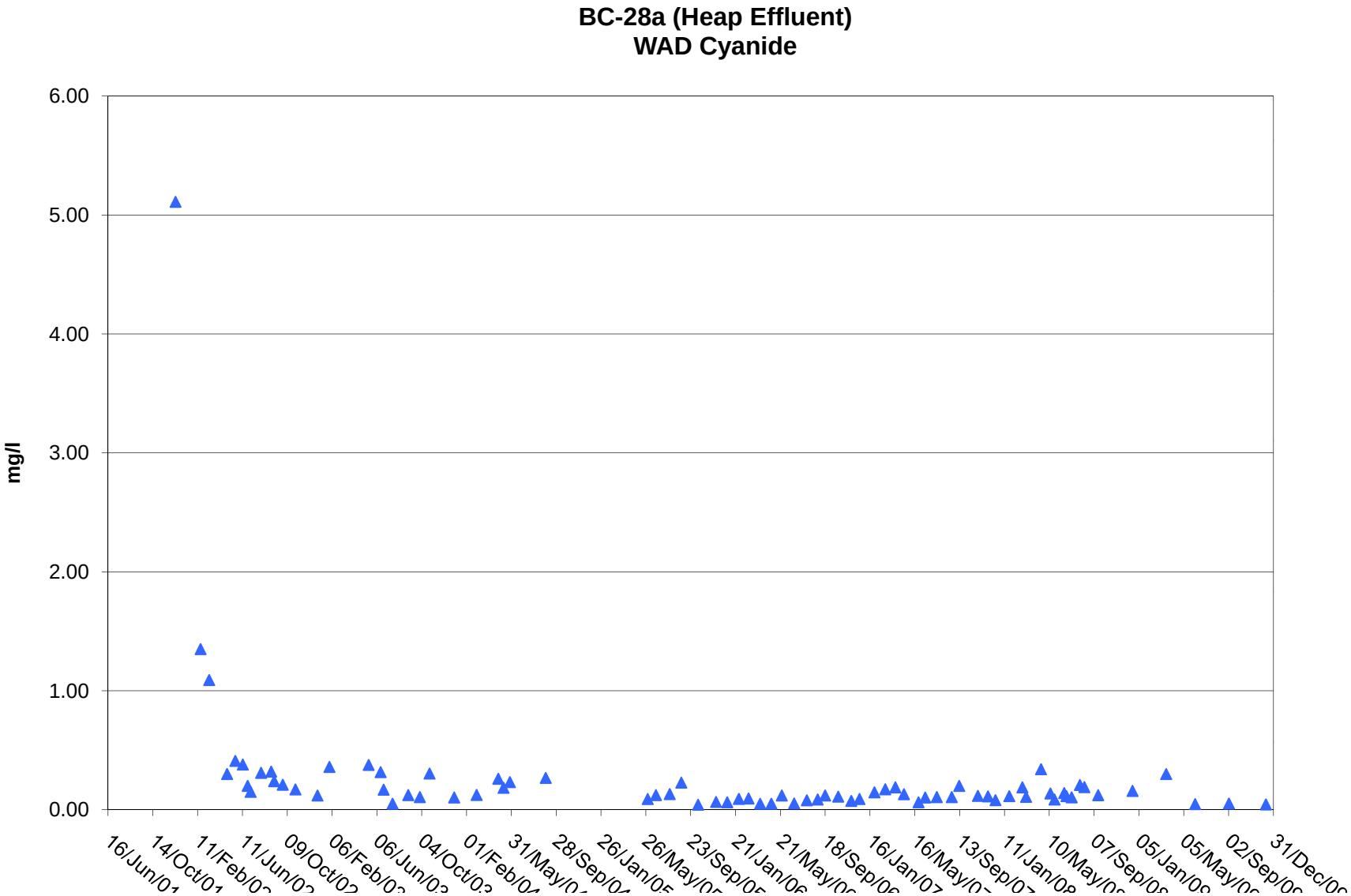

BC-27
Zinc
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
mg/l
01/Jan/93
01/Jan/94
01/Jan/95
01/Jan/96
31/Dec/96
31/Dec/97
31/Dec/98
31/Dec/99
30/Dec/00
30/Dec/01
30/Dec/02
30/Dec/03
29/Dec/04
29/Dec/05
29/Dec/06
29/Dec/07
28/Dec/08
28/Dec/09
28/Dec/10
Date


BC 28a (Heap Effluent)
Mercury
0.040
0.020
0.000
mg/l

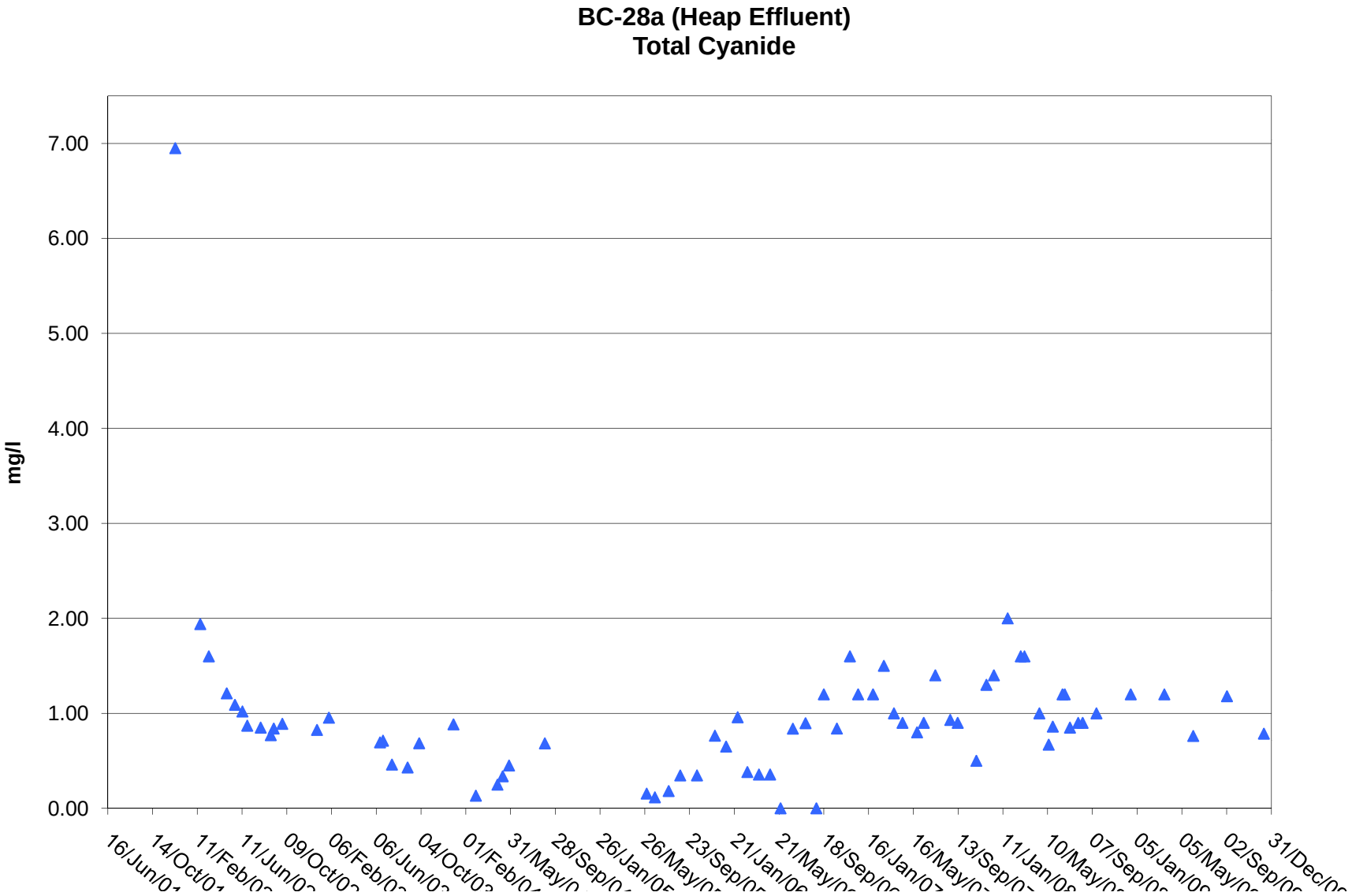
Brewery Creek Mine



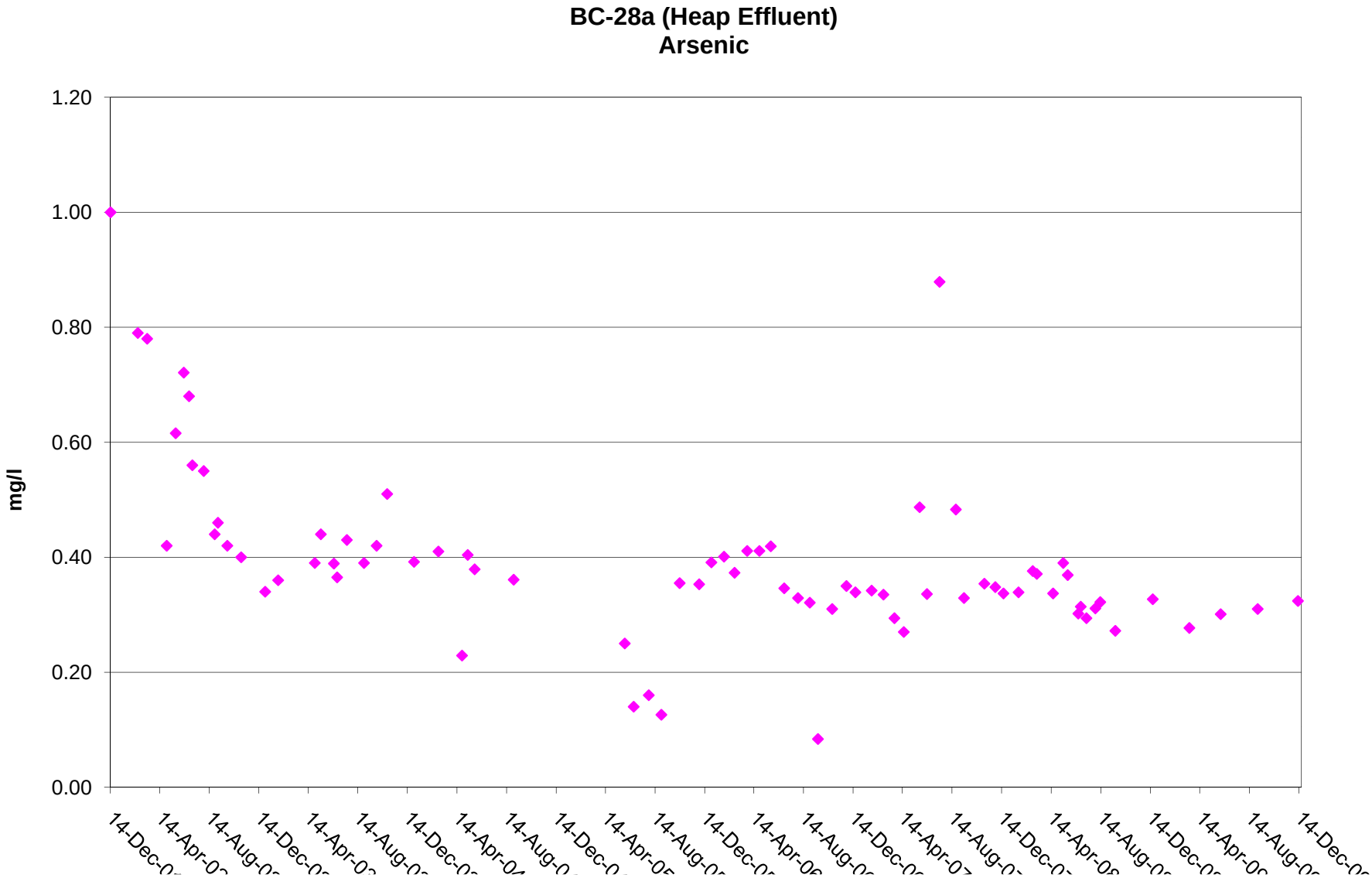
Brewery Creek Mine



Brewery Creek Mine

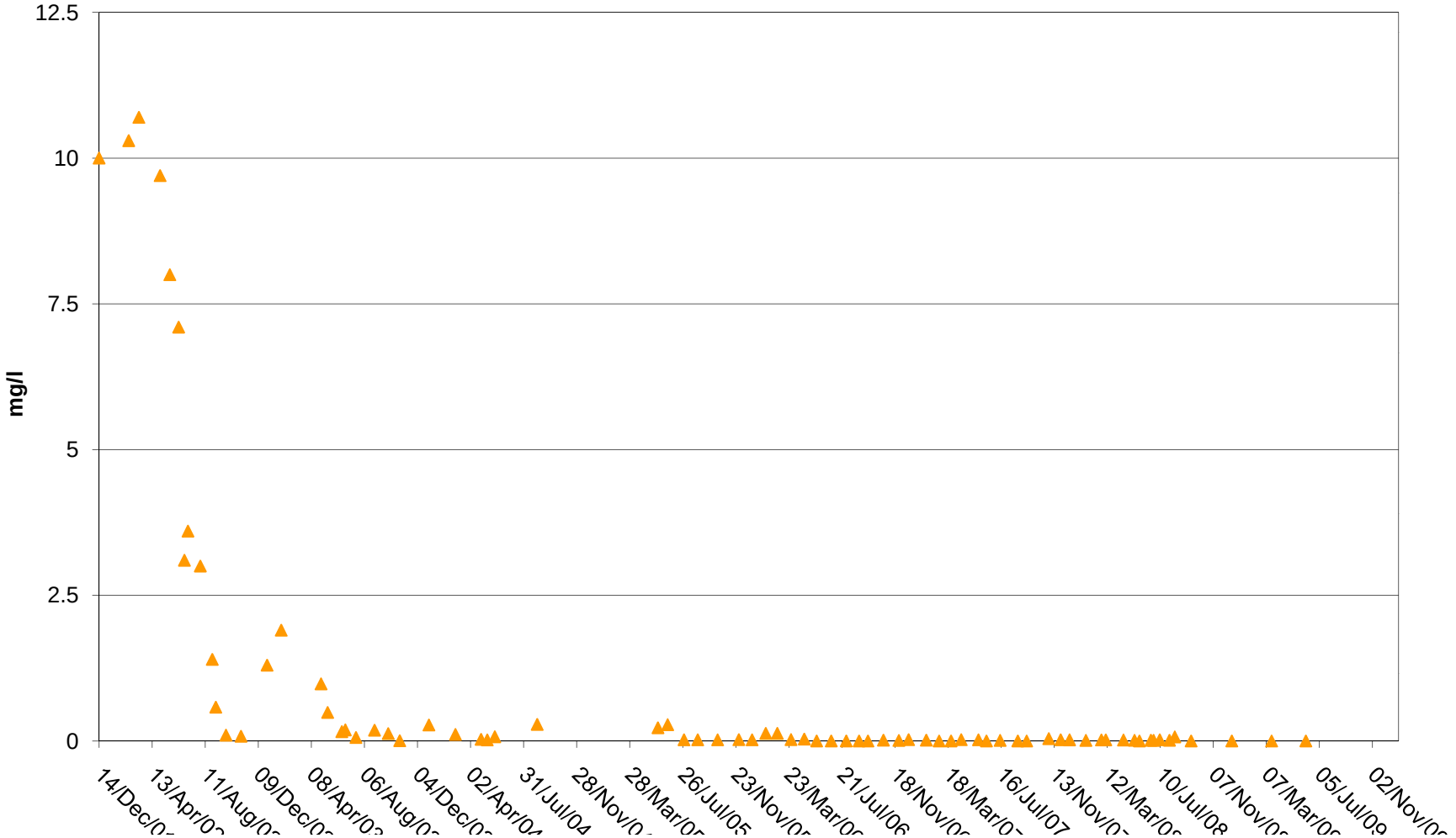


Brewery Creek Mine



Brewery Creek Mine

BC-28a (Heap Effluent)
Ammonia



Appendix C

2009 Hydrological Data

Brewery Creek Mine
June 2009 Discharge Monitoring

BC-34 June 2, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
RHB (m)	2.00					
	2.25	0.15	0.26	0.5	0.075	0.0195
	3.00	0.38	0.37	0.75	0.285	0.10545
	3.75	0.42	0.45	0.75	0.315	0.14175
	4.50	0.33	0.55	0.75	0.2475	0.136125
	5.25	0.34	0.88	0.75	0.255	0.2244
	6.00	0.65	0.96	0.75	0.4875	0.468
	6.75	0.61	0.65	0.75	0.4575	0.297375
	7.50	0.59	0.67	0.75	0.4425	0.296475
	8.25	0.55	0.62	0.75	0.4125	0.25575
	9.00	0.26	0.28	0.75	0.195	0.0546
	9.75	0.27	0	0.7	0.189	0
LHB (m)	10.40					
				Total Discharge =	1.999425	m^3/sec

BC-5 June 3, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
RHB (m)	1.10					
	1.20	0.22	0	0.15	0.033	0
	1.40	0.35	0.08	0.2	0.07	0.0056
	1.60	0.34	0.16	0.2	0.068	0.01088
	1.80	0.31	0.22	0.2	0.062	0.01364
	2.00	0.27	0.25	0.2	0.054	0.0135
	2.20	0.26	0.27	0.2	0.052	0.01404
	2.40	0.22	0.3	0.2	0.044	0.0132
	2.60	0.16	0.28	0.2	0.032	0.00896
	2.80	0.14	0.25	0.2	0.028	0.007
	3.00	0.11	0.12	0.175	0.01925	0.00231
LHB (m)	3.15					
				Total Discharge =	0.08913	m^3/sec

BC-31 June 3, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
RHB (m)	1.75					
	1.90	0.09	0.02	0.225	0.02025	0.000405
	2.20	0.11	0.28	0.3	0.033	0.00924
	2.50	0.13	0.44	0.3	0.039	0.01716
	2.80	0.14	0.48	0.3	0.042	0.02016
	3.10	0.14	0.53	0.3	0.042	0.02226
	3.40	0.16	0.48	0.3	0.048	0.02304
	3.70	0.2	0.51	0.3	0.06	0.0306
	4.00	0.24	0.57	0.3	0.072	0.04104
	4.30	0.29	0.54	0.3	0.087	0.04698
	4.60	0.34	0.5	0.3	0.102	0.051
	4.90	0.41	0.67	0.3	0.123	0.08241
	5.20	0.45	0.67	0.3	0.135	0.09045
	5.50	0.44	0.29	0.175	0.077	0.02233
LHB (m)	5.55					
				Total Discharge =	0.457075	m^3/sec

BC-4 June 3, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
RHB (m)	1.54					
	1.65	0.07	0.15	0.09	0.0063	0.000945
	1.72	0.08	0.2	0.07	0.0056	0.00112
	1.79	0.12	0.64	0.07	0.0084	0.005376
	1.86	0.1	0.52	0.07	0.007	0.00364
	1.93	0.1	0.63	0.07	0.007	0.00441
	2.00	0.1	0.49	0.07	0.007	0.00343
	2.07	0.13	0.32	0.07	0.0091	0.002912
	2.14	0.13	0.56	0.07	0.0091	0.005096
	2.21	0.12	0.61	0.07	0.0084	0.005124
	2.28	0.09	0.76	0.07	0.0063	0.004788
	2.35	0.04	0.29	0.07	0.0028	0.000812
	2.42	0.03	0.05	0.075	0.00225	0.0001125
	2.50	0.03	0	0.105	0.00315	0
LHB (m)	2.63	0.03				
				Total Discharge =	0.0377655	m^3/sec

BC-1 June 3, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
LHB (m)	1.10					
	1.20	0.2	0.11	0.15	0.03	0.0033
	1.40	0.21	0.22	0.2	0.042	0.00924
	1.60	0.24	0.27	0.2	0.048	0.01296
	1.80	0.25	0.38	0.2	0.05	0.019
	2.00	0.23	0.28	0.2	0.046	0.01288
	2.20	0.18	0.31	0.2	0.036	0.01116
	2.40	0.18	0.26	0.2	0.036	0.00936
	2.60	0.17	0.21	0.2	0.034	0.00714
	2.80	0.23	0.12	0.2	0.046	0.00552
	3.00	0.22	0.08	0.175	0.0385	0.00308
	3.15	0.24	0.07	0.1	0.024	0.00168
RHB (m)	3.20	0.03				
				Total Discharge =	0.09532	m^3/sec

BC-37 June 3, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
LHB (m)	1.85					
	2.00	0.08	0.15	0.2	0.016	0.0024
	2.25	0.13	0.43	0.25	0.0325	0.013975
	2.50	0.13	0.38	0.25	0.0325	0.01235
	2.75	0.12	0.17	0.25	0.03	0.0051
	3.00	0.11	0.39	0.25	0.0275	0.010725
	3.25	0.12	0.13	0.25	0.03	0.0039
	3.50	0.11	0.39	0.25	0.0275	0.010725
	3.75	0.11	0.48	0.25	0.0275	0.0132
	4.00	0.13	0.25	0.25	0.0325	0.008125
	4.25	0.2	0.67	0.175	0.035	0.02345
	4.35	0.14	0.22	0.1	0.014	0.00308
RHB (m)	4.45	0.03				
				Total Discharge =	0.10703	m^3/sec

BC-39 June 3, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)	
RHB (m)	1.50						
	1.60	0.03	0.22	0.075	0.00225	0.000495	
	1.65	0.04	0.2	0.05	0.002	0.0004	
	1.70	0.05	0.17	0.05	0.0025	0.000425	
	1.75	0.09	0.17	0.05	0.0045	0.000765	
	1.80	0.09	0.26	0.05	0.0045	0.00117	
	1.85	0.08	0.28	0.05	0.004	0.00112	
	1.90	0.08	0.26	0.05	0.004	0.00104	
	1.95	0.06	0.25	0.075	0.0045	0.001125	
LHB (m)	2.05	0.03					
					Total Discharge =	0.00654	m^3/sec

BC-3 June 3, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)	
RHB (m)	2.75						
	2.80	0.31	0.25	0.075	0.02325	0.0058125	
	2.90	0.51	0.28	0.1	0.051	0.01428	
	3.00	0.45	0.42	0.1	0.045	0.0189	
	3.10	0.47	0.51	0.1	0.047	0.02397	
	3.20	0.44	0.47	0.1	0.044	0.02068	
	3.30	0.46	0.67	0.1	0.046	0.03082	
	3.40	0.26	0.52	0.15	0.039	0.02028	
LHB (m)	3.60	0.03					
					Total Discharge =	0.1347425	m^3/sec

Brewery Creek Mine
September 2009 Discharge Monitoring

BC-01 September 1, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
RHB (m)	4.50					
	4.60	0.03	0	0.125	0.00375	0
	4.75	0.07	0.04	0.15	0.0105	0.00042
	4.90	0.12	0.21	0.15	0.018	0.00378
	5.05	0.15	0.31	0.15	0.0225	0.006975
	5.20	0.2	0.38	0.15	0.03	0.0114
	5.35	0.24	0.44	0.15	0.036	0.01584
	5.50	0.27	0.47	0.15	0.0405	0.019035
	5.65	0.31	0.32	0.15	0.0465	0.01488
	5.80	0.37	0.29	0.125	0.04625	0.0134125
LHB (m)	5.90					
				Total Discharge =	0.0857425	m^3/sec

BC-53 September 1, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
RHB (m)	3.80					
	3.90	0.06	0.06	0.15	0.009	0.00054
	4.10	0.19	0.58	0.2	0.038	0.02204
	4.30	0.16	0.65	0.2	0.032	0.0208
	4.50	0.13	0.5	0.2	0.026	0.013
	4.70	0.13	0.41	0.2	0.026	0.01066
	4.90	0.15	0.35	0.2	0.03	0.0105
	5.10	0.15	0.28	0.2	0.03	0.0084
	5.30	0.13	0.24	0.2	0.026	0.00624
	5.50	0.11	0.28	0.2	0.022	0.00616
	5.70	0.09	0.12	0.2	0.018	0.00216
LHB (m)	5.90					
				Total Discharge =	0.1005	m^3/sec

BC-34 September 1, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)
LHB (m)	5.00					
	6.00	0.11	0.37	1.25	0.1375	0.050875
	7.50	0.28	0.62	1.5	0.42	0.2604
	9.00	0.4	0.75	1.5	0.6	0.45
	10.50	0.39	0.93	1.5	0.585	0.54405
	12.00	0.42	0.84	1.5	0.63	0.5292
	13.50	0.36	0.7	1.5	0.54	0.378
	15.00	0.38	0.62	1.5	0.57	0.3534
	16.50	0.21	0.4	1.25	0.2625	0.105
RHB (m)	17.50					
				Total Discharge =	2.670925	m^3/sec

BC-3 September 1, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)	
RHB (m)	0.00						
	0.10	0.41	0.33	0.1	0.041	0.01353	
	0.20	0.36	0.48	0.1	0.036	0.01728	
	0.30	0.39	0.41	0.1	0.039	0.01599	
	0.40	0.4	0.23	0.115	0.046	0.01058	
LHB (m)	0.53	0.03					
					Total Discharge =	0.05738	m^3/sec

BC-31 September 2, 2009

Bank	Distance (m)	Depth of Channel (m)	Velocity (m/s)	Section Width (m)	Area (m^2)	Q (m^3/sec)	
RHB (m)	2.40						
	2.80	0.16	0.12	0.4	0.064	0.00768	
	3.20	0.27	0.2	0.4	0.108	0.0216	
	3.60	0.34	0.27	0.4	0.136	0.03672	
	4.00	0.39	0.41	0.4	0.156	0.06396	
	4.40	0.44	0.43	0.4	0.176	0.07568	
	4.80	0.5	0.49	0.4	0.2	0.098	
	5.20	0.56	0.54	0.4	0.224	0.12096	
	5.60	0.61	0.54	0.4	0.244	0.13176	
	6.00	0.63	0.41	0.3	0.189	0.07749	
	6.20	0.62	0.25	0.15	0.093	0.02325	
LHB (m)	6.30						
					Total Discharge =	0.6571	m^3/sec

Appendix D

2009 Sediment and Biological Monitoring Programs

Results

BIOLOGICAL MONITORING PROGRAM

AT

BREWERY CREEK, Y.T.

2009

Submitted to:

ALEXCO RESOURCE CORP.

Prepared by:

B. E. Burns

Laberge ENVIRONMENTAL SERVICES

January 2010

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

The Brewery Creek Mine, owned and operated by Alexco Resource Corp (Alexco), is located in central Yukon approximately 55 kilometres east of Dawson City. The mine operates under class 'A' Water Use License QZ96-007, originally issued as QZ94-003 in August 1995, and under Yukon Quartz Mining License A99-001 issued in 1999. The oxide reserves have been open pit mined and were subjected to a heap leach gold recovery operation. Licence number QZ96-007, amendment number seven, deals with decommissioning and monitoring activities to be conducted between April 2005 and December 2021.

Over the past several years, various reclamation and decommissioning activities have taken place. All mined areas and most of the roads have now been recontoured and planted. The ADR gold recovery plant and all buildings with the exception of the warehouse have been removed. The heap leach pad has been detoxified, recontoured and seeded. The heap effluent water was released through a combination of land application and direct release during the summer seasons of 2002 - 2005. The process ponds have been decommissioned and the liners removed and there is no more ongoing direct release of heap effluent expected.

Laberge Environmental Services (LES) was contracted by Alexco to undertake the benthic monitoring program in 2009, as specified in Part F, Section 41, of the licence. Alexco personnel collected water quality and stream sediment samples and conducted discharge measurements concurrently at each of the benthic sites.

This report contains all of the data collected during the monitoring program in 2009, with some comparisons with historic studies.

2.0 STUDY AREA

The study area is located approximately 55 kilometres east of Dawson City and north of the South Klondike River, bordered by Lee Creek on the west and Golden Creek on the east.

As specified in the Licence, seven sites, B1 to B7 (Figure 1), were sampled for benthic invertebrates, water quality and stream sediment quality. Note that site B7 has been moved upstream closer to the pit due to the lack of safe helicopter landing sites (Photos 1 and 2 in Appendix A), and Table 1 has been updated accordingly. Water sampling has been conducted at this new location since June 2008, but for the first time during this field trip for sediment and benthos. Additional sampling was undertaken to comply with components of various management plans. Specifics within the Lower Laura Creek Impact Study Plan state that benthic invertebrates are also to be collected from the water quality sites BC53 (Laura Creek in the wetland) and BC39 (Laura Creek u/s of the South Klondike River) during the regular benthos monitoring program. These sites have been named B8 and B9 respectively to follow consistency with the established nomenclature. The location and description of each of these sites is outlined in Table 1. In addition, components of the Heap Leach Pad Monitoring Program, Blue Zone Monitoring and Assessment Program and the Lower Laura Creek Impact Study Plan require the annual collection of stream sediment samples from BC53 (B8) and BC39 (B9).

TABLE 1
SITE DESCRIPTIONS AND LOCATIONS

SITE #	SITE DESCRIPTION	COORDINATES
B1	Lee Creek at Yukon Ditch Road	N 64°01'55" W 138°23'04"
B2	Golden Creek	N 64°01'51" W 138°04'57"
B3	Laura Creek	N 63°59'54" W 138°14'49"
B4	South Klondike River upstream of Golden Creek	N 64°01'14" W 138°05'29"
B5	South Klondike River downstream of Lee Creek	N 63°58'40" W 138°23'27"
B6	Lee Creek upstream of Pacific Creek	N 64°01'54" W 138°23'18"
B7	Lucky Creek	N 64°03'47" W 138°09'54"
B8	Laura Creek in the wetland	N 63°59’55” W 138°15’54”
B9	Laura Creek near mouth u/s of the South Klondike River	N 63°59’14” W 138°18’43”

The seven licensed sites were sampled for benthos in September 1994 (Burns, 1994), August 1995 (Burns, 1995), August 1997 (Burns, 1998), August 1999 (Burns, 1999), August 2001 (Burns, 2002) September 2003 (Burns, 2004), August 2005 (Burns 2006) and August 2007 (Burns 2008). Similar locations were also sampled by Norecol on behalf of the Company, and by Environment Canada, Environmental Protection, in July 1991. B8 has been sampled since 2003 and B9 since 2005. Some comparisons with the above referenced data have been drawn and are discussed in Section 4.4.

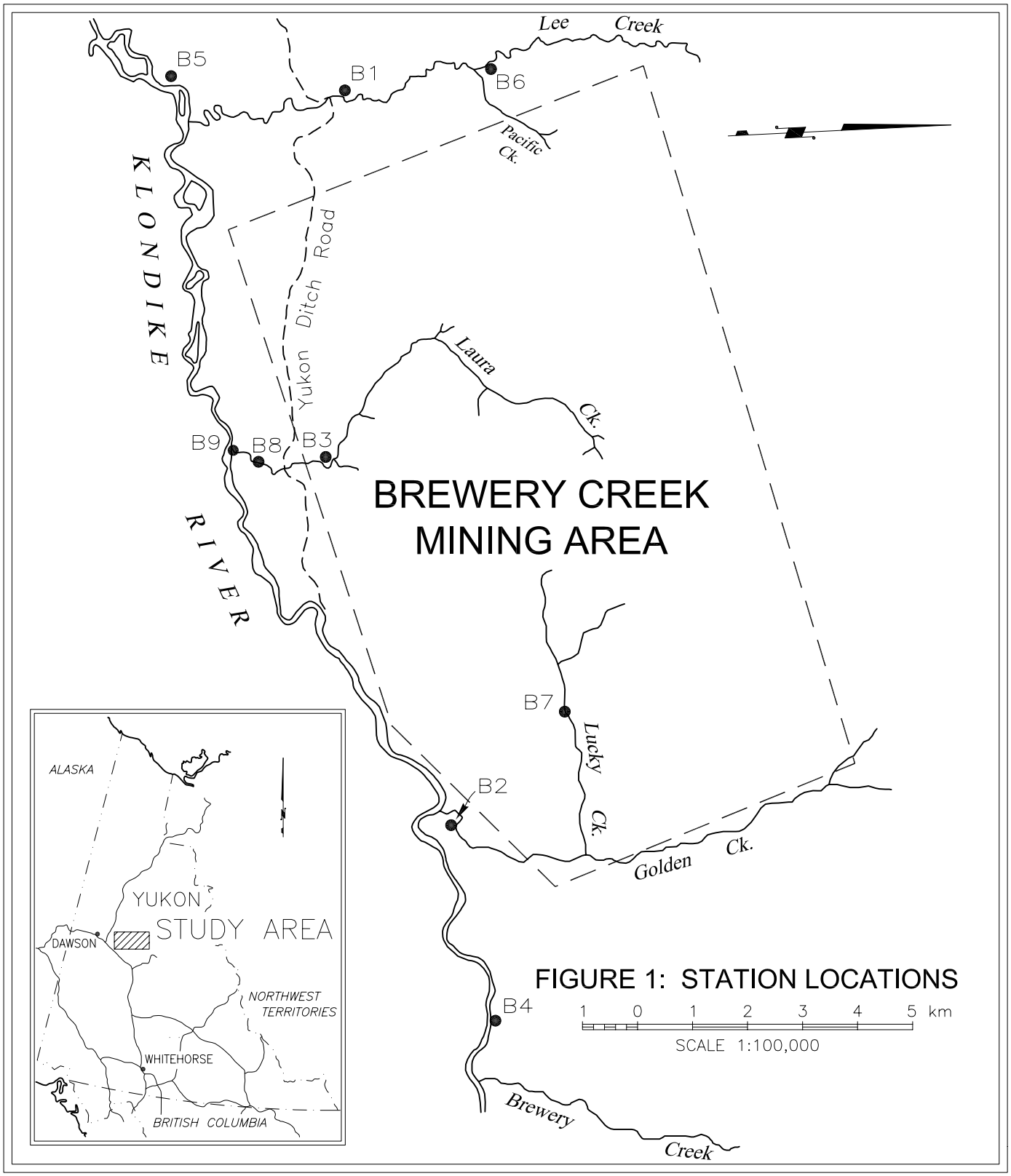


FIGURE 1: STATION LOCATIONS

3.0 METHODS

Sampling was conducted on September 1st and 2nd, 2009. With the exception of B1, B3, B8 and B9, all sites were accessed by helicopter.

3.1 WATER QUANTITY

Instantaneous discharge was measured where possible. An area with a uniform cross section was chosen and the velocity and depth were measured using a Swaffer current velocity meter (model 2100). Depending on the stream width, a number of readings were taken across the profile of the stream. Total discharge was calculated as the sum of these individual discharges (area x velocity).

3.2 WATER QUALITY

Water quality samples were collected at each site. The samples were collected in a fast flowing section of the stream, prior to any other sampling activity.

3.2.1 Field Measurements

In-situ measurements were taken at each site. Conductivity, water temperature and pH were determined with a handheld Oakton, Model # WD-35630-02 multi probe meter.

3.2.2 Chemical Analyses

All sample bottles were supplied by Maxxam Analytics in Burnaby, BC. At each site, samples were collected in a one litre plastic bottle for the analyses of nutrients, dissolved anions and for physical tests. Samples to be analyzed for total metals were collected in 250 ml plastic bottles and preserved with nitric acid. Samples to be analyzed for total cyanide were collected in one litre plastic bottles and preserved with sodium hydroxide. Samples were kept cool prior to shipment to the laboratory.

3.3 STREAM SEDIMENT SAMPLING

Triplicate stream sediment samples were collected at each station. Sample sites were selected from an exposed area of the stream bank where possible, generally characterized by the finest grain size evident at the site. Samples were collected with an aluminum scoop, placed in plastic bags and shipped to Maxxam Analytics in Burnaby, BC where they were composited and analyzed as a single sample.

The samples were dried, passed through a 100 mesh (0.15 mm) stainless steel sieve, and then run through an ultra trace ICP to determine total metals levels.

A portion of the sample was dried and a "loss on ignition (LOI)" test performed on -100 mesh material at 600^{o}C. A sieve analysis was also performed using 10, 20, 40, 60, 100, 140, and 270 ASTM mesh sizes. The data from these two analyses are not included in this report but are available in the 2009 annual report.

3.4 BENTHIC INVERTEBRATES

Invertebrates were sampled in triplicate at the sites on September 1st and 2nd, 2009. The samples were collected from an undisturbed, fast flowing, gravel strewn riffle habitat (where possible) at each of the sites.

Collections were made with a Surber sampler (area = 0.0929 m^2) which had a 300 micron mesh. The bed material within the frame was cleaned and washed by hand, with the fast flowing current carrying the disturbed bottom fauna and detritus into the collection bag. The level of effort for each sample and at each site was comparable. The captured invertebrates and detritus were placed in one litre nalgene bottles, preserved with 10% formalin, and shipped to an entomologist for sorting, identification and enumeration.

Analysis of the benthic invertebrate samples was conducted by Leslie Davenport, an invertebrate biologist in Victoria, B.C. All samples were washed through two screens with mesh sizes 1 millimetre and 180 microns. All of the organisms retained by the coarse screen were counted and identified, whereas the organisms on the 180 micron screen were subsampled as necessary. A Folsom plankton splitter was used for the subsampling. The majority of the benthos was identified to the genus level.

4.0 RESULTS AND DISCUSSION

4.1 WATER QUANTITY

Discharge measurements were made at several of the sites (Table 2). The flow in the South Klondike River is too great to measure by wading. It appears that there is negative flow in Laura Creek and the streambed was dry at B9 (Photos 3 and 4). It has been well documented over the years that all or part of Laura Creek typically goes to ground between the ditch road and the South Klondike River at various times of the year.

TABLE 2
DISCHARGE MEASUREMENTS, SEPTEMBER 1st & 2nd 2009

SITE	SITE DESCRIPTION	TIME	FLOW (m^3/sec)
B1	Lee Cr u/s Ditch Road	15:00	2.671
B2	Golden Creek	11:30	0.657
B3	Laura Creek u/s Yukon Ditch Road	11:30	0.086
B6	Lee Cr u/s of Pacific Creek		Not done
B7	Lucky Creek		Not done
B8	Laura Cr d/s Ditch Road in wetland	13:00	0.101
B9	Laura Cr u/s Klondike River	14:05	dry

4.2 WATER QUALITY

The laboratory analyses of the water samples are presented in Appendix B.

There were eight (8) parameters which fell below the method detection limit in all samples; WAD cyanide, cyanide and thiocyanate, boron, silver, tin, nitrite, ammonia and chloride. The detected parameters had generally low concentrations with the exception of the metal cations, which are a measure of water hardness.

Selected parameters are presented in Table 3. These concentrations were compared to the Canadian Council of Ministers of the Environment (CCME) 1999 guidelines, for the protection of freshwater aquatic life. Note that these guidelines have generally been established under laboratory conditions or at southern locations, usually using aquatic species exotic to the Yukon. As such, the levels recommended for aquatic life are simply guidelines, and not standards.

TABLE 3
WATER QUALITY AT BREWERY CREEK PROPERTY, SEPTEMBER 1 AND 2, 2009

Site #	B1	B2	B3	B4	B5	B6	B7	B8	Guideline*
Date (2009)	Sept 1	Sept 2	Sept 1	Sept 2	Sept 2	Sept 2	Sept 2	Sept 1	
Time	15:00	11:30	11:30	10:30	10:00	14:00	13:00	13:00	
Water Temperature °C	5.2	3.1	3.0	6.7	6.5	5.2	3.1	3.7	
Conductivity uS/cm (lab)	455	441	442	263	269	458	479	441	
Conductivity uS/cm (field)	476	454	454	258	268	462	495	452	
pH (lab)	8.1	8.1	8.1	7.8	7.9	8.1	8.0	8.1	6.5 to 9.0
pH (field)	7.7	7.6	7.7	7.55	7.52	7.7	7.41	7.8	
Discharge cms	2.671	0.657	0.086					0.101	
Total Alkalinity as CaCO3 mg/L	130	140	130	77	80	130	120	130	
Sulphate mg/L	94	89	93	47	49	97	110	94	
Ammonia Nitrogen mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	1.37**
Nitrate mg/L	0.13	0.13	0.18	0.07	0.07	0.13	0.16	0.24	
Weak Acid Dissoc. Cyanide (CN)	<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	0.005
Total Suspended Solids mg/L	3	1	6	4	3	23	10	9	
Total Dissolved Solids mg/L	290	270	270	130	150	300	310	270	
Total Metals mg/L									
Arsenic	0.00023	0.0006	0.00415	0.00106	0.00083	0.00034	0.00249	0.00406	0.005
Cadmium	**0.000096**	0.00005	0.00005	0.000026	0.000031	**0.00014**	**0.000161**	0.000039	***
Copper	0.00164	0.00205	0.00174	0.00073	0.00069	0.00253	0.00122	0.00157	0.003
Iron	0.082	0.098	0.261	0.048	0.054	0.214	**0.516**	0.244	0.3
Lead	0.000047	0.000052	0.000212	0.000046	0.000049	0.000174	0.000128	0.000167	0.004
Selenium	**0.00225**	**0.00145**	**0.00164**	0.00048	0.00051	**0.00237**	**0.00305**	**0.00159**	0.001
Zinc	0.0074	0.0042	0.0032	0.0017	0.0015	0.0123	0.0125	0.0027	0.03
Hardness as CaCO3 mg/L	234	227	226	126	126	228	236	225	

* CCME (1999) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life

** at pH 8 and temp at 5°C

*** Varies with Hardness: For the hardness of the waters in the study area, the guideline ranges from 0.00004 to 0.00007 mg/L, according to the calculation 10{0.86[log(hardness)]-3.2}

Values in **bold** indicate that the CCME guideline has been exceeded

All sampled waters were cool and slightly alkaline. Sulphate levels ranged from 47 mg/L in the South Klondike River (B4) to 110 mg/L in Lucky Creek (B7).

Ammonia concentrations were not detected in any samples.

Alkalinity is a measure of water's ability to neutralize acid. The water bodies sampled in this survey had relatively high values (77 to 140 mg/L as $CaCO_3$) and the waters were hard to very hard, providing this region with a relatively good buffering capacity against any alterations in pH.

Conductivity, a measure of the total concentrations of ionic constituents in water, was high at all sites, predominately due to the quantity of calcium and magnesium ions.

Water was relatively clear throughout and this was the first occasion that the author had witnessed clear waters at B3, Laura Creek upstream of the ditch road. During past biological monitoring programs the flow here has typically been turbid.

The CCME guidelines for arsenic, copper, lead and zinc were met at all sites. The CCME guideline for cadmium recommends a concentration of 0.000017 mg/L or the use of the formula 10{0.86[log(hardness)]-3.2}. As the waters sampled in the study area were hard to very hard, the guideline was calculated per site and ranged from 0.00004 to 0.00007 mg/L. Based on these calculations, the cadmium guideline was exceeded at B1 (Lee Creek at the ditch road), B6 (Lee Creek upstream of Pacific Creek) and B7 (Lucky Creek). The concentration of iron at B7 (Lucky Creek) exceeded the recommended guideline. The guideline for selenium was exceeded at all sites except for those on the South Klondike River, B4 and B5.

4.3 STREAM SEDIMENT QUALITY

The results for the total metals analyses of the samples are presented in Appendix C.

Seven elements (As, Cd, Cu, Hg, Pb, Se and Zn) were chosen for closer examination as these are either metals of concern in the study area or have the potential to be toxic to the aquatic system. The concentrations of these metals were compared to the CCME (1999) interim freshwater sediment quality guidelines (ISQG) and to the probable effects levels (PEL). Generally, concentrations greater than the PEL have a 50% incidence of creating adverse biological effects (see Table 4).

All sites exceeded the ISQG for arsenic. Except for the Lee Creek sites (B1 and B6) all sites also exceeded the PEL. The stream sediments in Lucky Creek (B7) contained the greatest concentration of arsenic (195 ppm).

TABLE 4
SUMMARY OF STREAM SEDIMENT METAL CONCENTRATIONS, 2009

Site #	Station Description	Arsenic ug/g	Cadmium ug/g	Copper ug/g	Lead ug/g	Mercury ug/g	Selenium ug/g	Zinc ug/g
B1	Lee Creek @ Ditch Road	**8.9**	**2.13**	**58.3**	9.4	**0.27**	2.2	**389**
B2	Golden Creek	**20.3**	**1.47**	**35.8**	12.0	**0.26**	1.7	**235**
B3	Laura Creek u/s Ditch Road	**28.2**	**0.82**	26.3	9.5	**0.18**	1.3	109
B4	S. Klonkide R u/s Golden Creek	**24.9**	**0.84**	26.3	11.5	0.11	0.6	**149**
B5	S. Klondike R d/s Lee Creek	**20.0**	**0.75**	25.7	11.3	0.10	0.9	**149**
B6	Lee Creek u/s Pacific Creek	**8.9**	**3.71**	**57.6**	10.6	**0.33**	3.3	**418**
B7	Lucky Creek	**195**	**3.25**	**43.6**	**125**	**1.47**	1.9	**310**
B8	Laura Creek in Wetland	**31.7**	**1.09**	24.9	10.3	0.10	1.6	**153**
ISQG		5.9	0.6	35.7	35.0	0.170		123
PEL		17.0	3.5	197.0	91.3	0.486		315

Note: ISQG = Interim freshwater Sediment Quality Guidelines, in **bold** where exceeded.
PEL = Probable Effects Level (>50% of adverse effects occur above this level), shaded and in **bold** where exceeded.

Concentrations of cadmium in the stream sediments at all sites were greater than the ISQG. The PEL was slightly exceeded at Lee Creek u/s Pacific Creek (B6). The concentration of copper in the stream sediments was below the PEL at all sites. However, the ISQG was exceeded at the Lee Creek sites (B1 and B6), Golden Creek (B2) and at Lucky Creek (B7).

Concentrations of lead were very low in the stream sediments at all sites with the exception of Lucky Creek. The concentration in the stream sediments here exceeded both the ISQG and the PEL. The ISQG for mercury was exceeded in the stream sediments at the Lee Creek sites (B1 and B6), Golden Creek (B2), Laura Creek upstream of the Ditch Road (B3) and Lucky Creek (B7). The ISQG guideline for zinc was met at Laura Creek upstream of the Ditch Road and exceeded at the rest of the sites. The PEL was also exceeded at the Lee Creek sites (B1 and B6).

Selenium has been identified as a metal of concern at the Brewery Creek property. There are no CCME guidelines for selenium in sediment. Concentrations ranged from 0.6 ppm in the stream sediments at the South Klondike River u/s Golden Cr (B4) to 3.3 ppm at Lee Creek upstream of Pacific Creek (B6).

Environment Canada maintains a database on metals in stream sediments from sites around the Yukon. Of 983 analyses where selenium was detected, the mean was 2.15 ppm and concentrations ranged from 0.1 to 38.8 ppm (Environment Canada, 2009). The high concentrations were documented in the Mac Pass region. The concentrations reported in the Brewery Creek study area fall close to the average and are fairly representative of concentrations at most of the sites in the Yukon.

Lee Creek appears to lie within a zone of mineralization as the stream sediments collected upstream at B6, a background site, frequently had the greatest concentrations of several metals. The 2009 stream sediment data was compared to the 1995, 1997, 1999, 2001, 2003, 2005 and

2007 data sets (Table 5). The temporal concentrations of arsenic, copper, selenium and zinc are graphed in Figures 2, 3, 4 and 5 respectively. The detection limit for selenium in 1995 was 50 ppm, and selenium was not detected at any of the sites, hence there are no data represented for 1995 in Figure 4.

The concentrations of some of the metals have generally fluctuated over the years at some of the sites. There are now eight sets of data for most of the sites. Stream sediment samples were first collected at B8, Laura Creek in the wetland, in 2003, thus representing only four sets of data here. Although the above comprises a limited database, the following observations were noted:

- The stream sediments at B7 (Lucky Creek) have the highest average concentration of arsenic (see Table 5). Concentrations had been steadily decreasing since 1999 until 2009 when they spiked to 1999 levels. Note that the site had been moved upstream closer to the pit for the 2009 sampling.

- The Lee Creek sites (B1 and B6) have the lowest average concentration of arsenic. Concentrations in the South Klondike River sites (B4 and B5) have been consistent over time.

- Copper concentrations fluctuated somewhat throughout, with very high concentrations documented at B4 (South Klondike River upstream of Golden Creek), the background site, in 1999 and 2007.

- The stream sediments at the Lee Creek sites had the greatest mean concentrations of copper, selenium and zinc. The geochemistry of this watershed within the study area appears to be consistent as concentrations of these metals are very similar at B6, Lee Creek upstream of Pacific Creek, and downstream at B1, Lee Creek at the ditch road.

- Selenium concentrations have fluctuated a little over time at the sites, with the lowest concentrations recorded at both South Klondike River sites (B4 and B5).

- Zinc concentrations have been relatively consistent over time at all of the sites.

TABLE 5
COMPARISONS OF STREAM SEDIMENT ANALYSIS OVER TIME

Metal (ppm)	Year	B1	B2	B3	B4	B5	B6	B7	B8
Arsenic	1995	8.3	35.2	21.2	20.9	20.4	6.3	70.6	
	1997	9.4	37.8	66.4	12.2	14.3	10.7	106.6	
	1999		50.5	65.8	21.8	20.9	12.2	191.3	
	2001	11.9	35.0	71.4	22.3	18.4	12.8	158	
	2003	11.8	48.9	47.5	15.9	19.3	11.5	141.5	77.4
	2005	9.2	36.3	40.9	16.4	13.3	9	69.8	21.8
	2007	6.2	17.1	27.7	17.5	13.2	6.5	33.9	24.6
	2009	8.9	20.3	28.2	24.9	20.0	8.9	195	31.7
	Mean	9.4	35.1	46.1	19.0	17.5	9.7	120.8	38.9
	S.D.	2.0	11.8	19.8	4.2	3.3	2.5	60.0	26.0
Copper	1995	70.3	61.7	30.6	30	74.7	51.8	33.8	
	1997	66.9	54.8	38.4	23.5	32.1	61.2	34.5	
	1999		95.9	40.93	115.07	52.67	82.73	49.07	
	2001	57.4	43.9	26.8	29.3	30.2	63.4	38.9	
	2003	54.7	48.1	24.8	22.4	26.5	58.3	33.9	47.6
	2005	48.2	39.7	62.5	25.9	38	53	41	29.5
	2007	60.7	33.7	23.3	121.3	29.9	65.3	27.1	27.7
	2009	58.3	35.8	26.3	26.3	25.7	57.6	43.6	24.9
	Mean	59.5	51.7	34.2	49.2	38.7	61.7	37.7	32.4
	S.D.	7.4	20.2	13.1	42.7	16.9	9.7	6.9	10.3
Selenium	1995	<50	<50	<50	<50	<50	<50	<50	
	1997	3.2	2.5	3.6	0.4	0.4	3.0	2.0	
	1999		2.67	2.3	0.5	0.7	2.3	2.3	
	2001	2.99	2.6	2.1	1	1.2	3.4	3.1	
	2003	3	3	1.5	0.9	1.2	2.7	2.5	4.0
	2005	2.3	2.2	3.5	1.0	1.6	2.4	1.9	1.4
	2007	2.6	1.7	1.0	1.0	1.5	2.7	1.2	2.3
	2009	2.2	1.7	1.3	0.6	0.9	3.3	1.9	1.6
	Mean	2.7	2.3	2.2	0.8	1.1	2.8	2.1	2.3
	S.D.	0.4	0.5	1.0	0.3	0.4	0.4	0.6	1.2
Zinc	1995	395	288	88	145	203	385	216	
	1997	456	306	175	125	162	416	168	
	1999		289	175	163	163	447	237	
	2001	435	297	176	159	184	448	213	
	2003	428	310	142	132	170	431	241	186
	2005	353	297	192	168	231	335	211	122
	2007	351	182	97	163	166	365	121	105
	2009	389	235	109	149	149	418	310	153
	Mean	401	275	144	151	179	406	215	141
	S.D.	41	44	41	16	27	40	55	36

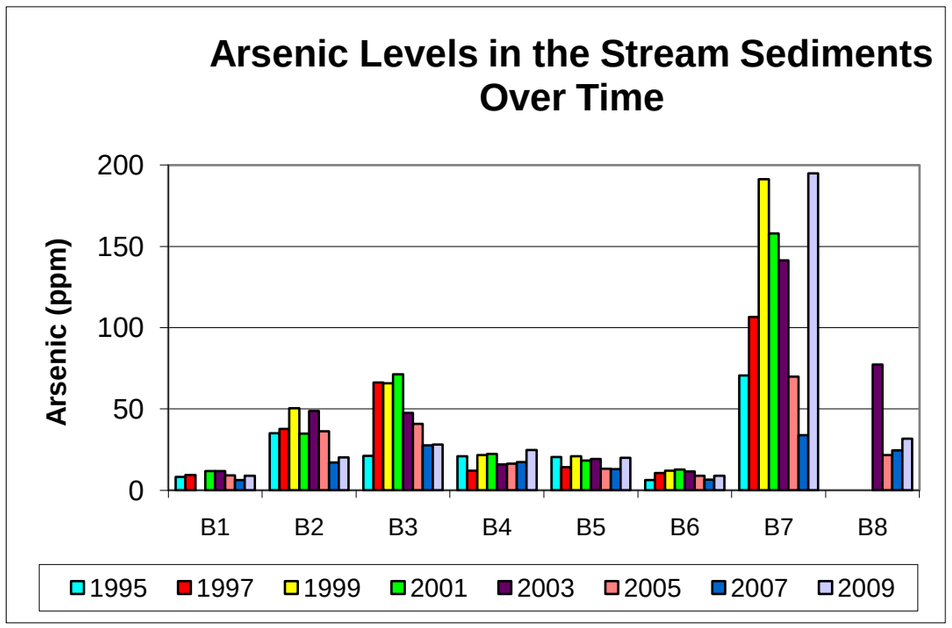


Figure 2

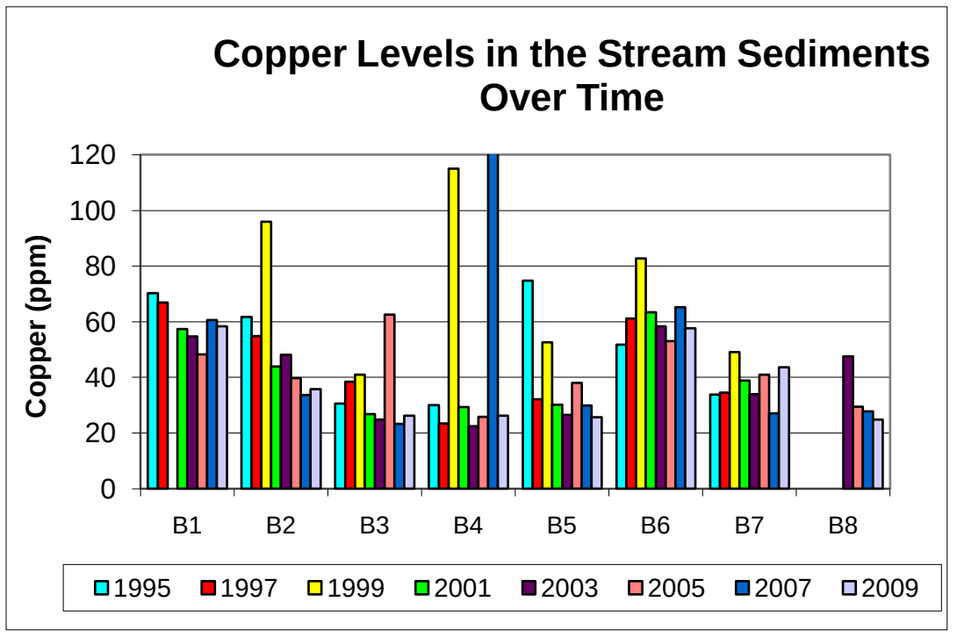


Figure 3

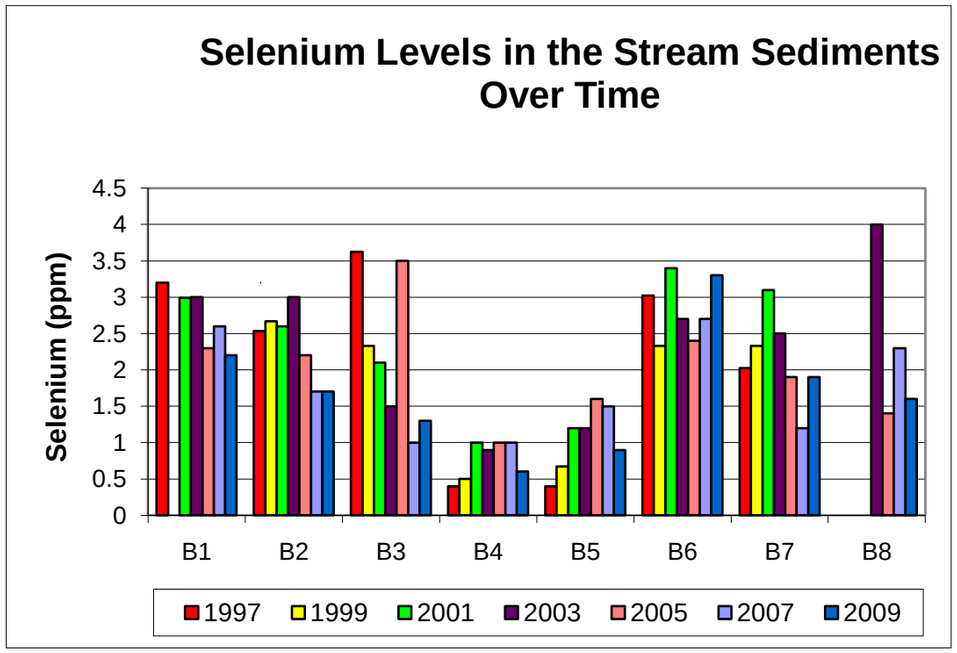


Figure 4

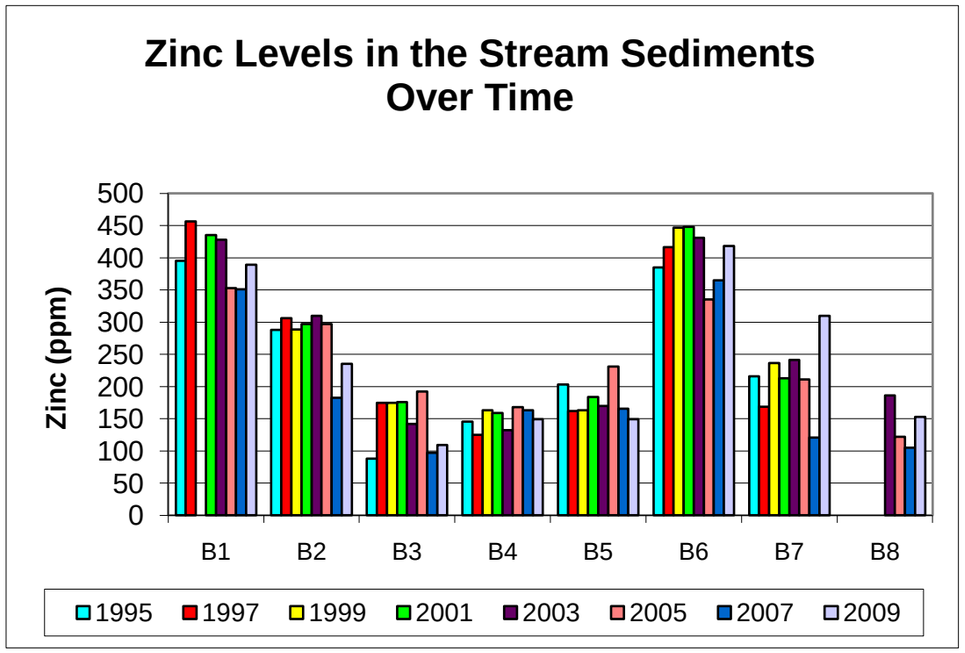


Figure 5

4.4 BENTHIC INVERTEBRATES

Five phyla were found in the study area: Arthropoda, Mollusca, Annelida, Nematoda and Platyhelminthes. A total of 9,659 individual invertebrates, representing 84 different taxonomic groups, were identified within the study area. These data are presented in Appendix D.

4.4.1 Abundance and Taxonomic Richness

Triplicate samples for benthic invertebrates were collected at each site with attempts made to collect samples representative of each site. There are no benthic data for B9 as the site was dry during the survey.

The number of organisms of the triplicates for each site was summed to give a total abundance value for that site. The abundance values ranged from a low of 99 individuals at the South Klondike River d/s of Lee Creek (B5), to a high of 3,103 individuals in Laura Creek u/s of the Ditch Road at B1 (Table 6).

TABLE 6
ABUNDANCE, DIVERSITY AND TAXONOMIC RICHNESS IN THE WATERSHEDS AT BREWERY CREEK, 2009

SITE	LOCATION	ABUNDANCE	DIVERSITY	TAXONOMIC RICHNESS INDEX
B1	Lee Creek u/s Ditch Road	3,103	45	5.5
B2	Golden Creek	2,781	42	5.2
B3	Laura Creek u/s Ditch Road	716	38	5.6
B4	S. Klondike R u/s Golden Cr	609	43	6.6
B5	S. Klondike R d/s Lee Creek	99	18	3.7
B6	Lee Creek u/s Pacific Creek	581	30	4.6
B7	Lucky Creek	1,099	24	3.3
B8	Laura Creek in wetland	671	32	4.8

As a measure of community diversity, the number of taxonomic groups identified from species to phylum at each site was tallied. The diversity followed the same trend as abundance and ranged from 18 different taxonomic groups identified at the South Klondike River d/s of Lee Creek (B5) to 45 at Laura Creek u/s the Ditch Road (B1) (Table 6).

To further characterize the taxonomic wealth of each community, the diversity was related to the population size using the formula: (Diversity –1) divided by the natural log of the population. The

richness index told a slightly different story ranging from 3.3 at B7, Lucky Creek, to the highest index, 6.6 at B4, South Klondike River u/s Golden Creek.

Densities were calculated for the population data to enable comparisons between the various samplers and dates (Table 7). The population data collected by Norecol were significantly higher than that collected by Environment Protection (EP), studies that were both conducted in July 1991. The high populations at all of the sites documented by Norecol, have also not been duplicated in the ensuing studies. Excluding the Norecol 1991 data, the populations at most of the sites have varied somewhat over the years (Figures 7 and 8). Higher populations have generally occurred at most of the sites during the studies conducted in 2007 and 2005. Relatively low populations were recorded at most of the sites in 1997 and 2003. However, populations at B3, Laura Creek, and at B4, South Klondike River u/s Golden Creek, appear depressed since 2003. Generally populations were the densest at B1 (Lee Creek at the Ditch Road) although abundance has fluctuated notably over time.

Numbers have ranged considerably in the two South Klondike communities (B4 and B5) as well. It should be noted that collecting benthic invertebrate samples from large rivers is limiting, especially using the methods outlined in the licence. As sampling can only be conducted within a certain depth, collecting benthic invertebrates must be done close to shore. If due to rain events, the river levels have increased quickly, areas that were previously dry would end up being sampled, which would not necessarily have had time to colonize. This may explain the very low population recorded at B5 during the 2009 survey.

Community numbers appear to be moderately stable over time at B6 and B7.

TABLE 7

DENSITIES (# OF ORGANISMS/M^2)/SITE/SAMPLER

Sampler	Date	B1	B2	B3	B4	B5	B6	B7	B8	B9
LES	Sept 2009	11134	9978	2569	2174	355	2085	3943	2408	dry
LES	Aug 2007	13,387	3,567	1,363	2,311	8,088	5,920	3,728	13,846	4,453
LES	Aug 2005	13,574	7,973	2,171	1,973	18,446	3,613	3,979	2,386	7,521
LES	Sept 2003	3,914	2,895	1,406	1,084	1,909	1,597	4,026	3,732	
LES	Aug 2001	6,886	2,781	3,373	2,852	3,093	3,147	4,862		
LES	Aug 1999	11,310	4,345	4,582	6,179	7,130	3,276	2,063		
LES	Aug 1997	2,637	1,410	6,390	542	466	2,709	954		
LES	Aug 1995	5,346	7,244	4,539	4,449	7,155	1,988	2,321		
LES	Sept, 1994	5,532	8,114	3,350	6,436	5,946	3,761	4,646		
NORECOL	July, 1991	31,921	19,494	28,506	44,225	14,590	20,062			
EP	July, 1991	9,656	1,726		2,883	3,748	3,712			

Many variables contribute to invertebrate productivity such as water temperature, air temperature, rainfall, canopy cover, substrate type and size, stream depth and velocity, as well as water and sediment quality.

Figure 6

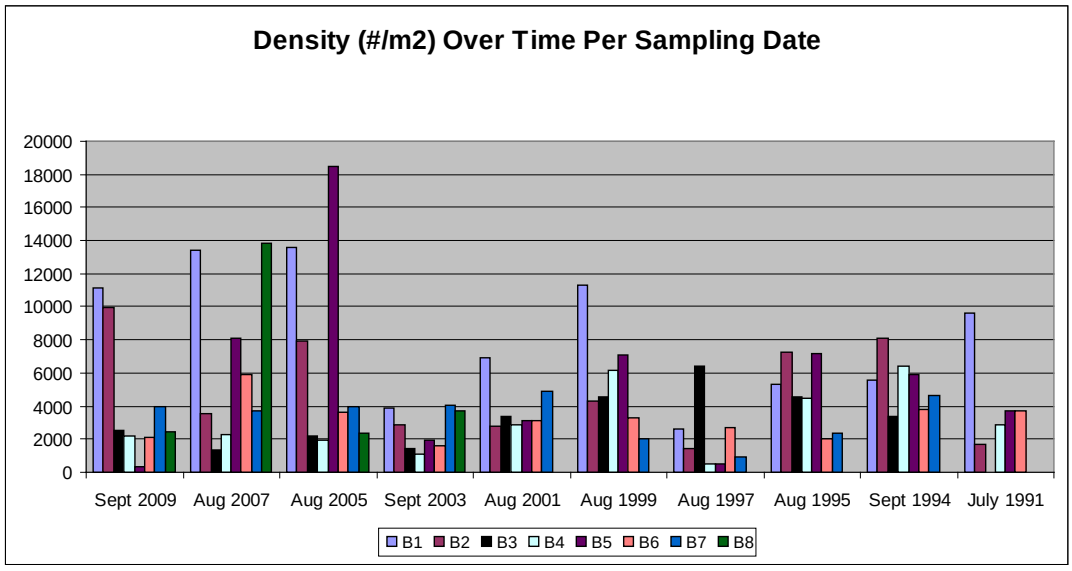
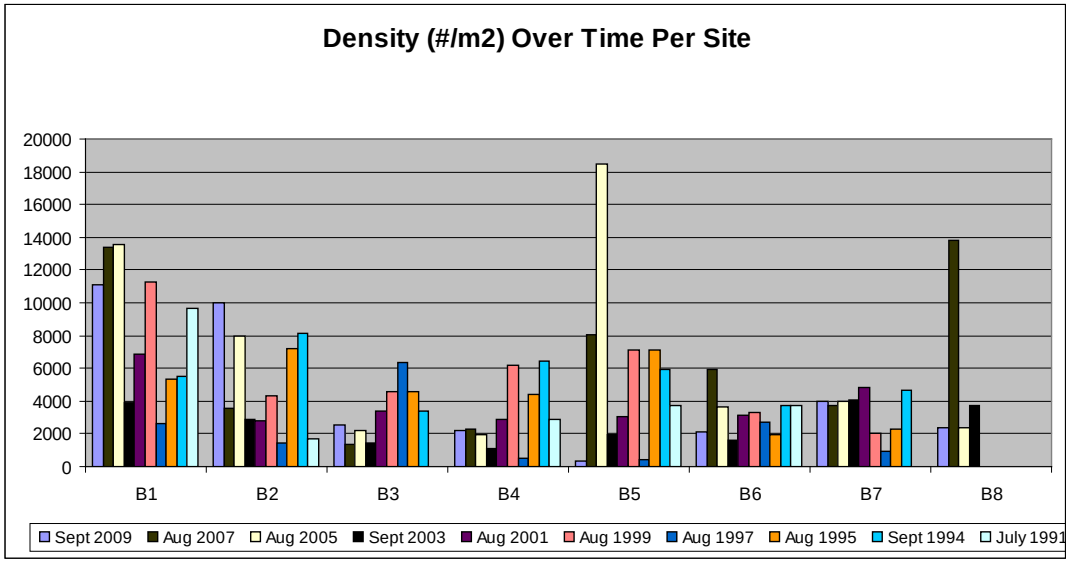


Figure 7



4.4.2 Distribution

The composition of the benthos communities was displayed as a percentage of the major taxonomic groups for each station (Figure 8). Based on this, taxa were classified with respect to their dominance within the community (Table 8).

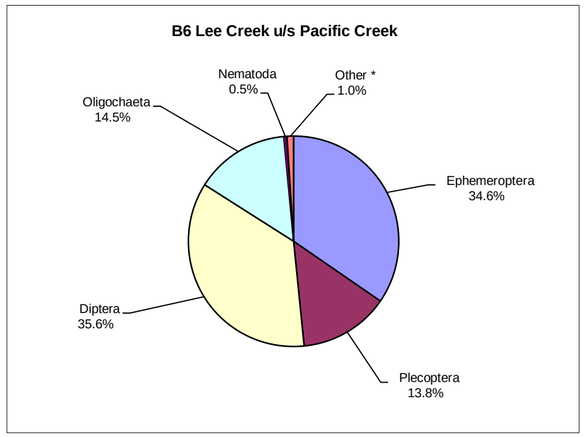
TABLE 8
TAXONOMIC DISTRIBUTION OF BENTHIC INVERTEBRATES

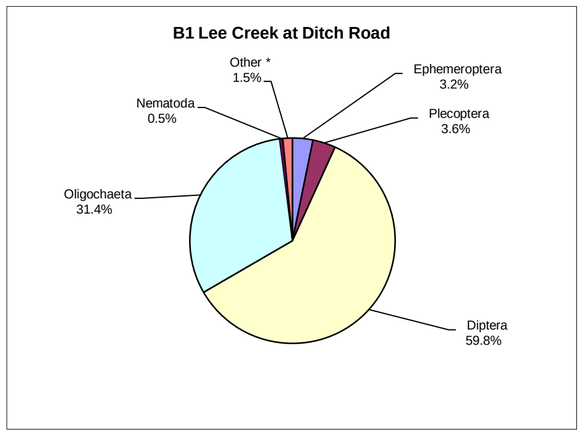
SITE	LOCATION	DOMINANT (≥25%)	SUBDOMINANT (10% to 24.9%)	COMMON (1.0% to 9.9%)	RARE (0.1% to 0.9%)
B1	Lee Creek at Klondike Ditch Road	Diptera Oligochaeta		Plecoptera Ephemeroptera Other	Nematoda
B2	Golden Creek	Diptera	Oligochaeta Nematoda	Plecoptera Other Ephemeroptera	
B3	Laura Creek	Dipera	Oligochaeta	Other Plecoptera Ephemeroptera	Nematoda
B4	Klondike R u/s Golden Creek	Oligochaeta	Ephemeroptera Plecoptera	Oligochaeta Other	Nematoda
B5	Klondike R d/s Lee Creek	Diptera	Plecoptera Ephemeroptera	Nematoda Other Oligochaeta	
B6	Lee Creek u/s Pacific Creek	Diptera Ephemeroptera	Oligochaeta Plecoptera	Other	Nematoda
B7	Lucky Creek	Diptera		Oligochaeta	Other Plecoptera Ephemeroptera Nematoda
B8	Laura Creek in Wetland	Oligochaeta Diptera		Plecoptera Ephemeroptera Other	

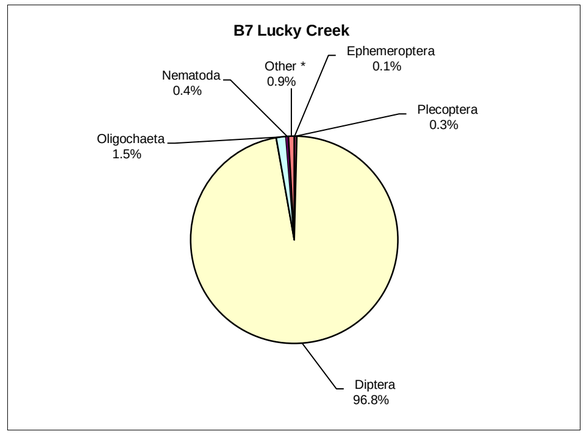
Diptera (true flies) was the dominant or co-dominant group at all of the sites with the exception of B4. The single most abundant group of invertebrates identified was *Diamesa sp* from the Dipteran subfamily Diamesinae, forming 32.8% of the invertebrates collected in the study area (Appendix D). Oligochaeta (aquatic earthworms) was the dominant group at B4 and shared dominance at B1, and B8. Individuals from the family Enchytraeidae, within the Order Oligochaeta, were the second most abundant organism throughout the study area comprising 18.3% of all the invertebrates collected.

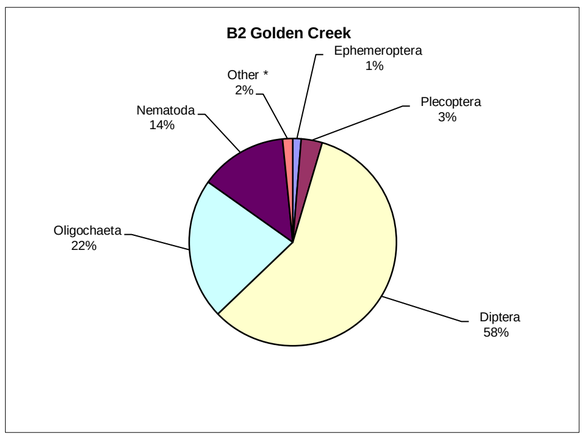
Ephemeroptera (mayflies) shared dominance with Diptera at B6, Lee Creek u/s Pacific Creek. Ephemeroptera and/or Plecoptera (stoneflies) were subdominant or common at most of the other sites. Oligochaeta was the subdominant group at B2, B3 and B6. There were no subdominant

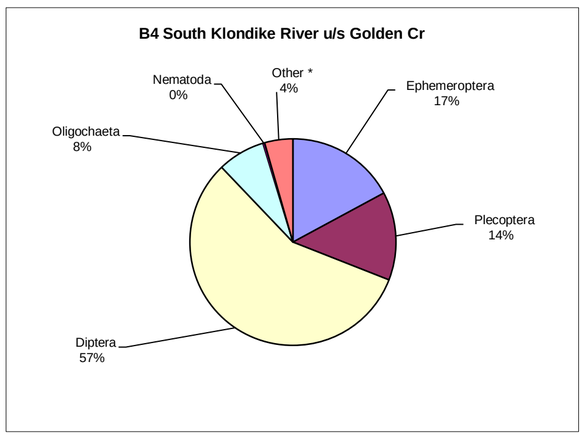
Figure 8 **The Composition of the Benthic Invertebrate Community at Each Site, Brewery Creek 2009**

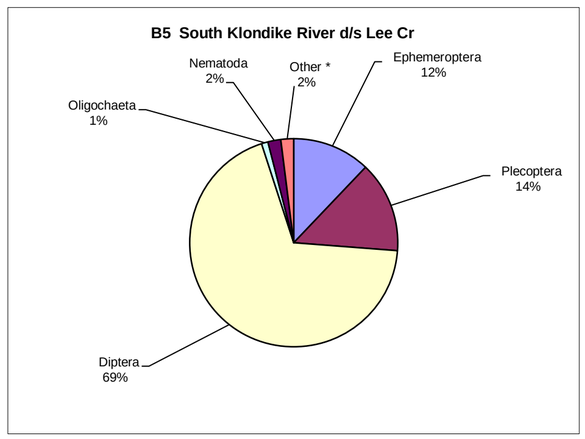


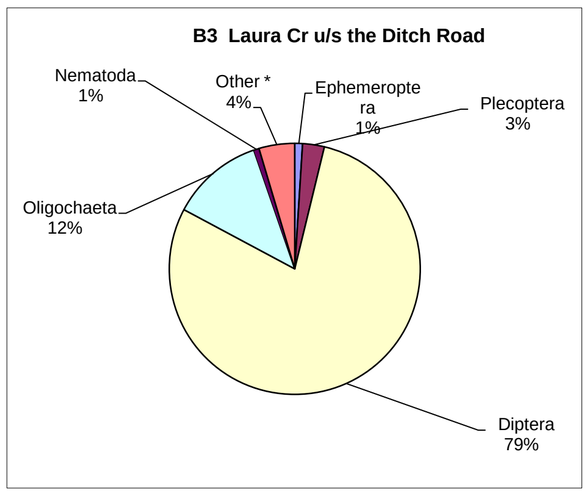


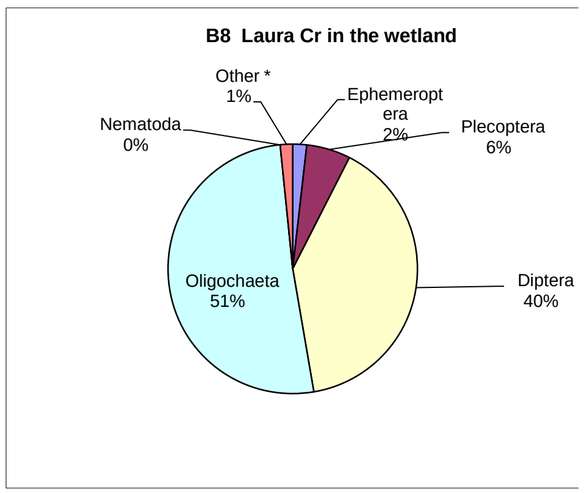












Other includes one or more of the following:

- Trichoptera
- Collembola
- Coleoptera
- Hemiptera
- Hymenoptera
- Homoptera
- Thysanoptera
- Araneae
- Hydracarina
- Amphipoda
- Copepoda
- Ostracoda
- Gastropoda
- Platyhelminthes

groups at B1, B7 or B8. Nematoda and Other were either common or rare at all of the sites. No nematods were identified at B8.

Diptera formed 96.8% of the benthic community at Lucky Creek, B7, indicating a stressed environment. Very small numbers of the other groups were present. The communities upstream and downstream on the South Klondike River are relatively similar to each other.

The distribution of the various groups of taxa has been relatively stable at each site over time. (Table 9). For the nine sets of data, Diptera has consistently been the dominant group at B5, South Klondike River d/s Lee Creek and at B7, Lucky Creek. Benthic communities at B1, B2, B3 and B8 have been dominated over time by Diptera and/or Oligochaeta.

Oligochaetes formed a significant portion of the populations at most of the creek sites, and usually were either dominant or subdominant. The majority of the Oligochaetes at the sites were identified within the family Enchytraeidae. This family is tolerant of cold temperatures, and is often found in cold mountain streams (Pennak, 1978). High numbers of Oligochaetes have been identified throughout the study period and are ubiquitous to this area. The insect orders Ephemeroptera and Plecoptera have occasionally shared dominance at B4, South Klondike River u/s Golden Creek and at B6, Lee Creek u/s Pacific Creek.

TABLE 9
DOMINANT TAXA OVER THE STUDY PERIOD

Site	2009	2007	2005	2003	2001	1999	1997	1995	1994
B1	Diptera & Oligochaeta	Oligochaeta & Diptera	Oligochaeta & Homoptera	Oligochaeta	Diptera	Oligochaeta	Diptera	Oligochaeta	Oligochaeta
B2	Diptera	Diptera	Oligochaeta	Oligochaeta & Diptera	Oligochaeta & Nematoda	Diptera & Oligochaeta	Oligochaeta	Oligochaeta	Oligochaeta
B3	Diptera	Oligochaeta & Diptera	Oligochaeta	Oligochaeta	Oligochaeta	Oligochaeta	Oligochaeta	Oligochaeta	Diptera
B4	Oligochaeta	Diptera & Oligochaeta	Diptera	Diptera & Ephemer-optera	Diptera	Diptera	Diptera	Diptera & Ephemer-optera	Ephemer-optera & Plecoptera
B5	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera
B6	Diptera & Ephemer-optera	Diptera	Plecoptera & Oligochaeta	Oligochaeta & Plecoptera	Oligochaeta Diptera & Plecoptera	Diptera	Diptera & Ephemer-optera	Plecoptera & Oligochaeta	Diptera, Plecoptera & Oligochaeta
B7	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera	Diptera
B8	Oligochaeta & Diptera	Diptera	Diptera	Diptera					

The physical characteristics of the sites in the study area have changed little over the years. Noteworthy modifications include a wildfire in the upper watershed of Lee Creek, including the site B6 in 2004, and sloughing of the right bank observed at B8 in 2009. Detailed habitat data and site characteristics are available in past reports that are on file at the Yukon Territory Water Board.

4.5 VEGETATION ASSESSMENT AT B8, LAURA CREEK IN THE WETLAND

As outlined in the Lower Laura Creek Impact Study Report (Access, 2007), vegetation monitoring is recommended at B8 on a biannual basis. At some point since the last assessment in 2007, the right bank has sloughed into the creek (Photos 5 and 6 in Appendix A). The vegetation assessed in 2009 at the Laura Creek benthic monitoring station B8, consists of a tall shrub overstory, a low shrub understory and a riparian ground cover, including:

Overstory

Alnus incana	River Alder
Betula occidentalis	Water Birch
Salix arbusculoides	Little-tree Willow
Salix bebbiana	Bebb's Willow

Understory

Betula glandulosa	Dwarf Birch
Picea glauca	White Spruce
Populus balsamifera	Balsam Poplar
Salix arbusculoides	Little-tree Willow
Salix pulchra	Diamond-leaved Willow

Ground Cover

Achillea millefolium	Common Yarrow
Agropyron trachycaulus	Slender Wheatgrass
Agrostis scabra	Ticklegrass
Calamagrostis canadensis	Bluejoint Reedgrass
Carex aquatilis	Water Sedge
Cornus canadensis	Bunchberry
Epilobium angustifolium	Fireweed
Equisetum arvense	Common Horsetail
Fragaria virginiana	Strawberry
Hordeum jubatum	Foxtail Barley
Juncus castaneus	Chestnut Rush
Ledum groenlandicum	Labrador Tea
Poa arctica	Arctic Bluegrass
Poa palustris	Fowl Bluegrass
Potentilla fruticosa	Shrubby Cinquefoil

5.0 SUMMARY

Overall, the water samples collected at the sites in this study indicated good water quality for the support of aquatic life. The CCME guidelines for the protection of freshwater aquatic life were slightly exceeded for one or more parameters at all of the sites, excluding the two located on the South Klondike River.

There has been little change in the concentrations of metals in the stream sediments. Arsenic concentrations remain high in the stream sediments at all of the sites, especially at Lucky Creek, often exceeding the concentrations that have the potential to adversely affect biotic life. However the benthic communities at most of the sites appear healthy and robust. The high concentrations of arsenic in the stream sediments at Lucky Creek may have some impact on the benthic community limiting the population to basically a single group of invertebrates. Of the 1,099 organisms collected here, 96.8% belonged to the order Diptera of which 86.7% were the midge *Diamesa sp*. Arsenic levels in the stream sediments at Lucky Creek were the highest to date in 2009. The sampling site was relocated closer to the ore body for the 2009 survey due to the lack of a safe helicopter landing site.

Concentrations of several of the metals in the stream sediments exceeded the ISQG and the PEL at the background sites B4 (South Klondike River upstream Golden Creek) and at B6 (Lee Creek upstream of Pacific Creek) indicating that the study area lies within a zone of mineralization.

Most benthic communities were diverse with good representation from the major groups of organisms that are usually present in lotic waters. A very low population of 99 individuals was documented at B5, the South Klondike River d/s Lee Creek. This could be attributed to recent rains flooding the previously dry shoreline, which had not had the opportunity to colonize by the sampling date.

Most of the creeks supported naturally occurring high populations of Oligochaeta (aquatic earthworms). High numbers of Diptera (true flies) were documented in all of the populations. Over the years (1991, 1994, 1995, 1997, 1999, 2001, 2003, 2005, 2007 and 2009) the composition of the benthic communities has been relatively similar but there has been variation in abundance at each site.

6.0 REFERENCES

Access Consulting Group. 2007. *Lower Laura Creek Impact Study Report, Brewery Creek Mine, Yukon Territory.* Prepared for Alexco Resource Corporation.

Burns, Bonnie. 1994. *Benthic Invertebrate Baseline Study at Brewery Creek, Y.T.* Laberge Environmental Services. Prepared for Loki Gold Corporation.

Burns, B.E. 1995. *Biological Monitoring Survey at Brewery Creek, Y.T.* Laberge Environmental Services. Prepared for Loki Gold Corporation.

Burns, B.E. 1998. *Biological Monitoring Survey at Brewery Creek, Y.T. 1997.* Laberge Environmental Services. Prepared for Viceroy Resource Corporation.

Burns, B.E. 1999. *Biological Monitoring Survey at Brewery Creek, Y.T. 1999.* Laberge Environmental Services. Prepared for Viceroy Resource Corporation.

Burns, B.E. 2000. *Bohemian Baseline Study, 1999.* Laberge Environmental Services. Prepared for Viceroy Minerals Corporation.

Burns, B.E. 2002. *Biological Monitoring Survey at Brewery Creek, Y.T. 2001.* Laberge Environmental Services. Prepared for Viceroy Minerals Corporation.

Burns, B.E. 2004. *Biological Monitoring Survey at Brewery Creek, Y.T. 2003.* Laberge Environmental Services. Prepared for Viceroy Minerals Corporation.

Burns, B.E. 2006. *Biological Monitoring Survey at Brewery Creek, Y.T. 2005.* Laberge Environmental Services. Prepared for Alexco Resource Corporation.

Burns, B.E. 2008. *Biological Monitoring Survey at Brewery Creek, Y.T. 2007.* Laberge Environmental Services. Prepared for Alexco Resource Corporation.

Canadian Council of Ministers of the Environment (CCME). 1999. *Canadian Environmental Guidelines. Task Force of Water Quality Guidelines*. Ottawa, Canada.

Davidge, D. Jan. 1994. *Brewery Creek Baseline Study - 1991, Data Report*. Environmental Protection, Yukon Branch.

Environment Canada. 2009. *Biomonitoring Information System for Yukon, Selenium in Sediments.* Environmental Protection, Whitehorse, Yukon.

Pennak, Robert W. 1978. *Fresh-water Invertebrates of the United States, Second Edition.* John Wiley and Sons, New York.

Pennak, Robert W. 1989. *Fresh-water Invertebrates of the United States, Third Edition.* John Wiley and Sons, New York.

Steffen Robertson and Kirsten Inc. July 1994. *Loki Gold Corporation Brewery Creek Project Initial Environmental Evaluation, Supporting Document II Environmental Baseline*. Section 6.2. (Norecol data).

APPENDIX A

PHOTOGRAPHS, SEPTEMBER 2009

Photo #1: B-7, new site on Lucky Creek looking upstream, September 2, 2009.

Photo #2: B-7, new site on Lucky Creek looking downstream, September 2, 2009.

Photo #3: B-9 looking upstream, September 1, 2009.

Photo #4: B9 looking downstream, September 1, 2009.

Photo #5: Slumping bank at B-8, looking upstream, September 1, 2009.

Photo #6: Slumping bank at B-8, looking downstream, September 1, 2009.

APPENDIX B

WATER QUALITY RESULTS, BREWERY CREEK, 2009

APPENDIX B WATER QUALITY DATA, BREWERY CREEK MINESITE, SEPTEMBER 2009

ACCESS CONSULTING GROUP

Maxxam Job #: A949186
Report Date: 2009/09/15

Client Project #: ALEX-08-BCM-01
Site Reference: BREWERY CREEK QUARTERLY
Sampler Initials: DC

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		Q65486	Q65491	Q65484	Q65490	Q65489	Q65499	Q65493	Q65485
Sampling Date		9/1/2009	9/2/2009	9/1/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/1/2009
COC Number		8304111	8304111	8304111	8304111	8304111	8304112	8304111	8304111
Site Number		**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**
ANIONS									
Nitrite (N)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate (N)	mg/L	0.13	0.13	0.18	0.07	0.07	0.13	0.16	0.24
Misc. Inorganics									
Weak Acid Dissoc. Cyanide (CN)	mg/L	<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005
Cyanide + Thiocyanate	mg/L	<0.0005	<0.0005	0.0008		<0.0005	<0.0005	<0.0005	<0.0005
Alkalinity (Total as CaCO3)	mg/L	130	140	130	77	80	130	120	130
Alkalinity (PP as CaCO3)	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bicarbonate (HCO3)	mg/L	160	170	150	94	98	160	140	150
Carbonate (CO3)	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hydroxide (OH)	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anions									
Dissolved Sulphate (SO4)	mg/L	94	89	93	47	49	97	110	94
Dissolved Chloride (Cl)	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nutrients									
Ammonia (N)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate plus Nitrite (N)	mg/L	0.13	0.13	0.18	0.07	0.07	0.13	0.16	0.24
Physical Properties									
Conductivity	uS/cm	455	441	442	263	269	458	479	441
pH	pH Units	8.1	8.1	8.1	7.8	7.9	8.1	8.0	8.1
Physical Properties									
Total Suspended Solids	mg/L	3	1	6	4	3	23	10	9
Total Dissolved Solids	mg/L	290	270	270	130	150	300	310	270
Calculated Parameters									
Total Hardness (CaCO3)	mg/L	234	227	226	126	126	228	236	225
Total Metals by ICPMS									
Total Aluminum (Al)	ug/L	24.5	35.6	88.0	19.1	22.0	79.1	107	84.4
Total Antimony (Sb)	ug/L	0.33	0.79	4.38	0.24	0.23	0.31	3.81	4.34
Total Arsenic (As)	ug/L	0.23	0.60	4.15	1.06	0.83	0.34	2.49	4.06
Total Barium (Ba)	ug/L	44.7	46.7	62.2	49.6	52.5	46.9	75.0	61.3
Total Beryllium (Be)	ug/L	<0.01	<0.01	0.03	<0.01	<0.01	0.01	0.01	0.02
Total Bismuth (Bi)	ug/L	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	0.096	0.050	0.050	0.026	0.031	0.140	0.161	0.039
Total Chromium (Cr)	ug/L	<0.1	<0.1	0.3	<0.1	<0.1	0.2	0.2	0.2
Total Cobalt (Co)	ug/L	0.061	0.069	0.469	0.046	0.044	0.193	1.51	0.443
Total Copper (Cu)	ug/L	1.64	2.05	1.74	0.73	0.69	2.53	1.22	1.57
Total Iron (Fe)	ug/L	82	98	261	48	54	214	516	244
Total Lead (Pb)	ug/L	0.047	0.052	0.212	0.046	0.049	0.174	0.128	0.167
Total Lithium (Li)	ug/L	2.7	3.9	10.5	2.3	2.4	2.1	6.8	10.3
Total Manganese (Mn)	ug/L	9.39	8.62	41.4	6.28	7.23	18.8	125	25.2
Total Molybdenum (Mo)	ug/L	1.62	1.53	2.66	0.43	0.47	1.45	2.67	2.70
Total Nickel (Ni)	ug/L	2.26	2.18	2.22	0.64	0.62	2.91	7.49	2.16
Total Selenium (Se)	ug/L	2.25	1.45	1.64	0.48	0.51	2.37	3.05	1.59
Total Silicon (Si)	ug/L	3280	3560	4820	2840	2820	3340	3740	4850
Total Silver (Ag)	ug/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Strontium (Sr)	ug/L	232	242	259	196	202	223	329	259
Total Thallium (Tl)	ug/L	0.006	0.004	0.004	0.002	0.003	0.006	0.009	0.004
Total Tin (Sn)	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Titanium (Ti)	ug/L	1.0	<0.5	2.7	0.6	1.1	1.4	1.8	3.1
Total Uranium (U)	ug/L	1.54	2.16	2.00	0.572	0.636	1.47	2.39	2.02
Total Vanadium (V)	ug/L	1.1	0.7	1.2	<0.2	<0.2	1.7	1.7	1.1
Total Zinc (Zn)	ug/L	7.4	4.2	3.2	1.7	1.5	12.3	12.5	2.7
Total Zirconium (Zr)	ug/L	0.1	0.2	0.3	<0.1	<0.1	0.1	0.2	0.3
Total Calcium (Ca)	mg/L	59.2	53.2	56.5	34.9	34.6	56.1	52.9	56.4
Total Magnesium (Mg)	mg/L	20.9	22.8	20.5	9.55	9.61	21.3	25.2	20.5
Total Potassium (K)	mg/L	0.64	0.72	1.14	0.42	0.43	0.60	0.92	1.17
Total Sodium (Na)	mg/L	1.35	1.70	3.57	1.92	1.91	1.38	2.12	3.61
Total Sulphur (S)	mg/L	42	34	40	21	21	39	46	40

APPENDIX C

STREAM SEDIMENT RESULTS, BREWERY CREEK, 2009

APPENDIX C **STREAM SEDIMENT CHEMISTRY, BREWERY CREEK MINESITE, SEPTEMBER 2009**

ACCESS CONSULTING GROUP
Maxxam Job #: A949186 Client Project #: ALEX-08-BCM-01
Report Date: 2009/09/15 Site Reference: BREWERY CREEK QUARTERLY
Sampler Initials: DC

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		Q65523	Q65528	Q65521	Q65527	Q65526	Q65531	Q65530	Q65522
Sampling Date		01/09/2009	02/09/2009	01/09/2009	02/09/2009	02/09/2009	02/09/2009	02/09/2009	01/09/2009
COC Number		8304114	8304114	8304114	8304114	8304114	8304114	8304114	8304114
Site Number		**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**
Misc. Inorganics									
Soluble (2:1) pH	pH Units	7.85	7.69	7.85	7.12	7.71	7.65	6.76	7.61
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	12100	10700	10400	9590	9340	10800	9460	10000
Total Antimony (Sb)	mg/kg	3.8	7.0	7.8	1.5	1.7	2.9	60.7	9.9
Total Arsenic (As)	mg/kg	8.9	20.3	28.2	24.9	20.0	8.9	195	31.7
Total Barium (Ba)	mg/kg	690	579	443	315	390	584	689	424
Total Beryllium (Be)	mg/kg	0.5	0.6	0.5	0.4	0.4	0.8	0.8	0.6
Total Bismuth (Bi)	mg/kg	0.1	0.2	0.2	0.2	0.2	0.1	0.4	0.2
Total Cadmium (Cd)	mg/kg	2.13	1.47	0.82	0.84	0.75	3.71	3.25	1.09
Total Calcium (Ca)	mg/kg	8120	7940	7720	4260	4240	9190	6300	5850
Total Chromium (Cr)	mg/kg	30	23	21	18	17	27	23	20
Total Cobalt (Co)	mg/kg	11.1	9.8	8.9	8.9	8.7	10.3	9.8	10.5
Total Copper (Cu)	mg/kg	58.3	35.8	26.3	26.3	25.7	57.6	43.6	24.9
Total Iron (Fe)	mg/kg	26600	23100	20300	22000	21900	25400	24300	23100
Total Lead (Pb)	mg/kg	9.4	12.0	9.5	11.5	11.3	10.6	125	10.3
Total Magnesium (Mg)	mg/kg	6280	4380	3250	3050	3110	6320	2580	3020
Total Manganese (Mn)	mg/kg	445	655	552	640	539	763	401	598
Total Mercury (Hg)	mg/kg	0.27	0.26	0.18	0.11	0.10	0.33	1.47	0.10
Total Molybdenum (Mo)	mg/kg	4.1	2.3	1.5	1.5	1.6	4.1	3.0	1.5
Total Nickel (Ni)	mg/kg	60.8	40.4	27.6	27.9	28.6	60.7	41.4	33.8
Total Phosphorus (P)	mg/kg	1820	1010	742	793	786	1470	1240	768
Total Potassium (K)	mg/kg	1330	945	730	730	694	1140	778	688
Total Selenium (Se)	mg/kg	2.2	1.7	1.3	0.6	0.9	3.3	1.9	1.6
Total Silver (Ag)	mg/kg	0.56	0.41	0.22	0.20	0.17	0.67	1.44	0.20
Total Sodium (Na)	mg/kg	<100	<100	102	<100	<100	<100	<100	<100
Total Strontium (Sr)	mg/kg	75.0	65.4	59.3	42.1	43.1	73.4	115	49.8
Total Thallium (Tl)	mg/kg	0.23	0.20	0.13	0.11	0.11	0.25	0.62	0.13
Total Tin (Sn)	mg/kg	0.4	0.4	0.3	0.5	0.3	0.6	0.9	0.3
Total Titanium (Ti)	mg/kg	407	211	336	189	159	265	207	306
Total Vanadium (V)	mg/kg	121	74	52	42	44	107	61	51
Total Zinc (Zn)	mg/kg	389	235	109	149	149	418	310	153
Total Zirconium (Zr)	mg/kg	1.5	1.2	1.7	0.7	0.7	1.2	1.5	1.4

RDL = Reportable Detection Limit

APPENDIX D

BENTHIC INVERTEBRATE DATA, 2009

APPENDIX D **BENTHIC INVERTEBRATE DATA, BREWERY CREEK 2009**

	B1a	B1b	B1c	B2a	B2b	B2c	B3a	B3b	B3c	B4a	B4b	B4c
	Lee Cr @ road			Golden Cr			Laura Cr u/s ditch rd			S Klondike u/s Golden Cr		
Fines split to:		1/2	1/4	1/2								
PHYLUM ARTHROPODA												
Class Insecta												
Order Ephemeroptera												
Ephemeroptera A			1									
Family Siphlonuridae												
Ameletus sp					3	1					3	9
Family Baetidae												
Baetis sp		3	3	1				1	1		5	4	25
Family Heptageniidae												
Cinygmula sp		8	6	6	7	3	1	2		2	5	10	27
Epeorus		9	28	31	8	2	6	1			1		3
Heptageniidae J		1					1						
Family Ephemerellidae												
Ephemerellidae J				1		1	2				1	2	9
Drunella doddsi												
Drunella flavilinia			1	1								
Order Plecoptera												
Plecoptera J				4								
Family Nemouridae												
Amphinemoura sp				1								
Podmosta sp									1			
Visoka cataractae												1
Zapada sp		13	17	25	38	23	26	9	2	2		3	15
Family Capniidae												
Capnia sp		8	4	21	1		3	2	2	2	3	10	22
Family Leuctridae												
Leuctra sp												
Family Perlodidae												
Skwala parallela			1			1							
Sweltsa gp		2	1	4			1				1	8	14
Family Taeniopterygidae												
Taenionema sp			7	4							2		5
Order Trichoptera												
Family Limnephilidae												
Ecclysomyia sp			1		11	4	3						1
Order Diptera												
Diptera A						1						
Diptera L				4		1		4	1	3		1	
Family Chironomidae												
Chironomidae A		1	7	5					1		1		
Chironomidae P		12	59	40	11	14	31		2	27	2	5	4
Chironomidae J		45	47	43	46	14	16	10	5	50	10	5	14
Cardiocladius sp		71	242	256	1	1						1	3
Euryhapsis sp					4	1	4	1	1	1	1		1
Trichotanypus sp													
Subfamily Diamesinae													
Diamesa sp		165	276	221	240	364	429	52	132	216	4	2	6
Monodiamesa sp		1											
Subfamily Orthocladiinae													
Cricotopus sp		83	91	80	76	32	20	2	4	22	68	63	94
Eukiefferiella sp		7	4	4	2		1					1	2
Limnophyes		1											
Synorthocladius sp			3	8	4	2	1			2	1		
Thienemanniella sp													
Subfamily Chironomini													
Rheotanytarsus sp		6	11	52	225	27	22	1	1	1			5
FamilyCeratopogonidae													
Bezzia or Palpomyia													2
Family Empididae													
Chelifera sp				1	9		4	1					
FamilyMuscidae													
Limnophora sp					5								
Family Psychodidae													
Maruina sp P									2				
Pericoma sp L		1	4				2					3	5
Family Simulidae													
Simulidae A		1											
Cnephia L								1	1				
Prosimulium L									1				
Prosimulium P					1				1	1			
Gymnopais sp P								1	2	12			
Simulium sp L				1							13	7	14
Simulium sp P							2		1	1			2
Twinnia sp L										1			
Family Tipulidae													
Tipulidae (unidentified)													
Dicronata sp			2	2	6		1						1
Ormosia													
Prioncera sp				1								1	
Rhabdomastix										1	2	2	
Tipula sp													
Order Collembola													
Hypogastrura sp							1		1				
Isotomurus sp		3			2	1				1	1		9
Sminthurides sp													1
Order Coleoptera													
Dytiscidae A													
Staphylinidae A (terr)							1						
Staphylinidae L (terr)		1				1							

A = adult P = pupae J = juvenile terr = terristrial

APPENDIX D **BENTHIC INVERTEBRATE DATA, BREWERY CREEK 2009**

	B1a	B1b	B1c		B2a	B2b	B2c		B3a	B3b	B3c		B4a	B4b	B4c
		Lee Cr @ road				Golden Cr				Laura Cr u/s ditch rd				S Klondike u/s Golden Cr	
Fines split to:		1/2	1/4		1/2										
Order Hemiptera															
Corixidae dam				1											
Order Hymenoptera															
Hymenoptera A			2												
Formicidae															
Order Homoptera															
Homoptera A															
Aphididae			7			2	1			1	3	1			
Cicadellidae															
Order Thysanoptera						2	1								
Class Arachnida															
Order Araneae (terr)												1			
Order Hydracarina J			12			1		1							1
Lebertia			3	1		1	1						1	3	
Oribatei															2
Sperchon		2	2				1	1							1
Unioncola sp		1	4	4			3	2			1			2	2
Class Crustacea															
Order Amphipoda															
Hyalella azteca											2	1			
Order Cladocera															
Alona													1		
Sub Class Copepoda															
Cyclopoida					1		1								1
Harpacticoida							1		15	2	1			1	
Sub Class Ostracoda															
Candona sp															1
PHYLUM MOLLUSCA															
Class Gastropoda															
Gyraulus parvus									1						
PHYLUM ANNELIDA															
Class Oligochaeta															
Chaetogaster sp									1						
Enchytraeidae J	125	233	612		420	114	74		23	2	15		11	6	25
Kincaidiana hexatheca									2		4				
Tubificidae J	2	2			2		1		18		20			1	2
PHYLUM NEMATODA	1	2	12		272	66	40		4		1			2	
PHYLUM PLATYHELMINTHES									1		1				
Total per sample	573	1083	1447		1401	681	699		154	171	391		134	146	329
Total per site	3103				2781				716				609		
Taxonomic Richness per sample	26	31	30		28	26	30		23	23	27		20	24	34
Taxonomic Richness per site	45				42				38				43		

A = adult P = pupae J = juvenile terr = terristrial

APPENDIX D **BENTHIC INVERTEBRATE DATA, BREWERY CREEK 2009**

	B5a	B5b	B5c	B6a	B6b	B6c	B7a	B7b	B7c	B8a	B8b	B8c	Totals	%
	S Klondik	d/s Lee		Lee Cr u/s Pacific			Lucky cr			Laura Cr Wetland				
Fines split to:														
PHYLUM ARTHROPODA														
Class Insecta														
Order Ephemeroptera														
Ephemeroptera A						1							2	0.02
Family Siphlonuridae														
Ameletus sp		2	2					1					21	0.22
Family Baetidae														
Baetis sp	1	3	1							8		3	59	0.61
Family Heptageniidae														
Cinygmula sp		1	1	8	16	11						1	115	1.19
Epeorus				62	33	69							253	2.62
Heptageniidae J													2	0.02
Family Ephemerellidae														
Ephemerellidae J													16	0.17
Drunella doddsi		1											1	0.01
Drunella flavilinia					1								3	0.03
Order Plecoptera														
Plecoptera J													4	0.04
Family Nemouridae														
Amphinemoura sp													1	0.01
Podmosta sp												1	2	0.02
Visoka cataractae													1	0.01
Zapada sp				1	1	1				1	4	13	194	2.01
Family Capniidae														
Capnia sp	6	1	4	3	7	11	1	1	1		1	11	125	1.29
Family Leuctridae														
Leuctra sp						1							1	0.01
Family Perlodidae														
Skwala parallela										1	2	4	9	0.09
Sweltsa gp		1	2	21	12	18							85	0.88
Family Taeniopterygidae														
Taenionema sp					4								22	0.23
Order Trichoptera														
Family Limnephilidae														
Ecclysomyia sp				1		1							22	0.23
Order Diptera														
Diptera A													1	0.01
Diptera L											1		15	0.16
Family Chironomidae														
Chironomidae A	1			1		1		1	2			2	23	0.24
Chironomidae P		1		1	1	4	25	14	7	8	5	15	288	2.98
Chironomidae J				1		3	15	15	15	1	16	3	374	3.87
Cardiocladius sp		2	2	34	17	69			1	3	1	7	711	7.36
Euryhapsis sp							7	1	1				23	0.24
Trichotanypus sp							1						1	0.01
Subfamily Diamesinae														
Diamesa sp		1	1	7	15	11	219	331	373	33	27	46	3171	32.83
Monodiamesa sp													1	0.01
Subfamily Orthocladiinae														
Cricotopus sp	6	22	22	9	8	16	12	8	9	13	36	16	812	8.41
Eukiefferiella sp				1		1						1	24	0.25
Limnophyes													1	0.01
Synorthocladius sp						1							22	0.23
Thienemanniella sp												2	2	0.02
Subfamily Chironomini														
Rheotanytarsus sp		1		1		1					6	1	361	3.74
FamilyCeratopogonidae														
Bezzia or Palpomyia													2	0.02
Family Empididae														
Chelifera sp													15	0.16
FamilyMuscidae														
Limnophora sp													5	0.05
Family Psychodidae														
Maruina sp P													2	0.02
Pericoma sp L						1		1				1	18	0.19
Family Simulidae														
Simulidae A													1	0.01
Cnephia L												1	3	0.03
Prosimulium L										1			2	0.02
Prosimulium P												1	4	0.04
Gymnopais sp P										1		2	18	0.19
Simulium sp L		1	5	1						3		3	48	0.50
Simulium sp P										1		8	15	0.16
Twinnia sp L													1	0.01
Family Tipulidae														
Tipulidae (unidentified)														
Dicronata sp						1		3	2	2		1	1	22	0.23
Ormosia	1		2										3	0.03
Prioncera sp													2	0.02
Rhabdomastix													5	0.05
Tipula sp						1							1	0.01
Order Collembola														
Hypogastrura sp													2	0.02
Isotomurus sp							1	1	1				20	0.21
Sminthurides sp													1	0.01
Order Coleoptera														
Dytiscidae A								1					1	0.01
Staphylinidae A (terr)													1	0.01
Staphylinidae L (terr)													2	0.02

A = adult P = pupae J = juvenile terr = terristrial

APPENDIX D **BENTHIC INVERTEBRATE DATA, BREWERY CREEK 2009**

	B5a	B5b	B5c	B6a	B6b	B6c	B7a	B7b	B7c	B8a	B8b	B8c	Totals	%
	S Klondik d/s Lee			Lee Cr u/s Pacific			Lucky cr			Laura Cr Wetland				
Fines split to:														
Order Hemiptera														
Corixidae dam													1	0.01
Order Hymenoptera														
Hymenoptera A									1				3	0.03
Formicidae								1					1	0.01
Order Homoptera														
Homoptera A														
Aphididae					1	1			1		1		19	0.20
Cicadellidae								1				1	2	0.02
Order Thysanoptera													3	0.03
Class Arachnida														
Order Araneae (terr)								1					2	0.02
Order Hydracarina J						1							16	0.17
Lebertia				1									11	0.11
Oribatei		1											3	0.03
Sperchon		1									1		9	0.09
Unioncola sp													19	0.20
Class Crustacea														
Order Amphipoda														
Hyalella azteca													3	0.03
Order Cladocera														
Alona													1	0.01
Sub Class Copepoda														
Cyclopoida													3	0.03
Harpacticoida										2	5		27	0.28
Sub Class Ostracoda														
Candona sp													1	0.01
PHYLUM MOLLUSCA														
Class Gastropoda														
Gyraulus parvus													1	0.01
PHYLUM ANNELIDA														
Class Oligochaeta														
Chaetogaster sp													1	0.01
Enchytraeidae J	1			2	2	25	1	2	2	14	42	18	1769	18.31
Kincaidiana hexatheca						1			1		19	28	55	0.57
Tubificidae J				2	1	51	2	3	5	21	104	97	334	3.46
PHYLUM NEMATODA	1	1				3	3	1					409	4.23
PHYLUM PLATYHELMINTHES							1				1		4	0.04
Total per sample	17	40	42	157	119	305	291	386	422	111	268	292	9659	
Total per site	99			581			1099			671				
Taxonomic Richness per sample	7	15	10	18	14	26	13	18	15	16	16	27	84	
Taxonomic Richness per site	18			30			24			32				

A = adult P = pupae J = juvenile terr = terristrial

Appendix E

2009 Revegetation Assessment

Brewery Creek Mine
2009 Revegetation Assessment

Site Assessment Report Prepared for

Alexco Resource Corp.

Laberge
ENVIRONMENTAL SERVICES

November 2009

Contents

LIST OF TABLES

1.0 Background

A revegetation program has been ongoing at the Brewery Creek Mine since 1997. Several seed mixes have been used. Earlier revegetation efforts were focused on the recontoured Canadian Zone waste rock dump and haul road, an area to the west of the Pacific Zone, and an area below the leach pad and reclaim ponds.

Two seed mixes were acquired by Viceroy Minerals Corporation in 2003.

The 'wet site' seed mix consisted of:

Common Name	**Scientific Name**	**Percentage by Weight**
Violet Wheatgrass	*Agropyron violaceum*	33%
Fowl Bluegrass	*Poa palustris*	33%
Alkaligrass	*Puccinellia distans*	13%
Tufted Hairgrass	*Deschampsia caespitosa*	13%
White Clover	*Trifolium repens*	8%

The 'leach pad' mix consisted of:

Common Name	**Scientific Name**	**Percentage by Weight**
Slender Wheatgrass	*Agropyron trachycaulus*	50%
Kentucky Bluegrass	*Poa pratensis*	20%
Red Fescue	*Festuca rubra*	20%
Alfalfa	*Medicago sativa*	10%

These two seed mixes were used to revegetate a number of areas of the mine site between 2003 and 2006 (see Sections 2.0 and 3.0).

A new seed mix was acquired by Alexco Resource Corp. in early 2006.

The 'Brewery Creek Blend' consisted of:

Common Name	**Scientific Name**	**Percentage by Weight**
Violet Wheatgrass	*Agropyron violaceum*	36%
Ticklegrass	*Agrostis scabra*	15%
Sheep Fescue	*Festuca ovina*	14%
Rocky Mountain Fescue	*Festuca saximontana*	14%
Glaucous Bluegrass	*Poa glauca*	11%
Alfalfa	*Medicago sativa*	10%

This seed mix has been used to revegetate a number of areas of the mine site since 2006.

As detailed in Section 7 of the Heap Leach Pad Cover and Facilities Monitoring Program, and Section 6 of the Blue Zone Monitoring and Assessment Program, annual terrestrial monitoring (from 2005 to 2009 inclusive) is to be conducted on the vegetation on the

Leach Pad and in the Blue Zone WRSA. Three 5m X 5m permanent monitoring plots were therefore established in 2005 at each of the following locations:

Blue Zone Waste Rock Storage Area
Leach Pad
Control (West of Pacific Zone)

The Blue Zone Waste Rock Storage Area and the Leach Pad were both seeded in the fall of 2003 with the 'leach pad' seed mix. The control plot was seeded in the fall of 2001 with the 'Brewery Creek' seed mix (see Section 2.2).

Additionally, in accordance with the two previously mentioned monitoring programs, metal uptake assessments are to be conducted during Year 1 (2005), Year 5 (2009) and Year 10 (2014). Concurrently, soil samples from each plot are to be collected for metal analysis.

A survey of the permanent monitoring plots and other revegetated areas was carried out in July 2005, July 2006, August 2007 and July 2008. Survey methods and results of these surveys are presented in reports by Laberge Environmental Services (2006, 2007, 2008 and 2009). The permanent monitoring plots and other revegetated areas were resurveyed on July 22nd and 23rd, 2009. The results of the 2009 survey, including the metal uptake assessments, are presented in this report.

2.0 2009 Survey of Permanent Monitoring Plots

2.1 Survey Methods

At each plot the following information was recorded:

- UTM coordinates
- Elevation, slope and aspect
- Vegetative cover using the following 5 grades:
  0-1%
  1-12.5%
  12.5-25%
  25-50%
  50-100%
- Seeded species composition
- Natural colonization by other plant species
- Root depth penetration of seeded species
- In-situ soil pH
- In-situ soil moisture (% relative saturation at bottom of test pit)
- Evidence of erosion

The wooden corner stakes of each plot were replaced with rebar coated with fluorescent paint. Pin flags were also installed in each corner. This was to ensure easy location of the plots in the future, as necessary, since 2009 is the last year for annual assessments.

Soils samples were collected from each plot using a stainless steel trowel. Samples were placed into ziplock bags, kept cool and shipped to Maxxam Analytics in Burnaby, BC.

Tissue samples from each seeded plant species were collected, from the stem up, using disposable gloves and placed into ziplock bags. Samples were kept cool and shipped to Maxxam Analytics in Burnaby, BC.

Site photographs were also taken.

2.2 2009 Survey Results

The following presents the data per permanent monitoring plot. Relevant photographs are provided in Appendix A.

Blue Zone Waste Rock Storage Area - Seeded in the Fall of 2003

Seed mix included:	Slender Wheatgrass	(*Agropyron trachycaulus*)	50%
	Kentucky Bluegrass	(*Poa pratensis*)	20%
	Red Fescue	(*Festuca rubra*)	20%
	Alfalfa	(*Medicago sativa*)	10%

Table 1 Blue Zone WRSA Plots

	Plot 1	Plot 2	Plot 3
UTM Coordinates	07W 0633674E 7105241N	07W 0633716E 7105262N	07W 0633755E 7105257N
Elevation (m)	815	815	807
Estimated Slope (^{o})	30	35	35
Aspect	South	South	South
In-situ Soil pH	6.5		6.3
In-situ Soil Moisture (% relative saturation)	15		19
Vegetative Cover (%)	50-100	25 - 50	50-100
Species Composition (seeded species in order of dominance)	Red Fescue Slender Wheatgrass	Slender Wheatgrass Red Fescue Alfalfa	Red Fescue Slender Wheatgrass Alfalfa (1 plant)
Root Depth Penetration (mm)	S. Wheatgrass 100 R. Fescue 110	S. Wheatgrass 90 R. Fescue 120 Alfalfa >300	S. Wheatgrass 110 R. Fescue 140 Alfalfa 200
Other Species	Ticklegrass	Moss	Arctic Lupine, Fireweed, moss, Ticklegrass
Evidence of Erosion		Minor erosion gully gradually stabilizing and filling in	1 gully filling in (grass growing in gully)
Additional Comments	Plot located over lysimeter Both seeded grass species in seed A great deal of leaf litter from previous years' growth	No Kentucky Bluegrass Both seeded grass species immature, Alfalfa in flower Litter from previous years' growth is inhibiting growth	All seeded grass species in seed, Alfalfa in flower 1 bluegrass plant outside of plot Lots of leaf litter Soil sample collected

	Plot 1	Plot 2	Plot 3
	Occasional alfalfa plants outside of plot No bluegrass Soil sample collected Fescue and Wheatgrass collected for tissue Photographs taken	Red fox observed Soil sample collected Fescue, Wheatgrass and alfalfa collected for tissue Photographs taken	Fescue and Wheatgrass collected for tissue Photographs taken

Leach Pad - Seeded in the Fall of 2003

Seed mix included:	Slender Wheatgrass	(*Agropyron trachycaulus*)	50%
	Kentucky Bluegrass	(*Poa pratensis*)	20%
	Red Fescue	(*Festuca rubra*)	20%
	Alfalfa	(*Medicago sativa*)	10%

Table 2 Leach Pad Plots

	Plot 1	Plot 2	Plot 3
UTM Coordinates	07W 0632807E 7104611N	07W 0632716E 7104655N	07W 0632856E 7104587N
Elevation (m)	859	849	853
Estimated Slope (^{o})	0	<10	20
Aspect	Neutral	North	Southeast
In-situ Soil pH	6.5	6.5	6.4
In-situ Soil Moisture (% relative saturation)	20	34	19
Vegetative Cover (%)	50-100	50-100	50-100
Species Composition (seeded species in order of dominance)	Red Fescue Slender Wheatgrass	Red Fescue Slender Wheatgrass Alfalfa (1 tiny plant)	Red Fescue Slender Wheatgrass Kentucky Bluegrass Alfalfa (1 small plant)
Root Depth Penetration (mm)	S. Wheatgrass 110 R. Fescue 90	S. Wheatgrass 110 R. Fescue 100 Alfalfa 100	S. Wheatgrass 125 R. Fescue 130 K. Bluegrass 80 Alfalfa 180
Other Species	Raspberry (in berry) Fireweed, moss, Foxtail Barley	Arctic Lupine, Foxtail Barley, Ticklegrass, Moss, unidentified forb	Annual Hawk's-beard, fleabane, Fireweed, moss Common Dandelion

	Plot 1	Plot 2	Plot 3
Evidence of Erosion	None	None	None
Additional Comments	Heavily dominated by fescue, only a few wheatgrass plants Lots of leaf litter creating areas of no growth Some Bluegrass plants outside of plot No alfalfa in plot and only 1 within visual range Birches and large willows growing nearby Fox droppings Soil sample collected Only fescue collected for tissue Photographs taken	All seeded grass species in seed, Alfalfa in flower No Kentucky Bluegrass More alfalfa in area than near Plot 1 Willows growing nearby Soil sample collected Fescue and Wheatgrass collected for tissue Photographs taken	All seeded grass species in seed Lots of litter from previous year's growth Not much alfalfa on this slope Soil sample collected Fescue, Bluegrass and Wheatgrass collected for tissue Photographs taken

Control (West of Pacific Zone) - Seeded in the Fall of 2001

Seed mix included:	Violet Wheatgrass	(*Agropyron violaceum*)	35%
	Slender Wheatgrass	(*Agropyron trachycaulus*)	13%
	Fowl Bluegrass	(*Poa palustris*)	16%
	Alpine Bluegrass	(*Poa alpina*)	13%
	Sheep Fescue	(*Festuca ovina*)	13%
	Rocky Mountain Fescue	(*Festuca saximontana*)	10%

Table 3 Control Plots

	Plot 1	Plot 2	Plot 3
UTM Coordinates	07W 0632890E 7105434N	07W 0632899E 7105457N	07W 0632920E 7105520N
Elevation (m)	837	838	835
Estimated Slope (^{o})	0	0	0
Aspect	Neutral	Neutral	Neutral
In-situ Soil pH	6.5	6.6	6.6

	Plot 1	**Plot 2**	**Plot 3**
In-situ Soil Moisture (% relative saturation)	30	22	30
Vegetative Cover (%)	50-100	50-100	50-100
Species Composition (seeded species in order of dominance)	Fowl Bluegrass Violet/Slender Wheatgrass Rocky Mountain/ Sheep Fescue	Fowl Bluegrass Rocky Mountain/ Sheep Fescue Violet/Slender Wheatgrass Alpine Bluegrass (1)	Rocky Mountain/ Sheep Fescue Fowl Bluegrass Alpine Bluegrass Violet/Slender Wheatgrass
Root Depth Penetration (mm)	V/S Wheatgrass 90 RM/S Fescue 105 F Bluegrass 105	V/S Wheatgrass 80 RM/S Fescue 120 F Bluegrass 100 Alpine Bluegrass 95	V/S Wheatgrass 80 RM/S Fescue 95 F Bluegrass 110 Alpine Bluegrass 95
Other Species	Fireweed, Tall Jacob's Ladder, Arctic Lupine Willow, yarrow, wood rush	Fireweed Arctic Lupine Tall Jacob's Ladder Common Horsetail Common Timothy Dandelion	Fireweed Willow Blue-joint grass Alder, Birch, Fleabane
Evidence of Erosion	None	None	None
Additional Comments	All seeded grass species in seed No sign of Alpine Bluegrass Very dense vegetative growth and lots of grass litter from previous years' growth More fireweed than previous years Large Goldenrod just outside of plot Soil sample collected. Bluegrass, Fescue and Wheatgrass collected. Photographs taken	All seeded grass species in seed Lots of grass litter from previous years' growth Soil sample collected. Bluegrass, Fescue and Wheatgrass collected for tissue. Photographs taken	All seeded grass species in seed Lots of leaf litter Soil sample collected. Fowl Bluegrass, Fescue and Wheatgrass collected for tissue Photographs taken

2.3 Metal Uptake Analysis

In accordance with the two previously mentioned monitoring programs, metal uptake assessments are to be conducted during Year 5. Soil samples were collected from each plot concurrently with the collection of the seeded plant species. The laboratory analytical data are presented in Appendix B.

Soil samples were collected in Year 1 (Laberge Environmental Services, 2006). There was good correlation between years at all control and leach pad sites, although there was some differences in the concentrations of arsenic, cadmium and zinc in the soil from L-2. There was some minor variation in the concentrations in the Blue Zone soils.

The averages of the concentrations of the soil samples per site (Appendix B) were similar for most metals in 2009. The notable exceptions were higher arsenic (significantly) and mercury concentrations in soil from the Blue Zone and slightly higher concentrations of cadmium, copper, tin, titanium and zinc in the Control soils.

The plant tissue analysis attempts to determine if there is a significant uptake of metals by the seeded plant species by examining the metal concentrations found in plant tissues and the associated soils. A comparison of metal levels was made between the two mine site plots and the control plot. The mine site plots, Blue Zone and the Leach Pad, were both seeded in the fall of 2003 with the "leach pad" mix, while the control plots was seeded in the fall of 2001 with an earlier acquired seed mix. Wheatgrass, Bluegrass and Fescue are the seeded grasses used in the comparison. Alfalfa, a legume, was not included in the mix used at the Control sites, but was in the "leach pad" mix (See Section 2.2).

Fewer seeded species were found in sufficient quantity from each plot for metal analysis in 2009. As mentioned in Section 2.2, there was a decline in the growth and presence of Bluegrass in the Leach Pad and Blue Zone plots. Alfalfa was only found in adequate quantities to allow sampling at BZ-2.

Of the three seeded grass types common to the sites, the highest concentrations of aluminum, iron, lead, manganese, molybdenum, and sodium were documented in fescue tissues. The highest concentrations of arsenic, chromium and nickel were highest in wheatgrass tissues. Alfalfa tissues had very high concentrations of barium, boron, calcium, magnesium and strontium compared to the grass species.

Only fescue plants were common to each plot. Fescue tissues from the Control plots had higher concentrations of several metals but notably cadmium, chromium, lead and zinc. Concentration of selenium was the greatest in fescue tissues from the Leach Pad plots, and arsenic concentrations were greater from the Blue Zone plots. Concentrations of arsenic in Fescue tissues from the leach Pad plots were also greater than in the control plot tissues.

It may appear that plants are taking arsenic up from the soils at the Blue Zone plots. However concentrations were significantly lower in the soils in the Leach Pad plots (and were similar to the concentrations in the Control plots), yet arsenic levels in the various

plant tissues here were considerably higher than at most of the Control sites, and not that much lower than at the Blue Zone plots. Therefore, an increase in arsenic levels in the associated soils has not necessarily translated to an increase in the arsenic levels in the plant tissues.

The data for metals of potential concern in soils and the plant tissues are summarized for each plot in Table 4.

Metal analysis was conducted on plant tissues in 2005 (Laberge Environmental Services, 2006). A visual comparison of the two data sets shows that aluminum concentrations were consistently much lower in almost all of the plant tissues in 2009. Due to the high abundance of aluminum commonly occurring in soils, it is not unusual to have relatively high aluminum levels in plant tissues. It is unknown why concentrations are so diminished in 2009.

Concentrations of several of the metals (typically arsenic, cadmium, copper, lead, selenium and/or zinc) were lower in 2009 in the sampled plant tissues. There were increases in chromium concentrations in the fescue and wheatgrass tissues from C-3, fescue tissues from L-1 and wheatgrass tissues at L-2.

2.4 Summary

- Soil moisture was significantly lower at all plots at the time of the 2009 survey. This was probably the result of the dry, warm weather that occurred during the 2009 summer.

- The grades of vegetative cover remained the same at each of the plots in 2009 except for a decrease (25 to 50%) at Plot 2 of the Blue Zone WRSA. The abundance of leaf litter from previous years' growth appears to be inhibiting new growth.

- The most notable change in species composition in 2009 was the absence of Kentucky Bluegrass at the Blue WRSA plots and Plots 1 and 2 on the Leach Pad. It appears that Kentucky Bluegrass (a non-native species) will not be a long-term survivor at the Brewery Creek Mine and is gradually dying off. There has also been a decline in the number of alfalfa plants colonizing the plots.

- The number of native plants colonizing the plots has not increased in 2009. This is probably the result of the very dense growth of the seeded species.

- The only evidence of erosion continues to be on the Blue Zone WRSA plots, and these small gullies appear to have stabilized. They are continuing to fill in and are revegetating.

- Concentrations of most of the metals were similar in the soils collected from each plot. The soils at the Blue WRSA plots had higher concentrations of arsenic and mercury. The soil at the Control plots had higher concentrations of cadmium, copper, tin, titanium and zinc.

- Only fescue plants were common to each plot in 2009. Concentrations of several metals, but notably cadmium, chromium, lead and zinc, were highest in the fescue tissues from the Control plots. Selenium concentrations were greatest in the fescue tissues from the Leach Pad plots, and arsenic concentrations were highest from the plant tissue growing on the Blue WSRA plots.

3.0 2009 Revegetation Survey

3.1 Survey Methods

A brief visual survey of other seeded areas of the mine site was carried out. These areas included recontoured and scarified pit infills, waste rock dumps, and haul roads, as well as the areas around the reclaimed leach pad. The survey included an estimate of the overall vegetative cover, a non-quantitative seeded species composition and a record of other plant species observed colonizing the area. Photos of selected sites over time are presented in Appendix A.

3.2 2009 Survey Results

Pacific Pit
Approximately 11.7 ha were broadcast-seeded in the fall of 2001 using the second 'Brewery Creek' seed mix. This mix included:

Violet Wheatgrass	(*Agropyron violaceum*)	35%
Slender Wheatgrass	(*Agropyron trachycaulus*)	13%
Fowl Bluegrass	(*Poa palustris*)	16%
Alpine Bluegrass	(*Poa alpina*)	13%
Sheep Fescue	(*Festuca ovina*)	13%
Rocky Mountain Fescue	(*Festuca saximontana*)	10%

This slope has a patchy, inconsistent (30 to 90%) vegetative cover.

The seeded cover is now a mix of Fowl Bluegrass and Wheatgrass, with lesser amounts of Alpine Bluegrass, Rocky Mountain Fescue and Sheep Fescue. White Clover continues to occur in patches, although it was not seeded on this slope.

Colonizing species observed in 2009 include Black Spruce (*Picea mariana*), Alaska Birch (*Betula neoalaskana*), Balsam Poplar (*Populus balsamifera*), Trembling Aspen (*Populus tremuloides*), Willow (*Salix* spp.), Alder (*Alnus crispa*), Raspberry (*Rubus idaeus*), Fireweed (*Epilobium angustifolium*), Fleabane (*Erigeron acris*), Arctic Lupine (*Lupinus arcticus*), Annual Hawk's-beard (*Crepis tectorum*), Foxtail Barley (*Hordeum jubatum*), Blue-joint Reed Grass (*Calamagrostis canadensis*) and Ticklegrass (*Agrostis scabra*).

The haul road above the pit has a sparse vegetative cover (about 20%) which includes Violet Wheatgrass, Sheep Fescue, and the unseeded Northern Rough Fescue (*Festuca altaica*).

Blue Inpit Backfill
Approximately 4.9 ha were drill-seeded in the fall of 2003 using the wet area seed mix.

The overall vegetative cover ranges from 60 to 80%, although a few areas have a thinner cover and a few spots were missed by the seeder.

The seeded cover is mostly Violet Wheatgrass and Tufted Hairgrass, with lesser amounts of Fowl Bluegrass. White Clover is sparse and patchy.

Colonizing species observed in 2009 include Raspberry (*Rubus idaeus*), Fireweed (*Epilobium angustifolium*), Fleabane (*Erigeron* sp.), Foxtail Barley (*Hordeum jubatum*) and Ticklegrass (*Agrostis scabra*).

The access road to the Blue Zone pit (seeded with the new Brewery Creek blend in the spring of 2007) is now dominated by a thick growth of Violet Wheatgrass and Ticklegrass with lesser amounts of Rocky Mountain Fescue, Glaucous Bluegrass and Alfalfa.

There is a small erosion channel beside the access road near the bottom of the hill.

Moosehead
Approximately 3.0 ha were seeded (drill-seeded and broadcast-seeded by ATV) in the fall of 2003 using the wet area seed mix.

The vegetative cover is variable, ranging from about 20% in the east by the pit to about 90% on top of the hill. A black fox was observed upon arrival at the site.

The seeded cover is mostly Tufted Hairgrass, with lesser amounts of Violet Wheatgrass and Fowl Bluegrass. White Clover occurs in dense patches.

Colonizing species observed in 2009 include Black Spruce (*Picea mariana*), White Spruce (*Picea glauca*), Alaska Birch (*Betula neoalaskana*), Balsam Poplar (*Populus balsamifera*), Trembling Aspen (*Populus tremuloides*), Willow (*Salix* spp.), Alder (*Alnus crispa*), Raspberry (*Rubus idaeus*), Prickly Rose (*Rosa acicularis*), Arctic Lupine (*Lupinus arcticus*) and Hawk's-beard (*Crepis nana*), Fireweed (*Epilobium angustifolium*) and Alaskan Knotweed (*Polygonum alaskanum*).

Moosehead Road and Main Haul Road West of Moosehead Zone
This area was reseeded in the spring of 2006 with the new Brewery Creek Blend.

The area has a variable vegetative cover averaging about 70%. The seeded cover is heavily dominated by Alfalfa with lesser amounts of Violet Wheatgrass and Ticklegrass.

Colonizing species include large patches of Foxtail Barley (*Hordeum jubatum*).

Canadian Waste Rock Storage Area
Approximately 9.2 ha were seeded in the fall of 1997 with a bulk mixer truck using the 'Brewery Creek' seed mix. This mix included:

Fowl Bluegrass	(*Poa palustris*)	17%
Kentucky Bluegrass	(*Poa pratensis*)	16%
Wild Rye	(*Elymus* ?)	16%
Sheep Fescue	(*Festuca ovina*)	16%
Red Fescue	(*Festuca rubra*)	12%
Common Timothy	(*Phleum pratense*)	10%
Alsike Clover	(*Trifolium hybridum*)	8%
Alfalfa	(*Medicago sativa*)	5%

This area has a variable cover, ranging from about 70% (there are still some barren areas) on the south slope to about 100% on the north slope.

The seeded cover now consists of Common Timothy and occasional Red Fescue and Fowl Bluegrass, with large patches of Alsike Clover and Alfalfa. The south slope has a few dense patches of Red Fescue.

Colonizing species observed in 2009 include White Spruce (*Picea glauca*), Black Spruce (*Picea mariana*), Trembling Aspen (*Populus tremuloides*) – some > 5m tall-, Willow (*Salix* spp.), Alaska Birch (*Betula neoalaskana*), Alder (*Alnus crispa*), Rose (*Rosa acicularis*), Annual Hawk's-beard (*Crepis tectorum*), Fireweed (*Epilobium angustifolium*), Arctic Lupine (*Lupinus arcticus*), Fleabane (*Erigeron acris*), Common Yarrow (*Achillea millefolium*), Smooth Brome (*Bromus inermis*), Blue-joint Reed Grass (*Calamagrostis canadensis*) and Common Horsetail (*Equisetum arvense*).

There is also evidence of winter moose browse in this area.

Canadian Stockpile
Approximately 1.0 ha was drill-seeded in the fall 2003 using the wet area seed mix.

The lower slopes of this area have a very good vegetative cover (close to 100%), and the higher drier slopes have only about a 20% cover.

The seeded cover is dominated by a dense growth of White Clover, which is choking out other species in some places. Violet Wheatgrass, Tufted Hairgrass and Fowl Bluegrass are also found. On the lower slopes there is also a great deal of litter from last year's growth, mostly Violet Wheatgrass.

Colonizing species observed in 2009 include Alder (*Alnus crispa*), Willow (*Salix* spp.), Alaska Birch (*Betula neoalaskana*), Balsam Poplar (*Populus balsamifera*), Annual Hawk's-beard (*Crepis tectorum*), Arctic Lupine (*Lupinus arcticus*), Fleabane (*Erigeron acris*), Common Yarrow (*Achillea millefolium*), Red Clover (*Trifolium pratense*) and Blue-joint Reed Grass (*Calamagrostis canadensis*).

Flanks of Main Haul Road West of Canadian Zone at Stream Crossing
This area was seeded in the fall of 2005 with the leach pad mix and in the spring of 2006 with the new Brewery Creek blend.

It has a good vegetative cover (up to 90%).

The seeded cover continues to be dominated by a heavy cover of Alfalfa and Wheatgrass with lesser amounts of Red Fescue and Kentucky Bluegrass.

Upper Fosters
Approximately 8.0 ha were drill-seeded in the fall of 2003 using the wet area seed mix.

The area has good cover on the lower flats (up to 90%), with a sparse growth (about 20%) on the upper slopes.

The seeded cover on the upper slopes is Fowl Bluegrass with small patches of White Clover and patches of Tufted Hairgrass at the base of the slope where the seed had washed into depressions. Violet Wheatgrass and Tufted Hairgrass are no longer in evidence on the upper slopes. Revegetation on the lower flat area is now mostly dense White Clover, with a little Tufted Hairgrass and Fowl Bluegrass.

Colonizing species observed in 2009 include Black Spruce (*Picea mariana*), Alaska Birch (*Betula neoalaskana*), Trembling Aspen (*Populus tremuloides*), Willow (*Salix* sp.), Raspberry (*Rubus idaeus*), Annual Hawk's-beard (*Crepis tectorum*), Fireweed (*Epilobium angustifolium*) and Common Timothy (*Phleum pratense*.).

Kokanee Inpit Backfill
Approximately 5.0 ha were broadcast-seeded by ATV in the fall of 2003 using the wet area seed mix.

The vegetative cover is highly variable, ranging from very sparse, 10% on the slopes, to nearly 100% on the lower flats.

The upper slopes have a sparse growth of Fowl Bluegrass, Violet Wheatgrass and Tufted Hairgrass with patches of White Clover. The lower flats are dominated by vast dense stands of White Clover along with Fowl Bluegrass and Tufted Hairgrass and with minor amounts of Violet Wheatgrass.

Although the upper slopes have sparser vegetative cover, there are many more colonizing shrubs, mostly Alaska Birch (*Betula neoalaskana*) and willows (*Salix* spp.). Other colonizing species observed in 2009 include Alder (*Alnus crispa*), Annual Hawk's-beard (*Crepis tectorum*), Arctic Lupine (*Lupinus arcticus*), Common Yarrow (*Achillea millefolium*), Wormwood (*Artemisia* sp.), Fleabane (*Erigeron* sp.) and Red Clover (*Trifolium pratense*).

North Golden Inpit Backfill
Approximately 11.2 ha of the lower slopes were broadcast-seeded by ATV in the fall 2003 using the wet area seed mix. The upper slopes were seeded in the fall of 2005 with the wet area seed mix and reseeded in the spring of 2006 and again in the spring of 2007 with the new Brewery Creek blend.

The vegetative cover on the lower slopes is about 90% and dominated by dense stands of Tufted Hairgrass along with Violet Wheatgrass, Fowl Bluegrass and patches of White Clover.

The more recently seeded upper slopes now have a good cover (about 80%). These areas have a vegetative cover dominated by Violet Wheatgrass, Tufted Hairgrass, White Clover and Alfalfa. Areas not reseeded have a sparse cover (about 40%) of Tufted Hairgrass and White Clover. Although these areas have a rather sparse cover they have more volunteer colonizers.

Colonizing species observed in this zone in 2009 include Balsam Poplar (*Populus balsamifera*), Felt-leaf Willow (*Salix alaxensis*), Alaska Birch (*Betula neoalaskana*), Alder (*Alnus incana*), Annual Hawk's-beard (*Crepis tectorum*), Red Clover (*Trifolium pratense*), Common Yarrow (*Achillea millefolium*), and Fireweed (*Epilobium angustifolium*).

Lucky

Approximately 4.3 ha, including the waste rock dump and the inpit backfill, were broadcast-seeded by ATV in the fall 2003 using the wet area seed mix. The waste rock dump, the pit bottom, the old Lucky haul road and the lower road to Bohemian were reseeded with the Brewery Creek blend in the spring of 2007.

The east slope of the inpit backfill has a dense vegetative cover, up to 100%. The seeded cover in this area is dominated by Tufted Hairgrass with some Violet Wheatgrass, Fowl Bluegrass and White Clover (in dense stands). The pit bottom has approximately 70% cover of Violet Wheatgrass, Fowl Bluegrass, Ticklegrass and Alfalfa.

The newly reseeded areas of the waste rock dump, the Lucky haul road and the lower road to Bohemian also now have a good cover (up to 90%). The seeded cover on these areas consists of Violet Wheatgrass, Tufted Hairgrass and White Clover from the earlier seeding (2003) and Ticklegrass, Glaucous Bluegrass, Sheep Fescue and Alfalfa from the recent seeding (2007).

Colonizing species observed in the Lucky zone area in 2009 include Black Spruce (*Picea mariana*), Alaska Birch (*Betula neoalaskana*), Alder (*Alnus crispa*), Balsam Poplar (*Populus balsamifera*), Willow (*Salix* sp.), Raspberry (*Rubus idaeus*), Fireweed (*Epilobium angustifolium*), Arctic Dock (*Rumex arcticus*), Common Yarrow (*Achillea millefolium*), Siberian Yarrow (*Achillea sibirica*), Blue-joint Reed Grass (*Calamagrostis canadensis*), Alaskan Knotweed (*Polygonum alaskanum*), Crepis (*Crepis nana*), Annual Hawk'sbeard (*Crepis tectorum*), Horsetail (*Equisetum* sp.) and Slough Grass (*Beckmannia syzigachne*).

Main Haul Road

Approximately 24.0 ha of the main haul road from the Blue Zone to the Lucky Zone were broadcast-seeded by ATV in the spring of 2005 using the leach pad seed mix.

This part of the main haul road now has a good vegetative cover ranging from 70-90%. The ground cover is dominated by Alfalfa which is very dense in some areas. Wheatgrass and Kentucky Bluegrass also occur here.

The steep sideslopes along some sections of the haul road remain quite barren. A few erosion channels were noted along the road, particularly towards the east end.

Colonizing species observed in 2009 include Willow (*Salix* spp.), Annual Hawk's-beard (*Crepis tectorum*) and Fireweed (*Epilobium angustifolium*).

Valve House Road
This area was seeded in the fall of 2005 and the spring of 2006 with the wet area seed mix.

This area now has a vegetative cover of about 90%.

The seeded cover largely consists mainly of Violet Wheatgrass and Tufted Hairgrass with some Fowl Bluegrass and White Clover.

Colonizing species observed in 2009 include Willow (*Salix* sp.), Common Yarrow (*Achillea millefolium*), Fleabane (*Erigeron acris*), Alfalfa (*Medicags sativa*), Fireweed (*Epilobium angustifolium*), Annual Hawk's-beard (*Crepis tectorum*), Alaskan Knotweed (*Polygonum aslaskanum*), Common Timothy (*Phleum pratense*) and Foxtail Barley (*Hordeum jubatum*).

Pipe Laydown Area
This area was seeded in the spring of 2006 with the new Brewery Creek blend.

The area now has a vegetative cover of about 80%.

The seeded vegetation is dominated by Violet Wheatgrass and Rocky Mountain Fescue, with some Ticklegrass and patches of Alfalfa

Colonizing species observed in 2009 include Willow (*Salix* spp.), Annual Hawk's-beard (*Crepis tectorum*), White Clover (*Trifolium repens*), White Sweet Clover (*Melilotus officinalis*), Shepherd's Purse (*Capsella bursa-pastoris*), and Foxtail Barley (*Hordeum jubatum*) and Common Timothy (*Phleum pratense*).

Laura Creek Road and Lysimeter Access
This area was seeded in the spring of 2006 with the new Brewery Creek blend.

Vegetation in this area is generally concentrated on the road edges (traffic has kept the middle of the road bare). The area on the road edges now has a vegetative cover of about 60%.

The seeded vegetation is primarily Sheep Fescue, Violet Wheatgrass, Ticklegrass and Alfalfa.

Colonizing species observed in 2009 include Alaska Birch (*Betula neoalaskana*), Trembling Aspen (*Populus tremuloides*), Willow (*Salix* spp.), Fireweed (*Epilobium angustifolium*), Alaskan Knotweed (*Polygonum alaskanum*), Common Yarrow (*Achillea millefolium*), Annual Hawk's-beard (*Crepis tectorum*), Fleabane (*Erigeron acris*), White Clover (*Trifolium repens*), Tufted Hairgrass (*Deschampsia caespitosa*) Blue-joint Reed Grass (*Calamagrostis canadensis*), Foxtail Barley (*Hordeum jubatum*) and Common Horsetail (*Equisetum arvense*).

Pond Bypass Road
This area was seeded in the spring of 2006 with the wet area seed mix.

Most of the area now has a vegetative cover of about 80%, although some of the road centre remains bare.

The seeded cover is now a fairly even mix of Violet Wheatgrass, Tufted Hairgrass, Fowl Bluegrass and dense patches of White Clover

Colonizing species observed in 2009 include Alaskan Birch (*Betula neonlaskana*), Trembling Aspen (*Populus tremuloides*), Willow (*Salix* spp.), Annual Hawk's-beard (*Crepis tectorum*), Red Clover (*Trifolium pratense*), Pineapple Weed (*Matricaria discoidea*), Blue-joint Reed Grass (*Calamagrostis canadensis*) and Common Timothy (*Phleum pratense*).

ADR Building Site
This area was seeded in the spring of 2006 with the wet area seed mix.

The area now has a vegetative cover of about 90%.

The seeded cover is a mix of Tufted Hairgrass with Fowl Bluegrass and White Clover. There is no longer evidence of Violet Wheatgrass.

Colonizing species observed in 2009 include Aspen (*Populus tremuloides*), Willow (*Salix* spp.), Common Yarrow (*Achillea millefolium*), Fireweed (*Epilobium angustifolium*), Chickweed (*Stellaria* sp.) and Foxtail Barley (*Hordeum jubatum*).

Treatment Pond Area
This area was seeded in the fall of 2005 with the wet area seed mix.

The area now has a vegetative cover of about 70%.

The seeded cover consists of Fowl Bluegrass, Tufted Hairgrass, Violet Wheatgrass and White Clover.

Colonizing species observed in 2009 include Alaska Birch (*Betula neoalaskana*), Trembling Aspen (*Populus tremuloides*), Willow (*Salix* sp.), Raspberry (*Rubus idaeus*), Annual Hawk's-beard (*Crepis tectorum*), Fireweed (*Epilobium angustifolium*), Common Yarrow (*Achillea millefolium*), Alaskan Knotweed (*Polygonum alaskanum*) and Common Timothy (*Phleum pratense*).

Shale Hill
This area was seeded in the spring of 2006 with the new Brewery Creek Blend.

The vegetative cover of this area now has now increased to about 90%, although there are still a few small bare patches.

The seeded vegetation includes Rocky Mountain Fescue, Violet Wheatgrass and Glaucous Bluegrass, with Alfalfa in thick patches and Ticklegrass in the more open areas.

Colonizing plant species observed in 2009 include Alaska Birch (*Betula neoalaskana*), Trembling Aspen (*Populus tremuloides*), Mountain Alder (*Alnus crispa*), Willow (*Salix* sp.), Annual Hawk's-beard (*Crepis tectorum*), Alsike Clover (*Trifolium hybridum*), Fireweed (*Epilobium angustifolium*), Alaskan Knotweed (*Polygonum alaskanum*) and Common Yarrow (*Achillea millefolium*),

Corner of ER and Main Haul Road
This area was seeded in the spring of 2006 and again in 2007 with the new Brewery Creek Blend.

The vegetative cover on this area is now about 90%, excluding a few bare patches.

The seeded cover includes Violet Wheatgrass and Glaucous Bluegrass with very little Alfalfa.

Colonizing species observed in 2009 include Balsam Poplar (*Populus balsamifera*), Alaskan Birch (*Betula neoalsaskanum*), Willow (*Salix* spp.), Arctic Lupine (*Lupinus arcticus*), White Clover (*Trifolium repens*) and Tufted Hairgrass (*Deschampsia caespitosa*).

Area in Front of Shop
This area was seeded in the spring of 2006 with the new Brewery Creek Blend.

The vegetative cover on this area is now about 90%, including Violet Wheatgrass, Rocky Mountain Fescue, Glaucous Bluegrass and thick patches of alfalfa.

Colonizing species observed in 2009 include Alaska Birch (*Betula neoalaskana*), Trembling Aspen (*Populus tremuloides*), White Clover (*Trifolium repens*), Annual Hawk's-beard (*Crepis tectorum*), Tufted Hairgrass (*Deschampsia caespitosa*) and Foxtail Barley (*Hordeum jubatum*).

Reclaimed Ponds
This area was seeded in the spring of 2009 with the Brewery Creek Blend.

The vegetative cover of this newly seeded area is approximately 10%.

The seeded vegetation is still too immature for identification.

Colonizing plant species observed near this area in 2009 include Alaskan Birch (*Betula neoalaskana*) Balsam Poplar (*Poplar balsamifera*), Alsike Clover (*Trifolium hybridum*), Fireweed (*Epilobium angustifolium*) and Common Yarrow (*Achillea millefolium*).

3.3 Revegetation Progress Assessment

An aggressive revegetation program has been ongoing at the Brewery Creek Mine since 2003, although some areas had been seeded as early as 1997. More than 130 ha have now been seeded with grasses and legumes. Most areas of the mine have now been reclaimed. Areas with the least vegetation continue to be the steep, but stable, back-walls of some of the former open pits and the steep side-slopes of the main haul road.

This assessment of the current status of revegetation at the Brewery Creek Mine takes into account the objectives set out in the 2004 Amendment to the Quartz Mining License. The General Standards set out in Schedule C, Section D, include:

1. Vegetation is self sustaining and comprises native seed mixes.

2. The vegetative cover is capable of self-regeneration without continued dependence on fertilizer or reseeding.

3. The establishment of a vegetative cover with sufficient density and species diversity to stabilize the surface against the effects of long term erosion.

4. The successive vegetation must be similar to naturally occurring habitats in the surrounding area.

Although most of the grasses seeded since 2003 are species naturally occurring in the Yukon, the seeds were acquired from suppliers in southern Canada, as Yukon-produced seeds were not available in the quantity required at the time of seeding. The non-native exceptions are Kentucky Bluegrass and Red Fescue. These sod-forming species were used in the Leach Pad Mix to help form a tighter cover. The Leach Pad Mix, although originally intended only for the leach pad cover, was also applied to a few other areas including the Blue Zone WRSA and the main haul road. Non-native legumes, white clover and alfalfa, were also used at Brewery Creek as the seeds of native species of legumes were not commercially available in large quantity at the time of seeding.

The vegetative cover on the reclaimed surfaces appears to be self-regenerating. The seeded species were mostly in flower or seed at the time of the 2009 survey. Self-

sustainability of these species, however, can only be confirmed through further monitoring. It should be noted that the long-term sustainability of the seeded species is not desirable, as these species should eventually give way to later successional species.

If observed closely, many native plant species can already be seen colonizing most areas of the reclaimed mine, as documented in Section 3.2. Table 5 shows the tree species observed on the reclaimed surfaces in 2009. Seventeen of the 23 areas that were assessed in 2009 now support the growth of at least one native species of willow. Alaska birch is also becoming a common invading tree species and was documented at 13 sites. It is anticipated that the vegetative succession to a climax forest similar to surrounding areas (the mature forest not disturbed by recent fires) will naturally occur, albeit slowly, if the area is left alone (*i.e.* if vehicle access is restricted).

Table 5 Native Tree Species Colonizing Reclaimed Sites at the Brewery Creek Mine in 2009

Revegetation Zone	White Spruce	Black Spruce	Alaska Birch	Balsam Poplar	Alder	Trembling Aspen	Willows
Pacific Pit		+*	+*	+*	+	+*	+ *
Moosehead	+ *	+ *	+ *	+*	+*	+	+ *
Can. Waste Rock	+*	+*	+*		+*	+ *	+ *
Can. Stockpile			+*	+*	+*		+*
Upper Foster		+	+ *			+ *	+ *
Kokanne Pit			+ *		+ *		+ *
North Golden			+	+ *	+		+ *
Lucky		+*	+*	+ *	+ *		+ *
Main Haul Road							+
Valve House Road							+
Pipe Laydown							+*
Laura Cr Rd and Lysimeter Access			+			+	+
Pond By Pass Rd			+*			+*	+*
ARD bldg						+	+*
Treatment Pond Area			+*			+*	+*
Shale Hill			+*		+	+	+*
Corner of ER and Haul Rd.			+*	+*			+*
Area in front of shop			+			+	

+ * indicates that it was also documented in 2008

Natural revegetation at this latitude, particularly on the relatively dry upland slopes such as those at Brewery Creek, is a slow process (several decades will pass before the area returns to a climax forest). Further seeding with grasses will do little to hasten this process, and may even hinder it. Further disturbance to the soil could delay the revegetation process, and the resulting formation of a too dense ground cover may inhibit the colonizing of the area by indigenous species. The addition of more fertilizer or the further seeding of nitrogen-fixing legumes may help to improve soil nutrients; however the naturally occurring native species colonizing the area are already adapted to these nutrient-poor soil conditions.

The current vegetative cover now found on the reclaimed mine surfaces is obviously quite variable (from sparse to very dense). This unevenness reflects the local variations in terrain (roughness, slope, aspect, drainage patterns etc.), climate and soil conditions. It is also indicative of the challenges faced in obtaining a uniform application rate of seed and fertilizer in such terrain.

The best indication of how the reseeded areas of the Brewery Creek Mine will revegetate in the near future may be to look at the Canadian Knoll and Waste Rock Storage Area, the site of the first revegetation efforts at the mine in 1997. Twelve years after seeding, the vegetative cover on these slopes consists of a few of the seeded grass and legume species, but more significantly, an array of colonizing tree seedlings, shrubs and forbs (see Section 3.2). Although this area is still at an early successional stage, it is a demonstration how natural revegetation will slowly occur if it is left alone. Other more recently seeded areas, such as the Moosehead Zone seeded in 2003, are also showing a high diversity of colonizing shrub species.

There may be areas of the reclaimed mine where soil erosion is occurring (these sites were not documented during this revegetation survey). Once such areas have been identified, they may have to be stabilized and reseeded. Further erosion control efforts should focus on significant erosion gullies and areas where the physical stability of slopes is obviously compromised and where further deterioration is anticipated. Minimizing the disturbance footprint during the reworking of these erosion sites will be essential. The many small short-term erosion gullies and rills that are common throughout newly reclaimed surfaces will most likely stabilize without further intervention.

4.0 Recommendations

- An inventory of sites with obvious erosional or slope stability problems should take place during the summer of 2010. When (if) such sites are identified, recontouring and reseeding should be carried in the late summer or early fall.

- All other seeded areas should be left alone to allow continued propagation of the seeded species as well as to permit the gradual invasion and colonization of native species.

- Vehicle access to the reclaimed surfaces of the former mine should remain restricted.

- Four further revegetation assessments should be carried out at the Brewery Creek Mine before the expiration of the License (2011, 2014 – to coincide with the metals in plant tissue assessment in Year 10, 2017 and 2020). These surveys should be similar to past surveys with an assessment of the permanent plots and a visual overview of all revegetated areas on the former mine site.

- Samples of naturally occurring shrubs (particularly common browse species such as willows and birch that are colonizing reclaimed areas) should be collected and analyzed for metal uptake. Both the leaves and twigs of these shrubs should be sampled from on-site areas (waste rock storage areas and pit backfills) and from at least one off-site comparison location.

5.0 REFERENCES

Laberge Environmental Services. 2009. Brewery Creek Mine 2008 Revegetation Assessment. Site Assessment Report Prepared for Alexco Resources Corp.

Laberge Environmental Services. 2008. Brewery Creek Mine 2007 Revegetation Assessment. Site Assessment Report Prepared for Alexco Resources Corp.

Laberge Environmental Services. 2007. Brewery Creek Mine 2006 Revegetation Assessment. Site Assessment Report Prepared for Alexco Resources Corp.

Laberge Environmental Services. 2006. Brewery Creek Mine 2005 Revegetation Assessment. Site Assessment Report Prepared for Alexco Resources Corp.

Viceroy Minerals Corporation. March 2005. Blue Zone Monitoring and Assessment Program. Prepared under the Brewery Creek Mine Decommissioning and Reclamation Plan.

Viceroy Minerals Corporation. March 2005. Heap Leach Pad Cover and Facilities Monitoring Program. Prepared under the Brewery Creek Mine Decommissioning and Reclamation Plan.

APPENDIX A

PHOTOGRAPHIC RECORD

Photo #1: The newly established plot at BZ-1 on the Blue Zone WRSA on August 16th, 2005.

Photo #2: BZ-1 four years later on July 23rd, 2009.

Photo #3: The newly established plot at LP-3 on the east facing slope of the leach pad, August 16th, 2005.

Photo #4: LP-3 four years later on July 23rd, 2009. The thick growth of grasses keeps the steep slope stable and prevents erosion.

Photo #5: Aerial view of Lucky and area, September 2nd, 2009.

Photo #6: Aerial view of Kokanee and Haul Road, September 2nd, 2009.

Photo #7: Aerial photo of Moosehead, September 2009. Note group of untouched spruce trees in centre.

Photo #8: Moosehead looking towards the untouched group of spruce trees, August 17, 2005.

Photo #9: Moosehead looking at the same group of spruce trees in July 23, 2009. Note the numerous deciduous trees colonizing the site.

Photo #10: North Golden on August 17th, 2005.

Photo #11: North Golden on July 17th, 2008.

Photo #12: North Golden on July 23rd, 2009.

Photo #13: Blue Zone WRSA beyond the lysimeter, August 16, 2005.

Photo #14: Good increased growth over the Blue Zone WRSA, July 23, 2009.

Photo #15: Corner of ER and the Haul Road on July 19, 2006.

Photo #16: Corner of ER and Haul Road, September 2009. There has been an incredible increase of growth.

Photo #17: Pipe lay down area, July 19, 2006.

Photo #18: Pipe lay down area on July 22, 2009.

Photo #19: The recently reclaimed and seeded upper pond area, July 22nd, 2009.

Photo #20: Grasses are sprouting in the newly seeded area, July 22nd, 2009.

APPENDIX B

LABORATORY ANALYTICAL REPORTS, 2009

Your Project #: BREWERY CREEK PROJECT
Your C.O.C. #: 08302452, 08302453, 08302454

Attention: Bonnie Burns
LABERGE ENVIRONMENTAL SERVICES
WHITEHORSE
405 Ogilvie Street
PO Box 21072
Whitehorse, YT
CANADA Y1A 6P7

Report Date: 2009/08/05

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A939159
Received: 2009/07/28, 13:00

Sample Matrix: Soil
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICPMS (total)	9	2009/07/30	2009/07/30	BRN SOP-00203 R5.0	Based on EPA 200.8
Moisture	9	N/A	2009/07/30	BRN SOP-00321 R5.0	Ont MOE -E 3139
pH (2:1 DI Water Extract) (1)	9	2009/07/31	2009/07/31	BRN SOP-00266 R6.0	Carter, SSMA 16.2

Sample Matrix: Tissue (Plant)
Samples Received: 22

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS (total) - Plant	12	2009/07/31	2009/08/01	BRN SOP-00206 R7.0	Based on EPA 200.8
Elements by CRC ICPMS (total) - Plant	10	2009/07/31	2009/08/02	BRN SOP-00206 R7.0	Based on EPA 200.8

* Results relate only to the items tested.

(1) SCC/CAEAL

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

KIMBERLEY WEBBER, BBY Customer Service
Email: kim.webber@maxxamanalytics.com
Phone# (604) 444-4808 Ext:259

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

Total cover pages: 1

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		P97595	P97596	P97597	P97598	P97599	P97600	P97601	P97602	P97603		
Sampling Date		2009/07/22 13:30	2009/07/22 14:30	2009/07/22 15:15	2009/07/23 10:00	2009/07/23 10:45	2009/07/23 11:40	2009/07/23 13:30	2009/07/23 14:00	2009/07/23 15:15		
	Units	**C-1**	**C-2**	**C-3**	**LP-1**	**LP-2**	**LP-3**	**BZ-1**	**BZ-2**	**BZ-3**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	8.1	8.2	8.3	8.1	9.4	8.9	5.3	4.1	3.6	0.3	3311262

RDL = Reportable Detection Limit

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

ELEMENTS BY ATOMIC SPECTROSCOPY (TISSUE (PLANT))

Maxxam ID		P97604	P97606	P97607	P97608	P97609	P97610	P97611	P97612		
Sampling Date		2009/07/22 13:30	2009/07/22 13:30	2009/07/22 13:30	2009/07/22 14:30	2009/07/22 14:30	2009/07/22 14:30	2009/07/22 15:15	2009/07/22 15:15		
	Units	**C-1 FESCUE**	**C-1 BLUEGRASS**	**C- 1 WHEATGRASS**	**C-2 FESCUE**	**C-2 BLUEGRASS**	**C-2 WHEATGRASS**	**C-3 FESCUE**	**C-3 BLUEGRASS**	**RDL**	**QC Batch**
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	126	5	4	6	6	5	5	17	1	3317337
Total Antimony (Sb)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3317337
Total Arsenic (As)	mg/kg	0.35	0.12	0.15	0.20	0.17	0.17	0.11	0.16	0.01	3317337
Total Barium (Ba)	mg/kg	25.3	40.6	45.7	30.7	51.2	42.9	22.4	46.7	0.1	3317337
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3317337
Total Bismuth (Bi)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3317337
Total Boron (B)	mg/kg	<5	8	<5	<5	6	<5	<5	6	5	3317337
Total Cadmium (Cd)	mg/kg	0.44	0.11	0.07	0.50	0.18	0.08	0.37	0.23	0.01	3317337
Total Calcium (Ca)	mg/kg	1120	2210	1670	1490	1830	1260	936	1270	10	3317337
Total Chromium (Cr)	mg/kg	28.0	0.6	33.6	2.6	1.4	<0.5	13.2	<0.5	0.5	3317337
Total Cobalt (Co)	mg/kg	0.9	<0.1	1.1	0.1	<0.1	<0.1	0.4	<0.1	0.1	3317337
Total Copper (Cu)	mg/kg	7.6	5.3	4.0	5.0	4.7	2.3	4.7	4.1	0.5	3317337
Total Iron (Fe)	mg/kg	346	34	114	45	34	26	71	44	10	3317337
Total Lead (Pb)	mg/kg	2.01	0.13	0.05	0.09	0.11	0.07	0.08	0.18	0.01	3317337
Total Magnesium (Mg)	mg/kg	716	1040	829	902	934	766	744	697	10	3317337
Total Manganese (Mn)	mg/kg	75.5	85.8	42.0	152	110	74.3	157	103	0.1	3317337
Total Mercury (Hg)	mg/kg	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3317337
Total Molybdenum (Mo)	mg/kg	3.5	1.3	2.4	1.5	1.8	0.8	8.6	3.8	0.1	3317337
Total Nickel (Ni)	mg/kg	19.8	2.6	25.5	4.5	2.5	0.5	14.2	4.3	0.1	3317337
Total Phosphorus (P)	mg/kg	1710	2070	2200	1980	2050	2090	1800	1700	10	3317337
Total Potassium (K)	mg/kg	9970	8530	12500	5890	8620	10300	5680	6510	10	3317337
Total Selenium (Se)	mg/kg	0.11	0.06	0.07	0.04	0.05	0.03	0.11	0.08	0.01	3317337
Total Silver (Ag)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3317337
Total Sodium (Na)	mg/kg	26	<10	<10	<10	<10	<10	<10	<10	10	3317337
Total Strontium (Sr)	mg/kg	5.6	10.1	8.3	8.0	10.8	7.6	5.2	7.9	0.1	3317337
Total Thallium (Tl)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3317337
Total Tin (Sn)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3317337
Total Titanium (Ti)	mg/kg	3	<1	<1	<1	<1	<1	<1	<1	1	3317337
Total Uranium (U)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3317337
Total Vanadium (V)	mg/kg	<2	<2	<2	<2	<2	<2	<2	<2	2	3317337
Total Zinc (Zn)	mg/kg	41.5	60.0	38.4	41.3	44.5	27.8	18.5	31.5	0.1	3317337

RDL = Reportable Detection Limit

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

ELEMENTS BY ATOMIC SPECTROSCOPY (TISSUE (PLANT))

Maxxam ID		P97613	P97614	P97615	P97616	P97617	P97618	P97619	P97622		
Sampling Date		2009/07/22 15:15	2009/07/23 10:00	2009/07/23 10:45	2009/07/23 10:45	2009/07/23 11:40	2009/07/23 11:40	2009/07/23 11:40	2009/07/23 13:30		
	Units	**C-3 WHEATGRASS**	**LP-1 FESCUE**	**LP-2 FESCUE**	**LP-2 WHEATGRASS**	**LP-3 FESCUE**	**LP-3 BLUEGRASS**	**LP-3 WHEATGRASS**	**BZ-1 FESCUE**	**RDL**	**QC Batch**
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	7	6	8	7	5	8	6	7	1	3317337
Total Antimony (Sb)	mg/kg	<0.1	<0.1	0.1	0.3	<0.1	0.3	<0.1	<0.1	0.1	3317337
Total Arsenic (As)	mg/kg	0.13	0.47	0.45	1.15	0.54	0.94	0.25	0.55	0.01	3317337
Total Barium (Ba)	mg/kg	26.9	25.2	40.2	47.3	19.9	31.6	35.6	42.8	0.1	3317337
Total Beryllium (Be)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3317337
Total Bismuth (Bi)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3317337
Total Boron (B)	mg/kg	<5	<5	<5	<5	<5	6	<5	<5	5	3317337
Total Cadmium (Cd)	mg/kg	0.11	0.22	0.24	0.29	0.14	0.47	0.09	0.09	0.01	3317337
Total Calcium (Ca)	mg/kg	929	1350	1370	2170	1270	2680	1350	1440	10	3317337
Total Chromium (Cr)	mg/kg	12.9	4.1	<0.5	3.9	<0.5	<0.5	1.3	<0.5	0.5	3317337
Total Cobalt (Co)	mg/kg	0.4	0.2	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.1	3317337
Total Copper (Cu)	mg/kg	2.3	3.4	2.8	2.0	2.1	3.2	1.8	2.5	0.5	3317337
Total Iron (Fe)	mg/kg	73	45	33	38	21	34	25	27	10	3317337
Total Lead (Pb)	mg/kg	0.09	0.10	0.12	0.16	0.08	0.06	0.08	0.06	0.01	3317337
Total Magnesium (Mg)	mg/kg	703	805	868	526	600	1270	467	654	10	3317337
Total Manganese (Mn)	mg/kg	60.4	249	351	193	357	170	119	182	0.1	3317337
Total Mercury (Hg)	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	3317337
Total Molybdenum (Mo)	mg/kg	2.6	1.2	1.1	0.3	0.8	0.2	0.2	1.0	0.1	3317337
Total Nickel (Ni)	mg/kg	8.8	5.5	3.7	3.5	1.6	1.8	1.4	2.0	0.1	3317337
Total Phosphorus (P)	mg/kg	1540	1660	1870	1090	1590	1120	1100	1100	10	3317337
Total Potassium (K)	mg/kg	8160	9720	11100	8160	12600	9760	7230	6050	10	3317337
Total Selenium (Se)	mg/kg	0.04	0.52	0.25	0.25	0.28	0.52	0.31	0.04	0.01	3317337
Total Silver (Ag)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3317337
Total Sodium (Na)	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	10	3317337
Total Strontium (Sr)	mg/kg	5.7	5.5	7.5	10.9	6.7	12.7	8.0	10.0	0.1	3317337
Total Thallium (Tl)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3317337
Total Tin (Sn)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	3317337
Total Titanium (Ti)	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	1	3317337
Total Uranium (U)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	3317337
Total Vanadium (V)	mg/kg	<2	<2	<2	<2	<2	<2	<2	<2	2	3317337
Total Zinc (Zn)	mg/kg	21.9	20.2	24.0	25.4	15.8	18.9	14.3	14.9	0.1	3317337

RDL = Reportable Detection Limit

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

ELEMENTS BY ATOMIC SPECTROSCOPY (TISSUE (PLANT))

Maxxam ID		P97623	P97624		P97625	P97626	P97627	P97628		
Sampling Date		2009/07/23 13:30	2009/07/23 14:00		2009/07/23 14:00	2009/07/23 14:00	2009/07/23 15:15	2009/07/23 15:15		
	Units	**BZ-1 WHEATGRASS**	**BZ-2 FESCUE**	**QC Batch**	**BZ-2 WHEATGRASS**	**BZ-2 ALFALFA**	**BZ-3 FESCUE**	**BZ-3 WHEATGRASS**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	8	12	3317337	6	8	7	7	1	3317425
Total Antimony (Sb)	mg/kg	<0.1	<0.1	3317337	<0.1	<0.1	<0.1	<0.1	0.1	3317425
Total Arsenic (As)	mg/kg	1.01	0.94	3317337	0.97	0.78	0.35	0.41	0.01	3317425
Total Barium (Ba)	mg/kg	45.2	34.3	3317337	21.6	244	40.6	51.8	0.1	3317425
Total Beryllium (Be)	mg/kg	<0.1	<0.1	3317337	<0.1	<0.1	<0.1	<0.1	0.1	3317425
Total Bismuth (Bi)	mg/kg	<0.1	<0.1	3317337	<0.1	<0.1	<0.1	<0.1	0.1	3317425
Total Boron (B)	mg/kg	<5	6	3317337	<5	19	<5	<5	5	3317425
Total Cadmium (Cd)	mg/kg	0.10	0.22	3317337	0.26	0.89	0.07	0.11	0.01	3317425
Total Calcium (Ca)	mg/kg	2000	2640	3317337	1870	21100	1390	2310	10	3317425
Total Chromium (Cr)	mg/kg	1.6	<0.5	3317337	<0.5	<0.5	<0.5	1.2	0.5	3317425
Total Cobalt (Co)	mg/kg	<0.1	<0.1	3317337	<0.1	<0.1	<0.1	<0.1	0.1	3317425
Total Copper (Cu)	mg/kg	2.7	3.4	3317337	2.0	6.2	2.8	2.6	0.5	3317425
Total Iron (Fe)	mg/kg	35	42	3317337	21	50	24	30	10	3317425
Total Lead (Pb)	mg/kg	0.06	0.06	3317337	0.08	0.06	0.07	0.05	0.01	3317425
Total Magnesium (Mg)	mg/kg	454	938	3317337	522	2440	681	618	10	3317425
Total Manganese (Mn)	mg/kg	140	188	3317337	119	49.3	227	181	0.1	3317425
Total Mercury (Hg)	mg/kg	<0.01	<0.01	3317337	<0.01	<0.01	<0.01	<0.01	0.01	3317425
Total Molybdenum (Mo)	mg/kg	0.2	1.8	3317337	0.5	1.4	0.6	0.2	0.1	3317425
Total Nickel (Ni)	mg/kg	1.5	1.6	3317337	0.3	5.2	2.9	1.4	0.1	3317425
Total Phosphorus (P)	mg/kg	1020	1380	3317337	1250	1380	933	1140	10	3317425
Total Potassium (K)	mg/kg	8090	10200	3317337	6710	14200	10100	7080	10	3317425
Total Selenium (Se)	mg/kg	0.04	0.10	3317337	0.21	0.21	0.08	0.43	0.01	3317425
Total Silver (Ag)	mg/kg	<0.05	<0.05	3317337	<0.05	<0.05	<0.05	<0.05	0.05	3317425
Total Sodium (Na)	mg/kg	<10	<10	3317337	<10	21	<10	<10	10	3317425
Total Strontium (Sr)	mg/kg	13.5	11.5	3317337	8.6	104	8.8	14.5	0.1	3317425
Total Thallium (Tl)	mg/kg	<0.05	<0.05	3317337	<0.05	<0.05	<0.05	<0.05	0.05	3317425
Total Tin (Sn)	mg/kg	<0.1	<0.1	3317337	<0.1	<0.1	<0.1	<0.1	0.1	3317425
Total Titanium (Ti)	mg/kg	<1	<1	3317337	<1	<1	<1	<1	1	3317425
Total Uranium (U)	mg/kg	<0.05	<0.05	3317337	<0.05	<0.05	<0.05	<0.05	0.05	3317425
Total Vanadium (V)	mg/kg	<2	<2	3317337	<2	<2	<2	<2	2	3317425
Total Zinc (Zn)	mg/kg	22.2	18.3	3317337	22.8	39.0	10.7	20.6	0.1	3317425

RDL = Reportable Detection Limit

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		P97595	P97596	P97597	P97598	P97599	P97600	P97601	P97602	P97603		
Sampling Date		2009/07/22 13:30	2009/07/22 14:30	2009/07/22 15:15	2009/07/23 10:00	2009/07/23 10:45	2009/07/23 11:40	2009/07/23 13:30	2009/07/23 14:00	2009/07/23 15:15		
	Units	**C-1**	**C-2**	**C-3**	**LP-1**	**LP-2**	**LP-3**	**BZ-1**	**BZ-2**	**BZ-3**	**RDL**	**QC Batch**
Misc. Inorganics												
Soluble (2:1) pH	pH Units	5.35	5.01	4.91	5.04	5.04	4.87	5.40	5.43	5.04	0.01	3316124
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	13600	15100	13600	13500	13400	15000	8290	11700	9450	100	3314236
Total Antimony (Sb)	mg/kg	46.4	62.4	17.3	93.8	171	74.8	138	113	87.8	0.1	3314236
Total Arsenic (As)	mg/kg	110	111	62.4	59.0	107	44.6	551	309	150	0.2	3314236
Total Barium (Ba)	mg/kg	663	583	424	529	885	473	682	522	427	0.1	3314236
Total Beryllium (Be)	mg/kg	0.6	0.7	0.5	0.5	0.6	0.6	0.8	0.6	0.6	0.1	3314236
Total Bismuth (Bi)	mg/kg	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	3314236
Total Cadmium (Cd)	mg/kg	1.70	1.89	1.71	0.82	1.77	0.61	1.48	0.60	0.48	0.05	3314236
Total Calcium (Ca)	mg/kg	3180	3460	2430	2020	2190	2020	1430	1790	1330	100	3314236
Total Chromium (Cr)	mg/kg	24	24	26	25	33	25	20	22	20	1	3314236
Total Cobalt (Co)	mg/kg	9.2	8.2	7.9	8.1	10.7	9.7	9.0	8.8	7.2	0.3	3314236
Total Copper (Cu)	mg/kg	38.9	32.6	59.8	30.4	43.4	30.3	43.5	36.1	35.9	0.5	3314236
Total Iron (Fe)	mg/kg	26500	24600	23600	24100	28200	26200	24800	24000	20400	100	3314236
Total Lead (Pb)	mg/kg	18.3	18.0	15.3	14.6	18.6	16.0	17.5	15.8	13.9	0.1	3314236
Total Magnesium (Mg)	mg/kg	3200	3310	3730	3560	3120	3800	1650	2530	2600	100	3314236
Total Manganese (Mn)	mg/kg	432	409	286	297	410	355	337	325	272	0.2	3314236
Total Mercury (Hg)	mg/kg	0.85	0.67	1.17	0.32	0.94	0.22	2.48	1.07	0.94	0.05	3314236
Total Molybdenum (Mo)	mg/kg	3.0	2.6	2.6	2.0	4.2	1.8	5.5	3.0	2.4	0.1	3314236
Total Nickel (Ni)	mg/kg	31.6	26.1	26.3	24.4	40.3	25.5	32.2	24.6	21.7	0.8	3314236
Total Phosphorus (P)	mg/kg	973	993	839	576	952	523	648	563	440	10	3314236
Total Potassium (K)	mg/kg	691	784	472	705	709	735	1130	862	634	100	3314236
Total Selenium (Se)	mg/kg	1.1	1.1	1.1	0.8	1.9	0.8	2.3	1.3	0.9	0.5	3314236
Total Silver (Ag)	mg/kg	0.29	0.43	0.33	0.27	0.59	0.22	0.82	0.41	0.29	0.05	3314236
Total Sodium (Na)	mg/kg	<100	<100	<100	<100	<100	<100	<100	<100	<100	100	3314236
Total Strontium (Sr)	mg/kg	39.5	38.1	33.9	40.2	74.4	32.9	60.2	39.7	34.3	0.1	3314236
Total Thallium (Tl)	mg/kg	0.24	0.24	0.25	0.16	0.28	0.14	0.45	0.27	0.17	0.05	3314236
Total Tin (Sn)	mg/kg	3.2	2.8	10.7	0.8	1.1	3.4	0.6	1.9	5.3	0.1	3314236
Total Vanadium (V)	mg/kg	77	77	100	62	101	59	77	73	67	2	3314236
Total Zinc (Zn)	mg/kg	202	146	158	111	216	111	151	111	97	1	3314236
Total Titanium (Ti)	mg/kg	298	302	357	265	222	264	123	192	184	1	3314236
Total Zirconium (Zr)	mg/kg	0.6	0.6	0.7	0.5	0.5	0.8	0.6	<0.5	0.9	0.5	3314236

RDL = Reportable Detection Limit

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

Package 1	9.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3311262	Moisture	2009/07/30					<0.3	%	0	20		
3314236	Total Arsenic (As)	2009/07/31	92	75 - 125	100	75 - 125	<0.2	mg/kg	8.2	30	97	70 - 130
3314236	Total Beryllium (Be)	2009/07/31	96	75 - 125	93	75 - 125	<0.1	mg/kg	NC	30		
3314236	Total Cadmium (Cd)	2009/07/31	99	75 - 125	102	75 - 125	<0.05	mg/kg	NC	30	92	70 - 130
3314236	Total Chromium (Cr)	2009/07/31	94	75 - 125	104	75 - 125	<1	mg/kg	2.0	30	101	70 - 130
3314236	Total Cobalt (Co)	2009/07/31	97	75 - 125	105	75 - 125	<0.3	mg/kg	2.2	30	98	70 - 130
3314236	Total Copper (Cu)	2009/07/31	93	75 - 125	110	75 - 125	<0.5	mg/kg	2.8	30	97	70 - 130
3314236	Total Lead (Pb)	2009/07/31	92	75 - 125	97	75 - 125	<0.1	mg/kg	0.3	35	91	70 - 130
3314236	Total Mercury (Hg)	2009/07/31	96	75 - 125	112	75 - 125	<0.05	mg/kg	NC	35		
3314236	Total Nickel (Ni)	2009/07/31	95	75 - 125	105	75 - 125	<0.8	mg/kg	2.6	30	98	70 - 130
3314236	Total Selenium (Se)	2009/07/31	97	75 - 125	105	75 - 125	<0.5	mg/kg	NC	30		
3314236	Total Vanadium (V)	2009/07/31	NC	75 - 125	112	75 - 125	<2	mg/kg	1.9	30	113	70 - 130
3314236	Total Zinc (Zn)	2009/07/31	NC	75 - 125	115	75 - 125	<1	mg/kg	1.2	30	97	70 - 130
3314236	Total Aluminum (Al)	2009/07/31					<100	mg/kg	1.4	35	110	70 - 130
3314236	Total Antimony (Sb)	2009/07/31					<0.1	mg/kg	NC	30	107	70 - 130
3314236	Total Barium (Ba)	2009/07/31					<0.1	mg/kg	1.4	35	105	70 - 130
3314236	Total Calcium (Ca)	2009/07/31					<100	mg/kg	11.1	30	100	70 - 130
3314236	Total Iron (Fe)	2009/07/31					<100	mg/kg	1.7	30	100	70 - 130
3314236	Total Magnesium (Mg)	2009/07/31					<100	mg/kg	5.9	30	109	70 - 130
3314236	Total Manganese (Mn)	2009/07/31					<0.2	mg/kg	4.5	30	106	70 - 130
3314236	Total Molybdenum (Mo)	2009/07/31					<0.1	mg/kg	NC	35	90	70 - 130
3314236	Total Phosphorus (P)	2009/07/31					<10	mg/kg	1.6	30	105	70 - 130
3314236	Total Silver (Ag)	2009/07/31					<0.05	mg/kg	NC	35	89	70 - 130
3314236	Total Strontium (Sr)	2009/07/31					<0.1	mg/kg	4.0	35	98	70 - 130
3314236	Total Thallium (Tl)	2009/07/31					<0.05	mg/kg	NC	30	81	70 - 130
3314236	Total Titanium (Ti)	2009/07/31					<1	mg/kg	3.3	30	109	70 - 130
3314236	Total Bismuth (Bi)	2009/07/31					<0.1	mg/kg	NC	30		
3314236	Total Potassium (K)	2009/07/31					<100	mg/kg	0.7	35		
3314236	Total Sodium (Na)	2009/07/31					<100	mg/kg	NC	35		
3314236	Total Tin (Sn)	2009/07/31					<0.1	mg/kg	NC	35		
3314236	Total Zirconium (Zr)	2009/07/31					<0.5	mg/kg	NC	30		
3316124	Soluble (2:1) pH	2009/07/31			100	96 - 104			0.1	20		
3317337	Total Arsenic (As)	2009/08/02	103	75 - 125	103	75 - 125	<0.01	mg/kg	4.5	35		
3317337	Total Beryllium (Be)	2009/08/02	101	75 - 125	99	75 - 125	<0.1	mg/kg	NC	35		
3317337	Total Cadmium (Cd)	2009/08/02	104	75 - 125	101	75 - 125	0.01, RDL=0.01	mg/kg	9.3	35		
3317337	Total Chromium (Cr)	2009/08/02	99	75 - 125	104	75 - 125	0.6, RDL=0.5	mg/kg	NC	35		
3317337	Total Cobalt (Co)	2009/08/02	97	75 - 125	102	75 - 125	<0.1	mg/kg	NC	35		
3317337	Total Copper (Cu)	2009/08/02	97	75 - 125	103	75 - 125	<0.5	mg/kg	2.0	35		
3317337	Total Lead (Pb)	2009/08/02	99	75 - 125	101	75 - 125	<0.01	mg/kg	9.9	35		
3317337	Total Mercury (Hg)	2009/08/02	103	75 - 125	109	75 - 125	<0.01	mg/kg	NC	35		

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3317337	Total Nickel (Ni)	2009/08/02	96	75 - 125	102	75 - 125	<0.1	mg/kg	3.6	35		
3317337	Total Selenium (Se)	2009/08/02	107	75 - 125	106	75 - 125	0.01, RDL=0.01	mg/kg	15.9	35		
3317337	Total Uranium (U)	2009/08/02	101	75 - 125	101	75 - 125	<0.05	mg/kg	NC	35		
3317337	Total Vanadium (V)	2009/08/02	99	75 - 125	102	75 - 125	<2	mg/kg	NC	35		
3317337	Total Zinc (Zn)	2009/08/02	99	75 - 125	105	75 - 125	<0.1	mg/kg	4.5	35		
3317337	Total Aluminum (Al)	2009/08/02					2, RDL=1	mg/kg	10.1	35		
3317337	Total Antimony (Sb)	2009/08/02					<0.1	mg/kg	NC	35		
3317337	Total Barium (Ba)	2009/08/02					<0.1	mg/kg	7.1	35		
3317337	Total Bismuth (Bi)	2009/08/02					<0.1	mg/kg	NC	35		
3317337	Total Boron (B)	2009/08/02					<5	mg/kg	NC	35		
3317337	Total Calcium (Ca)	2009/08/02					<10	mg/kg	6.6	35		
3317337	Total Iron (Fe)	2009/08/02					<10	mg/kg	NC	35		
3317337	Total Magnesium (Mg)	2009/08/02					<10	mg/kg	4.6	35		
3317337	Total Manganese (Mn)	2009/08/02					<0.1	mg/kg	5.4	35		
3317337	Total Molybdenum (Mo)	2009/08/02					<0.1	mg/kg	5.6	35		
3317337	Total Phosphorus (P)	2009/08/02					<10	mg/kg	3.6	35		
3317337	Total Potassium (K)	2009/08/02					<10	mg/kg	4.3	35		
3317337	Total Silver (Ag)	2009/08/02					<0.05	mg/kg	NC	35		
3317337	Total Sodium (Na)	2009/08/02					<10	mg/kg	NC	35		
3317337	Total Strontium (Sr)	2009/08/02					<0.1	mg/kg	6.4	35		
3317337	Total Thallium (Tl)	2009/08/02					<0.05	mg/kg	NC	35		
3317337	Total Tin (Sn)	2009/08/02					<0.1	mg/kg	NC	35		
3317337	Total Titanium (Ti)	2009/08/02					<1	mg/kg	NC	35		
3317425	Total Arsenic (As)	2009/08/01	116	75 - 125	100	75 - 125	<0.01	mg/kg	1.1	35		
3317425	Total Beryllium (Be)	2009/08/01	109	75 - 125	97	75 - 125	<0.1	mg/kg	NC	35		
3317425	Total Cadmium (Cd)	2009/08/01	106	75 - 125	97	75 - 125	<0.01	mg/kg	NC	35		
3317425	Total Chromium (Cr)	2009/08/01	97	75 - 125	100	75 - 125	0.6, RDL=0.5	mg/kg	2.6	35		
3317425	Total Cobalt (Co)	2009/08/01	103	75 - 125	99	75 - 125	<0.1	mg/kg	4.0	35		
3317425	Total Copper (Cu)	2009/08/01	104	75 - 125	101	75 - 125	<0.5	mg/kg	5.0	35		
3317425	Total Lead (Pb)	2009/08/01	105	75 - 125	97	75 - 125	<0.01	mg/kg	6.8	35		
3317425	Total Mercury (Hg)	2009/08/01	110	75 - 125	111	75 - 125	0.02, RDL=0.01	mg/kg	NC	35		
3317425	Total Nickel (Ni)	2009/08/01	100	75 - 125	97	75 - 125	<0.1	mg/kg	2.5	35		
3317425	Total Selenium (Se)	2009/08/01	110	75 - 125	100	75 - 125	0.01, RDL=0.01	mg/kg	NC	35		
3317425	Total Uranium (U)	2009/08/01	108	75 - 125	96	75 - 125	<0.05	mg/kg	NC	35		
3317425	Total Vanadium (V)	2009/08/01	104	75 - 125	99	75 - 125	<2	mg/kg	NC	35		
3317425	Total Zinc (Zn)	2009/08/01	111	75 - 125	102	75 - 125	<0.1	mg/kg	1.8	35		
3317425	Total Aluminum (Al)	2009/08/01					1, RDL=1	mg/kg	3.9	35		
3317425	Total Antimony (Sb)	2009/08/01					<0.1	mg/kg	NC	35		
3317425	Total Barium (Ba)	2009/08/01					<0.1	mg/kg	7.6	35		
3317425	Total Bismuth (Bi)	2009/08/01					<0.1	mg/kg	NC	35		

Maxxam Job #: A939159
Report Date: 2009/08/05

LABERGE ENVIRONMENTAL SERVICES
Client Project #: BREWERY CREEK PROJECT

Sampler Initials: BB

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3317425	Total Boron (B)	2009/08/01					<5	mg/kg	NC	35		
3317425	Total Calcium (Ca)	2009/08/01					<10	mg/kg	4.4	35		
3317425	Total Iron (Fe)	2009/08/01					<10	mg/kg	6.6	35		
3317425	Total Magnesium (Mg)	2009/08/01					<10	mg/kg	1.8	35		
3317425	Total Manganese (Mn)	2009/08/01					<0.1	mg/kg	3.6	35		
3317425	Total Molybdenum (Mo)	2009/08/01					0.1, RDL=0.1	mg/kg	6.4	35		
3317425	Total Phosphorus (P)	2009/08/01					<10	mg/kg	1.9	35		
3317425	Total Potassium (K)	2009/08/01					<10	mg/kg	1.5	35		
3317425	Total Silver (Ag)	2009/08/01					<0.05	mg/kg	NC	35		
3317425	Total Sodium (Na)	2009/08/01					<10	mg/kg	NC	35		
3317425	Total Strontium (Sr)	2009/08/01					<0.1	mg/kg	4.9	35		
3317425	Total Thallium (Tl)	2009/08/01					<0.05	mg/kg	NC	35		
3317425	Total Tin (Sn)	2009/08/01					<0.1	mg/kg	NC	35		
3317425	Total Titanium (Ti)	2009/08/01					<1	mg/kg	NC	35		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

08302452

8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com

Phone: (604) 444-4808
Fax.: (604) 444-4511
Toll-Free: 1-800-440-4808

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

LAB USE ONLY — MAXXAM JOB #

ANALYSIS REQUEST

LAB USE ONLY — COC #

COMPANY NAME:	Access Consulting Group
COMPANY ADDRESS:	#3 Calcite 151 Industrial Road Whitehorse, Yukon Y1A 2V3
CLIENT PROJECT NO.:	Brewery Creek Project
TEL.:	867-668-6463
E-MAIL:	durand@accessconsulting.ca
FAX:	
SAMPLER NAME (PRINT):	Bonnie Burns/Stu Withers
PROJECT MANAGER:	Bonnie Burns
LABORATORY CONTACT:	Kimberly Webber

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	TISSUE	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	% moisture content	pH	ICP metals
1	C-1					x		22/07/2009	13:30	1	x	x	x
2	C-2					x		22/07/2009	14:30	1	x	x	x
3	C-3					x		22/07/2009	15:15	1	x	x	x
4	LP-1					x		23/07/2009	10:00	1	x	x	x
5	LP-2					x		23/07/2009	10:45	1	x	x	x
6	LP-3					x		23/07/2009	11:40	1	x	x	x
7	BZ-1					x		23/07/2009	13:30	1	x	x	x
8	BZ-2					x		23/07/2009	14:00	1	x	x	x
9	BZ-3					x		23/07/2009	15:15	1	x	x	x
10	C-1 Fescue						x	22/07/2009	13:30	1			x
11	C-1 Bluegrass						x	22/07/2009	13:30	1			x
12	C-1 Wheatgrass						x	22/07/2009	13:30	1			x

TAT (Turnaround Time)
LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL
* Some exceptions apply - please contact laboratory

STANDARD 5 BUSINESS DAYS
RUSH 3 BUSINESS DAYS
RUSH 2 BUSINESS DAYS
URGENT 1 BUSINESS DAY
OTHER BUSINESS DAYS

CUSTODY RECORD

PO NUMBER OR QUOTE NUMBER:

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

CCME
CSR
AB TIER 1
OTHER

LAB USE ONLY — ARRIVAL TEMPERATURE °C: 9.7, 12 | DUE DATE: | LOG IN CHECK:

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:
Send copy of receipt of samples and the data report to bonnie

JARS USED:

RELINQUISHED BY SAMPLER: Bonnie Burns	DATE: DD/MM/YY 27/07/2009	TIME: 10:00	RECEIVED BY:
RELINQUISHED BY:	DATE: DD/MM/YY	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE: DD/MM/YY 28/07/09	TIME: 13:00	RECEIVED BY LABORATORY: AmD

COCFORM - BC - 20070822

→ bonnieburns@northwestel.net
-thanks.

08302453

8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com

Phone: (604) 444-4808
Fax.: (604) 444-4511
Toll-Free: 1-800-440-4808

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

LAB USE ONLY
MAXXAM JOB #

ANALYSIS REQUEST

LAB USE ONLY
COC #

COMPANY NAME: Access Consulting Group	CLIENT PROJECT NO.: Brewery Creek Project
COMPANY ADDRESS: #3 Calcite 151 Industrial Road, Whitehorse, Yukon, Y1A 2V3	TEL.: 867-668-6463 E-MAIL: durand@accessconsulting.ca FAX:
SAMPLER NAME (PRINT): Bonnie Burns/Stu Withers	PROJECT MANAGER: Bonnie Burns
LABORATORY CONTACT: Kimberly Webber	

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	TISSUE	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	% moisture content	pH	ICP metals
1	C-2 Fescue						x	22/07/2009	14:30	1			x
2	C-2 Bluegrass						x	22/07/2009	14:30	1			x
3	C-2 Wheatgrass						x	22/07/2009	14:30	1			x
4	C-3 Fescue						x	22/07/2009	15:15	1			x
5	C-3 Bluegrass						x	22/07/2009	15:15	1			x
6	C-3 Wheatgrass						x	22/07/2009	15:15	1			x
7	LP-1 Fescue						x	23/07/2009	10:00	1			x
8	LP-2 Fescue						x	23/07/2009	10:45	1			x
9	LP-2 Wheatgrass						x	23/07/2009	10:45	1			x
10	LP-3 Fescue						x	23/07/2009	11:40	1			x
11	LP-3 Bluegrass						x	23/07/2009	11:40	1			x
12	LP-3 Wheatgrass						x	23/07/2009	11:40	1			x

TAT (Turnaround Time)
LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL
* Some exceptions apply - please contact laboratory

STANDARD 5 BUSINESS DAYS
RUSH 3 BUSINESS DAYS
RUSH 2 BUSINESS DAYS
URGENT 1 BUSINESS DAY
OTHER BUSINESS DAYS

CUSTODY RECORD

PO NUMBER OR QUOTE NUMBER:

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

CCME
CSR
AB TIER 1
OTHER

JARS USED:

LAB USE ONLY
ARRIVAL TEMPERATURE °C: 9, 7, 12
DUE DATE:
LOG IN CHECK:

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:
Send copy of receipt of samples and the data report to bonnie

RELINQUINSHED BY SAMPLER: Bonnie Burns	DATE: DD/MM/YY 27/07/2009	TIME: 10:00	RECEIVED BY:
RELINQUINSHED BY:	DATE: DD/MM/YY	TIME:	RECEIVED BY:
RELINQUINSHED BY:	DATE: DD/MM/YY 28/07/09	TIME: 13:00	RECEIVED BY LABORATORY: tmD

COCFORM - BC - 20070822


08302454

8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com

Phone: (604) 444-4808
Fax.: (604) 444-4511
Toll-Free: 1-800-440-4808

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

LAB USE ONLY — MAXXAM JOB #

ANALYSIS REQUEST

LAB USE ONLY — COC #

COMPANY NAME:	Access Consulting Group
COMPANY ADDRESS:	#3 Calcite 151 Industrial Road Whitehorse, Yukon Y1A 2V3
CLIENT PROJECT NO.:	Brewery Creek Project
TEL.:	867-668-6463
E-MAIL:	durand@accessconsulting.ca
FAX:	
SAMPLER NAME (PRINT):	Bonnie Burns/Stu Withers
PROJECT MANAGER:	Bonnie Burns
LABORATORY CONTACT:	Kimberly Webber

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	TISSUE	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	% moisture content	pH	ICP metals
1	BZ-1 Fescue						x	23/07/2009	13:30	1			x
2	BZ-1 Wheatgrass						x	23/07/2009	13:30	1			x
3	BZ-2 Fescue						x	23/07/2009	14:00	1			x
4	BZ-2 Wheatgrass						x	23/07/2009	14:00	1			x
5	BZ-2 Alfalfa						x	23/07/2009	14:00	1			x
6	BZ-3 Fescue						x	23/07/2009	15:15	1			x
7	BZ-3 Wheatgrass						x	23/07/2009	15:15	1			x
8													
9													
10													
11													
12													

TAT (Turnaround Time)
LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL
* Some exceptions apply - please contact laboratory

STANDARD 5 BUSINESS DAYS
RUSH 3 BUSINESS DAYS
RUSH 2 BUSINESS DAYS
URGENT 1 BUSINESS DAY
OTHER BUSINESS DAYS

CUSTODY RECORD

PO NUMBER OR QUOTE NUMBER: 3429

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:
Send copy of receipt of samples and the data report to bonnie

RELINQUINSHED BY SAMPLER:	Bonnie Burns	DATE: DD/MM/YY 27/07/2009	TIME: 10:00
RELINQUINSHED BY:		DATE: DD/MM/YY	TIME:
RELINQUINSHED BY:		DATE: DD/MM/YY 28/07/09	TIME: 13:10

CCME
CSR
AB TIER 1
OTHER
JARS USED:

LAB USE ONLY

ARRIVAL TEMPERATURE °C:	DUE DATE:	LOG IN CHECK:
9, 7, 12		

RECEIVED BY:
RECEIVED BY:
RECEIVED BY LABORATORY: AMD

COCFORM - BC - 20070822

Appendix F

2009 Bioassay Results

FILE:ACCESS/0903100.RTT

DATE: 30 March 2009

TO: Mr. Scott Keesey
ALEXCO
#3 Calcite Business Centre
151 Industrial Road
Whitehorse, Yukon Y1A 2V3

REPORT ON: RAINBOW TROUT BIOASSAY RESULTS

SAMPLE DESCRIPTION:

IRC Sample ID No.:	0903100
Sample Name:	**BC28a Bioassay**
Date, time collected:	19 March 2009
Date, time received:	23 March 2009; 1145 hrs.
Collection Method:	Grab
Amount, Container:	1 x 20 L plastic container
Physical description:	Clear colourless liquid
Date, time tested:	23 March 2009; 1425 hrs.

RAINBOW TROUT 96 HR RESULTS:
The 96 hour (static) LT_{50} was greater than 96 hours.
0% trout mortality in undiluted sample

The LT_{50} is defined as the median lethal time or the time at which there is 50% fish mortality. Results are calculated using the method described by Stephan (Methods for calculating an LC_{50} in: Aquatic Toxicology and Hazard Evaluation, American Society for Testing and Materials, 1977).

The method used for this test was as per the IRC laboratory "Standard Operating Procedure for Rainbow Trout Holding and Testing" RTver5. This procedure follows the "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" EPS 1/RM/13, Second Edition – December 2000. Test volume was 19 litres with 10 fish in each test vessel. Aeration was by forced air, through airstones at a rate of approximately 6.5 ± 1ml/L/min. The sample was not pH adjusted or filtered prior to testing.

The initial dissolved oxygen level was 12.0 mg/L at 5.5°C, the conductivity was 4350 µS/cm and the initial pH was 8.1. After pre-aerating the sample for 120 minutes, the dissolved oxygen level was 11.3 mg/L. As the dissolved oxygen level was greater than 70% saturation and less than 100% saturation the test was initiated at this time. The test set up technicians were CW and DW.

Please call should you have any questions.

IRC Integrated Resource Consultants Inc.

Lisa Hedderson
Laboratory Biologist
b129.1
enclosure

FILE:ACCESS/0903100.RTT

RAW DATA

TEST CONCENTRATION		HOURS 0	0.15	24	48	72	96
100%	Percent Survival	100%	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	11.3		9.5	9.6	9.6	9.4
	Temperature (°C)	14.5		15.0	15.0	15.0	15.0
	PH	8.0		7.9	8.1	8.0	8.0
	Conductivity (µScm)	4290					4320
	Symptoms	1	1	1,2	2	1	2
	Loading Density (g/L)	0.42	0.42	0.42	0.42	0.42	0.42
CONTROL	Percent Survival	100%	100	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	10.1		9.9	9.8	9.5	9.0
	Temperature (°C)	15.0		15.0	15.0	15.0	15.0
	PH	7.9		7.4	7.5	7.6	7.3
	Conductivity (µS/cm)	51					56
	Symptoms	1	1	1,2	1,2	1	1
	Loading Density (g/L)	0.42	0.42	0.42	0.42	0.42	0.42
	Technician	DW	DW	DW	DW	CW	DW

KEY TO SYMPTOMS:

1 = no apparent effect
2 = fish showing signs of stress
3 = loss of equilibrium

TEST FISH STOCK INFORMATION:

Date received:	25 February 2009	
Source:	Sun Valley Trout Farm	
Species:	*Oncorhynchus mykiss* (Rainbow Trout)	
Fork Length:	Mean:	425.3 mm ± 3.6 mm
	Range:	37.0 mm – 50.0 mm
Wet weight:	Mean:	0.80 g ± 0.24 g
	Range:	0.49 g – 1.31 g
Condition Factor (100xWt/length^{3}cm):	1.06	

Acclimation History	
Acclimation temperature:	14.0 to 15.5 °CELSIUS
Treatments:	None
Water:	Dechlorinated tap water
Feeding:	Nutra 2000 fry feed
Mortality:	1.62%

RAINBOW TROUT REFERENCE TOXICANT DATA

Stock Arrival Date (y/m/d)	Test Date (y/m/d)	Toxicant	LC50 (mg/L)	95% Confidence Interval
08.02.18	08.03.24	Phenol	9.38	7.68 to 11.16
08.03.12	08.04.07	"	11.40	8.00 to 18.00
08.03.27	08.04.07	"	10.56	8.00 to 18.00
08.04.16	08.04.29	"	12.00	8.00 to 18.00
08.05.14	08.05.29	"	7.28	5.66 to 8.91
08.05.27	08.06.17	"	12.00	8.00 to 18.00
08.06.18	08.07.03	"	12.00	8.00 to 18.00
08.07.09	08.07.15	"	12.00	8.00 to 18.00
08.07.09	08.07.30	"	10.72	8.82 to 12.83
08.07.16	08.07.30	"	11.72	9.83 to 13.88
08.07.16	08.08.21	"	9.74	7.96 to 11.65
08.08.13	08.09.02	"	9.71	7.52 to 12.07
08.09.03	08.09.15	"	10.21	8.68 to 11.95
08.09.17	08.09.28	"	9.12	7.29 to 11.08
08.10.01	08.10.17	"	10.94	8.00 to 18.00
08.10.15	08.11.03	"	10.56	8.00 to 12.00
08.10.29	08.11.19	"	9.02	7.42 to 10.65
08.11.14	08.12.05	"	11.40	8.00 to 18.00
08.11.14	08.12.12	"	11.40	8.00 to 12.00
08.12.05	08.12.19	"	10.08	7.69 to 12.70
08.12.31	09.01.08	"	10.23	8.00 to 12.00
09.01.14	09.01.26	"	11.40	8.00 to 12.00
09.01.28	09.02.15	"	10.29	8.00 to 12.00
09.02.25	09.03.11	"	9.10	7.36 to 10.97
LAB GEOMETRIC MEAN ± 2 standard deviations:				10.5 mg/L ± 2.62
Warning Limits:				7.88 g/L to 13.11 mg/L

CONTROL/DILUTION WATER QUALITY:

Hardness: 20 mg/L

Total Residual Chlorine: 4 µg/L

FILE:ACCESS/0906078.RTT

DATE: 22 June 2009

TO: Mr. Scott Keesey
ALEXCO
#3 Calcite Business Centre
151 Industrial Road
Whitehorse, Yukon Y1A 2V3

REPORT ON: RAINBOW TROUT BIOASSAY RESULTS

SAMPLE DESCRIPTION:

IRC Sample ID No.:	0906078
Sample Name:	**BC28a Bioassay**
Date, time collected:	10 June 2009
Date, time received:	12 June 2009; 1500 hrs.
Collection Method:	Grab
Amount, Container:	1 x 20 L plastic container
Physical description:	Clear colourless liquid
Date, time tested:	12 June 2009; 1625 hrs.

RAINBOW TROUT 96 HR RESULTS:
The 96 hour (static) LT_{50} was greater than 96 hours.
0% trout mortality in undiluted sample

The LT_{50} is defined as the median lethal time or the time at which there is 50% fish mortality. Results are calculated using the method described by Stephan (Methods for calculating an LC_{50} in: Aquatic Toxicology and Hazard Evaluation, American Society for Testing and Materials, 1977).

The method used for this test was as per the IRC laboratory "Standard Operating Procedure for Rainbow Trout Holding and Testing" RTver5. This procedure follows the "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" EPS 1/RM/13, Second Edition – December 2000. Test volume was 15 litres with 10 fish in each test vessel. Aeration was by forced air, through airstones at a rate of approximately 6.5 ± 1ml/L/min. The sample was not pH adjusted or filtered prior to testing.

The initial dissolved oxygen level was 9.6 mg/L at 11.0°C, the conductivity was 3570 µS/cm and the initial pH was 7.7. After pre-aerating the sample for 50 minutes and warming up to 15.5°C, the dissolved oxygen level was 9.7 mg/L. As the dissolved oxygen level was greater than 70% saturation and less than 100% saturation the test was initiated at this time. The test set up technician was DC.

Please call should you have any questions.

IRC Integrated Resource Consultants Inc.

Lisa Hedderson
Laboratory Biologist
b129.1
enclosure

FILE:ACCESS/0906078.RTT

RAW DATA

TEST CONCENTRATION		HOURS 0	0.5	24	48	72	96
100%	Percent Survival	100%	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	9.7		9.0	8.9	9.6	9.6
	Temperature (°C)	15.5		15.5	15.5	15.5	15.5
	PH	7.5		8.2	8.3	8.2	8.2
	Conductivity (µScm)	3560					3540
	Symptoms	1	1	2	2	2,3	1
	Loading Density (g/L)	0.31	0.31	0.31	0.31	0.31	0.31
CONTROL	Percent Survival	100%	100	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	9.3		9.0	8.8	9.6	9.5
	Temperature (°C)	14.0		15.5	15.5	15.5	15.5
	PH	8.2		7.5	7.5	7.4	7.7
	Conductivity (µS/cm)	46					51
	Symptoms	1	1	1	1	1	1
	Loading Density (g/L)	0.31	0.31	0.31	0.31	0.31	0.31
	Technician	CW	DC	DW	DW	DW	DW

KEY TO SYMPTOMS:

1 = no apparent effect
2 = fish showing signs of stress
3 = loss of equilibrium

TEST FISH STOCK INFORMATION:

Date received:	22 May 2009	
Source:	Spring Valley Trout Farm	
Species:	*Oncorhynchus mykiss* (Rainbow Trout)	
Fork Length:	Mean:	35.0 mm ± 1.6 mm
	Range:	33.0 mm – 38.0 mm
Wet weight:	Mean:	0.46 g ± 0.05 g
	Range:	0.38 g – 0.57 g
Condition Factor (100xWt/length^{3}cm):	1.08	

Acclimation History	
Acclimation temperature:	14.0 to 16.0°CELSIUS
Treatments:	None
Water:	Dechlorinated tap water
Feeding:	Nutra 2000 fry feed
Mortality:	0.00%

RAINBOW TROUT REFERENCE TOXICANT DATA

Stock Arrival Date (y/m/d)	Test Date (y/m/d)	Toxicant	LC50 (mg/L)	95% Confidence Interval
08.05.27	08.06.17	Phenol	12.00	8.00 to 18.00
08.06.18	08.07.03	"	12.00	8.00 to 18.00
08.07.09	08.07.15	"	12.00	8.00 to 18.00
08.07.09	08.07.30	"	10.72	8.82 to 12.83
08.07.16	08.07.30	"	11.72	9.83 to 13.88
08.07.16	08.08.21	"	9.74	7.96 to 11.65
08.08.13	08.09.02	"	9.71	7.52 to 12.07
08.09.03	08.09.15	"	10.21	8.68 to 11.95
08.09.17	08.09.28	"	9.12	7.29 to 11.08
08.10.01	08.10.17	"	10.94	8.00 to 18.00
08.10.15	08.11.03	"	10.56	8.00 to 12.00
08.10.29	08.11.19	"	9.02	7.42 to 10.65
08.11.14	08.12.05	"	11.40	8.00 to 18.00
08.11.14	08.12.12	"	11.40	8.00 to 12.00
08.12.05	08.12.19	"	10.08	7.69 to 12.70
08.12.31	09.01.08	"	10.23	8.00 to 12.00
09.01.14	09.01.26	"	11.40	8.00 to 12.00
09.01.28	09.02.15	"	10.29	8.00 to 12.00
09.02.25	09.03.11	"	9.10	7.36 to 10.97
09.03.05	09.03.20	"	9.80	8.47 to 11.33
09.03.17	09.03.31	"	11.06	4.86 to 17.26
09.04.01	09.04.07	"	9.80	7.87 to 11.99
09.04.07	09.04.20	"	11.40	8.00 to 12.00
09.05.13	09.06.08	"	10.94	8.00 to 12.00
09.05.22	09.06.04	"	8.42	8.00 to 12.00
LAB GEOMETRIC MEAN ± 2 standard deviations:				10.47 mg/L ± 2.22
Warning Limits:				8.256 g/L to 12.686 mg/L

CONTROL/DILUTION WATER QUALITY:

Hardness: 10 mg/L

Total Residual Chlorine: 9 µg/L

FILE:ACCESS/0909022.RTT

DATE: 16 September 2009

TO: Mr. Scott Keesey
ALEXCO
#3 Calcite Business Centre
151 Industrial Road
Whitehorse, Yukon Y1A 2V3

REPORT ON: RAINBOW TROUT BIOASSAY RESULTS

SAMPLE DESCRIPTION:

IRC Sample ID No.:	0909022
Sample Name:	**BC28a Bioassay**
Date, time collected:	3 September 2009
Date, time received:	8 September 2009; 1210 hrs.
Collection Method:	Grab
Amount, Container:	1 x 20 L plastic container
Physical description:	Clear colourless liquid
Date, time tested:	8 September 2009; 1530 hrs.

RAINBOW TROUT 96 HR RESULTS:
The 96 hour (static) LT_{50} was greater than 96 hours.
0% trout mortality in undiluted sample

The LT_{50} is defined as the median lethal time or the time at which there is 50% fish mortality. Results are calculated using the method described by Stephan (Methods for calculating an LC_{50} in: Aquatic Toxicology and Hazard Evaluation, American Society for Testing and Materials, 1977).

The method used for this test was as per the IRC laboratory "Standard Operating Procedure for Rainbow Trout Holding and Testing" RTver5. This procedure follows the "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" EPS 1/RM/13, Second Edition – December 2000. Test volume was 15 litres with 10 fish in each test vessel. Aeration was by forced air, through airstones at a rate of approximately 6.5 ± 1ml/L/min. The sample was not pH adjusted or filtered prior to testing.

The initial dissolved oxygen level was 11.3 mg/L at 6.5°C, the conductivity was 3870 µS/cm and the initial pH was 7.7. After re-aerating the sample for 120 minutes and warming up to 16.0°C, the dissolved oxygen level was 10.5 mg/L. Although the dissolved oxygen level was greater than 100% saturation the maximum aeration time had been reached and so the test was initiated at this time. The test set up technician was DW.

Please call should you have any questions.

IRC Integrated Resource Consultants Inc.

Lisa Hedderson
Laboratory Biologist
b129.1
enclosure

FILE:ACCESS/0909022.RTT

RAW DATA

TEST CONCENTRATION		HOURS 0	0.5	24	48	72	96
100%	Percent Survival	100%	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	10.5		9.8	9.8	9.7	9.5
	Temperature (°C)	16.0		15.5	15.5	15.5	15.5
	PH	7.7		8.1	8.1	8.1	8.1
	Conductivity (µScm)	3800					3770
	Symptoms	1	1	1	1,2	1	1
	Loading Density (g/L)	0.29	0.29	0.29	0.29	0.29	0.29
CONTROL	Percent Survival	100%	100	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	9.9		9.8	9.9	9.8	9.7
	Temperature (°C)	16.0		15.5	15.5	15.5	15.5
	PH	7.4		7.6	7.6	7.6	7.5
	Conductivity (µS/cm)	52					54
	Symptoms	1	1	1	1	1	1
	Loading Density (g/L)	0.29	0.29	0.29	0.29	0.29	0.29
	Technician	DW	DW	CW	CW	CW	RM

KEY TO SYMPTOMS:

1 = no apparent effect
2 = fish showing signs of stress
3 = loss of equilibrium

TEST FISH STOCK INFORMATION:

Date received:	5 August 2009	
Source:	Spring Valley Trout Farm	
Species:	*Oncorhynchus mykiss* (Rainbow Trout)	
Fork Length:	Mean:	35.9 mm ± 4.3 mm
	Range:	30.0 mm – 45.0 mm
Wet weight:	Mean:	0.43 g ± 0.19 g
	Range:	0.24 g – 0.90 g
Condition Factor (100xWt/length^{3}cm):	0.94	

Acclimation History	
Acclimation temperature:	16.5 to 17.0°CELSIUS
Treatments:	None
Water:	Dechlorinated tap water
Feeding:	Nutra 2000 fry feed
Mortality:	1.70%

RAINBOW TROUT REFERENCE TOXICANT DATA

Stock Arrival Date (y/m/d)	Test Date (y/m/d)	Toxicant	LC50 (mg/L)	95% Confidence Interval
08.07.09	08.07.30	Phenol	10.72	8.82 to 12.83
08.07.16	08.07.30	"	11.72	9.83 to 13.88
08.07.16	08.08.21	"	9.74	7.96 to 11.65
08.08.13	08.09.02	"	9.71	7.52 to 12.07
08.09.03	08.09.15	"	10.21	8.68 to 11.95
08.09.17	08.09.28	"	9.12	7.29 to 11.08
08.10.01	08.10.17	"	10.94	8.00 to 18.00
08.10.15	08.11.03	"	10.56	8.00 to 12.00
08.10.29	08.11.19	"	9.02	7.42 to 10.65
08.11.14	08.12.05	"	11.40	8.00 to 18.00
08.11.14	08.12.12	"	11.40	8.00 to 12.00
08.12.05	08.12.19	"	10.08	7.69 to 12.70
08.12.31	09.01.08	"	10.23	8.00 to 12.00
09.01.14	09.01.26	"	11.40	8.00 to 12.00
09.01.28	09.02.15	"	10.29	8.00 to 12.00
09.02.25	09.03.11	"	9.10	7.36 to 10.97
09.03.05	09.03.20	"	9.80	8.47 to 11.33
09.03.17	09.03.31	"	11.06	4.86 to 17.26
09.04.01	09.04.07	"	9.80	7.87 to 11.99
09.04.07	09.04.20	"	11.40	8.00 to 12.00
09.05.13	09.06.08	"	10.94	8.00 to 12.00
09.05.22	09.06.04	"	8.42	8.00 to 12.00
09.06.10	09.07.13	"	11.40	8.00 to 12.00
09.07.15	09.07.24	"	10.15	8.00 to 12.00
09.07.22	09.08.06	"	11.40	8.00 to 12.00
09.08.05	09.08.20	"	10.21	8.68 to 11.95
LAB GEOMETRIC MEAN ± 2 standard deviations:				10.404 mg/L ± 2.27
Warning Limits:				8.136 g/L to 12.671 mg/L

CONTROL/DILUTION WATER QUALITY:

Hardness: 20 mg/L

Total Residual Chlorine: 14 µg/L

FILE:ACCESS/0912077.RTT

DATE: 29 December 2009

TO: Mr. Scott Keesey
ALEXCO
#3 Calcite Business Centre
151 Industrial Road
Whitehorse, Yukon Y1A 2V3

REPORT ON: RAINBOW TROUT BIOASSAY RESULTS

SAMPLE DESCRIPTION:

IRC Sample ID No.:	0912077
Sample Name:	**BC28a Bioassay**
Date, time collected:	11 December 2009
Date, time received:	15 December 2009; 1300 hrs.
Collection Method:	Grab
Amount, Container:	1 x 20 L plastic container
Physical description:	Clear colourless liquid
Date, time tested:	15 December 2009; 1530 hrs.

RAINBOW TROUT 96 HR RESULTS:
The 96 hour (static) LT_{50} was greater than 96 hours.
0% trout mortality in undiluted sample

The LT_{50} is defined as the median lethal time or the time at which there is 50% fish mortality. Results are calculated using the method described by Stephan (Methods for calculating an LC_{50} in: Aquatic Toxicology and Hazard Evaluation, American Society for Testing and Materials, 1977).

The method used for this test was as per the IRC laboratory "Standard Operating Procedure for Rainbow Trout Holding and Testing" RTver5. This procedure follows the "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" EPS 1/RM/13, Second Edition – December 2000. Test volume was 20 litres with 10 fish in each test vessel. Aeration was by forced air, through airstones at a rate of approximately 6.5 ± 1ml/L/min. The sample was not pH adjusted or filtered prior to testing.

The initial dissolved oxygen level was 12.0 mg/L at 4.5°C, the conductivity was 4260 µS/cm and the initial pH was 8.0. After re-aerating the sample for 120 minutes and warming up to 14.5°C, the dissolved oxygen level was 11.1 mg/L. Although the dissolved oxygen level was greater than 100% saturation the maximum aeration time had been reached and so the test was initiated at this time. The test set up technician was DW.

Please call should you have any questions.

IRC Integrated Resource Consultants Inc.

Lisa Hedderson
Laboratory Biologist
b129.1
enclosure

FILE:ACCESS/0912077.RTT

RAW DATA

TEST CONCENTRATION		HOURS 0	1.0	24	48	72	96
100%	Percent Survival	100%	100%	100%	100%	100%	100%
	Dissolved Oxygen (mg/L)	11.1		9.7	9.6	9.6	9.6
	Temperature (°C)	14.5		14.5	15.0	15.5	15.5
	PH	7.9		8.0	8.1	8.1	8.0
	Conductivity (µScm)	4210					4260
	Symptoms	1	1	1,2	1	1	2
	Loading Density (g/L)	0.45	0.45	0.45	0.45	0.45	0.45
CONTROL	Percent Survival	100%	100	100%	100%	100%	90%
	Dissolved Oxygen (mg/L)	10.2		9.5	9.3	9.3	9.0
	Temperature (°C)	14.5		14.5	15.0	15.5	15.0
	PH	7.9		7.6	7.7	7.7	7.5
	Conductivity (µS/cm)	68					103
	Symptoms	1	1	1	1	1	1
	Loading Density (g/L)	0.45	0.45	0.45	0.45	0.45	0.40
	Technician	DW	DW	DC	DC	DC	RM

KEY TO SYMPTOMS:

1 = no apparent effect
2 = fish showing signs of stress
3 = loss of equilibrium

TEST FISH STOCK INFORMATION:

Date received:	17 November 2009	
Source:	Spring Valley Trout Farm	
Species:	*Oncorhynchus mykiss* (Rainbow Trout)	
Fork Length:	Mean:	44.8 mm ± 4.5 mm
	Range:	38.0 mm – 51.0 mm
Wet weight:	Mean:	0.89 g ± 0.29 g
	Range:	0.45 g – 1.30 g
Condition Factor (100xWt/length^{3}cm):	0.99	

Acclimation History	
Acclimation temperature:	14.0 to 15.0°CELSIUS
Treatments:	None
Water:	Dechlorinated tap water
Feeding:	Nutra 2000 fry feed
Mortality:	0.26%

RAINBOW TROUT REFERENCE TOXICANT DATA

Stock Arrival Date (y/m/d)	Test Date (y/m/d)	Toxicant	LC50 (mg/L)	95% Confidence Interval
08.10.29	08.11.19	Phenol	9.02	7.42 to 10.65
08.11.14	08.12.05	"	11.40	8.00 to 18.00
08.11.14	08.12.12	"	11.40	8.00 to 12.00
08.12.05	08.12.19	"	10.08	7.69 to 12.70
08.12.31	09.01.08	"	10.23	8.00 to 12.00
09.01.14	09.01.26	"	11.40	8.00 to 12.00
09.01.28	09.02.15	"	10.29	8.00 to 12.00
09.02.25	09.03.11	"	9.10	7.36 to 10.97
09.03.05	09.03.20	"	9.80	8.47 to 11.33
09.03.17	09.03.31	"	11.06	4.86 to 17.26
09.04.01	09.04.07	"	9.80	7.87 to 11.99
09.04.07	09.04.20	"	11.40	8.00 to 12.00
09.05.13	09.06.08	"	10.94	8.00 to 12.00
09.05.22	09.06.04	"	8.42	8.00 to 12.00
09.06.10	09.07.13	"	11.40	8.00 to 12.00
09.07.15	09.07.24	"	10.15	8.00 to 12.00
09.07.22	09.08.06	"	11.40	8.00 to 12.00
09.08.05	09.08.20	"	10.21	8.68 to 11.95
09.08.19	09.09.15	"	8.65	7.04 to 10.25
09.09.16	09.10.13	"	10.23	8.00 to 12.00
09.10.06	09.10.27	"	10.17	8.16 to 12.36
09.10.15	09.10.29	"	12.00	8.00 to 18.00
09.11.04	09.11.16	"	14.10	11.86 to 16.57
09.11.17	09.12.04	"	10.60	8.95 to 12.51
LAB GEOMETRIC MEAN ± 2 standard deviations:				10.46 mg/L ± 2.31
Warning Limits:				8.153 g/L to 12.762 mg/L

CONTROL/DILUTION WATER QUALITY:

Hardness: 15 mg/L

Total Residual Chlorine: 14 µg/L