EDI ENVIRONMENTAL DYNAMICS INC.
Natural Resource Consultants

MT. NANSEN SITE SPECIFIC WATER QUALITY INVESTIGATION

PREPARED FOR:

ENERGY, MINES AND RESOURCES

ABANDONED MINES PROJECT OFFICE

GOVERNMENT OF YUKON

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EDI PROJECT NO.: 07-YC-0055

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1 INTRODUCTION

The Yukon Government's Abandoned Mines Branch (AMB) is currently working towards reclamation of the Mt. Nansen gold and silver mine site. EDI Environmental Dynamics Inc. (EDI) was retained by the Yukon Government, Department Energy, Mines and Resources, in 2007, to investigate current water quality in watercourses and water bodies on the Mt. Nansen mine site, and subsequently to determine the need for Site Specific Water Quality Objectives (SSWQOs). The Mt. Nansen mine is located approximately 60 kilometers west of Carmacks, Yukon. The site is accessed via a gravel-surface road connecting the mine site to Carmacks (Figure 1). Water quality, both on and downstream of the mine site, is an important component of a successful reclamation of the mine. Historical and current water quality must be compiled and interpreted in order to determine whether current samples meet applicable water quality standards including the Canadian Council Ministers of the Environment (CCME) objectives set for the protection of aquatic life. This review of current water quality at the site will aid in the determination of future work required, including the parameters for which SSWQOs may be required. There are four recognized methods of setting site specific objectives:

1. Background Concentration Procedure
2. Recalculation Procedure
3. Water Effect Ratio Procedure
4. Resident Species Procedure

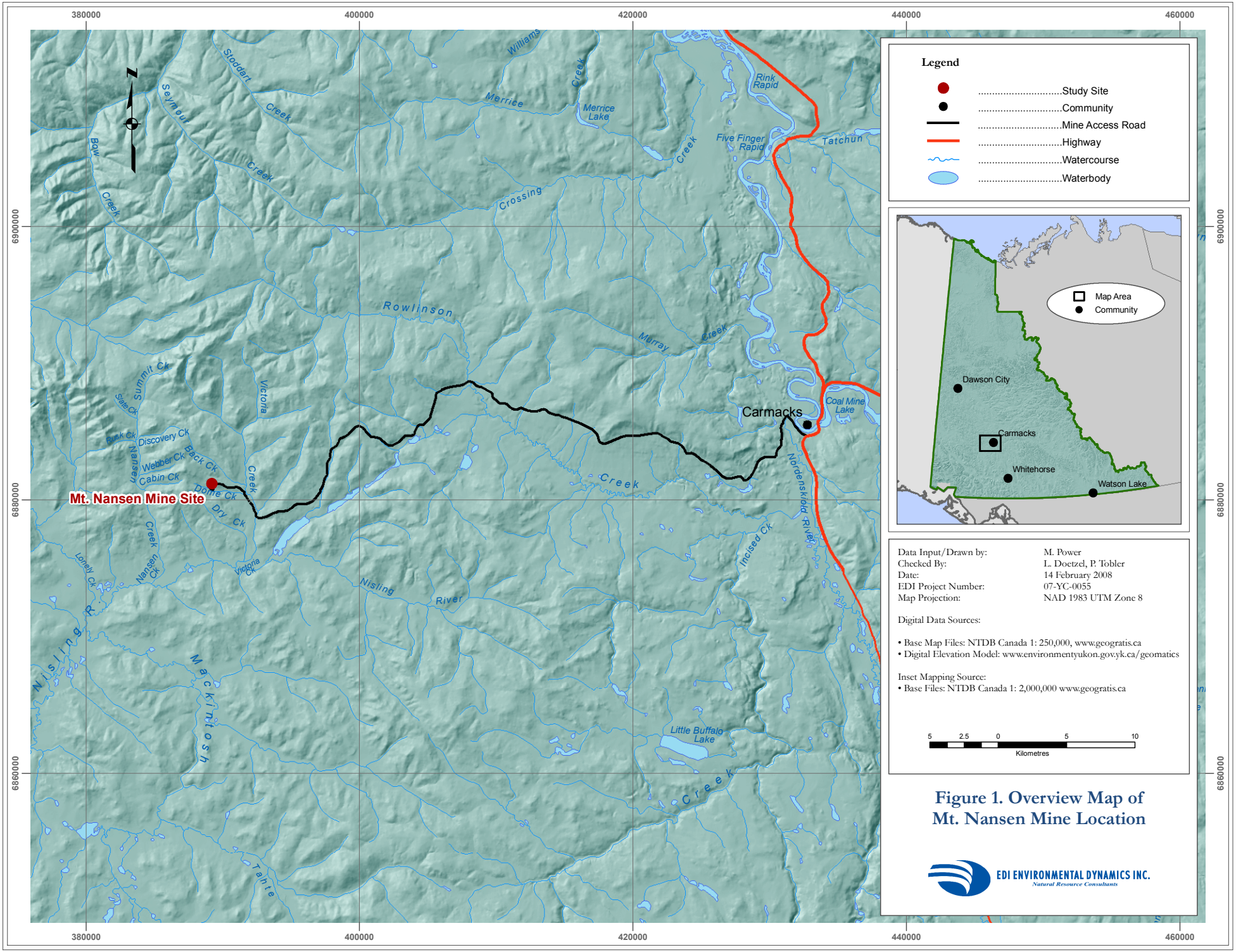
These methods differ in information and length of study required. Further investigation and consultation will be required to determine which of the above methods is best suited for this study area, if a review of the data reveals that there is a need to develop SSWQOs. As it has been a number of years since mining activity ceased at the site, and reclamation is underway, there is also the possibility that water quality has improved over the years. In this situation, continued monitoring would be very important, however, SSWQOs may not provide any meaningful addition to the reclamation efforts.

1.1 BACKGROUND OF AQUATIC RESOURCES

The Mt. Nansen mine site lies within the watershed of Victoria Creek, a tributary stream to the Nisling River, a medium sized river in the Donjek/White Rivers drainage basin. The Nisling River is a spawning stream for chinook salmon (*Onchorhynchus tshawytscha)*; however, most spawning activity occurs in the middle and lower portions of the river and not in the upper reaches near the Mt. Nansen area.

Two small streams drain the majority of the mine footprint. The primary drainage is Dome Creek which flows from above the mill site, past the tailings facilities down into Victoria Creek. A falls near the mouth of the Dome Creek restrict fish from entering and using this stream (EDI 2007). In addition, Pony Creek drains a small portion of the mine site north of the Brown McDade Pit and eventually flows into Back Creek a tributary to Victoria Creek. Although, there is limited fish potential Pony Creek, no known studies have been conducted in this regard.

Fish species utilizing water bodies near (downstream of) the mine site include Arctic grayling *(Thymallus arcticus)*, burbot (*Lota lota*), northern pike *(Esox lucius)*, round whitefish *(Prosopium cylindraceum*) and slimy sculpin *(Cottus cognatus)*.



Data Input/Drawn by:	M. Power
Checked By:	L. Doetzel, P. Tobler
Date:	14 February 2008
EDI Project Number:	07-YC-0055
Map Projection:	NAD 1983 UTM Zone 8

Digital Data Sources:

- Base Map Files: NTDB Canada 1: 250,000, www.geogratis.ca
- Digital Elevation Model: www.environmentyukon.gov.yk.ca/geomatics

Inset Mapping Source:
- Base Files: NTDB Canada 1: 2,000,000 www.geogratis.ca

Figure 1. Overview Map of Mt. Nansen Mine Location

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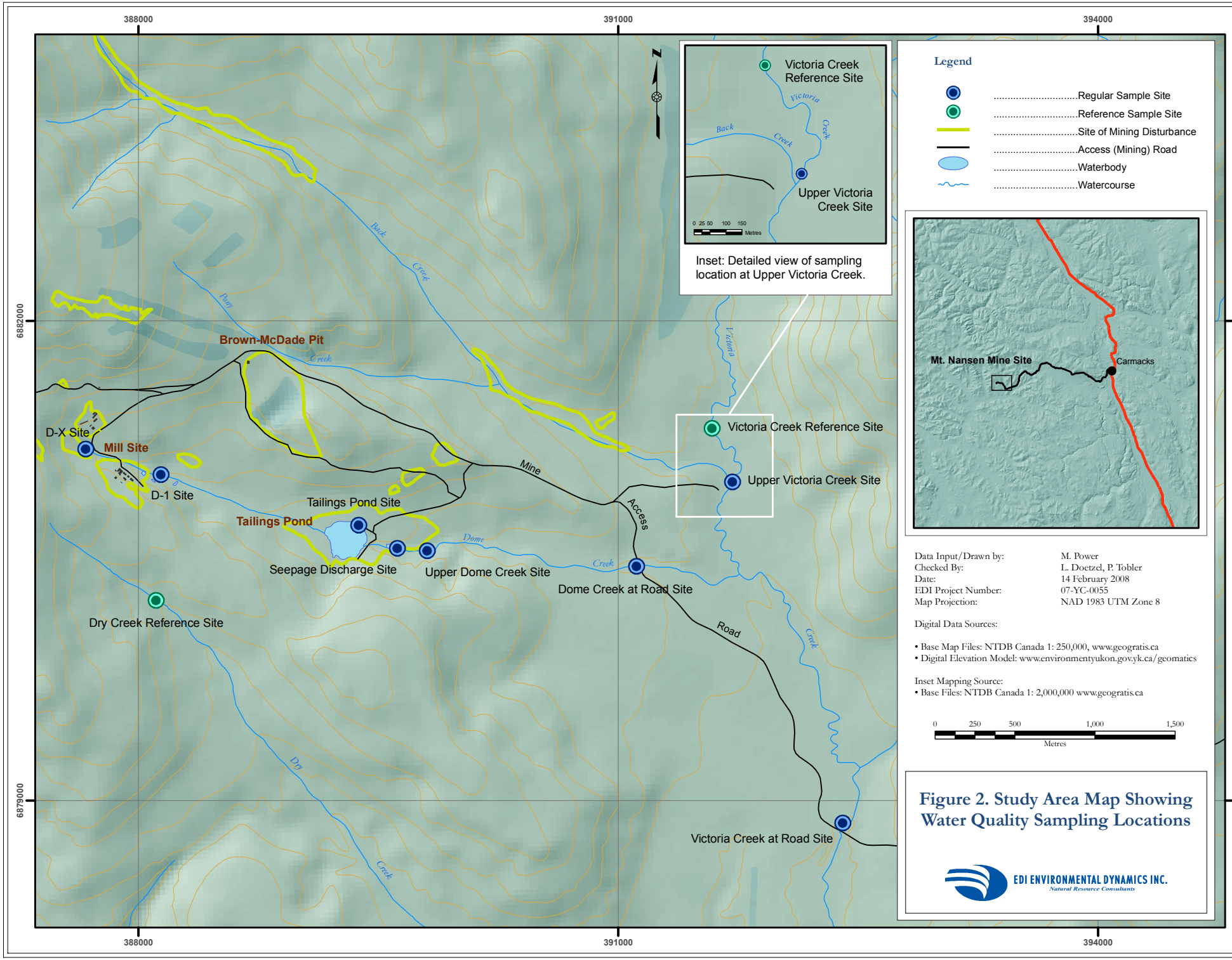
388000
391000
394000
6882000
6879000
Brown-McDade Pit
D-X Site
Mill Site
D-1 Site
Tailings Pond
Tailings Pond Site
Seepage Discharge Site
Upper Dome Creek Site
Dome Creek at Road Site
Dry Creek Reference Site
Victoria Creek Reference Site
Upper Victoria Creek Site
Victoria Creek at Road Site
Mine Access Road
Back Creek
Dry Creek
Dome Creek
Victoria Creek
Inset: Detailed view of sampling location at Upper Victoria Creek.
Victoria Creek Reference Site
Upper Victoria Creek Site
0 25 50 100 150
Metres
Legend
Regular Sample Site
Reference Sample Site
Site of Mining Disturbance
Access (Mining) Road
Waterbody
Watercourse
Mt. Nansen Mine Site
Carmacks
Data Input/Drawn by: M. Power
Checked By: L. Doetzel, P. Tobler
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Inset Mapping Source:
• Base Files: NTDB Canada 1: 2,000,000 www.geogratis.ca
0 250 500 1,000 1,500
Metres
Figure 2. Study Area Map Showing Water Quality Sampling Locations
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2 METHODOLOGY

2.1 WATER QUALITY SAMPLING

Water quality sampling at the Mt. Nansen mine site began in 1999 by the Department of Indian and Northern Affairs (DIAND), and in 2003 this sampling program was assumed by the Yukon Government Abandoned Mines Branch (AMB). Since 2005, EDI (under contract with AMB) has sampled the Mt. Nansen site at semi-regular frequencies. This frequency has been weekly, bi-weekly or monthly depending on activities at the mine site (i.e. discharge of water into Dome Creek) and water quality results. Some sites are not sampled in the winter when locations are frozen to substrate. Sampling locations covered by this program are shown in Figure 2 and described in Table 1.

Table 1. Water Quality Sampling Locations and Site Descriptions and Rationales.

Sampling Location	Site Descriptions and Rationales
Upper Victoria Creek	This site is located on Victoria Creek upstream of where Back Creek flows into Victoria Creek. It is intended to be representative of Victoria Creek before is receives inputs from Dome and Back creeks.
Victoria Creek at Road	This site is located on Victoria Creek where it crosses the mine access road. It is intended to document the water quality at a location downstream of the mine site.
Dome Creek at D - X	This is the furthest upstream site on Dome Creek. It is upstream of all mining activities, and should represent background water quality in Dome Creek. The drainage at this location is very small and consists of shallow flow over fines and organics. Sampling was limited to summer/fall 2007 at this sites.
Dome Creek at D - 1	This site is located on Dome Creek immediately downstream of the mill site. It is intended to qualify effects to water quality due to the mill. Sampling was limited to a one time event in 2005 and a few events in the summer/fall 2007.
Upper Dome Creek	This site is located on Dome Creek downstream of the Tailings Pond and the seepage pond/discharge site. Dome Creek is diverted around the tailings facilities and this site is located approximately 25 m downstream of this diversion. It is intended to capture any changes to water quality in the upper portion of Dome Creek as a result of inputs from the tailings facilities (including any active discharges).
Dome Creek at Road	This site is located on Dome Creek where it intersects the mine access road. It is intended to qualify the water quality as Dome Creek flows into Victoria Creek, approx 600 m downstream of this sampling location.
Tailings Pond	The tailings pond holds tailings and water affected by mining and milling activities.

Sampling Location	Site Descriptions and Rationales
Seepage Pond	There is a continual underground seep of water from the Tailings Pond. This water is collected in this smaller pond and continuously pumped back up to the Tailings Pond or discharged into Dome Creek (when water quality meets water license standards). Water samples are collected from the end of discharge/pump pipe.
Brown - McDade Pit	The Brown - McDade Pit is sampled at the deepest part of the lake. Samples are typically collected at the surface, middle and bottom.
Reference Sites*	One site on Victoria Creek far upstream of the mine site, and one on Dry Creek were selected to act as reference locations.

* see below text for an expanded description of reference site locations and rationales.

For the purpose of this site specific investigation, two more sampling sites were sampled in October 2007 as reference sites. These sites were located in the same geographical and geological area as the Mt. Nansen mine site; however, due to their location it is assumed that they are in no way affected by the mine or mining activities, adversely or otherwise. One site was located farther upstream on Victoria Creek, and the other is located on Dry Creek, east of the mine site, draining to the south and east (Figure 2). The data was used to better understand background conditions to which the other samples can be compared.

Parameters for which the samples were analyzed include:

- Electrical conductivity (EC)
- pH
- Alkalinity
- Hardness
- Sulphate
- Thiocyanate
- Cyanate*
- Cyanide - Weak Acid Dissociable*
- Cyanide - Strong Acid Dissociable*
- Ammonium (NH_4)
- Nitrate (NO_3)
- Nitrite (NO_2)
- Total Phosphorus
- Dissolved Metals
- Total Metals

Analyses for the cyanide parameters were not included in the Brown-McDade Pit samples, or the Dome-X and Dome-1 samples; these analyses were, however, included in the sampling of the reference sites on Dry Creek and Victoria Creek.

2.2 LABORATORY ANALYSES

When sampling at Mt. Nansen was first undertaken in 1999, samples were sent to Bodycote Testing Group (Bodycote) for analysis. However, in 2004 it was noted that Bodycote was having difficulty ensuring accurate and precise cyanide analyses. At the beginning of 2005, sample analysis was moved to ALS Laboratory Group (ALS). ALS has different options for metal analysis and associated detection limits. As their more economical ICP-OES analysis was adequate for meeting water license standards (except for dissolved arsenic), this analysis was selected (with ICP_MS for dissolved arsenic). When data was complied and reviewed for the purpose of this report it was discovered that the detection limits for a number of total metals results, including cadmium, arsenic, lead and silver, were high enough to prevent comparison with current CCME objectives set for the protection of freshwater aquatic life. At that time, sample analysis was returned to Bodycote, who had by this time improved their laboratory accuracy and precision for cyanide analysis. Total and dissolved metals are now all analyzed such that detection limits are now low enough to allow comparison with all applicable water quality guidelines.

2.3 APPLICABLE GUIDELINES

There are three different sources of water quality standards to which the water from the Mt. Nansen site can be compared. The 2003 Canadian Council Ministers of the Environment (CCME) objectives for the protection of aquatic life are applicable to all water bodies and watercourses in Canada. The Yukon Territory Water Board issued a water license to B.Y.G. Natural Resources Inc. for the Mt. Nansen site. This water license includes a list of effluent water quality standards by which to govern water quality in all effluent discharged from the project during operation and final decommissioning. The license formally expired on December 31, 2001, however, the guidelines are still recognized as discharge standards. Finally, as a recognized contaminated site, the Yukon Contaminated Site Regulations (YCSR) also apply. As the water quality on the Mt. Nansen site was generally in close proximity to the more stringent CCME objectives, which are the most stringent, it was decided these were more applicable than the YCSR standards. However the Water License standards are also applied to ensure compliance with the water license, as some parameters are listed here that are not found in the CCME or YCSR guidelines.

Table 2: Applicable Water Quality Guidelines for the Protection of Freshwater Aquatic Life.

Parameter	CCME Objectives[1]	Water License Standards[2]	YCSR Standards[3]
Physical Parameters			
pH	6.5 - 9.0	6.0 - 8.5	--
Total Suspended Solids	--	50 mg/L	--
Nutrients			
Ammonia-N	2.20 mg/L	--	3.7 mg/L
Nitrate-N	13.0 mg/L	--	400 mg/L
Nitrite-N	0.06 mg/L	--	2 mg/L
Cyanide Compounds			
Total Cyanide	--	0.3 mg/L	--
Cyanate	0.5 mg/L	--	--
CN-WAD	--	0.1 mg/L	0.05 mg/L
Total Metals			
Aluminum	0.1 mg/L	--	--
Antimony	--	0.15 mg/L	0.2 mg/L
Arsenic	0.005 mg/L	--	0.05 mg/L
Barium	--	1.0 mg/L	10 mg/L
Beryllium	--	--	0.053 mg/L
Boron	--	--	50 mg/L
Cadmium	0.000017 mg/L	0.02 mg/L	0.21 mg/L
Chromium	0.0089 mg/L	0.04 mg/L	0.01 mg/L
Cobalt	--	--	0.009 mg/L
Copper	0.004 mg/L	0.2 mg/L	0.08 mg/L
Iron	0.30 mg/L	1.0 mg/L	--
Lead	0.007 mg/L	0.1 mg/L	0.11 mg/L
Manganese	--	0.5 mg/L	--
Molybdenum	0.073 mg/L	--	10 mg/L
Nickel	0.150 mg/L	0.3 mg/L	1.5 mg/L
Selenium	0.001 mg/L	--	0.01 mg/L
Silver	0.0001 mg/L	0.10 mg/L	0.015 mg/L
Thallium	0.0008 mg/L	--	0.003 mg/L
Titanium	--	--	1 mg/L
Zinc	0.03 mg/L	0.30 mg/L	1.65 mg/L
Dissolved Metals			
Arsenic	--	0.15 mg/L	--

[1] Guidelines for the Protection of Freshwater Aquatic Life (CCME 2002).

[2] Water License Standard issued to B.Y.G. Natural Resources Inc. for the Mt. Nansen mine site, February 1996.

[3] Schedule 3: Generic Numerical Water Standards, Protection of Aquatic Life (YCSR 1996).

3 RESULTS

3.1 REFERENCE SITES: UPSTREAM VICTORIA CREEK AND DRY CREEK

In addition to other sites sampled, two reference areas were chosen for sampling in October 2007. One on Victoria Creek, another 500 m upstream of the Upper Victoria sampling site, and the other on Dry Creek, which is to the west of the mine site, over a ridge, and draining to the opposite direction of the mine site (Figure 2). Due to their location, these sites should be free of any effects from the Mt. Nansen mine, and therefore able to provide some background data for comparison. Water quality from these sites can be found in Appendix A, Table A1.

3.1.1 ROUTINE PARAMETERS

Water quality in these two creeks was remarkably similar. The pH in the two reference creeks were a slightly alkaline 8.0 in Victoria Creek and 7.9 in Dry Creek, similar to that seen at other sampling locations. The electrical conductivity (EC) in these two streams was lower than in many other sampling streams with values of 166 µS/cm and 164 µS/cm, respectively. The hardness was notably lower in these creeks when compared to the other sample sites. In the Victoria Creek reference site the hardness was 79.3 mg/L and in Dry Creek it was 80.0 mg/L. The water in these creeks was therefore moderately hard. The alkalinity in was 77.3 mg/L and 81.7 mg/L respectively, slightly lower than seen in other sampling locations, but still well buffered against acidification.

3.1.2 NUTRIENTS

Both reference locations were very nutrient poor, oligotrophic systems, which is common in clear, fast running alpine streams. Nutrient concentrations were very low, all nitrogen and phosphorus parameters were below detection with the exception of the nitrate concentration in Victoria Creek, which had a concentration of 0.091 mg/L, well below the CCME guideline of 13.0 mg/L.

3.1.3 CYANIDE

At the Victoria and Dry reference sites total cyanide concentrations were 0.007 mg/L and 0.0105 mg/L, respectively, both well below the 0.3 mg/L water license standard for the Mt. Nansen site. All other cyanide compounds (cyanate, thiocyanate, WAD cyanide and SAD cyanide) were present at concentrations that were below detection.

3.1.4 TOTAL METALS

The two reference areas were analyzed with the less sensitive ALS detection limit, therefore, a number of the detection limits exceeded the CCME objectives. Allowing for this knowledge, most metals were present

in concentrations that were below detection, and of those that were present in detectable concentrations none of them exceeded CCME objectives (Appendix A, Table A1).

3.2 VICTORIA CREEK

Victoria Creek runs south along the eastern border of the Mt. Nansen mine site. The water quality has been sampled at Upper Victoria since May 2005. This site is upstream of and therefore largely unaffected by, the Mt. Nansen mine site. Another sampling site on Victoria Creek, 'Victoria at Road', is farther downstream where the main access road crosses the creek; it has been sampled since 1999. The site is downstream of Dome Creek and Back Creek, and of the tailings facilities/discharges; the water quality may therefore be affected by mining activities. Also, it should be noted that water quality on Victoria Creek can be affected by placer mining activity on Back Creek. Detailed water quality data for Victoria Creek can be found in Appendix A, Table A2 (Upper Victoria Creek) and Table A3 (Victoria Creek at Road Crossing).

3.2.1 ROUTINE PARAMETERS

The pH in Victoria Creek, measured in both sample locations was quite comparable. At Upper Victoria the pH ranged from 6.8 to 8.6, with a median of 7.9; farther downstream at the road the pH ranged from 6.6 to 8.2 with a median value of 7.7. Farther upstream at the reference site pH was 8.0, indicating that there may be a slight decrease in pH moving downstream in Victoria Creek. Electrical conductivity (EC) ranged from 52 to 293 µS/cm, with a median of 181 µS/cm in Upper Victoria. At the road site the EC ranged from 67 to 2940 µS/cm, with a median of 209.5 µS/cm; the highest EC was recorded in December 2002 and not repeated in any other year, indicating that it is likely an anomaly possibly due to lab or sampling error. Water hardness ranged from 34 to 155 mg/L upstream and 38 to 774 mg/L downstream. Median hardness was approximately 100 mg/L at both sites; therefore the water in Victoria Creek can be characterized as moderately hard. Alkalinity in Upper Victoria ranged from 18 to 140 mg/L, with a median of 81.4 mg/L; values at the road ranged from 18 to 793 mg/L with a median of 73 mg/L. Based on the median concentrations Victoria Creek is moderately alkaline, and therefore well buffered.

3.2.2 NUTRIENTS

As seen in the reference locations, Victoria Creek was a nutrient poor watercourse. There was little difference in the ammonia concentrations between the two sites. Ammonia concentration in Upper Victoria Creek ranged from 0.02 to 8.3 mg/L, with a median of 0.03 mg/L. Farther downstream ammonia concentrations ranged from 0.02 to 6.69 mg/L, with a median concentration of 0.04 mg/L. The majority of samples taken from both sites were well below the CCME guideline for ammonia (1.37 mg/L, pH dependent). The ammonia sample with a concentration of 8.3 mg/L was recorded in January 2006, and the 6.69 mg/L was taken in May 2006; in both situations samples taken two weeks before and two weeks after were both significantly less, likely indicating sampling or laboratory error. Nitrate and nitrite concentrations

in both sampling locations were low, generally below detection limits. Concentrations of total phosphorus were below detection in samples from both locations.

3.2.3 CYANIDE

Total cyanide concentrations were significantly lower than the Water License Standard of 0.3 mg/L in both sampling locations on Victoria Creek; concentrations were generally less than 0.05 mg/L. Concentrations of WAD cyanide were also well below the Water License Standard of 0.1 mg/L. WAD Cyanide was generally below detection (< 0.005 mg/L) in samples from Upper Victoria and ranged from 0.001 to 0.041 mg/L with a median of 0.005 mg/L at the road site.

3.2.4 TOTAL METALS

In Victoria Creek total metals concentrations were generally below all applicable CCME objectives. However, for some metals, including arsenic, copper, lead, and silver the detection limit was above the CCME guideline concentration for most sampling events, therefore it is not possible to infer whether the current metals concentrations are above or below guidelines for all sampling events.

Aluminum (Al) concentrations were slightly higher at the road crossing sampling site than further upstream. Concentrations at both sites were generally close to, or just above the CCME guideline (0.1 mg/L). These elevated concentrations are likely due in part to local geology, and are not entirely a reflection of mining contamination.

Arsenic (As) concentrations were also very close to or slightly above the CCME guideline. There is some difficulty in interpreting this data as the detection limit used from 2005 until late 2007 exceeded the CCME guideline. However, samples taken in late November 2007 through January 2008 show that the As concentrations were below the CCME guidelines, and much lower than all historical data, including both the majority of 2005 to 2007 data (with high detection limits), and data collected from 1999 through 2003.

Cadmium (Cd) concentrations in Victoria Creek were historically slightly above the CCME guideline, but below the water license standard. However, the most recent samples, taken from November 2007 through January 2008, indicated that concentrations are now below the CCME guideline. Samples taken from 2005 through November 2007 to this were all non-detectable by ALS laboratory methods.

Chromium (Cr) concentrations in Victoria Creek were below the CCME guideline in nearly all samples.

Copper (Cu) concentrations in Victoria Creek at the road crossing site have decreased dramatically since sampling began in 1999. With few exceptions, since 2005 concentrations have been near or below the CCME guideline in Victoria Creek. It should be noted that for the majority of this period the detection limit was slightly higher (0.005 mg/L) than the CCME guideline (0.004 mg/L).

Iron (Fe) concentrations were slightly higher at the road crossing sampling site than at the upstream site. Concentrations from the downstream site exceeded the CCME guideline in a number of samples. Samples taken from the upstream site show a decreasing trend over time from 2005 through the end of 2007.

Concentrations were generally below the CCME guideline, although some exceedances were observed (with more frequency at the road site).

Lead (Pb) concentrations were generally below detection, or below the CCME guideline in Victoria Creek, when detection limits were low. These results were also affected by the ALS detection limits from 2005 to 2007.

Silver (Ag) concentrations in Victoria Creek were above the CCME guidelines at the road crossing from 1999 to 2005. From 2005 to 2007 concentrations were generally below the ALS detection limit, and Ag concentrations in samples taken in November and December 2007 show concentrations below the CCME guideline.

Zinc (Zn) concentrations were slightly higher in samples taken from the downstream location, when compared with those from the upstream sampling site. Concentrations at the downstream location have, however, decreased over time. Samples taken from 2005 to 2007 show lower concentrations than those collected between 1999 and 2003. Nearly all samples had zinc concentrations that fell below the CCME guideline.

3.3 DOME CREEK

Dome Creek runs through the mine site, receives discharge from the tailings pond (when concentrations of metals in the tailings pond water meet water licence standards), and ultimately empties into Victoria Creek. It was historically sampled in two different places, the first site is just downstream of the tailings facilities, and the second is downstream where the Creek crosses the main access road. Sampling at the upstream site began in 2005, and continues through today, while sampling at the road site began in 1999, and continues through today. Samples were ideally taken year round, however Dome Creek has a tendency to freeze to substrate through the winter months, so for most years there are no samples from December through April. Two more sampling locations on Dome Creek were added in 2007, D-X and D-1. D-X is located on Dome Creek above the Mill site, and D-1 is located between the mill site and above the Tailings Pond. D-1 was first sampled as part of the Terrestrial and Aquatic Effects Study (EDI 2007). It was then sampled, together with D-X three more times, ranging from July 2007 through September 2007. Detailed water quality data for Dome Creek can be found in Appendix A, Table A4 (Dome-1 and Dome-X) and Table A5 (Upper Dome) and Table A6 (Dome Creek at Road Crossing).

3.3.1 ROUTINE PARAMETERS

The pH in Dome Creek varies as it moves downstream. Upstream, above the mill site, the pH was approximately 7.6, increasing to 8.2 below the mill, and then slightly decreasing again to a median of 7.8 through the Upper Dome and road crossing locations. The majority of all samples fell within CCME objectives (6.5 – 9.0). Electrical conductivity was also affected by the mill site, as EC at the D-X site varied around 500 µS/cm, and then doubled to 1000 µ/cm below the mill site at D-1. Further downstream in

Dome Creek, the EC varied seasonally from 500 – 1000 µS/cm in summer months, up to >2000 µS/cm in winter months. High concentrations in winter are common when the majority of water is held in ice and ions are concentrated in a significantly lower quantity of water. It is also possible that in winter, water flowing in Dome Creek is made up largely of seepage discharge, with little dilution from Dome Creek itself, which is largely frozen. Alkalinity increased from 80 mg/L at D-X to approximately 250 mg/L at D-1. Further downstream, median alkalinity concentration in Upper Dome Creek decreased to approximately 140 mg/L, with individual values that generally ranged from 100 to 300 mg/L, and continued to decrease to where Dome Creek crosses the road, with a median value of 113 mg/L, still slightly above the concentrations found at the furthest upstream site, D-X.

3.3.2 NUTRIENTS

In general ammonia concentrations at all sampling locations were below the CCME guideline concentration of 2.20 mg/L, generally ranging from 0.04 mg/L to 1.5 mg/L. Some exceedances were noted at both the Upper Dome and road crossing locations. Nitrite concentrations were undetectable in all D-1 and D-X samples. Median nitrite concentration at the upper site was 0.03 mg/L, and there were some guideline exceedances (CCME guideline for nitrite is 0.06 mg/L), generally seen in late fall and winter 2005. The median nitrite concentration at the Dome Creek site at the road was slightly higher, 0.05 mg/L, and again some exceedances were noted, particularly in the winter 2005. Concentrations of total phosphorus were below detection at D-1, Upper Dome, the road crossing sampling locations in the more recent samples; however, some of the early samples (1999 and 2000) taken at the road crossing site did range up to 1.62 mg/L. Total phosphorus concentrations at the D-X site, furthest upstream were detectable, with concentrations centering on 1.0 mg/L

3.3.3 CYANIDE

Total cyanide concentrations in Upper Dome are well below the Water License Standard (0.3 mg/L) (Appendix A, Figure B3). Concentrations ranged from 0.005 mg/L to 0.128 mg/L, with a median of 0.025 mg/L. Total cyanide concentrations in Dome Creek at the road were also below the Water License Standard, with concentrations ranged from 0.006 to 0.06 mg/L, with a median concentration of 0.02 mg/L. Current WAD cyanide concentrations were below the Water License Standard (0.1 mg/L) both at the Upper Dome sampling site, and the site at the road crossing. All historical samples taken at the Upper Dome site are below the Standard, ranging from 0.005 mg/L to 0.08 mg/L, with a median concentration of 0.01 mg/L. Samples in Dome Creek where it crosses the road taken before 2001 often exceeded the standard, while current concentrations are considerable lower. Concentrations at this site ranged from 0.002 to 6.23 mg/L (6 October 1999), with a median concentration of 0.008 mg/L.

3.3.4 TOTAL METALS

In Dome Creek total metals concentrations were generally below all applicable CCME objectives, with some notable exceptions. However, for some metals, including arsenic, copper, lead, and silver the detection limit

was above the CCME guideline concentration, therefore it is not possible to infer with accuracy whether the current metals concentrations are above or below guidelines.

Aluminum concentrations often exceeded the CCME objective (0.1 mg/L) in many sampling locations on Dome Creek; at D-X concentrations were 13.3 mg/L and 6.08 mg/L in August and September 2007, indicating that background Al concentrations in the Dome Creek watershed exceed guidelines. Concentrations in Upper Dome ranged from 0.2 to 1.46 mg/L, with a median concentration of 0.48 mg/L. In Dome Creek at the road the Al concentration ranged from 0.03 to 18.3 mg/L with a median concentration of 0.68 mg/L. It is likely that the background Al concentration in this area is periodically greater than the CCME guideline, and that the elevated concentrations are not entirely due to past mining activities.

Arsenic concentrations at the D-X, D-1 and Upper Dome sampling locations were generally below ALS detection limits. However, the detection limit exceeds the CCME guideline for As, and therefore no meaningful comparisons with guideline can be made at this time. At the road crossing location samples taken before 2005 show that concentrations often exceeded the CCME guideline, however, samples taken after 2005 (with the high detection limits) appeared to be lower than several of the levels found from 1998 to 2003. This likely indicates that arsenic levels have decreased in Dome Creek; however, the high detection limit makes interpretation difficult.

Cadmium concentrations in samples taken from D-X, D-1 and Upper Dome Creek site were undetectable in nearly all samples. One sample, taken in Upper Dome in January 2006 showed an anomalously high Cd concentration (0.03 mg/L) which may have been due to sampling or analysis error. Samples from the downstream sampling site generally exceeded the CCME by a small margin from 1999 to late 2003. Samples taken from 2005 to 2007 are affected by high detection limits, but one sample taken before freezing in November 2007, and analyzed with a more sensitive detection limit had a Cd concentration below the CCME guideline.

Chromium (Cr) concentrations in Dome Creek were below the CCME guideline in nearly all samples.

Copper concentration has decreased in Dome Creek since 1999. Current samples taken from both Dome Creek sampling sites show Cu concentrations to be at or below the CCME guideline.

Iron concentration in Dome Creek generally exceed the CCME guideline, however, it is likely that in this area the background Fe concentration exceeds the guideline, as high concentrations were noted at D-X, and the elevated concentrations are not entirely due to past mining activities.

Lead concentrations at the road crossing location often exceeded the CCME objectives from 1999 to 2003. From 2005 to 2007 concentrations were below ALS detection limits, which does not allow for correct interpretation.

Silver concentrations in Dome Creek at the road crossing site taken from 1999 to 2003 generally exceeded the CCME guideline. Concentrations in samples taken from 2005 to 2007 were below detection and therefore no meaningful comparisons with guideline can be made for this period of time. One sample taken

in November 2007 and analyzed with a more sensitive detection limit shows the Ag concentration at the road crossing was below CCME guideline.

Zinc concentrations at D-X and D-1 all exceeded guideline, with concentrations slightly higher downstream of the mill site. Concentrations at the road crossing site were higher than in samples taken from the Upper Dome site, periodically exceeding the CCME guideline. Concentrations at the Upper Dome location generally met or were below the guideline.

3.4 TAILINGS POND

The tailings pond has been sampled continuously since 1999. It was recognized that lowering the water levels retained in the tailings pond would allow the containment system to work more effectively, leading to less seepage. Therefore water has been slowly discharged from the tailings pond into Dome Creek as it meets the current water license standards. Detailed water quality data for the Tailings Pond can be found in Appendix A, Table A7.

3.4.1 ROUTINE PARAMETERS

The pH of water in the tailings pond was comparable to other water in area, with values that ranged from 6.8 to 8.89 with a median value of 7.91. The electrical conductivity had a median value of 2130 µS/cm, which is very high, but this is commonly seen in tailings pond water. Water hardness had a median value of 950 mg/L; therefore the water is classified as very hard, with high concentrations of calcium and magnesium. The alkalinity in the tailings pond was generally around 120 mg/L; therefore the tailings pond was well buffered against acidification.

3.4.2 NUTRIENTS

Ammonia concentration in the tailings pond generally exceeded the CCME guideline for the protection of aquatic life (2.20 mg/L). However, there is a trend that shows concentrations decreasing over time, from high concentrations ranging from 40 to 50 mg/L in 2000 to approximately 4 mg/L in samples taken in late 2007. Nitrate concentrations ranged from 0.07 to a high of 8.09, with a median value of 1.59 mg/L. Nitrite concentrations ranged from below detection (< 0.02 mg/L) to a high of 25.5 mg/L. In the last few years nitrite concentrations have decreased and stabilized. Data from 2000 shows a number of samples with very high nitrite concentrations; current concentrations are now close to the CCME guideline (0.06 mg/L), though there are still some occasional exceedances. Total phosphorus concentrations were generally below detection.

3.4.3 CYANIDE

Total cyanide concentrations have been measured in the tailings pond since early 2004. All concentrations have been well below the water license standard of 0.3 mg/L. A review of historical data shows that

concentrations of weak acid dissociable (WAD) cyanide have decreased since 1999 (Appendix A, Figure B5). The median concentration of all data is 0.03 mg/L, and concentrations are now consistently below the water license standard, as required for release of water to Dome Creek.

3.4.4 TOTAL METALS

In the tailing pond total concentrations of most metals exceed the CCME objectives for the protection of freshwater aquatic life. However, for some metals, including arsenic, copper, lead, and silver the detection limit was above the CCME guideline concentration, therefore it is not possible to infer with accuracy whether the current metals concentrations are above or below guidelines. As water levels decrease in the tailings pond it is possible that the concentrations of some metals in water increase as sediment disturbance leads to remobilization into the water column.

Aluminum concentrations regularly exceeded the CCME guideline, though the majority of the samples did have Al concentrations that were below detection, or below the guideline.

Arsenic concentrations from 1998 to 2003 were generally very close to or slightly above the CCME guideline. All samples from 2005 through 2007 had concentrations that were below the ALS detection limit, which does not allow for accurate interpretation with respect to the CCME guideline.

Cadmium concentrations have historically exceeded the CCME guideline. Due to the 2005 to 2007 detection limit being greater than the CCME guideline it is not possible to determine if concentrations have since fallen.

Chromium (Cr) concentrations in the Tailings Pond were below the CCME guideline in nearly all samples.

Copper concentrations have notably decreased since sampling began in 1999. However, current concentrations still exceed the CCME guideline. The median concentration including all data is 0.09 mg/L, though the individual sample concentrations range from undetectable (< 0.01 mg/L) to a high of 105 mg/L.

Iron concentrations exceeded the CCME objectives in nearly every sample. However, it is probable that background Fe concentrations in water from this watershed are naturally high, as seen in Fe concentrations in samples from D-X. Though the mine tailings may have some affect on the concentrations in the tailings pond, it is likely that the background concentration exceeds the guideline.

Lead concentrations generally exceeded the CCME guideline. Though there may be some decrease in this concentration over time, this trend is not possible to detect due to the detection limit from 2005 to 2007.

Silver concentrations in the tailings pond show an obvious decreasing trend from 1999 to late 2007 samples. This trend is present even when accounting for the misleading detection limit used from 2005 until 2007. However, current concentrations still exceed the CCME guideline by a small margin, though they are below the water license standard.

Zinc concentrations also exceeded the CCME objectives by a small measure. There are no noticeable historic trends associated with the zinc concentrations.

3.5 SEEPAGE POND

The tailings containment system designed and built by the last functioning mine at the Mt. Nansen site (run by BYG) did not function properly, resulting in significant volumes of contaminated seepage flowing through the tailings pond dam. This seepage water (sampled/labeled as Seep) has been continuously pumped back from seepage containment back into the tailings pond when water quality did not meet license standards. When it meets license standards water is released into Dome Creek. The seepage has been sampled since early 1999, and continues through today. Detailed water quality data for the seepage can be found in Appendix A, Table A8.

3.5.1 ROUTINE PARAMETERS

The pH of water from the seepage pond generally ranged from 6.5 to 8.5, with a median value of 7.3. The EC of seepage was high, with a median value of 2220 µS/cm as is typical of water associated with mine waste. Associated to EC is sulphate concentration, which is usually the cause of high EC in mine waste. Sulphate concentrations were generally high, with a median value of 1,150 mg/L. Hardness ranged from a low of 43.2 mg/L to a high of 2037.2 mg/L, with a median value of 911.6 mg/L, which classifies this as hard water. Alkalinity ranged from 18.8 mg/L to a high of 358 mg/L, with a median of 183 mg/L.

3.5.2 NUTRIENTS

All samples exceeded the CCME guideline for ammonia (2.20 mg/L), however, as in the tailings pond, the historical trend from 1999 to present shows decreasing concentrations, from a historical high of 25 - 30 mg/L, down to current values today, which range from 8 - 10 mg/L (Appendix A, Figure B6). Some ammonia may have been lost both to microbial uptake and to the atmosphere. Nitrate concentrations ranged from undetectable (< 1 mg/L) to 7.44 mg/L. All samples were below the CCME guideline for the protection of freshwater aquatic life (13.0 mg/L). Nitrite concentrations ranged from undetectable (< 0.05 mg/L) to a high of 4.74 mg/L. Many samples had concentrations exceeding the CCME guideline (0.06 mg/L). However, review of historical data shows that concentrations have decreased, and stabilized over time. Concentrations of total phosphorus were non-detectable in all samples.

3.5.3 CYANIDE

Total cyanide concentrations from the seepage show a slight decreasing temporal trend from 1999 to 2007 (Appendix A, Figure B6). Concentrations range from 0.02 to 0.53 mg/L with a median concentration of 0.08 mg/L, well below the water license standard of 0.3 mg/L. Weak acid dissociable (WAD) cyanide concentrations show an obvious decreasing trend (Appendix A, Figure B6). With few exceptions, concentrations since 2002 were below the water license guideline (0.1 mg/L). With all data compiled the concentrations ranged from undetectable (< 0.005 mg/L) to a high of 34 mg/L, with a median concentration of 0.06 mg/L.

3.5.4 TOTAL METALS

The water quality in the seepage pond closely mirrors that seen in the tailing pond, which is the source. Therefore, the concentrations of most metals exceed the CCME objectives for the protection of freshwater aquatic life. However, for some metals, including arsenic, copper, lead, and silver the detection limit was above the CCME guideline concentration, therefore it is not possible to infer with accuracy whether the current metals concentrations are above or below objectives.

Aluminum concentrations are generally below the CCME guideline; however, there are some random samples that exceed the guideline, with no apparent seasonal or temporal trends.

Arsenic concentrations generally exceed the CCME guideline; however, any recent decreasing trend is masked by the high detection limit from 2005 to 2007. Samples taken from the end of November 2007 through January 2008 have concentrations that remain above the CCME guideline, though they exceed it by only a small margin.

Cadmium concentrations decreased from 1999 to the end of 2003. Unfortunately this trend is not reflected in the 2005 to 2007 data because of the high detection limit. However, samples taken in late November and December 2007 show concentrations may be very close to the CCME guideline.

Chromium (Cr) concentrations in the Seepage Pond were below the CCME guideline in nearly all samples.

Copper concentrations in seepage water show a distinct decreasing trend from 1999 to present. Current concentrations, up to, and including January 2008 are now approaching, though still exceed, the CCME guideline. Concentrations are, however, below the standards set in the water license.

Iron concentrations greatly exceed the CCME guideline. As in other sampling areas, these high concentrations are likely a reflection of a combination of high background concentration and mining effects.

Lead concentrations in samples taken from 1999 until the end of 2003 were regularly below the CCME guideline; however, the 2005 to 2007 data is affected by the high detection limit. Samples taken from November and December 2007 show a return to concentrations below the CCME guideline. Therefore, it may be assumed that 2005 to 2007 concentrations were likely generally below CCME guidelines.

Silver concentrations show a decreasing trend from 1999 until 2003. While, again, results are clouded by the detection limits from 2005 to 2007, samples taken from November 2007 until January 2008 remain at the CCME guideline (0.0001 mg/L), which is also the detection limit.

Zinc concentrations have decreased over the period of sampling. Current concentrations are generally below the CCME guideline.

3.6 BROWN - MCDADE PIT

The Brown - McDade Pit is located near of Pony Creek (Figure 2). The water in the pit was heavily contaminated by metals in the past due to the large volumes of waste rock fill in the area. The pit has been sampled, less frequently than the other sites, since early 2005 at three different depths, approximately corresponding to the top, middle, and bottom depths. Detailed water quality data for the Brown - McDade Pit can be found in Appendix A, Table A9.

3.6.1 ROUTINE PARAMETERS

There was a small decreasing trend in the pH of water in the pit moving from the surface to the bottom. The median pH at the surface was 7.92, at the middle depth was 7.87 and at the bottom was 7.68. Electrical conductivity showed an increasing trend from surface to bottom. The median EC at the surface was 1350 µS/cm, at the middle depth was 1865 µS/cm, and at the bottom was 2630 µS/cm. This is likely due to a settling of particulate matter toward the deeper portions of the water column. Water hardness and alkalinity followed the same increasing-with-depth trend. Alkalinity ranged from 127 to 243 mg/L.

3.6.2 NUTRIENTS

Nutrient concentrations were low in the pit. Ammonia concentrations ranged from 0.022 to 0.448 mg/L, and all were well below the CCME ammonia guideline for the protection of freshwater aquatic life (1.37 to 2.20 mg/L, based on pH). Nitrate concentrations ranged from 0.04 to 3.79 mg/L. Nitrite concentrations ranged from 0.0016 to 0.076 mg/L, with a small number of samples exceeding the CCME guideline for the protection of aquatic life (0.06 mg/L). All samples showed non-detectable concentrations of total phosphorus.

3.6.3 TOTAL METALS

Aluminum concentrations were below the CCME guideline, with the exception of one sample taken from the bottom depth in the fall of 2005. This elevated concentration may have occurred because of stirred up bottom sediment associated with sampling.

Arsenic concentrations were all below detection, but greater than the CCME guideline. There is one sample from early December 2007 that was analyzed with a more sensitive method that shows surface concentration to be below guideline, and middle and deep samples to exceed it just slightly.

Cadmium concentrations exceeded the CCME guideline. Concentrations were lowest in the surface layer, where they were below detection (though the detection limit was, unfortunately above the guideline).

Chromium (Cr) concentrations in the Pit were below the CCME guideline in all samples.

Copper concentrations generally exceeded the CCME guideline in samples from all depths. Concentrations seemed to increase over the spring of 2007, but then began to decrease again through the fall of the same year.

Lead concentrations were generally below detection, which was over the CCME guideline. Again, one sample taken at the beginning of December 2007 that was analyzed with a more sensitive method showed concentrations from all three depths below the guideline.

Iron concentrations were below guidelines in samples taken from the top and middle layer. However, those samples taken from the bottom level routinely exceed the guideline.

Silver concentrations were generally below detection, which exceeded the CCME guideline. Again, samples taken in December 2007 and January 2008 and analyzed with a more sensitive method showed concentrations from all three depths were below the guideline.

Zinc concentrations in all samples from all depths exceeded the CCME guideline over the entire period of sampling from 2005 to 2007.

4 DISCUSSION

Data presented in the results is very useful in determining patterns at and downstream of the mine site. In terms of protection of aquatic life, it is most important to ensure that the mine does not significantly affect water quality in Victoria Creek, where significant aquatic life exists.

Cyanide concentration, in any chemical form, including total or WAD cyanide, no longer appears to be a water quality issue on or downstream of the Mt. Nansen mine site. In areas where concentrations were historically high including the Tailings Pond and seepage from the Tailings Pond, concentrations have decreased over time, and cyanide is no longer present at concentrations exceeding water license standards, and has not been since early 2003. These compounds naturally degrade over time in the aquatic environment, largely through microbial degradation, and small amounts have likely been carried downstream out of watersheds affected by the Mt. Nansen site.

Metals, including aluminum and iron appear to be historically elevated in some areas of the Mt. Nansen site. This is evidenced by elevated concentrations of both metals seen in the sampling sites at Dome-X and at Upper Victoria Creek. Both these sites are upstream of historical mining activities associated with Mt. Nansen, however, samples from both show periodic exceedances of the CCME guideline. Elevated concentrations of iron are often seen in highly mineralized areas. Geology in this region is composed largely of pyrite and arsenopyrite, composed of iron, sulfide and arsenic. Therefore, while high concentrations seen in many of the sampling locations can be partially attributed to mining activities on the site, it is likely that they are also, in part, due to background presence of these metals, and will concentrations will continue to be high long after the Mt. Nansen site remediation is completed.

Copper and zinc were also found in concentrations that exceeded CCME guidelines in a number of locations on the Mt. Nansen site. Historically, elevated concentrations of zinc and copper were seen in Mt. Nansen sampling locations affected by mining activities including the tailings pond and seepage from the tailings pond, and the Brown-McDade Pit. While concentrations have substantially decreased over time in the Tailings Pond and the Pit, elevated concentrations of zinc and copper are still currently found in the pit. Therefore, while these metals are naturally found in the region as part of minerals including chalcopyrite and sphalite, movement of high concentrations into the watershed appear to be largely due to mining activities, and remain an issue in the Brown-McDade Pit.

Many results pertaining to a series of metals including arsenic, cadmium, lead and silver were affected by laboratory detection limits that exceeded the CCME guidelines for these metals. Because of this, data collected from early 2005 through November 2007 are not useful for comparison with current CCME water quality guidelines set for the protection of aquatic life. Some data is available from November 2007 through January 2008, and much of this data is encouraging, showing concentrations of metals that are below or very close to current guidelines. However, this small amount of data is insufficient to make any meaningful interpretations of water quality with respect to arsenic, cadmium, lead and silver on the Mt. Nansen site, including the receiving waters of Victoria Creek.

During the conduct of this project it was realized that there is limited information pertaining to Pony Creek in terms of water quality. Results from a 2004 Brown-McDade Pit monitoring study (Gartner Lee 2005) indicated potential issues; however, given the timing of this study and limited existing data this could not be investigated properly. There is also a lack of knowledge on the fish presence in Dome and Back Creeks to aid with the interpretation of the data.

5 CONCLUSIONS AND RECOMMENDATIONS

Water quality on the Mt. Nansen site, while it does exceed the CCME water quality objectives for the protection of aquatic life for some parameters, has shown significant improvement over time. Many parameters of historical concern display decreasing temporal trends.

Total cyanide and WAD-cyanide are no longer found in high concentrations at any of the water quality sampling sites on the Mt. Nansen site. Therefore, site specific water quality objectives relating to cyanide are not recommended at this time.

Iron, and to a lesser extent aluminum, are found in concentrations the exceed the CCME water quality guideline at a number of sampling locations on the Mt. Nansen sites including those that have been affected by mining activities as well as in areas upstream of mining activities, and therefore unaffected. Therefore, while mining activities have undoubtedly affected concentrations of these iron and aluminum in the area, concentrations are also naturally elevated, and were likely historically high. Therefore, site specific water quality objectives are not deemed necessary, as aquatic life in the watershed would be adapted to current concentrations.

Concentrations of copper and zinc have decreased in most sampling locations and now exceed the CCME guidelines by a very small margin, when at all. The exception to this is the Brown-McDade pit, where concentrations remain slightly elevated above CCME guideline. However, site specific guidelines are not required in the Pit as it is not a natural water body where significant aquatic life is present to be exposed to higher contaminant concentrations; also, concentrations are not significantly higher than guideline, and would likely not result in adverse effects on aquatic life.

Conclusions cannot be drawn concerning arsenic, cadmium, lead and copper due to the detection limits which exceed CCME guidelines. This analyses problem has been resolved and new laboratory methods are currently in use, with more sensitive detection limits. However, continued monitoring is recommended at this site to build up a database of data covering at least one calendar year. This additional data will allow for meaningful comparison with applicable guidelines. It is also recommended that laboratory methods and detection limits are constantly reviewed and compared to current CCME objectives to determine that analytical methods capable of producing sufficiently sensitive detection limits.

Finally, there is limited sampling site on Pony Creek, which is potentially affected by the mine infrastructure (specifically a waste rock pile near the adit). A monitoring report of the Brown-McDade Pit (Gartner Lee 2005) noted that water quality in Pony Creek degrades as it flows downstream through the waste rock pile. The sampling site farthest downstream had concentrations of arsenic, cadmium, copper and zinc that exceeded CCME guidelines. As a result of their findings Gartner Lee recommended that monitoring of water quality in Pony Creek continue. Therefore, sampling locations on Pony and Back creeks should be considered as part of the routine sampling schedule to ensure that water quality does not pose potential adverse effects to freshwater aquatic life in those watercourses. Also a better understanding of fish use in Pony and Back creeks would help facilitate the interpretation of such data.

6 REFERENCES

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Appendix A. Compiled Water Quality

Table A1. Water Quality Parameters in Reference Sites Victoria Creek and Dry Creek

Sample ID	Units	Victoria Creek Reference	Dry Creek Reference	CCME Guidelines	Water License Standards	YCSG*
Date		03-Oct-07	03-Oct-07			
Physical Parameters						
pH	pH units	8.00	7.89	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	µS/cm	166	164	**--**	**--**	**--**
Routine Parameters						
Total Suspended Sediment	mg/L	--	--	**--**	**--**	**--**
Total Dissolved Solids	mg/L	--	--	**--**	**50**	**--**
Hardness	mg/L	79.27	80.00	**--**	**--**	**--**
Alkalinity-Total	mg/L	77.3	81.7	**--**	**--**	**--**
Bicarbonate	mg/L	77.3	81.7	**--**	**--**	**--**
Carbonate	mg/L	<2.0	<2.0	**--**	**--**	**--**
Hydroxide	mg/L	<2.0	<2.0	**--**	**--**	**--**
Calcium	mg/L	20.0	20.9	**--**	**--**	**--**
Magnesium	mg/L	6.73	6.26	**--**	**--**	**--**
Potassium	mg/L	<2.0	<2.0	**--**	**--**	**--**
Sodium	mg/L	2.6	2.1	**--**	**--**	**--**
Sulphate	mg/L	13.6	10.7	**--**	**--**	**1000**
Nutrients						
Ammonia-N	mg/L	<0.020	<0.020	**2.20**	**--**	**11.3**
Nitrate-N	mg/L	0.0913	<0.0050	**13.0**	**--**	**400**
Nitrite-N	mg/L	<0.0010	<0.0010	**0.06**	**--**	**--**
Total Phosphorus	mg/L	<0.30	<0.30	**--**	**--**	**--**
Cyanide Compounds						
Cyanide - T	mg/L	0.0070	0.0105	**--**	**0.3**	**--**
Cyanate	mg/L	<0.50	<0.50	**0.5**	**--**	**--**
Thiocyanate	mg/L	<0.50	<0.50	**--**	**--**	**--**
CN-WAD	mg/L	<0.0050	<0.0050	**--**	**0.1**	**0.05**
CN-SAD	mg/L	--	--	**--**	**--**	**--**
Total Metals						
Aluminum	mg/L	<0.20	<0.20	**0.1**	**--**	**--**
Antimony	mg/L	<0.20	<0.20	**--**	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	**0.005**	**--**	**0.5**
Barium	mg/L	0.058	0.037	**--**	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	**--**	**--**	**0.053**
Bismuth	mg/L	<0.20	<0.20	**--**	**--**	**--**
Boron	mg/L	<0.10	<0.10	**--**	**--**	**50**
Cadmium	mg/L	<0.010	<0.010	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	20.5	21.5	**--**	**--**	**--**
Chromium	mg/L	<0.010	<0.010	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	<0.010	**--**	**--**	**0.009**
Copper	mg/L	<0.010	<0.010	**0.004**	**0.2**	**0.05**
Iron	mg/L	0.119	<0.030	**0.30**	**1**	**--**
Lead	mg/L	<0.050	<0.050	**0.007**	**0.1**	**0.06**
Lithium	mg/L	<0.010	<0.010	**--**	**--**	**--**
Magnesium	mg/L	6.82	6.39	**--**	**--**	**--**
Manganese	mg/L	0.0186	<0.0050	**--**	**0.5**	**--**
Molybdenum	mg/L	<0.030	<0.030	**0.073**	**--**	**10**
Nickel	mg/L	<0.050	<0.050	**0.150**	**0.3**	**0.65**
Potassium	mg/L	<2.0	<2.0	**--**	**--**	**--**
Selenium	mg/L	<0.20	<0.20	**0.001**	**--**	**0.01**
Silicon	mg/L	6.44	5.80	**--**	**--**	**--**
Silver	mg/L	<0.010	<0.010	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	2.5	2.1	**--**	**--**	**--**
Strontium	mg/L	0.226	0.0825	**--**	**--**	**--**
Sulphur	mg/L	--	--	**--**	**--**	**--**
Thallium	mg/L	<0.20	<0.20	**0.0008**	**--**	**0.003**
Tin	mg/L	<0.030	<0.030	**--**	**--**	**--**
Titanium	mg/L	<0.010	<0.010	**--**	**--**	**1**
Vanadium	mg/L	<0.030	<0.030	**--**	**--**	**--**

Table A1. Water Quality Parameters in Reference Sites Victoria Creek and Dry Creek

Sample ID	Units	Victoria Creek Reference	Dry Creek Reference	**CCME Guidelines**	**Water License Standards**	**YCSG***
Date		03-Oct-07	03-Oct-07			
Zinc	mg/L	<0.0050	<0.0050	**0.03**	**0.3**	**0.9**
Dissolved Metals						
Aluminum	mg/L	<0.20	<0.20	--	--	--
Antimony	mg/L	<0.20	<0.20	--	--	--
Arsenic	mg/L	0.00031	0.00052	--	**0.15**	--
Barium	mg/L	0.056	0.036	--	--	--
Beryllium	mg/L	<0.0050	<0.0050	--	--	--
Bismuth	mg/L	<0.20	<0.20	--	--	--
Boron	mg/L	<0.10	<0.10	--	--	--
Cadmium	mg/L	<0.010	<0.010	--	--	--
Chromium	mg/L	<0.010	<0.010	--	--	--
Cobalt	mg/L	<0.010	<0.010	--	--	--
Copper	mg/L	<0.010	<0.010	--	--	--
Iron	mg/L	0.059	<0.030	--	--	--
Lead	mg/L	<0.050	<0.050	--	--	--
Lithium	mg/L	<0.010	<0.010	--	--	--
Manganese	mg/L	0.0137	<0.0050	--	--	--
Molybdenum	mg/L	<0.030	<0.030	--	--	--
Nickel	mg/L	<0.050	<0.050	--	--	--
Phosphorus	mg/L	<0.30	<0.30	--	--	--
Selenium	mg/L	<0.20	<0.20	--	--	--
Silicon	mg/L	6.33	5.65	--	--	--
Silver	mg/L	<0.010	<0.010	--	--	--
Strontium	mg/L	0.224	0.0812	--	--	--
Thallium	mg/L	<0.20	<0.20	--	--	--
Tin	mg/L	<0.030	<0.030	--	--	--
Titanium	mg/L	<0.010	<0.010	--	--	--
Vanadium	mg/L	<0.030	<0.030	--	--	--
Zinc	mg/L	<0.0050	<0.0050	--	--	--

Notes:

text - denotes concentrations that are above CCME guidelines for the protection of aquatic life

* - Yukon Contaminated Sites Regulations

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID	Units	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05
Physical Parameters																			
pH	pH units	8.02	8.15	8.17	8	8.19	7.58	7.82	8.04	8.06	8.05	8	7.64	7.25	8.03	8.03	8.04	6.89	8.04
Conductivity	µS/cm	163	167	192	138	271	164	121	146	138	151	150	135	139	180	178	159	175	148
Routine Parameters																			
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	76.23	78.99	92.86	66.01	139.47	90.20	64.72	68.58	69.52	77.00	79.76	70.94	75.41	96.28	90.64	86.80	93.24	81.21
Alkalinity-Total	mg/L	76.8	77.8	77.9	73.5	88.8	80.4	60.4	126	65.5	65.2	72.9	62.9	63.2	80.3	81	71	75.5	58.5
Bicarbonate	mg/L	76.8	77.8	77.9	73.5	88.8	80.4	60.4	126	65.5	65.2	72.9	62.9	63.2	80.3	81	71	75.5	58.5
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	19.8	19.6	24.5	16.7	37.5	22	16.7	18.5	17.7	20	20.3	18.2	18.9	23.4	23.7	22.7	23	21.1
Magnesium	mg/L	7.08	7.32	8.64	5.52	9.71	7.68	5.3	5.87	6.08	6.41	6.9	6.13	6.4	7.44	7.44	8.26	7.86	7.12
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	2.2	2.4	2.1	<2.0	3.4	2.1	<2.0	2.2	<2.0	<2.0	<2.0	<2.0	<2.0	2.1	2.5	2	2.5	<2.0
Sulphate	mg/L	12.7	13.2	14.8	10.1	50.3	14.1	4.4	15.4	10.3	16.5	10.9	10.4	12.1	18.9	19.5	12.6	17.5	12.1
Nutrients																			
Ammonia-N	mg/L	0.029	<0.020	<0.0050	<0.020	0.024	0.021	0.025	<0.020	0.022	0.03	0.037	0.024	<0.020	<0.020	0.025	<0.020	<0.020	<0.020
Nitrate-N	mg/L	0.065	0.050	0.048	0.053	0.006	0.053	0.036	0.046	0.044	0.035	0.038	0.044	0.037	0.038	0.019	0.025	0.029	0.079
Nitrite-N	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																			
Cyanide - T	mg/L	<0.005	0.0062	<0.0056	0.0072	<0.005	<0.005	0.0105	0.0089	<0.005	0.0055	0.0073	<0.005	0.0216	0.0054	0.0053	<0.0050	0.0083	0.0066
Cyanate	mg/L	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	4.3	<0.50	<0.50	<0.50
CN-WAD	mg/L	<0.005	<0.0055	<0.0056	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																			
Aluminum	mg/L	<0.2	***0.3***	<0.2	<0.2	<0.2	<0.2	***0.4***	***0.44***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	0.00042	<0.2	0.00325	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.059	0.065	0.071	0.057	0.061	0.068	0.066	0.06	0.061	0.059	0.07	0.062	0.065	0.066	0.0630	0.0690	0.0700	0.0660
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	19.2	19.5	23.7	17.2	39.2	22.9	17	18	17.8	20.3	20.4	18.3	19.4	25.5	23.9	21.8	23.9	20.8
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.2	***0.6***	0.1	0.3	***0.5***	0.1	***0.7***	***0.6***	***0.4***	***0.4***	***0.4***	0.3	0.3	0.3	0.3	0.3	***0.5***	***0.5***
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	6.87	7.36	8.18	5.60	10.10	8.02	5.41	5.74	6.09	6.39	7.00	6.13	6.55	7.92	7.52	7.86	8.15	7.11
Manganese	mg/L	0.0165	0.0214	0.0156	0.0204	0.166	0.0155	0.0331	0.0363	0.0194	0.0605	0.0241	0.0241	0.0249	0.0766	0.0684	0.0334	0.0795	0.043
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID		Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date	Units	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	4.32	4.68	4.7	4.57	6.56	5.24	5.58	5.6	5.7	5.83	5.75	6.12	6.03	5.9	6.4	5.93	6.72	5.92
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	***0.011***
Sodium	mg/L	2.20	2.30	<2.0	<2.0	3.50	2.20	<2.0	2.10	<2.0	2.40	2.00	<2.0	<2.0	2.20	2.50	<2.0	2.60	<2.0
Strontium	mg/L	0.233	0.24	0.258	0.215	0.251	0.258	0.18	0.193	0.193	0.194	0.225	0.207	0.209	0.251	0.235	0.232	0.244	0.21
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	0.015	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals																			
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.0004	0.00041	0.00036	0.00042	0.00369	0.00035	0.00059	0.00061	0.00051	0.00061	0.00054	0.00037	0.00041	0.00085	0.00103	0.00049	0.00083	0.00038
Barium	mg/L	0.059	0.058	0.074	0.054	0.056	0.065	0.055	0.056	0.057	0.056	0.067	0.06	0.061	0.065	0.062	0.07	0.064	0.062
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.044	0.069	0.038	0.088	0.25	0.049	0.168	0.117	0.152	0.138	0.173	0.13	0.145	0.137	0.141	0.127	0.141	0.117
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	0.0069	<0.0050	0.0114	<0.0050	0.126	0.013	0.0075	0.018	0.014	0.0335	0.0206	0.0206	0.0192	0.0502	0.0632	0.0192	0.0476	0.0263
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	4.41	4.46	4.93	4.51	6.13	4.98	5.26	5.34	5.6	5.55	5.62	6.06	5.85	5.83	6.29	6.06	6.35	5.8
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.239	0.238	0.27	0.21	0.247	0.248	0.175	0.199	0.194	0.212	0.223	0.206	0.204	0.248	0.233	0.243	0.234	0.212
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID	Units	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05	21-Dec-05	29-Dec-05	5-Jan-06	12-Jan-06	19-Jan-06
Physical Parameters																			
pH	pH units	7.87	6.9	7.91	8.57	7.94	8.12	8.26	7.99	7.77	7.98	7.68	7.84	7.87	7.83	7.9	6.84	7.61	7.36
Conductivity	µS/cm	146	159	164	173	186	184	190	202	197	203	203	204	207	209	224	197	201	195
Routine Parameters																			
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	79.60	84.32	88.30	93.06	93.64	98.99	105.46	102.38	107.01	100.62	107.65	102.85	102.14	111.58	98.11	104.15	102.44	106.05
Alkalinity-Total	mg/L	--	61.4	82.8	77.6	84.1	89	86.8	90.6	79.9	91.3	95.9	99.7	95.3	95.2	90.1	86.9	93.2	91
Bicarbonate	mg/L	--	61.4	82.8	<2.0	84.1	89	86.8	90.6	79.9	91.3	95.9	99.7	95.3	95.2	90.1	86.9	93.2	91
Carbonate	mg/L	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	20.5	21.1	21.9	23.9	23.6	23.8	27.4	24.8	26.1	26.5	27.2	25.5	26.3	27.7	24	24.5	25.4	26.6
Magnesium	mg/L	6.88	7.41	7.55	8.58	8.34	8.36	9.77	9.01	10	8.88	9.55	8.71	9.56	10.3	8.8	9.25	8.7	9.03
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	<2.0	2.1	2.1	<2.0	<2.0	2	2.5	2.1	2.7	2.2	2.4	2.2	2.3	3.1	2.6	2.3	2.6	2.8
Sulphate	mg/L	12.1	12.3	12.7	13.2	13.6	16.3	16	16.7	16.6	19.2	<50	16.8	17.3	17.4	16.9	16.9	17	17.2
Nutrients																			
Ammonia-N	mg/L	<0.020	<0.020	<0.020	0.026	0.026	0.036	0.037	0.034	<0.020	0.034	<0.020	0.022	<0.020	<0.020	0.024	<0.020	***8.3***	0.026
Nitrate-N	mg/L	--	0.090	0.091	0.087	0.090	0.087	0.092	0.103	0.112	0.113	<0.50	0.098	0.128	0.115	0.128	0.107	0.115	0.093
Nitrite-N	mg/L	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	***0.220***	<0.0010	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																			
Cyanide - T	mg/L	0.0053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0055	<0.0050
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
CN-WAD	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																			
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00042	<0.20	<0.20	<0.20	<0.20	0.00032	<0.20	0.00032	0.00028	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0590	0.0640	0.0660	0.0690	0.0690	0.0680	0.0750	0.0720	0.0720	0.0670	0.0790	0.0840	0.0790	0.0820	0.0790	0.0780	0.0840	0.0880
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	20.5	21.4	22.6	23.6	23.7	25.1	26.8	25.6	26.2	26	27.2	26.4	25.9	27.7	24.4	25.7	26.2	27.2
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.2	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	<0.030	0.03
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	6.90	7.50	7.74	8.29	8.37	8.82	9.36	9.34	10.10	8.67	9.65	8.97	9.10	10.30	9.03	9.71	8.99	9.26
Manganese	mg/L	0.0306	0.0358	0.0308	0.0409	0.0328	0.0308	0.0302	0.0299	0.029	0.0261	0.0339	0.0443	0.031	0.0296	0.0312	0.0318	0.0468	0.0577
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID		Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date	Units	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05	21-Dec-05	29-Dec-05	5-Jan-06	12-Jan-06	19-Jan-06
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	5.83	5.8	5.78	5.43	5.79	6	5.83	5.84	5.76	5.55	5.85	5.95	5.76	6.24	5.68	5.89	5.93	6.05
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	<2.0	2.10	2.20	<2.0	<2.0	2.20	2.40	2.20	2.70	2.20	2.40	2.30	2.00	3.00	2.70	2.50	2.70	2.90
Strontium	mg/L	0.219	0.244	0.239	0.248	0.257	0.267	0.282	0.288	0.296	0.28	0.294	0.286	0.283	0.3	0.284	0.268	0.268	0.279
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals																			
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00036	0.0003	0.00034	0.00032	0.00029	0.00027	0.00033	0.00028	0.00024	0.00029	0.00025	0.00027	0.00024	0.00028	0.00024	0.00025	0.00026	0.00023
Barium	mg/L	0.057	0.062	0.065	0.068	0.068	0.064	0.077	0.07	0.072	0.068	0.077	0.081	0.078	0.082	0.079	0.074	0.081	0.086
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.098	0.061	0.134	0.075	0.06	0.034	0.039	0.035	<0.030	<0.030	<0.030	0.032	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	0.0181	0.0273	0.0318	0.029	0.0304	0.0275	0.026	0.0256	0.0258	0.0252	0.0283	0.0396	0.0261	0.028	0.0281	0.0261	0.0413	0.0513
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	5.81	5.7	5.55	5.39	5.78	5.67	5.96	5.63	5.74	5.7	5.84	5.74	5.7	6.22	5.51	5.6	5.7	5.86
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.219	0.242	0.234	0.254	0.257	0.254	0.29	0.28	0.294	0.286	0.293	0.274	0.287	0.301	0.278	0.256	0.259	0.272
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID	Units	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		26-Jan-06	9-Feb-06	23-Feb-06	23-Mar-06	20-Apr-06	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06
Physical Parameters																			
pH	pH units	7.92	7.54	8.1	7.54	7.99	7.95	7.33	7.52	7.89	8	8.04	8.14	7.98	7.47	8.09	8.03	8.05	8.08
Conductivity	µS/cm	202	201	205	212	293	172	61	52.3	107	143	176	181	158	162	182	176	187	194
Routine Parameters																			
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	109.98	102.22	104.02	101.84	155.32	98.10	36.92	34.08	58.62	79.43	90.95	100.72	85.61	82.24	97.83	95.96	100.08	88.25
Alkalinity-Total	mg/L	92.9	87.4	90.6	93	132	75.4	22.4	18.6	46.9	71.2	84.5	140	76.9	65.6	84.7	76.5	84.2	76.7
Bicarbonate	mg/L	92.9	87.4	90.6	93	132	75.4	22.4	18.6	46.9	71.2	84.5	140	76.9	65.6	84.7	76.5	84.2	76.7
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	28.5	25.3	26.7	27.4	36.3	23.5	9.47	7.87	14.8	18.7	23	24.1	22.1	20.6	24.3	23.4	25.2	21.9
Magnesium	mg/L	9.94	9.05	8.91	8.84	14.5	8.78	2.87	2.33	5.02	6.64	7.98	8.9	7.6	7.07	8.43	8.25	8.37	7.51
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	2.5	2.8	2.8	3.1	3.3	2.1	<2.0	<2.0	<2.0	2.1	2.5	2	2.3	<2.0	2.7	2.7	2.5	<2.0
Sulphate	mg/L	17.1	17.8	16.8	20.3	23.3	12.2	3.77	3.28	8.28	11.6	13.4	14.5	13	14.7	13.8	14.6	15.4	21.1
Nutrients																			
Ammonia-N	mg/L	0.026	0.03	0.032	0.024	0.048	0.024	0.037	0.055	0.027	0.031	0.031	0.064	<0.020	0.047	-	0.028	0.024	0.034
Nitrate-N	mg/L	0.114	0.085	0.100	0.130	0.041	<0.0050	<0.0050	0.021	0.055	0.085	0.073	0.073	0.042	0.035	0.031	0.076	0.018	0.026
Nitrite-N	mg/L	<0.0010	0.002	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																			
Cyanide - T	mg/L	<0.0050	<0.0050	<0.0060	<0.0050	<0.0050	0.0095	0.0225	0.0122	0.0068	0.0121	<0.0050	<0.0050	0.0061	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.6	1.51	1.01	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																			
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.69***	***2.15***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	0.0003	<0.20	<0.20	0.00039	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0870	0.0920	0.0870	0.0890	0.1090	0.0730	0.0490	0.0760	0.0450	0.0540	0.0640	0.0730	0.0610	0.0720	0.0730	0.0690	0.0710	0.0670
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	28	25.7	26.9	26.8	37.8	24.3	9.84	8.85	15	20.2	23.2	25.1	21.9	20.7	24.9	24.3	25.9	22.1
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	<0.030	<0.030	<0.030	0.0	<0.030	0.1	***0.8***	***3.0***	0.3	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	9.73	9.24	8.95	8.48	14.80	9.09	3.00	2.91	5.14	7.04	8.02	9.24	7.51	7.42	8.66	8.57	8.60	8.03
Manganese	mg/L	0.0621	0.0695	0.0674	0.0826	0.0253	0.0188	0.032	0.103	0.0231	0.0281	0.0109	0.0118	0.012	0.0171	0.0167	0.019	0.0178	0.0345
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID	Units	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		26-Jan-06	9-Feb-06	23-Feb-06	23-Mar-06	20-Apr-06	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	6.2	6.13	6.15	5.4	6.45	5.01	3.2	4.48	3.57	4.64	4.66	5.39	5.03	5.51	5.61	5.5	6.11	5.09
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	2.50	2.80	2.80	2.70	3.40	2.20	<2.0	<2.0	<2.0	2.20	2.50	2.20	2.30	<2.0	2.70	3.40	2.70	2.00
Strontium	mg/L	0.264	0.283	0.272	0.245	0.421	0.254	0.1	0.0949	0.164	0.221	0.256	0.265	0.238	0.234	0.278	0.269	0.288	0.261
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	0.068	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0074	0.014	<0.0050	0.0115	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0057	<0.0050	<0.0050
Dissolved Metals																			
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00025	0.0003	<0.0010	0.00026	0.00039	0.00042	0.00074	0.00042	0.00037	0.00034	0.0003	0.00031	0.00036	<0.0010	0.00038	<0.00040	<0.00040	0.00038
Barium	mg/L	0.082	0.09	0.087	0.092	0.106	0.07	0.04	0.032	0.042	0.051	0.063	0.07	0.061	0.068	0.071	0.067	0.07	0.063
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	0.093	0.204	0.159	0.086	0.041	<0.030	<0.030	0.039	0.063	0.051	0.05	<0.030	0.059
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	0.0535	0.0647	0.0657	0.0805	0.0176	<0.0050	0.0051	<0.0050	<0.0050	<0.0050	<0.0050	0.0071	<0.0050	0.0105	0.0127	0.0097	0.009	0.019
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	6.37	6.08	6.1	5.61	6.42	4.86	2.42	1.95	3.46	4.48	4.61	5.22	5.1	5.22	5.5	5.28	5.82	5.06
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.269	0.279	0.271	0.256	0.408	0.247	0.098	0.0823	0.159	0.212	0.254	0.255	0.241	0.223	0.272	0.26	0.278	0.226
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0254

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID	Units	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		28-Sep-06	12-Oct-06	26-Oct-06	9-Nov-06	23-Nov-06	7-Dec-06	4-Jan-07	25-Jan-07	8-Feb-07	22-Feb-07	22-Mar-07	5-Apr-07	19-Apr-07	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07
Physical Parameters																			
pH	pH units	8.12	8.05	7.94	7.53	7.75	7.72	7.82	7.76	7.82	7.63	7.54	7.71	8.15	7.92	7.53	8.05	7.8	8.06
Conductivity	µS/cm	184	197	218	184	187	202	198	211	205	201	197	200	280	122	63	130	114	147
Routine Parameters																			
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	100.98	114.76	112.76	97.76	102.31	108.94	94.97	102.87	102.51	107.38	108.99	99.92	146.49	63.40	42.22	70.38	41.96	78.80
Alkalinity-Total	mg/L	83.1	85.3	107	76.5	86.7	90.1	89.4	101	101	89.6	92.4	85.3	117	52	26.3	56.5	31.1	73.2
Bicarbonate	mg/L	83.1	85.3	107	76.5	86.7	90.1	89.4	101	101	89.6	92.4	85.3	117	52	26.3	56.5	31.1	73.2
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	24.9	32	27.7	24.3	25.5	26.7	24.1	--	25.6	27.7	27.9	25.9	36.4	17	11.2	17.9	10.8	19.8
Magnesium	mg/L	8.67	10.4	9.64	8.02	8.81	9.29	8.4	--	9.29	9.04	9.29	8.42	13.1	5.41	3.3	6.52	3.29	6.93
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	2.7	2.9	2.4	2.4	2.6	2.7	2.5	--	<4.0	2.8	2.4	2.8	4	<2.0	<2.0	<2.0	<2.0	2
Sulphate	mg/L	15.5	17.3	21.8	16.5	16.8	15.5	15.2	17	16.3	15.8	14.9	14.9	27.7	7.5	3.3	10.1	3.49	11.2
Nutrients																			
Ammonia-N	mg/L	0.025	0.031	0.028	<0.020	<0.020	0.023	0.022	0.025	0.04	0.025	0.028	<0.020	<0.020	0.03	0.025	0.022	0.027	<0.020
Nitrate-N	mg/L	0.043	0.051	0.066	0.079	0.092	0.086	0.093	0.095	0.097	0.092	0.082	0.074	0.008	0.080	0.045	0.049	0.011	0.043
Nitrite-N	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.003	<0.0010	<0.0050	0.006	<0.0010	<0.0010	<0.0010
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.60	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																			
Cyanide - T	mg/L	<0.0050	<0.0050	0.0057	<0.0050	<0.0050	<0.0050	0.0074	<0.0050	<0.0050	<0.0050	0.0052	<0.0050	0.0076	0.0228	0.0214	0.0087	0.0158	0.009
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.0050	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.56	1.44	<0.50	1.2	<0.50
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.006	<0.50	<0.50	<0.50	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																			
Aluminum	mg/L	<0.20	<0.20	***0.32***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	***0.28***	***0.59***	***0.21***	***0.79***	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.00025	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0690	0.0850	0.0940	0.0820	0.0920	0.0920	0.0860	0.0920	0.0910	0.0910	0.1000	0.0950	0.1100	0.0610	0.0440	0.0430	0.0590	0.0600
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	25.7	29.8	28.7	25.4	26	27.7	24.1	26.8	25.7	27.9	28.1	26	36.9	16.6	11.3	17.6	11.1	20
Chromium	mg/L	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.1	0.0	***0.6***	<0.030	<0.030	<0.030	<0.030	0.1	<0.060	<0.030	<0.030	<0.030	0.0	***0.3***	***0.9***	0.3	***1.2***	0.1
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	8.94	9.80	9.98	8.34	9.08	9.66	8.45	8.73	9.31	9.16	9.43	8.50	13.20	5.33	3.40	6.42	3.46	7.01
Manganese	mg/L	0.0184	0.0139	0.108	0.039	0.042	0.0433	0.0381	0.0475	0.049	0.0494	0.096	0.0965	0.127	0.035	0.0635	0.0206	0.0496	0.0115
Molybdenum	mg/L	<0.03	<0.03	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID	Units	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		28-Sep-06	12-Oct-06	26-Oct-06	9-Nov-06	23-Nov-06	7-Dec-06	4-Jan-07	25-Jan-07	8-Feb-07	22-Feb-07	22-Mar-07	5-Apr-07	19-Apr-07	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07
Nickel	mg/L	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	5.86	6.3	6.11	6.03	6.12	5.94	5.74	5.88	5.68	6.32	6.18	6.07	7.46	3.87	2.93	4.11	5.01	5.26
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	2.70	2.90	2.50	2.60	2.70	2.60	2.60	3.30	<4.0	2.90	2.40	2.90	4.00	<2.0	<2.0	<2.0	<2.0	2.10
Strontium	mg/L	0.287	0.293	0.282	0.265	0.297	0.274	0.247	0.287	0.291	0.273	0.279	0.284	0.37	0.18	0.116	0.202	0.113	0.228
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.03	<0.03	<0.03
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	<0.01	0.024	<0.01
Vanadium	mg/L	<0.030	<0.040	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.03	<0.03	<0.03
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0127	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	0.0054	0.0067	<0.005	<0.005	<0.005
Dissolved Metals																			
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	--	<0.40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	--	<0.40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	0.0003	0.00031	0.0007	0.00021	0.00022	0.00027	0.00023	--	0.00025	0.00025	0.00024	0.00023	0.00035	0.00037	0.00042	0.00042	0.00044	0.00035
Barium	mg/L	0.066	0.092	0.083	0.078	0.089	0.096	0.086	--	0.09	0.09	0.099	0.094	0.109	0.059	0.034	0.041	0.041	0.058
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	--	<0.40	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	--	<0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	--	<0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	--	<0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	--	<0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.035	<0.030	<0.030	<0.030	<0.030	<0.03	<0.03	--	<0.060	<0.03	<0.03	<0.03	<0.03	0.143	0.197	0.078	0.176	0.062
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.05	<0.05	--	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.0091	0.0065	<0.0050	0.037	0.0375	0.0388	0.0316	--	0.042	0.0459	0.0914	0.0935	0.105	0.0163	<0.005	<0.005	<0.005	<0.005
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.03	<0.03	--	<0.060	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	--	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	<0.60	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	5.68	5.87	5.45	5.85	5.99	6.19	5.39	--	5.63	6.17	6.07	5.96	7.45	3.58	2.45	3.99	4.08	5.19
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.279	0.283	0.271	0.255	0.288	0.277	0.246	--	0.29	0.269	0.274	0.281	0.367	0.186	0.114	0.203	0.109	0.224
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	0.0074	<0.0050	<0.0050	<0.0050	<0.0050

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID	Units	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	CCME	Water License	YCSG*
Date		12-Jul-07	26-Jul-07	9-Aug-07	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	1-Nov-07	30-Nov-07	15-Dec-07	28-Dec-07	10-Jan-08	24-Jan-08	**Guidelines**	**Standards**	
Physical Parameters																	
pH	pH units	8.06	7.94	7.99	7.48	8.08	8.01	7.87	7.79	7.39	7.39	7.07	6.99	7.2	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	µS/cm	152	182	165	141	170	167	184	204	202	200	187	192	191	**--**	**--**	**--**
Routine Parameters																	
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**50**	**--**
Hardness	mg/L	84.36	95.76	83.67	70.73	83.29	80.59	91.40	104.00	98.42	95.45	98.52	99.51	98.60	**--**	**--**	**--**
Alkalinity-Total	mg/L	69	81.8	70.4	60.1	71.9	79.3	76.2	91.7	92	87	89	91	91	**--**	**--**	**--**
Bicarbonate	mg/L	69	81.8	70.4	60.1	71.9	79.3	76.2	91.7	112	106	110	110	110	**--**	**--**	**--**
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<6	<6	<6	<6	<6	**--**	**--**	**--**
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5	<5	<5	<5	<5	**--**	**--**	**--**
Calcium	mg/L	21.1	23.8	21.5	18	20.2	20.3	22.6	25.5	26.4	27	27.6	26	26.4	**--**	**--**	**--**
Magnesium	mg/L	7.31	8.37	6.95	6.16	7.04	7.23	8.1	9.89	8.8	8.5	8.5	8.4	8.1	**--**	**--**	**--**
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	0.5	0.7	0.7	0.7	0.7	**--**	**--**	**--**
Sodium	mg/L	2.1	2.7	2.4	2.1	2.3	2.2	2.3	2.6	2.5	2.8	2.6	2.7	2.7	**--**	**--**	**--**
Sulphate	mg/L	11.1	14	16	11.1	14.4	13.7	15.4	17.1	17	18	18	17	17	**--**	**--**	**1000**
Nutrients																	
Ammonia-N	mg/L	0.021	0.146	0.033	0.034	<0.020	0.021	0.022	0.048	0.01	<0.05	<0.01	<0.01	<0.01	**2.20**	**--**	**11.3**
Nitrate-N	mg/L	0.045	0.009	0.045	0.017	0.040	0.079	0.051	0.074	0.170	0.080	0.090	0.080	0.070	**13.0**	**--**	**400**
Nitrite-N	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.010	<0.005	<0.02	0.020	<0.02	**0.06**	**--**	**--**
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--	--	**--**	**--**	**--**
Cyanide Compounds																	
Cyanide - T	mg/L	0.0064	<0.0050	<0.0050	0.0061	0.0079	0.0091	0.0078	<0.0050	--	--	--	--	--	**0.3***	**0.3**	**--**
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2	**0.5**	**--**	**--**
Thiocyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.8	0.4	<0.1	0.7	1	**--**	**--**	**--**
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.002	<0.002	<0.002	<0.002	<0.002	**0.1***	**0.1**	**0.05**
CN-SAD	mg/L	--	--	--	--	--	--	--	--	0.002	0.002	0.002	0.002	0.010	**--**	**--**	**--**
Total Metals																	
Aluminum	mg/L	<0.20	<0.20	<0.20	***0.3***	<0.20	<0.20	<0.20	0.0132	0.03	0.024	0.042	0.014	***0.226***	**0.1**	**--**	**--**
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.00010	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	**--**	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.00025	0.0003	0.0003	0.0002	0.0002	0.0005	**0.005**	**--**	**0.5**
Barium	mg/L	0.0550	0.0740	0.0590	0.0600	0.0610	0.0580	0.0650	0.0723	0.0800	0.0840	0.0820	0.0910	0.0940	**--**	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00050	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**--**	**--**	**0.053**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	**--**	**--**	**--**
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.010	<0.002	0.004	<0.002	<0.002	<0.002	**--**	**--**	**50**
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.000050	<0.00001	***0.00002***	***0.00002***	***0.00002***	***0.00004***	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	21.5	24.3	21.9	18.2	21.5	20.5	23	25.7	25.4	25.2	26.1	26	25.8	**--**	**--**	**--**
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.00050	<0.0005	0.0007	<0.0005	<0.0005	0.0009	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	**--**	**--**	**0.009**
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00123	0.002	0.003	0.002	0.002	0.002	**0.004**	**0.2**	**0.05**
Iron	mg/L	0.1	0.1	0.1	***0.6***	0.1	0.1	0.1	0.0	<0.1	<0.1	<0.1	<0.1	0.4	**0.30**	**1**	**--**
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.000050	<0.0001	0.0001	0.0001	<0.0001	0.0005	**0.007**	**0.1**	**0.06**
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.001	<0.001	<0.001	<0.001	<0.001	**--**	**--**	**--**
Magnesium	mg/L	7.45	8.52	7.04	6.14	7.19	7.14	8.25	10.00	8.50	7.90	8.10	8.40	8.30	**--**	**--**	**--**
Manganese	mg/L	0.0133	0.0128	0.0131	0.0365	0.0186	0.0172	0.0196	0.0207	0.018	0.047	0.051	0.055	0.094	**--**	**0.5**	**--**
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.000358	<0.001	<0.001	<0.001	<0.001	<0.001	**0.073**	**--**	**10**

Table A2. Water Quality Parameters in Upper Victoria Creek

Sample ID		Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	**CCME**	**Water License**	
Date	Units	12-Jul-07	26-Jul-07	9-Aug-07	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	1-Nov-07	30-Nov-07	15-Dec-07	28-Dec-07	10-Jan-08	24-Jan-08	**Guidelines**	**Standards**	**YCSG***
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.00050	<0.0005	0.0006	0.0006	0.0006	0.0008	**0.150**	**0.3**	**0.65**
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	0.6	0.6	0.8	0.8	0.8	--	--	--
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0010	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	**0.001**	--	**0.01**
Silicon	mg/L	5.65	6.07	5.8	6.16	6.23	6.05	6.3	6.56	6	5.95	4.88	6.06	6.43	--	--	--
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.000010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	2.20	2.70	<2.0	2.10	2.40	2.10	2.40	2.70	2.50	3.00	2.70	2.70	2.90	--	--	--
Strontium	mg/L	0.243	0.274	0.238	0.198	0.235	0.229	0.264	0.27	0.29	0.25	0.3	0.302	0.287	--	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	--	5.6	5.8	5.9	5.8	5.7	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	**0.0008**	--	**0.003**
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0012	0.0015	0.0016	0.0006	0.0106	--	--	**1**
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	0.0003	0.0003	0.0003	0.0003	0.001	--	--	--
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.002	0.008	0.006	0.003	0.01	**0.03**	**0.3**	**0.9**
Dissolved Metals																	
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0079	0.007	0.006	0.021	0.008	0.011	--	--	--
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	--	--	--
Arsenic	mg/L	0.00035	0.00031	<0.00060	0.00037	0.00032	0.00033	0.00028	0.00023	0.0003	<0.0002	0.0004	0.0002	<0.0002	--	**0.15**	--
Barium	mg/L	0.052	0.073	0.056	0.055	0.058	0.059	0.065	0.0712	0.074	0.083	0.087	0.085	0.084	--	--	--
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--	--
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--
Boron	mg/L	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00005	0.00002	0.00002	0.00002	0.00002	0.00003	--	--	--
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	<0.0005	<0.0005	0.0011	0.0007	0.0009	--	--	--
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--	--
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00129	0.012	0.001	0.002	0.002	0.001	--	--	--
Iron	mg/L	0.074	0.038	0.045	0.092	0.06	0.057	0.035	<0.03	<0.01	<0.01	0.04	<0.01	0.02	--	--	--
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	--	--	--
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--
Manganese	mg/L	0.0078	0.0105	<0.0050	<0.0050	0.0089	0.0131	0.015	0.0197	0.015	0.046	0.053	0.054	0.05	--	--	--
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.000362	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	--	--	--
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.3	--	--	--	--	--	--	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	--	--	--
Silicon	mg/L	5.43	5.95	5.71	5.86	6.03	6.05	6.17	6.48	6.26	5.72	6.34	6.14	6.1	--	--	--
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--	--
Strontium	mg/L	0.236	0.272	0.233	0.198	0.231	0.235	0.263	0.267	0.273	0.272	0.269	0.26	0.269	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	--	--	--
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.0005	<0.0005	0.001	<0.0005	<0.0005	--	--	--
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	0.0013	0.0016	0.0012	0.0017	0.0005	--	--	--
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0012	0.006	0.002	0.006	0.002	<0.001	--	--	--

Notes:

text - denotes concentrations that are above CCME guidelines for the protection of aquatic life

* - Yukon Contaminated Sites Regulations

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		20-Apr-99	15-Jul-99	8-Sep-99	14-Sep-99	22-Sep-99	28-Sep-99	6-Oct-99	13-Oct-99	13-Oct-99	20-Oct-99	26-Oct-99	2-Nov-99	10-Nov-99	16-May-00	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00
Physical Parameters																				
pH	pH units	7.29	7.69	7.97	7.62	7.69	7.63	7.7	7.59	7.67	7.67	7.68	7.2	7.3	7.16	7.39	7.58	6.64	7.38		7.23
Conductivity	µS/cm	565	250	210	165	190	235	250	270	270	355	355	335	365	130	120	170	79	175	135	110
Routine Parameters																					
Total Suspended Sediment	mg/L	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<3	<3	7	45	11	219	12	16	39
Total Dissolved Solids	mg/L	418	178	164	141	137	158	170	179	176	241	242	250	240	154	117	141	124	146	135	102
Hardness	mg/L	273.89	114.17	103.58	88.54	641.21	101.40	110.06	120.77	112.97	148.89	188.64	131.28	145.13	60.61	59.55	80.91	52.94	83.53	70.47	48.74
Alkalinity-Total	mg/L	199	60	76	62	68	75	71	69	67	73	72	76	75	32	32	50	27	47	40	29
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	200	55	37	26	29	41	57	58	58	100	107	82	96	27	19.8	32.5	12	35.2	26.5	54.9
Nutrients																					
Ammonia-N	mg/L	0.23	0.3	<0.05	<0.05	<0.05	<0.05	0.21	0.22	0.2	0.21	0.41	0.11	<0.05	0.03	0.06	<0.05	<0.05	0.06	<0.05	<0.05
Nitrate-N	mg/L	0.470	0.360	0.420	0.014	0.400	0.300	0.440	0.580	0.540	0.675	0.660	0.740	0.900	<0.004	<0.002	0.789	0.193	--	7.490	--
Nitrite-N	mg/L	0.014	<0.003	0.024	0.003	<0.003	0.017	0.012	0.012	0.013	0.015	0.020	<0.01	<0.05	***1.510***	<0.002	<0.01	--	--	--	--
Total Phosphorus	mg/L	0.09	<0.06	<0.06	<0.06	0.47	<0.06	0.07	<0.06	<0.06	<0.1	<0.06	<0.05	<0.05	<0.06	<0.06	<0.06	0.23	<0.06	<0.06	<0.06
Cyanide Compounds																					
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	--	--	--	--	<0.01	***1.5***	<0.01	0.39	0.27	***0.6***	***0.54***	0.21	<0.15	***1.4***	<0.2	<0.2	0.45	<0.05	<0.2	0.2
Thiocyanate	mg/L	--	--	--	--	2.2	2.4	0.4	0.5	0.4	0.4	--	--	<0.03	<0.05	<0.05	5.16	1.36	1.21	1	0.97
CN-WAD	mg/L	0.022	<0.002	<0.002	0.004	<0.002	0.002	0.040	0.017	0.016	0.041	0.002	0.002	0.002	0.005	<0.001	--	<0.001	0.002	<0.002	<0.001
CN-SAD	mg/L	0.042	<0.005	<0.001	0.004	0.002	0.101	0.067	0.103	0.103	0.108	0.389	0.003	0.004	0.014	<0.002	--	0.004	0.004	<0.002	<0.002
Total Metals																					
Aluminum	mg/L	***0.35***	0.02	0.02	0.08	***1***	0.03	0.04	0.03	0.04	0.1	0.03	0.01	0.03	***0.46***	***1.55***	***0.76***	***8.79***	***0.58***	***0.61***	***1.37***
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	--	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.01	<0.01	***0.03***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	mg/L	0.0800	0.0730	0.0672	0.0551	0.5810	0.0604	0.0630	0.0715	0.0680	0.0863	0.0975	0.0880	0.0980	0.0519	0.0580	0.0553	0.1510	0.0568	0.0538	0.0530
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0009	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	***0.0008***	<0.0005	<0.0005	<0.0005
Calcium	mg/L	71.1	30.8	27.4	23.7	241	27.5	29.5	32.7	30.6	40.5	51.8	34.6	38.5	17.1	16.1	21.8	13.5	22.7	19.4	13.5
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.002	0.001	<0.005	<0.005	<0.001	0.002	<0.001	***0.009***	0.001	0.001	0.002
Cobalt	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002	0.002	0.003	0.002	0.002	0.002	<0.001	<0.001	<0.001	0.005	0.001	<0.001	0.001
Copper	mg/L	***0.008***	0.003	<0.002	0.004	0.003	***0.007***	***0.014***	***0.009***	***0.009***	***0.02***	***0.016***	0.004	0.002	***0.03***	***0.019***	***0.009***	***0.037***	<0.002	***0.008***	***0.006***
Iron	mg/L	***0.4***	0.1	0.2	0.2	***0.4***	0.1	0.2	0.1	0.1	0.3	0.1	0.2	0.2	***0.7***	***2.0***	***0.9***	***11.0***	***0.8***	***0.8***	***1.2***
Lead	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	***0.01***	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	***0.023***	<0.005	<0.005	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	23.40	9.05	8.54	7.13	9.55	7.95	8.84	9.50	8.88	11.60	14.40	10.90	11.90	4.35	4.70	6.43	4.67	6.52	5.35	3.65
Manganese	mg/L	0.825	0.0156	0.0349	0.057	0.0614	0.0686	0.0942	0.0982	0.0912	0.101	0.136	0.074	0.036	0.122	0.134	0.094	0.285	0.0962	0.0794	0.0648
Molybdenum	mg/L	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nickel	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.005	<0.002	0.002	<0.002
Potassium	mg/L	4.5	0.9	0.6	0.6	6.9	<0.2	0.9	1.1	1.2	1	1.5	0.9	1	1.3	1	1.2	2.2	1.6	0.7	0.4

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		20-Apr-99	15-Jul-99	8-Sep-99	14-Sep-99	22-Sep-99	28-Sep-99	6-Oct-99	13-Oct-99	13-Oct-99	20-Oct-99	26-Oct-99	2-Nov-99	10-Nov-99	16-May-00	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	--	--	<0.02	<0.02	<0.02	***0.03***	<0.02	***0.07***	<0.02
Silicon	mg/L	6.53	6.28	6.2	6.28	11.5	6.22	6.42	6.24	5.88	6.86	7.49	--	--	3.6	7.24	5.94	17.3	6.61	7.18	8.44
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	***0.002***	<0.001	<0.001
Sodium	mg/L	14.40	5.94	4.74	3.65	37.00	5.66	6.06	7.69	7.20	11.50	15.40	9.00	9.00	2.81	2.36	3.68	2.49	4.34	3.65	2.46
Strontium	mg/L	0.435	0.247	0.245	0.206	2.28	0.224	0.235	0.27	0.259	0.312	0.372	0.32	0.338	0.117	0.13	0.161	0.099	0.167	0.139	0.099
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	0.009	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.05	<0.05	<0.005	--	<0.005	<0.005	0.007	<0.005	<0.005
Titanium	mg/L	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01	<0.001	0.002	0.001	0.011	0.054	0.013	0.307	0.015	0.018	--
Vanadium	mg/L	0.005	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	0.001	<0.001	<0.002	0.004	<0.002	0.02	<0.002	<0.002	0.005
Zinc	mg/L	0.024	0.005	0.006	0.005	***0.328***	0.004	0.005	0.005	0.002	0.01	0.005	0.004	0.007	0.013	0.017	0.01	***0.056***	0.01	0.01	0.01
Dissolved Metals																					
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		5-Sep-00	26-Sep-00	11-Oct-00	1-Nov-00	14-Nov-00	28-Nov-00	18-Dec-00	23-Apr-01	22-May-01	18-Jun-01	4-Jul-01	18-Jul-01	31-Jul-01	14-Aug-01	29-Aug-01	17-Sep-01	22-Oct-01	13-Dec-01	16-Jan-02	20-Feb-02
Physical Parameters																					
pH	pH units	7.48	7.23	7.65	7.52	7.18	7.14	7.3	7.5	7.2	7.3	7.7	7.45	7.28	7.7	7.3	7.66	7.38	7.29	7.1	7.78
Conductivity	µS/cm	150	96	180	205	220	230	240	430	115	79	194	181	118	159	161	167	199	298	259	646
Routine Parameters																					
Total Suspended Sediment	mg/L	22	74	<5	<5	<5	6	<5	4	46	46	11	9	5	9	15	8	<1	<1	2	1
Total Dissolved Solids	mg/L	143	103	159	156	156	161	164	304	98	84	133	127	113	133	173	130	233	187	160	480
Hardness	mg/L	75.82	45.55	81.58	88.59	94.63	103.70	109.73	178.83	56.86	38.58	93.27	82.49	57.11	77.30	79.17	75.14	91.51	144.19	124.46	340.56
Alkalinity-Total	mg/L	46	24	39	48	53	71	70	89	83	28	60	65	46	58	56	65	71	119	94	189
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	30.1	15.7	33	34.6	36.8	39.3	45.6	119	--	8.7	46.7	36.6	17.7	24.3	28.4	26.8	33.7	51	45.6	188
Nutrients																					
Ammonia-N	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	0.06
Nitrate-N	mg/L	--	--	--	--	--	--	--	<0.05	0.050	<0.05	0.242	0.196	0.123	0.182	0.124	0.152	0.142	0.296	0.227	<0.004
Nitrite-N	mg/L	--	--	--	--	--	--	--	<0.5	<0.5	<0.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	***0.215***
Total Phosphorus	mg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.11	<0.06	<0.06	<0.06	<0.03	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cyanide Compounds																					
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	<0.2	<0.2	***1.2***	<0.2	<0.2	<0.2	<0.2	***0.59***	0.16	<0.2	0.32	0.3	0.3	<0.2	<0.2	0.2	***0.53***	<0.2	<0.2	0.2
Thiocyanate	mg/L	0.87	1.28	<0.05	<0.05	<0.05	2.24	2.43	23.9	2	4.68	2.04	1.44	1.7	0.4	1.29	<0.05	2.54	2.12	0.18	2.16
CN-WAD	mg/L	<0.001	<0.002	<0.001	<0.001	0.002	0.001	<0.001	0.008	0.006	0.006	0.008	0.006	0.004	<0.003	0.007	0.006	0.004	0.004	0.006	0.002
CN-SAD	mg/L	<0.002	0.002	<0.002	0.008	0.002	0.004	0.006	0.010	0.008	0.006	0.008	<0.002	<0.003	<0.003	<0.003	<0.002	0.004	0.018	0.002	0.002
Total Metals																					
Aluminum	mg/L	***0.97***	***0.84***	0.08	0.04	0.03	0.04	0.01	0.02	***1.07***	***0.13***	***0.16***	0.1	***0.295***	***0.2***	***0.14***	***0.12***	0.04	0.02	0.02	0.04
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.006	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.02***	<0.02	<0.02	<0.02	***0.01***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	mg/L	0.0595	0.0549	0.0505	0.0585	0.0631	0.0646	0.0798	0.0679	0.0584	0.0350	0.0608	0.0551	0.0456	0.0549	0.0570	0.0526	0.0591	0.0968	0.0802	0.1570
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.02	<0.008	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--
Cadmium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	***0.0006***	***0.0006***
Calcium	mg/L	20.9	12.7	22.1	24.1	25.2	27.1	29.5	45.4	15.4	10.9	25.2	22.3	15.5	20.8	21.2	20.1	24.1	37.3	32.2	76.7
Chromium	mg/L	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.0009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.0008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	mg/L	***0.017***	***0.026***	***0.016***	***0.009***	***0.04***	***0.066***	***0.015***	***0.036***	***0.018***	***0.006***	<0.001	***0.01***	0.004	***0.007***	***0.005***	0.004	***0.051***	***0.044***	***0.011***	***0.021***
Iron	mg/L	***1.2***	***1.4***	0.2	0.1	0.1	0.1	0.0	0.1	***1.9***	0.2	***0.6***	0.3	***0.5***	***0.4***	***0.5***	***0.4***	0.2	0.0	0.0	0.1
Lead	mg/L	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.006	***0.011***	***0.008***	<0.006	<0.005	<0.002	<0.006	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.001	<0.006	<0.005	<0.005	<0.006	<0.006	<0.006	0.008
Magnesium	mg/L	5.74	3.36	6.41	6.90	7.70	8.75	8.76	15.90	4.47	2.76	7.37	6.51	4.47	6.16	6.37	6.06	7.61	12.40	10.70	36.20
Manganese	mg/L	0.0922	0.0874	0.0728	0.0716	0.107	0.105	0.0068	0.368	0.188	0.0166	0.081	0.0525	0.041	0.0606	0.0689	0.0681	0.0717	0.0437	0.0263	0.0649
Molybdenum	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.001	0.001	0.001	<0.001	0.002	0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	mg/L	0.8	0.5	2.3	0.9	0.2	0.8	0.7	2	1.2	0.4	0.9	0.7	<0.4	0.7	0.6	<0.3	1	1.2	1.6	6.2

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		5-Sep-00	26-Sep-00	11-Oct-00	1-Nov-00	14-Nov-00	28-Nov-00	18-Dec-00	23-Apr-01	22-May-01	18-Jun-01	4-Jul-01	18-Jul-01	31-Jul-01	14-Aug-01	29-Aug-01	17-Sep-01	22-Oct-01	13-Dec-01	16-Jan-02	20-Feb-02
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.004	<0.02	***0.03***	<0.02	<0.02	***0.09***	<0.02	<0.02
Silicon	mg/L	7.86	7.21	6.29	6.29	6.21	5.91	5.57	5.6	4.3	4.2	5.3	5.7	6.43	6.8	6.9	6.2	6.2	8.4	7.6	22.6
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sodium	mg/L	3.57	2.13	3.75	4.44	4.70	4.93	4.84	8.61	1.76	1.74	5.18	3.87	2.30	3.32	3.11	2.96	3.27	6.64	5.84	18.20
Strontium	mg/L	0.153	0.098	0.17	0.219	0.234	0.251	0.238	0.284	0.108	0.087	0.191	0.181	0.131	0.164	0.173	0.168	0.211	0.369	0.271	0.509
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.005	<0.003	<0.006	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006
Titanium	mg/L	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	0.046	0.001	0.006	0.003	0.0091	0.006	0.004	0.003	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	--	--	--	0.004	<0.002	0.003	<0.002	0.001	0.004	0.003	0.002	0.003	0.001	0.003	0.002	0.002	0.001	0.003	0.002	<0.001
Zinc	mg/L	0.013	0.014	0.005	0.005	0.007	0.007	0.004	0.017	0.018	<0.001	0.009	0.004	0.004	0.007	0.005	0.004	0.008	0.012	0.007	***0.041***
Dissolved Metals																					
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		21-May-02	20-Jun-02	3-Jul-02	15-Jul-02	1-Aug-02	12-Aug-02	27-Aug-02	10-Sep-02	15-Oct-02	13-Nov-02	11-Dec-02	16-Apr-03	21-May-03	11-Jun-03	2-Jul-03	15-Jul-03	30-Jul-03	13-Aug-03	17-Sep-03	15-Oct-03
Physical Parameters																					
pH	pH units	7.2	7.69	7.67	7.46	7.62	7.69	7.88	7.73	7.7	7.58	--	7.97	7.6	7.7	7.7	7.88	7.9	8.01	7.83	7.86
Conductivity	µS/cm	81.1	246	227	306	250	330	236	163	213	194	2940	682	140	209	178	188	269	236	211	243
Routine Parameters																					
Total Suspended Sediment	mg/L	40	12	4	<1	<1	1	6	7	1	<1	2	4	20	6	63	75	12	27	<5	<5
Total Dissolved Solids	mg/L	<5	273	234	220	160	227	193	267	127	113	767	487	124	156	133	153	227	173	140	207
Hardness	mg/L	41.51	114.91	101.16	150.47	121.28	146.50	109.28	75.44	110.09	108.95	122.64	333.90	73.60	101.87	91.56	91.69	124.95	128.83	100.46	104.81
Alkalinity-Total	mg/L	29	72	64	82	73	72	82	62	76	82	793	245	55	79	58	61	84	86	79	87
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	13.2	53	61.7	100	62.6	104	47.9	19.9	34.1	23.6	37.3	162	27.4	36	42.9	43.6	63.7	52.1	40.5	33.6
Nutrients																					
Ammonia-N	mg/L	0.05	<0.05	<0.05	<0.05	0.1	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate-N	mg/L	0.054	0.193	--	0.319	0.180	0.320	0.216	0.073	0.108	0.140	0.258	0.137	0.110	<1.0	0.178	0.692	0.215	0.079	0.082	0.108
Nitrite-N	mg/L	<0.002	<0.002	--	<0.002	<0.002	<0.002	0.017	<0.002	<0.002	<0.002	<0.01	<0.002	<0.1	<10	0.004	0.043	<0.002	<0.002	0.004	<0.002
Total Phosphorus	mg/L	<0.06	<0.06	<0.06	<0.06	0.06	<0.06	0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	--	<0.06	<0.06	0.06	<0.06	<0.06
Cyanide Compounds																					
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	<0.2	<0.2	0.2	<0.2	0.02	0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.08	<0.2	<0.2	<0.2	<0.2	<0.2
Thiocyanate	mg/L	1.35	1.84	1	<0.05	0.38	0.43	0.37	0.71	0.59	0.3	0.4	0.82	0.42	1.67	0.6	0.83	0.52	0.47	0.78	0.56
CN-WAD	mg/L	0.004	<0.002	0.006	<0.002	0.002	0.002	0.006	0.006	0.010	<0.002	0.002	0.002	0.002	<0.002	0.002	0.002	0.002	<0.002	<0.002	0.002
CN-SAD	mg/L	<0.002	<0.002	0.002	<0.002	0.002	0.002	<0.002	0.002	<0.002	<0.002	0.002	0.002	0.004	0.002	0.002	0.062	0.002	0.002	0.002	<0.002
Total Metals																					
Aluminum	mg/L	***0.67***	0.07	***0.14***	0.06	***0.11***	0.06	***0.66***	***0.77***	0.06	0.01	0.04	0.03	***0.34***	***0.14***	***2.66***	***1.29***	***0.76***	***1.11***	***0.17***	0.04
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0008	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.03***	<0.02	<0.02	***0.0101***	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	mg/L	0.0404	0.0580	0.0659	0.0832	0.0668	0.0798	0.0714	0.0566	0.0607	0.0617	0.0850	0.1240	0.0563	0.0683	0.1280	0.1190	0.0793	0.0978	0.0699	0.0752
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0005	<0.02	<0.02	<0.02	<0.02	<0.02
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.008	--	--	--	--	--
Cadmium	mg/L	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	***0.00019***	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Calcium	mg/L	11.2	30.8	27.7	40.8	33.1	40.2	29.7	20.3	28.9	28.1	31.8	74.2	19.3	26.4	24.3	24.7	31.9	32.3	24.6	27.1
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.0034	0.003	0.001	0.002	<0.001	<0.001
Cobalt	mg/L	<0.001	0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002	0.002
Copper	mg/L	***0.024***	***0.012***	***0.02***	0.004	***0.009***	0.002	***0.008***	0.003	0.004	0.002	0.003	***0.006***	***0.006***	***0.006***	***0.007***	***0.007***	***0.006***	***0.008***	0.004	0.002
Iron	mg/L	***1.1***	0.2	***0.4***	0.2	***0.4***	***0.4***	***1.3***	***0.8***	0.2	0.1	0.1	0.0	***1.0***	***0.6***	***3.4***	***3.3***	***1.0***	***1.9***	***0.6***	0.3
Lead	mg/L	***0.02***	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0044	<0.006	<0.006	<0.006	<0.006	<0.006
Lithium	mg/L	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.004	<0.006	<0.006	<0.006	<0.006	<0.006
Magnesium	mg/L	3.29	9.23	7.77	11.80	9.38	11.20	8.53	6.01	9.21	9.42	10.50	36.10	6.17	8.73	7.50	7.29	11.00	11.70	9.48	9.02
Manganese	mg/L	0.106	0.0302	0.0477	0.037	0.0711	0.0728	0.0787	0.0627	0.062	0.0213	0.0117	0.29	0.0796	0.0453	0.147	0.0992	0.099	0.171	0.0933	0.072
Molybdenum	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.001	<0.001	0.003	<0.001	0.002	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0021	0.003	<0.001	0.003	<0.001	<0.001
Potassium	mg/L	1.3	1	1.1	1.4	1	1.4	0.9	1.3	0.9	0.4	1.4	6.7	0.8	1	1.4	1.4	0.9	1.3	12.9	0.9

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		21-May-02	20-Jun-02	3-Jul-02	15-Jul-02	1-Aug-02	12-Aug-02	27-Aug-02	10-Sep-02	15-Oct-02	13-Nov-02	11-Dec-02	16-Apr-03	21-May-03	11-Jun-03	2-Jul-03	15-Jul-03	30-Jul-03	13-Aug-03	17-Sep-03	15-Oct-03
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	***0.04***	***0.02***	<0.02	***0.04***	***0.03***	***0.06***	***0.09***	<0.02	***0.02***	<0.0002	<0.02	<0.02	<0.02	***0.08***	<0.02
Silicon	mg/L	3	5.3	5.6	5.9	6	6.1	6.7	7.1	6.2	6	6.3	16.3	4.6	5.3	11.2	7.7	6.9	7.9	7.6	6.9
Silver	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0001	<0.002	<0.002	<0.002	<0.002	<0.002
Sodium	mg/L	1.11	5.69	5.94	9.57	7.16	10.50	5.64	2.82	4.26	3.93	5.51	23.00	2.01	3.49	4.70	4.36	6.27	5.12	3.73	3.99
Strontium	mg/L	0.079	0.208	0.19	0.286	0.227	0.262	0.214	0.172	0.221	0.237	0.256	0.602	0.167	0.214	0.203	0.176	0.229	0.271	0.253	0.276
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.006	<0.006	<0.006	<0.006	<0.006	0.009	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.006	<0.001	<0.006	<0.006	<0.006	<0.006	<0.006
Titanium	mg/L	0.027	<0.001	0.003	0.003	0.002	<0.001	0.018	0.016	<0.001	<0.001	<0.001	<0.001	0.014	0.006	0.0747	0.054	0.021	0.027	0.004	<0.001
Vanadium	mg/L	0.003	0.002	0.003	0.002	0.002	0.003	0.004	0.003	0.002	<0.001	0.004	0.011	0.006	0.006	0.0083	0.01	0.007	0.009	0.002	0.002
Zinc	mg/L	0.015	0.003	0.007	0.002	0.005	0.003	0.013	0.012	0.004	0.002	0.019	0.013	0.017	0.002	0.021	0.009	***0.141***	0.011	0.003	<0.001
Dissolved Metals																					
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		12-Nov-03	21-Apr-04	19-May-04	30-Jun-04	14-Jul-04	28-Jul-04	11-Aug-04	8-Sep-04	5-Oct-04	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05
Physical Parameters																				
pH	pH units	7.52	--	--	--	--	--	--	--	--	8.07	8.15	8.17	7.93	8.1	7.64	7.75	7.94	8.06	7.98	8.04
Conductivity	µS/cm	258	--	--	--	--	--	--	--	--	185	188	211	146	203	180	123	149	151	150	173
Routine Parameters																					
Total Suspended Sediment	mg/L	<2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	133	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	111.64	--	--	--	--	--	--	--	--	95.60	85.39	97.63	67.59	103.02	98.01	65.68	70.78	73.92	79.32	88.61
Alkalinity-Total	mg/L	99	--	--	--	--	--	--	--	--	74.6	75.2	77.6	61.6	78.3	69.6	55.9	63.7	46.3	59.4	73.1
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	74.6	72.7	77.6	61.6	78.3	69.6	55.9	63.7	46.3	59.4	73.1
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	--	--	--	--	--	--	--	--	--	24.1	21.4	25.4	17.8	25.5	24.1	17	18.7	19.2	20.3	23.1
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	8.21	7.7	8.74	5.63	8.57	8.07	5.33	5.9	6.37	6.38	7.42
Potassium	mg/L	--	--	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	--	--	--	--	--	--	--	--	--	2.4	3.1	2.9	<2.0	2.9	2.8	<2.0	2.4	2.4	2.4	2.8
Sulphate	mg/L	34.9	--	--	--	--	--	--	--	--	24.7	24.5	26.4	16.2	30.6	24.7	12.2	20.6	18.6	20.8	23.8
Nutrients																					
Ammonia-N	mg/L	<0.05	--	--	--	--	--	--	--	--	<0.020	<0.020	<0.0050	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.034	0.034
Nitrate-N	mg/L	0.134	--	--	--	--	--	--	--	--	0.060	0.054	0.056	0.049	0.052	0.052	0.024	0.045	0.041	0.041	0.056
Nitrite-N	mg/L	0.002	--	--	--	--	--	--	--	--	0.002	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001	0.002
Total Phosphorus	mg/L	<0.06	--	--	--	--	--	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																					
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	0.0062	0.0073	<0.0056	0.0103	0.0071	0.0067	0.011	0.0091	<0.0050	0.0078	0.0073
Cyanate	mg/L	<0.2	--	--	--	--	--	--	--	--	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	0.81	--	--	--	--	--	--	--	--	<0.50	<0.50	<0.50	0.5	<0.50	<0.50	0.52	<0.50	<0.50	<0.50	<0.50
CN-WAD	mg/L	0.002	0.002	0.004	0.008	0.002	0.002	0.002	<0.002	0.002	<0.0050	<0.0055	<0.0056	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.006	<0.0050
CN-SAD	mg/L	0.002	0.002	0.002	0.004	0.002	0.002	0.004	0.002	0.004	--	--	--	--	--	--	--	--	--	--	--
Total Metals																					
Aluminum	mg/L	0.03	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	***0.34***	<0.20	<0.20	***0.48***	***0.41***	<0.20	<0.20	<0.20
Antimony	mg/L	<0.02	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.02	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.00211	<0.20	***0.00595***	<0.20	<0.20	<0.20
Barium	mg/L	0.0721	--	--	--	--	--	--	--	--	0.0630	0.0570	0.0670	0.0580	0.0680	0.0680	0.0650	0.0600	0.0580	0.0600	0.0630
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.02	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	--	--	--	--	--	--	--	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.0006	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	28.6	--	--	--	--	--	--	--	--	24.6	21.5	24.9	17.8	26.4	25.2	17.3	18.6	19.1	20.9	23.2
Chromium	mg/L	<0.001	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.001	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	0.004	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.0	--	--	--	--	--	--	--	--	***0.4***	***0.4***	0.2	***0.5***	0.3	0.2	***0.9***	***0.6***	***0.5***	***0.3***	***0.4***
Lead	mg/L	<0.006	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.006	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	9.77	--	--	--	--	--	--	--	--	8.30	7.70	8.61	5.62	9.01	8.52	5.46	5.91	6.37	6.59	7.45
Manganese	mg/L	0.0262	--	--	--	--	--	--	--	--	0.0402	0.0348	0.0248	0.0391	0.0436	0.0349	0.0405	0.0417	0.0396	0.0458	0.0784
Molybdenum	mg/L	<0.01	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.001	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	1.3	--	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		12-Nov-03	21-Apr-04	19-May-04	30-Jun-04	14-Jul-04	28-Jul-04	11-Aug-04	8-Sep-04	5-Oct-04	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05
Selenium	mg/L	<0.02	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	6.2	--	--	--	--	--	--	--	--	4.26	4.55	4.83	4.94	5.68	5.47	5.89	5.92	5.88	5.65	5.94
Silver	mg/L	<0.002	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	4.79	--	--	--	--	--	--	--	--	2.40	3.10	2.90	<2.0	3.10	3.00	<2.0	2.40	2.40	<2.0	2.80
Strontium	mg/L	0.272	--	--	--	--	--	--	--	--	0.22	0.215	0.23	0.193	0.228	0.237	0.163	0.179	0.18	0.215	0.213
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	0.009	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.001	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	0.013	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.001	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.001	--	--	--	--	--	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals																					
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	0.00194	0.0019	0.00194	0.00163	0.00289	0.00184	0.00131	0.00151	0.00164	0.00129	0.00175
Barium	mg/L	--	--	--	--	--	--	--	--	--	0.059	0.055	0.067	0.052	0.065	0.064	0.054	0.053	0.055	0.057	0.063
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	--	--	--	--	--	--	--	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	--	--	--	--	--	--	--	--	--	0.141	0.225	0.103	0.15	0.195	0.143	0.209	0.175	0.199	0.2	0.225
Lead	mg/L	--	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.025	0.0227	0.0216	0.015	0.0375	0.0319	0.012	0.0287	0.0319	0.0536	0.0745
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	--	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	--	--	--	--	--	--	--	--	--	4.14	4.49	4.85	4.75	5.39	5.16	5.46	5.52	5.74	5.73	5.92
Silver	mg/L	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	--	--	--	--	--	--	--	--	--	0.216	0.214	0.234	0.192	0.22	0.227	0.16	0.178	0.18	0.192	0.213
Thallium	mg/L	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	--	--	--	--	--	--	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05
Physical Parameters																					
pH	pH units	7.85	7.69	8.07	8	8.08	7.74	8	7.9	7.68	8.03	8.12	7.98	8.11	7.95	8.01	7.79	7.97	7.67	7.95	7.96
Conductivity	µS/cm	158	164	187	175	188	188	608	175	183	224	218	275	270	268	231	205	211	238	248	232
Routine Parameters																					
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	79.03	85.95	94.54	87.86	99.50	93.03	91.87	92.83	96.35	111.88	108.09	124.90	135.69	133.03	110.65	106.89	103.53	123.29	120.32	120.63
Alkalinity-Total	mg/L	61.5	65.6	79	74	78.9	70	61.7	--	65.8	64.5	73.9	83.6	90	88.5	88.4	79.6	86.5	97.2	97.5	109
Bicarbonate	mg/L	61.5	65.6	79	74	78.9	70	61.7	--	65.8	64.5	73.9	83.6	90	88.5	88.4	79.6	86.5	97.2	97.5	109
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	21	22	24.8	22.7	25.7	24	21.9	23.7	24.4	30.4	28.5	33.2	34.6	35.8	27.7	26.6	26.2	30.9	29.8	29.3
Magnesium	mg/L	6.63	7.03	7.79	7.29	8.73	8.13	7.18	7.66	8.3	9.44	9.32	10.2	10.5	11	9.46	9.93	9.1	10.7	9.99	10.3
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	2.6	2.5	2.9	3.1	2.9	3.4	2.3	2.8	3.2	4.9	3.8	6.2	6.6	6.3	4	3.5	3.3	4.1	4	3.6
Sulphate	mg/L	21.5	23.2	26.2	25.2	28.1	28.2	24.1	29.4	24.1	42.7	33.9	58.4	57.6	55.6	23.5	23.8	26.8	33.2	36.2	29.1
Nutrients																					
Ammonia-N	mg/L	0.03	0.03	0.032	0.037	0.035	0.039	0.031	0.03	0.032	0.064	0.042	0.116	0.106	0.104	0.044	0.021	0.026	0.021	<0.020	<0.020
Nitrate-N	mg/L	0.059	0.053	0.067	0.048	0.059	0.061	0.084	--	0.111	0.187	0.158	0.238	0.233	0.233	0.152	0.130	0.130	0.151	0.155	0.158
Nitrite-N	mg/L	0.002	0.001	0.003	0.002	0.002	0.002	0.001	--	0.002	0.003	0.003	0.005	0.006	0.005	0.002	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																					
Cyanide - T	mg/L	0.0108	0.007	0.0142	0.0067	0.0071	0.0111	0.0072	0.0079	0.0064	0.0054	0.0072	0.006	0.0066	0.0066	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	<0.50	<0.50	<0.50	3.33	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																					
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.32***	***0.47***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.00467	<0.20	<0.20	<0.20	<0.20	0.00214	<0.20	0.00113	0.00089	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0600	0.0630	0.0660	0.0630	0.0640	0.0650	0.0650	0.0620	0.0650	0.0640	0.0660	0.0690	0.0690	0.0740	0.0710	0.0700	0.0670	0.0790	0.0810	0.0790
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	20.8	22.5	24.9	23	25.6	23.9	23.8	24.3	24.8	29.8	28.2	33.2	36.2	35.3	28.4	26.5	27	31.4	31.2	30.5
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	***0.4***	***0.4***	***0.4***	***0.4***	***0.5***	***0.7***	***0.7***	***0.6***	***0.3***	***0.5***	***0.4***	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.0
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	6.58	7.23	7.86	7.39	8.64	8.10	7.88	7.81	8.36	9.10	9.15	10.20	11.00	10.90	9.65	9.89	8.77	10.90	10.30	10.80
Manganese	mg/L	0.0703	0.0811	0.107	0.0945	0.112	0.12	0.116	0.113	0.104	0.154	0.121	0.188	0.198	0.17	0.0872	0.0579	0.0568	0.076	0.0653	0.0353
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	6.46	6.3	6.1	6.57	6.25	6.62	6.34	6.83	6.28	6.08	5.66	5.91	6.3	5.86	5.98	5.87	5.79	6.11	6.18	6.1
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	2.50	2.60	2.90	3.10	2.90	3.30	2.40	2.90	3.20	4.70	3.70	6.20	6.90	6.20	4.10	3.50	3.00	4.20	4.20	3.80
Strontium	mg/L	0.192	0.2	0.231	0.207	0.216	0.207	0.2	0.203	0.236	0.224	0.233	0.256	0.271	0.272	0.273	0.267	0.261	0.299	0.286	0.284
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0055	0.0057	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals																					
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00127	0.00127	0.00163	0.00157	0.00185	0.00154	0.00132	0.00158	0.00102	0.00149	0.00106	0.00143	0.00124	0.00182	0.00087	0.00073	<0.0010	0.00132	0.00191	0.00145
Barium	mg/L	0.057	0.059	0.064	0.061	0.063	0.062	0.054	0.052	0.062	0.066	0.064	0.068	0.065	0.074	0.07	0.069	0.067	0.077	0.078	0.076
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.194	0.193	0.201	0.211	0.236	0.22	0.19	0.157	0.166	0.174	0.152	0.118	0.113	0.156	0.087	0.078	0.077	0.037	0.037	<0.030
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	0.0697	0.0724	0.0989	0.0865	0.103	0.0911	0.0725	0.0877	0.0942	0.147	0.111	0.183	0.186	0.16	0.0845	0.0552	0.0537	0.0717	0.0581	0.0318
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	6.39	6.14	5.95	6.44	6.22	6.63	5.71	6.12	6.16	6.04	5.65	5.85	5.99	6.16	5.84	5.8	5.94	5.94	5.9	5.96
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.193	0.195	0.229	0.204	0.218	0.209	0.183	0.199	0.234	0.233	0.237	0.254	0.259	0.277	0.266	0.267	0.265	0.295	0.284	0.274
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		21-Dec-05	29-Dec-05	5-Jan-06	9-Feb-06	23-Feb-06	23-Mar-06	20-Apr-06	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06
Physical Parameters																					
pH	pH units	7.78	7.64	7.24	8.14	8.17	7.68	8.09	7.94	7.66	7.49	7.91	8.06	8.07	8.15	7.91	7.25	8.08	8.02	8.05	8.09
Conductivity	µS/cm	229	238	227	1320	254	644	371	200	1460	67.4	124	170	196	198	180	153	201	211	223	198
Routine Parameters																					
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	122.70	115.16	115.72	774.82	121.02	327.16	192.75	104.97	599.96	41.79	65.71	91.04	100.41	110.85	97.93	80.30	105.03	110.62	115.95	95.68
Alkalinity-Total	mg/L	94.8	93.7	90.9	577	94.2	276	149	71.8	151	18.1	47.1	66.6	79.1	83.3	72.7	58.1	81.1	74.3	79.8	69.1
Bicarbonate	mg/L	94.8	93.7	90.9	577	94.2	276	149	71.8	151	18.1	47.1	66.6	79.1	83.3	72.7	58.1	81.1	74.3	79.8	69.1
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	29.8	28.8	27.9	188	30.2	82.5	46.7	27.4	194	9.75	16.5	21.7	25.6	27.3	23.6	20.2	26.5	28.5	29.1	25.1
Magnesium	mg/L	10.6	10	10.3	78.1	11.3	30.7	16.8	9.17	23.6	2.79	5.38	7.41	8.56	9.49	7.77	6.78	8.5	9.31	8.89	8
Potassium	mg/L	<2.0	<2.0	<2.0	13.6	<2.0	2.6	<2.0	<2.0	7	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	4	4.2	4	39.7	4.8	14.4	6.3	3	92	<2.0	<2.0	2.7	3.4	3.4	3	2.2	4	4.4	4.1	3
Sulphate	mg/L	28.1	29.8	30	260	33.1	97.2	48.5	37.1	636	8.39	15.8	22.7	23.9	26.4	26.3	19.6	28.1	34.3	34.5	30.4
Nutrients																					
Ammonia-N	mg/L	<0.020	<0.020	<0.020	0.047	0.031	0.022	0.091	0.025	***6.69***	0.027	0.028	0.035	0.051	0.024	<0.020	0.027	0.022	0.035	0.036	0.048
Nitrate-N	mg/L	0.135	0.228	0.158	0.028	0.163	0.460	<0.0050	0.008	0.776	0.026	0.057	0.084	0.068	0.070	0.035	0.034	0.045	0.060	0.069	0.074
Nitrite-N	mg/L	<0.0010	<0.0010	<0.0010	0.013	<0.0010	0.006	<0.0010	<0.0010	0.048	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.002	0.002	0.001	<0.0010
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																					
Cyanide - T	mg/L	0.0051	<0.0050	<0.0050	0.0357	<0.0052	0.0066	0.008	0.0142	0.064	0.0174	0.0076	<0.0050	<0.0050	<0.0050	0.0063	0.0082	<0.0050	<0.0050	0.0052	0.0059
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	<0.50	<0.50	<0.50	2.24	<0.50	<0.50	<0.50	0.85	9.36	1.02	<0.50	0.54	<0.50	<0.50	0.51	<0.50	<0.50	<0.50	<0.50	<0.50
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.030	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																					
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***2.67***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	***0.00962***	<0.20	<0.20	0.00251	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0770	0.0840	0.0760	0.4620	0.0860	0.2260	0.1160	0.0600	0.0440	0.0890	0.0460	0.0550	0.0640	0.0690	0.0590	0.0660	0.0690	0.0670	0.0700	0.0650
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	31	29.3	28.7	184	30	80.4	48.5	27	201	10.9	17	23.4	25.9	28.2	25.5	20.5	27.5	28.8	30.9	24.5
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	***0.012***	<0.010	<0.010	<0.010	<0.010	<0.010	***0.011***	***0.011***	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.0	0.0	<0.030	0.0	<0.030	0.1	0.0	0.3	***7.1***	***3.6***	***0.4***	0.3	0.1	0.1	0.3	0.3	0.2	0.3	0.3	0.3
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	0.023	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	11.00	10.20	10.70	76.60	11.20	30.70	17.40	9.12	23.80	3.54	5.65	7.92	8.68	9.82	8.32	7.07	8.83	9.40	9.42	8.38
Manganese	mg/L	0.0277	0.0269	<0.0050	0.117	<0.0050	0.0076	0.158	0.0631	5.64	0.217	0.048	0.0367	0.026	0.0124	0.0315	0.0348	0.05	0.0599	0.0714	0.0714
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	<2.0	<2.0	<2.0	13.3	<2.0	2.7	<2.0	<2.0	7.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		21-Dec-05	29-Dec-05	5-Jan-06	9-Feb-06	23-Feb-06	23-Mar-06	20-Apr-06	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	6.41	6.29	6.07	44	6.02	15.3	8.08	4.39	4.57	5.51	3.82	4.96	4.77	5.57	5.52	5.77	6.01	5.77	6.39	5.5
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	4.20	4.40	4.10	39.10	4.70	14.20	6.60	2.90	92.70	<2.0	<2.0	2.80	3.60	3.80	3.20	2.30	4.10	4.30	4.40	3.10
Strontium	mg/L	0.283	0.287	0.254	1.66	0.284	0.748	0.437	0.196	0.585	0.0963	0.158	0.219	0.245	0.255	0.223	0.196	0.246	0.245	0.263	0.247
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.095	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	0.0096	0.011	<0.0050	<0.0050	0.0054	0.0114	0.015	0.0272	<0.0050	0.0064	0.0053	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals																					
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00147	0.00222	0.00188	0.00997	0.00104	0.00312	0.00237	0.00251	0.00431	0.00114	0.0013	0.00111	0.00145	0.00177	0.0017	0.0014	0.00183	0.00182	0.00171	0.00131
Barium	mg/L	0.074	0.081	0.074	0.472	0.086	0.226	0.111	0.057	0.039	0.031	0.039	0.05	0.06	0.067	0.054	0.061	0.066	0.065	0.065	0.062
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	<0.030	<0.030	<0.030	0.038	<0.030	<0.030	<0.030	0.13	0.178	0.174	0.136	0.082	0.049	0.046	0.108	0.134	0.134	0.108	0.112	0.129
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	0.023	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	0.0257	0.0184	<0.0050	0.116	<0.0050	0.0074	0.137	0.0423	5.36	<0.0050	<0.0050	<0.0050	0.0079	0.0077	0.0178	0.0206	0.0451	0.0501	0.0612	0.0629
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	6.15	6.15	5.84	44.7	6.03	15	7.84	4.24	4.38	2.08	3.48	4.58	4.63	5.41	5.44	5.59	5.73	5.71	6.04	5.44
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.27	0.28	0.247	1.69	0.285	0.754	0.419	0.195	0.579	0.0832	0.153	0.208	0.242	0.246	0.208	0.195	0.238	0.245	0.249	0.21
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	0.0112	<0.0050	<0.0050	0.0056	0.0061	0.01	<0.0050	<0.0050	<0.0050	0.0092	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		28-Sep-06	12-Oct-06	26-Oct-06	23-Nov-06	7-Dec-06	4-Jan-07	25-Jan-07	8-Feb-07	22-Feb-07	22-Mar-07	5-Apr-07	19-Apr-07	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07	12-Jul-07	26-Jul-07	9-Aug-07
Physical Parameters																				
pH	pH units	8.12	8.14	7.97	7.77	7.46	7.78	7.73	7.81	7.7	7.75	7.71	8.24	7.97	7.55	8.09	7.61	8.02	8.08	8.07	8.05
Conductivity	µS/cm	214	215	243	222	227	233	235	240	261	245	254	546	148	84.9	153	78.3	149	180	228	196
Routine Parameters																					
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	113.52	100.69	118.23	114.79	113.97	102.87	107.53	121.25	137.73	129.16	131.44	269.86	70.21	50.06	79.35	47.89	77.66	96.52	117.31	93.12
Alkalinity-Total	mg/L	77.2	85.8	113	95	87.9	87.8	99.7	95.9	97.3	102	104	156	48	29.9	55.4	28.4	63.7	67.9	83.3	72.2
Bicarbonate	mg/L	77.2	85.8	113	95	87.9	87.8	99.7	95.9	97.3	102	104	156	48	29.9	55.4	28.4	63.7	67.9	83.3	72.2
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	28.6	27.3	29.4	27.2	28.8	24.5	--	28	34.7	32	34.1	65.3	19.8	13.3	20.4	12.1	20.1	25.3	30.4	23.5
Magnesium	mg/L	9.19	9.65	10.1	10.5	11.3	9.24	--	11.2	11.4	11.3	10.6	23.5	5.98	3.81	6.98	3.49	6.44	8.09	9.52	7.82
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<4.0	<2.0	<2.0	<2.0	3.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	4.4	3.8	4.4	4.2	4.4	3.8	--	<4.0	4.8	4.1	4.8	18.2	2.5	<2.0	2.3	<2.0	2.6	3.2	4.2	2.7
Sulphate	mg/L	34.7	30.6	39.8	33	32.4	33.8	33.8	33.5	40.2	31.5	160	136	22.2	12.2	20.3	9.25	21.1	27	37.7	29.9
Nutrients																					
Ammonia-N	mg/L	0.027	0.028	0.053	0.022	0.031	0.031	0.038	0.026	0.037	0.048	<0.020	0.07	0.08	0.037	0.026	0.037	<0.020	0.049	***2.88***	0.055
Nitrate-N	mg/L	0.107	0.108	0.166	0.152	0.151	0.223	0.221	0.182	0.228	0.156	0.283	0.045	0.082	0.024	0.068	0.008	0.047	0.064	0.055	0.063
Nitrite-N	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.001	<0.0010	<0.0010	<0.0010	0.003	0.002	0.006	0.004	<0.0050	0.002	<0.0010	<0.0010	<0.0010	<0.0010	0.001	<0.0010
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.60	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																					
Cyanide - T	mg/L	0.0063	0.0093	0.0065	<0.0050	<0.0050	0.0072	<0.0050	<0.0050	<0.0050	0.0054	<0.0050	0.0112	0.0332	0.0229	0.0078	0.0181	0.0109	0.0063	<0.0050	<0.0050
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.0050	<0.0050	<0.0050	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.86	1.7	1.77	<0.50	1.29	0.63	<0.50	<0.50	<0.50
CN-WAD	mg/L	<0.0050	0.010	<0.0050	<0.0050	<0.0050	0.006	<0.50	<0.50	<0.50	<0.0050	<0.0050	0.005	<0.0050	0.017	<0.0050	<0.0050	0.010	<0.0050	<0.0050	<0.0050
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																					
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.39***	<0.40	<0.20	<0.20	<0.20	<0.20	***0.45***	***1.1***	***0.28***	***2.68***	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	0.00091	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0660	0.0630	0.0750	0.0830	0.0810	0.0800	0.0870	0.0890	0.0990	0.1000	0.0990	0.0970	0.0590	0.0560	0.0440	0.0900	0.0530	0.0530	0.0730	0.0480
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	29.7	25.4	30.2	28	28	25.5	27.2	29.1	35.7	32.6	34.5	68.5	18.7	13.5	20.4	12.6	20.4	25.2	31	24.1
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.3	0.2	0.2	<0.030	<0.030	0.0	***0.4***	0.1	<0.030	<0.030	0.1	0.1	***0.7***	***1.7***	***0.4***	***3.6***	0.2	0.2	0.2	0.3
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	9.56	9.05	10.40	10.90	10.70	9.52	9.62	11.80	11.80	11.60	11.00	24.00	5.71	3.97	6.90	3.99	6.49	8.16	9.69	8.00
Manganese	mg/L	0.0718	0.0501	0.0831	<0.0050	<0.0050	0.0097	0.0378	<0.010	0.0307	0.0256	0.0135	0.543	0.112	0.159	0.0439	0.176	0.018	0.0299	0.0284	0.036
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0	3.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date		28-Sep-06	12-Oct-06	26-Oct-06	23-Nov-06	7-Dec-06	4-Jan-07	25-Jan-07	8-Feb-07	22-Feb-07	22-Mar-07	5-Apr-07	19-Apr-07	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07	12-Jul-07	26-Jul-07	9-Aug-07
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	6.09	6.35	6.11	6.05	6.21	5.4	5.93	5.77	6.9	5.97	6	9.3	3.87	3.81	4.21	8.09	5.48	5.77	6.4	5.27
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	4.50	3.70	4.60	4.30	4.40	3.90	4.50	<4.0	5.10	4.10	5.10	18.80	2.10	<2.0	2.20	<2.0	2.60	3.20	4.30	2.80
Strontium	mg/L	0.26	0.248	0.261	0.288	0.278	0.235	0.283	0.314	0.319	0.296	0.319	0.454	0.155	0.112	0.189	0.101	0.176	0.219	0.257	0.22
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	0.014	0.037	<0.010	0.088	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0052	<0.010	<0.0050	<0.0050	<0.0050	0.0128	0.0122	0.0147	<0.0050	***0.0329***	<0.0050	<0.0050	<0.0050	0.0051
Dissolved Metals																					
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00138	0.00153	0.00199	0.00108	0.00079	0.00112	--	0.00136	0.00167	0.00125	0.00113	0.00598	0.00218	0.00153	0.00105	0.00204	0.00128	0.00145	0.00186	0.00121
Barium	mg/L	0.063	0.07	0.074	0.081	0.088	0.076	--	0.085	0.096	0.097	0.095	0.093	0.056	0.035	0.039	0.04	0.052	0.051	0.071	0.045
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.095	0.113	0.09	<0.030	<0.030	<0.030	--	<0.060	<0.030	<0.030	0.041	<0.030	0.176	0.249	0.096	0.232	0.142	0.12	0.109	0.09
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	--	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	0.0629	0.0309	0.0776	<0.0050	<0.0050	<0.0050	--	<0.010	0.0215	0.0209	<0.0050	0.512	0.0703	0.0079	0.0085	0.0056	<0.0050	0.0207	0.0241	0.0199
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	--	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	<0.60	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	5.87	5.99	5.9	5.87	6.28	5.18	--	5.54	6.68	5.89	5.88	8.93	3.39	2.5	3.92	4.27	5.38	5.65	6.22	5.14
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.252	0.238	0.253	0.281	0.272	0.233	--	0.302	0.309	0.292	0.309	0.444	0.165	0.11	0.192	0.0963	0.175	0.217	0.254	0.215
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.060	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	<0.010	<0.0050	<0.0050	<0.0050	0.012	0.0103	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Notes:

* Yukon Contaminated Sites Regulations

text denotes concentrations that are above CCME guidelines for the protection of aquatic life

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	CCME Guidelines	Water License Standards	YCSG*
Date		23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	1-Nov-07	30-Nov-07	15-Dec-07	28-Dec-07	10-Jan-08	24-Jan-08			
Physical Parameters														
pH	pH units	7.95	8.12	8.05	7.89	7.82	7.43	7.5	7.23	7.15	7.3	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	µS/cm	190	198	196	219	236	225	240	222	230	236	**--**	**--**	**--**
Routine Parameters														
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	**--**	**50**	**--**
Hardness	mg/L	89.06	92.51	98.68	106.18	115.00	--	115.73	113.66	118.04	116.22	**--**	**--**	**--**
Alkalinity-Total	mg/L	64.4	72.9	85.5	78	89.5	91	95	95	98	99	**--**	**--**	**--**
Bicarbonate	mg/L	64.4	72.9	85.5	78	89.5	111	116	120	120	120	**--**	**--**	**--**
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<6	<6	<6	<6	<6	**--**	**--**	**--**
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<5	<5	<5	<5	<5	**--**	**--**	**--**
Calcium	mg/L	23.9	23.5	24.1	27.6	28.3	28.8	30.5	30.1	30.1	29.7	**--**	**--**	**--**
Magnesium	mg/L	7.53	7.95	7.79	8.93	10.7	9.4	10.9	10.6	11.1	10.5	**--**	**--**	**--**
Potassium	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	0.7	0.9	0.8	0.9	0.8	**--**	**--**	**--**
Sodium	mg/L	3.3	3.6	2.9	3.4	3.9	3.7	4.3	3.9	4.4	4.3	**--**	**--**	**--**
Sulphate	mg/L	29.6	29.8	28.1	33.1	30.6	30	32.7	31.9	32	31.4	**--**	**--**	**1000**
Nutrients														
Ammonia-N	mg/L	0.082	0.041	0.026	0.047	0.066	--	--	--	--	<0.01	**2.20**	**--**	**11.3**
Nitrate-N	mg/L	0.044	0.065	0.121	0.107	0.091	0.110	0.100	0.140	0.130	0.110	**13.0**	**--**	**400**
Nitrite-N	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.007	<0.005	<0.02	<0.02	<0.02	**0.06**	**--**	**--**
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--	--	**--**	**--**	**--**
Cyanide Compounds														
Cyanide - T	mg/L	<0.0050	0.0202	0.0069	0.0073	0.0055	--	--	--	--		**0.3***	**0.3**	**--**
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.2	<0.2	<0.2	<0.2	<0.2	**0.5**	**--**	**--**
Thiocyanate	mg/L	<0.50	0.62	1.91	<0.50	<0.50	0.9	0.6	<0.1	0.5	1	**--**	**--**	**--**
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.002	0.002	<0.002	<0.002	<0.002	**0.1***	**0.1**	**0.05**
CN-SAD	mg/L	--	--	--	--	--	0.002	0.002	0.002	0.002	0.002	**--**	**--**	**--**
Total Metals														
Aluminum	mg/L	***0.3***	***0.35***	***10.2***	<0.20	0.0366	--	0.036	0.016	0.075	***0.178***	**0.1**	**--**	**--**
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	0.00057	--	0.0005	0.0005	0.0006	0.0006	**--**	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	0.00222	--	0.0012	0.0012	0.0018	0.002	**0.005**	**--**	**0.5**
Barium	mg/L	0.0640	0.0640	0.2240	0.0690	0.0683	--	0.0830	0.0770	0.0900	0.0910	**--**	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.00050	--	<0.0001	<0.0001	<0.0001	<0.0001	**--**	**--**	**0.053**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.00050	--	<0.0005	<0.0005	<0.0005	<0.0005	**--**	**--**	**--**
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.010	--	0.008	0.003	0.003	0.002	**--**	**--**	**50**
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.000050	--	0.00001	0.00001	***0.00002***	***0.00003***	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	23.4	24.3	24.2	27.7	29.1	--	29.2	28.7	29.3	28.9	**--**	**--**	**--**
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.00050	--	0.0008	<0.0005	0.0006	0.0007	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.00010	--	<0.0001	<0.0001	0.0001	0.0002	**--**	**--**	**0.009**
Copper	mg/L	<0.010	<0.010	***0.025***	<0.010	0.0015	--	0.002	0.001	0.002	0.002	**0.004**	**0.2**	**0.05**
Iron	mg/L	***0.9***	***0.5***	***12.1***	0.3	0.1	--	<0.1	<0.1	<0.1	0.3	**0.30**	**1**	**--**
Lead	mg/L	<0.050	<0.050	***0.055***	<0.050	0.00028	--	0.0002	<0.0001	0.0004	0.0009	**0.007**	**0.1**	**0.06**
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.0050	--	0.002	0.003	0.003	0.003	**--**	**--**	**--**
Magnesium	mg/L	7.44	7.73	9.29	8.99	10.90	--	10.40	10.20	10.90	10.70	**--**	**--**	**--**
Manganese	mg/L	0.0711	0.071	0.439	0.067	0.0163	--	<0.005	<0.005	0.006	0.011	**--**	**0.5**	**--**
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	0.00031	--	<0.001	<0.001	<0.001	<0.001	**0.073**	**--**	**10**
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.00050	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.150**	**0.3**	**0.65**
Potassium	mg/L	<2.0	<2.0	3.2	<2.0	<2.0	--	0.8	1.1	1	0.9	**--**	**--**	**--**

Table A3. Water Quality Parameters in Victoria Creek at Road Crossing

Sample ID	Units	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	CCME Guidelines	Water License Standards	YCSG*
Date		23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	1-Nov-07	30-Nov-07	15-Dec-07	28-Dec-07	10-Jan-08	24-Jan-08			
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.0010	--	<0.0002	<0.0002	<0.0002	0.0005	**0.001**	**--**	**0.01**
Silicon	mg/L	6.25	6.77	21.1	6.77	6.76	--	6.02	5.88	6.07	5.46	**--**	**--**	**--**
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.000010	--	<0.0001	<0.0001	<0.0001	<0.0001	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	3.30	3.30	3.30	3.60	4.00	--	4.70	4.30	5.00	4.20	**--**	**--**	**--**
Strontium	mg/L	0.205	0.214	0.227	0.248	0.259	--	0.266	0.307	0.309	0.307	**--**	**--**	**--**
Sulphur	mg/L	--	--	--	--	--	--	10.5	10.4	10.6	10.5	**--**	**--**	**--**
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.00010	--	<0.00005	<0.00005	<0.00005	<0.00005	**0.0008**	**--**	**0.003**
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.00010	--	<0.001	<0.001	<0.001	<0.001	**--**	**--**	**--**
Titanium	mg/L	<0.010	<0.010	0.281	<0.010	<0.010	--	0.0021	0.0011	0.0013	0.0106	**--**	**--**	**1**
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.0010	--	0.0003	0.0003	0.0005	0.0008	**--**	**--**	**--**
Zinc	mg/L	0.0059	<0.0050	***0.113***	<0.0050	0.0045	--	0.007	0.005	0.003	0.01	**0.03**	**0.3**	**0.9**
Dissolved Metals														
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	0.0089	0.007	0.006	0.013	0.005	0.005	**--**	**--**	**--**
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	0.00055	0.0007	0.0006	0.0006	0.0005	0.0008	**--**	**--**	**--**
Arsenic	mg/L	0.00099	0.00114	0.00196	0.00104	0.0019	0.0027	0.001	0.0012	0.0012	0.0011	**--**	**0.15**	**--**
Barium	mg/L	0.056	0.057	0.049	0.063	0.0668	0.068	0.08	0.08	0.084	0.083	**--**	**--**	**--**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.00050	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**--**	**--**	**--**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	**--**	**--**	**--**
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.010	<0.002	<0.002	0.002	<0.002	0.002	**--**	**--**	**--**
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.000050	0.00001	<0.00001	0.00001	0.00001	0.00002	**--**	**--**	**--**
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.00050	0.0006	<0.0005	0.0014	0.0009	0.0008	**--**	**--**	**--**
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**--**	**--**	**--**
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	0.00145	0.019	0.001	0.001	0.001	0.001	**--**	**--**	**--**
Iron	mg/L	0.11	0.097	0.063	0.099	<0.030	<0.01	<0.01	0.01	0.01	<0.01	**--**	**--**	**--**
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.000050	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	**--**	**--**	**--**
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.001	0.002	0.002	0.003	0.002	**--**	**--**	**--**
Manganese	mg/L	<0.0050	0.0442	0.0912	0.0552	0.0133	0.007	<0.005	<0.005	<0.005	<0.005	**--**	**--**	**--**
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	0.000338	<0.001	<0.001	<0.001	<0.001	<0.001	**--**	**--**	**--**
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	**--**	**--**	**--**
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--	--	**--**	**--**	**--**
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.0010	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	**--**	**--**	**--**
Silicon	mg/L	6.09	6.34	6.45	6.56	6.58	<0.0001	6.45	6.15	6.14	5.94	**--**	**--**	**--**
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.000010	6.21	<0.0001	<0.0001	<0.0001	<0.0001	**--**	**--**	**--**
Strontium	mg/L	0.204	0.22	0.209	0.245	0.259	0.269	0.276	0.265	0.288	0.289	**--**	**--**	**--**
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.00010	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	**--**	**--**	**--**
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.00010	<0.001	<0.001	<0.001	<0.001	<0.001	**--**	**--**	**--**
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0005	0.0006	0.001	0.0007	0.0007	**--**	**--**	**--**
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.0010	0.0013	0.0015	0.0009	0.0023	0.0007	**--**	**--**	**--**
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0028	0.005	0.004	0.004	0.003	0.009	**--**	**--**	**--**

Table A4. Water Quality Parameters in Dome Creek at Dome-X and Dome-1

Sample ID	DOME X	DOME X	DOME X		D1	D1	D1	**CCME**	**Water License**	**YCSG***
Date	26-Jul-07	09-Aug-07	18-Sep-07		26-Jul-07	09-Aug-07	18-Sep-07	**Guidelines**	**Standards**	
Physical Parameters										
pH	--	7.59	7.77		8.11	8.17	8.25	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	--	538	478		1050	1030	1130	**--**	**--**	**--**
Routine Parameters										
Total Suspended Sediment	--	--	--		--	--	--	**--**	**--**	**--**
Total Dissolved Solids	--	--	--		--	--	--	**--**	**50**	**--**
Hardness	--	--	--		--	--	--	**--**	**--**	**--**
Alkalinity-Total	--	86.0	76.0		253	244	244	**--**	**--**	**--**
Bicarbonate	--	86.0	76.0		253	244	244	**--**	**--**	**--**
Carbonate	--	<2.0	<2.0		<2.0	<2.0	<2.0	**--**	**--**	**--**
Hydroxide	--	<2.0	<2.0		<2.0	<2.0	<2.0	**--**	**--**	**--**
Calcium	--	78.3	65.5		166	162	169	**--**	**--**	**--**
Magnesium	--	19.6	16.2		53.1	56.0	55.7	**--**	**--**	**--**
Potassium	--	3.8	4.7		3.5	3.1	3.8	**--**	**--**	**--**
Sodium	--	4.2	4.3		5.7	4.8	5.5	**--**	**--**	**--**
Sulphate	--	191	162		357	360	399	**--**	**--**	**1000**
Nutrients										
Ammonia-N	--	0.183	0.226		0.760	0.042	0.047	**2.20**	**--**	**11.3**
Nitrate-N	--	0.0133	0.0325		0.0988	0.0598	0.0518	**13.0**	**--**	**400**
Nitrite-N	--	<0.0010	<0.0010		<0.0010	<0.0010	0.0011	**0.06**	**--**	**--**
Total Phosphorus	--	1.96	0.82		<0.30	<0.30	<0.30	**--**	**--**	**--**
Cyanide Compounds										
Thiocyanate	--	0.88	2.32		0.74	0.78	0.79	**--**	**--**	**--**
Total Metals										
Aluminum	--	***13.3***	***6.08***		<0.20	<0.20	<0.20	**0.1**	**--**	**--**
Antimony	--	<0.20	<0.20		<0.20	<0.20	<0.20	**--**	**0.15**	**0.2**
Arsenic	--	<0.20	<0.20		<0.20	<0.20	<0.20	**0.005**	**--**	**0.5**
Barium	--	0.274	0.169		0.022	0.014	0.017	**--**	**1**	**10**
Beryllium	--	<0.0050	<0.0050		<0.0050	<0.0050	<0.0050	**--**	**--**	**0.053**
Bismuth	--	<0.20	<0.20		<0.20	<0.20	<0.20	**--**	**--**	**--**
Boron	--	<0.10	<0.10		<0.10	<0.10	<0.10	**--**	**--**	**50**
Cadmium	--	<0.010	<0.010		<0.010	<0.010	<0.010	**0.000017**	**0.02**	**0.0005**
Calcium	--	90.9	68.5		168	159	171	**--**	**--**	**--**
Chromium	--	***0.016***	<0.010		<0.010	<0.010	<0.010	**0.0089**	**0.04**	**0.01**
Cobalt	--	<0.010	<0.010		<0.010	<0.010	<0.010	**--**	**--**	**0.009**
Copper	--	***0.032***	***0.017***		<0.010	<0.010	<0.010	**0.004**	**0.2**	**0.05**
Iron	--	***21.9***	***10.9***		0.040	0.078	0.147	**0.30**	**1**	**--**
Lead	--	<0.050	<0.050		<0.050	<0.050	<0.050	**0.007**	**0.1**	**0.06**
Lithium	--	<0.010	<0.010		<0.010	<0.010	0.010	**--**	**--**	**--**
Magnesium	--	24.6	18.2		53.8	55.6	56.1	**--**	**--**	**--**
Manganese	--	0.576	0.319		0.0806	0.150	0.318	**--**	**0.5**	**--**
Molybdenum	--	<0.030	<0.030		<0.030	<0.030	<0.030	**0.073**	**--**	**10**
Nickel	--	<0.050	<0.050		<0.050	<0.050	<0.050	**0.150**	**0.3**	**0.65**
Potassium	--	5.2	5.3		3.5	3.0	3.6	**--**	**--**	**--**
Selenium	--	<0.20	<0.20		<0.20	<0.20	<0.20	**0.001**	**--**	**0.01**
Silicon	--	18.9	12.9		6.50	5.60	6.45	**--**	**--**	**--**
Silver	--	<0.010	<0.010		<0.010	<0.010	<0.010	**0.0001**	**0.1**	**0.015**
Sodium	--	4.9	4.6		5.7	4.9	5.5	**--**	**--**	**--**
Strontium	--	0.270	0.235		0.401	0.360	0.415	**--**	**--**	**--**
Sulphur	--							**--**	**--**	**--**
Thallium	--	<0.20	<0.20		<0.20	<0.20	<0.20	**0.0008**	**--**	**0.003**
Tin	--	<0.030	<0.030		<0.030	<0.040	<0.030	**--**	**--**	**--**
Titanium	--	0.505	0.236		<0.010	<0.010	<0.010	**--**	**--**	**1**
Vanadium	--	0.068	<0.030		<0.030	<0.030	<0.030	**--**	**--**	**--**
Zinc	--	***0.185***	***0.0650***		***0.175***	***0.223***	***0.338***	**0.03**	**0.3**	**0.9**

Table A4. Water Quality Parameters in Dome Creek at Dome-X and Dome-1

Sample ID	DOME X	DOME X	DOME X		D1	D1	D1	CCME	Water License	YCSG*
Date	26-Jul-07	09-Aug-07	18-Sep-07		26-Jul-07	09-Aug-07	18-Sep-07	Guidelines	Standards	
Dissolved Metals										
Aluminum	--	<0.20	<0.20		<0.20	<0.20	<0.20	--	--	--
Antimony	--	<0.20	<0.20		<0.20	<0.20	<0.20	--	--	--
Arsenic	0.00492	0.0123	0.00598		0.0103	0.0106	0.00433	--	**0.15**	--
Barium	--	0.064	0.067		0.021	0.015	0.018	--	--	--
Beryllium	--	<0.0050	<0.0050		<0.0050	<0.0050	<0.0050	--	--	--
Bismuth	--	<0.20	<0.20		<0.20	<0.20	<0.20	--	--	--
Boron	--	<0.10	<0.10		<0.10	<0.10	<0.10	--	--	--
Cadmium	--	<0.010	<0.010		<0.010	<0.010	<0.010	--	--	--
Chromium	--	<0.010	<0.010		<0.010	<0.010	<0.010	--	--	--
Cobalt	--	<0.010	<0.010		<0.010	<0.010	<0.010	--	--	--
Copper	--	<0.010	<0.010		<0.010	<0.010	<0.010	--	--	--
Iron	--	0.328	0.416		<0.030	<0.030	<0.030	--	--	--
Lead	--	<0.050	<0.050		<0.050	<0.050	<0.050	--	--	--
Lithium	--	<0.010	<0.010		<0.010	<0.010	<0.010	--	--	--
Manganese	--	0.248	0.182		0.0767	0.146	0.301	--	--	--
Molybdenum	--	<0.030	<0.030		<0.030	<0.030	<0.030	--	--	--
Nickel	--	<0.050	<0.050		<0.050	<0.050	<0.050	--	--	--
Phosphorus	--	<0.30	<0.30		<0.30	<0.30	<0.30	--	--	--
Selenium	--	<0.20	<0.20		<0.20	<0.20	<0.20	--	--	--
Silicon	--	4.17	5.06		6.40	5.59	6.31	--	--	--
Silver	--	<0.010	<0.010		<0.010	<0.010	<0.010	--	--	--
Strontium	--	0.229	0.214		0.399	0.356	0.406	--	--	--
Thallium	--	<0.20	<0.20		<0.20	<0.20	<0.20	--	--	--
Tin	--	<0.030	<0.030		<0.030	<0.030	<0.030	--	--	--
Titanium	--	<0.010	<0.010		<0.010	<0.010	<0.010	--	--	--
Vanadium	--	<0.030	<0.030		<0.030	<0.030	<0.030	--	--	--
Zinc	--	<0.0050	<0.0050		0.169	0.218	0.304	--	--	--

Notes:

* Yukon Contaminated Sites Regulations

text denotes concentrations that are above CCME guidelines for the protection of aquatic life

Table A5. Water Quality Parameters in Upper Dome Creek.

Sample ID	Units	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome
Date		2-May-05	10-May-05	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05
Physical Parameters																						
pH	pH units	6.65	8.13	8.1	8.08	8.05	7.93	7.68	7.73	7.86	8.01	8.07	8.07	8.12	8.03	8.09	8.14	8.17	8.2	8.03	8.11	7.82
Conductivity	µS/cm	684	717	880	781	924	688	598	896	655	662	766	1330	1220	982	1160	1250	1080	1100	1060	805	915
Routine Parameters																						
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	347.38	368.04	504.35	414.09	477.10	331.53	316.14	503.55	348.24	338.49	411.15	619.71	589.54	513.08	620.47	643.80	579.06	587.97	568.98	435.30	468.48
Alkalinity-Total	mg/L	94.2	96.2	122	107	113	48.9	72	121	89.5	115	116	142	149	129	154	168	166	159	149	108	--
Bicarbonate	mg/L	94.2	96.2	122	107	113	48.9	72	121	89.5	115	116	142	149	129	154	168	166	159	149	108	--
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--
Calcium	mg/L	85.4	90	124	105	121	83.6	78	119	90	87	101	189	167	141	166	179	158	162	150	110	126
Magnesium	mg/L	32.6	34.7	49.2	37.6	43.2	29.9	29.9	45.2	33.3	30.9	37.7	38.2	41.8	39.9	47.6	47.7	43.1	50.6	44.4	36.6	40.2
Potassium	mg/L	2.3	3.6	2.5	2.9	2.4	<2.0	<2.0	2.4	<2.0	<2.0	2.7	4.2	3.7	3.5	3.3	3.6	3.7	3.2	3.8	2	3.3
Sodium	mg/L	5.8	8	8.6	10.5	11.7	8.2	6.5	11.5	7.9	7.5	9.8	61.6	46	29.4	34.6	40	31	32.3	29.2	18.3	25.5
Sulphate	mg/L	269	293	375	320	380	273	248	399	283	282	319	629	582	431	495	567	464	475	421	309	399
Nutrients																						
Ammonia-N	mg/L	0.0153	0.058	0.074	0.232	0.035	0.137	0.1	0.143	0.079	0.067	0.093	***3.9***	***2.99***	1.43	1.87	2.06	1.75	1.58	1.4	0.902	1.19
Nitrate-N	mg/L	0.029	0.033	0.096	0.251	0.375	0.229	0.175	0.302	0.155	0.148	0.173	0.865	0.732	0.508	0.540	0.698	0.539	0.667	0.672	0.484	--
Nitrite-N	mg/L	0.002	<0.0010	0.003	0.003	0.006	0.004	0.010	0.005	0.005	0.004	0.005	***0.092***	0.053	0.028	0.033	0.041	0.037	0.035	0.035	0.024	--
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																						
Cyanide - T		0.0217	0.0128	0.0057	0.0162	0.0104	0.0147	0.0225	0.0127	0.0187	0.0183	<0.0050	0.054	0.0382	0.031	0.0269	0.0386	0.0254	0.0359	0.0303	0.0241	0.0207
Cyanate	mg/L	<2.5	<5.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	1.07	0.58	0.67	0.71	0.57	0.86	1.17	0.68	0.92	0.97	0.99	1.97	5.36	1.61	1.71	0.76	6.82	<0.50	1.66	1.43	1.55
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0059	<0.0056	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.013	0.017	0.008	0.006	0.021	0.009	0.011	0.012	0.005	0.005
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																						
Aluminum	mg/L	***0.67***	***0.78***	***0.22***	<0.20	***0.48***	<0.20	***0.5***	<0.20	***0.97***	***0.64***	***0.32***	***1.46***	<0.20	***0.34***	<0.20	<0.20	<0.20	<0.20	<0.20	***0.42***	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.016***	<0.20	***0.0146***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.0104***
Barium	mg/L	0.0510	0.0500	0.0450	0.0480	0.0680	0.0560	0.0620	0.0590	0.0700	0.0520	0.0540	0.1020	0.0680	0.0580	0.0600	0.0560	0.0480	0.0440	0.0460	0.0570	0.0370
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	85.2	91	123	104	120	83.8	77.8	124	86.7	85.1	102	186	167	141	169	179	160	155	153	112	121
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	***0.024***	***0.011***	<0.010	<0.010	<0.010	<0.010	<0.010	***0.016***	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.011***	<0.010
Iron	mg/L	***2.3***	***3.6***	***2.3***	***2.9***	***6.0***	***1.9***	***2.0***	***1.5***	***2.8***	***1.9***	***1.6***	***6.8***	***2.3***	***2.0***	***2.1***	***2.0***	***1.6***	***2.2***	***2.0***	***2.3***	***1.6***
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	32.70	34.20	47.90	37.50	43.10	29.70	29.60	47.10	32.00	30.60	38.00	37.70	41.90	39.10	48.20	47.80	43.60	48.80	45.40	37.80	40.40
Manganese	mg/L	0.742	0.493	0.191	0.493	0.851	0.387	0.294	0.444	0.352	0.309	0.339	3.71	2.73	1.7	1.96	2.36	1.88	1.68	1.69	1.09	1.08
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030

Table A5. Water Quality Parameters in Upper Dome Creek.

Sample ID		Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome
Date	Units	2-May-05	10-May-05	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	2.3	3.8	2.4	2.8	2.4	<2.0	<2.0	2.6	<2.0	<2.0	2.8	4.2	3.7	3.4	3.3	3.6	3.8	3	4	2.1	3.2
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	3.21	3.92	3.3	3.61	4.46	3.96	4.61	4.68	5.63	5.36	5.63	6.24	5.22	5.87	5.64	5.25	5.41	5.42	6.06	6.65	5.87
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010
Sodium	mg/L	5.80	8.10	8.40	10.00	11.90	8.10	6.50	11.90	7.60	7.40	9.80	60.80	46.00	28.60	35.20	40.20	31.70	31.10	30.00	18.90	21.00
Strontium	mg/L	0.273	0.282	0.32	0.3	0.343	0.272	0.228	0.367	0.252	0.237	0.292	0.535	0.489	0.407	0.482	0.527	0.449	0.449	0.443	0.328	0.353
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	0.031	0.034	0.013	<0.010	0.025	<0.010	0.023	<0.010	0.045	0.026	0.012	0.068	0.011	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	0.016	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.040	<0.030	<0.030	<0.030
Zinc	mg/L	***0.0391***	***0.0315***	0.0136	0.0062	0.0261	0.0071	0.0085	<0.0050	0.0138	0.0119	0.0086	0.0225	0.0074	0.0102	0.0069	0.0091	0.0083	0.0098	0.0098	0.0116	0.01
Dissolved Metals																						
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00729	0.0054	0.00289	0.00352	0.00435	0.0114	0.0104	0.00647	0.00888	0.00933	0.0118	0.00397	0.00654	0.00615	0.00579	0.00422	0.00464	0.00438	0.00394	0.00621	0.00364
Barium	mg/L	0.038	0.034	0.04	0.045	0.052	0.052	0.051	0.053	0.051	0.039	0.047	0.077	0.062	0.051	0.055	0.053	0.044	0.043	0.041	0.049	0.035
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.241	0.101	<0.030	0.303	0.075	1.09	0.868	0.174	0.681	0.507	0.287	0.213	0.139	0.304	0.103	<0.030	0.178	0.172	0.206	0.875	0.199
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	0.606	0.384	0.124	0.432	0.719	0.285	0.258	0.418	0.283	0.267	0.323	3.64	2.7	1.71	1.89	2.34	1.84	1.73	1.59	1.03	1.31
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	2.49	2.8	3.01	3.51	3.65	3.8	4.18	4.33	4.8	4.77	5.26	4.78	4.95	5.64	5.31	5.03	5.15	5.44	5.56	6.1	5.68
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010
Strontium	mg/L	0.269	0.282	0.327	0.301	0.338	0.272	0.227	0.352	0.26	0.236	0.289	0.537	0.487	0.415	0.472	0.525	0.442	0.449	0.429	0.317	0.37
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.040	<0.030	<0.030	<0.030
Zinc	mg/L	0.0148	0.0066	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0053	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0055

Table A5. Water Quality Parameters in Upper Dome Creek.

Sample ID	Units	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome
Date		29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	21-Dec-05	29-Dec-05	5-Jan-06	12-Jan-06	19-Jan-06	26-Jan-06	11-May-06	18-May-06	25-May-06	1-Jun-06
Physical Parameters																						
pH	pH units	7.94	7.99	***11.1***	7.86	8.05	7.6	7.75	7.57	7.75	7.62	--	7.89	7.69	7.43	7.65	7.25	7.77	7.9	7.16	7.89	7.99
Conductivity	µS/cm	1070	1300	1900	1570	1570	1960	1730	1550	1530	1770	--	2090	1800	2370	1880	1870	6560	573	311	564	749
Routine Parameters																						
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	604.22	646.79	698.74	729.18	840.99	795.02	740.99	749.71	764.00	757.10	--	969.71	832.87	1013.59	779.28	839.10	3421.71	328.26	151.63	308.66	410.68
Alkalinity-Total	mg/L	153	138	124	142	167	164	162	166	166	194	--	210	172	243	189	190	822	83.3	37.3	78.5	93.8
Bicarbonate	mg/L	153	138	<2.0	142	167	164	162	166	166	194	--	210	172	243	189	190	822	83.3	37.3	78.5	93.8
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	161	181	203	223	250	250	234	223	222	239	--	308	263	318	257	273	983	78.7	37.6	73.7	95.2
Magnesium	mg/L	48.5	46	46	47.3	49.7	48.9	32.2	43.6	50.1	36.8	--	46.8	35.2	43.8	34.6	36.4	180	30.1	11	28.8	37.2
Potassium	mg/L	3.8	5.6	6.1	8.9	9.3	8.3	7.2	6	6.2	7.1	--	10.7	6.9	11.8	8.4	8.6	41	4.1	2.2	2.5	2.1
Sodium	mg/L	30.8	54.7	61.7	75	83.2	92.3	106	76.4	66.7	109	--	151	109	148	127	130	602	4.9	5.4	4.4	8.2
Sulphate	mg/L	461	611	641	732	778	837	796	738	716	859	--	1070	832	1190	921	931	3830	223	109	223	323
Nutrients																						
Ammonia-N	mg/L	1.33	1.84	1.68	***2.3***	2.16	***2.67***	***6.97***	***4.58***	***4.15***	***6.83***	--	***8.58***	***7.57***	***11.2***	***7.89***	***8.21***	***46.2***	0.114	0.203	0.079	0.25
Nitrate-N	mg/L	0.969	2.210	2.350	2.860	2.720	2.980	2.840	1.960	1.590	2.500	--	2.680	2.160	2.430	1.900	1.530	8.000	0.020	0.046	0.037	0.140
Nitrite-N	mg/L	0.035	***0.108***	***0.134***	***0.164***	***0.147***	***0.146***	***0.143***	***0.097***	***0.077***	***0.132***	--	***0.123***	***0.080***	***0.103***	***0.091***	***0.090***	***0.423***	0.002	0.002	0.001	0.004
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	<0.30	<0.30	<0.30	<0.30	<0.30	<1.5	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																						
Cyanide - T		0.027	0.0237	0.0107	0.0359	0.0348	0.0327	0.0914	0.0707	0.0502	0.128	--	0.0619	0.11	0.0612	0.0646	0.0692	0.0975	0.0298	0.0284	0.0168	0.0111
Cyanate	mg/L	<0.50	<0.50	***5.23***	***0.63***	<0.50	<0.50	<0.50	<0.50	***0.57***	***0.51***	--	***1.56***	***1.56***	***33.6***	<0.50	***2.46***	***143***	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	1.99	1.76	1.28	2.08	1.72	2.48	3.51	3.68	2.31	4.11	--	5.23	5.42	5.12	4.42	4.44	7.36	1.37	1.64	0.94	0.69
CN-WAD	mg/L	0.009	0.010	0.010	0.018	0.017	0.021	0.080	0.026	0.029	0.055	--	0.057	0.035	0.022	0.061	0.049	0.063	<0.0050	<0.0050	<0.0050	<0.0050
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																						
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	***0.67***	<0.20	<0.20	<0.20	<1.0	***1.44***	***0.28***	***1.41***	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	***0.0272***	<0.20	***0.0498***	***0.0176***	<0.20	<0.20	--	<0.20	***0.31***	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0410	0.0380	0.0390	0.0390	0.0390	0.0420	0.0560	0.0500	0.0480	0.0570	--	0.0690	0.1020	0.0710	0.0520	0.0540	0.2030	0.0560	0.0450	0.0570	0.0480
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	--	0.14	0.12	0.16	0.11	0.13	0.57	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	162	183	201	215	254	244	240	228	224	242	--	309	273	333	255	275	1080	81.5	41.1	75.3	100
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	0.011	<0.010	0.014	--	0.019	0.016	0.019	0.015	0.015	0.073	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	***0.016***	***0.016***	***0.027***	***0.025***	***0.021***	<0.010	<0.010	<0.010	<0.010	--	***0.011***	***0.032***	<0.010	<0.010	<0.010	<0.050	***0.012***	<0.010	<0.010	<0.010
Iron	mg/L	***2.3***	***1.9***	***1.7***	***2.2***	***2.0***	***2.8***	***7.3***	***3.7***	***2.5***	***6.8***	--	***5.5***	***58.4***	***6.2***	***5.9***	***5.9***	***9.2***	***3.9***	***1.3***	***3.3***	***2.6***
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	0.015	<0.010	<0.010	0.023	0.012	0.014	<0.010	--	<0.010	<0.010	0.013	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	48.50	46.10	47.80	46.70	50.20	45.10	34.40	43.80	49.70	37.10	--	48.10	36.70	44.20	34.60	37.00	176.00	30.30	11.90	29.30	39.10
Manganese	mg/L	1.74	2.22	2.33	3.05	3.08	3.32	6.62	4.8	4.01	6.22	--	8.95	6.9	9.38	7.55	8.03	29.7	0.853	0.554	0.312	0.726
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.15	<0.030	<0.030	<0.030	<0.030

Table A5. Water Quality Parameters in Upper Dome Creek.

Sample ID		Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome
Date	Units	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	21-Dec-05	29-Dec-05	5-Jan-06	12-Jan-06	19-Jan-06	26-Jan-06	11-May-06	18-May-06	25-May-06	1-Jun-06
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	3.9	5.7	6.3	8.7	9.4	7.3	7.3	5.9	6.2	7.2	--	10.9	7.3	11.8	8.5	8.7	40	4.2	2.5	2.8	2.3
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	5.8	4.58	4.16	4.35	4.61	4.53	5.35	5.37	5.77	5.32	--	6.94	7.8	6.67	5.26	5.4	23.7	5.83	2.41	4.38	3.61
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.060	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	31.10	56.00	62.50	74.10	83.30	84.20	105.00	76.50	65.50	111.00	--	153.00	113.00	146.00	127.00	132.00	582.00	5.00	5.70	4.70	8.80
Strontium	mg/L	0.442	0.481	0.534	0.593	0.635	0.607	0.678	0.618	0.633	0.69	--	0.947	0.742	0.928	0.742	0.795	3.06	0.223	0.13	0.221	0.293
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.15	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	0.034	<0.010	<0.010	<0.010	<0.050	0.069	<0.010	0.074	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.15	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	0.0114	***0.0355***	***0.0408***	***0.052***	***0.049***	***0.0595***	0.0107	0.013	0.0111	0.0094	--	0.0135	***0.0375***	0.0129	0.0094	0.0095	0.029	***0.0624***	***0.0374***	0.0258	0.0093
Dissolved Metals																						
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00269	0.00447	0.00323	0.0032	0.0028	0.0299	0.0034	0.0037	0.0134	0.0034	--	0.0055	0.002	0.0048	0.0028	0.0023	0.0096	0.00588	0.00556	0.00326	0.00213
Barium	mg/L	0.037	0.035	0.035	0.037	0.037	0.045	0.05	0.047	0.049	0.052	--	0.063	0.052	0.067	0.05	0.05	0.202	0.032	0.036	0.035	0.04
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	--	0.13	0.1	0.15	0.12	0.13	0.69	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	0.015	--	0.019	0.015	0.019	0.016	0.016	0.078	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	0.011	0.015	0.013	0.011	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.088	0.039	0.043	0.063	0.066	2.01	0.179	0.041	2.76	0.05	--	0.058	0.163	0.04	0.062	0.106	4.81	0.417	0.363	0.133	0.153
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	0.014	0.01	<0.010	0.022	0.015	0.015	<0.010	--	<0.010	<0.010	0.015	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	1.72	2.13	2.3	3.06	3.05	3.37	6.53	4.7	4.08	6.01	--	8.68	6.47	9.36	7.61	7.8	29.9	0.595	0.443	<0.0050	0.394
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.15	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.25	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	<0.30	<0.30	<0.30	<0.30	<0.30	<1.5	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	5.52	4.3	4.01	4.14	4.39	4.54	4.74	5.08	5.85	4.96	--	6.39	4.89	6.28	5.06	5.13	23.4	3.72	2.11	2.48	3.36
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.438	0.48	0.51	0.599	0.628	0.664	0.66	0.614	0.636	0.689	--	0.915	0.688	0.925	0.74	0.774	2.86	0.215	0.119	0.213	0.274
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.15	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.15	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	0.0054	0.0188	0.0207	0.0275	0.0319	0.0417	0.0058	0.0085	0.0136	0.0069	--	0.0098	0.0054	0.0085	0.0067	0.0073	0.027	0.0198	0.0258	<0.0050	<0.0050

Table A5. Water Quality Parameters in Upper Dome Creek.

Sample ID	Units	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome
Date		8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06	28-Sep-06	12-Oct-06	26-Oct-06	9-Nov-06	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07	12-Jul-07	26-Jul-07	9-Aug-07
Physical Parameters																						
pH	pH units	7.96	7.99	8.09	7.95	7.72	8.06	8.01	8.01	8.06	8.06	7.99	7.88	7.63	7.95	7.7	8.12	7.89	8.06	8.1	8.1	8.15
Conductivity	µS/cm	790	952	995	610	825	1340	999	1250	1220	1270	1430	1580	1760	544	350	994	462	855	773	1140	1060
Routine Parameters																						
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	435.11	535.99	569.50	355.68	475.89	692.16	507.81	660.95	638.39	699.48	702.86	687.66	825.24	269.98	186.70	534.60	244.35	486.73	445.71	629.44	596.94
Alkalinity-Total	mg/L	113	139	138	89.7	103	469	141	170	160	170	176	205	205	75.7	43.9	128	65.3	128	107	176	176
Bicarbonate	mg/L	113	139	138	89.7	103	469	141	170	160	170	176	205	205	75.7	43.9	128	65.3	128	107	176	176
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	107	136	137	84.3	116	201	129	178	178	192	205	219	264	72.4	52.2	151	68.8	124	114	167	153
Magnesium	mg/L	42.3	47.3	51.8	32.2	40.9	45.2	45.8	42.7	43.2	48.3	39.7	35.8	39.2	24.1	15.8	44.3	20.5	41.5	37.2	52.3	54.4
Potassium	mg/L	3.1	3.9	2.9	2.1	2.1	5.6	3.6	4.7	3.9	4.8	4.8	5.9	8.6	3.7	2.1	3.1	<2.0	3.3	2.3	3.7	3
Sodium	mg/L	8.8	12.1	13.4	7.1	10.1	51.9	23.5	40.5	43.8	42.3	65.5	76.3	101	7.1	5.1	23.7	10.3	19.2	15.3	23.6	20.7
Sulphate	mg/L	343	396	449	250	318	579	427	535	547	558	632	695	847	200	126	432	178	355	303	462	430
Nutrients																						
Ammonia-N	mg/L	0.182	0.288	0.253	0.064	0.143	***3***	1.08	***3.01***	***2.9***	***2.64***	***4.62***	***6.69***	***6.99***	0.353	0.318	1.44	0.452	1.35	0.932	1.63	1.4
Nitrate-N	mg/L	0.253	0.320	0.353	0.090	0.128	0.745	0.496	1.270	1.710	1.990	3.100	3.960	4.040	0.170	0.110	0.352	0.171	0.213	0.186	0.237	0.229
Nitrite-N	mg/L	0.004	0.006	0.006	0.003	0.006	0.046	0.018	0.039	0.036	0.013	0.049	***0.106***	***0.130***	0.009	0.010	0.016	0.008	0.013	0.007	0.022	0.023
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																						
Cyanide - T		0.0091	<0.0050	0.0067	0.0159	0.0114	0.055	0.0142	0.0235	0.0332	0.016	0.0184	0.0252	0.0465	0.0263	0.0305	0.0166	0.0267	0.0193	0.0185	0.0109	0.0093
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	***19.2***	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	***0.87***
Thiocyanate	mg/L	1.01	1.09	1.06	1.29	0.85	3.29	1.5	1.7	1.81	1.72	2.54	3.54	4.17	2	1.77	1.26	1.66	1.23	1.18	1.02	1.16
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.027	0.007	0.012	0.010	0.007	0.016	0.023	0.035	<0.0050	<0.0050	0.009	<0.0050	0.007	0.008	<0.0050	<0.0050
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																						
Aluminum	mg/L	<0.20	<0.20	<0.20	***0.2***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.33***	***0.53***	<0.20	***0.48***	<0.20	***0.21***	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0430	0.0510	0.0580	0.0370	0.0450	0.0680	0.0390	0.0500	0.0490	0.0400	0.0470	0.0520	0.0690	0.0280	0.0340	0.0350	0.0440	0.0460	0.0410	0.0500	0.0320
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	105	136	142	87.7	121	201	129	189	177	198	216	217	265	69.7	50.2	145	65.7	126	116	166	152
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	***2.4***	***1.9***	***2.4***	***1.3***	***1.6***	***1.2***	***1.5***	***1.5***	***1.7***	***1.6***	***2.1***	***4.8***	***4.6***	***1.8***	***2.0***	***1.1***	***1.6***	***1.3***	***1.1***	***1.3***	***1.2***
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	42.00	47.70	52.20	33.20	42.20	46.20	45.10	45.90	47.70	49.80	39.70	35.40	39.70	23.30	14.90	41.90	19.50	41.80	37.90	52.20	52.80
Manganese	mg/L	0.491	0.466	0.442	0.211	0.306	2.34	1.15	2.61	2.59	2.62	4.27	5.15	6.8	0.672	0.557	1.61	0.681	1.2	1.02	1.4	1.3
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030

Table A5. Water Quality Parameters in Upper Dome Creek.

Sample ID	Units	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome
Date		8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06	28-Sep-06	12-Oct-06	26-Oct-06	9-Nov-06	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07	12-Jul-07	26-Jul-07	9-Aug-07
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	3	3.9	3.1	2.2	2.2	5.8	3.6	5.2	3.9	5.1	5.8	5.6	8.6	3.6	2	3	<2.0	3.3	2.3	3.7	3.1
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	3.92	4.11	4.21	4.45	4.83	5.05	5.11	5.43	4.81	5.24	5.47	5.22	6.42	3.74	2.62	3.43	3.93	4.57	5.04	5.74	4.96
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	8.80	12.20	13.90	7.30	10.50	54.40	23.20	43.30	48.30	43.80	69.80	75.00	101.00	6.10	4.90	22.90	9.80	19.60	15.30	23.50	20.40
Strontium	mg/L	0.313	0.393	0.401	0.247	0.331	0.59	0.385	0.55	0.535	0.549	0.606	0.592	0.762	0.201	0.137	0.38	0.184	0.364	0.301	0.486	0.426
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	0.019	<0.010	0.019	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	0.0109	0.0064	<0.0050	0.0061	<0.0050	0.0064	0.0078	0.0082	0.0066	0.0074	0.0085	0.0094	0.0163	***0.0555***	0.0199	0.008	0.0115	0.0064	0.0063	0.0101	0.0078
Dissolved Metals																						
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00202	0.00235	0.00273	0.00863	0.0057	0.00481	0.00736	0.00438	0.00335	0.00225	0.0023	0.0044	0.0043	0.00571	0.00394	0.00299	0.00346	0.00439	0.006	0.00456	0.00385
Barium	mg/L	0.036	0.047	0.052	0.034	0.041	0.065	0.036	0.042	0.044	0.038	0.049	0.049	0.065	0.024	0.026	0.034	0.038	0.04	0.037	0.044	0.03
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.032	0.038	<0.030	0.729	0.213	<0.030	0.045	<0.030	<0.030	<0.030	<0.030	<0.030	0.038	0.338	0.419	0.042	0.436	0.11	0.285	<0.030	<0.030
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	0.0637	0.365	0.368	0.169	0.267	2.31	1.1	2.24	2.45	2.51	3.94	5.07	6.72	0.62	0.195	1.54	0.402	0.845	0.853	0.999	1.24
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	3.79	3.96	3.92	4.26	4.57	4.84	4.94	4.92	4.66	4.9	4.96	4.98	6.12	3.27	2.11	3.47	3.52	4.36	4.73	5.51	4.91
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.316	0.388	0.386	0.239	0.321	0.581	0.391	0.511	0.455	0.531	0.554	0.601	0.754	0.21	0.141	0.4	0.19	0.357	0.299	0.487	0.431
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0137	0.043	0.0097	<0.0050	0.005	<0.0050	<0.0050	<0.0050	<0.0050

Table A5. Water Quality Parameters in Upper Dome Creek.

Sample ID	Units	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	CCME Guidelines	Water License Standards	YCSG*
Date		23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07			
Physical Parameters									
pH	pH units	7.88	8.48	8.07	7.95	7.73	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	µS/cm	1080	1030	968	1220	1490	**--**	**--**	**--**
Routine Parameters									
Total Suspended Sediment	mg/L	--	--	--	--	--	**--**	**--**	**--**
Total Dissolved Solids	mg/L	--	--	--	--	--	**--**	**50**	**--**
Hardness	mg/L	576.66	527.84	520.73	660.83	692.00	**--**	**--**	**--**
Alkalinity-Total	mg/L	177	167	152	192	202	**--**	**--**	**--**
Bicarbonate	mg/L	177	155	152	192	202	**--**	**--**	**--**
Carbonate	mg/L	<2.0	12	<2.0	<2.0	<2.0	**--**	**--**	**--**
Hydroxide	mg/L	<2.0	<1.0	<2.0	<2.0	<2.0	**--**	**--**	**--**
Calcium	mg/L	152	139	136	165	208	**--**	**--**	**--**
Magnesium	mg/L	51.8	43.9	44.9	56.5	42	**--**	**--**	**--**
Potassium	mg/L	3.9	3.8	3.4	4.1	6.9	**--**	**--**	**--**
Sodium	mg/L	21.7	22.7	16.8	26.5	73.7	**--**	**--**	**--**
Sulphate	mg/L	419	392	389	495	617	**--**	**--**	**1000**
Nutrients									
Ammonia-N	mg/L	1.15	1.5	1.14	***2.29***	***5.95***	**2.20**	**--**	**11.3**
Nitrate-N	mg/L	0.330	0.635	0.841	1.260	3.760	**13.0**	**--**	**400**
Nitrite-N	mg/L	0.020	0.027	0.019	0.037	***0.111***	**0.06**	**--**	**--**
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	**--**	**--**	**--**
Cyanide Compounds									
Cyanide - T		0.0258	0.0153	0.0169	0.0223	0.0355	**0.3***	**0.3**	**--**
Cyanate	mg/L	<0.50	<0.50	<0.50	***0.9***	***1.2***	**0.5**	**--**	**--**
Thiocyanate	mg/L	1.14	1.85	1.41	2	5.3	**--**	**--**	**--**
CN-WAD	mg/L	0.008	0.007	<0.0050	0.014	0.029	**0.1***	**0.1**	**0.05**
CN-SAD	mg/L	--	--	--	--	--	**--**	**--**	**--**
Total Metals									
Aluminum	mg/L	<0.20	***0.29***	<0.20	<0.20	0.0193	**0.1**	**--**	**--**
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	0.00084	**--**	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	***0.0314***	**0.005**	**--**	**0.5**
Barium	mg/L	0.0360	0.0400	0.0330	0.0350	0.0585	**--**	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0025	**--**	**--**	**0.053**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.0025	**--**	**--**	**--**
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	0.056	**--**	**--**	**50**
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	***0.00039***	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	148	139	135	170	205	**--**	**--**	**--**
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.0025	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	0.00999	**--**	**--**	**0.009**
Copper	mg/L	***0.024***	<0.010	<0.010	<0.010	***0.00704***	**0.004**	**0.2**	**0.05**
Iron	mg/L	***1.9***	***2.2***	***1.5***	***2.2***	***3.3***	**0.30**	**1**	**--**
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.00025	**0.007**	**0.1**	**0.06**
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.025	**--**	**--**	**--**
Magnesium	mg/L	50.30	43.90	44.60	57.40	41.60	**--**	**--**	**--**
Manganese	mg/L	1.3	1.56	1.09	2.06	5.69	**--**	**0.5**	**--**
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	0.00127	**0.073**	**--**	**10**

Table A5. Water Quality Parameters in Upper Dome Creek.

Sample ID	Units	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome	**CCME Guidelines**	**Water License Standards**	**YCSG***
Date		23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07			
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	0.0036	**0.150**	**0.3**	**0.65**
Potassium	mg/L	3.8	3.5	3.4	4.4	6.8	--	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.0050	**0.001**	--	**0.01**
Silicon	mg/L	5.66	6.21	5.78	6.12	6.22	--	--	--
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.000050	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	21.00	22.50	16.70	27.80	73.40	--	--	--
Strontium	mg/L	0.434	0.398	0.356	0.493	0.648	--	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.00050	**0.0008**	--	**0.003**
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.00050	--	--	--
Titanium	mg/L	<0.010	0.014	<0.010	<0.010	<0.010	--	--	**1**
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.0050	--	--	--
Zinc	mg/L	***0.0414***	0.0161	0.0091	0.0121	0.0202	**0.03**	**0.3**	**0.9**
Dissolved Metals									
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.0050	--	--	--
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	0.00081	--	--	--
Arsenic	mg/L	0.00807	0.00285	0.00304	0.00228	0.0104	--	**0.15**	--
Barium	mg/L	0.031	0.031	0.031	0.029	0.056	--	--	--
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0025	--	--	--
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.0025	--	--	--
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	0.056	--	--	--
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	0.00039	--	--	--
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.0025	--	--	--
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	0.00983	--	--	--
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	0.00559	--	--	--
Iron	mg/L	<0.030	0.031	0.069	0.032	0.062	--	--	--
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.00025	--	--	--
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.025	--	--	--
Manganese	mg/L	1.15	1.39	1.04	1.94	5.65	--	--	--
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	0.00127	--	--	--
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	0.0038	--	--	--
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.0050	--	--	--
Silicon	mg/L	5.47	5.73	5.55	5.79	6.11	--	--	--
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.000050	--	--	--
Strontium	mg/L	0.442	0.386	0.36	0.479	0.654	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.00050	--	--	--
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.00050	--	--	--
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.0050	--	--	--
Zinc	mg/L	0.005	<0.0050	<0.0050	0.0067	0.0197	--	--	--

Notes:

* Yukon Contaminated Sites Regulations

text denotes concentrations that are above CCME guidelines for the protection of aquatic life

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		27-Jan-99	3-Mar-99	3-Mar-99	20-Apr-99	23-Jun-99	15-Jul-99	12-Aug-99	8-Sep-99	14-Sep-99	22-Sep-99	28-Sep-99	6-Oct-99	13-Oct-99	20-Oct-99	20-Oct-99	20-Oct-99	26-Oct-99	2-Nov-99	10-Nov-99	22-Nov-99	30-Nov-99	8-Dec-99
Physical Parameters																							
pH	pH units	6.87	***6.33***	***6.49***	7.44	7.43	7.74	7.78	8.11	7.69	7.65	7.84	7.95	7.63	7.85	7.87	--	8.07	7.6	7.8	7.5	7.83	7.7
Conductivity	µS/cm	530	620	620	915	600	935	1000	730	590	770	1650	1600	2100	2050	2050	--	2300	2310	2640	2650	2500	2600
Routine Parameters																							
Total Suspended Sediment	mg/L	82	104	104	32	206	95	14	50	<5	267	297	118	221	12	16	--	28	39	17	17	11	10
Total Dissolved Solids	mg/L	367	431	428	725	419	695	787	587	478	584	1240	1240	1680	1620	1640	--	1860	1920	2210	2150	1930	2090
Hardness	mg/L	236.10	269.08	267.34	523.94	264.65	403.69	403.69	394.28	305.09	337.01	525.12	613.13	734.71	656.61	680.43	--	833.87	780.74	853.17	849.90	786.56	886.43
Alkalinity-Total	mg/L	171	147	148	118	103	125	158	129	129	209	118	110	104	138	132	--	134	145	121	126	109	122
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	115	169	173	420	200	358	388	270	229	270	700	704	1000	993	978	--	1110	1100	1280	1370	1150	1210
Nutrients																							
Ammonia-N	mg/L	2.19	1.84	2.02	0.35	2.18	***3.95***	***3.54***	1.46	1.01	1.72	***4.97***	***5.25***	***7.55***	***7.8***	***7.75***	--	***8.82***	***22.3***	***19.8***	***21.2***	***10.7***	***11.4***
Nitrate-N	mg/L	0.190	<0.05	<0.05	0.670	0.300	0.490	1.550	1.040	0.400	0.560	0.830	0.910	0.580	0.780	0.730	--	1.050	0.970	0.500	1.030	0.870	0.770
Nitrite-N	mg/L	0.010	<0.003	<0.003	0.006	0.040	***0.110***	***0.490***	***0.064***	0.039	***0.074***	***0.067***	***0.076***	***0.106***	***0.109***	***0.099***	--	***0.115***	***9.880***	***0.140***	***9.840***	***0.157***	***0.130***
Total Phosphorus	mg/L	0.48	0.07	<0.06	0.18	0.2	0.44	0.28	0.32	0.56	0.29	0.48	0.32	0.4	<0.01	<0.01	--	0.09	0.28	0.1	<0.05	<0.06	<0.06
Cyanide Compounds																							
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	--	***1.23***	***0.99***	--	--	--	--	--	--	<0.01	***19.2***	***20.4***	***18.6***	--	***28.9***	--	***29.9***	<0.05	***3.3***	***2.1***	--	***27.4***
Thiocyanate	mg/L	--	--	--	--	--	--	--	--	--	4.9	68.7	25.3	31.8	--	43.4	--	--	--	2.1	4.15	55.6	54.6
CN-WAD	mg/L	0.020	0.011	<0.005	0.011	0.038	0.055	0.012	0.020	***0.268***	***0.201***	0.028	***6.230***	***0.156***	--	0.026	0.089	0.019	0.049	***0.417***	0.077	0.069	0.094
CN-SAD	mg/L	0.040	0.038	0.008	0.057	0.200	0.561	0.183	0.489	0.998	22.100	12.500	13.400	16.600	--	17.700	0.090	24.600	0.074	0.374	0.095	1.270	1.840
Total Metals																							
Aluminum	mg/L	***0.15***	***0.33***	***0.36***	***0.93***	***0.56***	***0.66***	***0.24***	***0.61***	***0.86***	***2.8***	***1.74***	***0.84***	***1.2***	***0.2***	0.1	--	***0.52***	***0.71***	***0.24***	0.08	<0.01	0.03
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.04	--	<0.02	--	--	--	<0.02	<0.02
Arsenic	mg/L	***0.18***	***0.19***	***0.18***	***0.17***	***0.24***	***0.25***	***0.26***	***0.18***	***0.2***	***0.25***	***0.13***	***0.13***	***0.12***	***0.08***	***0.2***	--	<0.02	***0.08***	***0.05***	***0.05***	<0.02	<0.02
Barium	mg/L	0.1390	0.1770	0.1770	0.0804	0.0839	0.1350	0.1320	0.1020	0.0951	0.1250	0.1180	0.1340	0.1010	0.0818	0.2540	--	0.0734	0.0920	0.0870	0.0780	0.0721	0.0678
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.12	0.15	0.13	--	--
Cadmium	mg/L	***0.0005***	<0.0005	<0.0005	***0.0014***	***0.001***	***0.0008***	<0.0005	<0.0005	<0.0005	***0.0008***	***0.0007***	***0.0006***	<0.0005	<0.0009	<0.0009	--	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0005
Calcium	mg/L	65.2	72.8	72.6	117	73.5	115	115	102	80.3	91.1	174	201	251	225	238	--	294	278	307	308	280	319
Chromium	mg/L	0.001	0.002	0.002	0.003	0.002	0.001	<0.001	<0.001	0.002	0.006	0.002	0.002	0.002	0.002	<0.002	--	<0.001	<0.005	<0.005	<0.005	<0.001	<0.001
Cobalt	mg/L	<0.001	0.001	<0.001	0.003	0.005	0.01	0.011	0.007	0.008	0.01	0.028	0.037	0.049	0.044	0.039	--	0.048	0.061	0.07	0.067	0.065	0.059
Copper	mg/L	***0.014***	***0.005***	***0.006***	***0.04***	***0.317***	***0.187***	***0.091***	***0.154***	***0.592***	***0.92***	***0.257***	***0.962***	***1.1***	***0.403***	***0.388***	--	***0.412***	***0.359***	***0.307***	***0.279***	***0.517***	***0.213***
Iron	mg/L	***30.0***	***40.0***	***40.0***	***1.5***	***4.9***	***5.4***	***5.2***	***5.7***	***4.5***	***9.1***	***5.5***	***4.8***	***4.9***	***1.9***	***1.7***	--	***2.9***	***5.7***	***3.4***	***3.9***	***2.9***	***3.0***
Lead	mg/L	<0.005	0.006	0.007	***0.028***	***0.013***	***0.008***	<0.005	<0.005	0.006	***0.019***	<0.005	***0.014***	<0.005	***0.01***	<0.01	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	17.80	21.20	20.90	56.30	19.70	28.30	28.30	33.90	25.40	26.60	22.00	27.00	26.20	23.00	20.90	--	24.20	21.00	21.00	19.60	21.20	21.80
Manganese	mg/L	1.74	2.18	2.15	0.688	1.34	1.84	2.42	1.61	1.09	1.44	0.925	1.71	2.13	1.17	1.08	--	1.28	1.77	2.28	2.52	1.96	1.76
Molybdenum	mg/L	<0.005	<0.005	<0.005	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.01	<0.01	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nickel	mg/L	<0.002	<0.002	<0.002	0.005	0.008	0.009	0.008	0.005	0.01	0.011	0.006	0.028	0.033	0.02	0.01	--	0.013	0.016	0.035	0.028	0.031	0.015
Potassium	mg/L	2.8	2.7	2.6	7.9	2.7	4.4	4.7	3	2.6	3.9	4.2	8.6	8.9	10	8.8	--	11	10	11.7	10.2	14	10
Selenium	mg/L	<0.02	<0.02	<0.02	***0.03***	<0.02	***0.05***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.04	--	<0.02	--	--	--	<0.02	<0.02
Silicon	mg/L	8.67	9.5	9.47	5.21	5.12	6.55	6.64	6.73	7.22	10.8	6.53	6.53	6.44	4.45	3.92	--	4.87	--	--	--	3.89	3.43
Silver	mg/L	***0.004***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	***0.003***	<0.001	<0.001	<0.001	<0.002	***0.004***	--	<0.001	<0.005	<0.005	<0.005	<0.001	<0.001

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		27-Jan-99	3-Mar-99	3-Mar-99	20-Apr-99	23-Jun-99	15-Jul-99	12-Aug-99	8-Sep-99	14-Sep-99	22-Sep-99	28-Sep-99	6-Oct-99	13-Oct-99	20-Oct-99	20-Oct-99	20-Oct-99	26-Oct-99	2-Nov-99	10-Nov-99	22-Nov-99	30-Nov-99	8-Dec-99
Sodium	mg/L	19.20	18.30	18.20	12.80	15.10	29.00	33.00	19.70	19.30	24.00	132.00	133.00	183.00	178.00	170.00	--	224.00	219.00	251.00	228.00	224.00	247.00
Strontium	mg/L	0.263	<0.02	<0.02	0.349	0.271	0.364	0.408	0.304	0.218	0.276	0.537	0.603	0.772	0.699	0.63	--	0.818	1.06	1.07	1.11	0.903	0.914
Sulphur	mg/L	43.5	54	54	142	68.2	110	110	100	77.7	84	229	253	337	288	308	--	386	--	--	--	384	428
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.005	0.008	<0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.01	<0.01	--	<0.005	<0.05	<0.05	<0.05	0.014	<0.005
Titanium	mg/L	0.005	0.013	0.014	0.03	0.022	0.005	<0.001	0.006	0.008	0.148	0.06	0.025	0.05	0.008	0.01	--	0.016	0.033	0.009	0.005	<0.001	<0.001
Vanadium	mg/L	<0.002	0.009	0.009	0.007	0.012	0.015	0.004	0.005	0.004	0.01	<0.002	<0.002	<0.002	<0.004	<0.004	--	<0.002	0.004	0.001	<0.001	<0.002	<0.002
Zinc	mg/L	***0.035***	0.021	0.021	***0.085***	***0.063***	***0.04***	0.024	0.029	***0.044***	***0.067***	***0.059***	***0.052***	***0.07***	***0.041***	***0.053***	--	0.025	0.016	0.022	0.01	***0.055***	0.028
Dissolved Metals																							
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		15-Dec-99	16-May-00	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00	5-Sep-00	26-Sep-00	11-Oct-00	11-Oct-00	1-Nov-00	14-Nov-00	23-Apr-01	22-May-01	18-Jun-01	4-Jul-01	18-Jul-01	31-Jul-01	14-Aug-01	29-Aug-01
Physical Parameters																						
pH	pH units	7.67	7.3	7.35	7.59	7.21	7.66	--	7.58	7.42	7.35	7.72	7.74	7.77	7.45	8	7.3	7.7	7.45	7.44	7.42	7.72	7.81
Conductivity	µS/cm	2450	570	335	850	430	1050	620	490	720	340	750	740	1450	1250	1700	460	460	884	1050	596	781	723
Routine Parameters																							
Total Suspended Sediment	mg/L	10	56	193	51	4040	47	405	1770	132	1190	21	32	<5	18	10	913	1250	700	252	76	35	14
Total Dissolved Solids	mg/L	1910	485	310	673	373	823	497	391	577	283	623	622	1190	981	1440	314	337	707	853	473	627	647
Hardness	mg/L	775.01	292.80	176.99	403.74	336.46	436.87	298.09	243.38	376.33	167.58	356.55	356.46	623.24	494.59	917.17	217.57	175.25	433.17	528.26	324.30	376.58	367.07
Alkalinity-Total	mg/L	105	39	41	72	50	77	54	62	44	27	75	78	117	99	180	105	44	66	70	67	92	92
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1150	257	122	379	158	501	271	193	334	122	377	383	661	558	860		146	473	586	270	334	351
Nutrients																							
Ammonia-N	mg/L	***11***	1.22	0.36	0.98	0.52	***2.7***	1.04	0.43	0.92	0.26	0.89	0.89	***3.88***	***4.1***	***2.33***	0.14	0.37	<0.05	0.42	0.24	0.17	0.14
Nitrate-N	mg/L	0.980	0.230	0.208	0.555	0.421	--	7.480	--	--	--	--	--	--	--	0.300	0.100	1.100	3.000	4.120	1.520	2.060	1.740
Nitrite-N	mg/L	***0.139***	***0.234***	***0.093***	***0.230***	--	--	--	--	--	--	--	--	--	--	<1	<0.5	<0.5	***0.077***	***0.129***	<0.002	<0.002	<0.002
Total Phosphorus	mg/L	<0.06	0.59	0.25	0.09	1.42	0.26	0.43	0.82	0.22	0.64	<0.06	<0.06	<0.06	<0.06	<0.06	0.93	<0.06	0.57	0.56	0.93	0.37	<0.06
Cyanide Compounds																							
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	--	***2.16***	0.3	***36.7***	***0.93***	***1.38***	***0.54***	0.45	***1.05***	<0.2	<0.2	<0.2	***3.84***	***3.54***	***4.47***	0.07	0.34	***0.71***	0.27	0.35	0.14	0.26
Thiocyanate	mg/L	53.2	6.17	0.67	9.27	1.02	1.89	1.99	1.58	1.34	1.98	<0.05	<0.05	0.43	<0.05	23.3	1.54	3.97	2.07	1.14	1.7	0.13	1
CN-WAD	mg/L	***0.249***	***0.180***	0.002	--	0.015	0.010	0.007	0.004	0.003	<0.002	<0.001	<0.001	0.013	0.006	0.018	0.006	0.006	0.010	0.010	0.006	0.003	0.007
CN-SAD	mg/L	0.450	0.228	0.016	--	0.026	0.104	0.028	0.060	0.082	0.022	0.044	0.062	0.172	0.052	0.114	0.004	0.018	0.058	0.036	0.017	0.190	0.013
Total Metals																							
Aluminum	mg/L	0.07	***1.59***	***5.93***	***0.63***	***18.3***	***0.91***	***6.85***	***8.6***	***1.1***	***4.75***	***0.24***	***0.22***	0.06	0.1	***0.21***	***4.29***	0.07	***3.07***	***2.92***	***2.75***	***1.52***	***0.24***
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.006	<0.02	<0.02
Arsenic	mg/L	<0.02	***0.11***	***0.05***	<0.02	***0.11***	***0.06***	***0.07***	<0.02	<0.02	***0.04***	***0.03***	<0.02	<0.02	***0.05***	<0.02	***0.11***	<0.02	***0.18***	***0.09***	***0.1***	***0.04***	***0.06***
Barium	mg/L	0.0656	0.1180	0.1080	0.0657	0.3170	0.0750	0.1590	0.1830	0.0720	0.1320	0.0530	0.0573	0.1020	0.0802	0.0606	0.1300	0.0749	0.1730	0.1610	0.1220	0.0918	0.0582
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	0.008	<0.02	<0.02
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.055	--	--
Cadmium	mg/L	<0.0005	***0.0008***	<0.0005	<0.0005	***0.0019***	<0.0005	<0.0005	<0.0005	<0.0005	***0.0008***	<0.0005	<0.0005	<0.0005	***0.0006***	***0.0009***	***0.0013***	<0.0006	***0.0017***	***0.0006***	***0.0006***	<0.0006	<0.0006
Calcium	mg/L	279	85.1	44.5	102	95	124	83.1	66.3	108	46.5	95.3	95.1	180	142	226	59.1	49.9	124	154	93.1	102	97.7
Chromium	mg/L	<0.001	0.003	***0.009***	0.001	***0.027***	0.001	0.008	***0.01***	<0.001	0.008	0.001	0.001	<0.001	<0.001	<0.001	0.008	<0.001	0.008	0.004	0.0026	0.003	<0.001
Cobalt	mg/L	0.056	0.015	0.06	0.005	0.013	0.01	0.008	0.006	0.005	0.005	0.005	0.006	0.013	0.011	0.008	0.004	0.003	0.011	0.012	0.0061	0.003	0.001
Copper	mg/L	***0.261***	***0.434***	***0.085***	***0.034***	***0.11***	***0.009***	***0.034***	***0.02***	***0.014***	***0.058***	***0.02***	***0.014***	***0.013***	***0.029***	***0.029***	***0.057***	***0.006***	***0.031***	***0.043***	***0.017***	***0.03***	***0.014***
Iron	mg/L	***2.8***	***6.1***	***0.8***	***2.9***	***27.0***	***2.4***	***8.7***	***8.8***	***2.8***	***7.2***	***1.2***	***1.2***	***0.9***	***1.8***	***0.4***	***10.0***	***0.5***	***8.5***	***7.0***	***5.5***	***3.7***	***1.5***
Lead	mg/L	<0.005	***0.013***	***0.009***	<0.005	***0.033***	<0.005	0.007	<0.005	<0.005	***0.017***	<0.005	<0.005	<0.005	<0.005	***0.008***	***0.042***	***0.008***	***0.04***	***0.012***	***0.013***	<0.006	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.005	0.003	<0.006	<0.005
Magnesium	mg/L	19.00	19.50	16.00	36.20	24.10	30.90	22.00	18.90	25.90	12.50	28.80	28.90	42.20	34.00	85.70	17.00	12.30	30.00	34.90	22.30	29.60	29.90
Manganese	mg/L	1.96	1.65	0.463	0.568	0.817	0.5	0.475	0.389	0.329	0.303	0.36	0.357	0.745	0.787	1.36	0.742	0.203	0.612	0.663	0.465	0.426	0.395
Molybdenum	mg/L	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01
Nickel	mg/L	0.037	0.013	<0.002	0.004	0.023	0.003	0.006	0.011	0.004	0.007	<0.002	0.003	0.003	0.13	0.004	0.009	0.002	0.01	0.003	0.002	0.003	0.002
Potassium	mg/L	9.7	3.4	2.4	4.1	4.8	4.8	3.6	3.2	3.3	2	3.4	3.4	6.6	4.1	7.6	2.9	2.2	4.2	4.8	2.6	3.6	2.9
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	***0.06***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.03***	<0.02	<0.02	<0.004	<0.02	<0.02
Silicon	mg/L	3.91	5.08	12.5	4.92	26.8	5.39	15.4	17.4	7.05	11.6	5.81	5.76	6.61	5.28	5.5	8.2	3.4	7	7.8	8.93	7.4	5.9
Silver	mg/L	<0.001	***0.001***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		15-Dec-99	16-May-00	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00	5-Sep-00	26-Sep-00	11-Oct-00	11-Oct-00	1-Nov-00	14-Nov-00	23-Apr-01	22-May-01	18-Jun-01	4-Jul-01	18-Jul-01	31-Jul-01	14-Aug-01	29-Aug-01
Sodium	mg/L	227.00	24.80	6.95	25.30	15.90	47.70	28.60	16.20	27.80	9.72	25.40	25.30	63.90	57.60	56.40	6.96	15.00	41.30	54.10	22.20	25.90	18.40
Strontium	mg/L	0.859	0.213	0.159	0.243	0.243	0.273	0.232	0.2	0.238	0.142	0.27	0.274	0.519	0.436	0.518	0.158	0.148	0.353	0.473	0.271	0.287	0.286
Sulphur	mg/L	380	86	36.3	117	50.7	131	83	97	207	34.4	99.2	100	201	159	273	44.8	48.6	131	178	91.7	108	102
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	0.006	<0.006	<0.006	<0.006	<0.006	0.012	0.079	<0.006	<0.005
Titanium	mg/L	0.003	0.034	0.282	0.02	1.17	0.031	0.338	--	--	--	--	--	<0.001	<0.001	0.004	0.188	<0.001	0.154	0.104	0.0703	0.049	0.008
Vanadium	mg/L	<0.002	0.004	0.017	<0.002	0.052	<0.002	0.023	0.029	--	--	--	--	0.006	0.006	<0.001	0.014	0.008	0.03	0.018	0.009	0.013	0.007
Zinc	mg/L	***0.044***	***0.069***	***0.053***	0.022	***0.137***	0.026	***0.047***	***0.052***	0.03	***0.055***	***0.04***	***0.045***	***0.041***	***0.053***	***0.047***	***0.095***	0.004	***0.077***	***0.043***	***0.0512***	***0.031***	0.013
Dissolved Metals																							
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		17-Sep-01	22-Oct-01	21-May-02	20-Jun-02	20-Jun-02	3-Jul-02	15-Jul-02	1-Aug-02	12-Aug-02	27-Aug-02	10-Sep-02	10-Sep-02	15-Oct-02	13-Nov-02	21-May-03	21-May-03	11-Jun-03	2-Jul-03	15-Jul-03	30-Jul-03	13-Aug-03	13-Aug-03
Physical Parameters																						
pH	pH units	7.52	7.32	7.45	7.54	7.5	7.6	7.3	7.54	7.46	7.68	7.73	7.73	7.45	7.38	7.7	7.8	7.9	7.61	7.83	7.76	7.92	7.9
Conductivity	µS/cm	687	796	582	1160	1120	1230	1430	1080	1310	1080	660	664	907	1390	650	650	920	853	934	1130	1100	990
Routine Parameters																							
Total Suspended Sediment	mg/L	11	37	1320	90	80	376	286	61	313	113	318	216	118	23	52	54	13	141	230	145	58	54
Total Dissolved Solids	mg/L	527	733	307	1150	920	1270	1210	887	1030	853	533	547	673	1190	537	517	754	740	700	1030	879	813
Hardness	mg/L	312.44	373.09	327.67	617.23	579.38	606.20	703.02	548.63	670.26	546.04	363.14	379.96	585.83	869.16	340.88	336.90	487.20	425.68	494.48	615.06	464.92	568.57
Alkalinity-Total	mg/L	96	133	85	79	74	64	75	72	79	72	97	98	159	252	100	101	115	72	84	97	30.7	114
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	310	323	247	634	595	718	933	610	733	591	290	287	405	661	340	340	389	451	451	629	557	547
Nutrients																							
Ammonia-N	mg/L	0.16	0.38	0.1	0.97	1.3	1.47	1.83	0.89	1.05	<0.05	0.1	0.1	0.14	0.66	<0.5	<0.5	<0.5	0.48	0.28	0.43	--	0.06
Nitrate-N	mg/L	1.510	0.853	0.219	2.050	2.100	--	2.350	1.890	2.410	2.250	0.532	0.521	0.463	0.750	0.190	0.170	<1.0	1.690	1.620	1.840	--	0.808
Nitrite-N	mg/L	<0.002	<0.002	<0.002	<0.002	***0.150***	--	<0.002	<0.002	<0.002	0.042	<0.002	<0.002	<0.002	<0.002	***0.100***	<0.1	<10	***0.077***	0.047	0.028	--	0.028
Total Phosphorus	mg/L	0.08	0.12	1.62	0.12	--	0.26	0.28	0.1	0.4	0.18	0.39	0.23	0.08	<0.06	0.17	0.13	<0.06	--	0.2	0.12	0.1	0.11
Cyanide Compounds																							
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	0.07	***0.83***	<0.2	0.06	<0.1	0.33	0.16	***1.88***	0.19	0.01	0.06	0.08	0.08	0.01	<0.2	<0.2	0.05	0.2	0.14	0.15	--	<0.2
Thiocyanate	mg/L	<0.05	1.28	1.35	1.65	--	1.26	0.42	0.53	0.48	0.43	1.2	1.06	0.89	0.46	0.59	0.86	1.86	0.76	0.85	0.71	--	0.56
CN-WAD	mg/L	0.008	0.004	0.002	0.002	--	0.012	<0.002	0.002	0.002	0.008	0.006	0.006	0.006	0.002	0.002	0.002	0.002	0.002	0.004	0.002	<0.03	<0.002
CN-SAD	mg/L	0.014	0.012	<0.002	0.024	--	0.038	<0.002	0.008	0.014	0.008	0.002	0.002	<0.002	0.004	0.004	0.004	0.050	0.008	0.046	0.008	--	0.004
Total Metals																							
Aluminum	mg/L	***0.19***	***0.2***	***8.09***	***1.51***	***2.91***	***3.81***	***3.86***	***1.6***	***9.33***	***1.56***	***2.37***	***2.16***	***0.34***	0.09	***0.69***	***0.54***	***1.89***	***2.41***	***2.87***	***1.49***	***1.02***	***0.63***
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0086	<0.02	<0.02	<0.06	<0.02
Arsenic	mg/L	***0.04***	***0.03***	***0.2***	***0.04***	--	***0.09***	***0.1***	***0.04***	***0.13***	***0.08***	***0.12***	***0.12***	***0.03***	***0.06***	***0.04***	***0.04***	***0.04***	***0.0711***	***0.09***	***0.06***	<0.06	***0.07***
Barium	mg/L	0.0506	0.0579	0.1820	0.1260	0.1520	0.2380	0.2040	0.1260	0.1980	0.1020	0.1160	0.1160	0.0674	0.0873	0.0577	0.0550	0.0584	0.1310	0.1410	0.1230	0.0850	0.0869
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	<0.02	<0.02	<0.02	<0.02	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0005	<0.02	<0.02	--	<0.02
Boron	mg/L	--	--	--	--	0.06	--	--	--	--	--	--	--	--	--	--	--	--	0.062	--	--	0.04	--
Cadmium	mg/L	<0.0006	<0.0006	***0.0017***	<0.0006	<0.001	<0.0006	***0.0006***	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	***0.0006***	***0.00287***	***0.0007***	<0.0006	<0.006	<0.0006
Calcium	mg/L	83.9	97.8	83.9	171	157	174	207	161	198	157	95.3	99.4	152	231	88.2	87.1	128	121	138	167	126	153
Chromium	mg/L	<0.001	<0.001	***0.012***	0.003	0.005	***0.009***	0.008	0.003	***0.014***	0.003	0.003	0.004	<0.001	<0.001	0.002	0.002	<0.001	0.0044	0.006	0.003	<0.006	0.002
Cobalt	mg/L	<0.001	<0.001	0.006	0.007	0.008	0.008	0.008	0.004	0.008	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.005	0.003	0.004	<0.006	0.003
Copper	mg/L	***0.008***	***0.024***	***0.073***	***0.03***	***0.012***	***0.024***	***0.033***	***0.012***	***0.031***	***0.01***	***0.014***	***0.016***	0.004	***0.008***	***0.01***	***0.008***	***0.007***	***0.011***	***0.017***	***0.013***	<0.006	***0.01***
Iron	mg/L	***1.6***	***2.2***	***19.4***	***4.1***	***5.6***	***10.3***	***11.2***	***5.1***	***16.4***	***5.6***	***6.7***	***6.1***	***3.1***	***2.9***	***2.2***	***1.9***	***1.6***	***5.1***	***6.1***	***4.0***	***3.2***	***3.2***
Lead	mg/L	<0.005	<0.006	***0.078***	***0.009***	***0.009***	***0.013***	***0.008***	<0.006	0.007	<0.006	***0.013***	0.007	<0.006	<0.006	0.007	<0.006	<0.006	***0.0195***	0.007	<0.006	<0.06	***0.009***
Lithium	mg/L	<0.005	<0.006	0.008	<0.006	--	0.006	<0.006	<0.006	<0.006	0.008	0.008	0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.005	<0.006	<0.006		<0.006
Magnesium	mg/L	25.00	31.30	28.70	46.20	45.50	41.70	45.20	35.60	42.70	37.40	30.40	32.00	50.10	71.00	29.30	29.00	40.70	30.00	36.40	48.10	36.50	45.30
Manganese	mg/L	0.396	0.543	0.981	0.61	0.769	0.687	0.857	0.632	0.84	0.657	0.639	0.626	0.74	1.32	0.3	0.289	0.298	0.535	0.47	0.553	0.72	0.744
Molybdenum	mg/L	<0.01	<0.01	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01	0.01	<0.01
Nickel	mg/L	0.002	<0.001	0.012	0.007	<0.002	0.009	0.009	0.006	0.01	0.007	0.003	0.006	0.004	0.003	<0.001	0.002	***0.222***	0.0021	0.002	0.003	<0.02	0.001
Potassium	mg/L	0.7	2.3	4	5.2	5.9	5.7	6.9	5	7.1	5.2	3.8	3.9	3.6	8	2.4	2.7	3.9	4.5	5.2	5.4	3.9	3.7
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	--	<0.02	<0.02	<0.02	<0.02	***0.03***	***0.16***	***0.13***	***0.06***	***0.1***	***0.04***	<0.02	***0.03***	0.0004	<0.02	<0.02	<0.06	<0.02
Silicon	mg/L	5.8	6.2	11.6	5.5	--	7.6	7.3	6.5	18	6.7	9.6	9.5	6.3	9.4	4.5	4.3	4	9.4	9.3	6.6	6.92	6.5
Silver	mg/L	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	***0.0002***	<0.002	<0.002	<0.01	<0.002

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		17-Sep-01	22-Oct-01	21-May-02	20-Jun-02	20-Jun-02	3-Jul-02	15-Jul-02	1-Aug-02	12-Aug-02	27-Aug-02	10-Sep-02	10-Sep-02	15-Oct-02	13-Nov-02	21-May-03	21-May-03	11-Jun-03	2-Jul-03	15-Jul-03	30-Jul-03	13-Aug-03	13-Aug-03
Sodium	mg/L	19.10	13.70	5.37	53.80	57.00	58.40	75.10	57.40	67.60	46.30	16.00	16.70	16.80	33.60	6.73	6.67	22.70	37.60	38.80	50.60	34.50	37.00
Strontium	mg/L	0.239	0.281	0.198	0.366	0.452	0.389	0.439	0.336	0.4	0.341	0.247	0.257	0.34	0.538	0.23	0.228	0.284	0.363	0.333	0.394	0.457	0.381
Sulphur	mg/L	84.9	90.2	67.6	210	--	217	246	179	222	193	93.8	98.3	142	224	114	114	139	146	157	189	140	161
Thallium	mg/L	--	--	--	--	--	--	--	--	--													
Tin	mg/L	<0.005	<0.006	<0.006	<0.006	<0.05	<0.006	<0.006	<0.006	<0.006	0.009	<0.006	0.01	0.011	<0.006	<0.006	<0.006	0.008	<0.001	<0.006	0.01	0.07	<0.006
Titanium	mg/L	0.004	0.006	0.301	0.067	0.117	0.182	0.189	0.091	0.339	0.077	0.094	0.086	0.01	<0.001	0.032	0.026	0.006	0.13	0.133	0.07	0.046	0.028
Vanadium	mg/L	0.005	0.004	0.031	0.012	0.013	0.036	0.03	0.1	0.03	0.01	0.016	0.014	0.003	0.003	0.017	0.016	0.017	0.0113	0.031	0.027	<0.01	0.024
Zinc	mg/L	0.023	0.02	***0.194***	0.03	***0.036***	***0.053***	***0.067***	0.029	***0.1***	***0.05***	***0.076***	***0.073***	0.019	***0.039***	0.019	0.016	0.006	***0.074***	***0.04***	0.027	0.024	0.019
Dissolved Metals																							
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		17-Sep-03	15-Oct-03	21-Apr-04	19-May-04	30-Jun-04	14-Jul-04	28-Jul-04	11-Aug-04	8-Sep-04	5-Oct-04	13-Apr-05	2-May-05	10-May-05	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05
Physical Parameters																						
pH	pH units	7.78	7.51	--	--	--	--	--	--	--	--	--	6.61	8.06	8	8.13	8.15	7.98	7.67	7.78	7.78	7.89	8.07
Conductivity	µS/cm	852	831	--	--	--	--	--	--	--	--	--	575	570	658	614	751	532	512	694	497	519	585
Routine Parameters																							
Total Suspended Sediment	mg/L	87	44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	640	673	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	446.77	403.12	--	--	--	--	--	--	--	--	--	280.02	285.09	330.27	316.41	369.16	255.46	263.87	374.96	252.63	252.71	304.16
Alkalinity-Total	mg/L	139	140	--	--	--	--	--	--	--	--	--	81.2	84.2	104	102	113	85.2	70.5	81.8	80.6	88.9	99.2
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	81.2	84.2	104	107	113	85.2	70.5	81.8	80.6	88.9	99.2
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	69.6	71.4	91.8	82.2	95.5	66	66.5	92.6	67.5	67.1	76.4
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	26.2	26.4	31.5	26.8	31.3	22.3	24.1	33.5	23	23.3	27.9
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<2.0	3.1	<2.0	2.4	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.2
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	5.9	8	7.8	9.1	10.2	6.8	6	9.3	6.4	6.8	8
Sulphate	mg/L	462	304	--	--	--	--	--	--	--	--	--	216	218	256	228	275	192	195	282	188	200	232
Nutrients																							
Ammonia-N	mg/L	0.11	0.2	--	--	--	--	--	--	--	--	--	0.0553	0.126	0.071	0.168	0.22	0.111	0.074	0.103	0.069	0.061	0.08
Nitrate-N	mg/L	0.572	0.432	--	--	--	--	--	--	--	--	--	0.026	0.034	0.088	0.190	0.256	0.164	0.140	0.210	0.109	0.114	0.130
Nitrite-N	mg/L	0.022	0.007	--	--	--	--	--	--	--	--	--	0.005	0.002	0.005	0.005	0.010	0.006	0.013	0.014	0.007	0.007	0.012
Total Phosphorus	mg/L	<0.06	0.23	--	--	--	--	--	--	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																							
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.0244	0.0172	0.0086	0.0139	0.014	0.0182	0.0199	0.0145	0.0125	0.0173	<0.0050
Cyanate	mg/L	0.07	<0.2	--	--	--	--	--	--	--	--	--	<2.5	<5.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Thiocyanate	mg/L	0.84	0.94	--	--	--	--	--	--	--	--	--	1.06	0.62	0.58	0.91	0.64	1	<5.0	0.75	0.99	1.08	0.89
CN-WAD	mg/L	0.002	<0.002	0.002	0.002	0.008	<0.002	<0.002	0.002	0.002	0.002	--	<0.0050	<0.0050	<0.0050	<0.0055	<0.0056	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
CN-SAD	mg/L	0.004	0.002	0.002	0.002	0.008	0.008	0.014	0.008	0.020	0.004	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																							
Aluminum	mg/L	***0.98***	***0.77***	--	--	--	--	--	--	--	--	--	***0.46***	***1.51***	***0.71***	<0.20	<0.20	<0.20	***0.41***	<0.20	***0.43***	***0.41***	***0.25***
Antimony	mg/L	<0.02	<0.02	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.02	***0.02***	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.026***	<0.20	***0.0275***	<0.20
Barium	mg/L	0.0822	0.0748	--	--	--	--	--	--	--	--	--	0.0510	0.0730	0.0620	0.0520	0.0710	0.0620	0.0630	0.0650	0.0570	0.0510	0.0570
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.02	<0.02	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.0006	<0.0006	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	110	109	--	--	--	--	--	--	--	--	--	69.6	71.3	85.6	81.7	95.9	65.7	66.1	94.1	64.4	64.6	76.3
Chromium	mg/L	0.002	<0.001	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.001	0.002	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	***0.009***	0.004	--	--	--	--	--	--	--	--	--	<0.010	***0.011***	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	***5.2***	***6.8***	--	--	--	--	--	--	--	--	--	***2.5***	***6.1***	***2.8***	***2.0***	***2.4***	***1.8***	***2.0***	***1.7***	***2.0***	***1.7***	***1.9***
Lead	mg/L	<0.006	<0.006	--	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.006	<0.006	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	41.80	31.80	--	--	--	--	--	--	--	--	--	25.80	26.00	28.30	27.30	31.50	22.20	24.00	34.00	22.30	22.20	27.60
Manganese	mg/L	0.84	0.938	--	--	--	--	--	--	--	--	--	0.683	0.855	0.37	0.465	0.478	0.352	0.293	0.431	0.29	0.29	0.338
Molybdenum	mg/L	<0.01	<0.01	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.001	<0.001	--	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	<0.3	3.1	--	--	--	--	--	--	--	--	--	<2.0	3.3	2.6	2.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.1
Selenium	mg/L	***0.18***	<0.02	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	8.5	8.3	--	--	--	--	--	--	--	--	--	2.7	4.59	3.96	3.63	4.02	4.14	4.72	4.76	5.11	5.3	5.87
Silver	mg/L	<0.002	<0.002	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		17-Sep-03	15-Oct-03	21-Apr-04	19-May-04	30-Jun-04	14-Jul-04	28-Jul-04	11-Aug-04	8-Sep-04	5-Oct-04	13-Apr-05	2-May-05	10-May-05	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05
Sodium	mg/L	17.70	15.30	--	--	--	--	--	--	--	--	--	5.80	8.10	8.50	9.00	10.10	6.70	6.00	9.50	6.10	6.40	7.90
Strontium	mg/L	0.339	0.322	--	--	--	--	--	--	--	--	--	0.23	0.244	0.25	0.245	0.284	0.235	0.202	0.292	0.201	0.192	0.229
Sulphur	mg/L	110	97.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L			--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	0.021	0.023	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	0.044	0.023	--	--	--	--	--	--	--	--	--	0.017	0.076	0.04	<0.010	<0.010	<0.010	0.016	<0.010	0.016	0.016	0.011
Vanadium	mg/L	0.009	0.006	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	0.018	0.017	--	--	--	--	--	--	--	--	--	***0.0309***	***0.0439***	0.0193	0.0063	0.0065	0.0093	0.0076	0.0054	0.0134	0.0103	0.0093
Dissolved Metals																							
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.00941	0.0116	0.00691	0.016	0.00935	0.0196	0.0154	0.0123	0.0171	0.0185	0.0219
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.042	0.052	0.054	0.049	0.065	0.057	0.052	0.06	0.05	0.046	0.053
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.391	0.502	0.147	1.06	0.374	1.14	0.928	0.399	0.909	0.835	0.811
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.601	0.741	0.289	0.415	0.45	0.2	0.169	0.412	0.233	0.246	0.307
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	2.17	2.63	2.94	3.49	3.83	4.01	4.31	4.57	4.91	5.14	5.62
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.233	0.245	0.262	0.238	0.286	0.234	0.2	0.284	0.206	0.201	0.231
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.0113	<0.0050	<0.0050	<0.0050	<0.0050	0.0054	<0.0050	<0.0050	0.0055	0.0064	<0.0050

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05
Physical Parameters																							
pH	pH units	8.11	7.99	8.02	8.09	8.14	8.06	8.14	7.55	8.09	7.78	7.78	7.98	8.08	7.85	8.04	7.9	7.86	7.59	7.76	7.62	7.81	8.04
Conductivity	µS/cm	842	931	801	979	985	899	927	884	687	770	923	1130	1220	1430	1400	1480	1320	1280	1360	1440	2430	2380
Routine Parameters																							
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	425.24	457.57	406.05	490.28	514.78	477.02	499.25	467.80	370.84	415.87	511.02	562.98	595.42	654.45	728.47	700.26	627.94	620.56	648.14	660.99	1205.80	1125.47
Alkalinity-Total	mg/L	113	129	117	139	147	151	150	135	101	--	140	140	148	160	160	157	171	157	180	178	331	281
Bicarbonate	mg/L	113	129	117	139	147	151	150	135	101	--	140	140	148	160	160	157	171	157	180	178	331	281
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	121	125	109	137	142	132	135	127	93.5	108	136	162	175	189	216	212	181	188	181	195	356	358
Magnesium	mg/L	30.8	33	30.8	37.7	38.4	36.4	41.8	38	30.4	35	36.9	41.2	41.2	42.3	43.6	43.4	38.8	37.4	43.7	34.4	72.3	66.8
Potassium	mg/L	2.4	2.6	2.7	2.7	2.7	3.2	2.5	3.2	<2.0	2.9	3.5	4.8	5.1	7.7	7.9	6.7	5.4	5	3.5	6.2	15.6	14.8
Sodium	mg/L	28.2	31.4	22.3	29.9	27.8	24.4	26.2	24	14.7	20.7	31.2	48.3	53.2	65.1	71.2	75.1	61.3	61.9	60.1	80	146	174
Sulphate	mg/L	344	398	327	392	414	368	378	333	252	316	376	512	532	632	682	724	525	571	626	638	1220	1220
Nutrients																							
Ammonia-N	mg/L	1.34	1.88	1.06	1.53	1.35	1.19	1.14	1.08	0.695	0.963	1.58	1.52	1.41	2.01	1.85	***2.27***	***3.12***	***3.48***	***3.3***	***4.97***	***8.28***	***7.89***
Nitrate-N	mg/L	0.465	0.642	0.469	0.556	0.659	0.565	0.643	0.609	0.423	--	1.020	1.900	1.990	2.500	2.450	2.590	1.740	1.520	1.500	1.810	3.020	3.150
Nitrite-N	mg/L	0.046	0.053	0.028	0.044	0.057	0.055	0.045	0.038	0.023	--	0.046	***0.085***	***0.093***	***0.124***	***0.118***	***0.124***	***0.071***	***0.076***	***0.065***	***0.084***	***0.118***	***0.180***
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																							
Cyanide - T	mg/L	0.0294	0.0243	0.0219	0.0228	0.0063	0.0207	0.0171	0.0244	0.0213	0.0251	0.0217	0.0184	0.0295	0.0216	0.0201	0.0361	0.0442	0.0485	0.023	0.0395	0.0557	0.0646
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	***0.69***	<0.50	***0.63***	<0.50	<0.50	***0.99***	<0.50	<0.50	<0.50
Thiocyanate	mg/L	<0.50	1.9	1.05	1.34	<0.50	9.24	<0.50	1.08	0.99	1.1	1.83	1.78	0.91	1.84	1.3	2.17	1.83	2.57	1.62	3.06	4.62	4.25
CN-WAD	mg/L	0.006	<0.0050	<0.0050	0.005	<0.0050	0.006	<0.0050	<0.0050	<0.0050	<0.0050	0.008	0.006	0.008	0.010	0.012	0.017	0.021	0.019	0.011	0.024	0.027	0.040
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																							
Aluminum	mg/L	<0.20	<0.20	<0.20	***0.22***	<0.20	<0.20	<0.20	<0.20	***0.41***	***0.21***	<0.20	<0.20	***0.22***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.0301***	<0.20	<0.20	<0.20	<0.20	***0.0295***	<0.20	***0.0319***	***0.0214***	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0660	0.0670	0.0550	0.0610	0.0580	0.0530	0.0520	0.0490	0.0530	0.0430	0.0500	0.0480	0.0560	0.0490	0.0440	0.0500	0.0550	0.0570	0.0560	0.0760	0.1830	0.1490
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.13
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	120	128	111	135	143	132	132	126	96.9	109	141	159	171	192	219	211	186	187	187	205	362	345
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.021	0.019
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.016***	***0.022***	***0.015***	***0.019***	<0.010	<0.010	<0.010	<0.010	***0.013***	<0.010
Iron	mg/L	***2.2***	***2.0***	***1.8***	***2.4***	***2.5***	***2.4***	***2.7***	***2.6***	***2.7***	***2.4***	***2.4***	***2.1***	***2.5***	***2.1***	***2.1***	***2.5***	***3.7***	***3.0***	***4.1***	***3.0***	***4.2***	***0.7***
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	0.018	0.011	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	30.50	33.50	31.30	37.20	38.30	35.80	41.20	37.20	31.30	34.90	38.60	40.30	40.90	42.50	44.10	42.10	39.70	37.30	44.00	36.20	73.30	64.10
Manganese	mg/L	1.47	1.65	1.31	1.67	1.71	1.42	1.43	1.29	0.928	1.14	1.81	1.83	1.94	2.63	2.65	2.88	3.41	3.78	3.01	4.58	6.43	6.75
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	2.4	2.7	2.7	2.6	2.7	3.1	2.6	3.2	<2.0	2.9	3.7	4.7	5	7.7	8	6.5	5.6	5	3.5	6.5	15.7	14.2
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	5.4	5.46	6.01	5.79	5.7	5.98	5.95	6.26	6.7	6.27	6.51	4.95	4.56	4.78	4.86	4.77	5.98	5.83	6.24	6.64	14	10.6
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05
Sodium	mg/L	27.80	32.10	22.30	29.20	27.90	24.00	25.80	23.60	15.20	20.50	32.80	46.80	53.00	64.80	71.50	73.00	62.50	61.90	60.80	86.30	149.00	169.00
Strontium	mg/L	0.345	0.383	0.331	0.393	0.414	0.376	0.381	0.367	0.272	0.318	0.402	0.429	0.46	0.54	0.555	0.573	0.523	0.521	0.526	0.603	1.06	1.04
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	0.0113	0.0055	0.0088	0.0097	0.0093	0.0078	0.0107	0.0105	0.0141	0.0132	0.0103	0.0217	0.0268	***0.0391***	***0.0361***	***0.0471***	***0.0354***	0.0151	0.0172	0.0195	***0.599***	***0.0855***
Dissolved Metals																							
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.0137	0.013	0.019	0.00915	0.00833	0.00875	0.00826	0.00678	0.013	0.0135	0.00624	0.00644	0.00434	0.00391	0.00376	0.0282	0.00327	0.00453	0.00673	0.0048	0.0208	0.0104
Barium	mg/L	0.06	0.062	0.052	0.056	0.053	0.049	0.047	0.045	0.046	0.038	0.045	0.046	0.051	0.046	0.042	0.051	0.05	0.055	0.052	0.069	0.17	0.154
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.1	0.14
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	0.019	0.018
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.014	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	0.544	0.358	1.29	0.159	0.087	0.205	0.213	0.263	1.08	0.774	0.292	0.135	0.117	0.117	0.123	1.87	0.089	0.211	0.113	0.163	0.124	0.131
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	<0.010	0.02	0.014	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	1.44	1.62	1.26	1.66	1.65	1.4	1.41	1.21	0.854	1.08	1.7	1.83	1.93	2.57	2.6	2.91	3.27	3.78	2.91	4.34	6.16	6.98
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	5.2	5.21	5.86	5.55	5.43	5.73	5.72	6.06	6.19	6.01	5.96	4.84	4.43	4.53	4.63	4.76	5.56	5.7	5.7	6.16	13.3	10.9
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.347	0.385	0.328	0.399	0.414	0.379	0.385	0.371	0.265	0.317	0.38	0.438	0.464	0.537	0.547	0.584	0.511	0.52	0.515	0.564	1.05	1.08
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	<0.0050	<0.0050	0.0063	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0061	0.0066	0.0058	0.0082	0.012	0.0209	0.0231	0.0315	0.0178	0.0115	0.0081	0.0161	0.488	0.0822

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		21-Dec-05	29-Dec-05	5-Jan-06	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06	28-Sep-06	12-Oct-06	26-Oct-06	03-May-07	16-May-07	31-May-07
Physical Parameters																							
pH	pH units	7.44	7.31	6.86	7.92	7.37	7.72	7.98	8	8.03	8.13	7.94	7.88	8.07	7.99	8.04	8.06	8.08	8.41	7.86	7.93	7.65	8.11
Conductivity	µS/cm	1800	1530	2110	633	303	509	695	696	835	872	553	700	1030	849	998	994	1050	1210	1370	601	411	1060
Routine Parameters																							
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	829.27	627.47	956.05	348.49	182.65	260.19	362.48	381.33	450.29	499.93	299.06	387.71	523.18	434.59	514.43	493.21	558.04	579.75	623.06	289.31	207.40	570.36
Alkalinity-Total	mg/L	211	170	264	94.6	<2.0	64.3	98.7	108	133	128	86.3	112	156	126	145	132	142	221	194	78.7	46.4	126
Bicarbonate	mg/L	211	170	264	94.6	<2.0	64.3	98.7	108	133	128	86.3	112	156	126	145	132	142	175	194	78.7	46.4	126
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	8.5	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	245	182	271	88.1	36.4	67.4	90.4	95.9	118	122	76	93.8	146	113	136	142	152	167	192	79.1	62.2	163
Magnesium	mg/L	50	39.6	62.7	29.4	12.8	22.3	31.3	32.4	37.7	42.6	26.6	32.7	35.6	33.9	35.2	34.4	38	38.2	37.8	23.3	14.4	44
Potassium	mg/L	9.5	7	11.8	4.1	2.1	2.4	2	2.9	3.5	2.6	<2.0	<2.0	4	3.3	3.6	2.9	3.9	3.5	5.1	4.1	2.4	3.7
Sodium	mg/L	113	83.1	123	10.8	2.3	7.9	11.4	13	15	16.2	8.2	10.5	38.1	25.9	31.8	34.7	36.9	45.6	58	13.5	12.1	35.7
Sulphate	mg/L	851	680	522	252	103	182	286	286	332	369	217	261	414	342	412	417	435	483	582	226	270	471
Nutrients																							
Ammonia-N	mg/L	***5.46***	***4.79***	***6.67***	0.243	0.075	0.223	0.281	0.32	0.325	0.298	0.071	0.198	-	1.12	1.8	1.85	1.92	***2.52***	***4.5***	0.556	0.617	1.41
Nitrate-N	mg/L	1.430	0.798	<0.025	0.050	0.023	0.064	0.191	0.241	0.302	0.329	0.103	0.147	0.634	0.641	1.040	1.460	1.870	2.170	2.600	0.116	0.276	0.566
Nitrite-N	mg/L	***0.078***	***0.126***	<0.0050	0.005	0.001	0.003	0.002	0.006	0.011	0.008	0.010	0.005	***0.068***	0.027	0.049	0.024	0.010	0.032	***0.063***	0.013	0.018	0.022
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	0.4	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																							
Cyanide - T	mg/L	0.0521	0.0321	0.0253	0.0239	0.0332	0.0187	0.0122	0.012	<0.0050	0.0079	0.0127	0.014	0.0232	0.0123	0.0162	0.0072	0.0146	0.0186	0.0214	0.0386	0.0274	0.0134
Cyanate	mg/L	***0.69***	***1.17***	***20.6***	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	***0.57***	<0.50	<0.50	<0.50
Thiocyanate	mg/L	3.83	3.99	2.06	1.3	1.47	1.08	0.75	1.08	1.27	1.26	1.32	1.19	1.94	1.32	1.42	1.39	1.27	1.22	1.91	2.1	1.98	1.08
CN-WAD	mg/L	0.022	0.049	0.009	<0.0050	0.006	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.010	0.005	<0.0050	<0.0050	0.005	0.008	0.011	<0.0050	0.008	0.006
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																							
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	***5.36***	***0.76***	***0.37***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.47***	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.1690	0.1630	0.2110	0.0470	0.1180	0.0590	0.0590	0.0490	0.0570	0.0650	0.0410	0.0480	0.0690	0.0500	0.0540	0.0500	0.0470	0.0550	0.0640	0.0340	0.0410	0.0530
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	247	184	277	89.6	46.6	67.1	92.4	98.3	118	127	76.4	99.7	149	116	145	137	159	170	188	78.1	60.3	158
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	0.013	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.025	<0.010	***0.013***	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	***19.3***	***14.1***	***17.1***	0.3	***8.3***	***2.5***	***2.3***	***1.7***	***1.8***	***2.2***	***1.7***	***2.4***	***2.5***	***2.1***	***2.4***	***2.5***	***2.5***	***2.9***	***1.8***	***0.4***	***2.0***	***1.1***
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	51.60	40.80	64.20	30.30	16.10	22.50	32.00	33.00	37.80	44.40	26.30	33.70	36.70	35.20	37.00	36.70	39.10	37.70	37.30	22.90	13.80	42.70
Manganese	mg/L	5.45	3.77	6.93	1.05	0.649	0.667	1.01	0.842	0.612	0.692	0.286	0.509	1.4	1.24	1.81	1.92	2.05	2.59	3.59	1.16	0.959	1.69
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	9.9	7.3	12.4	4.3	3.1	2.5	2.2	2.9	3.5	2.7	<2.0	<2.0	4.1	3.5	3.9	2.9	4.1	4.4	4.9	4	2.4	3.7
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	9.92	8.43	12.5	3.8	9.84	3.2	3.77	4.08	4.11	4.72	4.37	5.14	5.35	5.41	5.8	5.06	5.62	6.34	5.93	3.4	2.72	3.73
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		21-Dec-05	29-Dec-05	5-Jan-06	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06	28-Sep-06	12-Oct-06	26-Oct-06	03-May-07	16-May-07	31-May-07
Sodium	mg/L	118.00	87.20	130.00	11.10	3.20	7.90	11.60	13.20	15.00	16.90	8.20	10.90	38.60	26.80	33.50	36.90	37.60	42.60	57.10	13.30	11.50	35.20
Strontium	mg/L	0.781	0.655	0.962	0.251	0.158	0.202	0.266	0.291	0.342	0.367	0.223	0.281	0.457	0.359	0.437	0.432	0.454	0.494	0.514	0.23	0.173	0.421
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	0.267	0.032	0.02	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	***0.113***	***0.159***	***0.232***	***0.0374***	***0.0817***	***0.0379***	0.0214	0.0088	0.0081	0.005	0.0085	0.0079	0.0065	0.0098	0.0069	0.0057	0.0097	0.0103	0.013	***0.0781***	0.029	0.0107
Dissolved Metals																							
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.0061	0.0019	0.0032	0.00804	0.00528	0.00927	0.00777	0.00433	0.00445	0.00279	0.0151	0.0085	0.0057	0.0122	0.00428	0.00359	0.00381	0.00232	0.0051	0.0137	0.00847	0.00374
Barium	mg/L	0.145	0.147	0.185	0.045	0.036	0.042	0.047	0.042	0.053	0.06	0.039	0.044	0.064	0.044	0.049	0.045	0.043	0.057	0.063	0.034	0.034	0.051
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	0.013	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	mg/L	<0.010	<0.010	<0.025	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Iron	mg/L	1.13	0.081	0.061	0.204	0.38	0.387	0.222	0.192	0.101	0.046	1.04	0.432	0.123	0.339	0.098	0.109	0.22	0.122	0.087	0.297	0.677	0.084
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	mg/L	5.23	3.7	6.51	1.01	0.277	0.115	0.711	0.47	0.507	0.546	0.163	0.363	1.3	1.07	1.62	1.88	1.94	2.36	3.64	1.15	0.62	1.67
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	8.76	7.72	11.1	3.64	2.17	2.27	3.3	3.86	3.98	4.3	4.48	4.65	5.02	5.04	5.27	4.94	5.22	5.67	5.97	3.33	2.26	3.69
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Strontium	mg/L	0.741	0.632	0.904	0.24	0.111	0.199	0.26	0.286	0.337	0.353	0.223	0.271	0.445	0.345	0.413	0.375	0.44	0.451	0.525	0.235	0.179	0.426
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	0.0889	0.134	0.193	0.0341	0.0241	0.0088	<0.0050	<0.0050	<0.0050	<0.0050	0.0051	<0.0050	<0.0050	<0.0050	<0.0050	0.0053	<0.0050	0.0053	0.009	0.0756	0.0157	<0.0050

Notes:

* Yukon Contaminated Sites Regulations

text denotes concentrations that are above CCME guidelines for the protection of aquatic life

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID	Units	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	CCME Guidelines	Water License Standards	YCSG*
Date		14-Jun-07	28-Jun-07	12-Jul-07	26-Jul-07	09-Aug-07	23-Aug-07	18-Sep-07	03-Oct-07	17-Oct-07	15-Nov-07	30-Nov-07			
Physical Parameters															
pH	pH units	7.78	8.03	7.97	8.05	8.08	7.68	8.12	7.99	7.71	7.24	6.84	**6.5 - 9.0**	**6.0 to 8.5**	--
Conductivity	µS/cm	339	686	650	965	934	1050	891	860	1030	776	641	--	--	--
Routine Parameters															
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	**50**	--
Hardness	mg/L	191.41	374.19	355.26	529.13	523.59	510.17	447.46	456.90	547.24	348.00	296.33	--	--	--
Alkalinity-Total	mg/L	47.5	106	97.6	151	157	135	140	139	169	185	207	--	--	--
Bicarbonate	mg/L	47.5	106	97.6	151	157	135	140	139	169	185	252	--	--	--
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<6	--	--	--
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5	--	--	--
Calcium	mg/L	50	96.4	93.5	140	129	155	119	119	139	93.1	84.3	--	--	--
Magnesium	mg/L	15.7	30.5	29.9	42.7	44.4	42.1	36.8	39	46.9	28.1	20.9	--	--	--
Potassium	mg/L	<2.0	2.6	<2.0	3.1	2.3	5.7	3.3	3	3.7	3	2.3	--	--	--
Sodium	mg/L	5.7	16.2	13.7	20.8	18.6	28	21.3	15.2	23.7	21.5	16.2	--	--	--
Sulphate	mg/L	123	269	240	416	365	427	343	333	402	232	143	--	--	**1000**
Nutrients															
Ammonia-N	mg/L	0.177	0.769	0.618	0.734	0.885	0.526	1.16	0.75	1.51	***3.61***	***2.8***	**2.20**	--	**11.3**
Nitrate-N	mg/L	0.064	0.252	0.268	0.647	0.442	0.602	0.654	0.823	1.140	<0.0050	<0.01	**13.0**	--	**400**
Nitrite-N	mg/L	0.003	0.010	0.013	***0.065***	0.020	0.021	0.027	0.022	0.036	0.004	0.006	**0.06**	--	--
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--
Cyanide Compounds															
Cyanide - T	mg/L	0.0227	0.0182	0.0145	0.0083	0.0105	0.0144	0.0153	0.0137	0.0174	0.0173	--	**0.3***	**0.3**	--
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.3	**0.5**	--	--
Thiocyanate	mg/L	1.55	1.17	0.93	1.43	1.31	1.22	1.63	1.16	1.22	0.81	0.8	--	--	--
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.010	<0.0050	0.002	**0.1***	**0.1**	**0.05**
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	0.006	--	--	--
Total Metals															
Aluminum	mg/L	***0.54***	<0.20	***0.4***	<0.20	<0.20	***0.36***	<0.20	<0.20	<0.20	***0.131***	***0.112***	**0.1**	--	--
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.00225	0.001	--	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.14***	***0.19***	**0.005**	--	**0.5**
Barium	mg/L	0.0440	0.0450	0.0450	0.0550	0.0340	0.0440	0.0380	0.0370	0.0410	0.1180	0.1160	--	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00050	<0.0001	--	--	**0.053**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.00050	<0.0005	--	--	--
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.013	0.012	--	--	**50**
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.000481***	***0.00014***	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	50.6	98.9	93.3	141	134	140	120	119	141	97.6	84.7	--	--	--
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00102	0.0021	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00246	0.0023	--	--	**0.009**
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	***0.021***	<0.010	<0.010	<0.010	***0.00843***	0.004	**0.004**	**0.2**	**0.05**
Iron	mg/L	***1.6***	***1.4***	***2.3***	***2.1***	***1.8***	***2.3***	***2.0***	***2.0***	***1.3***	***25.7***	***35.2***	**0.30**	**1**	--
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	***0.0125***	0.0028	**0.007**	**0.1**	**0.06**
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.001	--	--	--
Magnesium	mg/L	15.80	30.90	29.70	43.00	45.90	39.00	35.90	38.80	47.40	29.20	20.60	--	--	--
Manganese	mg/L	0.293	0.894	0.792	1.04	1.1	0.89	1.22	0.902	1.58	2.93	3.34	--	**0.5**	--
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.000226	<0.001	**0.073**	--	**10**
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.00176	0.0014	**0.150**	**0.3**	**0.65**
Potassium	mg/L	<2.0	2.6	2	3.1	2.5	5.5	3	3.1	3.7	3.2	2.5	--	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0010	0.0003	**0.001**	--	**0.01**
Silicon	mg/L	3.94	4.55	5.3	5.84	5.09	5.03	6	5.86	6.43	9.92	8.26	--	--	--
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.000035	<0.0001	**0.0001**	**0.1**	**0.015**

Table A6. Water Quality Parameters in Dome Creek at Road Crossing.

Sample ID		Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	**CCME Guidelines**	**Water License Standards**	**YCSG***
Date	Units	14-Jun-07	28-Jun-07	12-Jul-07	26-Jul-07	09-Aug-07	23-Aug-07	18-Sep-07	03-Oct-07	17-Oct-07	15-Nov-07	30-Nov-07			
Sodium	mg/L	5.60	16.40	13.60	21.10	19.50	26.70	20.60	15.40	23.50	22.20	16.40	--	--	--
Strontium	mg/L	0.143	0.287	0.254	0.424	0.371	0.389	0.346	0.326	0.415	0.315	0.314	--	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	47	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.00010	<0.00005	**0.0008**	--	**0.003**
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.040	<0.030	<0.030	<0.030	<0.030	<0.00010	<0.001	--	--	--
Titanium	mg/L	0.019	<0.010	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0082	--	--	**1**
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.0024	0.0017	--	--	--
Zinc	mg/L	0.0256	0.0106	0.0136	0.0068	0.0075	***0.0564***	0.0069	0.006	0.0139	***0.0959***	***0.054***	**0.03**	**0.3**	**0.9**
Dissolved Metals															
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.007	0.008	--	--	--
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0006	0.0004	--	--	--
Arsenic	mg/L	0.00915	0.00857	0.0105	0.0043	0.00394	0.00694	0.00436	0.00339	0.00287	0.00636	0.0084	--	**0.15**	--
Barium	mg/L	0.036	0.04	0.036	0.051	0.03	0.037	0.032	0.031	0.04	0.0924	0.075	--	--	--
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00050	<0.0001	--	--	--
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.00050	<0.0005	--	--	--
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.014	0.011	--	--	--
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.000139	0.00001	--	--	--
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.00050	0.0017	--	--	--
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00208	0.0018	--	--	--
Copper	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0023	0.025	--	--	--
Iron	mg/L	0.568	0.437	0.644	0.068	0.041	0.048	0.193	0.073	0.098	0.396	0.5	--	--	--
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.000050	<0.0001	--	--	--
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.001	--	--	--
Manganese	mg/L	0.139	0.422	0.247	0.968	1.01	0.8	1.08	0.85	1.47	2.67	3.24	--	--	--
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.000157	0.001	--	--	--
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.00098	0.0014	--	--	--
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0010	<0.0002	--	--	--
Silicon	mg/L	3.3	4.39	4.79	5.6	5.01	4.65	5.74	5.67	6.23	8.7	<0.0001	--	--	--
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.000010	8.72	--	--	--
Strontium	mg/L	0.141	0.285	0.255	0.418	0.363	0.409	0.331	0.316	0.415	0.31	0.279	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.00010	<0.00005	--	--	--
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.00010	<0.001	--	--	--
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0005	--	--	--
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.0010	0.0037	--	--	--
Zinc	mg/L	0.0123	0.0057	0.0062	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0091	0.0477	0.033	--	--	--

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	27-Jan-99	3-Mar-99	20-Apr-99	23-Jun-99	15-Jul-99	12-Aug-99	8-Sep-99	8-Sep-99	14-Sep-99	22-Sep-99	28-Sep-99	6-Oct-99	13-Oct-99	20-Oct-99	20-Oct-99	26-Oct-99	2-Nov-99	2-Nov-99	2-Nov-99	10-Nov-99	22-Nov-99	30-Nov-99	30-Nov-99	30-Nov-99
Physical Parameters																									
pH	pH units	7.6	8.89	8.42	8.24	8.72	8.2	8.4	8.37	8.77	8.53	8.45	8.39	8.27	8.37	--	8.63	8.24	8.6	8.68	8.4	8.6	8.27	8.5	8.54
Conductivity	µS/cm	3650	5100	3100	3600	3850	3900	3700	3800	3500	3900	4000	3900	3800	3950	--	3900	3920	3810	4100	3950	3910	3930	3870	4100
Routine Parameters																									
Total Suspended Sediment	mg/L	53	34	13	7	11	7	<5	<5	9	9	<5	<5	<5	<5	--	6	8	6	<5	10	6	10	8	<5
Total Dissolved Solids	mg/L	3270	4540	2670	3050	3280	3390	3460	3370	3350	3380	3310	3310	3390	3340	--	3380	3320	3510	3410	3480	3380	3400	3490	3440
Hardness	mg/L	1371.24	1368.12	1007.91	996.33	1167.86	1047.51	1176.07	1328.33	1283.46	1201.48	1301.30	1181.86	1267.13	1243.03	--	1288.70	1289.85	1165.88	1357.75	1237.05	1203.73	1254.77	1179.41	1176.67
Alkalinity-Total	mg/L	193	203	213	135	100	175	113	92	107	94	104	99	102	108	--	106	--	119	108	120	117	152	131	115
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1900	2300	1450	1650	1830	2060	2040	2000	1950	1970	1890	1980	1990	2040	--	2060	2070	1950	2030	1870	1850	2060	1830	2030
Nutrients																									
Ammonia-N	mg/L	***16.8***	***24.4***	***12.5***	***13***	***14.2***	***16.2***	***16.5***	***15.9***	***11.4***	***12.5***	***13.5***	***14.6***	***14.3***	***13.5***	--	***13.8***	***17.5***	***48.1***	***14.6***	***23.2***	***43***	***20.8***	***38.9***	***15.8***
Nitrate-N	mg/L	0.380	0.130	0.330	1.320	2.350	1.340	1.510	1.670	1.300	1.590	1.530	1.730	1.780	0.890	--	1.930	2.350	2.110	2.200	<0.1	2.140	2.190	2.120	1.140
Nitrite-N	mg/L	0.010	<0.015	<0.003	0.005	<0.003	0.020	***0.089***	***0.087***	***0.068***	***0.187***	***0.098***	***0.127***	***0.145***	***0.168***	--	***0.210***	***0.307***	***25.500***	***0.179***	<0.05	***21.100***	***0.350***	***16.300***	***0.168***
Total Phosphorus	mg/L	0.98	<0.06	0.1	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.01	--	<0.06	--	<0.05	<0.06	<0.05	<0.05	--	<0.05	<0.06
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	--	***168***	--	--	--	--	***80.3***	--	--	***87.6***	***106***	***127***	***97.3***	***87.6***	--	***90.8***	***110***	<0.05	***89.6***	***14.7***	--	***94***	--	--
Thiocyanate	mg/L	--	--	--	--	--	--	13.4	--	--	44.2	40.5	12.4	12.3	13.7	--	--	--	--	--	5.25	9.55	13.1	4.98	12.2
CN-WAD	mg/L	***32.0***	***140.0***	***65.0***	***13.0***	***14.7***	***11.7***	***9.8***	***10.1***	***10.0***	***10.1***	***7.8***	***31.5***	***10.2***	***7.2***	***10.0***	***0.3***	***7.6***	***7.0***	***6.2***	***9.7***	***7.3***	***7.3***	***8.7***	***6.6***
CN-SAD	mg/L	39.0	152.0	68.0	69.0	56.0	60.0	50.9	50.3	48.3	48.9	50.3	60.2	59.7	55.8	10.0	61.2	6.9	7.0	59.4	6.2	7.1	7.5	8.9	8.0
Total Metals																									
Aluminum	mg/L	***0.39***	***0.17***	***0.38***	***0.12***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	--	<0.01	<0.2	0.04	<0.01	0.02	<0.01	<0.2	<0.01	<0.01
Antimony	mg/L	<0.02	0.08	<0.02	0.07	0.07	0.07	0.06	0.07	0.03	0.03	0.05	0.04	<0.02	2.18	--	<0.02	<0.2	--	0.02	--	--	<0.2	--	<0.02
Arsenic	mg/L	***0.15***	***0.35***	***0.3***	***0.27***	***0.04***	<0.02	<0.02	<0.02	***1.4***	<0.02	<0.02	<0.02	<0.02	<0.04	--	<0.02	<0.2	***0.01***	<0.02	***0.01***	***0.01***	***0.01***	***0.01***	<0.02
Barium	mg/L	0.0722	0.0156	0.0279	0.0131	0.0184	0.0207	0.0221	0.0242	0.0204	0.0213	0.0224	0.0221	0.0243	0.0249	--	0.0248	0.0300	0.0320	0.0262	0.0330	0.0320	0.0300	0.0370	0.0288
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3	0.32	--	0.31	0.26	0.3	0.32	--
Cadmium	mg/L	***0.006***	***0.0053***	***0.003***	***0.0025***	<0.0005	***0.0006***	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0009	--	<0.0005	<0.01	<0.001	***0.0005***	<0.001	<0.001	<0.01	<0.001	<0.0005
Calcium	mg/L	494	515	380	378	448	398	447	505	490	458	495	448	480	472	--	486	483	436	512	464	450	465	434	439
Chromium	mg/L	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001	<0.001	<0.002	--	<0.001	<0.01	<0.005	<0.001	<0.005	<0.005	<0.01	<0.005	<0.001
Cobalt	mg/L	0.174	0.136	0.133	0.135	0.116	0.122	0.126	0.14	0.12	0.123	0.126	0.115	0.129	0.12	--	0.123	0.14	0.139	0.128	0.151	0.143	0.14	0.136	0.124
Copper	mg/L	***34.1***	***105***	***48.6***	***65.6***	***35.3***	***39.2***	***25.2***	***28.5***	***21.6***	***19.3***	***16.8***	***14.5***	***16.4***	***15.1***	--	***14.1***	***14.4***	***13.3***	***15.6***	***12.3***	***11.5***	***12.3***	***11.1***	***12.4***
Iron	mg/L	***9.7***	***1.8***	***1.3***	***0.6***	0.2	***0.4***	0.2	0.2	0.1	***0.6***	0.1	0.2	0.2	***0.3***	--	0.2	0.1	***1.8***	0.1	***2.0***	***1.8***	***0.7***	***0.7***	***0.6***
Lead	mg/L	***0.161***	***0.029***	***0.02***	***0.012***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	***1.31***	--	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	33.40	19.90	14.30	12.70	11.90	13.00	14.50	16.30	14.50	14.00	15.80	15.30	16.60	15.60	--	18.20	20.30	18.70	19.20	19.00	19.40	22.70	23.20	19.50
Manganese	mg/L	12.1	1.45	1.75	2.11	0.928	1.38	1.59	1.75	1.4	1.18	1.31	1.51	1.92	1.78	--	2.02	2.41	2.5	2.13	3.1	2.83	3.03	2.8	2.59
Molybdenum	mg/L	0.017	0.039	0.012	0.018	0.018	0.015	0.016	0.016	<0.005	0.008	0.017	0.006	0.01	<0.01	--	0.009	<0.003	0.016	0.01	0.015	0.014	<0.03	0.014	<0.005
Nickel	mg/L	0.137	***0.305***	***0.183***	***0.218***	***0.165***	0.15	0.11	0.122	0.095	0.085	0.085	0.077	0.086	0.081	--	0.077	0.08	0.084	0.083	0.093	0.086	0.07	0.084	0.077
Potassium	mg/L	14	48	32	26	26	24	26	30	28	25	22	33	25	25	--	23	25	22.5	24	24.8	22.7	24	21.5	19
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	--	<0.02	<0.02	--	<0.02	--	--	<0.2	--	<0.02
Silicon	mg/L	5.08	2.32	1.61	1.77	1.54	1.62	1.4	1.5	1.49	1.62	1.69	1.67	1.73	1.9	--	1.91	1.99	--	2.12	--	--	2.34	--	2.19
Silver	mg/L	***0.1***	***0.238***	***0.07***	***0.203***	***0.008***	***0.113***	***0.086***	***0.094***	***0.063***	***0.033***	***0.071***	***0.061***	***0.052***	***0.064***	--	***0.056***	***0.06***	***0.055***	***0.065***	***0.052***	<0.005	***0.06***	***0.017***	***0.047***
Sodium	mg/L	346.00	709.00	396.00	420.00	464.00	419.00	440.00	499.00	455.00	449.00	463.00	428.00	461.00	442.00	--	452.00	461.00	404.00	501.00	438.00	385.00	437.00	451.00	408.00
Strontium	mg/L	1.15	0.08	0.898	1.02	1.06	1.07	1.2	1.32	1.17	1.17	1.21	1.09	1.24	1.11	--	1.17	1.53	1.62	1.21	1.5	1.47	1.49	1.48	1.15
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	0.02	0.006	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.12	--	0.006	<0.03	<0.05	<0.005	<0.05	<0.05	<0.03	<0.05	<0.005
Titanium	mg/L	0.009	0.003	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.11	--	<0.001	<0.01	0.032	<0.001	0.026	0.028	<0.2	0.028	<0.001
Vanadium	mg/L	<0.002	0.013	0.01	0.019	0.016	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	--	<0.002	<0.03	<0.001	<0.002	<0.001	<0.001	<0.03	<0.001	<0.002

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	27-Jan-99	3-Mar-99	20-Apr-99	23-Jun-99	15-Jul-99	12-Aug-99	8-Sep-99	8-Sep-99	14-Sep-99	22-Sep-99	28-Sep-99	6-Oct-99	13-Oct-99	20-Oct-99	20-Oct-99	26-Oct-99	2-Nov-99	2-Nov-99	2-Nov-99	10-Nov-99	22-Nov-99	30-Nov-99	30-Nov-99	30-Nov-99
Zinc	mg/L	***0.226***	***2.46***	***0.545***	***0.046***	0.023	0.025	***0.032***	***0.036***	***0.031***	0.026	***0.033***	***0.031***	0.03	***0.044***	--	***0.032***	0.017	0.023	***0.045***	0.021	0.008	0.008	0.004	***0.033***
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	8-Dec-99	8-Dec-99	15-Dec-99	15-Dec-99	17-Jan-00	17-Jan-00	17-Jan-00	15-Feb-00	15-Feb-00	15-Feb-00	15-Mar-00	15-Mar-00	14-Apr-00	16-May-00	20-Jun-00	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00	5-Sep-00	26-Sep-00	11-Oct-00
Physical Parameters																									
pH	pH units	8.62	--	8.5	8.5	8.1	8.07	7.79	7.9	8.5	7.8	7.87	7.87	7.9	7.48	8.42	8.41	8.13	8.15	8.19	--	8.5	8.27	8.2	8.15
Conductivity	µS/cm	4100	--	3890	4000	4000	4100	3940	4300	17400	4060	3740	3750	4150	3000	2050	2000	2200	2400	2400	2500	2400	2400	2200	2250
Routine Parameters																									
Total Suspended Sediment	mg/L	<5	--	--	5	4	34	5	5	8	8	14	12	9	8	14	12	20	14	13	12	11	12	12	9
Total Dissolved Solids	mg/L	3470	--	--	3430	3580	3270	3030	2630	5090	3580	3430	3460	3760	2620	1680	1670	1960	2040	2080	2060	2000	2030	1870	2020
Hardness	mg/L	1316.44	--	1398.80	1299.46	1455.56	1426.52	--	1366.17	1378.90	1496.61	1352.80	1264.13	1501.96	917.14	754.81	738.56	685.68	842.08	896.18	1091.23	753.05	934.05	775.06	846.09
Alkalinity-Total	mg/L	115	--	--	109	128	151	--	145	--	<1	150	148	43	116	70	65	79	81	83	86	97	88	77	92
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	2030	--	--	2080	2000	3890	--	270	6000	2190	2630	2620	2400	1830	1230	1220	1290	1440	1460	1410	1420	1380	1210	1200
Nutrients																									
Ammonia-N	mg/L	***15.1***	--	***11.4***	***14***	***40.1***	***40.3***	***35.3***	***32.1***	***49***	***42.4***	***37.9***	***38.6***	***19.8***	***21***	***13.6***	***13.6***	***10.3***	***11.6***	***11.9***	***13.1***	***12.7***	***11.4***	***10.6***	***12.4***
Nitrate-N	mg/L	0.920	--	1.100	2.030	2.140	2.000	1.960	1.860	1.840	2.040	1.380	1.990	1.800	1.190	1.250	1.310	0.858	1.250	--	8.090	--	--	--	--
Nitrite-N	mg/L	***0.167***	--	***0.120***	***0.153***	***0.271***	<0.02	***0.275***	***13.600***	<0.01	***0.253***	<0.04	<0.04	***0.095***	***1.190***	***4.070***	***4.300***	<0.01	--	--	--	--	--	--	--
Total Phosphorus	mg/L	<0.06	--	0.1	<0.06	1.29	<0.06	<0.3	<0.06	0.1	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	***77.3***	--	***20.7***	--	***14.1***	***65.4***	***72***	***24.4***	***14.4***	***85.2***	***24.5***	***3.75***	***74.1***	***25.9***	***13***	***12.6***	***13.5***	***6.9***	***17.7***	***21.1***	***19.1***	***17.9***	***15.1***	***22.5***
Thiocyanate	mg/L	94.4	13.3	4.93	13	4.93	129	133	145	6.4	144	17.9	18.3	28.7	11.1	62.5	61.2	817	80.7	86	91.1	86.6	90.7	81.9	81.3
CN-WAD	mg/L	***8.2***	--	***7.400***	***8.000***	***7.850***	***8.500***	***7.500***	***7.570***	***6.650***	***7.600***	***7.570***	***7.080***	***5.600***	***3.100***	***0.677***	***0.700***	--	***1.720***	***0.467***	***0.516***	***0.306***	***0.257***	***0.383***	***0.215***
CN-SAD	mg/L	10.8	--	9.550	9.220	9.390	9.110	7.400	8.350	8.910	7.400	15.600	12.200	20.000	4.300	0.574	0.600	--	2.320	1.150	0.688	0.702	0.260	1.690	0.792
Total Metals																									
Aluminum	mg/L	<0.01	--	***0.13***	<0.01	0.09	<0.01	<0.2	<0.01	0.06	<0.2	<0.01	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01	0.05	***0.14***	0.08	0.02	0.03
Antimony	mg/L	<0.02	--	--	<0.02	--	<0.02	<0.2	<0.02	--	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	mg/L	<0.02	--	--	<0.02	--	<0.02	<0.2	<0.02	--	<0.2	<0.02	<0.02	<0.02	***0.04***	***0.04***	***0.04***	<0.02	***0.03***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	mg/L	0.0292	--	0.0410	0.0280	0.0540	0.0372	0.0400	0.0353	0.0460	0.0500	0.0375	0.0378	0.0371	0.0357	0.0220	0.0225	0.0214	0.0225	0.0235	0.0258	0.0245	0.0256	0.2580	0.0309
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	0.31	--	0.28	--	0.2	--	0.26	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	***0.0005***	--	<0.001	<0.0005	***0.002***	***0.0008***	<0.01	***0.001***	***0.001***	<0.01	***0.0013***	***0.0016***	***0.0012***	***0.0022***	***0.0013***	***0.0013***	***0.0007***	***0.0014***	<0.0005	***0.001***	***0.0006***	***0.0006***	***0.0021***	***0.0007***
Calcium	mg/L	492	--	523	488	536	528	496	504	503	547	497	461	547	328	278	271	249	308	329	401	274	344	281	304
Chromium	mg/L	<0.001	--	<0.005	<0.001	<0.005	0.001	<0.02	<0.001	<0.005	<0.01	<0.001	0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.125	--	0.162	0.121	0.171	0.143	0.15	0.141	0.17	0.17	0.144	0.147	0.141	0.1	0.058	0.061	0.058	0.064	0.066	0.074	0.059	0.059	0.055	0.065
Copper	mg/L	***12.4***	--	***11.7***	***12.9***	***14.5***	***13.4***	***11.7***	***12.6***	***10***	***13***	***13.2***	***12.4***	***13.4***	***6.65***	***3.7***	***3.8***	***3.63***	***2.6***	***2.11***	***2.08***	***1.32***	***1.11***	***1.14***	***1.19***
Iron	mg/L	***0.5***	--	***0.7***	***0.5***	***2.1***	***1.7***	***1.6***	***1.3***	<0.005	***1.5***	***1.8***	***1.7***	***1.8***	***2.1***	***1.1***	***1.1***	***1.0***	***1.1***	***0.9***	***1.3***	***0.9***	***1.1***	***1.4***	***2.0***
Lead	mg/L	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.05	<0.005	0.006	0.006	***0.008***	***0.017***	***0.014***	***0.012***	***0.025***	<0.005	***0.015***	***0.009***	<0.005	<0.005	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	21.30	--	22.50	19.60	28.40	26.20	<0.01	26.10	29.80	31.70	27.10	27.40	33.00	23.80	14.70	15.00	15.50	17.70	18.10	21.80	16.70	18.20	17.80	21.10
Manganese	mg/L	2.65	--	3.43	2.67	5.6	5.14	26.6	4.88	4.73	5.6	6	5.6	6.53	6.95	2.54	2.58	2.21	1.27	1.14	1.49	1.4	1.76	2.39	3.09
Molybdenum	mg/L	0.008	--	0.015	0.006	***0.151***	0.009	<0.03	0.01	0.014	<0.03	0.006	0.007	0.01	<0.005	<0.005	<0.005	0.01	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	0.008
Nickel	mg/L	0.076	--	0.078	0.075	0.087	0.086	0.07	0.083	0.099	0.08	0.089	0.086	0.085	0.06	0.025	0.025	0.027	0.03	0.031	0.036	0.03	0.028	0.021	0.025
Potassium	mg/L	21	--	18.7	24	24.1	22	26	23	17.5	25	26	21	26	12	11.5	11.8	13.3	13	13	18	12.9	15	14	17
Selenium	mg/L	<0.02	--	--	<0.02	--	<0.02	<0.2	<0.02	--	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Silicon	mg/L	2.23	--	--	2.24	--	2.87	2.72	2.78	--	3.05	2.94	2.97	2.97	2.78	1.58	1.62	1.61	1.7	1.95	2.41	2.35	2.36	2.5	2.83
Silver	mg/L	***0.055***	--	***0.009***	***0.052***	***0.145***	***0.056***	***0.06***	***0.06***	<0.005	***0.05***	***0.054***	***0.055***	***0.049***	***0.026***	***0.018***	***0.022***	***0.022***	***0.016***	***0.015***	***0.012***	***0.009***	***0.009***	<0.001	<0.001
Sodium	mg/L	446.00	--	235.00	459.00	417.00	481.00	447.00	480.00	517.00	481.00	476.00	444.00	503.00	279.00	224.00	219.00	197.00	234.00	256.00	310.00	220.00	256.00	212.00	228.00
Strontium	mg/L	1.21	--	1.56	1.16	1.7	1.29	1.53	1.24	1.73	1.72	1.27	1.29	1.23	0.752	0.608	0.612	0.604	0.655	0.703	0.858	0.733	0.745	0.734	0.78
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.005	--	<0.05	0.006	<0.05	<0.005	<0.03	<0.005	<0.05	<0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	0.016	<0.005	<0.005	0.006	<0.005	<0.005
Titanium	mg/L	<0.001	--	0.028	<0.001	0.019	<0.001	<0.01	<0.001	<0.001	<0.01	<0.001	<0.001	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--
Vanadium	mg/L	<0.002	--	<0.001	<0.002	0.002	<0.002	<0.03	<0.002	<0.001	<0.03	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.01	0.016	--	--	--

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	8-Dec-99	8-Dec-99	15-Dec-99	15-Dec-99	17-Jan-00	17-Jan-00	17-Jan-00	15-Feb-00	15-Feb-00	15-Feb-00	15-Mar-00	15-Mar-00	14-Apr-00	16-May-00	20-Jun-00	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00	5-Sep-00	26-Sep-00	11-Oct-00
Zinc	mg/L	***0.033***	--	0.015	***0.034***	***0.036***	***0.045***	0.013	***0.044***	0.019	0.015	***0.053***	***0.052***	***0.054***	***0.048***	***0.057***	***0.058***	***0.04***	***0.037***	0.029	***0.044***	***0.046***	***0.047***	***0.033***	***0.034***
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	1-Nov-00	14-Nov-00	28-Nov-00	18-Dec-00	17-Jan-01	22-Feb-01	21-Mar-01	23-Apr-01	22-May-01	18-Jun-01	4-Jul-01	18-Jul-01	31-Jul-01	14-Aug-01	29-Aug-01	17-Sep-01	22-Oct-01	19-Nov-01	13-Dec-01	16-Jan-02	20-Feb-02	3-Apr-02	21-May-02	20-Jun-02
Physical Parameters																									
pH	pH units	8.46	8.55	8.59	8.27	8.19	7.83	7.69	7.6	8.2	7.7	7.8	7.76	7.77	7.91	7.83	7.71	7.72	7.57	7.48	7.24	7.27	7.16	7.3	7.58
Conductivity	µS/cm	2550	2600	2750	2900	3200	3200	3000	3400	1650	2000	1860	2040	1910	2030	1990	2100	2410	2600	2760	2810	3090	3030	954	1950
Routine Parameters																									
Total Suspended Sediment	mg/L	9	6	5	7	6	7	8	8	5	20	11	9	8	5	6	9	4	8	12	10	3	3	4	10
Total Dissolved Solids	mg/L	2150	2230	2330	2570	2650	2720	2800	2780	1210	1500	1670	1770	1790	1760	1850	1860	2140	2170	2500	2390	2560	2650	600	1620
Hardness	mg/L	873.56	853.96	957.98	1094.05	1113.18	1195.43	1339.51	1205.42	558.03	710.68	741.42	820.62	940.74	889.58	912.58	902.20	1078.05	1012.83	1081.91	1132.28	1353.34	1180.06	370.36	837.17
Alkalinity-Total	mg/L	104	70	87	73	106	112	131	133	91	73	82	94	96	101	101	111	135	149	169	177	190	192	43	106
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1270	1330	1460	1560	1660	1680	1700	1780	--	837	1330	1260	1450	1220	1360	1490	1430	1490	1720	1670	1870	2150	506	1150
Nutrients																									
Ammonia-N	mg/L	***12.3***	***13.4***	***17***	***15.4***	***15***	***17.9***	***20.6***	***21.2***	***5.57***	***9.68***	***13.5***	***13.8***	***18.2***	***12.2***	***13.2***	***17.4***	***17.4***	***18.2***	***21.4***	***19.4***	***22.3***	***20.5***	***4***	***11.3***
Nitrate-N	mg/L	--	--	--	--	0.690	1.200	1.000	0.900	0.400	0.400	0.339	0.219	0.272	0.461	0.650	0.378	0.435	0.527	0.741	1.420	1.250	1.250	0.331	0.267
Nitrite-N	mg/L	--	--	--	--	***0.210***	***0.270***	***0.310***	<2	<0.5	<0.5	***0.069***	<0.01	***1.170***	***1.310***	***0.690***	0.020	***0.642***	<0.01	<0.01	***0.450***	***0.625***	***0.477***	***0.073***	***0.303***
Total Phosphorus	mg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.1	0.05	<0.06	0.06	<0.06	<0.06	0.06	<0.03	<0.06	<0.06	<0.06	<0.06	<0.1	<0.06	<0.06	0.06	<0.06	<0.06	<0.06
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	***15.2***	***15.5***	***16***	***15***	***13.5***	***23.6***	***8.94***	***11.6***	0.14	***5.13***	***10.5***	***2.28***	***2.92***	***2.49***	***4.33***	***4.11***	***4.39***	***8.87***	***1.29***	***3.84***	***15.1***	***4.89***	***4.09***	0.5
Thiocyanate	mg/L	87.8	81.8	93.2	98.8	115	121	262	163	75.1	85.3	56.3	31.6	23.9	28.7	30	27.7	32.5	58.6	65.4	64.1	87.5	66.1	12.1	25
CN-WAD	mg/L	0.033	***0.341***	***0.386***	***0.789***	***0.699***	***0.485***	0.095	***0.634***	0.036	***0.428***	0.062	0.012	0.050	0.020	0.020	***0.110***	0.062	***0.191***	0.080	***0.120***	***0.410***	0.048	0.010	0.028
CN-SAD	mg/L	0.630	0.504	5.180	3.070	3.330	2.760	0.430	5.400	2.650	0.604	0.358	0.494	0.080	0.133	0.307	0.244	0.282	1.040	0.440	1.040	1.240	1.580	0.128	0.360
Total Metals																									
Aluminum	mg/L	***0.13***	0.08	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	0.1	0.01	0.06	0.07	***0.785***	0.09	***0.99***	0.08	<0.01	0.1	***3.56***	0.03	0.06	0.03	0.09	0.1
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.053	<0.02	0.06	0.1	<0.02	<0.04	<0.02	<0.02	<0.02	0.03	<0.02	0.03
Arsenic	mg/L	<0.02	<0.02	<0.02	***0.03***	<0.02	<0.04	<0.02	<0.02	***0.11***	***0.02***	***0.06***	***0.07***	***0.11***	***0.03***	***0.04***	***0.03***	<0.02	***0.06***	***0.04***	***0.06***	***0.04***	***0.02***	<0.02	***0.04***
Barium	mg/L	0.0375	0.0345	0.0302	0.0291	0.0318	0.0396	0.0396	0.0394	0.0183	0.0268	0.0276	0.0351	0.0399	0.0323	0.0323	0.0347	0.0386	0.0440	0.0496	0.0479	0.0521	0.0453	0.0136	0.0321
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	<0.02	0.009	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.167	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	***0.0006***	<0.0005	<0.0005	***0.001***	***0.001***	***0.002***	***0.001***	***0.0014***	***0.0017***	***0.0012***	***0.0016***	***0.0014***	***0.0021***	***0.0012***	***0.0013***	***0.0013***	<0.0006	<0.001	<0.0006	***0.0009***	***0.0016***	<0.0006	***0.0006***	<0.0006
Calcium	mg/L	315	306	346	399	406	433	478	437	203	260	270	291	333	314	312	309	386	350	377	397	472	413	130	294
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.0009	<0.001	<0.001	<0.001	<0.001	<0.002	0.001	<0.001	0.003	<0.001	0.001	<0.001
Cobalt	mg/L	0.07	0.073	0.073	0.078	0.077	0.091	0.087	0.086	0.03	0.034	0.039	0.051	0.0533	0.038	0.035	0.036	0.042	0.063	0.056	0.052	0.059	0.047	0.008	0.028
Copper	mg/L	***0.705***	***0.65***	***0.805***	***0.916***	***0.894***	***0.996***	***0.928***	***0.851***	***0.444***	***0.184***	***0.249***	***0.296***	***0.295***	***0.197***	***0.211***	***0.245***	***0.25***	***0.361***	***0.316***	***0.301***	***0.291***	***0.246***	***0.133***	***0.167***
Iron	mg/L	***0.9***	***0.3***	***0.6***	***1.4***	***1.0***	***1.7***	***2.6***	***2.2***	***0.9***	0.02	***0.8***	***1.0***	***1.1***	***0.5***	***0.8***	***1.3***	***2.2***	***3.9***	***4.1***	***5.3***	***3.6***	***2.9***	***0.6***	***1.7***
Lead	mg/L	0.006	<0.005	0.006	<0.005	***0.36***	***0.29***	0.007	<0.006	***0.024***	<0.006	***0.014***	***0.026***	***0.061***	***0.017***	***0.594***	***0.009***	<0.006	<0.01	0.006	<0.006	<0.006	<0.006	***0.02***	***0.022***
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.005	0.006	<0.006	0.008	<0.005	<0.006	<0.01	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Magnesium	mg/L	21.10	21.80	22.80	23.70	24.10	27.70	35.40	27.70	12.40	14.90	16.30	22.80	26.50	25.60	32.40	31.70	27.70	33.70	34.10	34.20	42.40	36.10	11.10	25.00
Manganese	mg/L	3.01	2.65	2.4	2.82	3.06	4.07	5.45	5.67	1.7	2.82	2.89	4.22	4.69	4.02	4.55	5.1	6.92	7.35	8.37	8.56	10	9.02	1.57	5.38
Molybdenum	mg/L	0.012	<0.005	0.007	0.01	<0.005	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.005	<0.01	<0.01	<0.01	<0.01	<0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.024	0.024	0.021	0.021	***0.67***	***0.54***	0.029	0.028	0.011	0.013	0.012	0.003	0.003	0.011	***0.869***	0.014	0.018	<0.002	0.018	0.019	0.022	0.018	0.007	0.012
Potassium	mg/L	14	13	15	14	14	18	23	18.9	7.9	10.6	10.4	12.6	14.8	18.9	17.6	10.9	13.1	15.1	17.8	18.9	20	20	5.6	12.4
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.011***	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Silicon	mg/L	2.93	2.83	2.67	2.75	2.93	3.24	3.41	3.2	1.7	1.8	1.8	2.4	3.21	2.8	2.9	3	3.2	4.3	4.1	4.7	5	4.2	1.1	2.8
Silver	mg/L	<0.001	<0.001	***0.004***	***0.004***	***0.005***	***0.007***	***0.007***	***0.006***	***0.004***	<0.002	<0.002	<0.002	***0.002***	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sodium	mg/L	248.00	251.00	281.00	315.00	373.00	353.00	380.00	348.00	120.00	159.00	172.00	177.00	192.00	181.00	173.00	179.00	233.00	224.00	281.00	280.00	319.00	294.00	61.20	173.00
Strontium	mg/L	0.867	0.909	0.947	0.884	0.981	1.12	1.06	1.03	0.433	0.554	0.603	0.844	0.922	0.702	0.717	0.682	0.75	1.02	0.923	0.8	0.981	0.802	0.241	0.566
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.005	0.006	<0.005	<0.005	<0.005	<0.01	<0.005	<0.006	<0.006	<0.006	<0.006	<0.005	<0.003	<0.006	<0.005	<0.005	<0.006	<0.01	0.009	<0.006	<0.006	<0.006	<0.006	<0.006
Titanium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0004	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	0.007	0.007	0.017	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.014	0.011	<0.001	<0.001	0.008	0.005	0.007	<0.001	<0.002	0.017	0.004	0.004	0.003	0.003	0.006

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date		1-Nov-00	14-Nov-00	28-Nov-00	18-Dec-00	17-Jan-01	22-Feb-01	21-Mar-01	23-Apr-01	22-May-01	18-Jun-01	4-Jul-01	18-Jul-01	31-Jul-01	14-Aug-01	29-Aug-01	17-Sep-01	22-Oct-01	19-Nov-01	13-Dec-01	16-Jan-02	20-Feb-02	3-Apr-02	21-May-02	20-Jun-02
Zinc	mg/L	0.03	0.023	0.013	0.024	***1***	***0.969***	***0.0342***	0.03	***0.036***	***0.393***	***0.041***	***0.038***	***0.0488***	0.025	***5.01***	***0.036***	0.025	0.022	0.025	0.015	0.022	0.017	***0.092***	***0.058***
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	3-Jul-02	15-Jul-02	1-Aug-02	12-Aug-02	12-Aug-02	27-Aug-02	10-Sep-02	15-Oct-02	15-Nov-02	11-Dec-02	15-Jan-03	11-Feb-03	12-Mar-03	16-Apr-03	21-May-03	11-Jun-03	2-Jul-03	2-Jul-03	15-Jul-03	30-Jul-03	13-Aug-03	13-Aug-03	17-Sep-03	15-Oct-03
Physical Parameters																									
pH	pH units	7.81	7.74	7.74	7.77	7.79	7.84	7.89	7.62	7.41	--	8.58	7.17	7	7.19	7.5	7.8	7.88	7.85	7.95	8.02	8.23	8.41	7.97	7.88
Conductivity	µS/cm	2080	2200	2280	2470	2470	2450	2210	2540	2630	4000	3040	3060	2840	2980	1100	1920	1830	1840	1910	2120	2370	2340	2500	2630
Routine Parameters																									
Total Suspended Sediment	mg/L	5	5	6	5	7	5	20	10	16	12	6	6	236	6	8	6	17	19	17	11	<5	6	5	8
Total Dissolved Solids	mg/L	2170	1890	1990	1950	2000	2070	2030	2230	2390	2750	2740	3070	2600	2770	930	1690	1690	1670	1530	1930	2240	2080	2030	2360
Hardness	mg/L	849.30	949.50	939.37	1034.52	1066.11	1045.69	1051.80	1419.64	1219.79	1231.46	1317.55	1299.66	1225.69	1349.93	434.14	801.13	801.89	815.62	818.20	1011.29	1066.46	1114.16	981.73	1046.43
Alkalinity-Total	mg/L	104	107	106	117	116	130	115	150	173	339	72	210	206	212	62	115	104	104	102	111	95	97	144	156
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1280	1480	1510	1530	1560	1600	1370	1550	1590	1850	1890	1890	2150	1900	769	1010	1210	1210	1120	1260	1575	1590	1630	1490
Nutrients																									
Ammonia-N	mg/L	***12***	***15.7***	***14.1***	***12.5***	***12.9***	***15***	***13.4***	***18***	***21.2***	***20.6***	***21***	***20.5***	***16.7***	***22.3***	***4.5***	***14***	***11.9***	***11.6***	***10.1***	***11.4***	--	***8.76***	***12.8***	***12***
Nitrate-N	mg/L	--	0.072	0.077	<0.02	<0.02	0.671	0.588	0.366	0.852	1.080	1.190	1.270	1.530	1.030	1.300	<1.0	0.915	0.906	0.796	1.050	--	1.220	1.910	2.080
Nitrite-N	mg/L	--	<0.01	<0.01	<0.01	<0.01	***0.510***	<0.002	***0.373***	***0.561***	***0.385***	***0.511***	***0.255***	<0.01	<0.01	<0.1	<10	***0.108***	***0.107***	<0.01	***0.116***	--	***0.205***	***0.232***	***0.217***
Total Phosphorus	mg/L	<0.06	<0.06	<0.06	0.06	<0.06	0.1	<0.06	0.07	0.06	0.08	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	--	--	<0.06	<0.06	<0.1	<0.06	<0.06	<0.06
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	***3.22***	0.5	***1.62***	***1.69***	***1.38***	0.49	0.23	***1.65***	***1.32***	***0.97***	***4.07***	0.24	***1.15***	***1.14***	***0.84***	0.28	***1.75***	***1.53***	0.38	***3.54***	--	***0.89***	0.14	0.03
Thiocyanate	mg/L	15.8	11.6	6.19	5.99	5.68	10.4	9.18	11.8	18.6	31	34.9	32.6	38.4	16.5	8.29	8.15	6.98	6.92	4.53	3.5	--	4.84	5.51	7.71
CN-WAD	mg/L	0.018	<0.002	0.010	0.012	0.012	0.016	0.014	0.040	***0.280***	0.040	0.040	0.038	0.040	0.026	0.014	0.008	0.010	0.012	0.034	0.006	0.040	0.006	<0.002	0.034
CN-SAD	mg/L	0.400	<0.002	0.164	0.030	0.058	0.050	0.078	0.250	1.200	0.300	0.114	0.480	0.300	0.260	0.260	0.024	0.038	0.040	0.140	0.022	--	0.040	0.024	0.048
Total Metals																									
Aluminum	mg/L	0.07	0.08	0.1	0.09	0.1	0.07	***0.22***	0.08	0.06	0.06	0.03	0.01	<0.01	0.01	0.07	***1.89***	***0.197***	***0.259***	***1.44***	***2.33***	<0.06	***1.22***	0.03	0.04
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0427	0.043	<0.02	<0.02	<0.06	<0.02	0.08	0.09
Arsenic	mg/L	***0.06***	***0.06***	***0.08***	***0.08***	***0.1***	***0.03***	***0.08***	***0.02***	***0.03***	<0.02	<0.02	<0.02	<0.02	***0.02***	***0.06***	***0.08***	***0.0729***	***0.0745***	***0.09***	***0.03***	<0.06	***0.07***	<0.02	<0.02
Barium	mg/L	0.0330	0.0330	0.0349	0.0374	0.0388	0.0411	0.0391	0.0518	0.0493	0.0540	0.0550	0.0523	0.0487	0.0471	0.0172	0.0298	0.0370	0.0380	0.0314	0.0347	0.0310	0.0287	0.0383	0.0410
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.001	<0.001	<0.02	<0.02		<0.02	<0.02	<0.02
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.156	0.155	--	--	0.11	--	--	--
Cadmium	mg/L	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	***0.0012***	<0.0006	<0.0006	***0.0013***	***0.0018***	***0.0012***	<0.0006	<0.0006	***0.0019***	***0.0014***	***0.00266***	***0.00257***	***0.0027***	***0.0022***	<0.006	***0.001***	<0.0006	***0.0011***
Calcium	mg/L	301	337	328	360	371	362	360	488	421	426	458	451	426	468	144	271	269	274	278	339	369	382	327	359
Chromium	mg/L	0.001	<0.001	0.001	<0.001	0.002	0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0019	0.0018	<0.001	<0.001	<0.006	<0.001	<0.001	<0.001
Cobalt	mg/L	0.027	0.029	0.026	0.026	0.03	0.029	0.026	0.037	0.036	0.038	0.04	0.041	0.037	0.036	0.009	0.018	0.0222	0.022	0.016	0.018	0.025	0.021	0.03	0.032
Copper	mg/L	***0.099***	***0.086***	***0.09***	***0.154***	***0.18***	***0.24***	***0.112***	***0.121***	***0.076***	***0.063***	***0.034***	***0.027***	***0.017***	***0.02***	***0.067***	***0.068***	***0.074***	***0.076***	***0.079***	***0.094***	***0.032***	***0.073***	***0.057***	***0.061***
Iron	mg/L	***1.5***	***1.4***	***1.2***	***1.4***	***1.5***	***1.9***	***1.4***	***3.0***	***4.2***	***4.0***	***3.4***	***2.3***	***3.0***	***1.7***	***1.2***	***1.4***	***1.6***	***1.6***	***1.3***	***1.3***	***0.7***	***0.5***	***2.5***	***2.9***
Lead	mg/L	***0.022***	***0.018***	***0.023***	***0.008***	***0.019***	***0.014***	***0.078***	***0.021***	***0.01***	<0.006	<0.006	0.007	<0.006	<0.006	***0.02***	***0.01***	***0.0497***	***0.0518***	***0.037***	***0.018***	<0.06	<0.006	<0.006	0.007
Lithium	mg/L	<0.006	<0.006	<0.006	<0.006	<0.006	0.007	0.007	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.004	0.004	<0.006	<0.006		<0.006	<0.006	<0.006
Magnesium	mg/L	23.70	26.20	29.20	32.90	33.90	34.40	37.10	48.80	40.90	40.70	42.20	42.10	39.30	44.00	18.10	30.20	31.60	31.90	30.10	40.00	35.20	38.90	40.10	36.40
Manganese	mg/L	5.88	6.04	5.41	6.49	6.69	7.27	6.44	9.97	9.11	10.2	11.6	11.2	9.94	11.1	2.69	6.09	5.58	5.68	5.1	5.72	3.61	3.21	6.4	8.46
Molybdenum	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.005	0.005	<0.01	<0.01	0.02	<0.01	<0.01	0.02
Nickel	mg/L	0.012	0.013	0.012	0.011	0.016	0.016	0.014	0.018	0.019	0.016	0.018	0.009	0.006	0.009	0.003	0.004	0.0044	0.0039	0.003	0.007	<0.02	0.003	<0.001	0.001
Potassium	mg/L	12.7	13.9	14.4	15.3	16	20	20	21.1	17.8	21.1	21.1	17.2	21.1	30	6.2	11.8	12.2	13.1	12.9	14.3	14.7	12.6	14.3	14.1
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.08***	***0.03***	***0.04***	<0.02	<0.02	0.0007	0.0005	<0.02	<0.02	<0.06	<0.02	***0.23***	<0.02
Silicon	mg/L	2.8	2.9	3	3	3	3.4	3.8	4.6	4.7	5.1	5.6	5.2	5.6	5.2	1.7	3.1	4.14	4.23	3.4	3.4	2.74	2.7	3.8	4.1
Silver	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	***0.0009***	***0.0009***	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002
Sodium	mg/L	174.00	192.00	196.00	210.00	217.00	208.00	182.00	273.00	252.00	281.00	297.00	297.00	281.00	299.00	78.60	162.00	148.00	152.00	150.00	170.00	197.00	187.00	200.00	218.00
Strontium	mg/L	0.598	0.626	0.65	0.696	0.734	0.731	0.704	0.922	0.851	0.869	0.951	0.941	0.877	0.851	0.343	0.567	0.74	0.739	0.602	0.69	1.42	0.793	0.933	0.909
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	0.013	<0.006	<0.006	<0.006	0.01	<0.006	<0.006	0.008	<0.006	<0.006	0.009	<0.006	<0.006	0.01	<0.006	<0.006	<0.002	<0.002	<0.006	<0.006	<0.06	<0.006	0.04	0.051
Titanium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.0196	0.021	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001
Vanadium	mg/L	0.006	0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	0.047	0.053	0.054	0.046	0.044	0.02	0.029	0.0006	0.0007	0.029	0.031	<0.01	0.042	<0.001	<0.001

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date		3-Jul-02	15-Jul-02	1-Aug-02	12-Aug-02	12-Aug-02	27-Aug-02	10-Sep-02	15-Oct-02	15-Nov-02	11-Dec-02	15-Jan-03	11-Feb-03	12-Mar-03	16-Apr-03	21-May-03	11-Jun-03	2-Jul-03	2-Jul-03	15-Jul-03	30-Jul-03	13-Aug-03	13-Aug-03	17-Sep-03	15-Oct-03
Zinc	mg/L	***0.042***	***0.033***	0.03	***0.037***	***0.042***	***0.039***	***0.128***	***0.053***	***0.038***	***0.036***	0.029	0.019	0.011	0.022	***0.096***	***0.067***	***0.114***	***0.151***	***0.076***	***0.054***	0.024	0.009	0.006	0.021
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	15-Oct-03	12-Nov-03	14-Jan-04	9-Feb-04	15-Mar-04	21-Apr-04	19-May-04	30-Jun-04	14-Jul-04	28-Jul-04	11-Aug-04	8-Sep-04	5-Oct-04	13-Apr-05	20-Apr-05	2-May-05	10-May-05	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05
Physical Parameters																								
pH	pH units	7.87	7.46	--	--	--	--	--	--	--	--	--	--	--	7.68	7.8	6.8	7.96	7.7	7.91	7.95	7.97	8.01	7.66	7.71
Conductivity	µS/cm	2630	2960	--	--	--	--	--	--	--	--	--	--	--	2310	2510	2290	1620	1950	1820	1730	1690	1760	1740	1770
Routine Parameters																									
Total Suspended Sediment	mg/L	10	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	2320	2530	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	1021.92	1249.62	--	--	--	--	--	--	--	--	--	--	--	1140.00	877.89	690.27	766.79	835.34	660.09	689.04	633.76	732.97	749.61	758.77
Alkalinity-Total	mg/L	160	204	--	--	--	--	--	--	--	--	--	--	--	199	209	185	120	153	134	114	119	119	120	100
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	199	209	185	120	153	134	114	119	119	120	100
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	379	252	233	232	290	228	211	208	225	233	244
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	47	32	34.3	32.8	40.1	30	31.1	31.4	35.3	35.9	36.7
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	14.4	8.3	9.2	10.8	9.9	9.9	8	9.7	9.8	10.2	10.3
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	208	140	134	122	133	105	96	113	113	116	116
Sulphate	mg/L	1510	1750	--	--	--	--	--	--	--	--	--	--	--	1190	1180	1170	787	996	882	1090	813	887	917	881
Nutrients																									
Ammonia-N	mg/L	***12.3***	***17.4***	--	--	--	--	--	--	--	--	--	--	--	***12.9***	***12.2***	***8.5***	***8.21***	***9.14***	***8.85***	***6.2***	***7.03***	***7.78***	***7.03***	***6.89***
Nitrate-N	mg/L	2.130	2.300	--	--	--	--	--	--	--	--	--	--	--	1.810	1.660	1.830	1.820	1.520	1.750	2.630	2.160	2.250	2.560	2.290
Nitrite-N	mg/L	***0.220***	***0.279***	--	--	--	--	--	--	--	--	--	--	--	***0.164***	***0.067***	***0.132***	***0.105***	***0.093***	***0.078***	***0.121***	***0.103***	***0.117***	***0.129***	***0.109***
Total Phosphorus	mg/L	<0.06	0.12	--	--	--	--	--	--	--	--	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0391	0.104	0.0509	0.0606	0.0633	0.0346	0.0302	0.029	0.0283	0.0255	0.0275
Cyanate	mg/L	0.36	***1.34***	--	--	--	--	--	--	--	--	--	--	--	<1.0	<5.0	<2.5	<5.0	***2.2***	<1.0	<1.0	***1.23***	***1.2***	***2***	***2.8***
Thiocyanate	mg/L	8.54	22.2	--	--	--	--	--	--	--	--	--	--	--	7.39	5.21	3.62	4.07	2.02	1.47	1.78	1.24	0.9	0.99	1.01
CN-WAD	mg/L	0.020	0.016	0.026	0.032	0.024	0.028	0.002	0.010	0.004	0.008	0.008	0.008	0.008	0.026	***0.106***	0.027	0.030	0.044	0.023	0.015	0.011	0.011	0.012	0.013
CN-SAD	mg/L	0.028	0.044	0.174	0.038	0.180	0.270	0.390	0.048	0.230	0.290	0.260	0.660	0.860	--	--	--	--	--	--	--	--	--	--	--
Total Metals																									
Aluminum	mg/L	0.04	0.02	--	--	--	--	--	--	--	--	--	--	--	<0.20	***0.21***	***0.28***	***0.37***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	0.06	0.08	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	--	***0.0354***	***0.0311***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.0296***	<0.20
Barium	mg/L	0.0409	0.0451	--	--	--	--	--	--	--	--	--	--	--	0.0480	0.0490	0.0380	0.0360	0.0380	0.0240	0.0300	0.0300	0.0330	0.0340	0.0340
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.13	0.16	0.11	0.13	0.13	0.11	0.11	0.11	0.12	0.13	0.15
Cadmium	mg/L	<0.0006	***0.0011***	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	351	428	--	--	--	--	--	--	--	--	--	--	--	326	293	222	250	273	217	222	203	233	239	243
Chromium	mg/L	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	0.03	0.036	--	--	--	--	--	--	--	--	--	--	--	0.021	0.025	0.016	0.015	0.019	0.011	0.014	0.011	0.013	0.013	0.013
Copper	mg/L	***0.059***	***0.043***	--	--	--	--	--	--	--	--	--	--	--	***0.011***	***0.011***	***0.045***	***0.042***	***0.041***	***0.051***	***0.04***	***0.037***	***0.048***	***0.044***	***0.051***
Iron	mg/L	***2.8***	***3.3***	--	--	--	--	--	--	--	--	--	--	--	***8.3***	***5.7***	***2.6***	***2.2***	***2.1***	***1.3***	***1.1***	***0.9***	***0.8***	***0.7***	***0.7***
Lead	mg/L	<0.006	0.006	--	--	--	--	--	--	--	--	--	--	--	<0.050	<0.050	***0.056***	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.006	<0.006	--	--	--	--	--	--	--	--	--	--	--	<0.020	<0.010	<0.010	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	35.30	43.90	--	--	--	--	--	--	--	--	--	--	--	38.40	35.50	33.00	34.60	37.30	28.70	32.70	30.80	36.70	37.10	36.90
Manganese	mg/L	8.27	9.69	--	--	--	--	--	--	--	--	--	--	--	9.78	8.85	5.83	7.78	6.93	4.86	4.96	4.98	5.5	5.51	5.37
Molybdenum	mg/L	0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	0.032	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	16.7	17.8	--	--	--	--	--	--	--	--	--	--	--	10.4	9.7	8.9	11.6	8.7	9.6	8.6	9.4	10.3	10.6	10.4
Selenium	mg/L	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	4.1	4.7	--	--	--	--	--	--	--	--	--	--	--	5.83	5.07	3.57	4	3.68	2.41	2.69	2.58	3	2.98	3.06
Silver	mg/L	<0.002	<0.002	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	213.00	263.00	--	--	--	--	--	--	--	--	--	--	--	167.00	158.00	129.00	135.00	116.00	100.00	102.00	110.00	119.00	120.00	115.00
Strontium	mg/L	0.898	1.03	--	--	--	--	--	--	--	--	--	--	--	0.848	0.869	0.693	0.804	0.693	0.55	0.588	0.613	0.627	0.661	0.657
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	0.047	0.07	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	15-Oct-03	12-Nov-03	14-Jan-04	9-Feb-04	15-Mar-04	21-Apr-04	19-May-04	30-Jun-04	14-Jul-04	28-Jul-04	11-Aug-04	8-Sep-04	5-Oct-04	13-Apr-05	20-Apr-05	2-May-05	10-May-05	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05
Zinc	mg/L	0.022	0.009	--	--	--	--	--	--	--	--	--	--	--	0.0223	0.0282	***0.12***	***0.106***	***0.12***	***0.132***	***0.136***	***0.14***	***0.117***	***0.109***	***0.127***
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0357	0.0025	0.0109	0.00423	0.0049	0.008	0.0068	0.00845	0.0091	0.00942	0.0107
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.046	0.038	0.036	0.03	0.038	0.024	0.027	0.029	0.03	0.032	0.032
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.16	0.14	0.12	0.13	0.13	0.11	<0.10	0.12	0.12	0.12	0.14
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.024	0.021	0.018	0.01	0.019	0.012	0.012	0.012	0.013	0.013	0.013
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	0.019	0.016	0.014	0.019	0.019	0.024	0.031	0.029	0.035
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.074	0.033	0.219	0.031	0.034	0.031	<0.03	<0.03	<0.03	<0.03	<0.03
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.020	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	11.1	7.64	6.07	7.09	7.4	5.22	4.76	5.01	5.28	5.37	5.38
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	5.77	3.97	3.45	3.37	3.45	2.39	2.41	2.44	2.73	2.77	2.83
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.977	0.755	0.719	0.748	0.764	0.581	0.57	0.626	0.609	0.639	0.654
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0553	0.016	0.0792	0.0794	0.0929	0.105	0.0896	0.0853	0.0796	0.0748	0.0866

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05	21-Dec-05
Physical Parameters																										
pH	pH units	7.75	7.94	8	8.07	8.07	8.03	8.04	8.16	8.1	7.77	8.14	7.41	7.38	7.76	7.57	7.61	8	7.79	7.33	7.41	7.54	7.75	7.42	7.93	7.95
Conductivity	µS/cm	1790	1770	1750	1750	1730	1810	1770	1770	1780	1850	1830	1720	1720	1720	1790	1950	1960	2000	2170	2240	2340	2460	3030	3140	3370
Routine Parameters																										
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	764.29	744.25	760.94	752.54	799.17	803.20	812.43	846.57	818.13	865.61	838.47	802.38	864.76	786.13	830.95	912.02	1020.12	845.55	980.63	1103.61	1084.51	1176.94	1538.26	1471.35	1667.28
Alkalinity-Total	mg/L	113	118	116	122	117	116	118	126	131	118	98.9	--	114	115	117	128	145	147	165	167	183	216	281	291	284
Bicarbonate	mg/L	113	118	116	122	117	116	118	126	131	118	98.9	--	114	115	117	128	145	147	165	167	183	216	281	291	284
Carbonate	mg/L	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	246	240	247	236	255	253	259	260	261	282	256	258	273	244	256	286	319	274	319	356	351	362	470	476	529
Magnesium	mg/L	34.1	35.6	34.7	35.1	36.3	37.9	36.8	35	41.3	40.8	39.8	39.2	38.8	39.1	40.8	43.9	44.9	42.2	46	50.4	50.1	56.7	69.5	73.6	83.7
Potassium	mg/L	11.5	12.5	10.5	10.5	12.5	11.4	11.3	12.2	12.2	14.4	11.6	14.1	13.8	12.3	12	15.6	16.3	13.2	18.2	19.4	16.5	21.3	26.2	28.6	35.1
Sodium	mg/L	114	115	115	110	115	114	111	105	113	116	105	116	115	110	107	118	129	113	127	134	142	149	174	171	236
Sulphate	mg/L	964	969	948	914	891	920	941	959	962	892	941	929	920	945	933	1010	1130	1080	1050	1260	1250	1360	1700	1820	1960
Nutrients																										
Ammonia-N	mg/L	***5.77***	***5.99***	***5.26***	***5.05***	***3.68***	***3.48***	***2.66***	***2.31***	2.01	1.63	1.4	1.38	1.26	1.37	1.22	1.37	1.4	1.78	***2.84***	***5.24***	***5.49***	***6.56***	***9.16***	***10.7***	***12.9***
Nitrate-N	mg/L	3.070	2.860	3.110	3.210	3.440	3.400	4.050	3.970	4.220	4.320	4.290	--	4.690	4.860	4.710	5.240	5.180	5.000	3.390	1.890	1.710	1.160	0.599	0.536	0.352
Nitrite-N	mg/L	***0.178***	***0.184***	***0.297***	***0.255***	***0.324***	***0.388***	***0.439***	***0.488***	***0.460***	***0.408***	***0.382***	--	***0.282***	***0.278***	***0.291***	***0.289***	***0.292***	***0.246***	***0.161***	***0.117***	***0.099***	***0.139***	***0.118***	***0.151***	***0.068***
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																										
Cyanide - T	mg/L	0.0275	0.0432	0.0169	0.0227	0.0163	0.0196	0.0177	0.0166	0.0274	0.0213	0.0191	0.0176	0.0202	0.0205	0.0256	0.0158	0.0314	0.0368	0.0411	0.0592	0.0693	0.0437	0.0675	0.0706	0.0639
Cyanate	mg/L	***2.9***	***1.2***	<1.0	***1.1***	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	***1.2***	<0.50	<0.50	***2.2***	***3.4***
Thiocyanate	mg/L	1	1.06	<0.50	0.99	1.05	0.99	<0.50	1.99	<0.50	0.99	1.04	1.17	1.28	1.31	0.97	1.45	1.28	1.9	3.44	5.72	4.13	5.27	6.39	5.56	2.32
CN-WAD	mg/L	0.011	0.008	0.005	<0.0050	0.006	<0.0050	0.006	0.006	0.006	0.007	0.006	<0.0050	0.009	0.008	0.008	0.010	0.018	0.015	0.014	0.029	0.026	0.021	0.019	0.061	0.052
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																										
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.38***	<0.20	<0.20	***0.22***	<0.20	***0.31***	***0.36***
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	***0.0298***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.073***	<0.20	<0.20	<0.20	<0.20	***0.0583***	<0.20	***0.159***	***0.0909***	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0330	0.0320	0.0320	0.0330	0.0310	0.0330	0.0320	0.0290	0.0290	0.0280	0.0280	0.0290	0.0280	0.0280	0.0280	0.0310	0.0310	0.0290	0.0410	0.0390	0.0400	0.0470	0.0600	0.0600	0.0670
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	0.13	0.13	0.14	0.15	0.15	0.15	0.16	0.15	0.14	0.16	0.16	0.15	0.15	0.14	0.15	0.17	0.17	0.16	0.16	0.18	0.16	0.18	0.24	0.21	0.25
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	249	239	247	241	260	257	263	277	261	281	267	257	280	250	263	292	331	270	317	358	352	375	491	468	527
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	0.01	0.012	0.013	0.013	0.012	0.012	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	0.012	0.011	0.014	0.022	0.02	0.02
Copper	mg/L	***0.054***	***0.051***	***0.037***	***0.044***	***0.049***	***0.049***	***0.049***	***0.052***	***0.051***	***0.058***	***0.057***	***0.09***	***0.063***	***0.052***	***0.056***	***0.06***	***0.064***	***0.057***	***0.085***	***0.054***	***0.054***	***0.06***	***0.053***	***0.095***	***0.089***
Iron	mg/L	***0.6***	***0.6***	***0.3***	0.2	0.1	0.1	0.1	0.2	0.3	0.3	***0.4***	***0.9***	***0.5***	***0.5***	***0.5***	***0.6***	***0.6***	***0.9***	***2.4***	***1.3***	***1.2***	***1.4***	***1.6***	***2.8***	***1.5***
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	***0.053***	<0.050	<0.050	<0.050	<0.050	***0.054***	<0.050
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.017	<0.010	<0.010	0.02	0.012	<0.010	0.033	0.025	<0.010	<0.010	<0.010	<0.010	0.011
Magnesium	mg/L	34.60	35.80	35.00	36.60	36.40	39.20	37.80	37.60	40.40	39.80	41.70	39.00	40.20	39.30	42.30	44.40	47.00	41.60	45.90	50.90	49.90	58.40	75.80	73.50	85.30
Manganese	mg/L	5.58	5.44	5.26	5.08	5.28	4.91	4.71	4.61	4.11	4.09	3.78	3.87	3.63	3.1	3.15	3.52	3.59	3	4.58	7.18	6.54	7.96	12.1	12.4	15.8
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	11.7	12.6	10.6	10.9	12.6	11.9	11.6	13.2	11.9	14.1	12.2	14	14.2	12.4	12.4	15.9	17.2	11.7	18.3	19.5	16.5	21.9	28	29.1	35.9
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	2.96	3.1	2.9	2.97	3.12	3.05	2.94	2.82	2.79	2.68	2.61	2.59	2.65	2.51	2.46	2.83	2.9	2.6	3.49	2.95	3.26	3.76	4.48	4.71	5.6
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	115.00	115.00	117.00	114.00	115.00	118.00	114.00	114.00	111.00	112.00	109.00	115.00	118.00	111.00	111.00	119.00	135.00	102.00	125.00	136.00	142.00	154.00	188.00	180.00	239.00
Strontium	mg/L	0.646	0.645	0.677	0.672	0.701	0.696	0.711	0.721	0.685	0.725	0.69	0.687	0.733	0.658	0.678	0.761	0.815	0.658	0.796	0.873	0.858	0.91	1.13	1.08	1.39
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05	21-Dec-05
Zinc	mg/L	***0.118***	***0.106***	***0.0967***	***0.0949***	***0.0936***	***0.0945***	***0.0925***	***0.101***	***0.0959***	***0.117***	***0.12***	***0.138***	***0.119***	***0.104***	***0.108***	***0.122***	***0.123***	***0.121***	***0.219***	***0.158***	***0.154***	***0.177***	***0.175***	***0.221***	***0.163***
Dissolved Metals																										
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.0113	0.0123	0.0126	0.0157	0.0164	0.0166	0.0183	0.0185	0.0221	0.0186	0.021	0.0211	0.019	0.0185	0.0177	0.0178	0.0189	0.0569	0.0189	0.0162	0.0222	0.0175	0.0194	0.0251	0.0377
Barium	mg/L	0.031	0.031	0.031	0.031	0.031	0.032	0.031	0.027	0.029	0.028	0.026	0.025	0.026	0.027	0.026	0.029	0.028	0.031	0.034	0.037	0.039	0.042	0.055	0.053	0.06
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	0.13	0.14	0.14	0.14	0.14	0.14	0.15	0.14	0.16	0.16	0.16	0.15	0.16	0.14	0.14	0.17	0.17	0.15	0.16	0.17	0.18	0.17	0.22	0.22	0.25
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.011	0.011	0.012	0.012	0.011	0.011	0.01	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	0.012	0.013	0.018	0.019	0.02
Copper	mg/L	0.036	0.036	0.034	0.035	0.041	0.042	0.042	0.041	0.045	0.042	0.048	0.038	0.045	0.038	0.048	0.048	0.047	0.055	0.054	0.04	0.041	0.041	0.01	0.029	0.052
Iron	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.031	<0.03	<0.03	<0.03	<0.03	0.67	0.042	0.035	0.064	<0.03	0.038	<0.03	<0.03
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	0.01	0.012	<0.01	0.012	0.015	<0.01	<0.01	0.022	0.011	<0.01	0.031	0.026	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	5.47	5.41	5.23	4.91	5.27	4.66	4.62	4.25	4.05	4.13	3.6	3.45	3.47	3.02	3.02	3.44	3.39	3.05	4.46	7.02	6.57	7.61	11.3	11.9	15.6
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	2.74	2.96	2.84	2.81	3.02	2.86	2.83	2.58	2.75	2.66	2.42	2.47	2.47	2.38	2.27	2.62	2.65	2.63	2.94	2.75	3.02	3.25	3.98	4.34	4.78
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	0.638	0.646	0.664	0.658	0.697	0.668	0.696	0.674	0.703	0.747	0.654	0.687	0.709	0.656	0.668	0.752	0.773	0.714	0.797	0.859	0.851	0.878	1.06	1.04	1.35
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0863	0.0843	0.0794	0.0818	0.0846	0.0878	0.0837	0.0833	0.0808	0.0872	0.0949	0.0838	0.09	0.0782	0.0823	0.0928	0.101	0.0908	0.153	0.136	0.137	0.145	0.146	0.133	0.131

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	29-Dec-05	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06	28-Sep-06	12-Oct-06	26-Oct-06	9-Nov-06	23-Nov-06	7-Dec-06	4-Jan-07	8-Feb-07	22-Feb-07	22-Mar-07	5-Apr-07
Physical Parameters																										
pH	pH units	7.91	--	7.84	7.84	7.94	7.91	7.84	8.09	7.99	7.89	7.98	7.86	8	8.08	7.98	8.01	7.91	7.9	7.88	7.91	7.91	7.9	7.8	7.58	7.71
Conductivity	µS/cm	4010	--	1290	1290	1320	1430	1580	1610	1680	1760	1780	1770	1830	1770	1800	1840	2100	2190	2340	2700	2790	2940	3170	1860	1900
Routine Parameters																										
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	1957.27	--	562.98	598.66	605.25	670.95	718.78	668.83	832.68	790.33	871.02	815.61	878.51	816.57	908.81	833.17	936.53	1137.69	1267.59	1411.91	1297.44	1645.13	1736.03	899.04	874.98
Alkalinity-Total	mg/L	346	--	104	93	97.9	33	111	121	122	128	138	117	130	116	133	130	148	157	174	189	199	230	234	202	220
Bicarbonate	mg/L	346	--	104	93	97.9	33	111	121	122	128	138	117	130	116	133	130	148	157	174	189	199	230	234	202	220
Carbonate	mg/L	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0
Hydroxide	mg/L	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<1.0	<2.0
Calcium	mg/L	622	--	170	180	183	201	227	211	260	252	275	251	273	276	291	283	287	348	402	410	428	572	548	288	285
Magnesium	mg/L	101	--	30.7	33.3	33.5	35.5	38	38.4	39.5	38.4	39.4	39.4	38.4	38.6	41.1	41.8	41.3	47.6	59.4	61.8	63.7	84.6	82.7	36.2	34.5
Potassium	mg/L	36.3	--	7.4	8	8.9	10.1	11.2	9.5	12.9	11.2	14.5	14.5	14.3	13.3	15.7	13.8	15.1	18.8	22.9	22.7	23.9	32.1	31.1	8.2	9.2
Sodium	mg/L	235	--	69.8	64.7	67.9	77.8	89.2	83	103	106	116	113	107	111	112	113	114	142	148	176	174	227	216	116	118
Sulphate	mg/L	2400	--	601	607	652	721	774	821	899	818	907	895	912	921	916	928	1050	1240	1420	1450	1640	1820	1970	890	187
Nutrients																										
Ammonia-N	mg/L	***16.4***	--	***4.38***	***3.43***	***4.42***	***4.76***	***6.15***	***5.45***	***6.4***	***4.83***	***5.54***	***4.47***	***3.98***	***3.24***	***2.55***	***2.33***	***2.97***	***2.69***	***3.34***	***3.39***	***4.07***	***4.88***	***4.91***	***6.53***	***5.52***
Nitrate-N	mg/L	0.642	--	1.810	1.760	1.560	1.480	1.310	1.370	1.340	1.250	1.440	1.630	1.930	2.210	2.480	2.790	3.300	3.970	4.120	4.390	3.870	3.280	3.000	1.550	0.379
Nitrite-N	mg/L	0.021	--	0.045	0.060	***0.065***	***0.062***	***0.081***	***0.090***	***0.087***	***0.097***	***0.108***	***0.111***	***0.125***	***0.122***	0.060	***0.084***	***0.115***	***0.120***	***0.117***	***0.107***	***0.078***	0.043	0.042	***0.355***	0.021
Total Phosphorus	mg/L	0.43	--	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.60	<0.30	<0.30	<0.30
Cyanide Compounds																										
Cyanide - T	mg/L	0.248	--	0.0515	0.0218	0.0441	0.0317	0.0141	0.0412	0.0175	0.0409	0.0391	0.0118	0.0195	0.0158	0.0185	0.0459	0.0184	0.0206	0.0306	0.0155	0.018	<0.0050	<0.0050	0.0246	0.0171
Cyanate	mg/L	***38.6***	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	***0.57***	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	***0.6***	***0.93***	***1.32***	<0.50	0.0205	0.015	***1.08***	***4.89***
Thiocyanate	mg/L	2.98	--	4.61	3.82	3.36	4.04	3.99	3.42	3.14	2.61	1.39	1.79	1.6	1.59	1.37	1.75	1.76	1.58	1.56	1.34	1.03	<0.50	<0.50	11.1	9.8
CN-WAD	mg/L	0.036	--	0.020	0.011	0.026	0.021	0.013	0.020	0.015	0.034	0.040	0.010	0.010	<0.0050	0.008	0.017	0.009	0.011	0.011	0.007	0.006	***1.240***	***1.200***	<0.0050	0.006
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																										
Aluminum	mg/L	***5.97***	--	***0.27***	***0.35***	***0.22***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.33***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Arsenic	mg/L	***1.86***	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.0414***	<0.20	<0.40	<0.20	<0.20	<0.20
Barium	mg/L	0.2090	--	0.0300	0.0260	0.0270	0.0260	0.0260	0.0260	0.0290	0.0300	0.0280	0.0250	0.0230	0.0220	0.0210	0.0300	0.0250	0.0260	0.0300	0.0310	0.0290	0.0290	0.0300	0.0600	0.0550
Beryllium	mg/L	<0.0050	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Boron	mg/L	0.28	--	<0.10	<0.10	0.11	0.11	0.12	0.12	0.13	0.14	0.15	0.14	0.15	0.15	0.15	0.14	0.18	0.22	0.22	0.27	0.21	0.27	0.28	0.13	0.11
Cadmium	mg/L	***0.028***	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010
Calcium	mg/L	609	--	174	184	184	208	226	206	266	253	283	259	286	264	295	269	300	370	408	447	416	530	557	299	292
Chromium	mg/L	***0.013***	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010
Cobalt	mg/L	0.03	--	<0.010	<0.010	<0.010	<0.010	0.01	<0.010	<0.010	0.011	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.020	<0.010	0.017	0.014
Copper	mg/L	***1.12***	--	***0.041***	***0.058***	***0.058***	***0.055***	***0.05***	***0.036***	***0.046***	***0.038***	***0.032***	***0.041***	***0.042***	***0.036***	***0.055***	***0.109***	***0.055***	***0.068***	***0.068***	***0.07***	***0.074***	***0.079***	***0.08***	<0.010	<0.010
Iron	mg/L	***38.3***	--	***2.8***	***1.5***	***1.5***	***1.5***	***1.4***	***1.1***	***1.2***	***1.1***	***0.8***	***0.5***	***0.5***	***0.5***	***0.6***	***2.4***	***0.7***	***0.7***	***0.6***	***0.7***	***1.1***	***0.5***	***0.4***	***14.9***	***14.7***
Lead	mg/L	***1.44***	--	<0.050	***0.052***	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	***0.059***	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.050	<0.050	<0.050
Lithium	mg/L	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.016	0.014	<0.010	<0.010	<0.020	<0.020	<0.010	<0.010
Magnesium	mg/L	106.00	--	31.20	33.80	35.40	36.80	37.50	37.50	40.90	38.50	39.90	41.00	39.90	38.20	41.80	39.20	45.50	51.90	60.40	71.80	62.80	78.10	83.80	37.00	35.40
Manganese	mg/L	18.9	--	4.65	4.58	4.48	4.99	4.73	3.92	4.46	3.92	3.99	3.25	2.65	2.16	1.9	2.6	1.69	1.82	1.95	1.92	1.81	2.76	3.09	8.22	8.45
Molybdenum	mg/L	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030
Nickel	mg/L	<0.050	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.050	<0.050	<0.050
Potassium	mg/L	38.5	--	7.7	8.3	7.8	10.5	11.1	9.3	13.5	11.2	14.7	15.2	15.1	12	16.1	14.7	16.7	21.1	24.1	24.8	23.8	29.6	32.3	8.4	9.3
Selenium	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Silicon	mg/L	11.1	--	2.93	2.49	2.57	2.61	2.54	2.4	2.74	2.82	3.19	3.03	3.27	2.88	3.17	3.49	3.28	3.95	4.28	4.36	4.2	4.69	5.07	6.47	5.95
Silver	mg/L	***0.024***	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010
Sodium	mg/L	250.00	--	71.50	66.20	71.90	80.50	88.30	81.80	107.00	108.00	118.00	117.00	112.00	107.00	114.00	111.00	126.00	155.00	155.00	190.00	175.00	210.00	221.00	119.00	121.00
Strontium	mg/L	1.53	--	0.516	0.495	0.486	0.55	0.57	0.514	0.67	0.633	0.737	0.721	0.742	0.659	0.76	0.698	0.745	0.947	1.11	1.01	1.07	1.38	1.35	0.781	0.852
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Tin	mg/L	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030
Titanium	mg/L	0.056	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010
Vanadium	mg/L	<0.030	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	<0.030

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond
Date	Units	29-Dec-05	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06	28-Sep-06	12-Oct-06	26-Oct-06	9-Nov-06	23-Nov-06	7-Dec-06	4-Jan-07	8-Feb-07	22-Feb-07	22-Mar-07	5-Apr-07
Zinc	mg/L	***1.58***	--	***0.174***	***0.23***	***0.198***	***0.177***	***0.15***	***0.123***	***0.0915***	***0.0644***	***0.0554***	***0.0508***	***0.0496***	***0.0538***	***0.0545***	***0.137***	***0.0607***	***0.072***	***0.0829***	***0.102***	***0.152***	***0.173***	***0.176***	0.0064	0.0075
Dissolved Metals																										
Aluminum	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Antimony	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Arsenic	mg/L	0.0782	--	0.0038	0.0077	0.00707	0.00577	0.0064	0.0385	0.0087	0.0094	0.0091	0.0131	0.0185	0.0224	0.0228	0.026	0.0303	0.0262	0.0245	0.0149	0.0156	0.019	0.0172	0.00336	0.00299
Barium	mg/L	0.055	--	0.025	0.021	0.022	0.024	0.025	0.026	0.026	0.029	0.027	0.023	0.021	0.021	0.02	0.022	0.021	0.023	0.027	0.029	0.024	0.03	0.029	0.05	0.045
Beryllium	mg/L	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Boron	mg/L	0.26	--	<0.10	<0.10	<0.10	0.11	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.15	0.15	0.15	0.17	0.2	0.21	0.21	0.22	0.28	0.28	0.12	0.11
Cadmium	mg/L	<0.01	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	<0.01	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.023	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.020	<0.01	0.016	0.013
Copper	mg/L	0.155	--	0.022	0.023	0.03	0.011	0.028	0.039	0.03	0.024	0.026	0.029	0.032	0.03	0.039	0.036	0.038	0.052	0.051	0.053	0.052	0.067	0.069	<0.01	<0.01
Iron	mg/L	0.081	--	0.109	<0.03	<0.03	<0.03	<0.03	1.11	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.06	<0.03	0.051	0.046
Lead	mg/L	<0.05	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	0.012	<0.01	<0.01	<0.020	<0.020	<0.01	<0.01
Manganese	mg/L	16.6	--	4.49	4.44	4.56	4.71	4.74	4	4.27	3.86	3.89	3.09	2.5	2.17	1.84	1.61	1.57	1.66	1.84	1.66	1.72	2.98	3.03	7.74	7.97
Molybdenum	mg/L	<0.03	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.060	<0.03	<0.03	<0.03
Nickel	mg/L	<0.05	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.05	<0.05	<0.05
Phosphorus	mg/L	<0.30	--	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.60	<0.30	<0.30	<0.30
Selenium	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Silicon	mg/L	4.68	--	2.48	1.92	2.05	2.29	2.35	2.44	2.5	2.65	3.05	2.85	3.01	2.93	2.98	2.87	2.88	3.6	3.87	3.93	3.99	4.92	4.81	5.62	5.17
Silver	mg/L	<0.01	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.020	<0.01	<0.01	<0.01
Strontium	mg/L	1.43	--	0.508	0.49	0.479	0.533	0.577	0.535	0.648	0.631	0.726	0.698	0.713	0.639	0.746	0.666	0.675	0.864	1.06	0.957	1.05	1.49	1.32	0.756	0.821
Thallium	mg/L	<0.20	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
Tin	mg/L	<0.03	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.03	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.115	--	0.112	0.145	0.117	0.0968	0.0962	0.107	0.044	0.0315	0.0327	0.0294	0.0301	0.0305	0.0307	0.0344	0.039	0.0512	0.0661	0.0772	0.108	0.166	0.161	<0.0050	<0.0050

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	POND	POND	POND	Pond	CCME Guidelines	Water License Standards	YCSG*
Date		19-Apr-07	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07	26-Jul-07	9-Aug-07	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07	15-Dec-07			
Physical Parameters																		
pH	pH units	7.99	8.17	7.71	7.72	7.76	7.91	8.07	7.9	7.34	8.08	7.75	7.77	7.84	7.76	**6.5 - 9.0**	**6.0 to 8.5**	--
Conductivity	µS/cm	4030	3800	1030	717	1090	1200	1300	1320	1380	1440	1420	1560	2220	3300	--	--	--
																--		
Routine Parameters																		
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**50**	--
Hardness	mg/L	2098.01	1863.67	566.96	322.22	531.83	596.16	632.89	659.78	651.05	673.89	709.62	782.09	1180.00	1836.14	--	--	--
Alkalinity-Total	mg/L	296	269	36.1	28.2	40.9	47.4	49.4	68.3	71.9	98	103	109	181	279	--	--	--
Bicarbonate	mg/L	296	269	36.1	28.2	40.9	47.4	49.4	68.3	71.9	98	103	109	181	340	--	--	--
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<6	--	--	--
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5	--	--	--
Calcium	mg/L	661	624	166	102	177	183	205	203	212	218	226	239	354	605	--	--	--
Magnesium	mg/L	105	93.1	34.9	17.8	31.8	33.4	32.2	34.5	35.9	37	38.1	45	71.5	103	--	--	--
Potassium	mg/L	33.7	34	8.7	5.7	11.3	12.8	13.3	12.6	15	17.7	17.7	18.2	27.8	43	--	--	--
Sodium	mg/L	244	238	40.5	28.7	49.9	54.7	54.4	53.5	59.8	56.1	52.2	55.5	91.9	147	--	--	--
Sulphate	mg/L	2490	2210	512	329	550	599	632	663	661	725	699	768	1210	1860	--	--	**1000**
Nutrients																		
Ammonia-N	mg/L	***4.76***	***5.28***	0.876	1.03	1.44	1.18	0.778	0.418	0.164	0.375	1.06	1.1	***2.62***	***3.97***	**2.20**	--	**11.3**
Nitrate-N	mg/L	2.140	1.910	1.770	1.080	1.940	2.090	1.540	1.210	0.817	0.577	0.956	1.180	1.440	1.830	**13.0**	--	**400**
Nitrite-N	mg/L	0.027	0.024	0.029	0.040	***0.073***	***0.111***	***0.104***	***0.071***	0.039	0.028	0.028	0.043	0.037	<0.02	**0.06**	--	--
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--
Cyanide Compounds																		
Cyanide - T	mg/L	0.0233	0.0185	0.0102	0.0174	0.0189	0.0133	0.0121	0.0074	0.012	0.0151	0.0118	0.0302	0.0177	--	**0.3***	**0.3**	--
Cyanate	mg/L	***2.46***	***1.5***	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	***1.4***	**0.5**	--	--
Thiocyanate	mg/L	1.17	1.21	0.52	1.87	1.54	1.53	1.01	1.05	0.97	1.4	1.72	1.25	1.1	0.8	--	--	--
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	0.006	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.006	0.008	0.004	**0.1***	**0.1**	**0.05**
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.010	--	--	--
Total Metals																		
Aluminum	mg/L	<0.20	<0.20	<0.20	***0.24***	***0.3***	<0.20	<0.20	<0.20	<0.20	<0.20	***0.29***	<0.20	***0.108***	***0.16***	**0.1**	--	--
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0692	0.0797	--	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.2***	<0.20	<0.20	***0.123***	***0.13***	**0.005**	--	**0.5**
Barium	mg/L	0.0230	0.0320	<0.010	<0.010	0.0140	0.0120	0.0110	<0.010	0.0120	0.0160	0.0160	0.0170	0.0270	0.0400	--	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0025	<0.0002	--	--	**0.053**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0025	<0.001	--	--	--
Boron	mg/L	0.36	0.28	<0.10	<0.10	<0.10	0.12	0.13	0.12	0.14	0.14	0.13	0.15	0.203	0.333	--	--	**50**
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.00285***	***0.00462***	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	667	603	169	101	164	183	201	206	203	210	222	238	351	575	--	--	--
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0025	0.002	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00293	0.0036	--	--	**0.009**
Copper	mg/L	***0.079***	***0.094***	***0.038***	***0.054***	***0.056***	***0.045***	***0.053***	***0.05***	***0.061***	***0.108***	***0.068***	***0.073***	***0.0828***	***0.15***	**0.004**	**0.2**	**0.05**
Iron	mg/L	***0.4***	***0.7***	0.1	***0.7***	***1.2***	0.2	0.2	0.3	***0.4***	***1.8***	***0.7***	***0.8***	***0.6***	***0.8***	**0.30**	**1**	--
Lead	mg/L	<0.050	<0.050	<0.050	***0.052***	***0.087***	<0.050	<0.050	<0.050	<0.050	***0.053***	<0.050	<0.050	***0.0193***	***0.0249***	**0.007**	**0.1**	**0.06**
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.025	0.01	--	--	--
Magnesium	mg/L	105.00	86.90	35.20	17.00	29.70	33.80	31.80	35.30	35.00	36.30	37.70	45.60	71.60	97.20	--	--	--
Manganese	mg/L	4.92	4.38	1.77	0.922	0.748	0.489	0.378	0.354	0.313	0.331	0.669	0.604	1.1	1.1	--	**0.5**	--
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.00403	0.005	**0.073**	--	**10**
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0026	0.0087	**0.150**	**0.3**	**0.65**
Potassium	mg/L	31.9	32.3	8.7	5.5	10.4	13	13.3	13	14.5	15.5	16.9	19.1	27.8	39.6	--	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0050	***0.002***	**0.001**	--	**0.01**
Silicon	mg/L	5.71	5.21	1.13	1.02	1.39	1.4	1.56	1.37	1.69	2.26	2.8	2.94	4.51	6.25	--	--	--
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.000141***	***0.0003***	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	232.00	226.00	40.50	27.30	46.20	52.50	54.00	55.00	57.30	55.40	51.60	56.40	91.60	136.00	--	--	--
Strontium	mg/L	1.38	1.46	0.378	0.21	0.354	0.425	0.443	0.442	0.476	0.52	0.511	0.586	0.838	1.44	--	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	624	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.00050	0.00032	**0.0008**	--	**0.003**
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.00050	<0.002	--	--	--
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	0.048	--	--	**1**
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.0050	0.0008	--	--	--

Table A7. Water Quality Parameters in the Tailings Pond.

Sample ID		Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	Pond	POND	POND	POND	Pond	CCME Guidelines	Water License Standards	YCSG*
Date	Units	19-Apr-07	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07	26-Jul-07	9-Aug-07	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07	15-Dec-07			
Zinc	mg/L	***0.226***	***0.212***	***0.157***	***0.176***	***0.168***	***0.0773***	***0.0798***	***0.089***	***0.0707***	***0.0886***	***0.0877***	***0.102***	***0.189***	***0.326***	**0.03**	**0.3**	**0.9**
Dissolved Metals																		
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0050	<0.005	--	--	--
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0693	0.0866	--	--	--
Arsenic	mg/L	0.022	0.0226	0.0195	0.0302	0.0436	0.0469	0.0554	0.059	0.0524	0.0468	0.0526	0.0472	0.0552	0.0786	--	**0.15**	--
Barium	mg/L	0.025	0.031	<0.010	<0.010	0.01	0.01	0.01	<0.010	0.01	0.012	0.013	0.014	0.0258	0.039	--	--	--
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0025	<0.0001	--	--	--
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0025	<0.0005	--	--	--
Boron	mg/L	0.38	0.3	<0.10	<0.10	0.1	0.12	0.13	0.11	0.15	0.14	0.13	0.15	0.202	0.311	--	--	--
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00236	0.00452	--	--	--
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0025	0.0011	--	--	--
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00279	0.0038	--	--	--
Copper	mg/L	0.074	0.08	0.028	0.032	0.031	0.028	0.038	0.041	0.037	0.039	0.042	0.043	0.0587	0.125	--	--	--
Iron	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.1	--	--	--
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.00077	0.001	--	--	--
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.025	0.011	--	--	--
Manganese	mg/L	4.89	4.4	1.48	0.898	0.58	0.39	0.35	0.284	0.165	0.237	0.643	0.557	1.06	1.2	--	--	--
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.00446	0.006	--	--	--
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0025	0.0088	--	--	--
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		--	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.005	0.0007	--	--	--
Silicon	mg/L	5.64	5	1.05	0.72	1.11	1.22	1.41	1.31	1.7	2.09	2.3	2.57	4.17	6.3	--	--	--
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.01	<0.00005	<0.0001	--	--	--
Strontium	mg/L	1.45	1.51	0.381	0.222	0.376	0.418	0.444	0.432	0.49	0.512	0.524	0.583	0.862	1.48	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0005	0.00034	--	--	--
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.0005	<0.001	--	--	--
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.032	--	--	--
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	0.003	--	--	--
Zinc	mg/L	0.221	0.194	0.145	0.139	0.11	0.0571	0.0608	0.0635	0.045	0.0264	0.055	0.0683	0.161	0.295	--	--	--

Notes:

* Yukon Contaminated Sites Regulations

text denotes concentrations that are above CCME guidelines for the protection of aquatic life

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	27-Jan-99	3-Mar-99	31-Mar-99	20-Apr-99	23-Jun-99	15-Jul-99	12-Aug-99	8-Sep-99	28-Sep-99	6-Oct-99	26-Oct-99	2-Nov-99	10-Nov-99	22-Nov-99	30-Nov-99	8-Dec-99	8-Dec-99	15-Dec-99	17-Jan-00	15-Feb-00	15-Mar-00	14-Apr-00	16-May-00	16-May-00
Physical Parameters																									
pH	pH units	6.9	6.92	7	7.35	6.82	7.15	7.33	6.83	6.89	7.06	7.09	6.9	7.2	6.9	7.21	--	7	6.96	6.94	7	***10.34***	7.2	7.04	7.01
Conductivity	µS/cm	3000	3200	3300	3000	3650	3700	3400	2650	3400	3400	3300	3290	3350	3430	3600	--	3500	3450	3700	3550	3210	3400	3100	3100
Routine Parameters																									
Total Suspended Sediment	mg/L	28	21	27	48	19	80	52	31	31	27	39	14	15	14	21	--	25	28	44	18	<5.0	21	16	18
Total Dissolved Solids	mg/L	2660	2960	2980	2650	3250	3140	3040	2570	2800	2920	2880	2890	2940	2840	2990	--	3040	2950	2760	2960	2580	2930	2760	2770
Hardness	mg/L	1328.32	1268.93	1417.59	1272.85	1216.58	1245.69	1205.41	1062.41	1117.37	1189.38	1168.58	1094.04	1108.78	1126.76	1096.40	--	1328.25	1142.98	1148.44	1122.31	1077.00	1292.69	1141.39	1091.93
Alkalinity-Total	mg/L	193	209	213	195	225	358	205	182	191	185	197	193	178	177	169	--	168	162	213	176	124	185	143	139
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1500	1720	2000	1590	1820	1830	1820	1610	1900	1790	1940	1650	1550	1600	1860	--	1930	1850	3170	1870	2080	2020	2010	1960
Nutrients																									
Ammonia-N	mg/L	***12.7***	***12.4***	***12.5***	***13.3***	***18.7***	***25.4***	***18.0***	***12.5***	***31.3***	***16.6***	***24.5***	***24.0***	***22.7***	***20.1***	***18.9***	--	***17.7***	***16.8***	***18.9***	***19.2***	***20.7***	***19.2***	***17.2***	***17.2***
Nitrate-N	mg/L	0.12	<0.05	<0.05	1.00	1.15	1.88	1.47	1.48	2.30	0.45	1.94	1.92	<0.10	1.33	0.21	--	0.26	0.76	0.72	0.47	0.37	0.47	1.05	1.20
Nitrite-N	mg/L	0.02	0.06	0.02	<0.003	0.003	***0.10***	***0.13***	0.06	***0.10***	0.01	***0.34***	***4.74***	<0.05	***2.38***	***0.11***	--	0.05	***0.12***	<0.02	***0.55***	<0.02	0.05	***1.05***	***1.20***
Total Phosphorus	mg/L	0.72	0.11	<0.06	0.11	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.05	<0.05	<0.05	<0.06	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	--	***11***	--	--	--	--	--	--	***52.3***	***15.3***	***38***	<0.05	***6.6***	***6.6***	--	--	***4.83***	--	***7.83***	***10.3***	***10.5***	***13.5***	***11.1***	***12.5***
Thiocyanate	mg/L	--	--	--	--	--	--	--	--	12.1	11.3	--	--	4.24	9.3	12.4	12.7	11.6	12.2	97.7	115	20.3	26.1	10.9	10.9
CN-WAD	mg/L	***11.0***	***23.0***	***17.5***	***26.0***	***13.0***	***0.3***	***0.1***	***10.2***	***0.128***	***34.0***	***0.2***	***12.0***	***17.0***	***16.3***	***10.0***	--	***16.200***	***13.600***	***11.300***	***9.480***	***9.080***	***6.500***	***4.300***	***2.600***
CN-SAD	mg/L	17.0	21.0	45.0	27.0	36.0	34.5	57.0	41.8	38.8	58.6	47.5	13.5	18.2	16.5	19.8	--	17.500	15.100	12.200	10.100	13.400	20.000	6.910	3.800
Total Metals																									
Aluminum	mg/L	0.04	<0.01	<0.01	***0.63***	<0.01	***0.48***	***0.13***	<0.01	<0.01	<0.01	<0.01	0.04	0.04	0.04	<0.01	--	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	<0.02	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	mg/L	<0.02	<0.02	***0.1***	***0.03***	***0.04***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.02***	***0.03***	***0.03***	<0.02	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.04***	***0.05***
Barium	mg/L	0.0767	0.0714	0.0701	0.0736	0.0597	0.0652	0.0705	0.0706	0.0627	0.0595	0.0734	0.0770	0.0740	0.0730	0.0578	--	0.0642	0.0560	0.0603	0.0567	0.0575	0.0559	0.0522	0.0529
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	0.09	0.1	0.11	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	***0.0028***	***0.0064***	***0.0066***	***0.0058***	***0.0069***	***0.0063***	***0.005***	***0.0028***	***0.0042***	***0.0041***	***0.004***	***0.005***	***0.005***	***0.005***	***0.0035***	--	***0.0036***	***0.0037***	***0.0045***	***0.0035***	***0.0044***	***0.0036***	***0.0036***	***0.0034***
Calcium	mg/L	475	456	503	449	424	420	407	342	379	408	400	369	381	391	380	--	458	397	401	394	378	452	399	382
Chromium	mg/L	<0.001	<0.001	<0.001	0.002	0.002	0.003	0.001	<0.001	0.001	<0.001	0.001	<0.005	<0.005	<0.005	<0.001	--	<0.001	0.002	0.002	0.001	<0.001	<0.001	0.003	0.002
Cobalt	mg/L	0.166	0.174	0.198	0.175	0.189	0.188	0.227	0.23	0.175	0.172	0.173	0.199	0.191	0.19	0.154	--	0.167	0.152	0.163	0.153	0.15	0.141	0.123	0.126
Copper	mg/L	***20.5***	***21.3***	***29.1***	***23.1***	***36.8***	***34.3***	***29.4***	***17.9***	***21.3***	***24.9***	***19.9***	***19.8***	***16.9***	***17.3***	***17.7***	--	***19.1***	***16.3***	***14.5***	***12.3***	***10.6***	***9.65***	***7.69***	***7.41***
Iron	mg/L	***10.9***	***8.2***	***11.2***	***10.1***	***8.2***	***11.6***	***9.2***	***11.4***	***7.0***	***8.8***	***8.6***	***10.3***	***11.4***	***11.1***	***9.0***	--	***12.3***	***10.4***	***9.7***	***8.3***	***7.9***	***9.4***	***8.2***	***7.8***
Lead	mg/L	<0.005	<0.005	<0.005	0.006	<0.005	***0.009***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	34.50	31.60	39.20	36.80	38.30	47.80	45.90	50.60	41.50	41.40	41.20	41.90	38.20	36.50	35.80	--	44.80	36.80	35.70	33.60	32.30	39.80	35.20	33.50
Manganese	mg/L	13.9	13.6	16	14.3	16.7	15.9	16.5	16.3	14.7	14.3	13.6	16.9	14.5	13.6	12.4	--	14.8	13.2	12.5	11.8	11.3	13.4	11.7	11.2
Molybdenum	mg/L	0.006	<0.005	0.006	<0.005	0.007	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.007	0.007	<0.005	--	<0.005	0.006	<0.005	<0.005	<0.005	0.007	<0.005	0.007
Nickel	mg/L	0.11	0.116	***0.159***	***0.164***	***0.214***	***0.221***	***0.222***	***0.218***	***0.185***	***0.172***	***0.16***	***0.172***	***0.163***	***0.155***	0.124	--	0.136	0.121	0.12	0.1	0.098	0.088	0.072	0.073
Potassium	mg/L	7.3	8	8.3	8.9	10	10	11	7.3	7.9	13	12	10.7	12.3	12.5	11.9	--	12	13	15	14	16	17	13	11
Selenium	mg/L	<0.02	<0.02	<0.02	***0.04***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	<0.02	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Silicon	mg/L	4.88	5.33	5.21	5.42	5.2	5.33	5.18	4.23	4.45	4.33	4.47	--	--	--	3.91	--	4.35	4.02	4.37	4.21	4.32	4.35	4.01	4.07
Silver	mg/L	***0.11***	***0.122***	***0.06***	***0.031***	***0.119***	***0.098***	***0.093***	***0.046***	***0.045***	***0.074***	***0.048***	***0.046***	***0.055***	<0.005	***0.043***	--	***0.036***	***0.037***	***0.057***	***0.033***	***0.026***	***0.015***	***0.019***	***0.019***
Sodium	mg/L	271	269	295	258	354	366	370	201	294	335	317	306	342	291	317	--	376	341	348	355	340	390	317	305

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	27-Jan-99	3-Mar-99	31-Mar-99	20-Apr-99	23-Jun-99	15-Jul-99	12-Aug-99	8-Sep-99	28-Sep-99	6-Oct-99	26-Oct-99	2-Nov-99	10-Nov-99	22-Nov-99	30-Nov-99	8-Dec-99	8-Dec-99	15-Dec-99	17-Jan-00	15-Feb-00	15-Mar-00	14-Apr-00	16-May-00	16-May-00
Strontium	mg/L	1.01	<0.02	1.11	1.04	1.07	1.01	1.01	0.943	0.89	0.88	0.951	1.33	1.16	1.22	0.86	--	0.948	0.882	0.963	0.921	0.973	0.927	0.833	0.851
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.005	<0.005	0.014	0.021	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.007	<0.050	<0.050	<0.050	<0.005	--	<0.005	<0.005	0.007	0.72	<0.005	<0.005	<0.005	<0.005
Titanium	mg/L	0.006	0.002	0.005	0.027	<0.001	0.014	0.002	<0.001	<0.001	<0.001	<0.001	0.027	0.02	0.024	<0.001	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001
Vanadium	mg/L	<0.002	0.021	0.022	0.013	0.022	0.023	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.001	<0.001	<0.002	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc	mg/L	***0.11***	***0.173***	***0.097***	***0.11***	***0.096***	***0.334***	***0.074***	***0.047***	***0.064***	***0.052***	***0.052***	***0.045***	***0.035***	***0.048***	***0.048***	--	***0.063***	***0.054***	***0.1***	***0.063***	***0.091***	***0.055***	***0.058***	***0.057***
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00	5-Sep-00	26-Sep-00	11-Oct-00	1-Nov-00	28-Nov-00	18-Dec-00	17-Jan-01	22-Feb-01	21-Mar-01	23-Apr-01	22-May-01	18-Jun-01	4-Jul-01	18-Jul-01	31-Jul-01	14-Aug-01	29-Aug-01	17-Sep-01
Physical Parameters																								
pH	pH units	6.99	7.03	7.23	7.5	--	7.41	7.24	7.13	6.97	7.12	7.19	7.4	7.14	7.07	--	7	6.8	--	6.95	6.82	6.92	6.97	7.01	6.79
Conductivity	µS/cm	3200	3200	2800	3250	2900	2950	2900	2450	2700	2600	2950	2850	2800	2500	--	2700	2600	2500	2440	2650	2220	2540	2350	2360
Routine Parameters																									
Total Suspended Sediment	mg/L	31	31	4.93	29	35	26	27	27	24	490	50	35	27	24	--	40	22		19	29	8	14	15	14
Total Dissolved Solids	mg/L	2780	2760	2590	2800	2560	2550	2500	2130	2420	2340	2560	2470	2230	1920	--	2180	2050	1940	2340	2480	2190	2330	2270	2070
Hardness	mg/L	1266.81	1098.11	1015.00	1213.67	1098.46	896.88	1169.13	845.45	972.60	961.68	971.84	1032.33	930.07	947.41	1046.90	981.11	734.80	932.21	1081.50	1146.35	1094.37	1117.23	1009.79	897.13
Alkalinity-Total	mg/L	137	158	126	142	148	134	141	85	117	99	97	114	126	140	--	149	131	125	156	157	148	156	152	151
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1800	1860	1800	1980	1690	1840	1970	1310	1440	1320	1470	1520	1350	1270	--	1440	--	1100	1800	1880	1590	1530	1570	1550
Nutrients																									
Ammonia-N	mg/L	***15.3***	***14.8***	***13.2***	***15.3***	***14.2***	***15.0***	***14.3***	***11.7***	***15.6***	***11.4***	***13.4***	***15.6***	***14.4***	***14.3***	--	***16.4***	***8.5***	***13.3***	***16.9***	***14.6***	***15.4***	***13.8***	***12.1***	***14.3***
Nitrate-N	mg/L	1.50	1.15	1.14	--	7.44	--	--	--	--	--	--	--	0.48	0.90	--	0.60	0.50	0.80	0.72	0.53	0.97	0.97	0.94	1.01
Nitrite-N	mg/L	***0.60***	<0.01	--	--	--	--	--	--	--	--	--	--	***0.15***	***0.16***	--	--	--	--	***0.19***	***0.19***	***0.22***	***0.28***	***0.24***	***0.20***
Total Phosphorus	mg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.23	0.1	<0.06	<0.06	<0.1	0.07	<0.06	0.19	<0.06	0.08	0.06	0.06	0.07	<0.06	<0.06
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	***18.6***	***3.3***	***8.1***	***10.7***	***15.1***	***12***	***16.6***	***12.9***	***20.8***	***13.1***	***15.4***	***11***	***11.2***	***8.67***	--	***7.59***	***4.15***	***6.15***	***10.4***	***3.6***	***2.61***	***3.64***	***1.09***	***5.29***
Thiocyanate	mg/L	106	1140	99.3	123	111	111	108	90.6	91.6	70.2	89.8	92.4	87.6	85.8	--	131	110	115	99.8	78.1	67.6	82	68.7	61.4
CN-WAD	mg/L	***3.080***	--	***4.390***	***3.660***	***2.550***	***3.230***	***3.140***	***2.130***	***1.710***	***1.590***	***1.830***	***1.540***	***1.120***	***0.935***	--	***1.480***	***1.200***	***0.852***	***0.662***	***0.368***	***0.744***	***0.367***	***0.333***	***0.624***
CN-SAD	mg/L	8.250	--	4.930	4.940	2.590	5.210	3.440	3.570	2.410	2.890	6.090	4.270	3.460	2.490	--	2.380	1.120	3.410	1.780	0.690	0.630	1.940	0.897	1.540
Total Metals																									
Aluminum	mg/L	***0.17***	***0.15***	***0.51***	***0.5***	***0.27***	0.09	0.04	0.09	<0.01	***3.13***	***0.14***	<0.01	<0.01	<0.02	<0.01	***0.37***	0.02	0.02	0.06	0.07	***0.74***	***0.89***	0.02	0.04
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0060	<0.02	0.02	0.04
Arsenic	mg/L	***0.04***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.13***	***0.05***	***0.08***	<0.04	***0.05***	***0.08***	***0.06***	<0.02	***0.04***	***0.04***	***0.06***	***0.02***	***0.02***	***0.02***
Barium	mg/L	0.0661	0.0632	0.0691	0.0545	0.0692	0.0553	0.0526	0.0539	0.0564	0.2620	0.0682	0.0550	0.0547	0.0597	0.0579	0.0698	0.0548	0.0587	0.0682	0.0740	0.0762	0.0686	0.0622	0.0572
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	<0.0080	<0.02	<0.02	<0.02
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.105	--	--	--
Cadmium	mg/L	***0.0033***	***0.0032***	***0.0024***	***0.0025***	***0.003***	***0.0024***	***0.0029***	***0.0037***	***0.0019***	***0.0025***	***0.0043***	***0.0024***	***0.002***	***0.0026***	***0.0016***	***0.0021***	***0.0021***	***0.0014***	***0.0017***	***0.0019***	***0.0016***	***0.0017***	***0.0011***	***0.0012***
Calcium	mg/L	439	382	354	423	380	310	405	296	339	331	341	370	334	336	376	349	254	337	377	400	381	389	359	319
Chromium	mg/L	0.002	0.002	0.001	<0.001	0.001	<0.001	<0.001	0.001	0.002	0.008	0.002	<0.001	<0.001	<0.002	<0.001	0.001	0.002	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001
Cobalt	mg/L	0.128	0.118	0.095	0.11	0.1	0.095	0.095	0.085	0.098	0.091	0.089	0.083	0.073	0.08	0.073	0.077	0.057	0.056	0.078	0.091	0.0879	0.072	0.069	0.058
Copper	mg/L	***7.2***	***6.5***	***5.07***	***6.15***	***4.84***	***4.06***	***3.59***	***2.81***	***2.93***	***2.1***	***2.32***	***2.11***	***1.77***	***1.72***	***1.66***	***1.64***	***1.08***	***0.637***	***0.912***	***0.949***	***0.686***	***0.704***	***0.596***	***0.51***
Iron	mg/L	***9.9***	***7.7***	***7.0***	***7.2***	***6.2***	***7.5***	***10.0***	***8.8***	***10.4***	***17.6***	***9.6***	***10.9***	***12.2***	***11.8***	***12.4***	***11.9***	***5.9***	***0.6***	***10.2***	***10.4***	***8.4***	***11.3***	***11.2***	***10.0***
Lead	mg/L	<0.005	***0.009***	***0.01***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	***0.018***	***0.094***	***0.012***	<0.005	<0.010	<0.005	<0.006	***0.014***	***0.009***	<0.006	<0.005	0.007	<0.006	<0.005	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.006	0.005	<0.006	<0.005	<0.005
Magnesium	mg/L	41.40	35.00	31.80	38.20	36.30	29.80	38.30	25.80	30.60	32.80	29.20	26.30	23.30	26.30	26.20	26.60	24.40	22.00	34.00	35.80	34.70	35.40	27.50	24.40
Manganese	mg/L	13	11.4	9.52	11.6	10.8	9.6	12.1	9.47	10.2	10.2	8.89	9.37	9.14	9.38	9.39	9.83	6	8.19	11	10.2	9.73	10.9	10.9	9.5
Molybdenum	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.002	<0.01	<0.01	<0.01
Nickel	mg/L	0.067	0.065	0.05	0.056	0.05	0.052	0.051	0.036	0.038	0.038	0.035	0.032	0.03	0.034	0.029	0.033	0.022	0.018	0.028	<0.001	<0.001	0.023	***0.176***	0.021
Potassium	mg/L	15	14.4	11	22	12	10	10	9.1	11	10	13	12	9.7	13	14.7	13.1	11.1	12.8	12.2	14	14	17.8	11.3	10.5
Selenium	mg/L	<0.02	<0.02	***0.03***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.017***	<0.02	<0.02	<0.02
Silicon	mg/L	4.62	4.33	4.56	3.96	4.41	4.25	4.03	4.32	4.05	7.39	4	3.73	3.84	4.27	4.13	4.5	3.5	3.6	3.9	4.5	4.98	4.6	4.6	4.2
Silver	mg/L	***0.014***	***0.014***	***0.014***	***0.016***	***0.011***	***0.007***	***0.008***	-0.001	<0.001	<0.001	***0.003***	***0.004***	***0.007***	<0.004	<0.002	***0.002***	***0.008***	<0.002	<0.002	***0.003***	***0.002***	<0.002	<0.002	<0.002
Sodium	mg/L	357	302	263	328	290	260	327	243	281	269	295	302	314	272	284	256	161	198	238	239	228	262	254	238

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00	5-Sep-00	26-Sep-00	11-Oct-00	1-Nov-00	28-Nov-00	18-Dec-00	17-Jan-01	22-Feb-01	21-Mar-01	23-Apr-01	22-May-01	18-Jun-01	4-Jul-01	18-Jul-01	31-Jul-01	14-Aug-01	29-Aug-01	17-Sep-01
Strontium	mg/L	0.913	0.838	0.682	0.815	0.784	0.767	0.781	0.738	0.813	0.761	0.876	0.741	0.719	0.793	0.763	0.8	0.647	0.7	0.88	1.11	1.05	0.824	0.791	0.701
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-0.01	<0.005	<0.006	0.01	--	<0.006	0.02	0.019	0.008	<0.005	<0.005
Titanium	mg/L	<0.001	<0.001	0.01	<0.001	<0.001	--	--	--	--	0.147	<0.001	<0.001	<0.001	<0.002	<0.001	0.01	<0.001	--	<0.001	<0.001	<0.00	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.002	<0.002	<0.002	<0.002	0.01	0.02	--	--	--	0.019	0.021	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.014	0.017	<0.001	<0.001	0.007	0.002	0.007
Zinc	mg/L	***0.063***	***0.066***	***0.056***	***0.047***	***0.064***	***0.061***	***0.066***	***0.044***	***0.042***	***0.087***	***0.162***	***0.11***	***0.122***	***0.0947***	***0.0787***	***0.073***	***0.048***	***0.037***	***0.059***	***0.05***	***0.034***	***0.042***	***0.888***	***0.033***
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	22-Oct-01	19-Nov-01	13-Dec-01	16-Jan-02	16-Jan-02	20-Feb-02	20-Feb-02	3-Apr-02	21-May-02	3-Jul-02	3-Jul-02	15-Jul-02	1-Aug-02	12-Aug-02	27-Aug-02	10-Sep-02	15-Oct-02	13-Nov-02	13-Nov-02	11-Dec-02	15-Jan-03	11-Feb-03	11-Feb-03	12-Mar-03
Physical Parameters																								
pH	pH units	6.95	7.09	7.02	7.02	7.02	7.02	7.01	6.91	6.78	7.1	7.1	7.05	7.03	7.02	6.94	6.88	6.51	6.96	6.95	***11.6***	8.56	6.95	6.94	6.78
Conductivity	µS/cm	2420	2490	2220	2320	2280	2320	2320	2360	2410	2640	2650	2600	2550	2630	2510	2390	2390	2230	2220	3410	2330	2330	2350	2360
Routine Parameters																									
Total Suspended Sediment	mg/L	11	13	18	17	17	11	14	23	23	26	19	11	3	22	18	27	27	31	34	28	27	18	16	206
Total Dissolved Solids	mg/L	2140	2010	1890	1850	1880	1810	1780	1930	1980	2420	2380	2340	2270	2240	2180	2250	2020	2010	1990	2030	1950	2010	1990	2030
Hardness	mg/L	996.65	891.15	795.70	843.15	897.60	942.09	889.64	912.20	969.51	1143.00	1169.60	1246.55	1010.04	1113.09	1035.78	1024.94	1049.09	990.11	1022.94	878.33	913.30	969.86	974.03	959.49
Alkalinity-Total	mg/L	143	149	153	162	159	165	160	164	152	178	176	180	175	176	177	166	166	163	166	329	101	166	159	163
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1430	1400	1290	1290	1300	1310	1310	1410	1420	1620	1630	13.4	1660	1670	1670	1500	1400	1310	1430	1360	1340	1430	1380	1520
Nutrients																									
Ammonia-N	mg/L	***12.8***	***14.5***	***14.5***	***12.9***	***13.0***	***13.3***	***13.3***	***13.5***	***12.0***	***12.3***	***12.7***	***13.3***	***11.1***	***10.4***	***12.4***	***13.7***	***10.7***	***15.0***	***15.0***	***12.4***	***11.7***	***12.1***	***12.3***	***12.3***
Nitrate-N	mg/L	1.04	1.56	2.09	2.11	2.09	1.85	2.46	1.32	0.69	--	--	0.31	0.63	0.51	0.50	0.48	1.04	1.86	1.90	1.71	1.69	1.57	1.59	1.23
Nitrite-N	mg/L	***0.55***	***1.02***	***1.10***	***0.69***	***0.95***	***0.66***	***0.55***	***0.56***	***0.24***	--	--	<0.01	<0.01	<0.01	***0.51***	***0.98***	***0.83***	***0.55***	***0.66***	***0.35***	***0.28***	***0.26***	***0.29***	<0.01
Total Phosphorus	mg/L	<0.06	0.14	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.09	<0.06	0.07	<0.06	<0.06	0.06	0.09	<0.06	0.07	0.07	<0.06	<0.06	0.06	<0.06	<0.06	<0.06
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	***13.2***	***3.65***	***1.96***	***4.04***	***3***	***1.11***	***0.54***	***7.62***	***5.37***	***2.94***	***1.45***	0.09	***1.65***	***1.35***	***1.23***	***1.68***	***2.44***	0.18	0.17	***0.63***	***2.55***	***2.7***	***2.58***	***1.97***
Thiocyanate	mg/L	51.3	71.1	64.3	56.5	56.2	83.6	84.9	58.1	70.6	64.8	60.9	55.6	52.9	52.6	49.7	47.6	43.5	35.9	36.9	39.5	39	35.4	35.3	39.2
CN-WAD	mg/L	***0.176***	***0.485***	***0.188***	***0.120***	***0.340***	***0.400***	***0.330***	0.100	0.080	0.068	0.062	<0.002	0.036	0.048	0.054	0.056	***0.170***	***0.400***	***0.320***	0.080	0.064	0.034	0.038	0.052
CN-SAD	mg/L	0.684	2.990	0.600	1.720	1.880	1.240	0.880	1.020	0.300	0.520	0.420	<0.002	0.420	0.136	0.600	0.088	0.640	1.320	1.560	0.820	0.340	0.250	0.460	0.620
Total Metals																									
Aluminum	mg/L	<0.01	0.08	***3.33***	0.03	0.04	0.09	0.06	0.03	***0.11***	0.07	***0.11***	0.04	0.07	0.06	0.08	0.07	0.04	0.04	0.03	0.03	0.03	0.04	0.03	0.06
Antimony	mg/L	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	0.02	0.03	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	mg/L	***0.08***	***0.06***	***0.07***	***0.09***	***0.09***	<0.02	<0.02	***0.06***	<0.02	***0.07***	***0.06***	***0.02***	***0.03***	***0.07***	<0.02	***0.1***	***0.03***	***0.03***	***0.07***	<0.02	<0.02	***0.09***	***0.12***	***0.11***
Barium	mg/L	0.0564	0.0560	0.0536	0.0479	0.0506	0.0514	0.0522	0.0529	0.0524	0.0662	0.0699	0.0628	0.0603	0.0634	0.0618	0.0627	0.0574	0.0508	0.0509	0.0491	0.0487	0.0469	0.0466	0.0410
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	<0.0006	***0.002***	<0.0006	***0.0014***	***0.0013***	***0.0013***	***0.0012***	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	***0.0014***	***0.0013***	***0.001***	***0.0008***	<0.0006
Calcium	mg/L	360	311	283	302	321	337	316	328	346	398	407	436	353	388	361	356	366	347	358	309	323	344	346	341
Chromium	mg/L	<0.001	<0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.002	0.001	-0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001
Cobalt	mg/L	0.059	0.07	0.05	0.041	0.044	0.043	0.043	0.037	0.038	0.044	0.048	0.046	0.041	0.047	0.046	0.043	0.041	0.036	0.037	0.031	0.031	0.03	0.033	0.028
Copper	mg/L	***0.486***	***0.457***	***0.362***	***0.341***	***0.36***	***0.329***	***0.341***	***0.219***	***0.198***	***0.106***	***0.119***	***0.086***	***0.06***	***0.059***	***0.051***	***0.05***	***0.032***	***0.033***	***0.031***	***0.036***	***0.027***	***0.029***	***0.027***	***0.021***
Iron	mg/L	***13.2***	***11.6***	***12.1***	***10.7***	***11.3***	***12.1***	***11.4***	***10.9***	***8.8***	***12.1***	***12.4***	***11.7***	***11.1***	***12.4***	***12.0***	***13.9***	***13.6***	***12.8***	***13.1***	***12.7***	***12.6***	***11.3***	***11.3***	***10.2***
Lead	mg/L	<0.006	<0.01	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.007	<0.006	0.01	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.007
Lithium	mg/L	<0.006	<0.01	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Magnesium	mg/L	23.70	27.80	21.60	21.60	23.30	24.40	24.40	22.60	25.60	36.20	37.20	38.30	31.20	35.00	32.60	33.00	32.80	30.00	31.30	25.90	25.90	26.90	26.70	26.20
Manganese	mg/L	11	9.13	8.37	7.68	8.13	8.29	7.88	7.3	7.94	11.1	11.4	10.8	8.82	10.3	9.71	9.72	9.27	8.42	8.68	7.86	8.33	8.2	8.23	7.47
Molybdenum	mg/L	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	0.02	-0.002	0.017	0.016	0.017	0.013	0.013	0.012	0.013	0.016	0.017	0.013	0.013	0.016	0.016	0.017	0.012	0.013	0.011	0.01	0.009	0.006	0.006	0.004
Potassium	mg/L	10.2	12.6	10.8	12.6	17.8	12.3	12.8	12.8	11.1	12.7	13	13.7	11.4	13.4	13.8	13.8	13.9	13.4	13.9	12	11.1	12.3	12.1	13.8
Selenium	mg/L	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.04***	***0.06***	<0.02	***0.04***	***0.03***	<0.02
Silicon	mg/L	4.1	5	4.2	4.6	4.9	4.7	4.7	4.2	3.9	4.5	4.8	4.5	4.2	4.7	4.9	5.1	4.8	4.8	4.8	4.7	5	4.6	4.6	4.6
Silver	mg/L	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sodium	mg/L	266	231	230	228	238	234	227	207	200	214	216	236	221	239	228	234	242	238	243	222	217	222	223	212

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	22-Oct-01	19-Nov-01	13-Dec-01	16-Jan-02	16-Jan-02	20-Feb-02	20-Feb-02	3-Apr-02	21-May-02	3-Jul-02	3-Jul-02	15-Jul-02	1-Aug-02	12-Aug-02	27-Aug-02	10-Sep-02	15-Oct-02	13-Nov-02	13-Nov-02	11-Dec-02	15-Jan-03	11-Feb-03	11-Feb-03	12-Mar-03
Strontium	mg/L	0.72	0.934	0.707	0.626	0.68	0.693	0.702	0.658	0.661	0.798	0.832	0.834	0.704	0.834	0.787	0.776	0.767	0.723	0.714	0.687	0.71	0.732	0.726	0.694
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<0.006	0.013	0.012	0.007	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.011	0.011	<0.006	0.013	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Titanium	mg/L	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.003
Vanadium	mg/L	<0.001	<0.002	0.011	0.006	0.006	0.004	0.006	0.006	0.003	0.004	0.007	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.002	<0.001	0.036	0.041	0.041	0.043	0.039
Zinc	mg/L	0.029	0.026	0.02	0.015	0.018	***0.037***	***0.035***	0.01	0.015	0.023	0.026	0.017	0.009	0.013	0.016	0.019	0.015	***0.034***	***0.039***	0.006	0.007	***0.083***	***0.078***	0.013
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	16-Apr-03	16-Apr-03	21-May-03	11-Jun-03	2-Jul-03	15-Jul-03	30-Jul-03	17-Sep-03	17-Sep-03	15-Oct-03	12-Nov-03	12-Nov-03	14-Jan-04	9-Feb-04	15-Mar-04	21-Apr-04	19-May-04	30-Jun-04	14-Jul-04	28-Jul-04	8-Sep-04	5-Oct-04	13-Apr-05	20-Apr-05
Physical Parameters																									
pH	pH units	6.79	6.79	6.8	7	7.02	7.15	6.95	7.06	7.04	7.12	6.92	6.93	--	--	--	--	--	--	--	--	--	--	7.66	7.7
Conductivity	µS/cm	2470	2490	2400	2550	2340	2420	2420	2370	2410	2260	2180	2160	--	--	--	--	--	--	--	--	--	--	2170	2170
Routine Parameters																									
Total Suspended Sediment	mg/L	30	30	29	26	28	25	18	13	19	16	12	12	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	2210	2230	2170	2360	2190	2120	2150	1920	1940	1910	1530	1510	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	1140.97	1145.97	1060.23	1154.59	1082.13	1089.71	1178.43	902.04	897.01	843.72	827.91	812.11	--	--	--	--	--	--	--	--	--	--	905.00	892.93
Alkalinity-Total	mg/L	169	176	183	198	182	189	192	184	183	173	166	168	--	--	--	--	--	--	--	--	--	--	189	182
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	189	182
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<2.0
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<2.0
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	303	295
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	35.9	32.9
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.2	9.1
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	152	131
Sulphate	mg/L	1510	1540	1850	1410	1550	1430	1500	1850	1460	1200	1170	1170	--	--	--	--	--	--	--	--	--	--	1080	1060
Nutrients																									
Ammonia-N	mg/L	***13.2***	***13.3***	***8.1***	***15.0***	***12.5***	***11.3***	***13.4***	***13.8***	***13.9***	***12.3***	***11.6***	***11.6***	--	--	--	--	--	--	--	--	--	--	***11.7***	***9.8***
Nitrate-N	mg/L	1.12	1.08	0.97	<1.0	1.10	1.03	0.63	2.27	2.20	2.15	2.37	2.37	--	--	--	--	--	--	--	--	--	--	1.65	1.38
Nitrite-N	mg/L	<0.01	<0.01	***0.70***	--	***0.43***	***0.46***	***0.37***	***0.46***	***0.46***	***0.39***	***0.34***	***0.34***	--	--	--	--	--	--	--	--	--	--	***0.17***	***0.08***
Total Phosphorus	mg/L	<0.06	<0.06	<0.06	<0.06	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	--	--	--	--	--	--	--	--	--	--	<0.3	<0.3
Cyanide Compounds																									
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.063	0.089
Cyanate	mg/L	***1.5***	***2.6***	***1.29***	***2.07***	***2.74***	***4.44***	***2.69***	***1.34***	***0.92***	***0.82***	***1.22***	***2.43***	--	--	--	--	--	--	--	--	--	--	<1.5	<5.0
Thiocyanate	mg/L	41.1	40.5	40.2	40.5	36.7	34.8	32.5	17.8	17.8	17.2	15.4	15.4	--	--	--	--	--	--	--	--	--	--	9.32	7.5
CN-WAD	mg/L	0.036	0.028	0.062	0.032	0.042	0.042	0.032	<0.002	0.004	0.030	0.024	0.034	0.026	0.020	0.024	0.020	0.018	0.024	0.016	0.022	0.018	0.018	0.027	0.058
CN-SAD	mg/L	0.280	0.520	0.560	0.086	0.106	0.320	0.152	0.036	0.038	0.084	0.062	0.072	0.680	0.088	1.400	0.114	0.620	0.094	0.156	0.460	0.118	0.720	--	--
Total Metals																									
Aluminum	mg/L	0.02	0.02	0.03	***1.89***	0.042	***1.44***	***2.11***	0.03	***0.56***	0.01	0.03	0.02	--	--	--	--	--	--	--	--	--	--	<0.2	***0.29***
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	0.0021	<0.02	<0.02	0.03	0.06	0.04	0.03	0.06	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Arsenic	mg/L	***0.1***	***0.09***	***0.02***	***0.03***	***0.0301***	***0.06***	***0.03***	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	***0.0485***	***0.0714***
Barium	mg/L	0.0493	0.0502	0.0539	0.0571	0.0700	0.0610	0.0607	0.0498	0.0500	0.0468	0.0424	0.0418	--	--	--	--	--	--	--	--	--	--	0.0480	0.0550
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.005
Bismuth	mg/L	<0.02	<0.02	<0.02	<0.02	<0.001	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Boron	mg/L	--	--	--	--	0.105	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.12	0.14
Cadmium	mg/L	***0.0007***	<0.0006	***0.0012***	***0.0009***	***0.00072***	***0.0006***	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Calcium	mg/L	399	401	367	400	370	376	399	303	300	293	287	281	--	--	--	--	--	--	--	--	--	--	299	301
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Cobalt	mg/L	0.032	0.033	0.027	0.032	0.0393	0.032	0.036	0.037	0.034	0.032	0.027	0.027	--	--	--	--	--	--	--	--	--	--	0.019	0.021
Copper	mg/L	***0.021***	***0.022***	***0.022***	***0.028***	***0.02***	***0.02***	***0.019***	***0.012***	***0.016***	***0.011***	***0.014***	***0.009***	--	--	--	--	--	--	--	--	--	--	<0.01	***0.011***
Iron	mg/L	***12.9***	***13.0***	***10.6***	***9.5***	***9.7***	***8.1***	***8.5***	***9.1***	***9.0***	***10.1***	***10.6***	***10.4***	--	--	--	--	--	--	--	--	--	--	***12.2***	***10.6***
Lead	mg/L	<0.006	<0.006	<0.006	<0.006	0.0004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05
Lithium	mg/L	<0.006	<0.006	<0.006	<0.006	0.003	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	--	--	--	--	--	--	--	--	--	--	<0.02	<0.01
Magnesium	mg/L	35.10	35.10	34.90	37.80	38.40	36.60	44.20	35.30	35.90	27.20	27.00	26.80	--	--	--	--	--	--	--	--	--	--	35.60	34.30
Manganese	mg/L	8.58	8.66	8.84	10	10.2	10	10.3	8.48	8.33	8.99	7.67	7.52	--	--	--	--	--	--	--	--	--	--	9.19	7.89
Molybdenum	mg/L	<0.01	<0.01	<0.01	<0.01	0.003	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Nickel	mg/L	0.003	0.003	0.002	0.003	0.0026	0.003	0.006	-0.001	0.006	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05
Potassium	mg/L	20	20	10.7	12.1	10.9	11.3	12	3.9	8.1	9.9	10.1	10	--	--	--	--	--	--	--	--	--	--	9.2	9.6
Selenium	mg/L	***0.04***	***0.08***	<0.02	<0.02	0.0005	<0.02	<0.02	***0.17***	***0.12***	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Silicon	mg/L	4.9	5	4.8	5.1	5.93	5.3	5.1	5.6	5.7	5.5	4.8	4.7	--	--	--	--	--	--	--	--	--	--	5.69	5.14
Silver	mg/L	<0.002	<0.002	<0.002	<0.002	***0.0005***	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Sodium	mg/L	223	224	181	210	189	206	217	194	196	190	188	182	--	--	--	--	--	--	--	--	--	--	152	135

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	16-Apr-03	16-Apr-03	21-May-03	11-Jun-03	2-Jul-03	15-Jul-03	30-Jul-03	17-Sep-03	17-Sep-03	15-Oct-03	12-Nov-03	12-Nov-03	14-Jan-04	9-Feb-04	15-Mar-04	21-Apr-04	19-May-04	30-Jun-04	14-Jul-04	28-Jul-04	8-Sep-04	5-Oct-04	13-Apr-05	20-Apr-05
Strontium	mg/L	0.782	0.812	0.824	0.856	1.05	0.86	0.878	0.889	0.897	0.808	0.709	0.702	--	--	--	--	--	--	--	--	--	--	0.793	0.865
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Tin	mg/L	<0.006	<0.006	<0.006	<0.006	<0.002	0.011	<0.006	0.031	0.042	0.021	0.04	0.039	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Titanium	mg/L	<0.001	<0.001	<0.001	<0.001	0.0202	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Vanadium	mg/L	0.04	0.043	0.041	0.04	0.0013	0.037	0.037	<0.001	0.002	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Zinc	mg/L	0.021	0.021	0.006	0.008	0.016	0.012	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	0.0076	0.015
Dissolved Metals																									
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0032	0.0033
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.044	0.046
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.005
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.12	0.14
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.019	0.021
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.434	0.109
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	<0.01
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.42	7.73
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Nickel	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.3	<0.3
Selenium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.41	4.51
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.807	0.827
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0055	0.0059

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	2-May-05	10-May-05	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05
Physical Parameters																									
pH	pH units	6.69	7.87	7.47	7.32	7.87	7.74	7.49	7.31	7.5	7.76	7.62	7.93	7.86	7.66	7.65	7.71	7.76	7.72	7.75	7.7	7.44	7.39	7.59	7.43
Conductivity	µS/cm	2110	2140	2100	2080	2290	2030	2090	2140	2020	2150	2140	1700	2170	2090	2230	2160	2060	2060	2080	2020	1860	1880	1880	1970
Routine Parameters																									
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	796.32	885.82	914.50	924.21	939.42	896.36	904.15	910.79	859.31	916.39	917.93	738.88	911.64	982.31	987.61	936.21	984.89	897.40	932.86	857.99	813.56	889.22	780.65	851.29
Alkalinity-Total	mg/L	191	177	190	183	196	180	192	208	189	126	198	165	205	207	215	209	207	213	206	189	--	194	179	182
Bicarbonate	mg/L	191	177	190	183	196	180	192	208	189	126	198	165	205	207	215	209	207	213	206	189	--	194	179	182
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	270	313	310	307	308	291	298	304	292	316	318	252	302	319	329	313	328	310	306	281	275	288	261	282
Magnesium	mg/L	35.9	36.2	36.6	32.9	36.1	31.8	34	34.4	32.1	30.9	33.5	25.8	34	34.8	37.6	34	34.1	37.4	34.5	32.8	31.5	32	31.8	33.9
Potassium	mg/L	9.1	-0.052	8.3	9.3	8.1	9.2	8.6	8.7	8.3	9.8	10.9	6.1	8.6	9.7	8.8	8.5	9.6	8.4	9.6	7.2	9	8.8	7.5	7.7
Sodium	mg/L	154	-0.056	136	143	141	144	151	156	138	145	146	117	143	141	145	145	142	142	138	127	141	139	138	136
Sulphate	mg/L	1090	1090	1120	1080	1300	985	1100	1130	1010	1130	1110	830	1150	1090	1110	1120	1080	1070	942	967	924	941	944	976
Nutrients																									
Ammonia-N	mg/L	***10.5***	***9.7***	***9.8***	***9.8***	***9.5***	***9.3***	***11.1***	***10.6***	***10.1***	***9.8***	***10.1***	***7.7***	***11.7***	***9.7***	***10.3***	***10.5***	***10.0***	***9.8***	***9.0***	***9.3***	***8.9***	***8.5***	***9.7***	***9.0***
Nitrate-N	mg/L	1.51	0.78	1.63	1.48	2.32	1.60	1.54	1.69	1.73	1.94	2.01	2.09	2.31	2.54	2.42	2.67	2.42	3.18	3.06	3.42	--	4.18	4.15	4.10
Nitrite-N	mg/L	***0.15***	***0.14***	***0.16***	***0.17***	***0.22***	***0.17***	***0.19***	***0.25***	***0.16***	***0.22***	***0.23***	***0.28***	***0.21***	***0.21***	***0.19***	***0.19***	***0.20***	***0.24***	***0.24***	***0.29***	--	***0.22***	***0.26***	***0.30***
Total Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cyanide Compounds																									
Cyanide - T	mg/L	0.156	0.103	0.0907	0.108	0.109	0.078	0.0978	0.0916	0.0564	0.0591	0.29	0.0414	0.054	0.0492	0.0816	0.0864	0.0693	0.0673	0.0839	0.0902	0.0728	0.0967	0.0757	0.0944
Cyanate	mg/L	<2.5	***11.8***	<1.0	<1.0	<1.0	***1.38***	***1.3***	<1.0	***3.3***	***2.6***	***1.4***	<1.0	***22.2***	***17.8***	***3.36***	***1.8***	<0.5	***28.9***	<1.0	<0.5	<1.0	<1.0	***0.51***	***1.26***
Thiocyanate	mg/L	8.37	9.51	7.08	8.07	8.01	7.02	7.95	7.55	6.7	7.57	6.45	2.99	7.42	6.88	7.45	6.51	6.95	5.75	6.29	5.98	5.5	7.75	7.86	5.8
CN-WAD	mg/L	0.066	0.039	0.049	0.074	0.057	0.044	0.041	0.044	0.036	0.061	0.042	0.025	0.024	0.035	0.040	0.049	0.064	0.020	0.061	0.041	0.036	0.046	0.038	0.067
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																									
Aluminum	mg/L	<0.2	***0.47***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.25***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.0318***	<0.2	***0.0312***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.0376***	<0.2	<0.2	<0.2
Barium	mg/L	0.0580	0.0710	0.0630	0.0580	0.0680	0.0640	0.0790	0.0650	0.0750	0.0640	0.0670	0.0830	0.0620	0.0630	0.0640	0.0600	0.0570	0.0570	0.0570	0.0580	0.0510	0.0540	0.0550	0.0560
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	0.11	0.12	0.11	0.1	0.1	0.11	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	261	297	307	316	315	306	305	307	291	316	312	253	308	333	331	318	337	299	316	288	274	301	260	284
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.023	0.023	0.023	0.021	0.023	0.024	0.022	0.023	0.02	0.02	0.02	0.023	0.025	0.02	0.024	0.022	0.021	0.022	0.019	0.022	0.02	0.02	0.019	0.022
Copper	mg/L	<0.01	***0.018***	<0.01	<0.01	<0.01	***0.011***	<0.01	<0.01	<0.01	***0.012***	***0.012***	***0.016***	<0.01	***0.012***	<0.01	***0.011***	<0.01	<0.01	<0.01	***0.011***	***0.011***	***0.01***	<0.01	<0.01
Iron	mg/L	***11.7***	***16.8***	***9.5***	***10.8***	***7.0***	***8.7***	***5.9***	***6.4***	***5.1***	***6.6***	***6.9***	***4.4***	***7.6***	***8.0***	***7.5***	***7.3***	***9.0***	***8.8***	***9.9***	***9.8***	***9.3***	***9.8***	***8.7***	***9.2***
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.014	<0.01	<0.01
Magnesium	mg/L	35.10	35.00	35.90	32.80	37.10	32.10	34.60	35.00	32.20	30.90	33.70	26.00	34.60	36.60	39.10	34.50	34.80	36.60	34.90	33.70	31.40	33.40	31.90	34.50
Manganese	mg/L	7.94	9.6	8.22	9.21	8.63	8.03	8.46	8.72	7.6	8.56	8.78	7.18	9.01	10.3	9.5	8.96	9.88	8.65	9.42	8.3	8.27	9.14	7.52	8.05
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	8.8	11.5	8.2	9.4	8.3	8.1	8.7	8.9	8.3	9.9	11	6.2	8.7	10.4	9.2	8.6	9.8	8.1	9.8	7.5	9	9.2	7.5	7.8
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	4.75	5.74	4.58	4.72	5.12	5.86	5.23	5.04	5.08	4.97	5.38	5.02	5.07	5.88	5.59	5.06	5.3	5.34	5.58	5.4	5.29	5.57	5.14	5.13
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	153	165	134	146	144	148	153	158	139	145	147	117	146	150	150	147	146	138	141	134	141	146	137	140

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	2-May-05	10-May-05	18-May-05	26-May-05	1-Jun-05	9-Jun-05	16-Jun-05	22-Jun-05	29-Jun-05	7-Jul-05	13-Jul-05	21-Jul-05	27-Jul-05	3-Aug-05	10-Aug-05	17-Aug-05	24-Aug-05	31-Aug-05	8-Sep-05	14-Sep-05	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05
Strontium	mg/L	0.838	0.997	0.826	0.882	0.874	0.891	0.829	0.871	0.808	0.84	0.857	0.709	0.889	0.96	0.936	0.905	0.924	0.847	0.89	0.781	0.783	0.845	0.736	0.781
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.04	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0082	0.0188	0.0098	0.0077	0.0078	0.0095	0.0141	0.0102	0.0191	0.0166	0.0204	0.0135	0.0086	0.0143	0.0114	0.0152	0.0153	0.0116	0.0143	0.0121	0.011	0.0152	0.0112	0.0125
Dissolved Metals																									
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Arsenic	mg/L	0.0032	0.0051	0.0064	0.0028	0.0042	0.00288	0.00248	0.0024	0.00301	0.00292	0.0035	0.00245	0.0051	0.0047	0.0049	0.0031	0.003	0.0034	0.0025	0.003	0.0026	0.0028	0.0034	0.0025
Barium	mg/L	0.056	0.061	0.061	0.052	0.062	0.058	0.075	0.061	0.07	0.06	0.063	0.075	0.058	0.056	0.058	0.057	0.052	0.055	0.051	0.052	0.047	0.047	0.05	0.051
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Boron	mg/L	0.12	0.14	0.11	<0.1	<0.1	0.11	<0.1	<0.1	0.11	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.10	<0.10	<0.10
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.022	0.023	0.022	0.02	0.023	0.023	0.022	0.022	0.021	0.02	0.02	0.021	0.026	0.019	0.023	0.023	0.02	0.023	0.02	0.023	0.019	0.019	0.021	0.02
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.452	5.97	1.45	0.106	0.111	0.069	0.117	0.118	0.119	0.105	0.065	0.147	0.111	0.085	0.144	0.084	0.067	0.12	0.14	1.71	0.098	0.213	0.2	0.064
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01
Manganese	mg/L	8.17	9.83	8.5	9.18	8.4	7.98	8.24	8.51	7.61	8.55	8.66	7.11	8.84	9.66	9.11	8.85	9.64	8.86	9.13	8.07	8.24	8.68	7.48	7.93
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus	mg/L	<0.3	<0.051	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.30	<0.30	<0.30
Selenium	mg/L	<0.2	<0.053	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Silicon	mg/L	4.64	<0.054	4.5	4.39	4.75	5.28	4.84	4.72	4.74	4.71	5.06	4.79	4.77	5.25	5.15	4.78	4.87	5.22	5.11	4.95	4.98	4.97	4.88	4.82
Silver	mg/L	<0.01	<0.055	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	0.863	<0.057	0.841	0.876	0.846	0.875	0.817	0.853	0.803	0.837	0.845	0.703	0.889	0.9	0.903	0.893	0.88	0.867	0.862	0.767	0.778	0.801	0.727	0.763
Thallium	mg/L	<0.2	<0.058	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Tin	mg/L	<0.03	<0.059	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	<0.060	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.03	<0.061	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0058	<0.062	0.007	<0.005	0.006	0.0051	0.0086	0.0056	0.0129	0.0125	0.0162	0.0117	0.0067	0.0103	0.0086	0.0118	0.0095	0.01	0.0077	0.0172	0.009	0.0097	0.0075	0.0088

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05	21-Dec-05	29-Dec-05	5-Jan-06	12-Jan-06	19-Jan-06	26-Jan-06	9-Feb-06	23-Feb-06	23-Mar-06	20-Apr-06	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06
Physical Parameters																									
pH	pH units	7.43	7.71	7.51	7.58	7.3	7.44	7.51	7.5	7.63	7.66	7.63	6.86	7.56	6.95	7.75	7.32	8.08	7.59	7.67	7.62	7.69	7.52	7.71	7.65
Conductivity	µS/cm	1970	1890	1930	1990	1940	1990	2000	2000	2030	1970	1980	1950	1980	1940	1990	1880	1950	1860	1900	1700	73.5	1670	1710	1750
Routine Parameters																									
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	843.80	910.38	813.01	906.98	867.57	840.56	861.64	907.09	889.14	898.60	859.31	810.45	806.36	873.71	956.38	824.29	760.29	786.14	808.95	768.27	43.21	693.43	717.06	779.50
Alkalinity-Total	mg/L	172	190	188	181	174	178	196	197	195	190	179	180	189	194	194	191	200	208	189	188	18.8	183	212	197
Bicarbonate	mg/L	172	190	188	181	174	178	196	197	195	190	179	180	189	194	194	191	200	208	189	188	18.8	183	212	197
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	269	275	288	297	287	273	280	290	260	284	295	262	270	289	294	268	265	256	247	244	11	227	237	256
Magnesium	mg/L	33	31.9	34.6	35.7	33.7	31.5	35.4	31.6	27.4	36.6	32.3	34.8	34.3	35.5	38.2	33	32.7	29.1	31.7	27.9	3.19	27	29.9	28.8
Potassium	mg/L	8.9	8.5	7.3	9.3	8.7	6	8.4	7.8	8.3	9.6	8.1	9.7	9	9.3	<10.00	8.5	9.2	8.4	8.7	8.6	<2.0	7.7	7.1	8.6
Sodium	mg/L	133	136	149	144	134	132	137	130	121	141	108	126	138	143	141	130	137	127	137	119	<2.0	108	117	120
Sulphate	mg/L	957	1030	970	933	979	972	992	989	1020	977	962	957	964	979	978	907	925	879	889	780	8.94	752	802	830
Nutrients																									
Ammonia-N	mg/L	***8.5***	***8.5***	***9.0***	***8.7***	***8.3***	***8.8***	***8.6***	***8.6***	***9.4***	***8.4***	***8.8***	***8.4***	***8.4***	***8.5***	***9.8***	***8.2***	***8.2***	***10.6***	***8.7***	***8.8***	0.04	***6.1***	***8.5***	***7.8***
Nitrate-N	mg/L	3.93	3.62	3.41	3.56	3.26	3.36	3.06	2.69	2.38	2.62	2.57	2.15	2.17	1.75	1.80	1.56	1.33	0.98	0.83	0.84	0.01	0.67	0.70	0.69
Nitrite-N	mg/L	***0.27***	***0.25***	***0.20***	***0.20***	***0.19***	***0.19***	***0.19***	***0.15***	***0.17***	***0.14***	***0.11***	***0.09***	***0.10***	***0.10***	***0.13***	***0.10***	***0.10***	0.05	0.05	0.06	<0.001	0.05	***0.07***	***0.06***
Total Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cyanide Compounds																									
Cyanide - T	mg/L	0.0707	0.0969	0.139	***0.532***	0.139	0.112	0.133	0.12	0.0851	0.122	0.126	0.138	0.137	0.174	0.108	0.124	0.133	0.179	0.0396	0.0567	0.0248	0.0294	0.0911	0.0796
Cyanate	mg/L	***15.3***	***1.6***	<1.0	<0.5	<0.5	***2.07***	<0.5	<0.5	<1.5	<0.5	***1.65***	***1.02***	<0.5	<1.1	<1.1	***14.6***	<0.5	***0.6***	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	6.95	5.3	5.85	5.38	8.19	5.3	5.52	7.45	6.62	7.46	8.41	5.75	5.9	5.82	5.82	5.85	6.65	8.81	10.9	10.2	1.57	11.3	9.85	12.8
CN-WAD	mg/L	0.036	0.058	0.057	0.066	0.048	0.066	0.056	0.051	0.059	0.075	0.055	***0.137***	0.087	0.075	0.063	0.039	0.077	***0.124***	0.052	0.037	<0.005	0.027	0.032	0.037
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																									
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	***1.29***	<0.2	<0.2	<0.2
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	<0.2	***0.0459***	<0.2	***0.0433***	***0.0446***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	***0.0469***	<0.2	<0.2	***0.0693***	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	mg/L	0.0500	0.0510	0.0560	0.0510	0.0490	0.0500	0.0510	0.0560	0.0570	0.0540	0.0440	0.0520	0.0530	0.0540	0.0560	0.0580	0.0500	0.0510	0.0550	0.0490	0.0640	0.0500	0.0520	0.0500
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	0.11	0.11	0.11	0.12	0.12	0.13	0.12	0.14	0.16	0.13	0.12	0.13	0.13	0.15	<0.5	0.14	0.13	0.14	0.14	0.12	<0.1	<0.1	0.13	0.1
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	281	307	269	303	292	283	286	307	298	298	291	266	267	291	318	275	253	265	271	259	11.5	232	238	263
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.019	0.018	0.02	0.019	0.019	0.019	0.019	0.022	0.022	0.02	0.019	0.015	0.017	0.016	-0.05	0.016	0.016	0.015	0.015	0.016	<0.01	0.016	0.017	0.016
Copper	mg/L	<0.01	<0.01	<0.01	***0.012***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	***0.01***	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	***9.3***	***11.6***	***10.9***	***11.2***	***11.5***	***11.2***	***11.4***	***12.4***	***15.3***	***13.3***	***11.1***	***11.9***	***12.4***	***13.9***	***16.1***	***14.7***	***13.6***	***12.7***	***13.4***	***9.9***	***1.4***	***7.9***	***9.3***	***8.6***
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	0.02	<0.01	<0.01	0.02	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.05	0.022	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	34.50	34.90	34.30	36.50	33.60	32.50	35.80	34.10	35.20	37.50	32.20	35.50	33.90	35.70	39.40	33.40	31.20	30.20	32.10	29.50	3.52	27.70	29.80	29.80
Manganese	mg/L	8.93	8.62	7.66	9.2	8.49	7.39	8.08	8.41	8.35	8.72	7.21	8.14	7.99	8.49	8.46	7.91	7.48	7.42	7.81	7.63	0.116	6.97	6.64	7.76
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	9.3	9.4	7	9.5	8.7	6.3	8.5	8.5	10.1	9.9	8.2	9.9	8.9	9.4	<10.0	8.7	8.7	8.7	9.1	9.3	<2.0	7.9	7.2	8.9
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	5.62	5.83	5.29	5.41	5.42	5.64	5.59	5.79	5.81	6.07	5.3	5.74	5.42	5.66	6.03	5.84	5.42	5.3	5.38	5.59	4.16	4.9	5.23	5.1
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	139	149	147	146	132	140	137	142	168	147	108	127	136	145	145	134	130	129	140	125	<2.0	110	117	125

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	20-Oct-05	27-Oct-05	3-Nov-05	10-Nov-05	17-Nov-05	24-Nov-05	1-Dec-05	8-Dec-05	15-Dec-05	21-Dec-05	29-Dec-05	5-Jan-06	12-Jan-06	19-Jan-06	26-Jan-06	9-Feb-06	23-Feb-06	23-Mar-06	20-Apr-06	11-May-06	18-May-06	25-May-06	1-Jun-06	8-Jun-06
Strontium	mg/L	0.806	0.813	0.807	0.842	0.788	0.786	0.779	0.824	0.874	0.836	0.741	0.784	0.773	0.829	0.895	0.799	0.744	0.709	0.711	0.692	0.0955	0.68	0.639	0.746
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.03	<0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0122	0.011	0.0082	0.0101	0.0102	0.0082	0.0081	0.0083	0.0095	0.0082	0.0098	0.0071	0.0082	0.0085	-0.025	0.0086	0.0065	0.0068	0.006	0.0083	0.0185	0.0107	0.0098	0.0071
Dissolved Metals																									
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	0.0029	0.0017	0.0371	0.0028	0.003	0.0071	0.003	0.0073	0.0026	0.0033	0.0028	0.0032	0.0021	0.0028	0.0206	0.0025	0.0024	0.0067	0.0023	0.0039	0.0017	0.0549	0.0035	0.0032
Barium	mg/L	0.044	0.042	0.054	0.047	0.045	0.045	0.046	0.049	0.041	0.048	0.041	0.046	0.048	0.048	0.052	0.047	0.045	0.043	0.043	0.042	0.039	0.049	0.047	0.042
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	0.1	<0.10	0.11	0.12	0.12	0.11	0.11	0.13	0.11	0.12	0.12	0.12	0.13	0.15	<0.50	0.14	0.14	0.13	0.12	0.11	<0.1	<0.1	0.11	<0.1
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.017	0.016	0.021	0.017	0.018	0.019	0.018	0.02	0.017	0.019	0.019	0.016	0.017	0.017	<0.05	0.016	0.016	0.015	0.015	0.016	-0.01	0.015	0.015	0.015
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.145	0.501	5.21	0.163	0.109	3.23	0.071	5.63	0.052	0.52	0.106	0.251	0.046	0.047	14.7	0.062	0.069	2.99	0.054	0.094	0.231	9.92	0.074	0.084
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	0.02	<0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	8.39	7.84	8.1	8.95	8.47	7.08	7.83	7.98	6.81	8.41	7.35	7.93	8	8.29	8.02	7.71	7.77	7.25	7.3	6.95	0.0232	6.81	6.56	7.14
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<1.50	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	5.03	4.93	5.5	4.98	5.06	5.2	5.04	5.22	4.57	5.46	5.03	5.27	5.11	5.21	5.56	5.11	5.2	4.81	4.71	5.2	2.4	4.81	4.86	4.7
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	0.768	0.739	0.822	0.82	0.789	0.745	0.767	0.744	0.674	0.805	0.745	0.761	0.775	0.819	0.86	0.781	0.776	0.687	0.795	0.655	0.0913	0.664	0.646	0.719
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.00	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.03	<0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0078	0.0079	<0.005	0.0073	0.0067	0.0053	<0.005	0.0059	<0.005	<0.005	<0.005	0.0054	0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005	0.0053	0.0052	0.0109	<0.005	<0.005

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06	28-Sep-06	12-Oct-06	26-Oct-06	9-Nov-06	23-Nov-06	7-Dec-06	4-Jan-07	25-Jan-07	8-Feb-07	22-Feb-07	22-Mar-07	05-Apr-07	19-Apr-07	03-May-07	16-May-07	31-May-07
Physical Parameters																									
pH	pH units	7.68	7.83	7.7	7.58	7.79	7.7	7.73	7.7	7.68	7.75	7.71	7.52	7.64	7.42	7.62	7.51	--	7.62	7.82	7.85	7.91	7.99	7.39	7.74
Conductivity	µS/cm	1980	1900	1860	1990	1940	1830	1840	1730	1760	1820	1820	1800	1780	1750	1840	1770	1830	1860	3680	3770	2020	1860	1470	1710
Routine Parameters																									
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	867.65	822.14	886.31	838.86	891.31	796.90	861.78	736.60	849.37	792.40	790.26	828.95	880.44	844.29	823.79	849.23	869.07	877.80	1959.17	2037.26	918.58	830.19	690.20	787.59
Alkalinity-Total	mg/L	226	250	231	247	238	176	226	200	189	213	207	186	182	47.3	192	201	190	194	269	297	221	209	155	204
Bicarbonate	mg/L	226	250	231	247	238	176	226	200	189	213	207	186	182	47.3	192	201	190	194	269	297	221	209	155	204
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<2.0	<2.0	<1.0	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	294	277	288	272	296	261	278	261	276	270	255	275	277	309	262	--	289	280	612	644	291	282	226	264
Magnesium	mg/L	31.7	34.8	32.1	32.3	33	32.1	31.1	30.1	29.7	32.4	31.5	30.5	31.8	33.8	32.4	--	36.7	35.9	99.7	93.5	36.0	33.2	25.9	35.6
Potassium	mg/L	9.9	8.2	9.4	8.5	10.1	9.5	8.9	7.4	8.8	7.4	7.5	8.7	8.8	8.5	7.2	--	16.2	9.1	33.9	36.0	7.7	9.0	6.6	6.9
Sodium	mg/L	139	128	125	126	129	122	110	114	116	117	111	115	102	123	107	--	119	114	245	255	115	111	90.9	105
Sulphate	mg/L	924	903	899	903	880	855	847	795	800	815	824	871	870	848	869	839	896	934	2240	2350	958	829	680	772
Nutrients																									
Ammonia-N	mg/L	***10.0***	***8.8***	***9.3***	***11.0***	***9.0***	***8.3***	***8.6***	***8.4***	***7.8***	***8.2***	***9.4***	***8.5***	***9.3***	***7.7***	***8.5***	***8.1***	***8.3***	***8.5***	***8.5***	***7.1***	***8.0***	***7.2***	***6.7***	***6.4***
Nitrate-N	mg/L	0.71	0.74	1.00	0.17	1.79	2.79	3.56	4.89	5.34	5.80	5.45	5.06	4.29	4.04	3.81	3.27	2.87	3.31	2.23	1.86	1.83	1.38	0.57	1.20
Nitrite-N	mg/L	***0.07***	***0.06***	***0.07***	0.01	***0.06***	***0.14***	***0.16***	***0.13***	0.05	***0.12***	***0.20***	***0.17***	***0.20***	***0.17***	***0.28***	***0.18***	***0.16***	***0.14***	0.03	0.02	***0.13***	***0.13***	***0.09***	0.06
Total Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cyanide Compounds																									
Cyanide - T	mg/L	0.03	0.0907	0.0309	0.0268	0.13	0.037	0.0603	0.0327	0.0462	0.0627	0.0435	0.0618	0.111	0.0404	0.0294	0.045	0.047	0.0353	0.0189	0.0789	0.0794	0.036	0.0627	0.0514
Cyanate	mg/L	<0.7	<0.7	<0.5	<0.5	<0.5	***0.6***	<0.5	<0.5	<0.5	<0.5	<0.5	***0.75***	<0.5	<0.5	***0.78***	0.0559	0.078	0.042	<0.5	0.51	<0.5	1.77	<0.5	<0.5
Thiocyanate	mg/L	13.3	12.6	12.2	4.66	10.1	8.34	8.24	6.93	7.79	7.66	7.91	7.07	8.87	7.84	5.8	0.75	<0.5	<0.5	1.21	***1.23***	***10.1***	***9.52***	***11.4***	***11.5***
CN-WAD	mg/L	0.031	0.033	0.031	0.029	***0.124***	0.034	0.054	0.021	0.022	0.044	0.041	***0.118***	0.044	0.043	0.032	***8.100***	***7.350***	***7.870***	0.006	0.0478	0.0385	0.026	0.0455	0.0323
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																									
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.0344***	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	mg/L	0.0530	0.0540	0.0540	0.0560	0.0580	0.0580	0.0580	0.0580	0.0590	0.0500	0.0520	0.0520	0.0550	0.0550	0.0600	0.0570	0.0570	0.0580	0.0340	0.031	0.050	0.048	0.042	0.047
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	0.11	0.14	0.12	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	0.10	0.11	0.13	0.1	<0.2	0.11	0.35	0.32	0.14	<0.1	<0.1	0.10
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	295	272	300	281	302	267	291	245	289	268	265	280	296	284	272	284	287	290	618	658	306	280	234	258
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.018	0.021	0.018	0.02	0.018	0.017	0.017	0.016	0.018	0.014	0.016	0.015	0.014	0.015	0.015	0.013	<0.02	0.014	<0.01	<0.01	0.018	0.013	0.013	0.017
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.012***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.011***	<0.0	<0.010	***0.085***	0.082	<0.01	<0.01	0.012	<0.01
Iron	mg/L	***7.6***	***8.2***	***5.1***	***8.5***	***7.8***	***6.8***	***9.0***	***8.9***	***10.0***	***10.6***	***11.4***	***12.9***	***12.5***	***13.0***	***12.6***	***12.6***	***12.8***	***14.0***	***0.4***	0.375	14.5	11.1	10.9	10.3
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	0.011	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	31.80	34.70	33.30	33.30	33.30	31.60	32.80	30.30	31.00	29.90	31.20	31.50	34.30	32.80	35.10	34.00	37.00	37.30	101.00	95.7	37.5	31.8	25.7	34.8
Manganese	mg/L	8.24	7.65	8.45	8.17	8.91	8.14	8.46	7.36	8.46	8.05	7.85	8.44	9.38	8.88	7.58	8.66	8.99	8.68	4.29	4.70	8.43	8.07	6.30	7.25
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	10	8.3	9.8	8.9	10.2	9.5	9.4	6.8	9.5	8.3	7.4	9.1	9.5	9.2	7.8	8.7	9.4	9.2	33.2	37.1	8.5	8.6	6.7	7.0
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	4.97	5.44	5.1	5.43	5.65	5.34	6.15	5.01	5.96	5.91	5.94	6.32	6.43	6.59	6.12	6	5.93	6.02	5.55	5.38	6.23	5.70	4.81	5.34
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	139	131	130	131	131	120	117	111	122	115	108	119	110	117	118	114	120	118	240	262	123	106	90.9	104

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep
Date	Units	15-Jun-06	22-Jun-06	6-Jul-06	20-Jul-06	3-Aug-06	17-Aug-06	31-Aug-06	14-Sep-06	28-Sep-06	12-Oct-06	26-Oct-06	9-Nov-06	23-Nov-06	7-Dec-06	4-Jan-07	25-Jan-07	8-Feb-07	22-Feb-07	22-Mar-07	05-Apr-07	19-Apr-07	03-May-07	16-May-07	31-May-07
Strontium	mg/L	0.805	0.742	0.814	0.808	0.843	0.783	0.831	0.728	0.828	0.748	0.688	0.782	0.871	0.834	0.724	0.861	0.894	0.821	1.38	1.60	0.829	0.785	0.608	0.716
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0078	0.0062	0.008	0.0078	0.0073	0.0083	0.009	0.0101	0.0276	0.0109	0.0098	0.0093	0.0085	0.0086	0.0098	0.0086	0.012	0.0089	***0.205***	***0.184***	***0.0076***	***0.0104***	***0.0256***	***0.0103***
Dissolved Metals																									
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	0.0031	0.0035	0.0032	0.0038	0.0029	0.006	0.0032	0.0025	0.00216	0.0025	0.0021	0.0017	0.0024	0.00159	0.00137	--	0.0032	0.00306	0.0206	0.0218	0.00344	0.00286	0.00291	0.00167
Barium	mg/L	0.05	0.051	0.049	0.051	0.054	0.054	0.049	0.053	0.051	0.047	0.045	0.043	0.045	0.052	0.048	--	0.05	0.049	0.034	0.030	0.040	0.042	0.035	0.043
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	0.12	0.13	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0.11	--	<0.2	0.11	0.33	0.31	0.13	0.10	<0.1	<0.1
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.018	0.019	0.017	0.021	0.018	0.017	0.016	0.016	0.017	0.015	0.014	0.014	0.013	0.015	0.015	--	<0.02	0.013	<0.01	<0.01	0.016	0.012	0.012	0.016
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.01	0.075	0.070	<0.01	<0.01	0.011	<0.01
Iron	mg/L	0.09	0.07	0.051	0.054	0.062	0.041	0.047	0.073	0.084	0.062	0.055	0.322	0.075	0.066	0.075	--	<0.06	0.044	<0.03	<0.03	0.060	0.086	0.158	0.107
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.02	0.011	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	8.16	7.74	8.08	7.86	8.8	8.05	7.61	7.47	7.86	6.89	7.23	8.08	8.59	8.16	7.27	--	8.73	8.22	4.24	4.58	7.93	7.57	5.96	7.39
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	--	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	<0.6	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	4.77	5.29	4.7	5.05	5.38	5.11	5.41	5.08	5.34	5.42	5.28	5.67	5.43	6.13	5.29	--	5.37	5.35	5.42	5.14	5.40	5.34	4.14	5.12
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	0.799	0.738	0.782	0.778	0.832	0.79	0.779	0.691	0.787	0.71	0.697	0.749	0.802	0.765	0.668	--	0.881	0.79	1.41	1.58	0.768	0.804	0.580	0.713
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	--	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	--	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0053	<0.005	0.0054	<0.005	0.0052	<0.005	0.0052	0.0072	0.0098	0.0058	<0.005	0.0068	<0.005	<0.005	<0.005	--	<0.01	<0.005	0.194	0.162	<0.005	0.0070	0.0158	<0.005

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	**CCME**	**Water License**	**YCSG***
Date	Units	14-Jun-07	28-Jun-07	12-Jul-07	26-Jul-07	09-Aug-07	23-Aug-07	18-Sep-07	03-Oct-07	17-Oct-07	15-Nov-07	29-Nov-07	15-Dec-07	28-Dec-07	10-Jan-08	24-Jan-08	**Guidelines**	**Standards**	
Physical Parameters																			
pH	pH units	7.70	7.74	7.58	7.50	7.46	7.06	7.62	7.61	7.32	7.59	7.24	7.40	7.06	6.99	7.08	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	µS/cm	1280	1820	1560	1990	1920	1920	1730	1620	1630	1730	1660	1730	1650	1610	1600	**--**	**--**	**--**
																	--		
Routine Parameters																			
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**50**	**--**
Hardness	mg/L	617.03	874.04	819.26	930.22	891.06	866.96	785.18	718.76	721.42	730.00	731.99	758.23	754.52	763.91	719.15	**--**	**--**	**--**
Alkalinity-Total	mg/L	147	226	164	241	246	242	234	219	225	209	205	210	206	212	208	**--**	**--**	**--**
Bicarbonate	mg/L	147	226	164	241	246	242	234	219	225	209	250	255	251	259	253	**--**	**--**	**--**
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<6	<6	<6	<6	<6	**--**	**--**	**--**
Hydroxide	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5	<5	<5	<5	<5	**--**	**--**	**--**
Calcium	mg/L	212	286	268	307	291	288	254	241	225	225	240	262	263	252	254	**--**	**--**	**--**
Magnesium	mg/L	24.7	37.1	33.3	37.5	37.8	38.0	32.5	29.4	33.5	34.3	30.9	32.3	31.2	34.0	31.9	**--**	**--**	**--**
Potassium	mg/L	6.3	8.7	6.9	8.7	7.4	8.6	8.5	8.0	7.6	7.7	7.2	8.0	7.5	7.4	7.4	**--**	**--**	**--**
Sodium	mg/L	77.3	114	89.6	116	110	115	94.6	90.6	88.2	96.7	90	100	99	95	96	**--**	**--**	**--**
Sulphate	mg/L	578	829	750	904	895	781	744	644	666	734	753	794	814	778	787	**--**	**--**	**1000**
Nutrients																			
Ammonia-N	mg/L	***5.0***	***8.8***	***7.5***	***8.4***	***7.9***	***8.4***	***7.3***	***8.2***	***8.6***	***7.8***	***6.0***	***7.2***	***8.0***	***6.0***	***7.0***	**2.20**	**--**	**11.3**
Nitrate-N	mg/L	1.11	0.98	1.06	1.05	1.40	1.64	3.05	2.93	4.91	5.93	6.35	5.06	5.96	4.65	3.44	**13.0**	**--**	**400**
Nitrite-N	mg/L	***0.08***	***0.06***	***0.06***	0.05	0.05	0.06	***0.14***	<0.10	***0.16***	***0.15***	***0.15***	***0.20***	***0.26***	***0.24***	***0.18***	**0.06**	**--**	**--**
Total Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.30	<0.30	<0.30	--	--	--	--	--	**--**	**--**	**--**
Cyanide Compounds																			
Cyanide - T	mg/L	0.0616	0.051	0.0228	0.0479	0.0287	0.0643	0.0299	0.0426	0.0794	0.0670	--	--	--	--	--	**0.3***	**0.3**	**--**
Cyanate	mg/L	1.50	2.40	<0.5	0.57	<0.5	<0.5	<0.5	<0.50	3.24	5.25	1.20	2.80	3.30	2.70	1.70	**0.5**	**--**	**--**
Thiocyanate	mg/L	***7.22***	***12.1***	***10.9***	***13.8***	***14.2***	***11.5***	***10.4***	***10.5***	***9.0***	***9.5***	***12.2***	***12.3***	***13.6***	***12.9***	***14.5***	**--**	**--**	**--**
CN-WAD	mg/L	0.0268	0.051	<0.005	0.0482	0.0321	0.0470	0.0252	0.0414	0.0280	0.0470	0.0140	0.0180	0.0120	0.0080	0.0160	**0.1***	**0.1**	**0.05**
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	2.6	1.7	2.6	1.5	1.2	**--**	**--**	**--**
Total Metals																			
Aluminum	mg/L	***0.34***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	0.02	0.03	0.30	0.03	0.02	0.05	**0.1**	**--**	**--**
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	0.00	0.001	0.002	0.001	0.001	0.001	**--**	**0.15**	**0.2**
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	0.04	0.04	0.15	0.04	0.05	0.05	**0.005**	**--**	**0.5**
Barium	mg/L	0.053	0.059	0.053	0.055	0.043	0.060	0.053	0.062	0.051	0.052	0.058	0.067	0.052	0.061	0.055	**--**	**1**	**10**
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0025	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	**--**	**--**	**0.053**
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.0025	<0.0005	<0.001	<0.001	<0.0005	<0.0005	**--**	**--**	**--**
Boron	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	0.08	0.08	0.08	0.08	0.08	0.08	**--**	**--**	**50**
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	0.00	0.0011	0.0016	0.0013	0.0012	0.0011	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	208	288	272	310	293	285	260	240	232	234	242	253	253	250	239	**--**	**--**	**--**
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.0025	0.001	0.002	0.004	0.001	0.001	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	0.011	0.016	0.015	0.016	0.018	0.015	0.013	0.012	0.013	0.014	0.014	0.016	0.016	0.015	0.014	**--**	**--**	**0.009**
Copper	mg/L	0.013	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	0.01	0.01	0.03	0.01	0.02	0.01	**0.004**	**0.2**	**0.05**
Iron	mg/L	6.86	7.27	7.11	7.20	8.71	6.94	6.88	9.64	12.20	13.30	14.60	18.00	15.00	17.00	15.70	**0.30**	**1**	**--**
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.00025	0.0001	0.0037	0.0002	0.0002	0.0005	**0.007**	**0.1**	**0.06**
Lithium	mg/L	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.025	0.0010	<0.002	<0.002	0.0010	0.0010	**--**	**--**	**--**
Magnesium	mg/L	23.7	37.6	34.0	37.9	38.7	37.7	33.0	29.0	34.5	35.4	31.0	30.7	29.8	33.9	29.7	**--**	**--**	**--**
Manganese	mg/L	5.54	9.00	7.47	9.76	8.59	8.84	8.00	7.18	7.64	7.96	7.98	8.54	8.37	8.36	8.06	**--**	**0.5**	**--**
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.030	<0.030	0.0016	0.0020	<0.002	<0.002	0.0020	0.0020	**0.073**	**--**	**10**
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	***0.0046***	***0.0044***	***0.0048***	***0.0048***	***0.0162***	***0.0096***	**0.150**	**0.3**	**0.65**
Potassium	mg/L	6.0	8.8	6.8	9.0	7.5	8.6	7.9	7.6	7.5	8.0	7.3	7.8	7.6	7.3	7.0	**--**	**--**	**--**
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.0050	0.0005	0.0008	0.0008	0.0010	0.0006	**0.001**	**--**	**0.01**
Silicon	mg/L	4.85	5.82	5.65	6.23	5.59	6.08	6.22	5.98	6.48	6.40	6.10	6.99	6.46	6.63	6.29	**--**	**--**	**--**
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	0.0001	0.0001	0.0020	<0.0002	<0.0001	0.0002	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	73.9	115	90.8	119	110	114	96.6	88.8	88.2	100.0	92	98	98	94	90	**--**	**--**	**--**

Table A8. Water Quality Parameters in the Seepage Pond.

Sample ID		Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	**CCME Guidelines**	**Water License Standards**	**YCSG***
Date	Units	14-Jun-07	28-Jun-07	12-Jul-07	26-Jul-07	09-Aug-07	23-Aug-07	18-Sep-07	03-Oct-07	17-Oct-07	15-Nov-07	29-Nov-07	15-Dec-07	28-Dec-07	10-Jan-08	24-Jan-08			
Strontium	mg/L	0.547	0.840	0.690	0.878	0.764	0.850	0.775	0.682	0.728	0.709	0.827	0.774	0.868	0.892	0.800	--	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	248	260	260	264	242	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.00050	<0.00005	<0.0001	<0.0001	<0.00005	<0.00005	**0.0008**	--	**0.003**
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.030	<0.030	<0.00050	<0.001	<0.002	<0.002	<0.001	<0.001	--	--	--
Titanium	mg/L	***0.012***	<0.01	<0.01	<0.01	<0.01	<0.01	***0.011***	<0.010	<0.010	<0.010	***0.02***	***0.03***	***0.02***	***0.01***	***0.01***	--	--	**1**
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.030	<0.030	<0.0050	0.0015	0.0041	0.0020	0.0027	0.0029	--	--	--
Zinc	mg/L	***0.0226***	***0.0096***	***0.0090***	***0.0097***	***0.0098***	***0.0068***	***0.0085***	***0.0063***	***0.0057***	***0.0096***	***0.0170***	***0.0240***	***0.0200***	***0.0290***	***0.0240***	**0.03**	**0.3**	**0.9**
Dissolved Metals																			
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.0050	<0.005	<0.005	0.03	<0.005	0.01	--	--	--
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	0.00	0.0010	0.0009	0.0010	0.0008	0.0010	--	--	--
Arsenic	mg/L	0.00501	0.00284	0.00301	0.00410	0.00322	0.00279	0.00349	0.00280	0.00280	0.00226	0.00280	0.00250	0.04560	0.00270	0.00190	--	**0.15**	--
Barium	mg/L	0.047	0.054	0.044	0.047	0.036	0.038	0.033	0.030	0.030	0.045	0.048	0.050	0.056	0.053	0.055	--	--	--
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--	--
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.0025	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--
Boron	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	0.08	0.06	0.08	0.08	0.09	0.09	--	--	--
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	0.00	0.0005	0.0005	0.0013	0.0005	0.0005	--	--	--
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.0025	0.001	0.001	0.005	0.002	0.001	--	--	--
Cobalt	mg/L	0.010	0.015	0.016	0.016	0.019	0.014	0.011	0.013	0.010	0.013	0.012	0.015	0.013	0.012	0.013	--	--	--
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	0.00	0.03	0.02	0.01	0.01	0.00	--	--	--
Iron	mg/L	0.822	0.054	0.072	0.059	0.043	0.035	0.058	0.054	0.051	0.058	0.040	0.150	15.500	0.110	1.870	--	--	--
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.00025	<0.0001	<0.0001	0.00	<0.0001	<0.0001	--	--	--
Lithium	mg/L	<0.02	<0.02	<0.01	--	<0.01	<0.01	<0.01	<0.010	<0.010	<0.025	<0.001	0.00	0.00	0.00	0.00	--	--	--
Manganese	mg/L	5.35	8.73	7.23	9.56	8.49	8.73	7.51	7.22	7.36	7.79	7.78	8.43	8.51	8.30	8.40	--	--	--
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.030	<0.030	0.00	0.01	0.00	0.00	0.00	0.00	--	--	--
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	0.00	0.004	0.006	<0.0005	0.002	<0.0005	--	--	--
Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.30	<0.30	<0.30	--	--	--	--	--	--	--	--
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.0050	<0.0002	0.00	0.00	0.00	0.00	--	--	--
Silicon	mg/L	4.45	5.35	5.21	5.89	5.28	5.74	5.73	5.74	5.74	5.70	<0.0001	6.42	6.71	6.22	6.36	--	--	--
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.000050	5.89	<0.0001	<0.0001	<0.0001	<0.0001	--	--	--
Strontium	mg/L	0.566	0.828	0.685	0.855	0.761	0.837	0.730	0.683	0.716	0.698	0.740	0.812	0.801	0.834	0.807	--	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.00050	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	--	--	--
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.05	<0.03	<0.03	<0.030	<0.030	<0.00050	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.0005	0.01	0.02	0.01	0.02	--	--	--
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.030	<0.030	<0.0050	0.002	0.004	0.004	0.004	0.001	--	--	--
Zinc	mg/L	0.0139	0.0062	0.0059	0.0066	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	0.014	0.009	0.012	0.007	0.014	--	--	--

Notes:

* Yukon Contaminated Sites Regulations

text denotes concentrations that are above CCME guidelines for the protection of aquatic life

Table A9. Water Quality Parameters in the Brown-McDade Pit.

Sample ID	Units	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit - Top	CCME Guidelines	Water License Standards	YCSG*
Date		15-Dec-05	1-Jun-06	31-Aug-06	22-Feb-07	22-Mar-07	19-Apr-07	31-May-07	28-Jun-07	26-Jul-07	23-Aug-07	18-Sep-07	15-Dec-07	24-Jan-08			
Physical Parameters																	
pH	pH units	7.91	7.66	8.11	--	7.74	7.92	7.87	8.1	8.75	8.11	8.67	7.69	7.6	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	µS/cm	1570	278	1600	--	1990	2260	605	994	1250	1320	1350	1430	1450	**--**	**--**	**--**
Routine Parameters																	
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**50**	**--**
Hardness	mg/L	955.49	133.24	1020.81	1259.73	1313.65	1419.01	342.30	651.20	778.49	801.56	817.46	830.74	903.79	**--**	**--**	**--**
Alkalinity-Total	mg/L	229	24.3	158	--	210	223	41	95.7	113	122	127	158	171	**--**	**--**	**--**
Bicarbonate	mg/L	229	24.3	158	--	210	223	41	95.7	86.7	122	106	193	208	**--**	**--**	**--**
Carbonate	mg/L	<2.0	<2.0	<2.0	--	<1.0	<2.0	<2.0	<2.0	26.1	<2.0	21	<6	<6	**--**	**--**	**--**
Hydroxide	mg/L	<2.0	<2.0	<2.0	--	<1.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<5	<5	**--**	**--**	**--**
Calcium	mg/L	236	36.7	253	--	--	--	96.4	180	210	215	207	245	259	**--**	**--**	**--**
Magnesium	mg/L	70.5	9.68	81.3	--	--	--	24.1	50.1	60.2	66.2	63	71.1	73.5	**--**	**--**	**--**
Potassium	mg/L	2.4	<2.0	2.8	--	--	--	<2.0	<2.0	2.2	2.4	2.5	2.5	2.7	**--**	**--**	**--**
Sodium	mg/L	9.3	<2.0	9.6	--	--	--	2.1	5.1	7.2	7.6	8	9.7	10.6	**--**	**--**	**--**
Sulphate	mg/L	747	111	815	--	1120	1290	271	481	609	627	653	733	781	**--**	**--**	**1000**
Nutrients																	
Ammonia-N	mg/L	<0.020	0.022	0.023	0.116	0.21	0.116	<0.020	<0.020	0.053	0.04	<0.020	0.1	0.13	**2.20**	**--**	**11.3**
Nitrate-N	mg/L	3.790	0.303	1.240	--	2.120	1.700	0.363	0.528	0.041	<0.0050	<0.0050	0.820	0.910	**13.0**	**--**	**400**
Nitrite-N	mg/L	0.006	0.002	0.004	--	0.009	0.006	0.002	0.003	0.020	<0.0010	<0.0010	<0.005	<0.02	**0.06**	**--**	**--**
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	**--**	**--**	**--**
Cyanide Compounds																	
Thiocyanate	mg/L	0.83	<0.50	--	--	1.13	--	--	--	0.85	--	1.03	0.8	--	**--**	**--**	**--**
Total Metals																	
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.012	0.017	**0.1**	**--**	**--**
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.009	0.009	**--**	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.0175***	***0.0184***	**0.005**	**--**	**0.5**
Barium	mg/L	0.0190	<0.010	0.0170	0.0170	0.0170	<0.010	<0.010	0.0120	0.0160	0.0150	0.0130	0.0160	0.0180	**--**	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0001	<0.0001	**--**	**--**	**0.053**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0005	<0.0005	**--**	**--**	**--**
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.004	0.006	**--**	**--**	**50**
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.00305***	***0.00416***	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	257	37.2	267	333	348	377	98	179	212	213	222	226	248	**--**	**--**	**--**
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0005	<0.0005	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0001	0.0002	**--**	**--**	**0.009**
Copper	mg/L	***0.016***	***0.012***	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.026***	***0.014***	***0.013***	***0.019***	***0.018***	**0.004**	**0.2**	**0.05**
Iron	mg/L	<0.030	0.1	<0.030	<0.030	0.0	0.1	0.1	<0.030	0.1	0.1	0.0	<0.1	<0.1	**0.30**	**1**	**--**
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0007	0.002	**0.007**	**0.1**	**0.06**
Lithium	mg/L	0.013	<0.010	0.01	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	0.01	<0.010	0.008	0.011	**--**	**--**	**--**
Magnesium	mg/L	76.2	9.8	86.0	104.0	108.0	116.0	23.7	49.6	60.5	65.5	63.9	64.7	69.1	**--**	**--**	**--**
Manganese	mg/L	0.255	0.12	0.0408	0.123	0.311	0.783	0.355	0.092	0.159	0.117	0.111	0.214	0.226	**--**	**0.5**	**--**
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	**0.073**	**--**	**10**
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.005	0.0027	**0.150**	**0.3**	**0.65**
Potassium	mg/L	2.5	<2.0	3	3.5	3	3.2	<2.0	<2.0	2.2	2.5	2.5	2.3	2.8	**--**	**--**	**--**
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0002	0.0009	**0.001**	**--**	**0.01**
Silicon	mg/L	5.98	0.73	3.78	5.02	4.77	4.47	1.44	2.42	3.28	3.05	3.22	4.74	5	**--**	**--**	**--**
Silver	mg/L	***0.01***	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0001	<0.0001	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	10.10	<2.0	10.00	12.80	12.00	12.70	2.10	5.20	7.30	7.70	8.20	9.20	10.30	**--**	**--**	**--**
Strontium	mg/L	0.785	0.112	0.863	1.04	0.934	1	0.275	0.522	0.662	0.695	0.741	0.859	0.984	**--**	**--**	**--**
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	231	244	**--**	**--**	**--**
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.00009	0.0001	**0.0008**	**--**	**0.003**
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	**--**	**--**	**--**
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0177	0.0135	**--**	**--**	**1**
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.0002	0.0003	**--**	**--**	**--**
Zinc	mg/L	***0.89***	***0.16***	***0.38***	***0.73***	***0.83***	***1.17***	***1.02***	***0.53***	***0.50***	***0.35***	***0.35***	***0.56***	***0.80***	**0.03**	**0.3**	**0.9**

Table A9. Water Quality Parameters in the Brown-McDade Pit.

Sample ID	Units	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit (Top)	Pit - Top	CCME Guidelines	Water License Standards	YCSG*
Date		15-Dec-05	1-Jun-06	31-Aug-06	22-Feb-07	22-Mar-07	19-Apr-07	31-May-07	28-Jun-07	26-Jul-07	23-Aug-07	18-Sep-07	15-Dec-07	24-Jan-08			
Dissolved Metals																	
Aluminum	mg/L	<0.20	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.005	<0.005	--	--	--
Antimony	mg/L	<0.20	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.0095	0.0091	--	--	--
Arsenic	mg/L	0.0138	0.00265	0.0126	--	--	--	0.00336	0.00726	0.00915	0.013	0.0143	0.0177	0.0164	--	**0.15**	--
Barium	mg/L	0.017	<0.010	0.016	--	--	--	<0.010	0.012	0.016	0.014	0.012	0.017	0.018	--	--	--
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0001	<0.0001	--	--	--
Bismuth	mg/L	<0.20	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0005	<0.0005	--	--	--
Boron	mg/L	<0.10	<0.10	<0.10	--	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	0.004	0.005	--	--	--
Cadmium	mg/L	<0.010	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	0.00241	0.0034	--	--	--
Chromium	mg/L	<0.010	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0005	<0.0005	--	--	--
Cobalt	mg/L	<0.010	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0001	<0.0001	--	--	--
Copper	mg/L	0.01	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	0.016	0.01	--	--	--
Iron	mg/L	<0.030	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.01	<0.01	--	--	--
Lead	mg/L	<0.050	<0.050	<0.050	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0001	<0.0001	--	--	--
Lithium	mg/L	<0.010	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	0.01	<0.010	0.009	0.01	--	--	--
Manganese	mg/L	0.233	0.112	0.0291	--	--	--	0.338	0.0852	0.14	0.0107	<0.0050	<0.005	<0.005	--	--	--
Molybdenum	mg/L	<0.030	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	--	--	--
Nickel	mg/L	<0.050	<0.050	<0.050	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	0.002	<0.0005	--	--	--
Phosphorus	mg/L	<0.30	<0.30	<0.30	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0002	<0.0002	--	--	--
Silicon	mg/L	5.57	0.632	3.56	--	--	--	1.31	2.38	3.18	2.96	3.19	5.25	5.25	--	--	--
Silver	mg/L	<0.010	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0001	<0.0001	--	--	--
Strontium	mg/L	0.725	0.11	0.823	--	--	--	0.27	0.513	0.654	0.685	0.69	0.882	0.986	--	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.0001	0.0001	--	--	--
Tin	mg/L	<0.030	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	--	--	--
Titanium	mg/L	<0.010	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	0.0126	0.0204	--	--	--
Vanadium	mg/L	<0.030	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	0.002	0.0007	--	--	--
Zinc	mg/L	0.806	0.141	0.344	--	--	--	0.974	0.511	0.337	0.184	0.027	0.519	0.683	--	--	--

Notes:

* - Yukon Contaminated Sites Regulations

text - denotes concentrations that are above CCME guidelines for the protection of aquatic life

Table A9. Water Quality Parameters in the Brown-McDade Pit.

Sample ID	Units	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit - Middle	CCME Guidelines	Water License Standards	YCSG*
Date		15-Dec-05	31-Aug-06	22-Feb-07	22-Mar-07	19-Apr-07	16-May-07	28-Jun-07	26-Jul-07	23-Aug-07	18-Sep-07	15-Dec-07	24-Jan-08			
Physical Parameters																
pH	pH units	7.79	8.1	--	7.49	7.88	7.93	7.87	8.52	7.81	8.44	7.59	7.27	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	µS/cm	2180	2000	--	2580	2770	1880	1850	1270	1850	1450	1740	2120	**--**	**--**	**--**
Routine Parameters																
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**50**	**--**
Hardness	mg/L	1267.82	1017.49	1395.79	1738.35	1671.34	1155.50	1255.47	1621.21	1143.36	869.62	1087.25	1328.64	**--**	**--**	**--**
Alkalinity-Total	mg/L	216	188	--	247	263	184	180	117	157	136	180	242	**--**	**--**	**--**
Bicarbonate	mg/L	216	188	--	247	263	184	180	105	157	129	219	295	**--**	**--**	**--**
Carbonate	mg/L	<2.0	<2.0	--	<1.0	<2.0	<2.0	<2.0	11.9	<2.0	7.5	<6	<6	**--**	**--**	**--**
Hydroxide	mg/L	<2.0	<2.0	--	<1.0	<2.0	<2.0	<2.0	<1.0	<2.0	<1.0	<5	<5	**--**	**--**	**--**
Calcium	mg/L	327	258	--	--	--	306	346	415	306	227	302	396	**--**	**--**	**--**
Magnesium	mg/L	105	83.4	--	--	--	100	111	132	104	66.6	94.2	114	**--**	**--**	**--**
Potassium	mg/L	3.1	2.9	--	--	--	2.7	3.5	4.3	3.5	2.4	3.1	<4	**--**	**--**	**--**
Sodium	mg/L	12.7	9.7	--	--	--	11.5	11.3	13.4	10.4	7.9	11	16	**--**	**--**	**--**
Sulphate	mg/L	1270	1180	--	1650	1690	1010	1090	609	935	705	945	1220	**--**	**--**	**1000**
Nutrients																
Ammonia-N	mg/L	0.027	0.024	0.089	0.271	0.023	0.033	<0.020	0.034	0.044	<0.020	0.1	0.14	**2.20**	**--**	**11.3**
Nitrate-N	mg/L	2.670	0.916	--	0.310	0.603	1.490	0.993	0.250	0.250	<0.0050	0.570	0.380	**13.0**	**--**	**400**
Nitrite-N	mg/L	***0.071***	0.003	--	***0.082***	0.011	0.004	0.002	0.017	<0.0010	<0.0010	<0.005	<0.02	**0.06**	**--**	**--**
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	**--**	**--**	**--**
Cyanide Compounds																
Thiocyanate	mg/L	0.88	--	--	0.83	--	--	--	0.84	--	1.13	0.9	--	**--**	**--**	**--**
Total Metals																
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.012	0.02	**0.1**	**--**	**--**
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.006	0.0043	**--**	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	***0.0158***	***0.0229***	**0.005**	**--**	**0.5**
Barium	mg/L	<0.010	0.0170	0.0120	0.0120	<0.010	0.0110	0.0140	0.0130	0.0140	0.0130	0.0160	0.0100	**--**	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0001	<0.0002	**--**	**--**	**0.053**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0005	<0.001	**--**	**--**	**--**
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.004	0.006	**--**	**--**	**50**
Cadmium	mg/L	***0.017***	<0.010	<0.010	***0.012***	<0.010	<0.010	<0.010	***0.012***	<0.010	<0.010	***0.00822***	***0.0159***	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	328	266	371	434	422	300	328	425	293	233	288	354	**--**	**--**	**--**
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0005	0.001	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0001	0.0008	**--**	**--**	**0.009**
Copper	mg/L	***0.011***	<0.010	***0.011***	<0.010	<0.010	***0.016***	***0.025***	***0.038***	***0.02***	***0.014***	***0.018***	***0.023***	**0.004**	**0.2**	**0.05**
Iron	mg/L	0.0	<0.030	<0.030	0.3	***0.5***	0.1	0.1	0.1	0.1	0.1	<0.1	0.2	**0.30**	**1**	**--**
Lead	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0006	0.0009	**0.007**	**0.1**	**0.06**
Lithium	mg/L	0.011	<0.010	<0.010	0.014	0.017	<0.010	<0.010	<0.010	0.014	0.01	0.01	0.02	**--**	**--**	**--**
Magnesium	mg/L	109.0	85.8	114.0	159.0	150.0	98.7	106.0	136.0	100.0	69.9	89.4	108.0	**--**	**--**	**--**
Manganese	mg/L	0.773	0.041	0.529	2.34	3.16	0.571	0.387	0.55	0.228	0.126	0.379	1.12	**--**	**0.5**	**--**
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.002	**0.073**	**--**	**10**
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0028	0.0034	**0.150**	**0.3**	**0.65**
Potassium	mg/L	3.2	3	3.8	4.6	4.4	2.6	3.3	4.4	3.3	2.6	3	3.7	**--**	**--**	**--**
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0002	<0.0004	**0.001**	**--**	**0.01**
Silicon	mg/L	3.64	3.77	4.12	3.91	4.09	3.68	3.17	3.42	3.17	3.32	4.12	4.08	**--**	**--**	**--**
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0001	<0.0002	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	13.10	10.00	13.40	14.20	14.40	11.20	10.80	13.80	9.90	8.60	10.80	15.00	**--**	**--**	**--**
Strontium	mg/L	0.857	0.865	1.04	1.08	1.11	0.84	0.933	1.12	0.912	0.789	1.01	1.24	**--**	**--**	**--**
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	304	379	**--**	**--**	**--**
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0001	0.0001	**0.0008**	**--**	**0.003**
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.002	**--**	**--**	**--**
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.0236	0.0201	**--**	**--**	**1**
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.0002	0.0004	**--**	**--**	**--**
Zinc	mg/L	***1.57***	***0.38***	***1.20***	***1.32***	***1.23***	***1.18***	***0.93***	***1.27***	***0.84***	***0.45***	***1.10***	***2.26***	**0.03**	**0.3**	**0.9**

Table A9. Water Quality Parameters in the Brown-McDade Pit.

Sample ID	Units	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit (Middle)	Pit - Middle	CCME Guidelines	Water License Standards	YCSG*
Date		15-Dec-05	31-Aug-06	22-Feb-07	22-Mar-07	19-Apr-07	16-May-07	28-Jun-07	26-Jul-07	23-Aug-07	18-Sep-07	15-Dec-07	24-Jan-08			
Dissolved Metals																
Aluminum	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.005	<0.005	--	--	--
Antimony	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.0062	0.004	--	--	--
Arsenic	mg/L	0.0199	0.0135	--	--	--	0.00615	0.00922	0.00766	0.0107	0.0129	0.0147	0.0116	--	**0.15**	--
Barium	mg/L	<0.010	0.017	--	--	--	0.011	0.013	0.012	0.014	0.013	0.017	0.014	--	--	--
Beryllium	mg/L	<0.0050	<0.0050	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0001	<0.0001	--	--	--
Bismuth	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0005	<0.0005	--	--	--
Boron	mg/L	<0.10	<0.10	--	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	0.003	0.005	--	--	--
Cadmium	mg/L	0.017	<0.010	--	--	--	0.01	0.01	0.011	<0.010	<0.010	0.00599	0.0144	--	--	--
Chromium	mg/L	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	0.0008	0.002	--	--	--
Cobalt	mg/L	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0001	<0.0001	--	--	--
Copper	mg/L	0.012	<0.010	--	--	--	<0.010	0.021	0.024	<0.010	<0.010	0.017	0.009	--	--	--
Iron	mg/L	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.01	<0.1	--	--	--
Lead	mg/L	<0.050	<0.050	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0001	<0.0001	--	--	--
Lithium	mg/L	0.01	0.01	--	--	--	<0.010	<0.010	<0.010	0.015	<0.010	0.009	0.014	--	--	--
Manganese	mg/L	0.785	0.0317	--	--	--	0.558	0.599	0.395	<0.0050	0.0112	<0.005	0.59	--	--	--
Molybdenum	mg/L	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	--	--	--
Nickel	mg/L	<0.050	<0.050	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	0.0022	<0.0005	--	--	--
Phosphorus	mg/L	<0.30	<0.30	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--	--
Selenium	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.0003	<0.0002	--	--	--
Silicon	mg/L	3.69	3.62	--	--	--	3.67	3.17	3.26	3.27	3.15	4.48	4.3	--	--	--
Silver	mg/L	0.011	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0001	<0.0001	--	--	--
Strontium	mg/L	0.87	0.841	--	--	--	0.869	0.962	1.09	0.943	0.734	1.03	1.18	--	--	--
Thallium	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.00012	0.00014	--	--	--
Tin	mg/L	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	--	--	--
Titanium	mg/L	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	0.0171	0.0309	--	--	--
Vanadium	mg/L	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	0.0025	0.0049	--	--	--
Zinc	mg/L	1.61	0.356	--	--	--	1.17	1.07	1.22	0.778	0.221	1.05	1.87	--	--	--

Notes:

* - Yukon Contaminated Sites Regulations

text - denotes concentrations that are above CCME guidelines for the protection of aquatic life

Table A9. Water Quality Parameters in the Brown-McDade Pit.

Sample ID	Units	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit - Bottom	CCME Guidelines	Water License Standards	YCSG*
Date		15-Dec-05	31-Aug-06	22-Feb-07	22-Mar-07	19-Apr-07	31-May-07	28-Jun-07	26-Jul-07	23-Aug-07	18-Sep-07	15-Dec-07	24-Jan-08			
Physical Parameters																
pH	pH units	7.67	7.59	--	7.47	7.86	7.79	7.7	7.69	7.59	7.8	7.42	7.27	**6.5 - 9.0**	**6.0 to 8.5**	**--**
Conductivity	µS/cm	3140	3080	--	2790	3030	2460	2530	2350	2630	2320	2630	2590	**--**	**--**	**--**
Routine Parameters																
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**50**	**--**
Hardness	mg/L	2171.79	1959.42	1983.05	1638.13	2075.36	1638.59	1929.96	773.87	1651.04	1563.91	1856.89	1809.02	**--**	**--**	**--**
Alkalinity-Total	mg/L	281	258	--	265	276	232	236	203	223	216	250	262	**--**	**--**	**--**
Bicarbonate	mg/L	281	258	--	265	276	232	236	203	223	216	305	320	**--**	**--**	**--**
Carbonate	mg/L	<2.0	<2.0	--	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<6	<6	**--**	**--**	**--**
Hydroxide	mg/L	<2.0	<2.0	--	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5	<5	**--**	**--**	**--**
Calcium	mg/L	488	429	--	--	--	388	501	211	483	392	533	497	**--**	**--**	**--**
Magnesium	mg/L	234	217	--	--	--	150	177	60.1	151	128	164	176	**--**	**--**	**--**
Potassium	mg/L	6.2	6.5	--	--	--	4.2	5.7	2.2	5	4.3	6	6	**--**	**--**	**--**
Sodium	mg/L	18.8	15.9	--	--	--	14	15	7.1	14	11.8	16	17	**--**	**--**	**--**
Sulphate	mg/L	2030	1960	--	1810	1930	1540	319	539	1480	1330	1660	1740	**--**	**--**	**1000**
Nutrients																
Ammonia-N	mg/L	0.119	0.365	0.448	0.242	<0.020	0.199	0.032	<0.020	0.109	0.206	0.25	0.36	**2.20**	**--**	**11.3**
Nitrate-N	mg/L	0.365	0.032	--	<0.10	0.580	0.449	0.055	0.389	0.197	0.131	<0.05	<0.02	**13.0**	**--**	**400**
Nitrite-N	mg/L	***0.076***	0.021	--	<0.020	<0.020	0.022	0.002	<0.0010	0.024	0.002	<0.02	<0.02	**0.06**	**--**	**--**
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	**--**	**--**	**--**
Cyanide Compounds																
Thiocyanate	mg/L	1.09	--	--	0.98	--	--	--	0.94	--	2.23	0.6	--	**--**	**--**	**--**
Total Metals																
Aluminum	mg/L	***1.07***	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.01	0.096	**0.1**	**--**	**--**
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0007	0.0008	**--**	**0.15**	**0.2**
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	***0.24***	<0.20	<0.20	<0.20	<0.20	<0.20	***0.116***	***0.108***	**0.005**	**--**	**0.5**
Barium	mg/L	0.0400	0.0150	0.0160	0.0140	0.0110	0.0110	0.0120	0.0160	<0.010	<0.010	0.0200	0.0200	**--**	**1**	**10**
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0002	<0.0002	**--**	**--**	**0.053**
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.001	<0.001	**--**	**--**	**--**
Boron	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.006	0.007	**--**	**--**	**50**
Cadmium	mg/L	***0.029***	<0.010	<0.010	***0.01***	<0.010	***0.01***	***0.015***	<0.010	***0.011***	***0.012***	***0.0135***	***0.011***	**0.000017**	**0.02**	**0.0005**
Calcium	mg/L	479	450	471	412	475	399	486	209	432	407	493	459	**--**	**--**	**--**
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.001	0.002	**0.0089**	**0.04**	**0.01**
Cobalt	mg/L	<0.010	0.01	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	0.0034	0.0051	**--**	**--**	**0.009**
Copper	mg/L	***0.095***	<0.010	<0.010	<0.010	<0.010	<0.010	***0.016***	***0.029***	***0.015***	***0.014***	***0.023***	***0.021***	**0.004**	**0.2**	**0.05**
Iron	mg/L	***3.8***	***1.8***	***5.5***	***1.3***	***8.5***	0.1	0.1	0.1	0.2	***0.7***	***2.0***	***3.5***	**0.30**	**1**	**--**
Lead	mg/L	***0.116***	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.002	0.0039	**0.007**	**0.1**	**0.06**
Lithium	mg/L	0.025	0.028	<0.010	0.014	0.016	0.012	<0.020	<0.010	0.018	0.016	0.02	0.02	**--**	**--**	**--**
Magnesium	mg/L	237.0	203.0	196.0	148.0	216.0	156.0	174.0	61.2	139.0	133.0	152.0	161.0	**--**	**--**	**--**
Manganese	mg/L	3.85	9.09	6.58	2.44	9.58	3.74	3.08	0.156	0.986	1.77	4.28	5.44	**--**	**0.5**	**--**
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.002	<0.002	**0.073**	**--**	**10**
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0041	0.004	**0.150**	**0.3**	**0.65**
Potassium	mg/L	6.6	6.4	6.5	4.3	6.2	4.3	5.7	2.3	4.8	4.7	5.6	5.8	**--**	**--**	**--**
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.001	0.001	**0.001**	**--**	**0.01**
Silicon	mg/L	5.25	4.14	4.12	4.12	4.28	3.63	3.8	3.02	3.41	3.82	4.11	4.28	**--**	**--**	**--**
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0002	<0.0002	**0.0001**	**0.1**	**0.015**
Sodium	mg/L	19.60	16.50	16.20	13.80	16.90	14.20	15.10	6.80	13.60	13.20	15.00	16.00	**--**	**--**	**--**
Strontium	mg/L	1.34	1.3	1.28	1.03	1.28	1.02	1.22	0.641	1.12	1.23	1.36	1.46	**--**	**--**	**--**
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	533	531	**--**	**--**	**--**
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0002	0.0002	**0.0008**	**--**	**0.003**
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.002	<0.002	**--**	**--**	**--**
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	0.0401	0.0293	**--**	**--**	**1**
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.0002	0.0007	**--**	**--**	**--**
Zinc	mg/L	***2.09***	***1.49***	***0.96***	***1.16***	***0.70***	***1.25***	***1.43***	***0.42***	***1.18***	***1.22***	***1.69***	***1.30***	**0.03**	**0.3**	**0.9**

Table A9. Water Quality Parameters in the Brown-McDade Pit.

Sample ID	Units	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit (Bottom)	Pit - Bottom	CCME Guidelines	Water License Standards	YCSG*
Date		15-Dec-05	31-Aug-06	22-Feb-07	22-Mar-07	19-Apr-07	31-May-07	28-Jun-07	26-Jul-07	23-Aug-07	18-Sep-07	15-Dec-07	24-Jan-08			
Dissolved Metals																
Aluminum	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.005	<0.005	--	--	--
Antimony	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.0006	0.0004	--	--	--
Arsenic	mg/L	0.0047	0.00216	--	--	--	0.00401	0.00482	0.00873	0.0104	0.00338	0.0091	0.0032	--	**0.15**	--
Barium	mg/L	0.015	0.016	--	--	--	0.011	0.012	0.015	<0.010	<0.010	0.017	0.016	--	--	--
Beryllium	mg/L	<0.0050	<0.0050	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0001	<0.0001	--	--	--
Bismuth	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0005	<0.0005	--	--	--
Boron	mg/L	<0.10	<0.10	--	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	0.006	0.006	--	--	--
Cadmium	mg/L	0.021	<0.010	--	--	--	<0.010	0.016	<0.010	<0.010	0.011	0.00972	0.00013	--	--	--
Chromium	mg/L	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	0.0012	0.0025	--	--	--
Cobalt	mg/L	<0.010	0.014	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	0.003	0.0044	--	--	--
Copper	mg/L	<0.010	<0.010	--	--	--	<0.010	0.013	0.01	<0.010	<0.010	0.012	0.018	--	--	--
Iron	mg/L	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.1	<0.1	--	--	--
Lead	mg/L	<0.050	<0.050	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0001	<0.0001	--	--	--
Lithium	mg/L	0.023	0.027	--	--	--	0.013	<0.020	<0.010	0.019	0.014	0.014	0.019	--	--	--
Manganese	mg/L	3.08	11.1	--	--	--	3.59	3.1	0.139	0.0609	1.15	4.47	5.71	--	--	--
Molybdenum	mg/L	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	--	--	--
Nickel	mg/L	<0.050	<0.050	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	0.0032	<0.0005	--	--	--
Phosphorus	mg/L	<0.30	<0.30	--	--	--	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--	--
Selenium	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.0002	<0.0002	--	--	--
Silicon	mg/L	3.95	3.68	--	--	--	3.5	3.82	3.05	3.54	3.62	4.75	4.5	--	--	--
Silver	mg/L	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0001	<0.0001	--	--	--
Strontium	mg/L	1.31	1.28	--	--	--	1.01	1.21	0.652	1.18	1.11	1.32	1.43	--	--	--
Thallium	mg/L	<0.20	<0.20	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	0.00015	<0.00005	--	--	--
Tin	mg/L	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.001	<0.001	--	--	--
Titanium	mg/L	<0.010	<0.010	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	0.0188	0.0433	--	--	--
Vanadium	mg/L	<0.030	<0.030	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	0.0034	0.0056	--	--	--
Zinc	mg/L	1.75	1.56	--	--	--	1.22	1.46	0.219	1.04	1.08	1.43	0.493	--	--	--

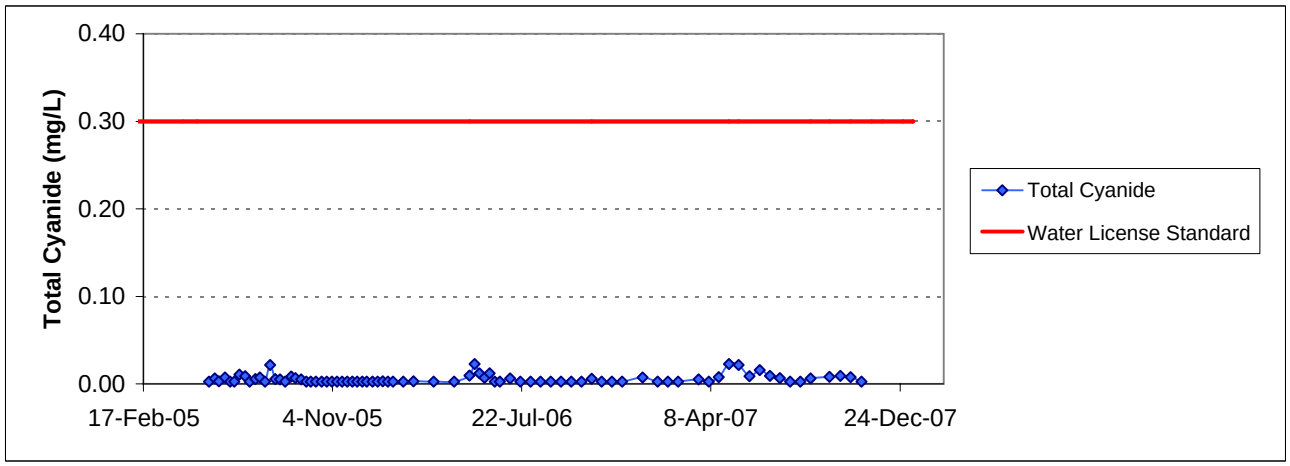
Notes:

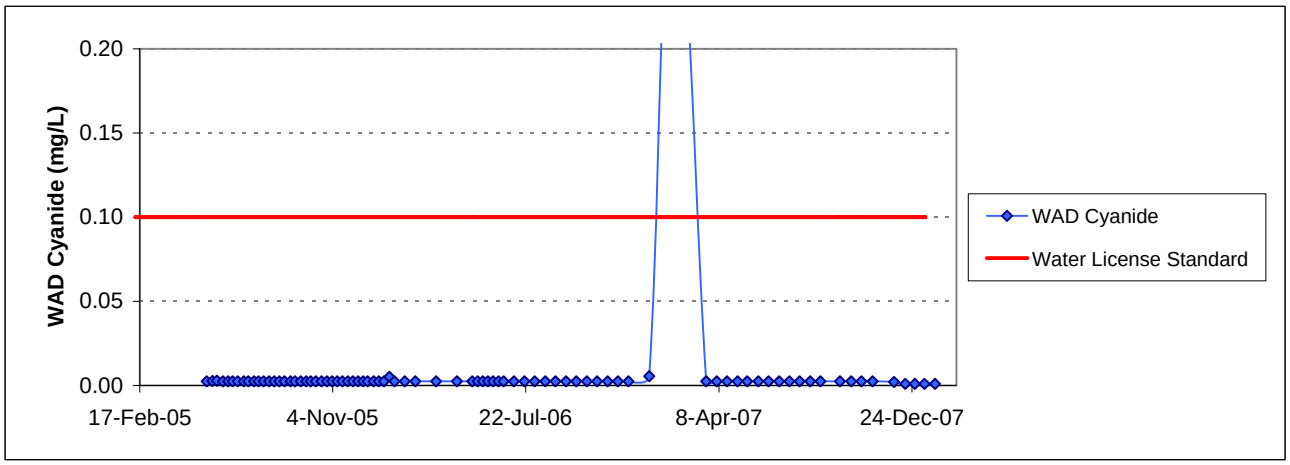
* - Yukon Contaminated Sites Regulations

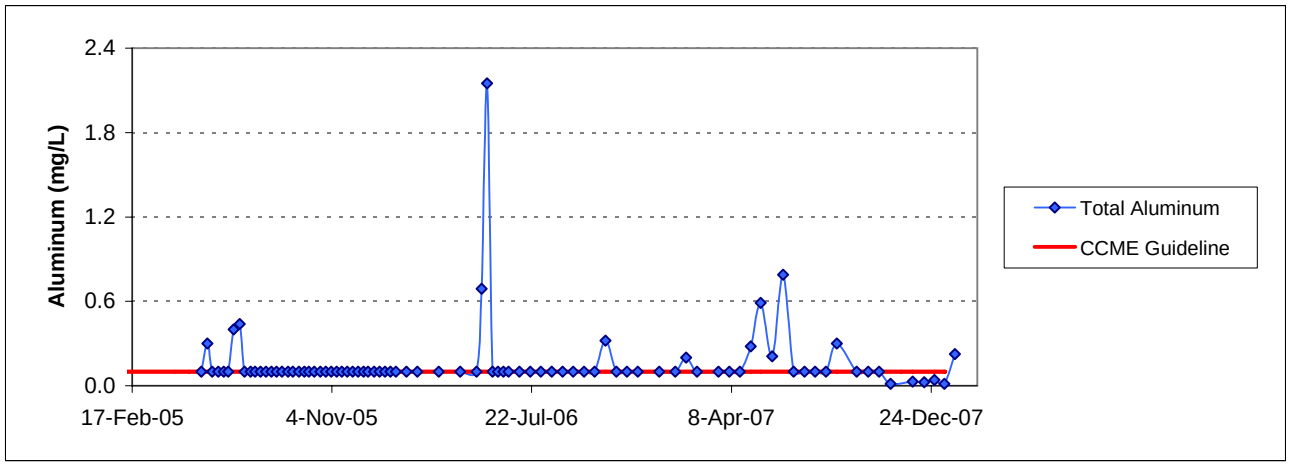
text - denotes concentrations that are above CCME guidelines for the protection of aquatic life

Appendix B. Graphical Presentation of Selected Water Quality

Figure B1. Historical trends of selected water quality parameters in Upper Victoria Creek







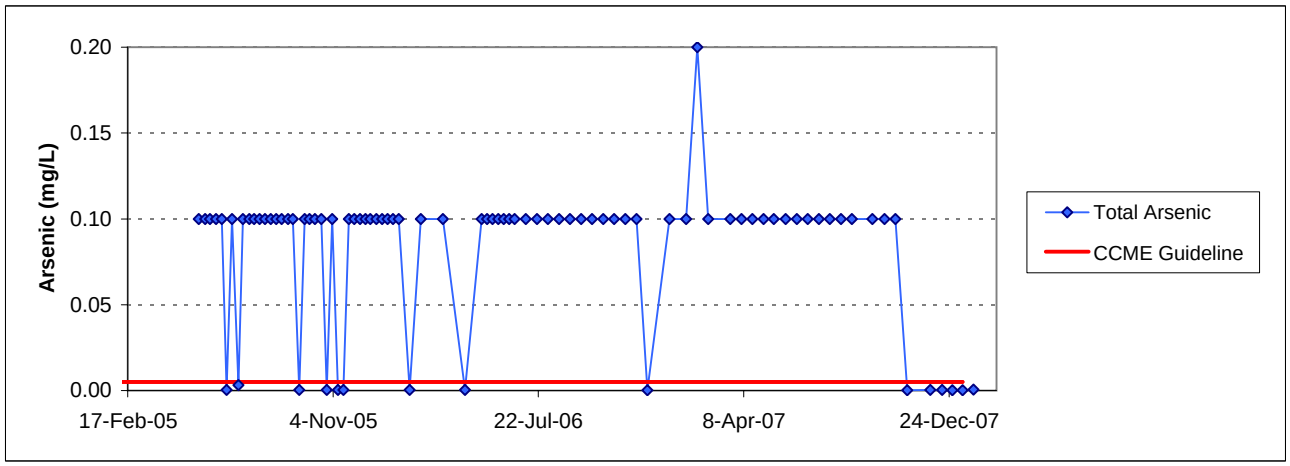
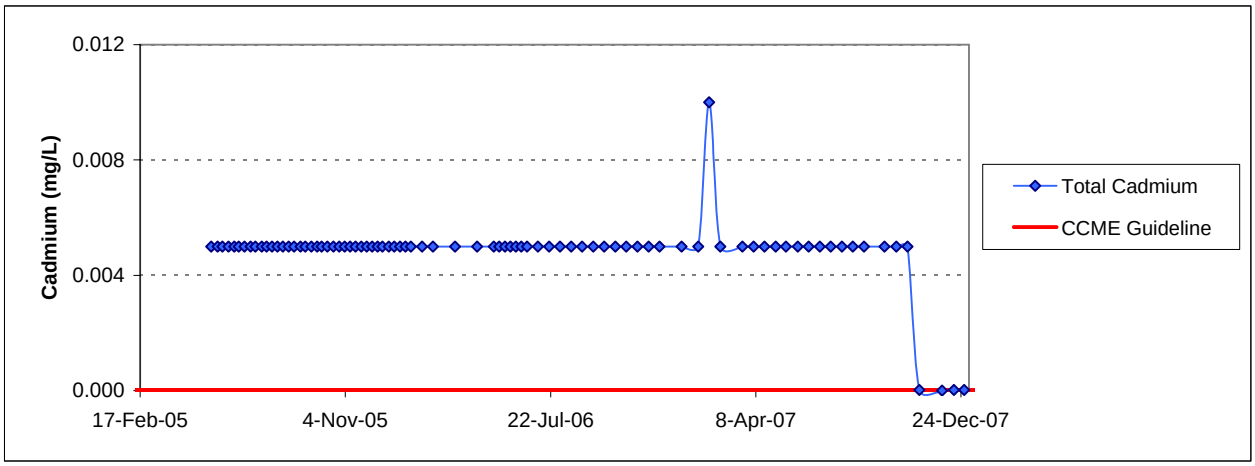
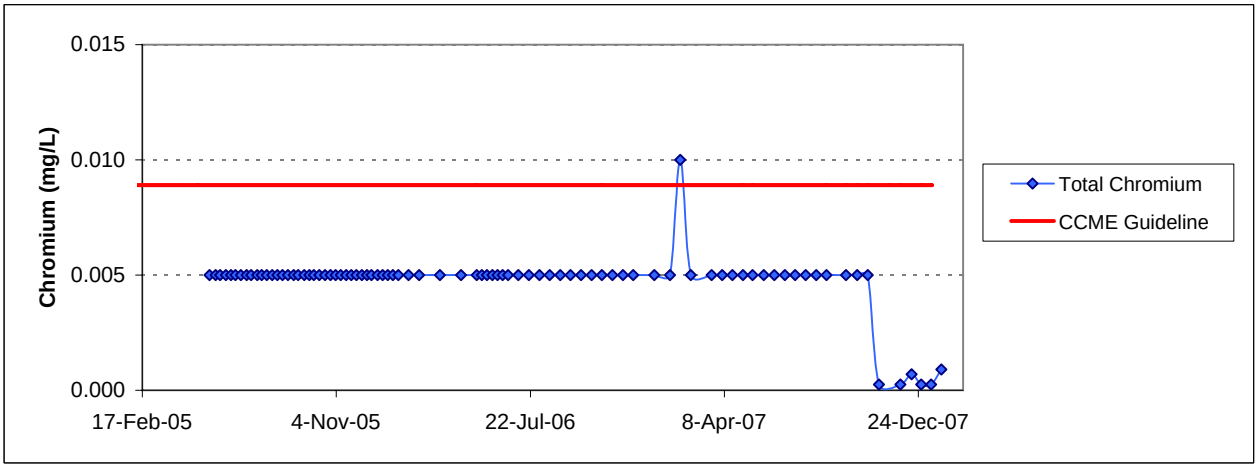
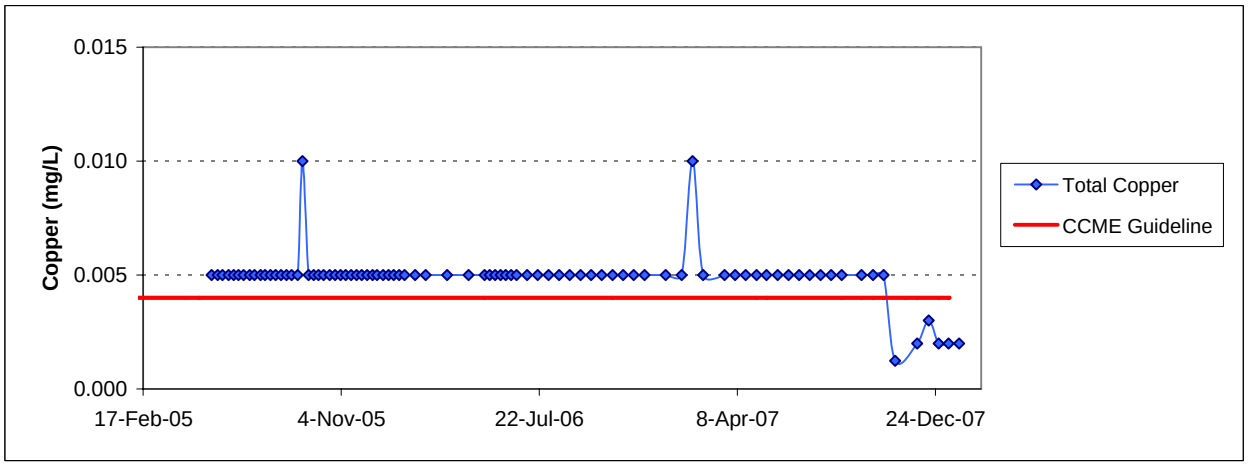


Figure B1. Historical trends of selected water quality parameters in Upper Victoria Creek continued.







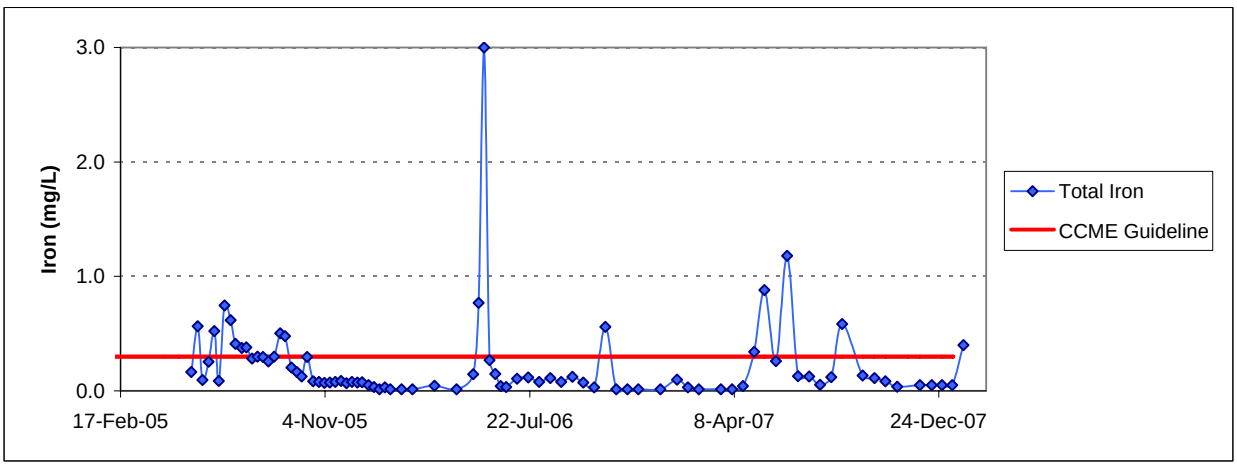
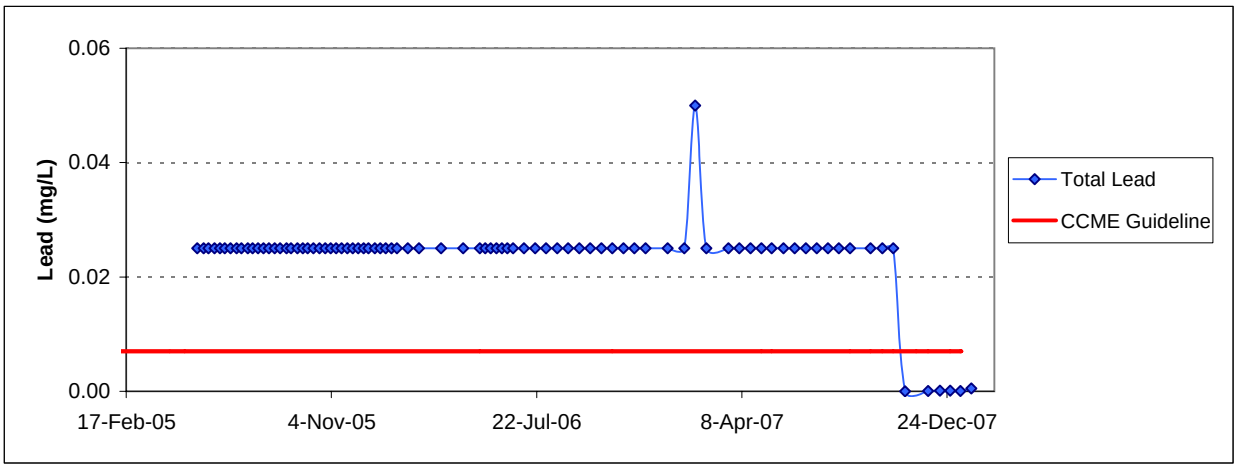
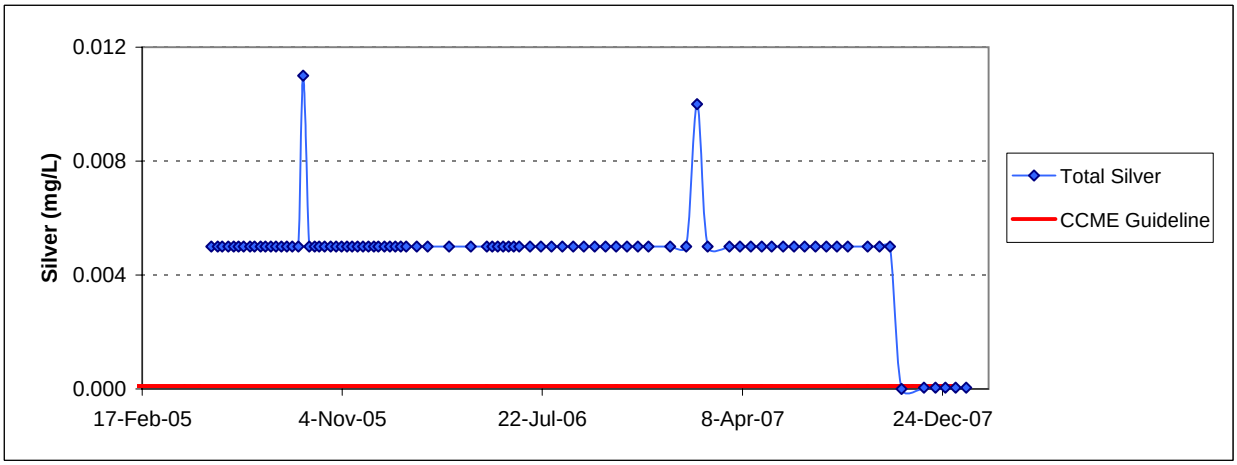
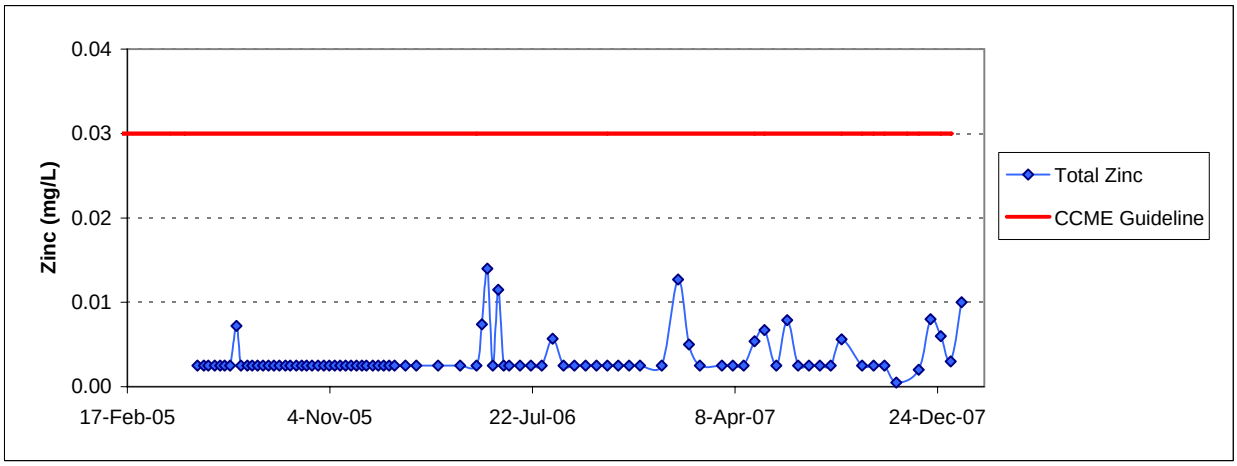


Figure B1. Historical trends of selected water quality parameters in Upper Victoria Creek continued.

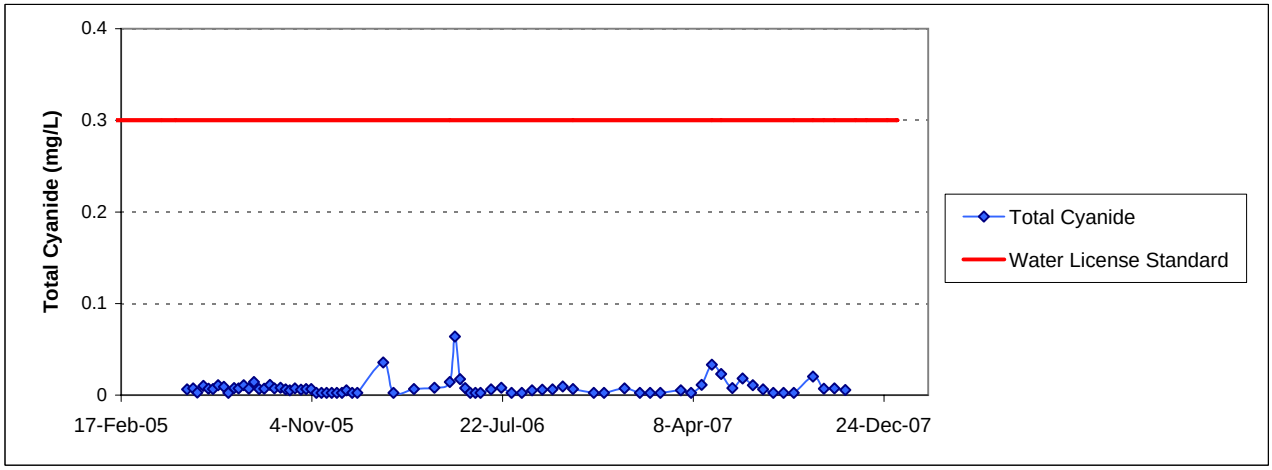


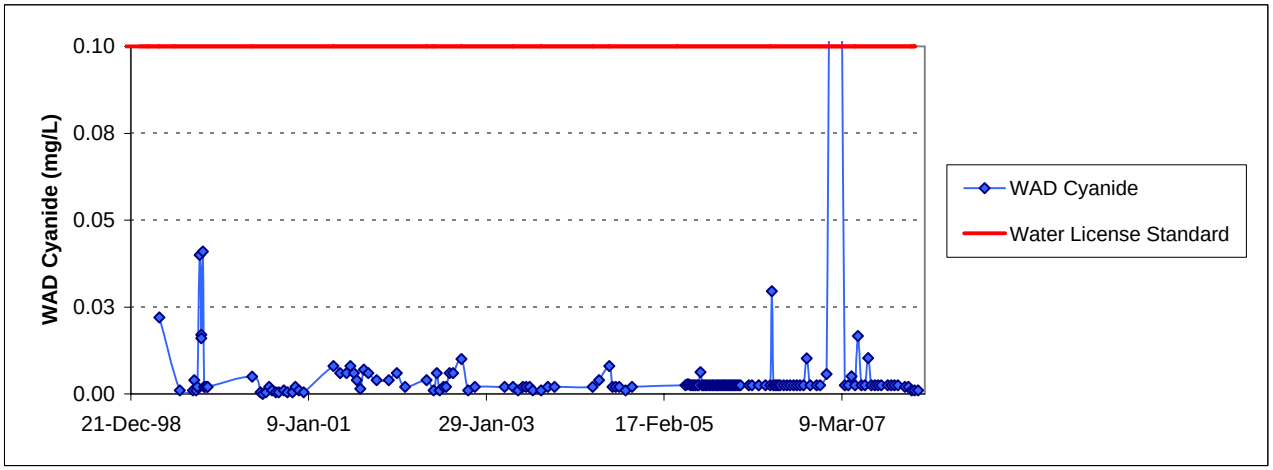


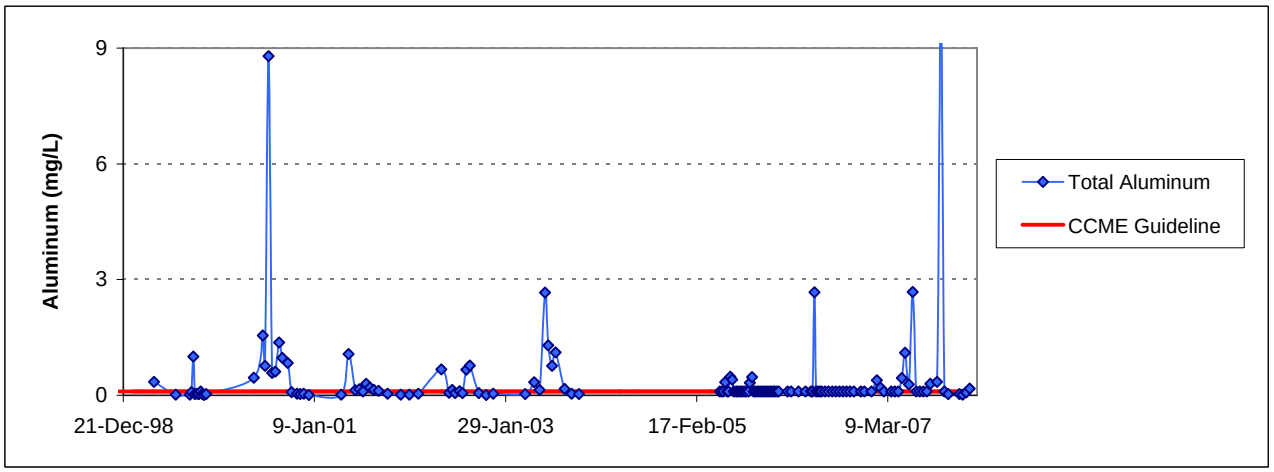


Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

Figure B2. Historical trends of selected water quality parameters in Victoria Creek at Road Crossing







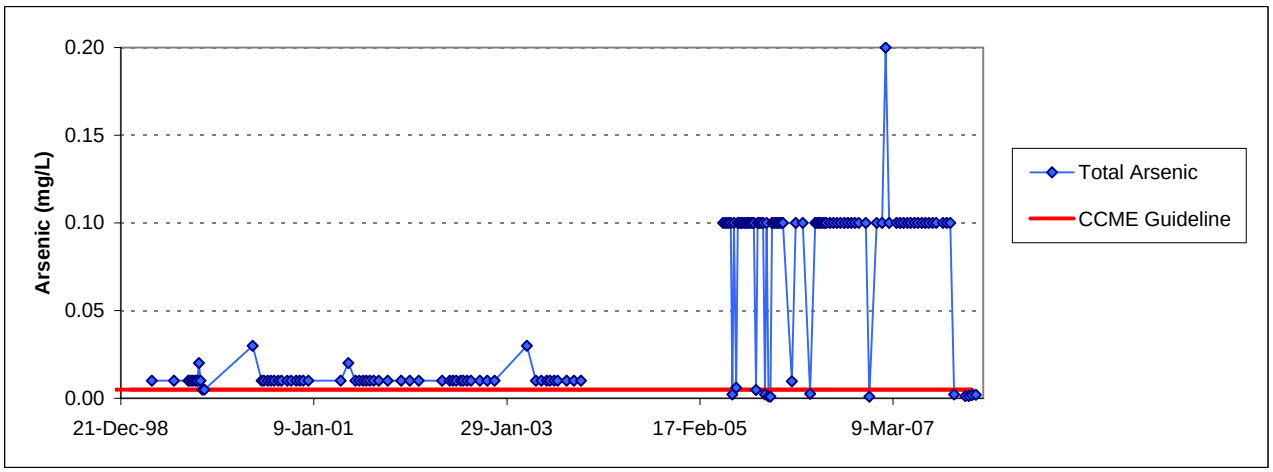
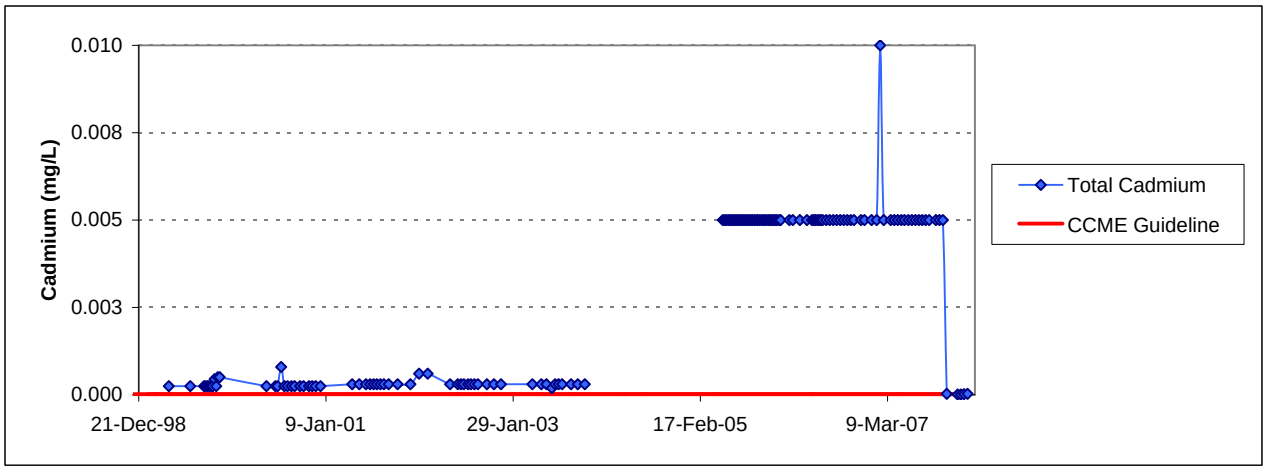
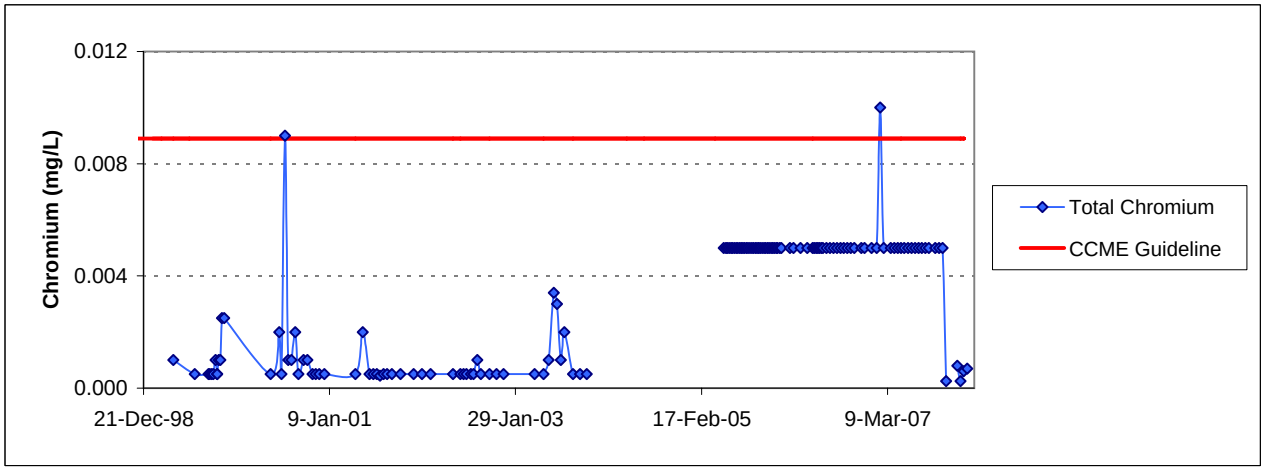
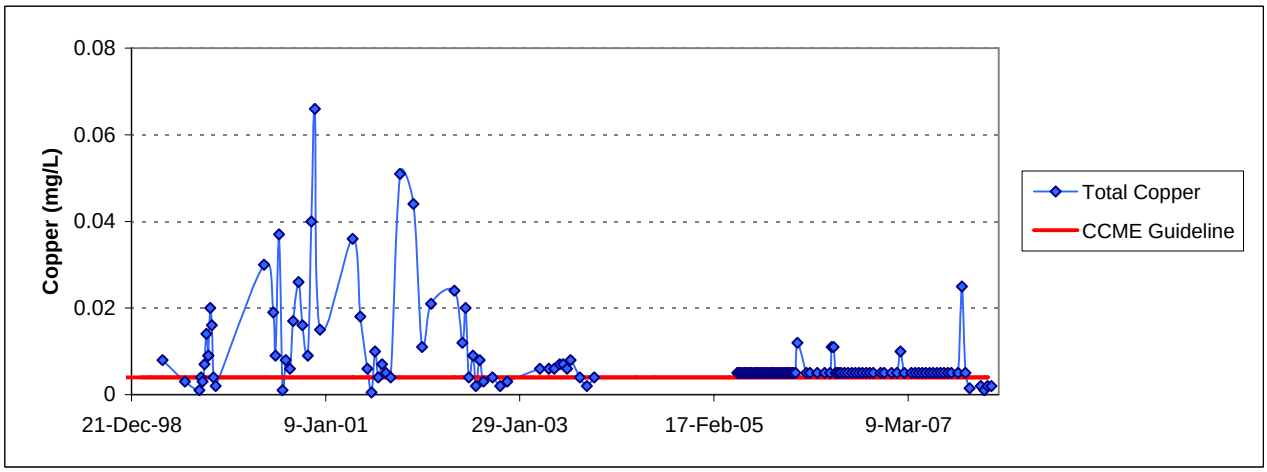


Figure B2. Historical trends of selected water quality parameters in Victoria Creek at Road continued.







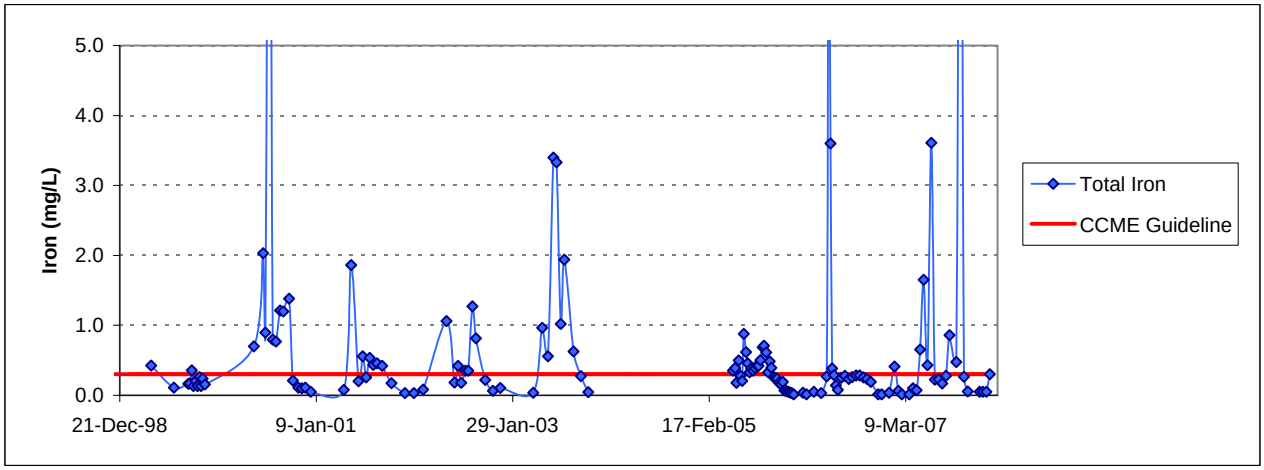
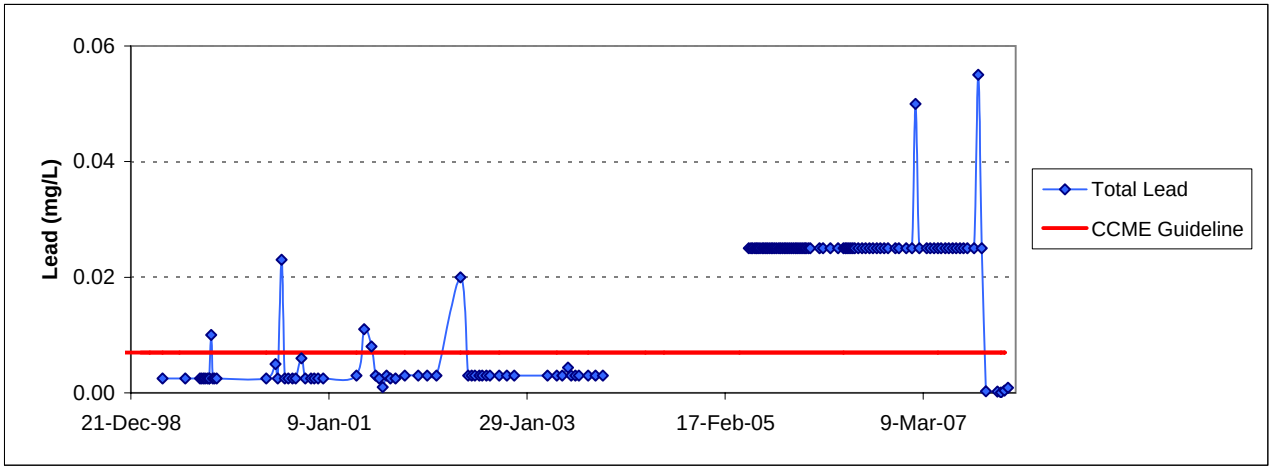
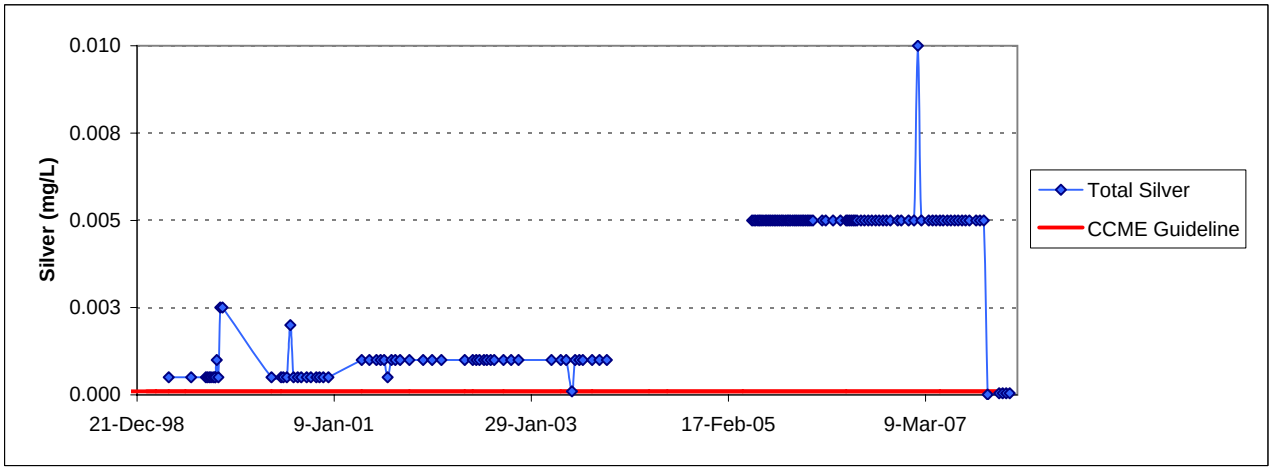
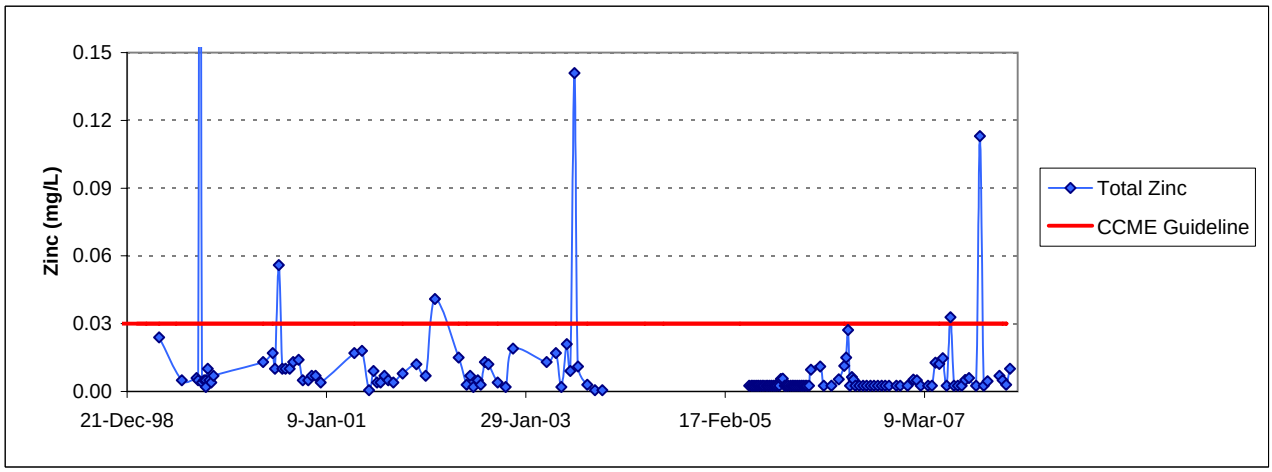


Figure B2. Historical trends of selected water quality parameters in Victoria Creek at Road continued.

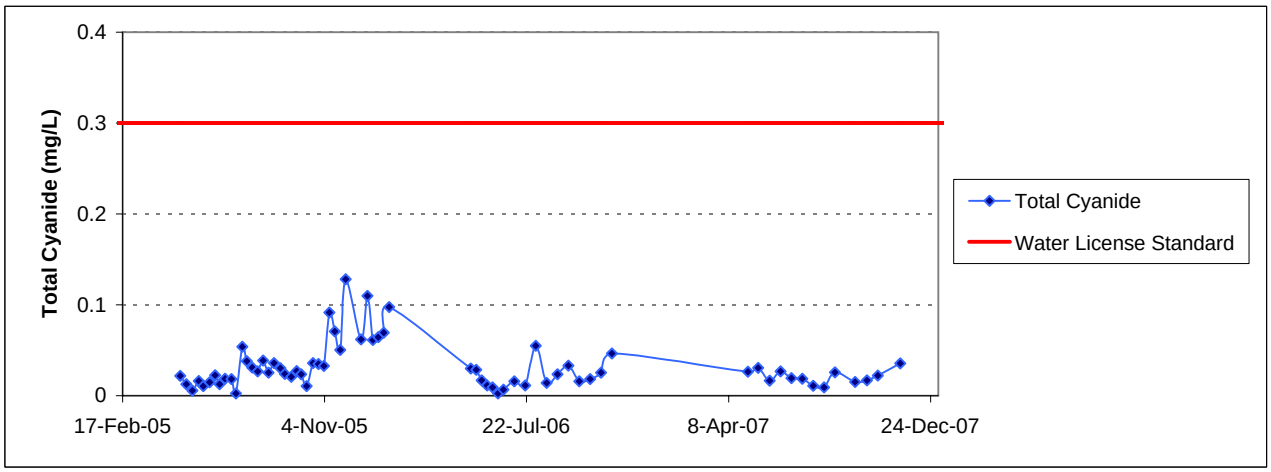


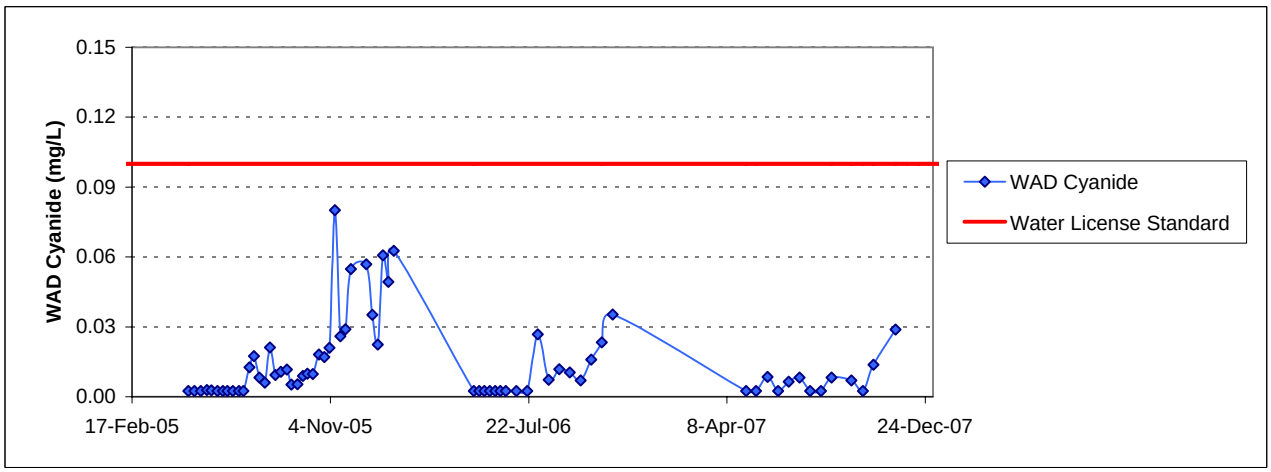


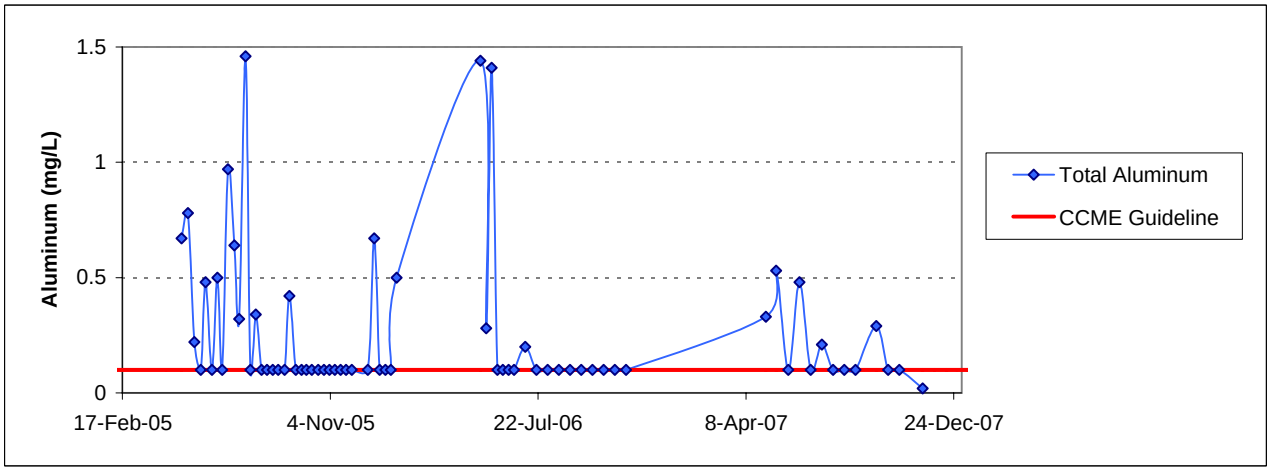


Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

Figure B3. Historical trends of selected water quality parameters in Upper Dome Creek







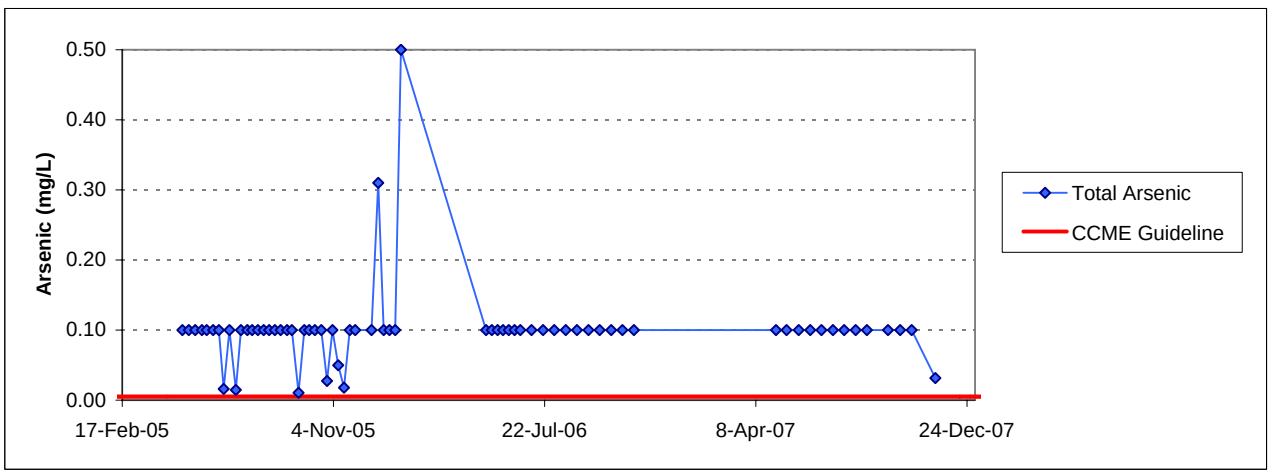
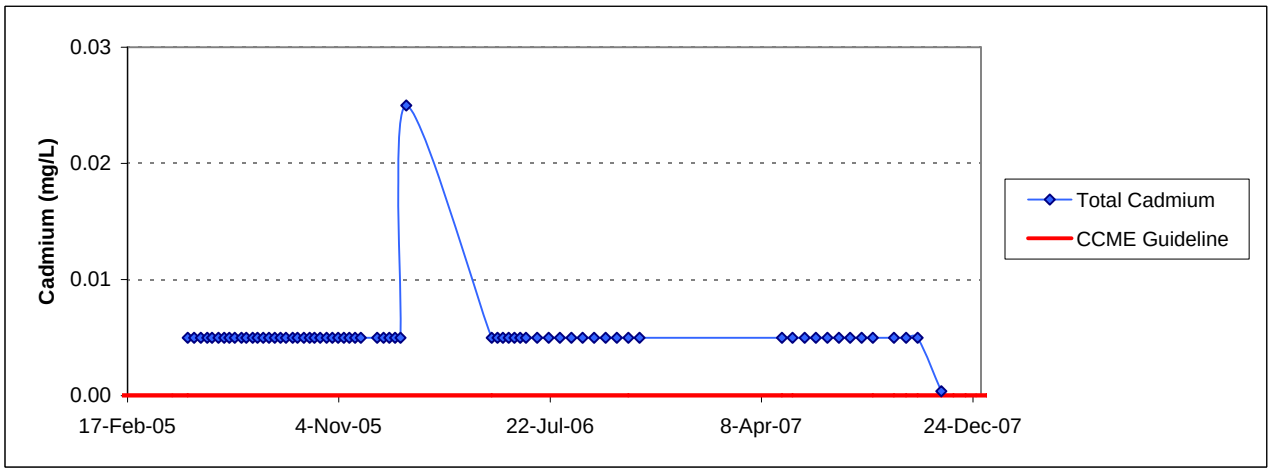
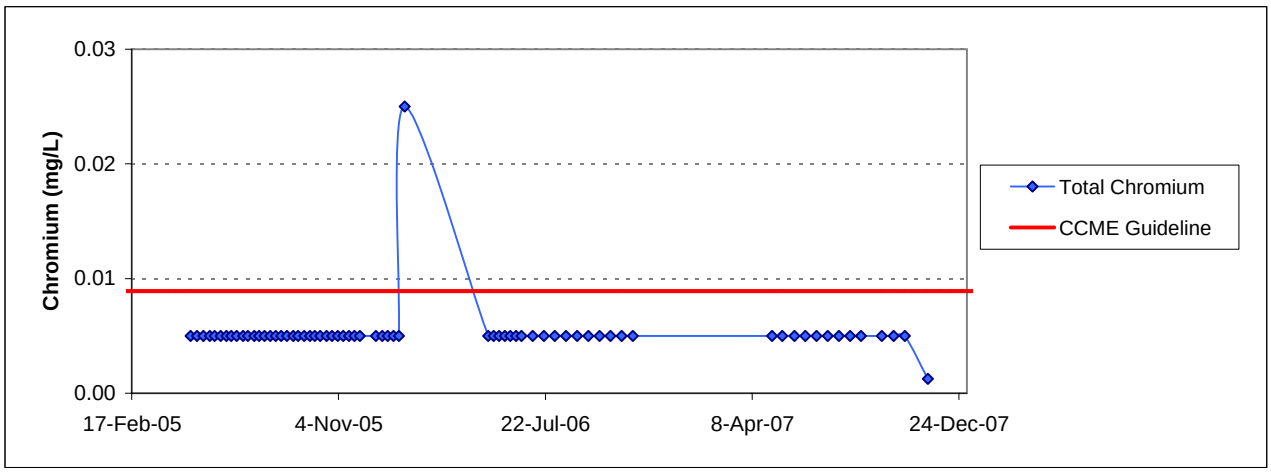
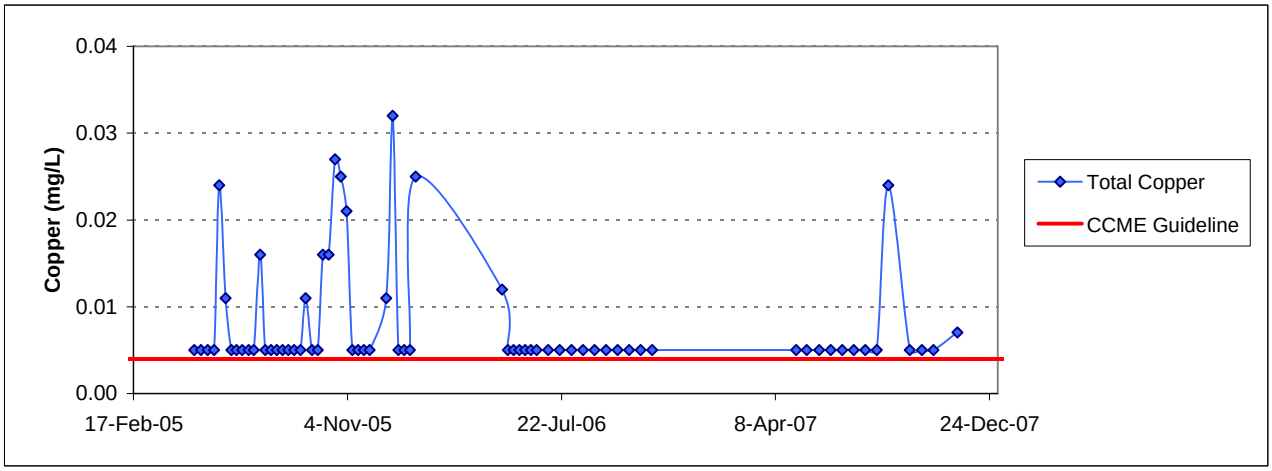


Figure B3. Historical trends of selected water quality parameters in Upper Dome Creek continued.







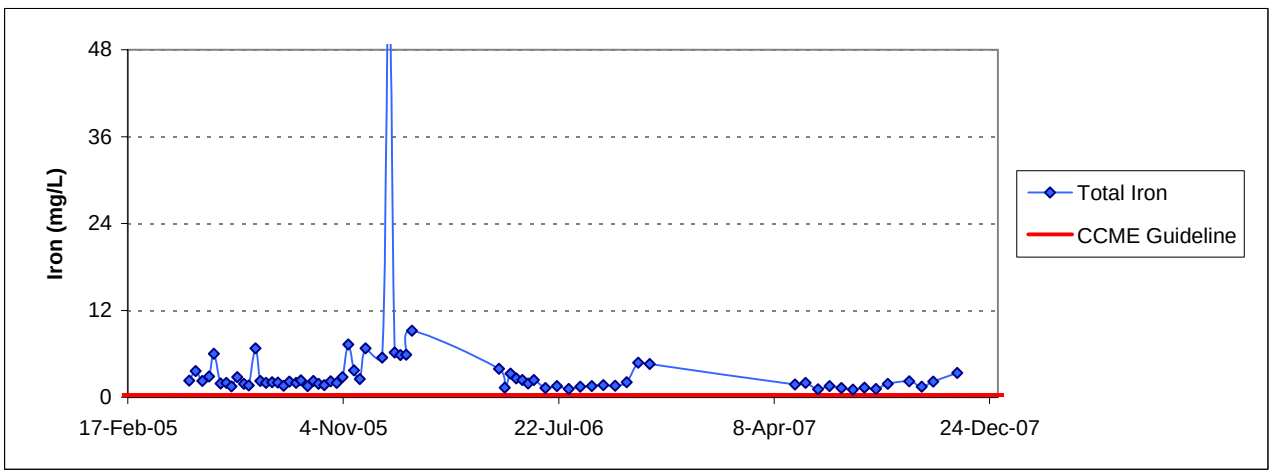
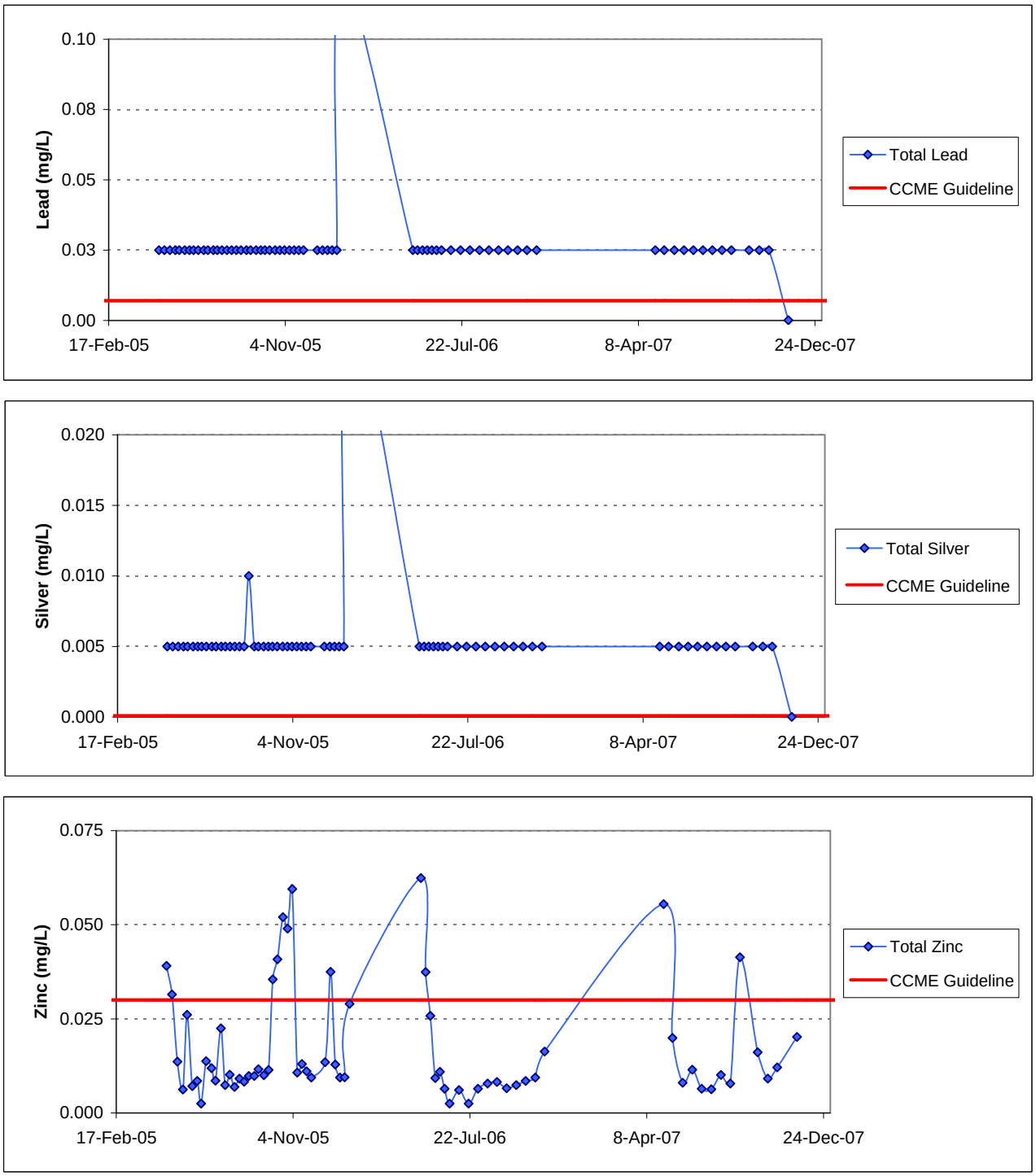
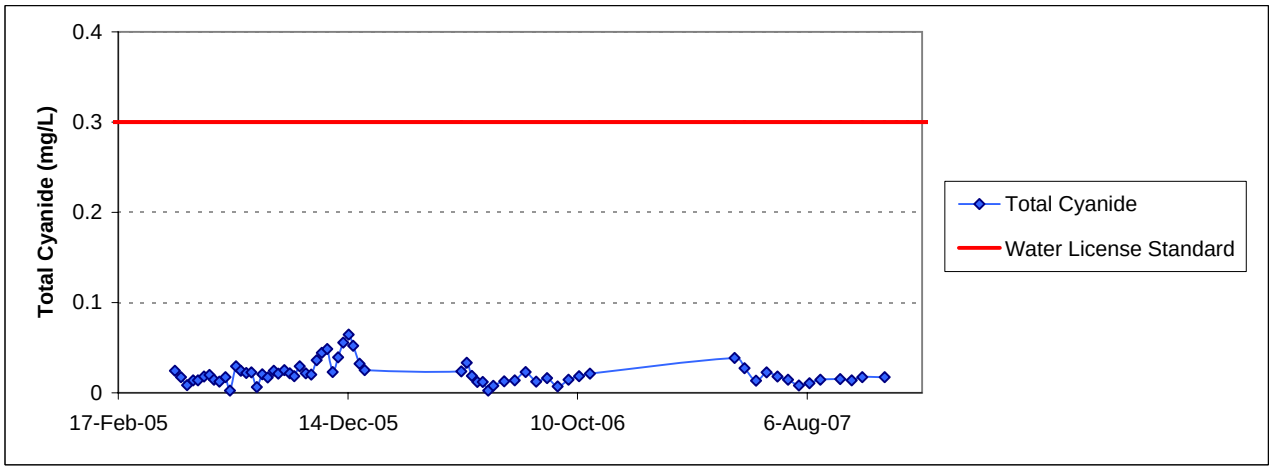


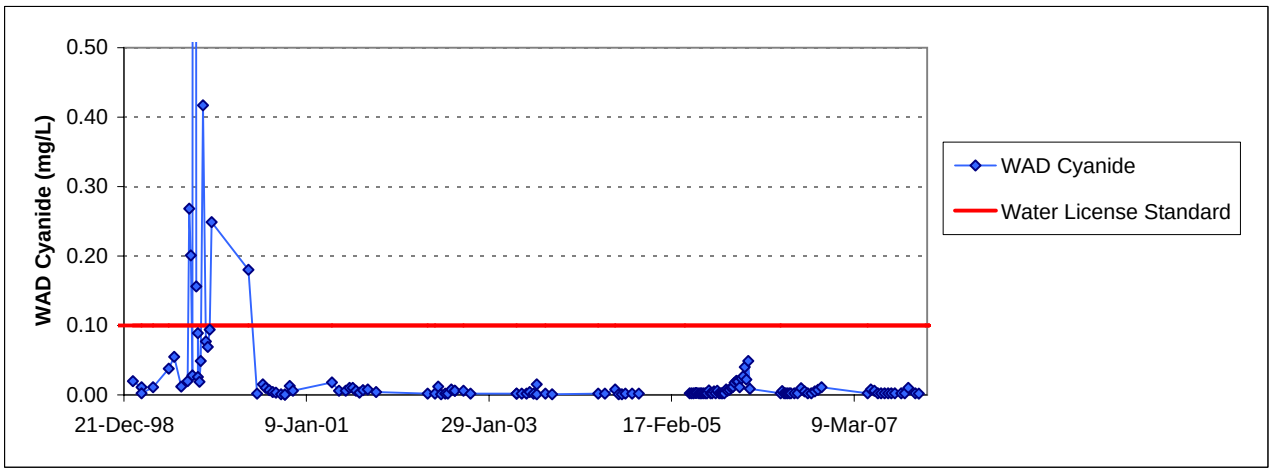
Figure B3. Historical trends of selected water quality parameters in Upper Dome Creek continued.

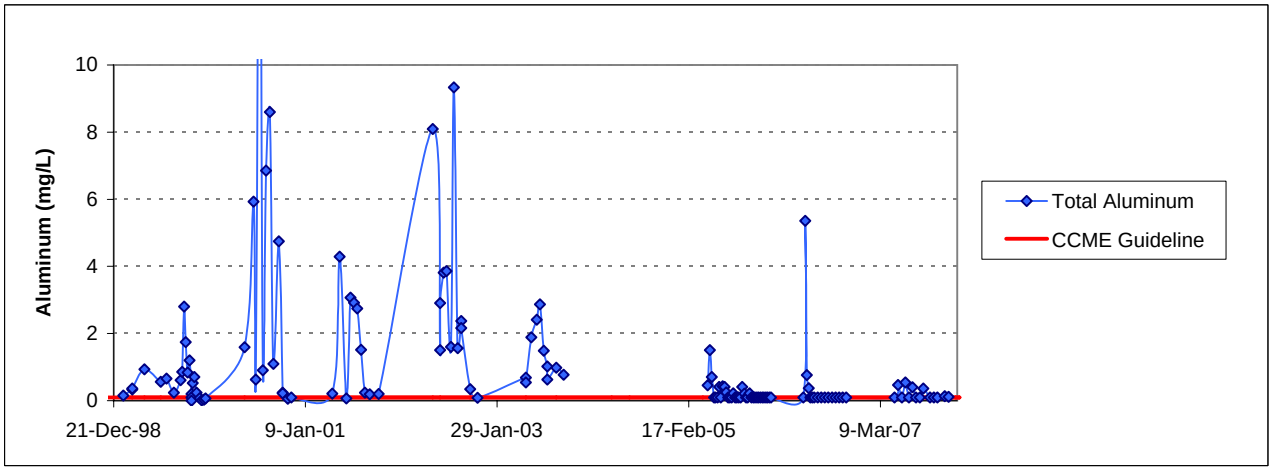


Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

Figure B4. Historical trends of selected water quality parameters in Dome Creek at Road Crossing







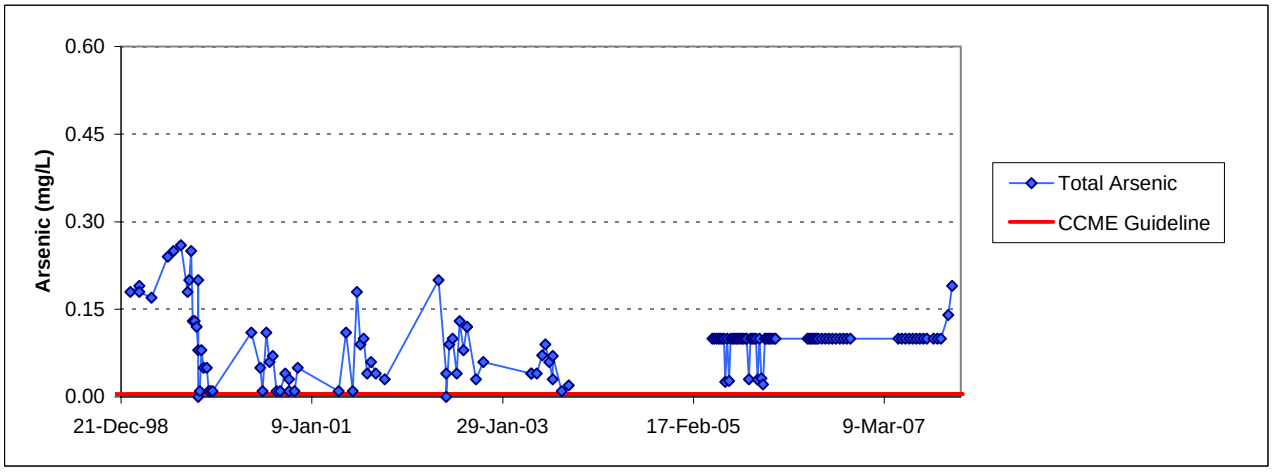
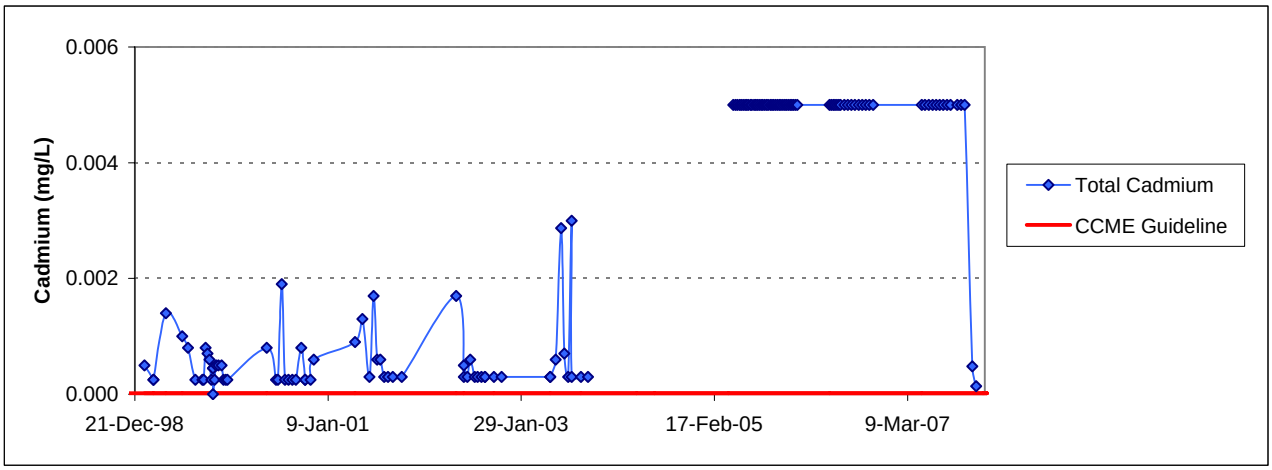
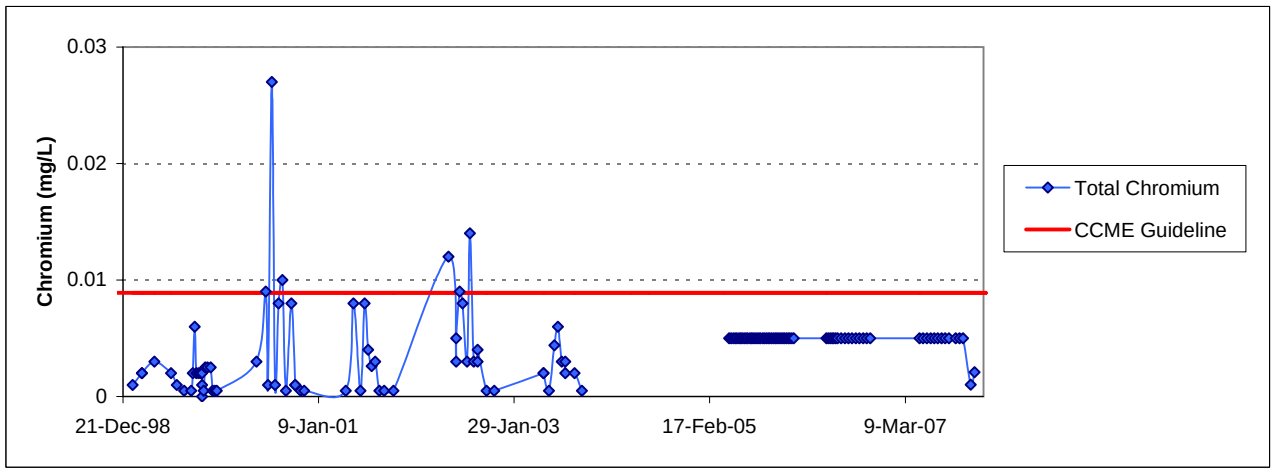
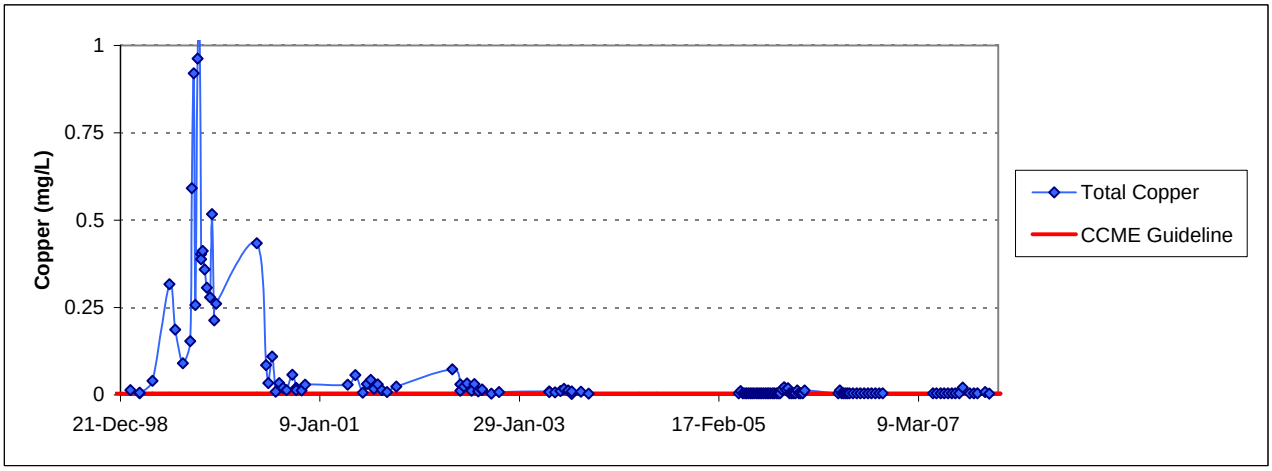


Figure B4. Historical trends of selected water quality parameters in Dome Creek at Road continued.







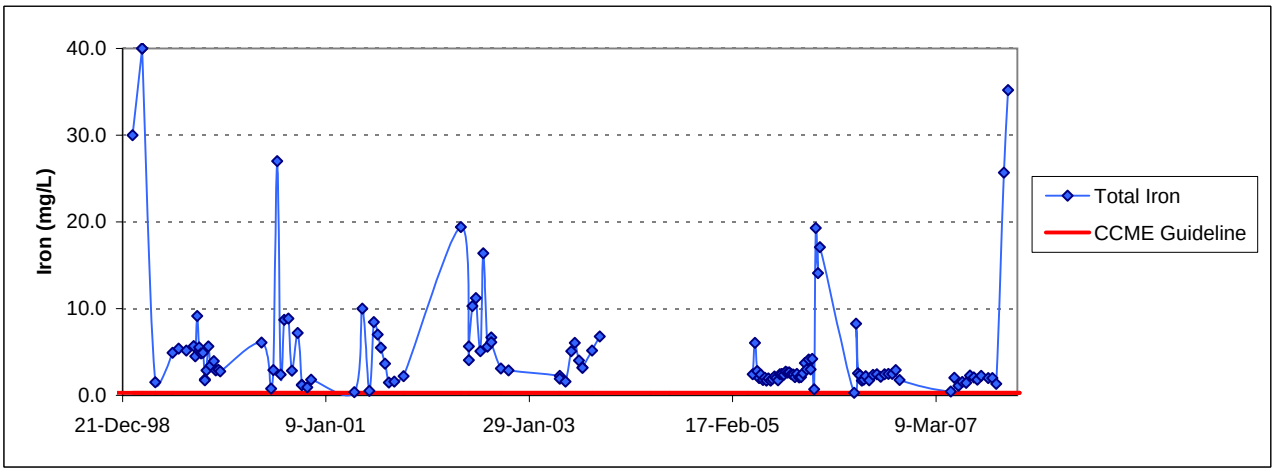
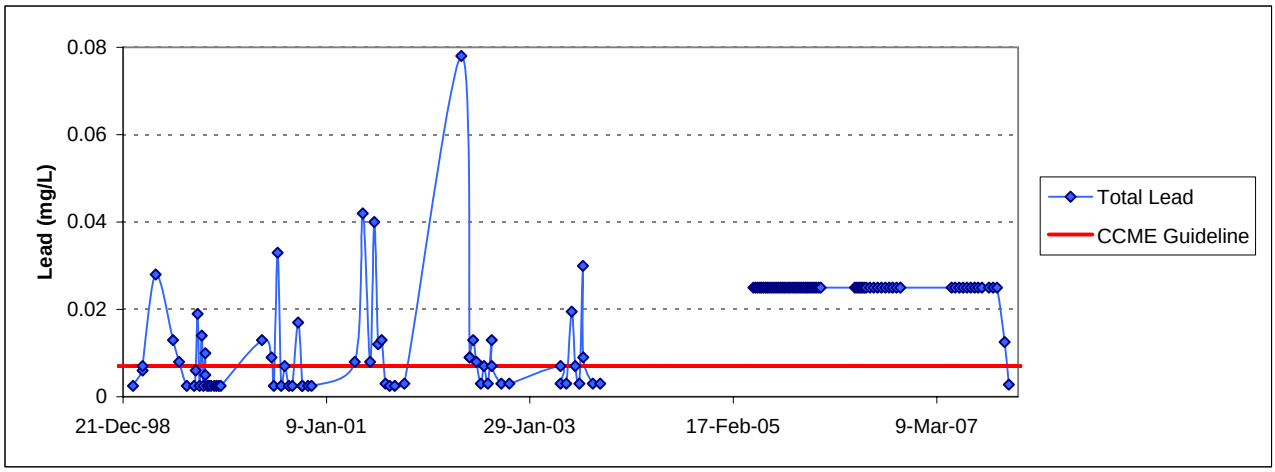
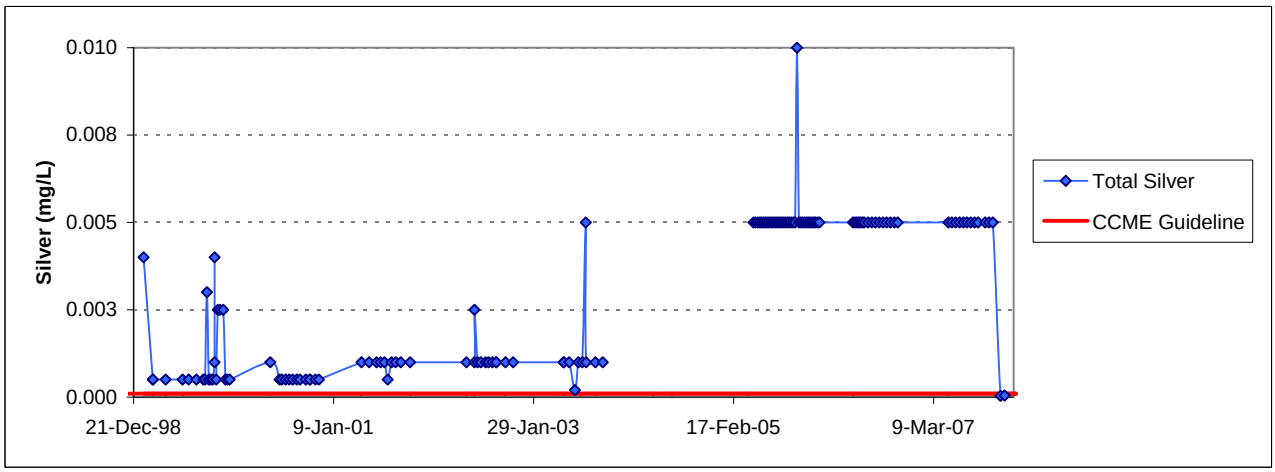
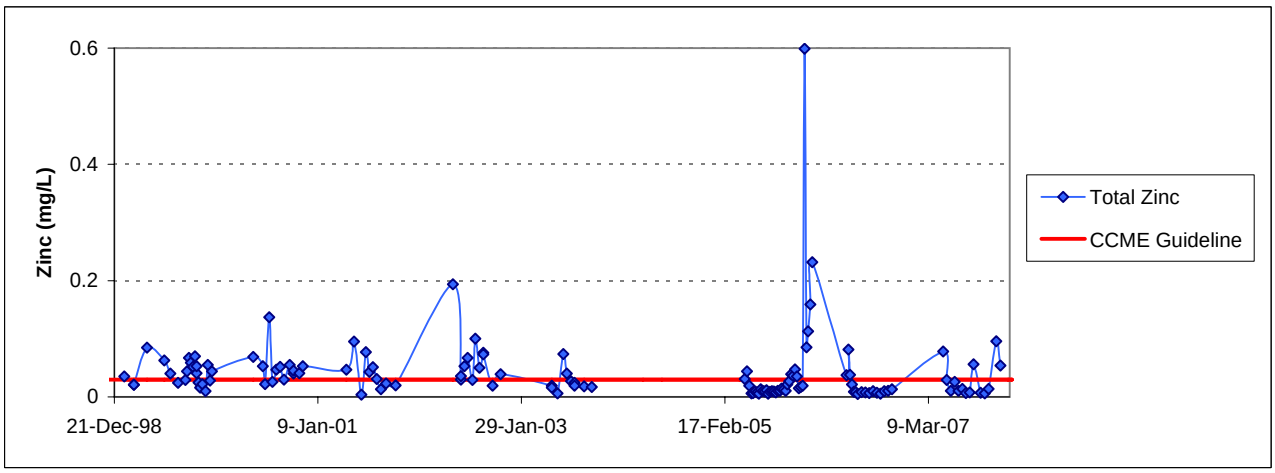


Figure B4. Historical trends of selected water quality parameters in Dome Creek at Road continued.

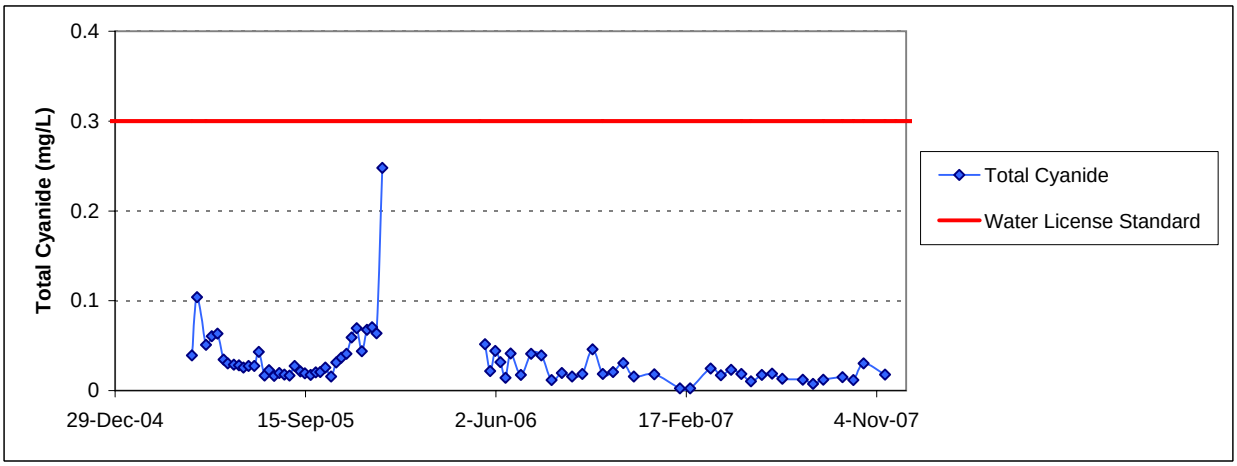


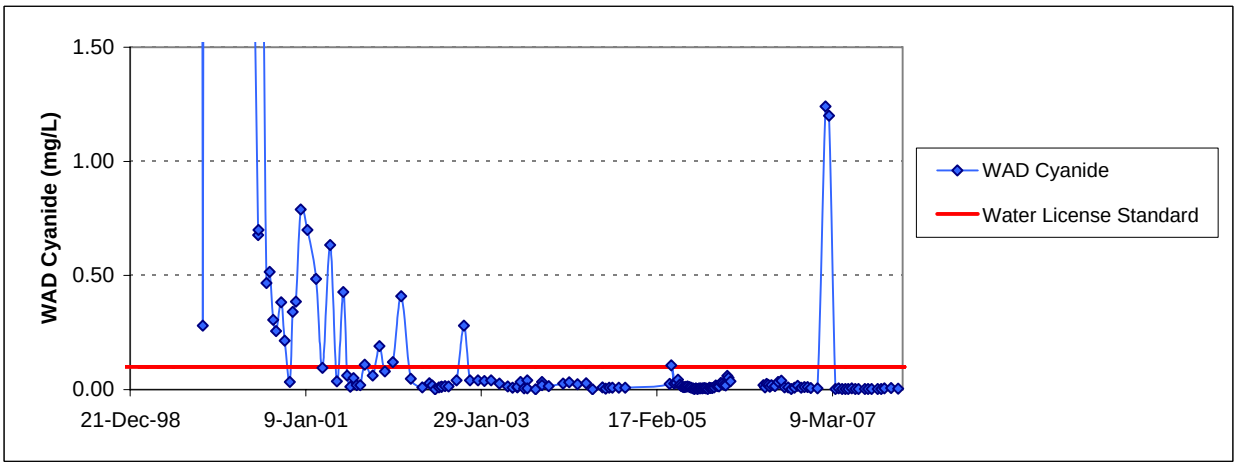


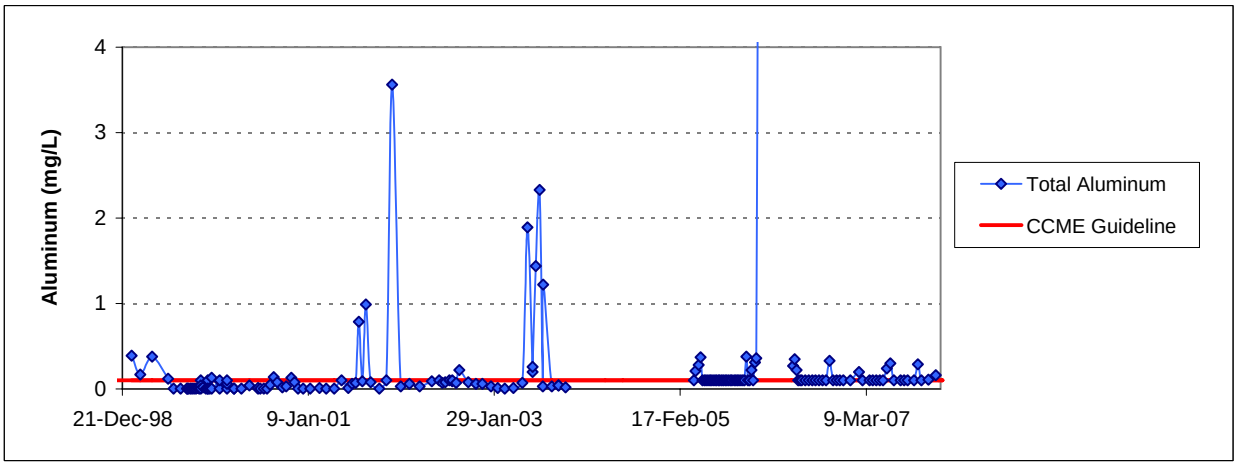


Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

Figure B5. Historical trends of selected water quality parameters in the Tailings Pond







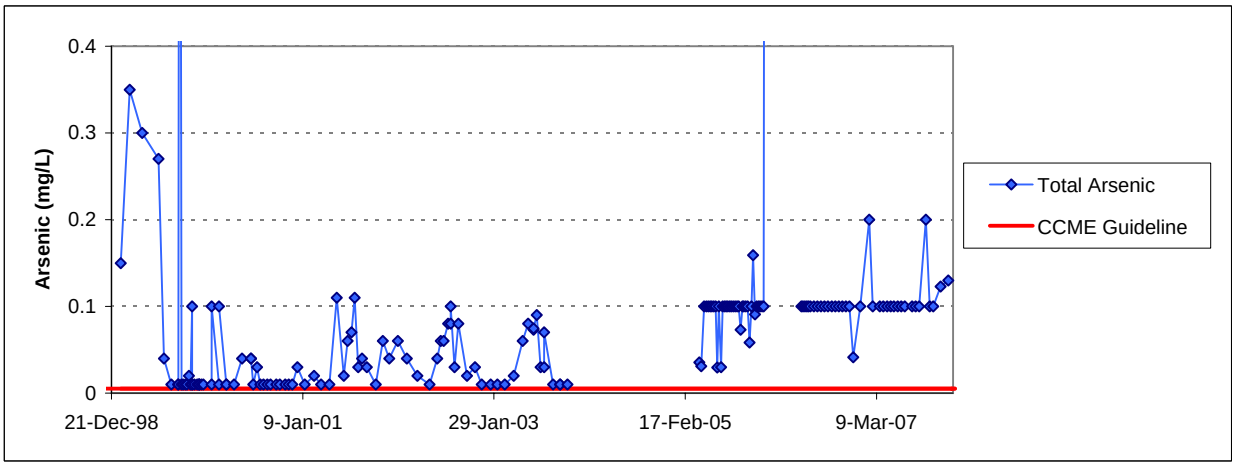
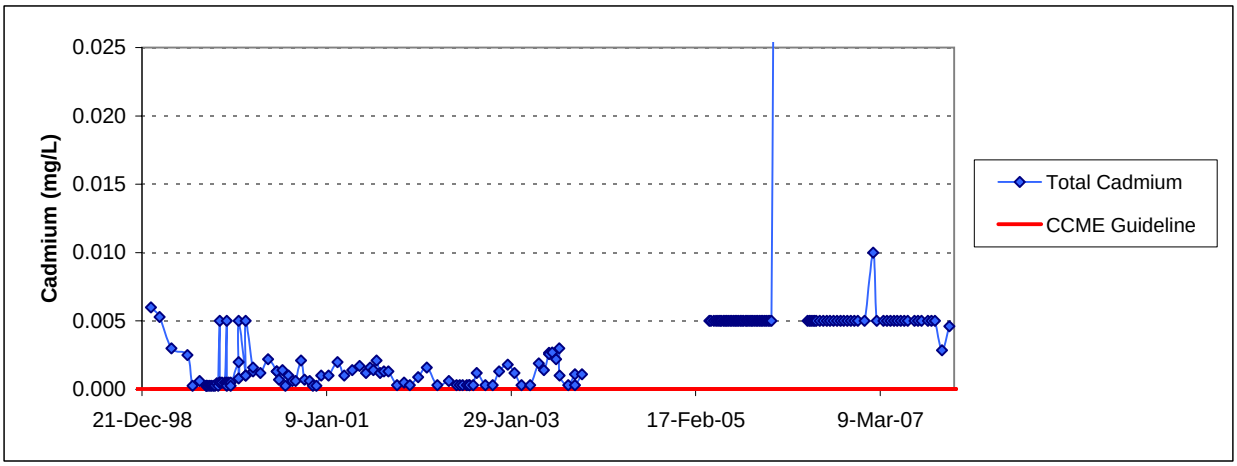
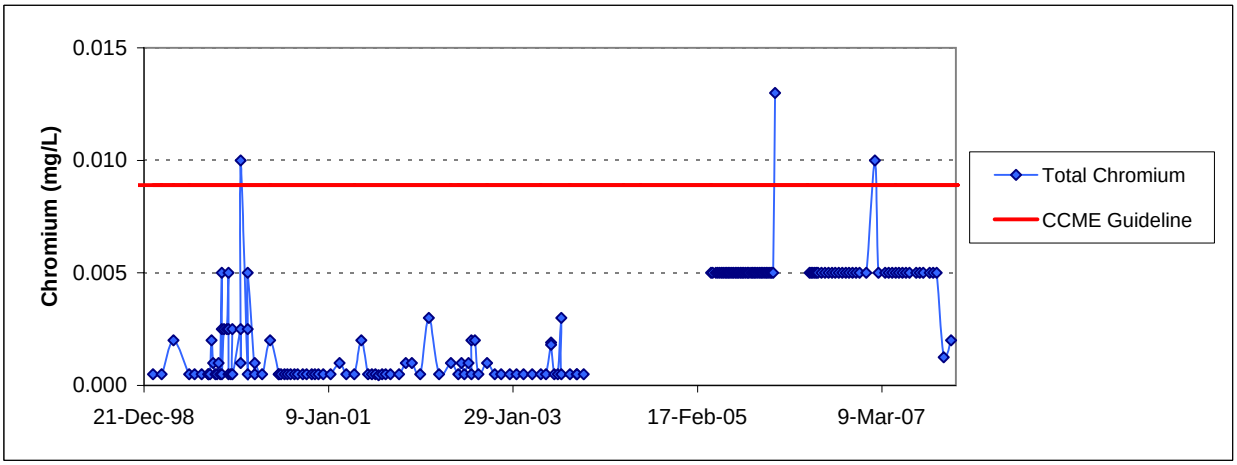
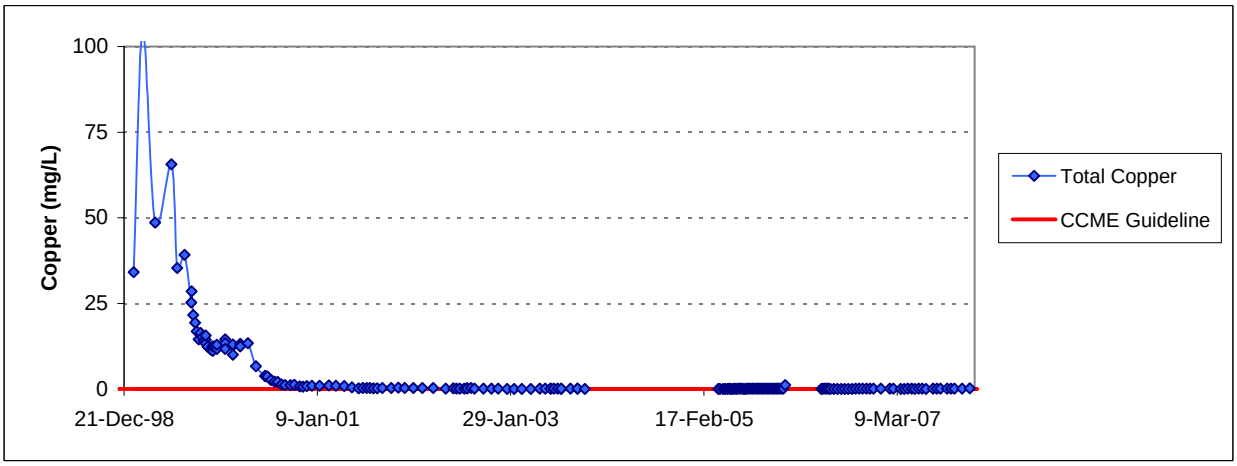


Figure B5. Historical trends of selected water quality parameters in the Tailings Pond continued.







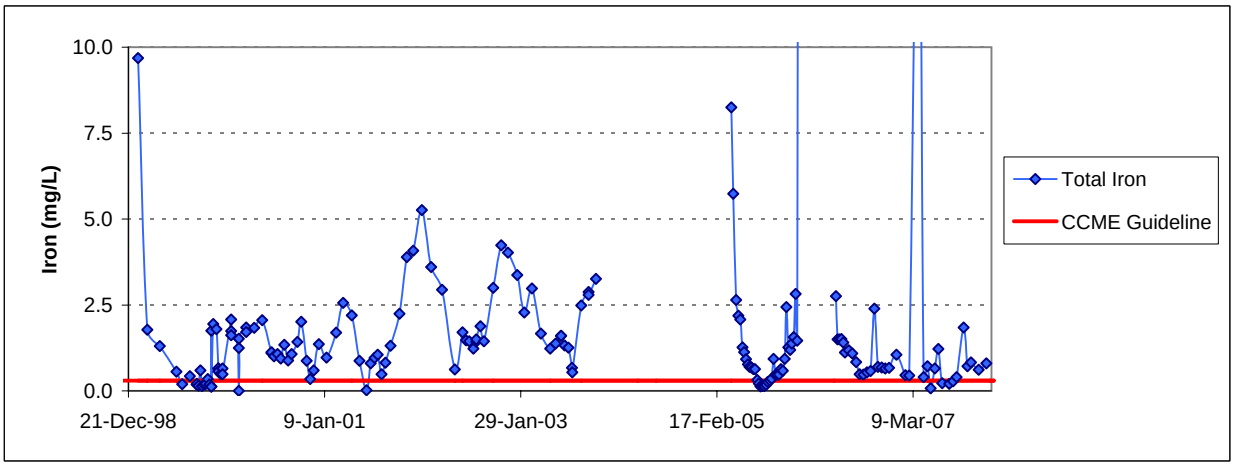
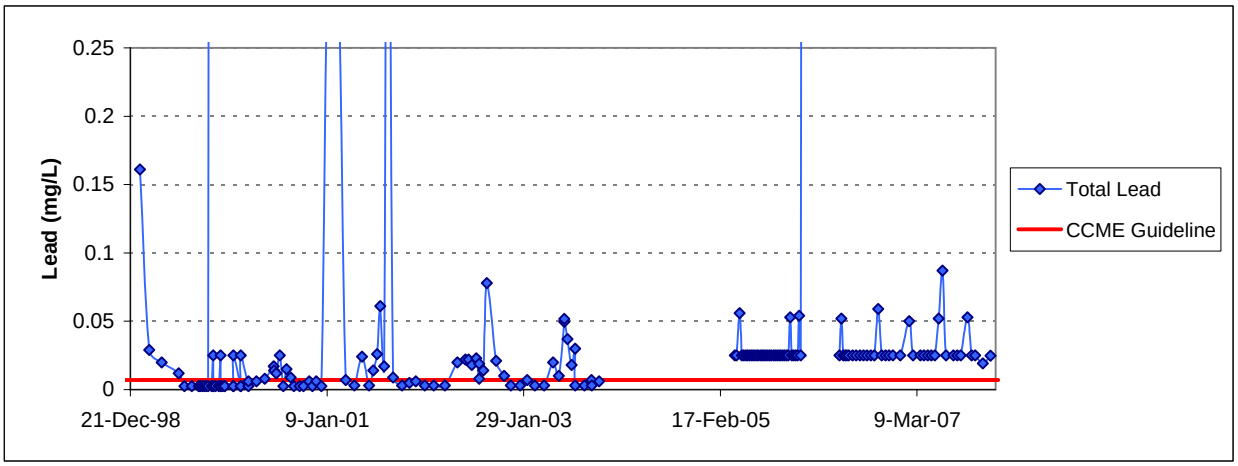
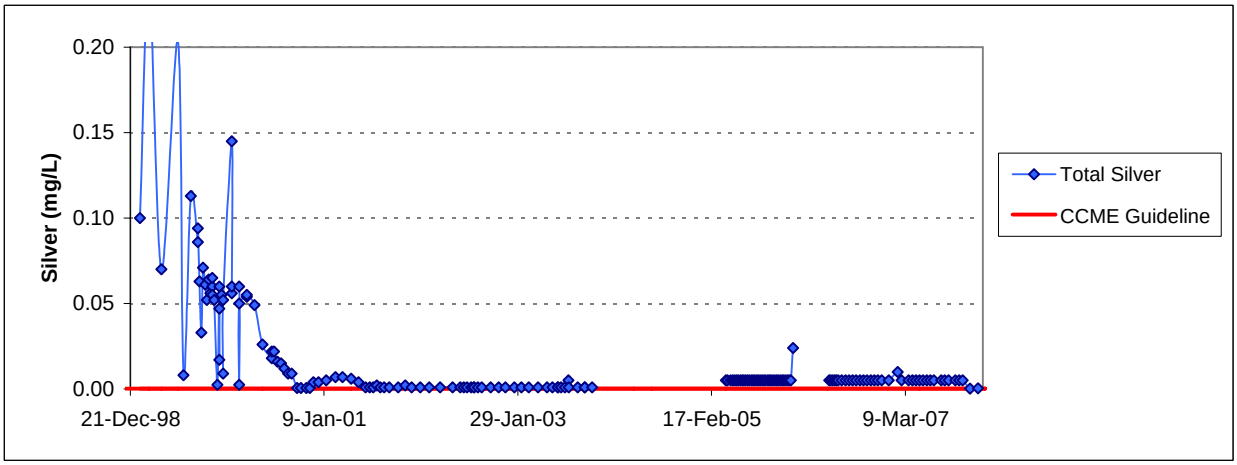
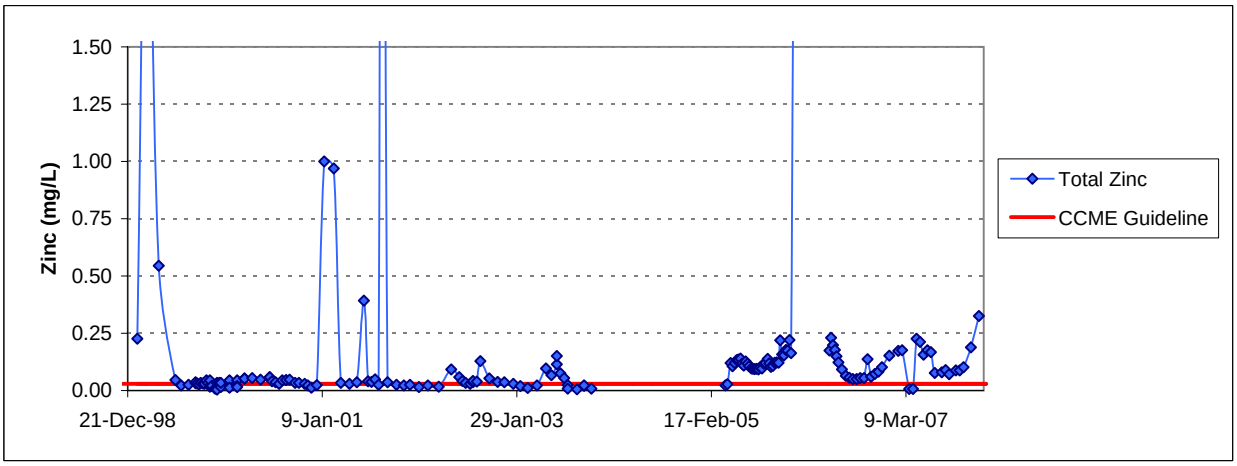


Figure B5. Historical trends of selected water quality parameters in the Tailings Pond continued.

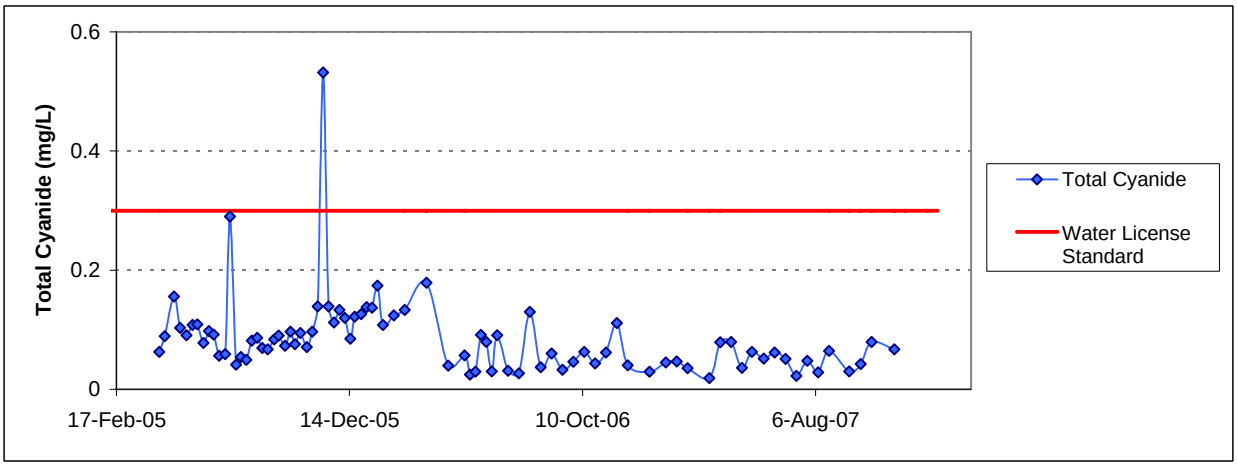


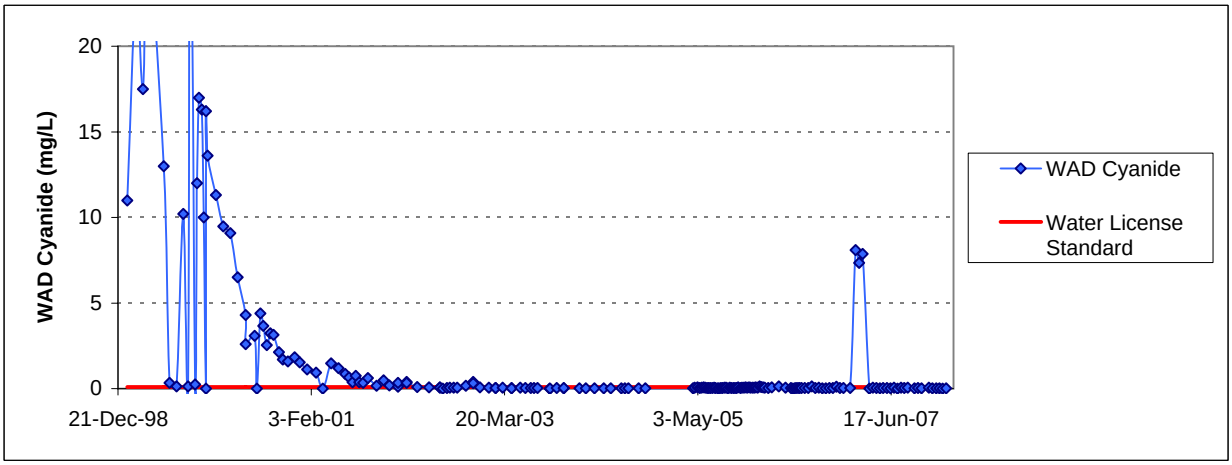


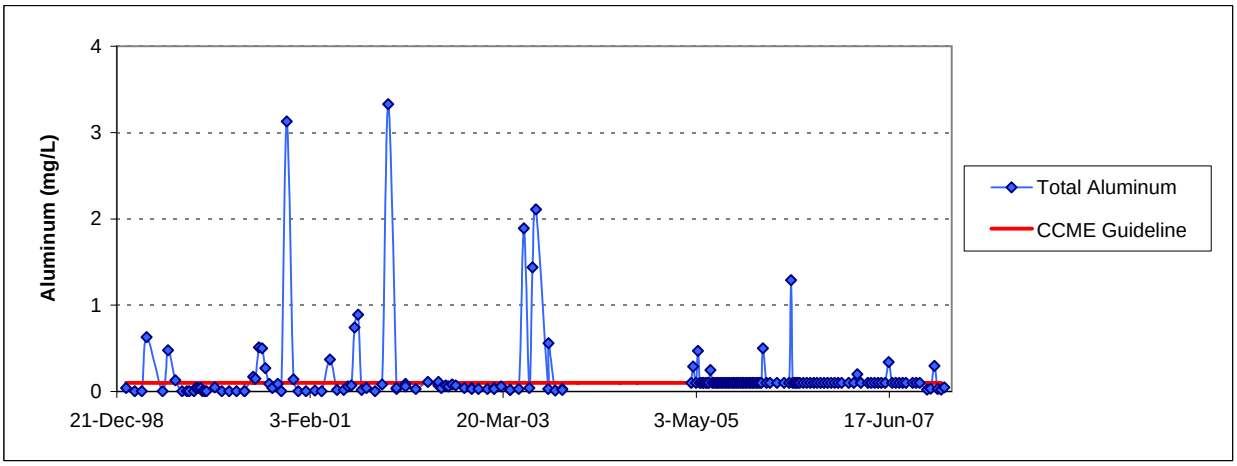


Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

Figure B6. Historical trends of selected water quality parameters in the Seepage Pond







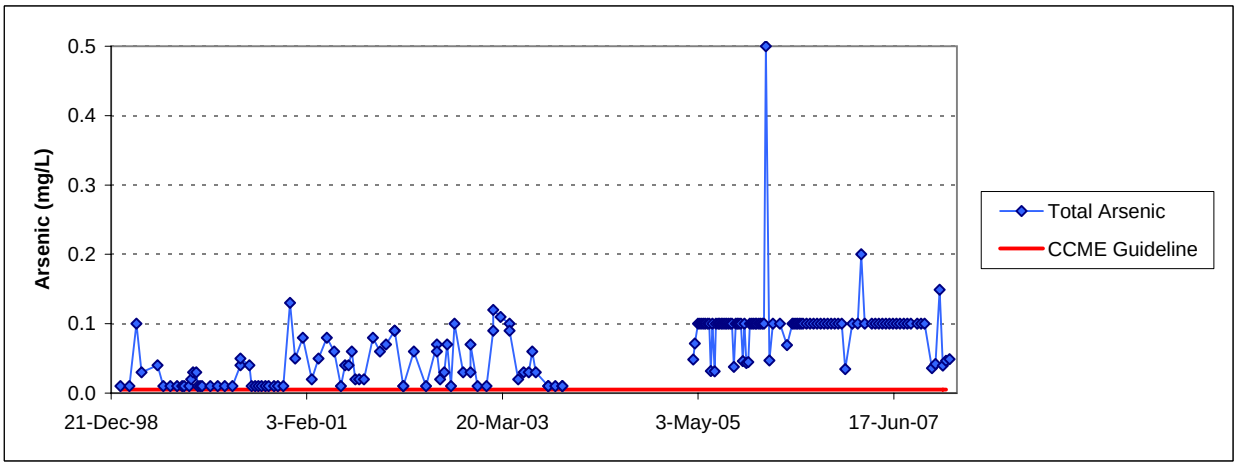
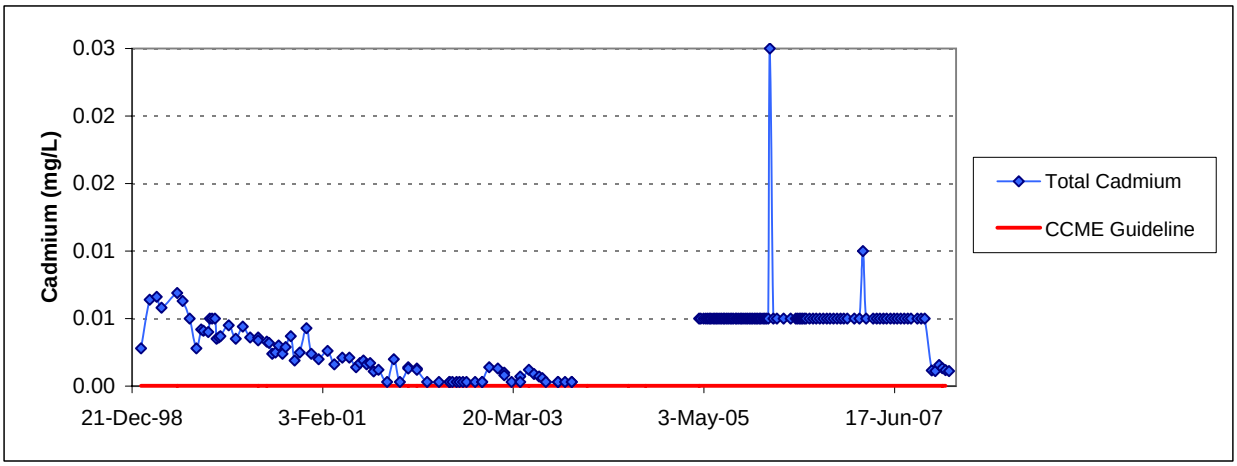
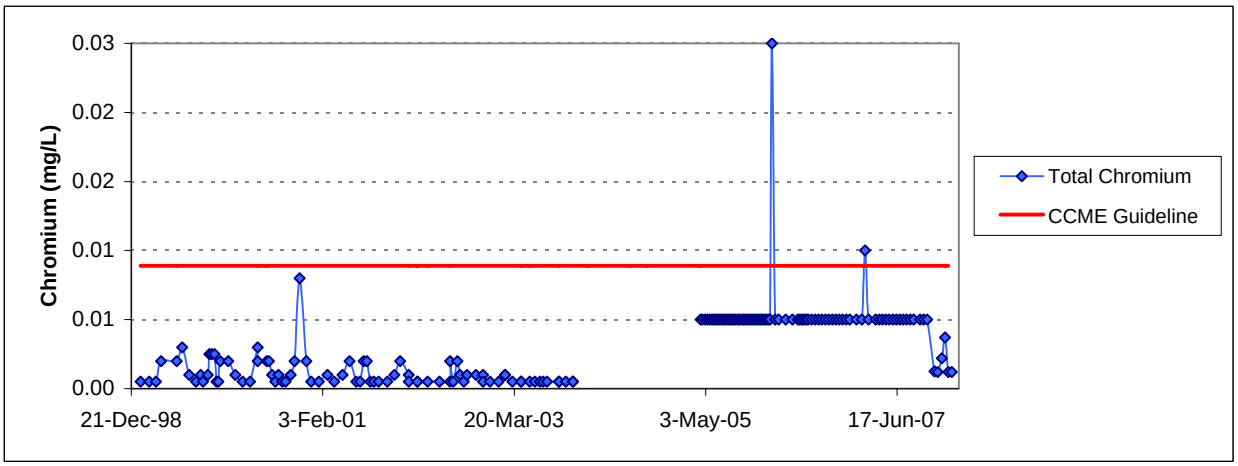
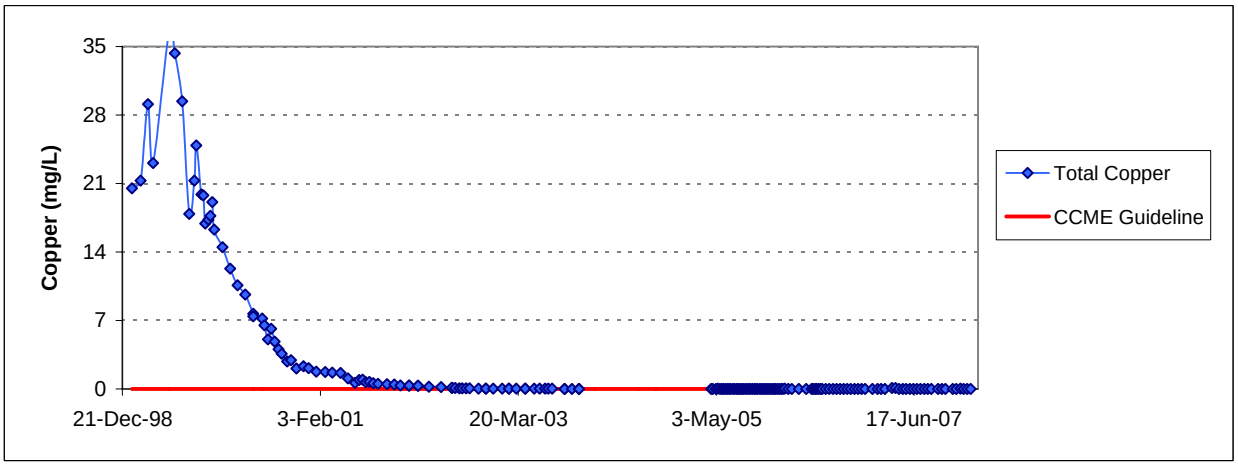


Figure B6. Historical trends of selected water quality parameters in the Seepage Pond continued.







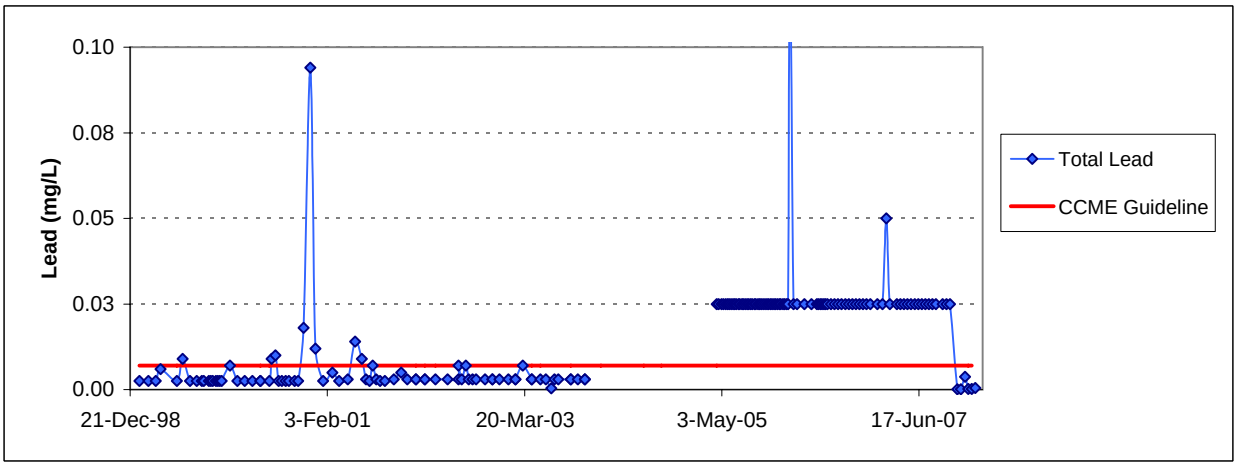
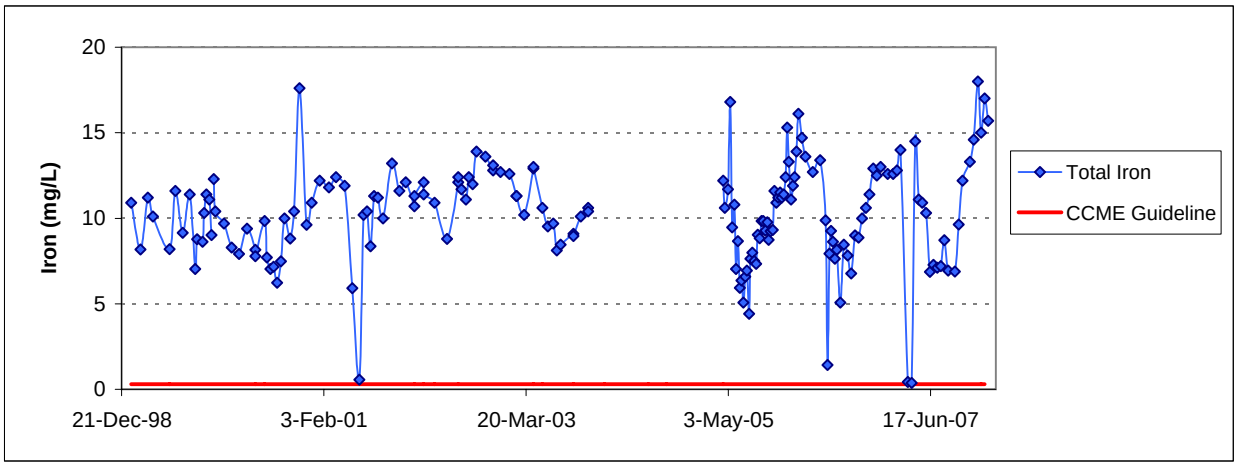
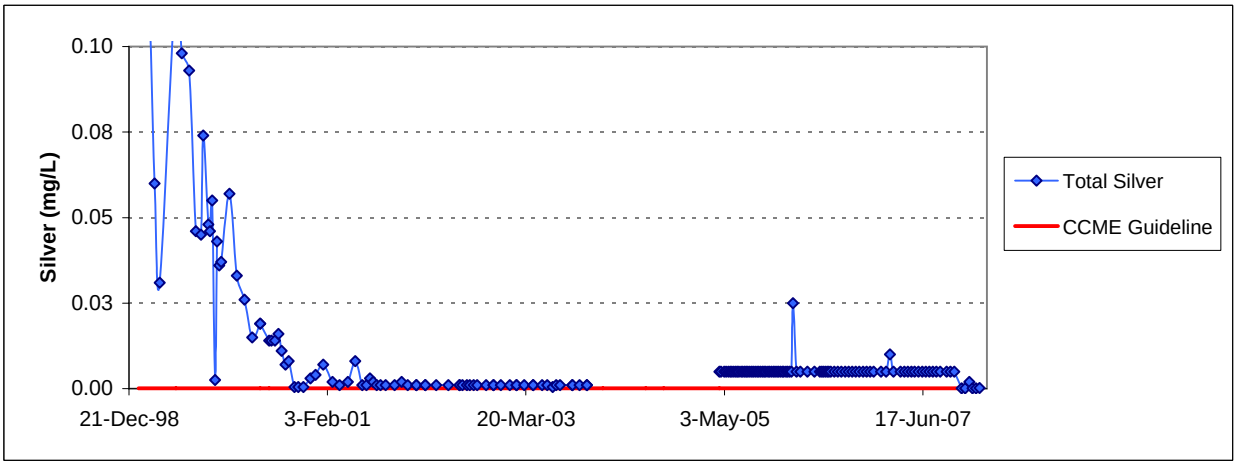
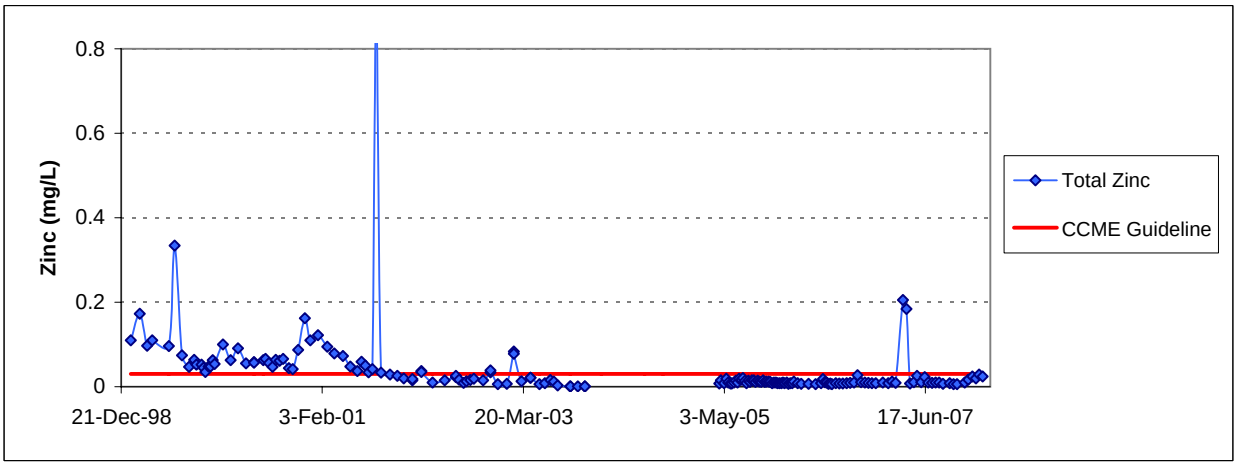


Figure B6. Historical trends of selected water quality parameters in the Seepage Pond continued.

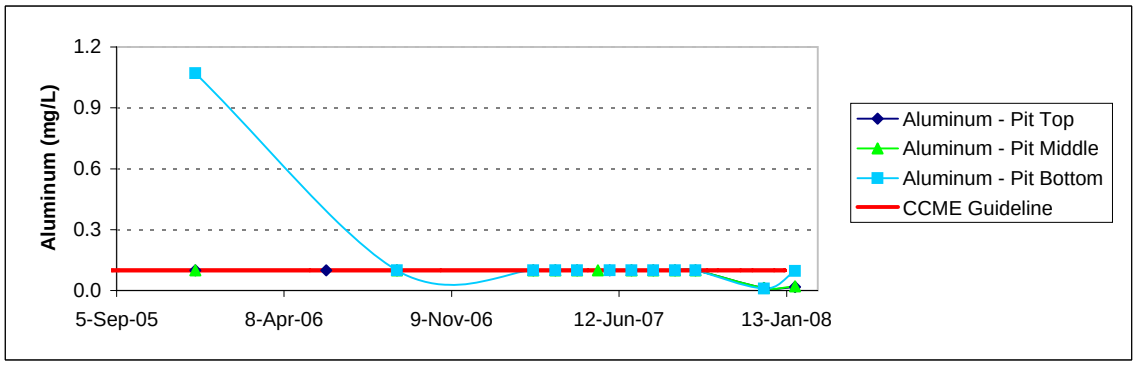


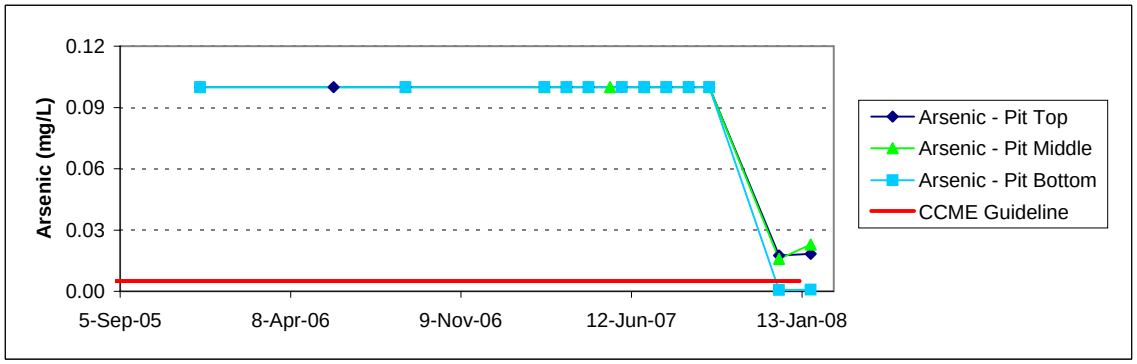


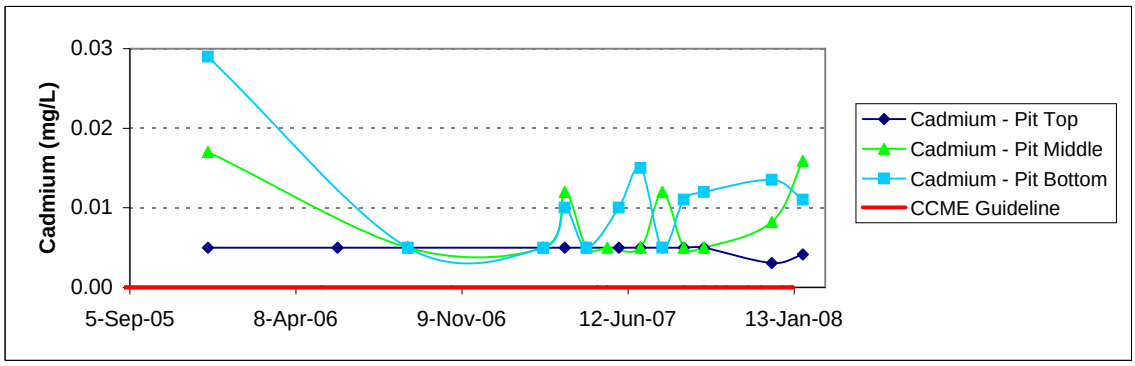


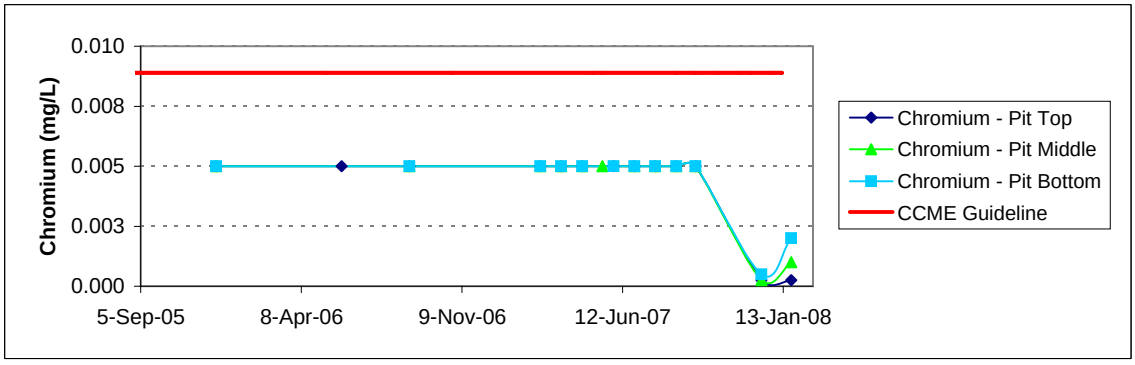
Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

Figure B7. Historical trends of selected water quality parameters in the Brown-McDade Pit









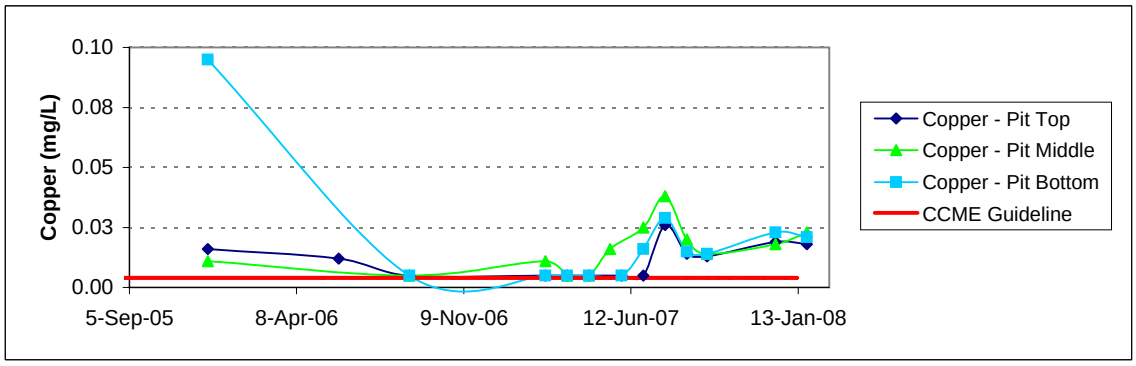
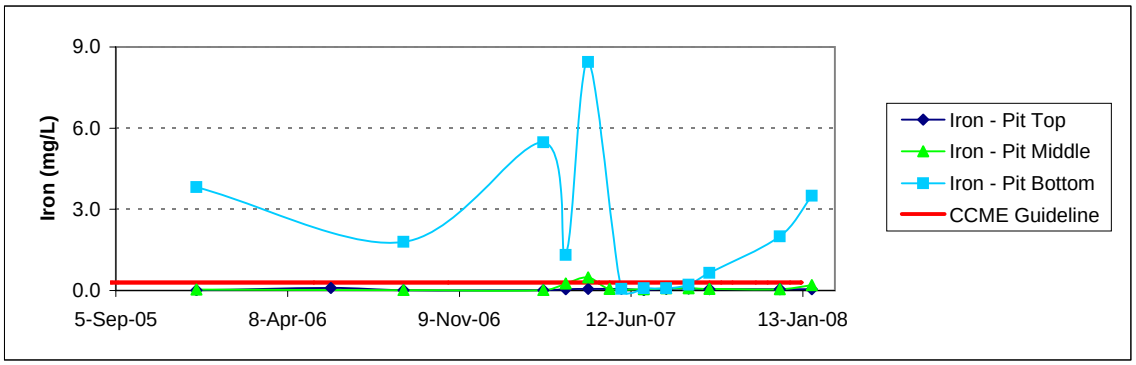
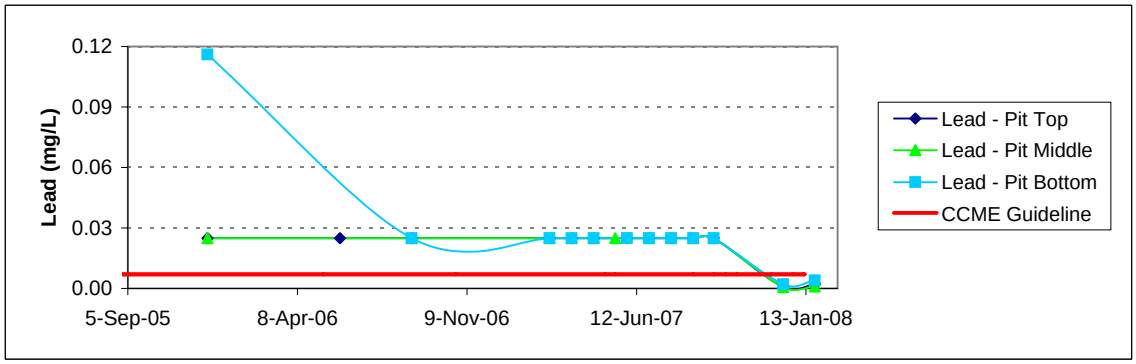
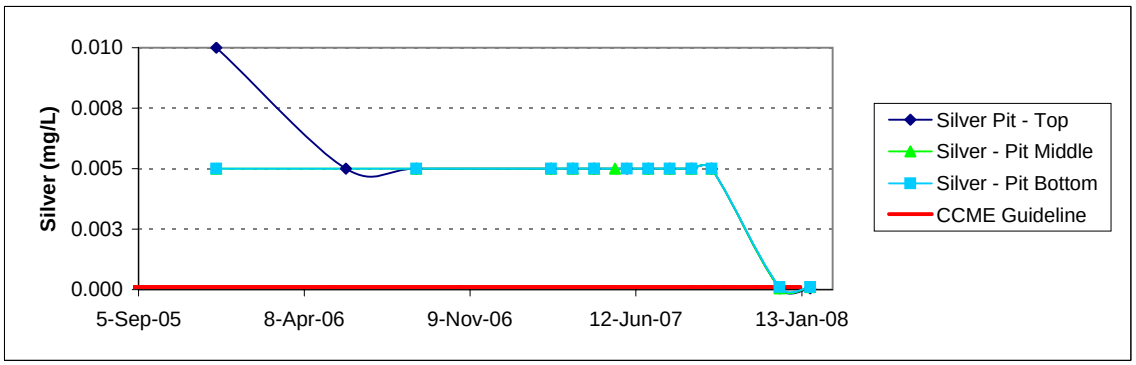
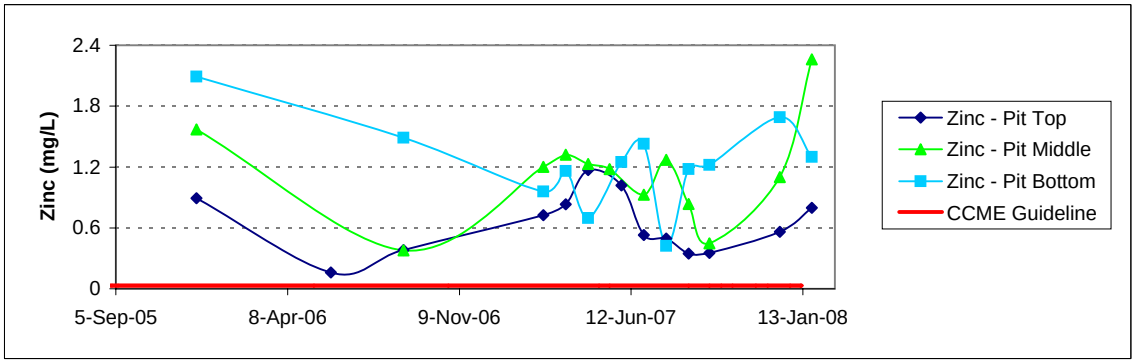


Figure B7. Historical trends of selected water quality parameters in the Brown-McDade Pit continued.









Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.