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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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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 of Energy, Mines and Resources to investigate water quality in watercourses and water bodies on the mine site and subsequently to determine the need for Site Specific Water Quality Objectives (SSWQOs) in 2007. The work in 2007 helped understanding of water quality trends at the mine site; however, there were some data limitations that prevented a solid determination to whether SSWQOs were required. Specifically, samples collected at the site between 2003 and late 2007 were analyzed with detection limits, for some parameters, too high to allow for meaningful comparison with current Canadian Council Ministers of the Environment (CCME) water quality guidelines for the protection of aquatic life (CCME 2007; i.e. the detection limits themselves were often higher than the guidelines). When this difficulty with interpretation was determined, laboratory analysis methods were altered and more guideline-appropriate data was collected during the 2008 sampling year. This 2008/09 report re-visits the findings of 2007/08 with updated data.

The Mt. Nansen mine is located approximately 60 kilometres 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 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:

- Background Concentration Procedure
- Recalculation Procedure
- Water Effect Ratio Procedure
- 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 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 a meaningful addition to the reclamation efforts.

1.1 BACKGROUND ON AQUATIC RESOURCES

Two small streams drain the majority of the mine footprint (Figure 2). The primary drainage is Dome Creek which flows from above the mill site, past the tailings facilities into Victoria Creek. Falls near the mouth of

Dome Creek prevent fish entering and using this stream (EDI 2007). 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. Pony Creek is non-fish bearing; however, Arctic grayling have been documented in Back Creek (EDI, in prep., 2009).

Victoria Creek is a tributary stream to the Nisling River, a medium-sized river in the Donjek/White Rivers drainage basin. Fish species documented in Victoria Creek near the mine site include Arctic grayling *(Thymallus arcticus)*, burbot (*Lota lota*), and slimy sculpin *(Cottus cognatus)*. The Nisling River is a spawning stream for Chinook salmon (*Oncorhynchus 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.

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). In 2003 this sampling program was taken over by the Yukon Government AMB. Since 2005, EDI under contract to 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 were not sampled in the winter when locations were frozen to substrate. Not all sites (Figure 2) have been sampled since 1999, as some were added as the need was noted (Table 1).

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 they are not affected by the mine or mining activities, adversely or otherwise. One site was located farther upstream on Victoria Creek. The other was located on Dry Creek, east of the mine site, draining to the south and east (Figure 2). Data were used to better understand background conditions for comparison with affected locations.

Parameters 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 DX and D1 samples. These analyses were included in the sampling of the reference sites on Dry Creek and Victoria Creek.

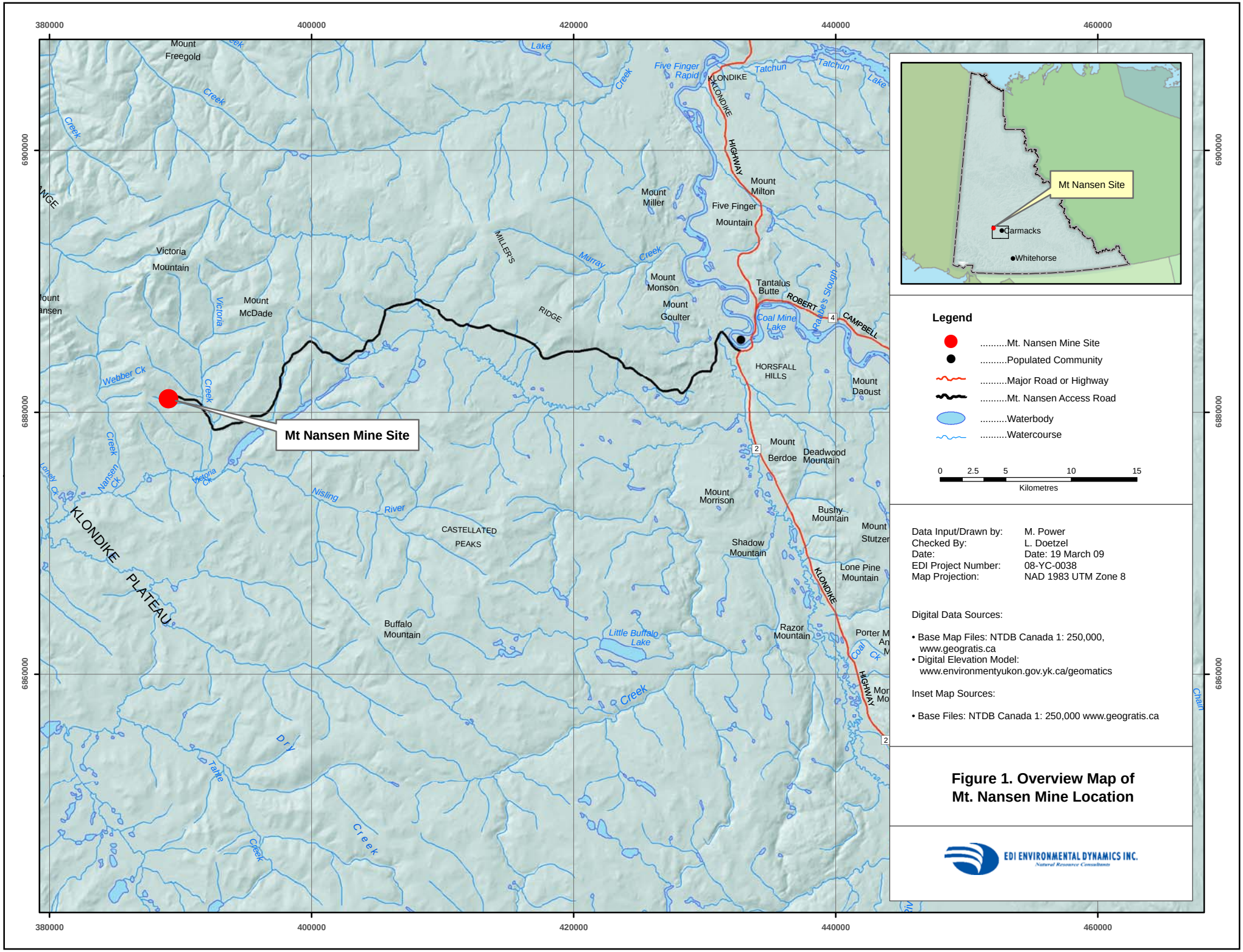

Figure 1. Overview Map of Mt. Nansen Mine Location

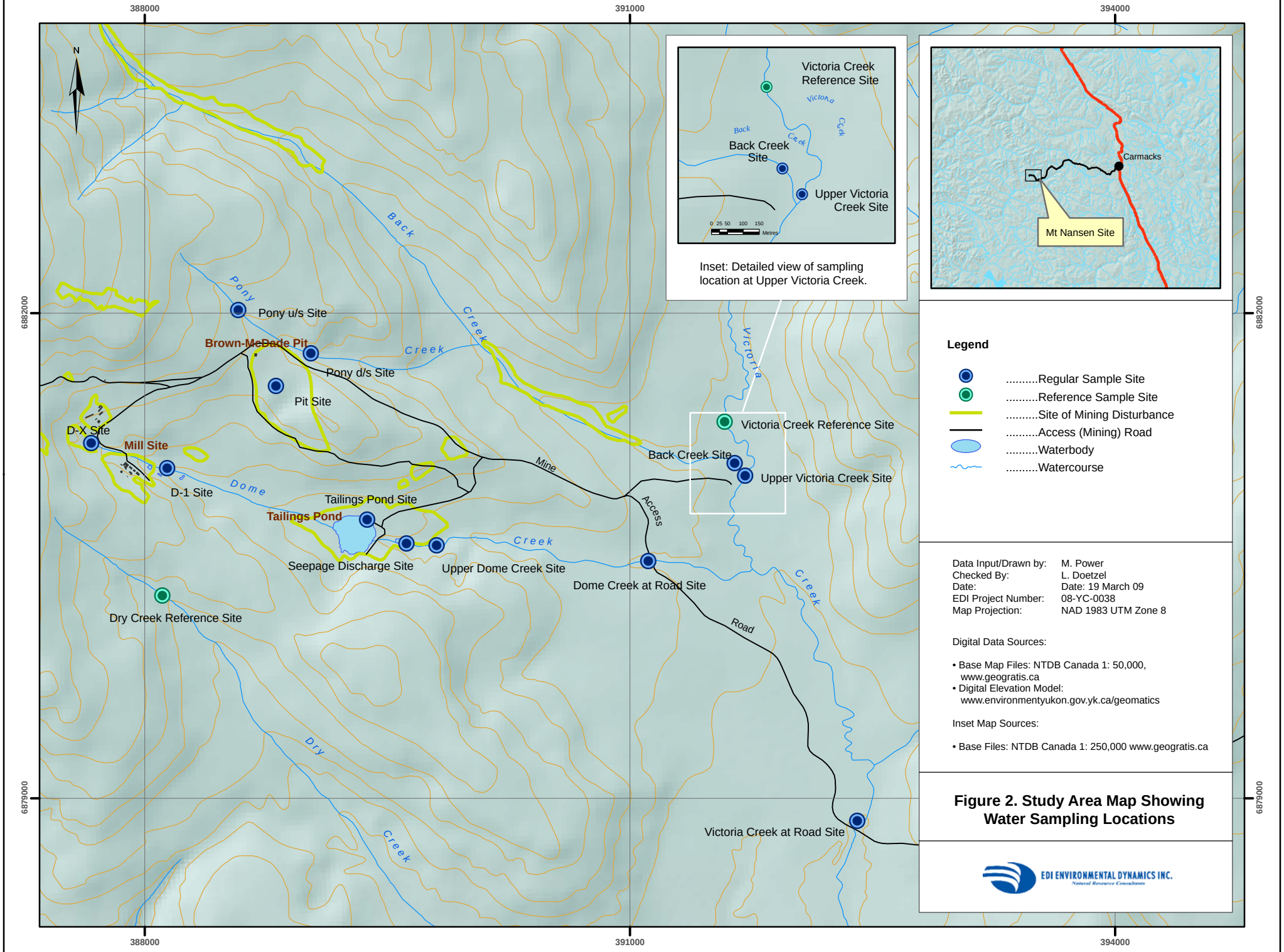

Figure 2. Study Area Map Showing Water Sampling Locations

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

Sampling Location	Site Descriptions and Rationales	Sampling Commenced
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 it receives inputs from Dome and Back creeks.	2005
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.	1999
Back Creek[1]	This site is located on Back Creek, just above the confluence with Victoria Creek. Back Creek is often affected by placer mining activities and this sampling location is intended to reflect those effects.	2008
Pony Creek Upstream[1]	Pony Creek was affected by mining activities on site when waste rock was deposited on top of the watercourse. This site is located upstream of that waste rock to determine background water quality before any potential effects due to waste rock.	2008
Pony Creek Downstream[1]	This site is located on Pony Creek downstream of where the waste rock was piled. Results from this site can be compared to those from the Pony Creek Upstream site to see how the waste rock has affected the watercourse.	2008
Brown - McDade Pit	The Brown - McDade Pit is sampled at the deepest part of the excavation. Samples are typically collected at the surface, middle and bottom of the waterbody.	2005
Dome Creek DX	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.	2007
Dome Creek D1	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.	2007
Tailings Pond	The tailings pond holds tailings and water affected by mining and milling activities.	1999
Seepage Pond	There is a continual underground seep of water from the Tailings Pond. This water is collected in a smaller pond and continuously pumped back 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.	1999
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 determine 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).	2005

Sampling Location	Site Descriptions and Rationales	Sampling Commenced
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.	1999
Reference Sites[2]	One site on Victoria Creek far upstream of the mine site, and one on Dry Creek were selected to act as reference locations. Sampling is three times annually.	Fall 2007

[1] New sampling locations added for the 2008 sampling season.

[2] See text for an expanded description of reference site locations and rationales.

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 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 this report it was realized detection limits for a number of total metals, including cadmium, arsenic, lead and silver, were high enough to prevent comparison with current CCME (2007) objectives for the protection of freshwater aquatic life. In December 2007, 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 analyzed such that detection limits are low enough to allow comparison with all applicable water quality guidelines.

2.3 APPLICABLE GUIDELINES

Two different water quality standards to which the water from the Mt. Nansen site can be compared exist. The 2007 CCME objectives for 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. (BYG) for the Mt. Nansen site. This water license includes a list of water quality standards 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.

Generally the CCME standards are more rigorous than the Water Licence Standards (Table 2).

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

Parameter	CCME Objectives[1]	Water License Standards[2]
Physical Parameters		
pH	6.5 - 9.0	6.0 - 8.5
Total Suspended Solids	--	50 mg/L
Nutrients		
Ammonia-N	0.015 mg ammonia-nitrogen/L	--
Nitrate-N	2.9 mg nitrate-nitrogen/L	--
Nitrite-N	0.06 mg nitrite-nitrogen/L	--
Cyanide Compounds		
Total Cyanide	--	0.3 mg/L
Cyanate	0.5 mg/L	--
CN-WAD	--	0.1 mg/L
Total Metals		
Aluminium	0.1 mg/L	--
Antimony	--	0.15 mg/L
Arsenic	0.005 mg/L	--
Barium	--	1.0 mg/L
Beryllium	--	--
Boron	--	--
Cadmium	0.000017 mg/L [H]	0.02 mg/L
Chromium	0.0089 mg/L	0.04 mg/L
Cobalt	--	--
Copper	0.002 - 0.004 mg/L [H]	0.2 mg/L
Iron	0.30 mg/L	1.0 mg/L
Lead	0.001 - 0.007 mg/L [H]	0.1 mg/L
Manganese	--	0.5 mg/L
Mercury	0.000026 mg/L	--
Molybdenum	0.073 mg/L	--
Nickel	0.025 - 0.15 mg/L [H]	0.3 mg/L
Selenium	0.001 mg/L	--
Silver	0.0001 mg/L	0.10 mg/L
Thallium	0.0008 mg/L	--
Titanium	--	--
Zinc	0.03 mg/L	0.30 mg/L
Dissolved Metals		
Arsenic	--	0.15 mg/L

[1] Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

[H] Guideline is dependent on water hardness.

3 RESULTS

3.1 REFERENCE SITES: UPSTREAM VICTORIA CREEK AND DRY CREEK

Two reference areas were added to the sampling regime in October 2007. One was located approximately 500 m farther upstream on Victoria Creek than the Upper Victoria site. The other, on Dry Creek, is to the west of the mine site over a ridge, drains away from the mine site (Figure 2). Due to their location, these sites should be free of any surface water runoff effects from the Mt. Nansen mine. Therefore data from these sites should provide natural levels for comparison. These sites were sampled once in 2007 and then three times in 2008, once during spring melt, once in midsummer and once just before freeze-up. 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. pH in the reference creeks was slightly alkaline, varying only slightly around 8.0, similar to other sampling locations at the Mt. Nansen site. Alkalinity in Victoria Creek was low in the spring sample (16 mg/L), ranging from 70 to 80 mg/L in other seasons. In Dry Creek the spring sample also had the lowest alkalinity (58 mg/L) and in other seasons ranged from 82 to 128 mg/L. These two creeks can generally be considered well buffered against acidification. Electrical conductivity (EC) in these two streams was lower than in many other sampled streams. It followed expected seasonal patterns, lowest in May during spring melt and highest in summer and fall when the quantity of water was reduced. Water hardness was also notably lower in these creeks when compared to the other sample sites; again values from both sites followed a seasonal pattern. In the Victoria Creek reference site the hardness was slightly higher, ranging from 61 mg/L in the spring, to a high of 135 mg/L in the summer. Water hardness in Dry Creek ranged from 23 mg/L in the spring to 83 mg/L in the summer. Water in these creeks was therefore categorized as moderately hard (Boyd 2000).

3.1.2 NUTRIENTS

Both reference locations were nutrient poor, oligotrophic systems, which is common in clear, fast flowing alpine streams. Ammonia concentrations were detectable only in spring samples, with concentrations of 0.018 mg/L in Victoria Creek and 0.014 mg/L in Dry Creek. Nitrate concentrations were low in Victoria Creek and below detection in Dry Creek. Nitrite concentrations were close to or below detection at both sites.

3.1.3 CYANIDE

At both reference sites, cyanide compounds were present at low concentrations. Cyanate concentrations were below detection in all samples from both sites. Thiocyanate ranged from below detection to 1.7 mg/L in Victoria Creek and from below detection to 1.2 mg/L in Dry Creek. Weak and strong acid dissociable cyanide compounds were also present at very low to undetectable concentrations at both sites.

3.1.4 TOTAL METALS

In the 2007 sampling, the two reference areas were analyzed with the less sensitive ALS detection limit. Therefore, a number of the detection limits exceeded the CCME (2007) objectives. However, data from the samples taken in 2008 allows for comparison with guidelines (Appendix A, Table A1). Few samples exceeded CCME (2007) guidelines in the reference locations.

At the Victoria Creek reference site most guideline exceedances were noted in the spring sample, when total suspended solids concentrations were highest. It is almost certain higher metals concentrations were associated with particulate matter in the water. Cadmium concentrations in Victoria Creek exceeded the CCME (2007) Aquatic Life Guideline (0.000017 mg/L), with concentrations ranging from 0.00002 to 0.00012 mg/L. Also, in the spring sample, aluminium, copper and iron concentrations exceeded CCME (2007) Aquatic Life Guidelines (Appendix A, Table A1).

In Dry Creek, total metals concentrations were lower. The only exceedance was iron, which exceeded the guideline (0.3 mg/L) in the summer and fall 2008 samples with concentrations of 0.48 and 0.56 mg/L respectively.

3.2 VICTORIA CREEK

Victoria Creek runs southward along the eastern border of the Mt. Nansen mine site. Water quality has been sampled at Upper Victoria since May 2005. This site is slightly upstream of inputs from 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, Back Creek and the tailings facilities/discharges. Water quality is therefore expected to be affected by past mining activities. Also water quality on Victoria Creek may 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 pH ranged from 6.8 to 8.6, with a median of 7.87. Farther downstream, at the road, pH ranged from 6.6 to 8.2 with a median value of 7.73. The reference site upstream on Victoria Creek pH of 8.0 suggested there may be a slight decrease in pH downstream. Alkalinity in Upper Victoria ranged from 16 to 178 mg/L, with a median of 83 mg/L. Values at the road ranged from 17 to 793 mg/L with a median of 74 mg/L. Based on the median concentrations Victoria Creek is moderately alkaline and well buffered. Electrical conductivity (EC) ranged from 42 to 473 µS/cm with a median of 184 µS/cm in Upper Victoria. At the road site, EC ranged from 54 to 2940 µS/cm with a median of 209 µS/cm. The highest EC (2940 µS/cm) was recorded in December 2002 but not repeated in any other year, indicating it was likely an anomaly possibly due to lab or sampling error. Water hardness ranged from 22 to 238 mg/L upstream and 27 to 775 mg/L

downstream. Median hardness was approximately 95 mg/L upstream and 101 downstream. Therefore water in Victoria Creek can be characterized as moderately hard (Boyd 2000).

3.2.2 NUTRIENTS

As shown by the reference location Victoria Creek was a nutrient poor watercourse. There was little difference in ammonia concentrations between the two sites. Ammonia concentration in Upper Victoria Creek ranged from 0.005 to 8.3 mg/L with a median of 0.026 mg/L. Farther downstream ammonia concentrations ranged from 0.005 to 6.69 mg/L, with a median concentration of 0.038 mg/L. The majority of samples taken from both sites were below the CCME (2007) guideline for ammonia (0.015 mg/L, pH and temperature 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 (0.3 mg/L) in both sampling locations on Victoria Creek. Concentrations were generally less than 0.05 mg/L (Appendix B, Figure B1). Concentrations of Weak Acid Dissociable (WAD) cyanide were also well below the Water License Standard of 0.1 mg/L (Appendix B, Figure B1). 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 (Table A2) with a median of 0.002 mg/L at the road site (Table A3).

3.2.4 TOTAL METALS

In Victoria Creek total metals concentrations were often found to be below all applicable CCME (2007) guidelines. As discussed previously, some metals, including arsenic, copper, lead, and silver were analyzed such that the detection limit was above the CCME (2007) guideline concentration for most sampling events. Therefore interpretation of these metals was largely based on data from the 2008 sampling year, when detection limits were lower and meaningful interpretation was possible. Concentrations of total metals in samples from Victoria Creek are graphically represented in Appendix B, Figure B1.

Aluminum concentrations were slightly higher at the road crossing sampling site than further upstream (Appendix B, Figure B1). Concentrations at both sites were generally close to, or just above the CCME (2007) guideline (0.1 mg/L). These elevated concentrations were likely due in part to local geology rather than a reflection of mining contamination.

Arsenic concentrations from the 2008 sampling period were below the CCME (2007) guideline at both sampling sites on Victoria Creek, with only one exception at the Upper Victoria Site (Appendix B, Figure B1). On May 22, 2008, the total arsenic concentration (0.0257mg/L) exceeded the guideline concentration of 0.005 mg/L. This event occurred during spring melt and may have been associated with increase

suspended matter in the water column. The associated dissolved arsenic concentration was exceedingly low (0.0004 mg/L).

Total cadmium concentrations in Victoria Creek historically exceeded the CCME (2007) guideline (Appendix B, Figure B1) but were below the water license standard. Samples taken throughout 2008 at both sites indicated the cadmium concentrations exceed the CCME (2007) guideline (0.00017 mg/L). Concentrations at the Upper Victoria site range from 0.00001 to 0.00336 mg/L with a median of 0.00004 mg/L, just slightly above the guideline. However, dissolved cadmium concentrations were below guideline; therefore the majority of cadmium present in the water column is likely associated with suspended particulate matter.

Chromium concentrations in Victoria Creek were below the CCME (2007) guideline in nearly all samples (Appendix B, Figure B1).

Copper 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 (2007) guideline in Victoria Creek. Sampling done in 2008 indicates concentrations were generally below the guideline at both sites (Appendix B, Figure B1) although concentrations were slightly lower at the upstream site.

Iron concentrations were higher at the road crossing sampling site than at the upstream site (Appendix B, Figure B1). Concentrations from the downstream site exceeded the CCME (2007) guideline in a number of samples. Concentrations were generally below the CCME (2007) guideline, although some excedences were observed, with more frequency at the road site than at the upstream site. As seen with other metals concentrations, the highest concentrations were often associated with spring melt and higher suspended sediment loads.

Lead concentrations were generally below detection or below the CCME (2007) guideline in Victoria Creek, though detection limits from 2005 through 2007 led to erroneously high values. Through the 2008 sampling season, lead concentrations were well below the CCME (2007) guideline (Appendix B, Figure B1).

Silver concentrations in Victoria Creek were above the CCME (2007) guidelines at the road crossing from 1999 to 2005. From 2005 to 2007 concentrations were generally below the ALS detection limit but silver concentrations in samples taken in November and December 2007 show concentrations below the CCME (2007) guideline. Samples taken at both sites through 2008 reveal the majority of concentrations below the CCME (2007) guideline.

Zinc concentrations were slightly higher in samples taken from the downstream location compared with those from the upstream sampling site (Appendix B, Figure B1). Samples taken from 2005 to 2008 show lower concentrations than those collected between 1999 and 2003. Nearly all samples from 2008 sampling had zinc concentrations below the CCME (2007) guideline.

3.3 BACK CREEK

Back Creek flows into Victoria Creek just downstream of the Upper Victoria sampling location (Figure 2). Back Creek was added to the sampling regime in the spring of 2008 with the first sampling on May 22, during which there was high water due to the spring snow melt. It was recognized Back Creek was occasionally affected by placer mining activities farther upstream and there was value in determining what changes, if any, could be noted in the water quality of this watercourse. Water quality results from this site can be found in Appendix A, Table A4.

3.3.1 ROUTINE PARAMETERS

Back Creek was similar in water chemistry to other watercourses in the area. It was slightly alkaline, centered on pH 8.05 (Table A4). Alkalinity followed a distinct seasonal trend with the lowest values during high water in May and the highest values seen during midsummer (Table A4). The creek water was well buffered against acidification. Conductivity was higher than seen in nearby Victoria Creek, ranging from 65 to 344 µS/cm (Appendix A, Table A4). The EC followed the same seasonal trend as alkalinity, with the lowest value (65 µS/cm) in May 2008 and the highest value (344 µS/cm) in July 2008. Water hardness in Back Creek ranged from 30 mg/L to 174 mg/L (Table A4). With the exception of the spring melt concentration, water could be classified as moderately hard (Boyd 2000). Concentrations of total dissolved solids were high in Back Creek, ranging from 23 mg/L in May 2008 to a high of 205 mg/L in August 2008 (Table A4). All concentrations save May 2008 exceeded the Water License Standard. These concentrations are due to increased sediment loading in the stream associated with spring melt and high precipitation in summer of 2008 leading to increased surface water runoff. Also, placer mining upstream of the Mt. Nansen mine site likely contributed to the sediment load in Back Creek.

3.3.2 NUTRIENTS

Nutrient concentrations in Back Creek were low. Ammonia concentration was slightly higher in the spring season with concentrations of 0.039 mg/L in May 2008 and 0.012 mg/L in early June 2008 (Appendix A, Table A4). However, in general concentrations were below the CCME (2007) guidelines. Concentrations later in the summer and through the fall were generally below detection. Nitrate concentrations were low, ranging from below detection to 0.06 mg/L (Appendix A, Table A4), all below CCME (2007) guidelines. Similarly, nitrite concentrations were below detection (Appendix A, Table A4).

3.3.3 CYANIDE

In Back Creek cyanide compounds were present at low concentrations. Cyanate concentrations were below or at detection (0.2 mg/L) in all samples (Appendix A, Table A4). Thiocyanate ranged from 0.4 to 2.1 mg/L (Appendix A, Table A4) with the highest concentration coming during spring melt. Weak (Appendix B, Figure B2) and strong acid dissociable cyanide compounds were also present at low to undetectable concentrations in all samples.

3.3.4 TOTAL METALS

In general metals concentrations were low to moderate in Back Creek. One exception to this was the May 22, 2008 sampling event when water levels were very high and suspended sediment load was many times higher than what was seen in later samples. Therefore, high metals concentrations were associated with particulate matter, and not dissolved in the water column. Metals concentration data can be found in Appendix A, Table A4, and data is graphically represented in Appendix B, Figure B2.

Aluminum concentrations exceeded the CCME (2007) guideline in many of the samples, but the concentration was highest in the May 2008 sample (Appendix B, Figure B2).

Arsenic concentrations exceeded the CCME (2007) guideline only in two of the spring samples (Figure B2). Both incidences were associated with higher than average total suspended solids (TSS).

Cadmium concentrations were consistently an order of magnitude above the CCME (2007) guideline, (Figure B2) with concentrations ranging from 0.00006 mg/L to 0.00617 mg/L (Table A4).

Chromium levels were typically below the CCME (2007) guidelines (Figure B2). The lone exception came from the late May sampling event with high water and high levels of TSS.

Copper concentrations occasionally exceeded the CCME (2007) guideline (Figure B2). Again, samples with higher concentrations were generally associated with elevated TSS concentrations associated with high water events.

Iron concentrations exceeded the guideline in every sample (Figure B2). However, all samples save the May 22, 2008 sample were only slightly above the guideline.

Lead, silver and zinc exceeded the CCME (2007) guidelines only in spring samples (Figure B2), and high concentrations (Table A4) were associated with high suspended sediment loads.

3.4 DOME CREEK

Dome Creek runs through the mine site, past the mill, 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 (Upper Dome) is just downstream of the tailings facilities and the second (Dome at Road) where the Creek crosses the main access road (Figure 2). Sampling at the Upper Dome site began in 2005, while sampling at the road site began in 1999. Both continue through to the present. Samples were ideally taken year round, however Dome Creek tends to freeze to substrate through the winter months; for most years there were no samples from December through April or May. Two more sampling locations on Dome Creek (DX and D1) were added in 2007. DX is above the Mill site and D1 is between the mill site and the tailings pond. D1 was first sampled as part of the Terrestrial and Aquatic Effects Study (EDI 2007). It was then sampled, together with DX three more times, from July 2007 through September 2007. Detailed water quality data for Dome

Creek can be found in Appendix A, Table A5 (D1 and DX) and Table A6 (Upper Dome) and Table A7 (Dome Creek at Road Crossing).

3.4.1 ROUTINE PARAMETERS

The pH in Dome Creek varies along the length of the creek. Above the mill site the median pH was 7.7, increasing to 8.1 below the mill. There was little change between there and Upper Dome where the median value was 8.0. At the road crossing location pH fell back to 7.8. The majority of samples fell within CCME (2007) objectives (6.5 – 9.0). Median alkalinity increased from 80.5 mg/L at DX to 244 mg/L at D1. Downstream, median alkalinity concentration in Upper Dome Creek decreased to 159 mg/L, with individual values ranging from 37 to 822 mg/L. Alkalinity values continued to decrease to the Dome at Road site where the median value of 117 mg/L was still slightly above the concentration found at the furthest upstream site (DX). Electrical conductivity was also affected by the mill site, as EC at the DX site varied around 450 µS/cm, then doubled to 1050 µS/cm below the mill site at D1 (Table A5). Further downstream in Upper Dome Creek, the EC varied seasonally from 500 – 1000 µS/cm in summer months, to >1000 µS/cm in winter months (Table A6) when the creek was not frozen to substrate. High concentrations in winter are common when the majority of water forms ice and ions are concentrated in a significantly lower quantity of water (ice freeze-out). 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.

3.4.2 NUTRIENTS

Ammonia concentrations at all sampling locations ranged from 0.006 mg/L to 1.5 mg/L (Tables A5 to A7), and many samples exceeded the CCME (2007) guideline concentration of 0.015 mg/L. Nitrite concentrations were generally undetectable in D1 and DX samples. Median nitrite concentration at the upper site was 0.03 mg/L and there were some guideline (0.06 mg/L) exceedances. These were generally seen in late fall and winter 2005. The median nitrite concentration at the Dome at Road site was slightly higher, 0.04 mg/L. Again some exceedances were noted, particularly in the winter 2005. Concentrations of total phosphorus were below detection at D1, Upper Dome and 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 DX site, furthest upstream were detectable, with concentrations centering on 1.0 mg/L (Table A5) from samples in August and September 2007. Concentrations downstream tended to be lower (Tables A5 to A7).

3.4.3 CYANIDE

Total cyanide concentrations at Upper Dome were well below the Water License Standard (0.3 mg/L). Concentrations ranged from 0.005 mg/L to 0.128 mg/L with a median of 0.025 mg/L (Table A6). Total cyanide concentrations in Dome Creek at the road were also below the Water License Standard, with concentrations ranged from below detection level to 0.06 mg/L with a median concentration of 0.02 mg/L (Table A7). Current WAD cyanide concentrations were below the Water License Standard (0.1 mg/L) both

at the Upper Dome sampling site and the road crossing (Figure B3). 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 (Figure B3). Samples in Dome Creek where it crosses the road taken before 2001 often exceeded the standard while current concentrations are considerably 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 (Table A7).

3.4.4 TOTAL METALS

In Dome Creek total metals concentrations show some decreasing with time trends, however many remain above applicable guidelines. Sample analysis for metals, including arsenic, copper, lead and silver produced results above the CCME (2007) guideline concentration for samples taken from 2003 through 2007. Therefore it was not possible to infer with accuracy whether the metals concentrations between 2003 and 2007 were above or below guidelines. Data from 2008 however, can be used in a more meaningful comparison. Historical and current metal concentration data from sampling sites along Dome Creek is graphically represented in Appendix B, Figure B3.

Aluminum concentrations often exceeded the CCME (2007) objective (0.1 mg/L) in samples from all four sampling locations on Dome Creek. At DX concentrations ranged from 0.03 to 13.3 mg/L indicating background aluminum concentrations in the Dome Creek watershed may exceed guidelines. Concentrations in Upper Dome ranged from 0.2 to 2.19 mg/L with a median concentration of 0.34 mg/L (Table A6). In Dome Creek at the road the aluminum concentrations ranged from 0.03 to 18.3 mg/L with a median concentration of 0.54 mg/L (Table A7). It is likely the background aluminum concentration in this area is greater than the CCME (2007) guideline and therefore elevated concentrations are not entirely due to past mining activities.

Arsenic concentrations (Figure B3) in most samples from DX and all samples from other Dome Creek sites exceed the CCME (2007) guidelines. The Dome at Road site has the longest period of continuous sampling. It appears from this data concentrations of arsenic in Dome Creek have decreased slightly since 2007 (Figure B3).

Cadmium concentrations were low at the DX site upstream of the mill location, increased downstream of the mill site and continued to decrease with distance downstream on Dome Creek through the mine site (Figure B3). The concentrations at the DX sampling had a median of 0.00035 mg/L. Downstream of the mill, the median concentration at D1 was 0.00097 mg/L, 0.0023 mg/L at Upper Dome and the lowest median concentration in Dome Creek, 0.0006 mg/L, was at the road crossing site. Samples from all sites commonly exceeded (Figure B3) the CCME (2007) guideline (0.00017 mg/L).

Chromium concentrations in Dome Creek were below the CCME (2007) guideline in the majority of samples (Figure B3).

Copper concentration has decreased in Dome Creek since 1999 (Figure B3). Current samples taken from Dome Creek sampling sites show copper concentrations (Figure B3) were approaching the CCME (2007)

guideline. However there continue to be a number of samples which exceeded the guideline at all four sampling locations along Dome Creek.

Iron concentration in Dome Creek generally exceed (Figure B3) the CCME (2007) guideline. However, it is likely the natural iron concentration in this area exceeds the guideline, as high concentrations were noted at DX (Figure B3). Thus elevated concentrations are not entirely due to past mining activities.

Lead concentrations have fluctuated around the CCME (2007) guidelines over time. As interpreted from the road crossing samples a decrease has occurred since 2007 (Figure B3). Samples taken from all sites through 2008 were approaching or below the CCME (2007) guideline (Figure B3).

Silver concentrations in Dome Creek at the road crossing site taken from 1999 to 2003 generally exceeded the CCME (2007) guideline (Figure B3). Recent samples show a lower concentration, with many samples below the CCME (2007) guideline (Figure B3). This indicates silver concentrations at the Dome at Road site have decreased over time.

Zinc concentrations in Dome Creek commonly exceeded the CCME (2007) guideline (0.03 mg/L) at all sites, including the upstream D-X (Figure B3). Concentrations from that site were the lowest of the four sampling sites (Figure B3). Median concentrations were 0.012, 0.206, 0.013 and 0.026 mg/L respectively moving downstream. Highest concentrations were seen in D1.

3.5 PONY CREEK

Sampling of Pony Creek began in May 2008 and was conducted biweekly at two different locations - one upstream of the waste rock pile and one immediately downstream. It was determined previously that there were likely water quality concerns associated with the waste rock located on site (Gartner Lee 2005). In July 2008 the waste rock pile was removed from Pony Creek and the watercourse now runs along the surface through the area. Detailed water quality results for Pony Creek upstream and downstream can be found in Appendix A, Tables A8 and A9.

3.5.1 ROUTINE PARAMETERS

The pH did not change appreciably between the two sites. Upstream site pH ranged from 7.0 to 7.8 with a median value of 7.7 (Table A8) while the downstream site pH ranged from 7.0 to 7.9 with the same median value (Table A9). Alkalinity was lower in this watercourse when compared to others in the area. Median alkalinity concentrations were 47 and 44 mg/L in the upstream (Table A8) and downstream site (Table A9), respectively. These values categorize the watercourse a having low alkalinity. Low values are generally associated with sandy or highly-leached soils. There was little difference in EC between the two sites. At the upstream site the values ranged from 65 µS/cm to 435 µS/cm with a median value of 261 µS/cm (Table A8). At the downstream site, EC ranged from 72 to 418 µS/cm with a median value of 251 µS/cm (Table A9). Median hardness at the upstream site was 120 mg/L (Table A8) and at the downstream site was 118 mg/L (Table A9). This watercourse was therefore moderately hard (Boyd 2000). It does not appear the

presence of waste rock had much effect on the hardness of the water downstream as there was no consistent pattern in comparisons between the values from upstream and downstream before the removal. of the rock in July 2008 (Tables A8 and A9).

3.5.2 NUTRIENTS

Nutrient concentrations were low in Pony Creek. The majority of samples at both the upstream and downstream sites had ammonia concentrations below the detection limit (Table A8 and A9). Nitrate and nitrite concentrations were also very low, often undetectable at both sampling locations (Table A8 and A9).

3.5.3 CYANIDE

All cyanide compounds were present in low to undetectable concentrations (Tables A8 and A9). All were below the CCME (2007) limit.

3.5.4 TOTAL METALS

Unlike other water quality parameters, metals concentrations were considerably different when upstream and downstream sampling locations were compared. At the upstream site few samples exceeded CCME (2007) guidelines. Those that did were associated with high TSS concentrations. The one exception to this was cadmium, which exceeded the guideline in all samples taken from the upstream site. At the downstream site a number of metals concentrations exceeded the CCME (2007) guidelines. There was also a notable spike in metals concentrations in the July 16, 2008 samples. This sampling coincides with the removal of waste rock and the presence of heavy machinery in the area. Heavy machinery use greatly increased the suspended sediment load in the watercourse and consequently the metals concentrations. All metals concentration data from Pony Creek is graphically represented in Appendix B, Figure B4.

Aluminum concentrations at the downstream site ranged from 0.054 to 1.59 mg/L and generally exceeded the guideline (Figure B4). Concentrations at the upstream site were considerably lower and only exceeded the guideline in one spring and one fall sample (Figure B4).

Arsenic concentrations were generally slightly above or below the guideline in samples taken at the downstream location. The exception is the sample taken on July 16, 2008, when the concentration was 0.352 mg/L (Table A9) well over the 0.003 mg/L guideline. All concentrations but one, at the upstream sampling site, were below the CCME (2007) guideline (Figure B4).

Cadmium concentrations at both the upstream and downstream sampling locations exceeded the CCME (2007) guideline (Figure B4). However, upstream concentrations were considerably lower, ranging from 0.00002 to 0.00015 mg/L (Table A8), while downstream concentrations, ranged from 0.0003 to 0.0062 mg/L (Table A9).

Chromium was consistently below the CCME (2007) limit (Figure B4). No clear pattern between upstream and downstream concentrations emerged.

Copper concentrations again were higher in samples from the downstream location (Figure B4), generally exceeding the CCME (2007) guideline (0.002 to 0.004, hardness dependent). Samples from the upstream site were considerably lower and were below the guideline in all but one sample (Figure B4).

Iron concentrations were generally low. The downstream and upstream sites had occasional samples with concentrations (Figure B4) exceeding the CCME (2007) guideline.

Lead concentrations sampled at the downstream location were close to the CCME (2007) guideline. Some samples were slightly above but the majority fell below the guideline (Figure B4). All samples from the upstream site were below the guideline (Figure B4).

Silver concentrations exceeded the CCME (2007) guideline (0.0001 mg/L) in a few of the samples taken at both locations (Figure B4). Concentrations were generally low at both upstream and downstream locations (Figure B4).

Zinc concentrations in every sample from the downstream location (Figure B4) exceeded the CCME (2007) guideline (0.03 mg/L) with concentrations varying between 0.032 and 0.417 mg/L (Table A9). All samples taken at the upstream location were below the guideline (Figure B4).

3.6 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 A10.

3.6.1 ROUTINE PARAMETERS

The pH of water in the tailings pond was slightly alkaline in most samples, with values ranging from 6.8 to 8.89 with a median value of 7.91 (Table A10). Alkalinity in the tailings pond was generally around 117 mg/L, therefore the tailings pond was well buffered against acidification. Electrical conductivity had a median value of 2250 µS/cm, which is high for surface water, but not unexpected in tailings pond water due to high metals and particulate concentrations. Water hardness had a median value of 934 mg/L. Therefore the water is classified as very hard (Boyd 2000) with high concentrations of calcium and magnesium. Total suspended solids in the tailings pond were low (Table A10). However, total dissolved solids were very high, ranging from 600 mg/L to 5090 mg/L. These concentrations seem to have decreased somewhat over time, however, remain high compared to other sampling sites throughout the mine footprint.

3.6.2 NUTRIENTS

Ammonia concentration in the tailings pond generally exceeded the CCME (2007) guideline for the protection of aquatic life (0.015 mg/L). However, there is a trend showing concentrations decreasing over time, from concentrations ranging from 40 to 50 mg/L in 2000 to approximately 1 mg/L in samples taken in late 2008 (Table A10). Nitrate concentrations ranged from 0.03 to a high of 8.09 with a median value of 1.54 mg/L (Table A10). Nitrite concentrations ranged from below detection (< 0.02 mg/L) to a high of 25.5 mg/L (Table A10). 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 (2007) guideline (0.06 mg/L), though there are still occasional samples exceeding the guideline. Total phosphorus concentrations were generally below detection (Table A10).

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

3.6.4 TOTAL METALS

In the tailings 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 (2007) guideline concentration in samples taken from 2003 through 2007. Therefore it was not possible to infer with accuracy whether the metal concentrations during those years were above or below guidelines; this was corrected in early 2008. Therefore interpretation of current metals concentrations will consequently rely heavily on 2008 data. As water levels decrease in the tailings pond it is more affected by wave action, and subsequent mixing. It is possible the concentrations of some metals in water increase as sediment disturbance leads to remobilization into the water column. Data concerning total metals concentrations in the tailings pond is graphically represented in Appendix B, Figure B5.

Aluminum concentrations were regularly slightly above the CCME (2007) guideline (Figure B5). This is evident in sampling through 2008. Concentrations have remained reasonably constant over time and have ranged from 0.01 to 5.97 with a median concentration of 0.108 mg/L (Table A10) marginally above the CCME (2007) guideline.

Arsenic concentrations from 1998 to 2003 were generally close to or slightly above the CCME (2007) guideline. All samples from 2005 through 2007 had concentrations below the ALS detection limit, which does not allow for accurate interpretation with respect to the CCME (2007) guideline. In 2008 sampling concentrations exceeded the guideline in every sample taken. The values also seemed to increase toward the end of the summer season (Figure B5), possibly due to increased disturbance of the bottom sediments.

Cadmium concentrations have historically exceeded the CCME (2007) guideline and continue to do so. (Figure B5) Concentrations ranged from 0.0005 to 0.028 mg/L (Table A10) all above the 0.000017 mg/L CCME (2007) guideline.

Chromium concentrations in the tailings pond were below the CCME (2007) guideline in nearly all samples (Figure B5).

Copper concentrations notably decreased between 1999 and 2002 (Figure B5). However concentrations still exceed the CCME (2007) guideline. The median concentration including all data was 0.09 mg/L, although the individual sample concentrations range from undetectable (< 0.01 mg/L) to a high of 105 mg/L (Table A10).

Iron concentrations exceeded the CCME objectives in the majority of samples (Figure B5). However it is probable background iron concentrations in this watershed are naturally high, as seen in iron concentrations in samples from site DX. Although the mine tailings may have some affect on concentrations in the tailings pond, it is likely that background concentration exceeds the guideline.

Lead concentrations generally exceeded the CCME (2007) guideline (Figure B5). Concentrations generally exceeded the CCME guideline concentration of 0.001 - 0.007 mg/L (hardness dependent; 2007), however, all values were within one order of magnitude of the guideline. As seen with arsenic it appears concentrations from late summer/early fall have slightly increased, possibly due to increased sediment disturbance with decreased water depth.

Silver concentrations in the tailings pond show a decreasing trend from 1999 to late 2008 samples (Figure B5). This trend is present even accounting for the misleading detection limit used from 2005 until 2007. However, current concentrations still exceed the CCME (2007) guideline by a small margin, though they are below the water license standard 0.10 mg/L).

Zinc concentrations also exceeded the CCME (2007) objectives by a small measure (Figure B5). There are no noticeable historic trends associated with the zinc concentrations, however, the zinc concentrations in the most recent samples have fallen below the CCME (2007) guideline (Figure B5).

3.7 SEEPAGE POND

The tailings containment system designed and built by the last functioning mine at the Mt. Nansen site (run by BYG) functioned poorly, resulting in significant volumes of contaminated seepage flowing through the tailings pond dam. This seepage water (sampled as Seep) has been continuously pumped 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 A11.

3.7.1 ROUTINE PARAMETERS

The pH of water from the seepage pond ranged from 6.5 to 7.3 with a median value of 7.3 (Table A11). There were two outliers above 10. These were removed from the analysis as such alkalinity is questionable and may have been due to lab error. Alkalinity ranged from 18.8 mg/L to 358 mg/L, with a median of 189 mg/L (Table A11). The EC of seepage was high, with a median value of 2095 µS/cm. Associated with EC is sulphate concentration, which is usually the cause of high EC in mine waste. Sulphate concentrations were generally high (Table A11) with a median value of 1080 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 897 mg/L (Table A11), which classifies this as hard water (Boyd 2000).

3.7.2 NUTRIENTS

All samples exceeded the CCME (2007) guideline for ammonia (0.015 mg/L). As in the tailings pond, the historical trend from 1999 to present shows decreasing concentrations, from a historical high of 25 - 30 mg/L to current values between 4 and 7 mg/L (Table A11). Some ammonia may have been lost to microbial uptake and to the atmosphere. Nitrate concentrations ranged from undetectable (< 1 mg/L) to 7.44 mg/L (Table A11). It appears samples taken during the fall/early winter season often exceed the CCME (2007) guideline for the protection of freshwater aquatic life (2.9 mg nitrate-nitrogen/L). This is likely a result of bacteria oxidizing ammonia nitrogen to nitrate most actively over the summer months. There is little plant matter in the seepage pond to take up this nitrate. Nitrite concentrations ranged from undetectable (< 0.05 mg/L) to a high of 4.74 mg/L (Table A11). Many samples had concentrations exceeding the CCME (2007) guideline (0.06 mg/L). However, review of historical data shows concentrations have decreased and stabilized over time. Concentrations of total phosphorus were non-detectable in all samples (Table A11).

3.7.3 CYANIDE

Total cyanide concentrations from the seepage show a slight decreasing temporal trend from 1999 to 2007 (Appendix B, Figure B6). Concentrations range from 0.02 to 0.53 mg/L with a median concentration of 0.08 mg/L(Table A11), well below the water license standard of 0.3 mg/L. Weak acid dissociable (WAD) cyanide concentrations show a decreasing trend between 1999 and 2004 (Appendix B, Figure B6). With few exceptions, WAD cyanide concentrations since 2002 (Figure B6) were below the water license guideline (0.1 mg/L). With all data compiled the WAD cyanide concentrations ranged from undetectable (< 0.005 mg/L) to a high of 34 mg/L with a median concentration of 0.05 mg/L (Table A11).

3.7.4 TOTAL METALS

Metals concentrations in the seepage pond closely mirror data from the tailings pond, which is the source of the water. Concentrations of most metals exceed the CCME (2007) 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 (2007) guideline concentration in samples taken from 2003 through 2007.

Therefore it was not possible to infer with accuracy whether metal concentrations during those years were above or below guidelines. This was corrected in early 2008 and interpretation of current metals concentrations will consequently rely heavily on 2008 data. Historical data for metals concentrations in the seepage pond is graphically represented in Appendix B, Figure B6.

Current aluminum concentrations are generally below the CCME (2007) guideline (Figure B6). However, there are occasional samples that exceed the guideline with no apparent seasonal or temporal trends.

Arsenic concentrations exceeded the CCME (2007) guideline, including all samples taken through the 2008 sampling season (Figure B6). Arsenic concentrations range from 0.02 to 0.149 mg/L with a median value of 0.04 mg/L (Table A11). Concentrations are however, somewhat lower than concentrations seen in tailings pond samples.

Cadmium concentrations decreased from 1999 to the end of 2003 (Figure B6). This trend has apparently levelled off but sample concentrations remain above the CCME (2007) guideline (0.000017 mg/L). Concentrations ranged from 0.0005 to 0.0069 mg/L with a median value of 0.0016 mg/L (Table A11).

Chromium concentrations in the seepage pond were below the CCME (2007) guideline in nearly all samples (Figure B6).

Copper concentrations in seepage water show a distinct decreasing trend from 1999 to 2003 (Figure B6). Current concentrations, up to and including December 2008, now approach although still exceed the CCME (2007) guideline. Concentrations are, however, below the standards set in the water license.

Iron concentrations consistently and greatly exceed the CCME (2007) guideline (Figure B6). As in the 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 (2007) guideline. The 2005 to 2007 data was affected by the high detection limit issue. Samples taken from 2008 indicate a return to concentrations below the CCME (2007) guideline. Therefore, it was likely the 2005 to 2007 concentrations were generally below CCME (2007) guidelines.

Silver concentrations show a decreasing trend from 1999 until 2000 (Figure B6). Again, results were clouded by the detection limits from 2005 to 2007. Samples taken in 2008 remain at, or slightly below, the CCME (2007) guideline (0.0001 mg/L).

Zinc concentrations decreased from 1998 to 2002 (Figure B6). Current concentrations were generally below the CCME (2007) guideline (Figure B6).

3.8 BROWN - MCDADE PIT

The Brown - McDade Pit is located near 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. Summer 2008 was an unusually high water season and water levels in the pit increased significantly. Detailed water quality data for the Brown - McDade Pit can be found in Appendix A, Table A12.

3.8.1 ROUTINE PARAMETERS

There was a decreasing trend in the pH of water in the pit from the surface to the bottom. Median pH of the surface water was 7.96, at the middle depth 7.88 and at the bottom 7.59 (Table A12). Alkalinity values (Table A12) indicate the water is well-buffered. Other parameters showed an increasing trend from surface to bottom. The median EC at the surface was 1350 µS/cm, at the middle depth 1850 µS/cm and at the bottom 2530 µS/cm (Table A12). This is likely due to the settling of particulate matter toward the deeper portions of the water column. Hardness concentrations indicate water in the pit is very hard (Boyd 2000) with high concentrations of calcium and magnesium.

3.8.2 NUTRIENTS

Nutrient concentrations were low in the pit and no trends were noted with depth. Ammonia concentrations ranged from 0.005 to 0.2 mg/L (Table A12). Most were below the CCME (2007) ammonia guideline for the protection of freshwater aquatic life (0.015 mg/L). Nitrate concentrations ranged from 0.03 to 3.79 mg/L (Table A12). Nitrite concentrations ranged from 0.0016 to 0.14 mg/L (Table A12) with a small number of samples exceeding the CCME (2007) guideline for the protection of aquatic life (0.06 mg/L). All samples showed non-detectable concentrations of total phosphorus (Table A12).

3.8.3 TOTAL METALS

Concentrations of metals in the pit water often exceed CCME (2007) guidelines. Data is graphically represented in Appendix B, Figure B7. The summer of 2008 was a particularly high water season. This may have influenced metals concentrations with increased surface run off and inputs from groundwater, which conventionally has higher metals concentrations due to greater mineral-water interaction (Freeze and Cherry 1979).

Aluminum concentrations were below the CCME (2007) guideline, with the exception of a small number of samples sample taken from the bottom depth (Figure B7). These elevated concentrations may have occurred because of stirred up bottom sediment associated with sampling.

Arsenic concentrations were higher in the top and middle of the water column than at the bottom (Figure B7). Based on 2008 data with a lower detection limit, all concentrations from the top and middle depths

slightly exceeded the CCME (2007) guideline for arsenic (0.005 mg/L), while concentrations from the bottom samples were consistently below the guideline (Figure B7).

Cadmium concentrations exceeded the CCME (2007) guideline in all samples from all depths (Figure B7). Concentrations were lowest in the surface layer and highest in the bottom of the water column.

Chromium concentrations in the Pit were below the CCME (2007) guideline in all samples (Figure B7).

Copper concentrations generally exceeded the CCME guideline in samples from all depths (Figure B7). Copper concentrations seemed to rise in mid to late summer 2008, possibly due to high water input and increasing water levels flooding the walls and floor of the pit.

Iron concentrations were below guidelines in samples taken from the top and middle layer (Figure B7). However, samples taken from the bottom level routinely exceed the guideline (Figure B7).

Lead concentrations were slightly higher in samples from the bottom of the water column (Figure B7). However samples from all depths were generally below the CCME (2007) guideline (Figure B7: 2008 sampling).

Silver concentrations were generally below detection, however there were occasional samples from all depths that exceeded the CCME (2007) guideline (Figure B7).

Zinc concentrations in all samples from all depths exceeded the CCME (2007) guideline over the entire sampling period from 2005 to 2008 (Figure B7).

4 DISCUSSION

Data presented in the results was useful in determining patterns through and downstream of the mine site. In terms of protection of aquatic life, it is most important to ensure the mine does not significantly affect water quality downstream in Victoria and Back creeks where significant aquatic life (specifically fish) exists.

Pony Creek was incorporated in the water quality sampling program in 2008. It appears the presence of waste rock did adversely affect water quality downstream. Removal of this waste rock led to a spike in metals concentrations. In general, water quality in this stream appears to be within applicable guidelines (both CCME guidelines, and water license discharge criteria).

Water levels across the mine site throughout the 2008 sampling season were elevated due to much higher than normal precipitation. This resulted in greater surface water runoff and likely more groundwater inputs. This high water situation likely caused slightly higher than expected contaminant concentrations in watercourses and waterbodies on the Mt. Nansen mine site. Previous to the water levels beginning to rise in the spring/summer 2008, the tailings pond water level had decreased to a fairly shallow depth. These two events likely combined to allow for greater mixing and re-introduction of contaminants sequestered in the sediment back into the water column.

Cyanide concentration in any chemical form, including total or WAD cyanide, though still present in very low concentrations, 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 pond, concentrations have decreased over time. Cyanide was 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.

Aluminum and iron appear to be present in elevated background concentrations in some areas of the Mt. Nansen site. This is evidenced by elevated concentrations of both metals in the sampling sites at DX and Upper Victoria Creek, as well as periodic samples from the reference sites. These sites are upstream of historical mining activities associated with Mt. Nansen. However, occasional samples from both sites have concentrations that exceed CCME (2007) guidelines, although by a small margin. Elevated concentrations of iron are often seen in highly mineralized areas. Geology in this region is composed largely of pyrite and arsenopyrite, largely composed of iron, sulfide and arsenic. 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, in part, due to background levels. Therefore, concentrations of these two metals will continue to be at or slightly above guidelines long after the Mt. Nansen site remediation is completed.

Arsenic concentrations remain above the CCME (2007) guideline in the pit, tailings pond and seepage pond. Concentrations in these sites have, however, decreased substantially over time, with some allowance for slightly higher concentrations in the summer / fall 2008, likely due to high water. In the pit arsenic concentrations are higher at the top of the water column. One potential explanation for this is that arsenic is very soluble, and therefore less likely to form precipitates and fall lower in the water column and to the

substrate. Arsenic remains a concern in the pit, the tailings pond and the seepage. This concern increases with the potential for acid mine drainage which would release greater amounts of arsenic from surrounding substrate to water. Future storage and maintenance of the mine tailings will have implications for arsenic concentrations in the watercourses onsite.

The current CCME (interim) guideline for cadmium is very low (0.000017 mg/L). The laboratory detection limit for cadmium used by this study was 0.00001 mg/L, very close to the guideline. As concentrations approach the detection limit there is a small decrease in accuracy. Concentrations in many of the samples from all sites fall close to the guideline (and detection limit). Therefore cadmium is present across the Mt. Nansen mine site at low, near-acceptable concentrations. The exceptions to this are the pit, tailings pond and seepage pond, where concentrations are elevated. Concentrations in the tailings pond have held reasonably constant, marginally above the CCME (2007) guideline. Concentrations in the seepage pond appear to have decreased somewhat over time. Cadmium concentrations in the pit are the highest on site and seem to have been adversely affected by the high water levels in the summer of 2008.

Copper concentrations from many locations across the mine site were generally slightly above or below guidelines. As expected, the pit and the tailings and seepage pond were the exceptions with copper concentrations above the CCME (2007) guideline. Data from both the tailings and seepage ponds show decreasing trends in copper concentrations; current data is approaching the CCME (2007) guideline. Concentrations remain elevated in the pit and water levels over the 2008 season appear to have had an adverse effect on the copper concentration in the water column.

Lead concentrations are generally below the CCME (2007) guideline (0.001 to 0.007 mg/L, hardness dependent) across the mine site. Water on site, particularly in the pit and tailings and seepage ponds is quite hard (hardness often greater than 200 mg/L), which decreases toxicity of lead in the aquatic ecosystem and allows for the guideline to be 0.007 mg/L rather than 0.001 mg/L.

Silver concentrations on site have decreased greatly over time and are now low. Silver concentrations are not considered a concern with respect to water quality for the protection of aquatic life.

Zinc concentrations remain elevated in a couple of locations on the mine site - the pit and Pony Creek downstream of the historical waste rock dump location. Concentrations in the pit regularly exceed guidelines in all depths of the water column and a slight increase was noted through the summer 2008 season. Sampling of Pony Creek on a regular basis commenced in the spring 2008. It appears zinc concentrations in this creek were affected by the presence and removal of waste rock form the area. Although zinc concentrations in Pony Creek were high through 2008, it is expected future samples will show decreased zinc concentrations since the waste rock has been removed and the upstream site does not show these elevated conditions.

Though largely discarded for interpretations included within this report, some attention must still be drawn to the data collected on site from 2005 through 2007. Many results pertaining to a series of metals including arsenic, cadmium, lead and silver were affected by laboratory detection limits that exceeded the CCME (2007) guidelines for these metals. Because of this, data collected from early 2005 through November 2007

are not useful for comparison with current CCME (2007) water quality guidelines set for the protection of aquatic life.

In general, the poorest water quality on site is in the pit, likely as a result of surface run off from surrounding waste rock combined with groundwater inputs. However, as there is little (if any) aquatic life present in the pit, it is questionable whether the CCME guidelines for the protection of aquatic life apply.

5 CONCLUSIONS AND RECOMMENDATIONS

While water quality on the Mt. Nansen site does exceed the CCME (2007) water quality objectives for the protection of aquatic life for some parameters, water quality has shown improvement over time. Many parameters of historical concern display decreasing levels over time.

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.

In general, water quality in locations downstream of the mine site including Victoria and Back creeks, has improved since mine closure and metals concentrations are now within appropriate guidelines. This is important as these watercourses provide valuable habitat for aquatic biota including fish and benthic invertebrates. One exception is iron, which continues to be present at concentrations exceeding the CCME guideline; however the iron concentrations are comparable to what was found at the reference site upstream of the mine footprint on Victoria Creek.

Water quality at the upstream Pony Creek site appears to have been affected very little by mine activity, and is acceptable by CCME standards. The downstream site was affected by the presence of waste rock, and removal of this rock resulted in a spike in metals concentrations. However, continued monitoring should show that downstream concentrations fall to below CCME guidelines quickly now that a notable source of contamination has been removed. Water Quality at the mouth of Back Creek despite the inputs from Pony Creek and placer activity upstream on Back Creek is generally acceptable (it is comparable to the Pony Creek upstream site). Therefore water quality in Pony Creek appears to have no notable adverse downstream effects.

There remains some concern about water quality in the tailings pond and seepage pond. Water quality in the tailings and seepage ponds has improved over time and concentrations of many metals are approaching or falling below current applicable guidelines. However, concentrations of many metals in the water column continue to exceed CCME guidelines. Though the tailings pond and the seep are not valuable aquatic habitat, they contribute water to Dome and ultimately Victoria creeks. Water quality in these downstream receiving environments is such that water inputs from the tailings pond and seep do not currently appear to have notable negative effects on the water quality of Victoria Creek; continued monitoring of the tailings pond and the seep together with the downstream areas will ensure that this situation does not change. It is expected that future remediation works are planned to reclaim the tailing facilities. If effective, reclamation efforts are expected to improve water quality in Dome Creek over the long term.

Water quality in the pit remains poor, with high concentrations of many metals, particularly cadmium, copper and zinc. However, there is little chance of this water adversely affecting aquatic life as it is effectively contained. Provided reclamation plans can contain or eliminate this water from entering adjacent water bodies, it is felt site-specific guidelines are not required to manage the water quality in this location.

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	Victoria Creek Reference	Victoria Creek Reference	Victoria Creek Reference	Dry Creek Reference	Dry Creek Reference	Dry Creek Reference	Dry Creek Reference	CCME AL Guidelines[1]	Water License Standards[2]
Date		3-Oct-07	22-May-08	31-Jul-08	2-Oct-08	3-Oct-07	22-May-08	31-Jul-08	2-Oct-08		
Physical Parameters											
pH	pH units	8	--	8.17	7.98	7.89	--	8.13	8.06	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	166	42	174	151	164	126	260	186	--	--
Routine Parameters											
Total Suspended Sediment	mg/L	--	77	1	2	--	13	3	15	--	--
Total Dissolved Solids	mg/L	--	10	***94***	***84***	--	32	***140***	***100***	--	50
Hardness	mg/L	79.27	23	83	77	80.00	61	135	96	--	--
Alkalinity-Total	mg/L	77.3	16	80	70	81.7	58	128	95	--	--
Bicarbonate	mg/L	77.3	20	97	86	81.7	70	156	116	--	--
Carbonate	mg/L	<2	<6	<6	<6	<2	<6	<6	<6	--	--
Hydroxide	mg/L	<2	<5	<5	<5	<2	<5	<5	<5	--	--
Calcium	mg/L	20	6.4	21.4	20	20.9	16.1	36.9	26.6	--	--
Chloride			1.1	0.8	0.4		0.9	0.4	0.4		
Magnesium	mg/L	6.73	1.7	7.3	6.5	6.26	5	10.3	7.2	--	--
Potassium	mg/L	<2	0.8	0.5	0.5	<2	1.4	2.2	1.6	--	--
Sodium	mg/L	2.6	0.7	2.3	2.1	2.1	1.3	2	1.6	--	--
Sulphate	mg/L	13.6	2.16	14	13	10.7	7.28	14	10	--	--
Turbidity	NTU	--	12.1	--	--	--	0.5	--	--	--	--
Nutrients											
Ammonia-N	mg/L	<0.02	***0.018***	<0.05	<0.05	<0.02	0.014	<0.05	<0.05	0.015	--
Nitrate-N	mg/L	0.0913	<0.02	0.06	0.09	<0.005	<0.02	<0.01	<0.01	2.9	--
Nitrite-N	mg/L	<0.001	<0.02	<0.005	<0.005	<0.001	0.03	<0.005	<0.005	0.06	--
Total Phosphorus	mg/L	<0.3	--	--	--	<0.3	--	--	--	--	--
Cyanide Compounds											
Cyanide - T	mg/L	0.007	--	--	--	0.0105	--	--	--	--	0.3
Cyanate	mg/L	<0.5	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	0.5	--
Thiocyanate	mg/L	<0.5	1.7	1	1.6	<0.5	0.9	0.9	1.2	--	--
CN-WAD	mg/L	<0.005	0.002	0.002	<0.002	<0.005	0.002	--	<0.002	--	0.1
CN-SAD	mg/L	--	0.002	<0.002	<0.002	--	0.002	0.001	0.004	--	--
Total Metals											
Aluminum	mg/L	<0.2	***1.3***	0.074	0.059	<0.2	0.049	0.032	0.061	0.1	--
Antimony	mg/L	<0.2	<0.0002	<0.0002	<0.0002	<0.2	0.0004	0.0003	0.0002	--	0.15
Arsenic	mg/L	<0.2	0.002	0.0005	0.0002	<0.2	0.0007	0.0017	0.0015	0.005	--
Barium	mg/L	0.058	0.053	0.061	0.056	0.037	0.032	0.066	0.05	--	1
Beryllium	mg/L	<0.005	<0.0001	<0.0001	<0.0001	<0.005	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.2	<0.0005	<0.0005	<0.0005	<0.2	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	<0.1	0.003	0.002	<0.002	<0.1	0.003	<0.002	<0.002	--	--
Cadmium	mg/L	<0.01	***0.00012***	***0.00002***	***0.00002***	<0.01	0.00001	<0.00001	<0.00001	0.000017	0.02
Calcium	mg/L	20.5	6.9	22.6	19.3	21.5	16.9	37.8	25.2	--	--
Chromium	mg/L	<0.01	0.0061	<0.0005	<0.0005	<0.01	0.0017	<0.0005	<0.0005	0.0089	0.04
Cobalt	mg/L	<0.01	0.0012	<0.0001	<0.0001	<0.01	<0.0001	<0.0001	0.0002	--	--
Copper	mg/L	<0.01	***0.009***	0.002	0.002	<0.01	0.002	0.001	0.001	0.002 - 0.004	0.2
Iron	mg/L	0.119	***1.7***	0.09	0.12	<0.03	<0.1	***0.48***	***0.56***	0.3	1
Lead	mg/L	<0.05	0.0024	<0.0001	<0.0001	<0.05	0.0001	<0.0001	0.0001	0.001 - 0.007	0.1
Lithium	mg/L	<0.01	0.001	<0.001	<0.001	<0.01	0.001	<0.001	<0.001	--	--
Magnesium	mg/L	6.82	2	7.2	6.4	6.39	5.3	10.2	6.9	--	--
Manganese	mg/L	0.0186	0.072	0.015	0.014	<0.005	<0.005	0.008	0.022	--	0.5
Molybdenum	mg/L	<0.03	<0.001	<0.001	<0.001	<0.03	<0.001	<0.001	<0.001	0.073	--
Nickel	mg/L	<0.05	0.0018	0.0015	0.0005	<0.05	<0.0005	0.0006	<0.0005	0.025 - 0.15	0.3
Potassium	mg/L	<2	1	0.5	0.5	<2	1.5	2.1	1.6	--	--
Selenium	mg/L	<0.2	<0.0002	<0.0002	<0.0002	<0.2	<0.0002	<0.0002	<0.0002	0.001	--
Silicon	mg/L	6.44	3.37	5.32	5.45	5.8	3.96	4.48	4.56	--	--
Silver	mg/L	<0.01	0.00005	<0.00001	<0.00001	<0.01	0.00003	<0.00001	<0.00001	0.0001	0.1
Sodium	mg/L	2.5	0.8	2.9	2.4	2.1	1.4	2.1	2.1	--	--
Strontium	mg/L	0.226	0.076	0.269	0.24	0.0825	0.066	0.128	0.095	--	--

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

Sample ID	Units	Victoria Creek Reference	Victoria Creek Reference	Victoria Creek Reference	Victoria Creek Reference	Dry Creek Reference	Dry Creek Reference	Dry Creek Reference	Dry Creek Reference	CCME AL Guidelines[1]	Water License Standards[2]
Date		3-Oct-07	22-May-08	31-Jul-08	2-Oct-08	3-Oct-07	22-May-08	31-Jul-08	2-Oct-08		
Sulphur	mg/L	--	1	4.9	4	--	2.6	5	3.3	--	--
Thallium	mg/L	<0.2	<0.00005	<0.00005	<0.00005	<0.2	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	mg/L	<0.03	<0.001	<0.001	<0.001	<0.03	<0.001	<0.001	<0.001	--	--
Titanium	mg/L	<0.01	0.0414	0.0018	0.0019	<0.01	0.0014	0.0014	0.0037	--	--
Uranium	mg/L	--	0.0006	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005		
Vanadium	mg/L	<0.03	0.0038	0.0004	0.0004	<0.03	0.0004	0.0004	0.0006	--	--
Zinc	mg/L	<0.005	0.016	0.01	0.006	<0.005	0.007	0.006	0.007	0.03	0.3
Dissolved Metals											
Aluminum	mg/L	<0.2	0.204	0.014	0.025	<0.2	0.039	<0.005	0.008	--	--
Antimony	mg/L	<0.2	0.0005	<0.0002	<0.0002	<0.2	0.0008	0.0003	0.0003	--	--
Arsenic	mg/L	0.00031	0.0004	0.0003	0.0002	0.00052	0.0006	0.0006	0.0005	--	0.15
Barium	mg/L	0.056	0.032	0.058	0.054	0.036	0.033	0.064	0.048	--	--
Beryllium	mg/L	<0.005	<0.0001	<0.0001	<0.0001	<0.005	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.2	<0.0005	<0.0005	<0.0005	<0.2	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	<0.1	<0.002	<0.002	<0.002	<0.1	0.002	<0.002	<0.002	--	--
Cadmium	mg/L	<0.01	0.00004	0.00001	<0.00001	<0.01	<0.00001	<0.00001	<0.00001	--	--
Chromium	mg/L	<0.01	<0.0005	<0.0005	<0.0005	<0.01	<0.0005	<0.0005	<0.0005	--	--
Cobalt	mg/L	<0.01	0.0002	<0.0001	<0.0001	<0.01	<0.0001	<0.0001	<0.0001	--	--
Copper	mg/L	<0.01	0.005	0.001	0.001	<0.01	0.002	<0.001	<0.001	--	--
Iron	mg/L	0.059	0.19	0.03	0.05	<0.03	0.03	0.03	0.01	--	--
Lead	mg/L	<0.05	<0.0001	<0.0001	<0.0001	<0.05	<0.0001	<0.0001	<0.0001	--	--
Lithium	mg/L	<0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	--	--
Manganese	mg/L	0.0137	0.013	0.01	0.014	<0.005	<0.005	<0.005	<0.005	--	--
Molybdenum	mg/L	<0.03	<0.001	<0.001	<0.001	<0.03	<0.001	<0.001	<0.001	--	--
Nickel	mg/L	<0.05	0.0011	<0.0005	<0.0005	<0.05	<0.0005	<0.0005	<0.0005	--	--
Phosphorus	mg/L	<0.3	--	--	--	<0.3	--	--	--	--	--
Selenium	mg/L	<0.2	<0.0002	<0.0002	<0.0002	<0.2	<0.0002	<0.0002	<0.0002	--	--
Silicon	mg/L	6.33	1.94	5.43	5.57	5.65	4.01	4.62	4.69	--	--
Silver	mg/L	<0.01	<0.00001	<0.00001	<0.00001	<0.01	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.224	0.065	0.254	0.229	0.0812	0.062	0.118	0.092	--	--
Thallium	mg/L	<0.2	<0.00005	<0.00005	<0.00005	<0.2	<0.00005	<0.00005	<0.00005	--	--
Tin	mg/L	<0.03	<0.001	<0.001	<0.001	<0.03	<0.001	<0.001	<0.001	--	--
Titanium	mg/L	<0.01	0.0016	<0.0005	0.0006	<0.01	0.0007	<0.0005	0.0007	--	--
Uranium	mg/L	--	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	--	--
Vanadium	mg/L	<0.03	0.0005	0.0002	0.0003	<0.03	0.0005	0.0002	0.0002	--	--
Zinc	mg/L	<0.005	0.008	<0.001	0.002	<0.005	0.007	<0.001	0.001	--	--

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A2. Water quality at the Upper Victoria Sampling Site.

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	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	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-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	7.87	6.9	7.91	8.57	7.94
Conductivity	µS/cm	163	167	192	138	271	164	121	146	138	151	150	135	139	180	178	159	175	148	146	159	164	173	186
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	79.60	84.32	88.30	93.06	93.64
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	--	61.4	82.8	77.6	84.1
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	--	61.4	82.8	<2	84.1
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2
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	20.5	21.1	21.9	23.9	23.6
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	6.88	7.41	7.55	8.58	8.34
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	2.2	2.4	2.1	<2	3.4	2.1	<2	2.2	<2	<2	<2	<2	<2	2.1	2.5	2	2.5	<2	<2	2.1	2.1	<2	<2
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	12.1	12.3	12.7	13.2	13.6
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																								
Ammonia-N	mg/L	***0.029***	<0.02	<0.005	<0.02	***0.024***	***0.021***	***0.025***	<0.02	***0.022***	***0.03***	***0.037***	***0.024***	<0.02	<0.02	***0.025***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	***0.026***	***0.026***
Nitrate-N	mg/L	0.0645	0.0498	0.0483	0.0526	0.0059	0.0534	0.0355	0.046	0.0443	0.035	0.0378	0.044	0.0366	0.0376	0.0189	0.0253	0.0289	0.0792	--	0.0901	0.0914	0.0874	0.0902
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	--	<0.001	<0.001	<0.001	<0.001
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
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	<0.005	0.0083	0.0066	0.0053	<0.005	<0.005	<0.005	<0.005
Cyanate	mg/L	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
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	<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	<0.2	<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
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	<0.2	<0.2	<0.2	<0.2	0.00042	<0.2	<0.2	<0.2	<0.2
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	0.063	0.069	0.07	0.066	0.059	0.064	0.066	0.069	0.069
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
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
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	<0.1	<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
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	20.5	21.4	22.6	23.6	23.7
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
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	<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	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.166	***0.565***	0.094	0.254	***0.522***	0.088	***0.746***	***0.618***	***0.412***	***0.375***	***0.381***	0.283	0.3	0.295	0.257	0.3	***0.504***	***0.478***	0.203	0.164	0.125	0.296	0.083
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
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	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	6.87	7.36	8.18	5.6	10.1	8.02	5.41	5.74	6.09	6.39	7	6.13	6.55	7.92	7.52	7.86	8.15	7.11	6.9	7.5	7.74	8.29	8.37
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	0.0306	0.0358	0.0308	0.0409	0.0328
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
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
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
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
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	5.83	5.8	5.78	5.43	5.79
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	***0.011***	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	2.2	2.3	<2	<2	3.5	2.2	<2	2.1	<2	2.4	2	<2	<2	2.2	2.5	<2	2.6	<2	<2	2.1	2.2	<2	<2
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	0.219	0.244	0.239	0.248	0.257
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
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
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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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
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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Table A2. Water quality at the Upper Victoria Sampling Site.

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	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	22-Sep-05	29-Sep-05	5-Oct-05	12-Oct-05	20-Oct-05
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	<0.2
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
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	0.00036	0.0003	0.00034	0.00032	0.00029
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	0.057	0.062	0.065	0.068	0.068
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
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
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	<0.1	<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
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
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	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.044	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	0.098	0.061	0.134	0.075	0.06
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
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	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.0069	<0.005	0.0114	<0.005	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	0.0181	0.0273	0.0318	0.029	0.0304
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
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
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
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
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	5.81	5.7	5.55	5.39	5.78
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
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	0.219	0.242	0.234	0.254	0.257
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
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
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
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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
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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A2. Water quality at the Upper Victoria Sampling Site.

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	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		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	15-Jun-06
Physical Parameters																									
pH	pH units	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	7.92	7.54	8.1	7.54	7.99	7.95	7.33	7.52	7.89	8	8.04
Conductivity	µS/cm	184	190	202	197	203	203	204	207	209	224	197	201	195	202	201	205	212	293	172	61	52.3	107	143	176
Routine Parameters																									
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	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	109.98	102.22	104.02	101.84	155.32	98.10	36.92	34.08	58.62	79.43	90.95
Alkalinity-Total	mg/L	89	86.8	90.6	79.9	91.3	95.9	99.7	95.3	95.2	90.1	86.9	93.2	91	92.9	87.4	90.6	93	132	75.4	22.4	18.6	46.9	71.2	84.5
Bicarbonate	mg/L	89	86.8	90.6	79.9	91.3	95.9	99.7	95.3	95.2	90.1	86.9	93.2	91	92.9	87.4	90.6	93	132	75.4	22.4	18.6	46.9	71.2	84.5
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium	mg/L	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	28.5	25.3	26.7	27.4	36.3	23.5	9.47	7.87	14.8	18.7	23
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	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	9.94	9.05	8.91	8.84	14.5	8.78	2.87	2.33	5.02	6.64	7.98
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	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	2.5	2.8	2.8	3.1	3.3	2.1	<2	<2	<2	2.1	2.5
Sulphate	mg/L	16.3	16	16.7	16.6	19.2	<50	16.8	17.3	17.4	16.9	16.9	17	17.2	17.1	17.8	16.8	20.3	23.3	12.2	3.77	3.28	8.28	11.6	13.4
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																									
Ammonia-N	mg/L	***0.036***	***0.037***	***0.034***	<0.02	***0.034***	<0.02	***0.022***	<0.02	<0.02	***0.024***	<0.02	***8.3***	***0.026***	***0.026***	***0.03***	***0.032***	***0.024***	***0.048***	***0.024***	***0.037***	***0.055***	***0.027***	***0.031***	***0.031***
Nitrate-N	mg/L	0.0872	0.0921	0.103	0.112	0.113	<0.5	0.098	0.128	0.115	0.128	0.107	0.115	0.0932	0.114	0.0854	0.0998	0.13	0.0411	<0.005	<0.005	0.021	0.0551	0.0851	0.0732
Nitrite-N	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	***0.22***	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0018	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0055	<0.005	<0.005	<0.005	<0.006	<0.005	<0.005	0.0095	0.0225	0.0122	0.0068	0.0121	<0.005
Cyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.51	1.01	<0.5	<0.5	<0.5
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	0.0051	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.69***	***2.15***	<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	0.00032	<0.2	0.00032	0.00028	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0003	<0.2	<0.2	0.00039	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	mg/L	0.068	0.075	0.072	0.072	0.067	0.079	0.084	0.079	0.082	0.079	0.078	0.084	0.088	0.087	0.092	0.087	0.089	0.109	0.073	0.049	0.076	0.045	0.054	0.064
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	<0.1	<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	<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	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	28	25.7	26.9	26.8	37.8	24.3	9.84	8.85	15	20.2	23.2
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	<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	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.077	0.069	0.072	0.078	0.086	0.068	0.078	0.072	0.075	0.05	0.034	<0.03	0.03	<0.03	<0.03	<0.03	0.045	<0.03	0.146	***0.768***	***3***	0.268	0.148	0.043
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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	8.82	9.36	9.34	10.1	8.67	9.65	8.97	9.1	10.3	9.03	9.71	8.99	9.26	9.73	9.24	8.95	8.48	14.8	9.09	3	2.91	5.14	7.04	8.02
Manganese	mg/L	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	0.0621	0.0695	0.0674	0.0826	0.0253	0.0188	0.032	0.103	0.0231	0.0281	0.0109
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
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
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	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	6.2	6.13	6.15	5.4	6.45	5.01	3.2	4.48	3.57	4.64	4.66
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	2.2	2.4	2.2	2.7	2.2	2.4	2.3	2	3	2.7	2.5	2.7	2.9	2.5	2.8	2.8	2.7	3.4	2.2	<2	<2	<2	2.2	2.5
Strontium	mg/L	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	0.264	0.283	0.272	0.245	0.421	0.254	0.1	0.0949	0.164	0.221	0.256
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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	0.068	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.005	<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	0.0074	0.014	<0.005	0.0115	<0.005

Table A2. Water quality at the Upper Victoria Sampling Site.

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	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		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	15-Jun-06
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	<0.2	<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	0.00027	0.00033	0.00028	0.00024	0.00029	0.00025	0.00027	0.00024	0.00028	0.00024	0.00025	0.00026	0.00023	0.00025	0.0003	<0.001	0.00026	0.00039	0.00042	0.00074	0.00042	0.00037	0.00034	0.0003
Barium	mg/L	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	0.082	0.09	0.087	0.092	0.106	0.07	0.04	0.032	0.042	0.051	0.063
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	<0.1	<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	<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
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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.034	0.039	0.035	<0.03	<0.03	<0.03	0.032	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.093	0.204	0.159	0.086	0.041	<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
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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	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	0.0535	0.0647	0.0657	0.0805	0.0176	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005
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	<0.3	<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
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	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	6.37	6.08	6.1	5.61	6.42	4.86	2.42	1.95	3.46	4.48	4.61
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
Strontium	mg/L	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	0.269	0.279	0.271	0.256	0.408	0.247	0.098	0.0823	0.159	0.212	0.254
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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.005	<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

Table A2. Water quality at the Upper Victoria Sampling Site.

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	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		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	5-Apr-07	19-Apr-07	3-May-07	16-May-07	31-May-07	14-Jun-07
Physical Parameters																									
pH	pH units	8.14	7.98	7.47	8.09	8.03	8.05	8.08	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
Conductivity	µS/cm	181	158	162	182	176	187	194	184	197	218	184	187	202	198	211	205	201	197	200	280	122	63	130	114
Routine Parameters																									
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	100.72	85.61	82.24	97.83	95.96	100.08	88.25	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
Alkalinity-Total	mg/L	140	76.9	65.6	84.7	76.5	84.2	76.7	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
Bicarbonate	mg/L	140	76.9	65.6	84.7	76.5	84.2	76.7	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
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2
Calcium	mg/L	24.1	22.1	20.6	24.3	23.4	25.2	21.9	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
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	8.9	7.6	7.07	8.43	8.25	8.37	7.51	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
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<4	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	2	2.3	<2	2.7	2.7	2.5	<2	2.7	2.9	2.4	2.4	2.6	2.7	2.5	--	<4	2.8	2.4	2.8	4	<2	<2	<2	<2
Sulphate	mg/L	14.5	13	14.7	13.8	14.6	15.4	21.1	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
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																									
Ammonia-N	mg/L	***0.064***	<0.02	***0.047***	--	***0.028***	***0.024***	***0.034***	***0.025***	***0.031***	***0.028***	<0.02	<0.02	***0.023***	***0.022***	***0.025***	***0.04***	***0.025***	***0.028***	<0.02	<0.02	***0.03***	***0.025***	***0.022***	***0.027***
Nitrate-N	mg/L	0.0726	0.0416	0.035	0.0314	0.0764	0.0181	0.0263	0.0429	0.051	0.066	0.0788	0.0923	0.0862	0.0934	0.0948	0.0973	0.0918	0.082	0.0742	0.0077	0.08	0.045	0.0486	0.0111
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	0.0026	<0.001	<0.005	0.0061	<0.001	<0.001
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	<0.6	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cyanide Compounds																									
Cyanide - T	mg/L	<0.005	0.0061	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	0.0074	<0.005	<0.005	<0.005	0.0052	<0.005	0.0076	0.0228	0.0214	0.0087	0.0158
Cyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.005	<0.005	<0.005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.56	1.44	<0.5	1.2
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	<0.005	0.0055	<0.5	<0.5	<0.5	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.32***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	***0.28***	***0.59***	***0.21***	***0.79***
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	<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	0.00025	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	mg/L	0.073	0.061	0.072	0.073	0.069	0.071	0.067	0.069	0.085	0.094	0.082	0.092	0.092	0.086	0.092	0.091	0.091	0.1	0.095	0.11	0.061	0.044	0.043	0.059
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	<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	<0.2
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	<0.1	<0.2	<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	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	25.1	21.9	20.7	24.9	24.3	25.9	22.1	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
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	<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	<0.02	<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	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.033	0.107	0.118	0.077	0.113	0.077	0.123	0.074	0.032	***0.56***	<0.03	<0.03	<0.03	<0.03	0.097	<0.06	<0.03	<0.03	<0.03	0.043	***0.34***	***0.881***	0.26	***1.18***
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	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	9.24	7.51	7.42	8.66	8.57	8.6	8.03	8.94	9.8	9.98	8.34	9.08	9.66	8.45	8.73	9.31	9.16	9.43	8.5	13.2	5.33	3.4	6.42	3.46
Manganese	mg/L	0.0118	0.012	0.0171	0.0167	0.019	0.0178	0.0345	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
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	<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	<0.05
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2
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	<0.2
Silicon	mg/L	5.39	5.03	5.51	5.61	5.5	6.11	5.09	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
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	<0.01
Sodium	mg/L	2.2	2.3	<2	2.7	3.4	2.7	2	2.7	2.9	2.5	2.6	2.7	2.6	2.6	3.3	<4	2.9	2.4	2.9	4	<2	<2	<2	<2
Strontium	mg/L	0.265	0.238	0.234	0.278	0.269	0.288	0.261	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
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	<0.4	<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	<0.06	<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	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	0.024
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	<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	<0.03	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0127	<0.01	<0.005	<0.005	<0.005	<0.005	0.0054	0.0067	<0.005	<0.005

Table A2. Water quality at the Upper Victoria Sampling Site.

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	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		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	5-Apr-07	19-Apr-07	3-May-07	16-May-07	31-May-07	14-Jun-07
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	--	<0.4	<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	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	0.00031	0.00036	<0.001	0.00038	<0.0004	<0.0004	0.00038	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
Barium	mg/L	0.07	0.061	0.068	0.071	0.067	0.07	0.063	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
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	--	<0.01	<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	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
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	--	<0.2	<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	--	<0.02	<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	--	<0.02	<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	--	<0.02	<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	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	<0.03	0.039	0.063	0.051	0.05	<0.03	0.059	0.035	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	--	<0.06	<0.03	<0.03	<0.03	<0.03	0.143	0.197	0.078	0.176
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	--	<0.1	<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	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	0.0071	<0.005	0.0105	0.0127	0.0097	0.009	0.019	0.0091	0.0065	<0.005	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
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	--	<0.06	<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	--	<0.1	<0.05	<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	--	<0.6	<0.3	<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	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	5.22	5.1	5.22	5.5	5.28	5.82	5.06	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
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	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	0.255	0.241	0.223	0.272	0.26	0.278	0.226	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
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	--	<0.4	<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	--	<0.06	<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	--	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0254	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.01	<0.005	<0.005	<0.005	<0.005	0.0074	<0.005	<0.005	<0.005

Table A2. Water quality at the Upper Victoria Sampling Site.

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	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		28-Jun-07	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	14-Feb-08	28-Feb-08	13-Mar-08	27-Mar-08	10-Apr-08	24-Apr-08	9-May-08	22-May-08	5-Jun-08
Physical Parameters																								
pH	pH units	8.06	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	7.03	6.96	7.01	7.12	7.37	7.95	7.37	--	7.89
Conductivity	µS/cm	147	152	182	165	141	170	167	184	204	202	200	187	192	191	208	191	194	195	266	473	71	42	147
Routine Parameters																								
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	58	2
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	***83***
Hardness	mg/L	78.80	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	101.67	98.44	99.85	98.27	142.36	238.35	38.66	22.00	77.00
Alkalinity-Total	mg/L	73.2	69	81.8	70.4	60.1	71.9	79.3	76.2	91.7	92	87	89	91	91	90	94	93	94	136	178	30	16	68
Bicarbonate	mg/L	73.2	69	81.8	70.4	60.1	71.9	79.3	76.2	91.7	112	106	110	110	110	110	110	110	110	166	218	37	20	83
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calcium	mg/L	19.8	21.1	23.8	21.5	18	20.2	20.3	22.6	25.5	26.4	27	27.6	26	26.4	28.1	27.4	27.7	28.5	36.8	56.9	10.2	6.2	19.8
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.2	0.6
Magnesium	mg/L	6.93	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	8.7	8.5	8.7	8.8	13	23.7	3.1	1.7	6.7
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.5	0.7	0.7	0.7	0.7	0.8	0.7	0.6	0.6	1.4	3.3	1.4	0.8	0.6
Sodium	mg/L	2	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	2.9	2.9	2.8	2.8	4.3	7.6	1.2	0.6	2
Sulphate	mg/L	11.2	11.1	14	16	11.1	14.4	13.7	15.4	17.1	17	18	18	17	17	16.6	17.6	17.2	17.5	28.9	82.8	4.24	2.13	13
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	21.7	0.2
Nutrients																								
Ammonia-N	mg/L	<0.02	***0.021***	***0.146***	***0.033***	***0.034***	<0.02	***0.021***	***0.022***	***0.048***	0.01	<0.05	<0.01	<0.01	<0.01	0.01	0.01	0.005	0.009	0.006	0.01	0.01	0.014	0.012
Nitrate-N	mg/L	0.0434	0.0452	0.0093	0.0453	0.0167	0.0395	0.0793	0.0513	0.074	0.17	0.08	0.09	0.08	0.07	0.48	0.08	0.08	0.05	0.04	0.06	<0.02	<0.02	0.11
Nitrite-N	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01	<0.005	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.005
Total Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																								
Cyanide - T	mg/L	0.009	0.0064	<0.005	<0.005	0.0061	0.0079	0.0091	0.0078	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thiocyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	0.4	<0.1	0.7	1	0.8	0.6	1.2	1.4	1.4	1.9	1.8	1.6	0.9
CN-WAD	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	0.004	0.002	<0.002	0.002	0.002	0.002
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	0.002	0.002	0.002	0.002	0.01	0.002	0.002	0.002	0.006	0.002	0.002	<0.002	<0.002	<0.002
Total Metals																								
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	***0.3***	<0.2	<0.2	<0.2	0.0132	0.03	0.024	0.042	0.014	***0.226***	***1.68***	0.015	0.012	0.054	0.02	0.051	***0.268***	***5.25***	0.048
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001	<0.0002
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.00025	0.0003	0.0003	0.0002	0.0002	0.0005	0.003	0.0002	0.0003	<0.0002	0.0004	0.0012	0.0006	***0.0257***	0.0003
Barium	mg/L	0.06	0.055	0.074	0.059	0.06	0.061	0.058	0.065	0.0723	0.08	0.084	0.082	0.091	0.094	0.126	0.093	0.096	0.102	0.124	0.126	0.047	0.125	0.055
Beryllium	mg/L	<0.005	<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	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Bismuth	mg/L	<0.2	<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	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.1	<0.01	<0.002	0.004	<0.002	<0.002	<0.002	0.002	<0.002	0.003	0.002	0.005	0.008	0.004	0.004	<0.002
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00005	<0.00001	***0.00002***	***0.00002***	***0.00002***	***0.00004***	***0.00017***	***0.00005***	***0.00005***	***0.00004***	***0.00007***	***0.00012***	***0.00006***	***0.00055***	***0.00002***
Calcium	mg/L	20	21.5	24.3	21.9	18.2	21.5	20.5	23	25.7	25.4	25.2	26.1	26	25.8	26.7	25.9	26.3	26	36.4	57.2	10.7	9.4	20.6
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	0.0009	0.0022	<0.0005	0.0015	0.0044	0.0037	0.0007	0.0011	0.0085	<0.0005
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	0.0017	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002	0.0035	<0.0001
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00123	0.002	***0.003***	0.002	0.002	0.002	***0.009***	0.002	0.002	***0.003***	0.002	0.002	***0.004***	***0.018***	0.002
Iron	mg/L	0.128	0.127	0.053	0.121	***0.584***	0.133	0.112	0.083	0.035	<0.1	<0.1	<0.1	<0.1	***0.4***	***2.7***	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	***7.1***	<0.1
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.00005	<0.0001	0.0001	0.0001	<0.0001	0.0005	***0.0033***	<0.0001	<0.0001	0.0001	0.0002	0.0002	0.0003	***0.0222***	0.0002
Lithium	mg/L	<0.01	<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	0.002	<0.001	<0.001	<0.001	0.001	0.002	<0.001	0.004	<0.001
Magnesium	mg/L	7.01	7.45	8.52	7.04	6.14	7.19	7.14	8.25	10	8.5	7.9	8.1	8.4	8.3	8.5	8.2	8.3	8.1	12.5	23.2	2.9	3.2	7.1
Manganese	mg/L	0.0115	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	0.365	0.098	0.108	0.105	0.13	0.174	0.015	0.298	<0.005
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.000358	<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
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0005	<0.0005	0.0006	0.0006	0.0006	0.0008	0.0023	0.0007	0.0011	0.0009	0.0011	<0.0005	0.001	0.0054	0.0006
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.6	0.6	0.8	0.8	0.8	1	0.8	0.7	0.6	1.3	3.4	1.6	1.9	<0.4
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002
Silicon	mg/L	5.26	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	8.27	6.12	5.98	6.03	6.56	10.5	2.45	7.95	4.59
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00005	0.00001	<0.00001	<0.00001	0.00003	<0.00001	<0.00001	***0.00023***	<0.00001
Sodium	mg/L	2.1	2.2	2.7	<2	2.1	2.4	2.1	2.4	2.7	2.5	3	2.7	2.7	2.9	2.8	3.1	3	2.9	4.4	7.4	1.1	1.3	2
Strontium	mg/L	0.228	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	0.284	0.262	0.291	0.298	0.409	0.532	0.111	0.09	0.214
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	5.6	5.8	5.9	5.8	5.7	5.5	5.6	5.6	5.5	9.7	26.5	1.6	2.3	4.2
Thallium	mg/L	<0.2	<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	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00011	<0.00005
Tin	mg/L	<0.03	<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	<0.001	<0.001	<0.001	<0.001	<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	<0.01	0.0012	0.0015	0.0016	0.0006	0.0106	0.0691	0.0007	0.0005	0.0018	0.0007	0.0012	0.0038	0.189	0.0013
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0008	<0.0005	<0.0005	<0.0005	0.0013	0.0016	<0.0005	0.0011	0.0006
Vanadium	mg/L	<0.03	<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	0.0055	0.0002	0.0002	0.0003	0.0003	0.0003	0.0006	0.0156	0.0005
Zinc	mg/L	<0.005	<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	0.022	0.003	0.006	0.009	0.009	0.014	0.016	***0.067***	0.007

Table A2. Water quality at the Upper Victoria Sampling Site.

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	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria	Upper Victoria
Date		28-Jun-07	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	14-Feb-08	28-Feb-08	13-Mar-08	27-Mar-08	10-Apr-08	24-Apr-08	9-May-08	22-May-08	5-Jun-08
Dissolved Metals																								
Aluminum	mg/L	<0.2	<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	0.007	0.006	0.006	0.008	0.011	0.014	0.175	0.199	0.022
Antimony	mg/L	<0.2	<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	0.0003	0.0004	0.0005	0.0004	0.0005	0.0004	0.0004	0.0003	0.0003
Arsenic	mg/L	0.00035	0.00035	0.00031	<0.0006	0.00037	0.00032	0.00033	0.00028	0.00023	0.0003	<0.0002	0.0004	0.0002	<0.0002	<0.0002	0.0003	0.0003	0.0004	0.0005	0.0016	0.0004	0.0004	0.0004
Barium	mg/L	0.058	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	0.088	0.087	0.09	0.095	0.122	0.126	0.043	0.029	0.051
Beryllium	mg/L	<0.005	<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	<0.0001	<0.0001	<0.0001	<0.0001	<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	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.1	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.005	0.003	<0.002	<0.002
Cadmium	mg/L	<0.01	<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	0.00004	0.00004	0.00005	0.00005	0.00005	0.0001	0.00004	0.00003	<0.00001
Chromium	mg/L	<0.01	<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	<0.0005	<0.0005	0.0008	0.0009	0.0013	0.0007	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	<0.01	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001	0.0001	<0.0001
Copper	mg/L	<0.01	<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	0.007	0.001	0.002	0.002	0.002	0.002	0.004	0.012	0.002
Iron	mg/L	0.062	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	0.01	<0.01	<0.01	0.01	<0.01	0.05	0.21	0.2	0.04
Lead	mg/L	<0.05	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001
Lithium	mg/L	<0.01	<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	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
Manganese	mg/L	<0.005	0.0078	0.0105	<0.005	<0.005	0.0089	0.0131	0.015	0.0197	0.015	0.046	0.053	0.054	0.05	0.06	0.096	0.104	0.109	0.096	0.187	0.005	<0.005	<0.005
Molybdenum	mg/L	<0.03	<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	<0.001	<0.001	<0.001	<0.001	<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	<0.05	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	0.0008	0.0009	0.0009	<0.0005	0.0007	0.0008	0.0006
Phosphorus	mg/L	<0.3	<0.3	<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	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Silicon	mg/L	5.19	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	6.36	6.18	6.47	6.03	8.45	11.9	2.62	1.9	4.84
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	0.224	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	0.277	0.264	0.277	0.292	0.378	0.552	0.098	0.065	0.224
Thallium	mg/L	<0.2	<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	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Tin	mg/L	<0.03	<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	<0.001	<0.001	<0.001	<0.001	<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	<0.01	<0.0005	<0.0005	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.001	0.0014	0.0016	0.0014
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	0.0016	<0.0005	<0.0005	0.0005
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	0.0013	0.0016	0.0012	0.0017	0.0005	0.0012	0.0001	0.0021	0.0019	0.0024	0.0016	0.0005	0.0005	0.0004
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0012	0.006	0.002	0.006	0.002	<0.001	0.004	0.001	0.002	0.002	0.003	0.006	0.014	0.006	0.002

Table A2. Water quality at the Upper Victoria Sampling Site.

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	CCME AL Guidelines[1]	Water License Standards[2]
Date		19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08	26-Nov-08	10-Dec-08	14-Jan-09		
Physical Parameters																	
pH	pH units	7.8	7.82	7.7	8.17	7.88	7.84	7.95	7.98	7.65	7.48	7.39	7.41	7.25	7.35	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	114	133	162	175	185	114	145	150	176	190	189	205	201	202	--	--
Routine Parameters																	
Total Suspended Sediment	mg/L	2	2	20	<1	1	12	3	<1	<2	4	8	8	<2	<1	--	--
Total Dissolved Solids	mg/L	***62***	***72***	--	***96***	***100***	***62***	***78***	***88***	***110***	***120***	***120***	***130***	***120***	***110***	--	50
Hardness	mg/L	60.00	69.00	77.00	86.00	93.00	58.00	72.00	80.00	--	--	--	--	--	98.00	--	--
Alkalinity-Total	mg/L	51	58	72	82	86	50	66	74	78	86	88	92	91	86	--	--
Bicarbonate	mg/L	62	70	90	99	104	60	80	90	100	100	100	100	100	105	--	--
Carbonate	mg/L	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	15.9	18.3	20.7	22.3	24.3	15.6	18.9	21	21.8	26.3	26.4	26.7	23.6	25.3	--	--
Chloride	mg/L	<0.4	<0.4	0.1	0.6	<0.4	0.6	0.5	0.4	0.11	2.6	0.11	0.24	0.13	<0.4		
Magnesium	mg/L	5	5.6	6.05	7.4	7.8	4.6	6	6.8	7.4	8.94	9.03	9.21	8.1	8.4	--	--
Potassium	mg/L	<0.4	0.5	0.54	0.4	0.6	0.4	<0.4	0.5	0.4	0.7	0.6	0.5	0.6	0.7	--	--
Sodium	mg/L	1.5	2	2.14	2.4	2.4	1.9	2.3	2.3	2.3	2.8	2.5	2.5	2.2	2.8	--	--
Sulphate	mg/L	9.4	11	13.8	14	15	9	11	13	15.1	15.8	17.1	17.1	18.1	18	--	--
Turbidity	NTU	--	--	--	--	--	--	2.1	--	--	--	--	--	--	--	--	--
Nutrients																	
Ammonia-N	mg/L	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	***0.02***	<0.01	***0.02***	***0.12***	0.015	--
Nitrate-N	mg/L	0.06	0.06	0.05	0.05	0.05	0.07	0.08	0.08	0.08	0.1	0.11	0.13	0.12	0.1	2.9	--
Nitrite-N	mg/L	<0.005	<0.005	0.04	<0.005	<0.005	<0.005	<0.005	<0.005	0.04	<0.01	0.04	0.02	0.05	<0.005	0.06	--
Total Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																	
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	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	0.6	<0.2	0.5	--
Thiocyanate	mg/L	0.8	1.5	0.4	0.4	1	0.4	0.6	1	0.8	0.4	<0.1	0.4	0.4	0.1	--	--
CN-WAD	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	--	0.1
CN-SAD	mg/L	0.002	0.006	<0.002	0.002	<0.002	0.002	<0.002	<0.002	0.002	0.002	<0.002	<0.002	0.024	<0.002	--	--
Total Metals																	
Aluminum	mg/L	***0.136***	0.076	0.027	0.062	0.04	***0.297***	***0.158***	0.082	0.03	0.022	0.02	0.027	0.015	0.014	0.1	--
Antimony	mg/L	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	--	0.15
Arsenic	mg/L	0.0006	0.0005	0.0004	0.0004	0.0003	0.0006	0.0004	0.0004	0.0004	0.0004	0.0002	0.0002	<0.0002	<0.0002	0.005	--
Barium	mg/L	0.046	0.052	0.058	0.06	0.068	0.052	0.052	0.059	0.061	0.068	0.072	0.076	0.069	0.08	--	1
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	0.003	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	--	--
Cadmium	mg/L	***0.00002***	***0.00003***	***0.00002***	0.00001	0.00001	***0.00003***	***0.00002***	***0.00002***	<0.00001	***0.0002***	***0.00031***	***0.00336***	***0.00002***	***0.00007***	0.000017	0.02
Calcium	mg/L	15.6	17.1	21.6	22.8	24.5	15.6	18.3	20.2	21.3	25	26.3	27.2	26.4	25.3	--	--
Chromium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0089	0.04
Cobalt	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Copper	mg/L	***0.003***	***0.003***	0.001	0.002	0.002	***0.003***	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002 - 0.004	0.2
Iron	mg/L	0.2	0.13	0.05	0.08	0.07	***0.39***	0.23	0.15	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	0.3	1
Lead	mg/L	0.0002	0.0003	0.0004	<0.0001	<0.0001	0.0004	0.0002	0.0001	<0.0001	0.0002	0.0002	0.0003	0.0001	0.0003	0.001 - 0.007	0.1
Lithium	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	--	--
Magnesium	mg/L	5.1	5.3	6.8	7.2	8.1	4.7	5.8	6.7	7.1	8.1	8.7	9	8.7	8	--	--
Manganese	mg/L	0.012	0.015	0.01	0.011	0.018	0.02	0.017	0.015	0.014	0.016	0.016	0.02	0.018	0.041	--	0.5
Molybdenum	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	0.073	--
Nickel	mg/L	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	0.0007	0.0007	0.0006	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	0.025 - 0.15	0.3
Potassium	mg/L	0.6	0.6	0.7	0.5	0.6	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	--	--
Selenium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	0.001	--
Silicon	mg/L	4.68	5.14	5.06	5.16	5.11	5.66	5.66	5.68	4.91	5.81	5.91	5.61	6.03	5.35	--	--
Silver	mg/L	<0.00001	0.00008	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	0.00003	0.00001	0.00003	0.00002	<0.00001	0.00004	0.0001	0.1
Sodium	mg/L	2.1	2.4	2.6	2.8	3.1	2.4	2.5	2.5	2.8	3.3	3.1	3.2	3.2	3	--	--
Strontium	mg/L	0.183	0.2	0.233	0.264	0.299	0.178	0.213	0.237	0.253	0.293	0.301	0.32	0.319	0.278	--	--
Sulphur	mg/L	3.1	3.4	4.6	4.8	5.3	3	3.7	4.5	4.6	5.7	6.2	6.1	5.8	5.8	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	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	--	--
Titanium	mg/L	0.0039	0.0015	0.0011	0.0015	0.0011	0.0096	0.0051	0.0026	0.0008	0.0009	0.0007	0.0008	<0.0005	0.0007	--	--
Uranium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0006	0.0006	0.0006	<0.0005		
Vanadium	mg/L	0.0007	0.0005	0.0003	0.0004	0.0003	0.0013	0.0008	0.0005	0.0004	0.0005	0.0003	0.0003	0.0002	0.0002	--	--
Zinc	mg/L	0.005	0.008	0.01	0.007	0.007	0.011	0.011	0.006	0.005	0.008	0.012	0.007	0.01	0.013	0.03	0.3

Table A2. Water quality at the Upper Victoria Sampling Site.

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	CCME AL Guidelines[1]	Water License Standards[2]
Date		19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08	26-Nov-08	10-Dec-08	14-Jan-09		
Dissolved Metals																	
Aluminum	mg/L	0.041	0.039	0.02	0.014	0.012	0.046	0.032	0.023	0.014	<0.005	0.012	0.006	<0.005	0.007	--	--
Antimony	mg/L	0.0004	0.0003	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0004	0.0004	0.0002	0.0003	<0.0002	--	--
Arsenic	mg/L	0.0004	0.0004	0.0004	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0003	0.0004	<0.0002	0.0002	0.0003	--	0.15
Barium	mg/L	0.042	0.049	0.057	0.061	0.066	0.048	0.054	0.056	0.058	0.057	0.062	0.068	0.071	0.084	--	--
Beryllium	mg/L	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.0001	--	--
Bismuth	mg/L	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	--	--
Boron	mg/L	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	--	--
Cadmium	mg/L	0.00002	<0.00001	<0.00008	0.00002	<0.00001	0.00001	<0.00001	0.00001	0.00003	0.00005	0.00003	<0.00001	<0.00001	0.00002	--	--
Chromium	mg/L	<0.0005	<0.0005	0.0014	<0.0005	0.0005	--	<0.0005	<0.0005	<0.0004	<0.0004	0.0004	<0.0004	0.0005	0.0005	--	--
Cobalt	mg/L	<0.0001	<0.0001	0.00005	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	0.00008	0.00005	0.00006	<0.00002	0.00003	<0.0001	--	--
Copper	mg/L	0.002	0.002	0.007	0.002	0.001	<0.0001	0.002	0.001	0.002	0.002	0.003	0.001	<0.001	0.001	--	--
Iron	mg/L	0.04	0.05	0.04	0.02	0.02	0.002	0.07	0.04	0.029	<0.01	0.014	<0.01	<0.01	0.01	--	--
Lead	mg/L	0.0001	<0.0001	0.0003	<0.0001	<0.0001	0.1	<0.0001	<0.0001	0.0001	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	--	--
Lithium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Manganese	mg/L	<0.005	<0.005	0.0093	0.008	0.01	0.01	0.01	0.014	0.0126	0.0119	0.0193	0.0143	0.0141	0.04	--	--
Molybdenum	mg/L	<0.001	<0.001	0.00038	<0.001	<0.001	<0.001	<0.001	<0.001	0.00034	0.00029	0.00032	0.0003	0.00025	<0.001	--	--
Nickel	mg/L	0.0005	<0.0005	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	--	--
Phosphorus	mg/L	--	--	<0.01	--	--	--	--	--	<0.01	<0.01	0.02	<0.01	0.01	--	--	--
Selenium	mg/L	<0.0002	<0.0002	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0002	--	--
Silicon	mg/L	4.88	5.52	4.45	5.57	5.66	5.87	5.92	5.95	5.42	5.81	5.69	5.67	5.94	6	--	--
Silver	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.178	0.192	0.235	0.252	0.274	0.172	0.202	0.233	0.237	0.255	0.272	0.282	0.29	0.285	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	--	--
Tin	mg/L	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	--	--
Titanium	mg/L	0.0008	0.0006	0.0006	<0.0005	0.0007	0.0008	0.0005	0.0006	0.0008	0.0006	0.0004	0.0009	0.0004	0.0005	--	--
Uranium	mg/L	<0.0005	<0.0005	<0.0004	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	0.0004	0.0005	0.0005	0.0005	<0.0005	--	--
Vanadium	mg/L	0.0006	0.0005	0.00059	0.0002	0.0012	0.0008	0.0006	0.0003	0.00026	0.00024	0.00031	0.00026	0.00026	0.0014	--	--
Zinc	mg/L	<0.001	0.004	0.006	<0.001	0.002	0.001	0.003	<0.001	0.002	0.003	0.007	0.001	<0.001	0.004	--	--

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

Sample ID		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	Victoria at Road	Victoria at Road
Date	Units	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	5-Sep-00	26-Sep-00	11-Oct-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	7.48	7.23	7.65
Conductivity	µS/cm	565	250	210	165	190	235	250	270	270	355	355	335	365	130	120	170	79	175	135	110	150	96	180
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	22	74	<5
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***	***143***	***103***	***159***
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	75.82	45.55	81.58
Alkalinity-Total	mg/L	199	60	76	62	68	75	71	69	67	73	72	76	75	32	32	50	27	47	40	29	46	24	39
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	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	30.1	15.7	33
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	***0.05***	<0.05	<0.05
Nitrate-N	mg/L	0.47	0.36	0.42	0.014	0.4	0.3	0.44	0.58	0.54	0.675	0.66	0.74	0.9	<0.004	<0.002	0.789	0.193	--	***7.49***	--	--	--	--
Nitrite-N	mg/L	0.014	<0.003	0.024	0.003	<0.003	0.017	0.012	0.012	0.013	0.015	0.02	<0.01	<0.05	***1.51***	<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	<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	<0.2	<0.2	1.2
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	0.87	1.28	<0.05
CN-WAD	mg/L	0.022	<0.002	<0.002	0.004	<0.002	0.002	0.04	0.017	0.016	0.041	0.002	0.002	0.002	0.005	<0.001	--	<0.001	0.002	<0.002	<0.001	<0.001	<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	<0.002	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***	***0.97***	***0.84***	0.08
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	<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	<0.02	<0.02	<0.02
Barium	mg/L	0.08	0.073	0.0672	0.0551	0.581	0.0604	0.063	0.0715	0.068	0.0863	0.0975	0.088	0.098	0.0519	0.058	0.0553	0.151	0.0568	0.0538	0.053	0.0595	0.0549	0.0505
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	<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	20.9	12.7	22.1
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	<0.001	0.001	0.001
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	<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***	***0.017***	***0.026***	***0.016***
Iron	mg/L	***0.427***	0.11	0.164	0.171	***0.355***	0.134	0.206	0.139	0.134	0.259	0.132	0.237	0.155	***0.702***	***2.03***	***0.897***	***11***	***0.798***	***0.767***	***1.21***	***1.2***	***1.38***	0.212
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	<0.005	***0.006***	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	23.4	9.05	8.54	7.13	9.55	7.95	8.84	9.5	8.88	11.6	14.4	10.9	11.9	4.35	4.7	6.43	4.67	6.52	5.35	3.65	5.74	3.36	6.41
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	0.0922	0.0874	0.0728
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	<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	<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	0.8	0.5	2.3
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	<0.02	<0.02	<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	7.86	7.21	6.29
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	<0.001	<0.001	<0.001
Sodium	mg/L	14.4	5.94	4.74	3.65	37	5.66	6.06	7.69	7.2	11.5	15.4	9	9	2.81	2.36	3.68	2.49	4.34	3.65	2.46	3.57	2.13	3.75
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	0.153	0.098	0.17
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	<0.005	<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	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	0.013	0.014	0.005

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	5-Sep-00	26-Sep-00	11-Oct-00
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007)

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	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
Physical Parameters																											
pH	pH units	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	7.2	7.69	7.67	7.46	7.62	7.69	7.88	7.73	7.7	7.58
Conductivity	µS/cm	205	220	230	240	430	115	79	194	181	118	159	161	167	199	298	259	646	81.1	246	227	306	250	330	236	163	213	194
Routine Parameters																											
Total Suspended Sediment	mg/L	<5	<5	6	<5	4	46	46	11	9	5	9	15	8	<1	<1	2	1	40	12	4	<1	<1	1	6	7	1	<1
Total Dissolved Solids	mg/L	***156***	***156***	***161***	***164***	***304***	***98***	***84***	***133***	***127***	***113***	***133***	***173***	***130***	***233***	***187***	***160***	***480***	***<5***	***273***	***234***	***220***	***160***	***227***	***193***	***267***	***127***	***113***
Hardness	mg/L	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	41.51	114.91	101.16	150.47	121.28	146.50	109.28	75.44	110.09	108.95
Alkalinity-Total	mg/L	48	53	71	70	89	83	28	60	65	46	58	56	65	71	119	94	189	29	72	64	82	73	72	82	62	76	82
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	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	13.2	53	61.7	100	62.6	104	47.9	19.9	34.1	23.6
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																											
Ammonia-N	mg/L	<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***	***0.05***	<0.05	<0.05	<0.05	***0.1***	***0.06***	<0.05	<0.05	<0.05	<0.05
Nitrate-N	mg/L	--	--	--	--	<0.05	0.05	<0.05	0.242	0.196	0.123	0.182	0.124	0.152	0.142	0.296	0.227	<0.004	0.054	0.193	--	0.319	0.18	0.32	0.216	0.073	0.108	0.14
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***	<0.002	<0.002	--	<0.002	<0.002	<0.002	0.017	<0.002	<0.002	<0.002
Total Phosphorus	mg/L	<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	<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	0.59	0.16	<0.2	0.32	0.3	0.3	<0.2	<0.2	0.2	0.53	<0.2	<0.2	0.2	<0.2	<0.2	0.2	<0.2	0.02	0.05	<0.2	<0.2	<0.2	<0.2
Thiocyanate	mg/L	<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	1.35	1.84	1	<0.05	0.38	0.43	0.37	0.71	0.59	0.3
CN-WAD	mg/L	<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	0.004	<0.002	0.006	<0.002	0.002	0.002	0.006	0.006	0.01	<0.002
CN-SAD	mg/L	0.008	0.002	0.004	0.006	0.01	0.008	0.006	0.008	<0.002	<0.003	<0.003	<0.003	<0.002	0.004	0.018	0.002	0.002	<0.002	<0.002	0.002	<0.002	0.002	0.002	<0.002	0.002	<0.002	<0.002
Total Metals																											
Aluminum	mg/L	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	***0.67***	0.07	***0.14***	0.06	***0.11***	0.06	***0.66***	***0.77***	0.06	0.01
Antimony	mg/L	<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	<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	<0.02	<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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	mg/L	0.0585	0.0631	0.0646	0.0798	0.0679	0.0584	0.035	0.0608	0.0551	0.0456	0.0549	0.057	0.0526	0.0591	0.0968	0.0802	0.157	0.0404	0.058	0.0659	0.0832	0.0668	0.0798	0.0714	0.0566	0.0607	0.0617
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	<0.02	<0.008	<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	--	--	--	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	<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***	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Calcium	mg/L	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	11.2	30.8	27.7	40.8	33.1	40.2	29.7	20.3	28.9	28.1
Chromium	mg/L	<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	<0.001	<0.001	<0.001	<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	0.0008	<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
Copper	mg/L	***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***	***0.024***	***0.012***	***0.02***	***0.004***	***0.009***	0.002	***0.008***	***0.003***	***0.004***	0.002
Iron	mg/L	0.11	0.1	0.11	0.049	0.078	***1.86***	0.201	***0.558***	0.254	***0.537***	***0.436***	***0.458***	***0.42***	0.173	0.034	0.031	0.084	***1.06***	0.183	***0.421***	0.178	***0.35***	***0.354***	***1.27***	***0.816***	0.221	0.066
Lead	mg/L	<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	***0.02***	<0.006	<0.006	<0.006	<0.006	<0.006	<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	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.006	<0.006	<0.006	<0.006
Magnesium	mg/L	6.9	7.7	8.75	8.76	15.9	4.47	2.76	7.37	6.51	4.47	6.16	6.37	6.06	7.61	12.4	10.7	36.2	3.29	9.23	7.77	11.8	9.38	11.2	8.53	6.01	9.21	9.42
Manganese	mg/L	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	0.106	0.0302	0.0477	0.037	0.0711	0.0728	0.0787	0.0627	0.062	0.0213
Molybdenum	mg/L	<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	<0.01	<0.01	<0.01	<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	0.001	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	0.003	<0.001	0.002	<0.001	0.002	<0.001	<0.001	<0.001
Potassium	mg/L	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	1.3	1	1.1	1.4	1	1.4	0.9	1.3	0.9	0.4
Selenium	mg/L	<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	<0.02	<0.02	<0.02	<0.02	<0.02	***0.04***	***0.02***	<0.02	***0.04***	***0.03***
Silicon	mg/L	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	3	5.3	5.6	5.9	6	6.1	6.7	7.1	6.2	6
Silver	mg/L	<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	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sodium	mg/L	4.44	4.7	4.93	4.84	8.61	1.76	1.74	5.18	3.87	2.3	3.32	3.11	2.96	3.27	6.64	5.84	18.2	1.11	5.69	5.94	9.57	7.16	10.5	5.64	2.82	4.26	3.93
Strontium	mg/L	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	0.079	0.208	0.19	0.286	0.227	0.262	0.214	0.172	0.221	0.237
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<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	<0.006	<0.006	<0.006	<0.006	<0.006	0.009	<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	0.027	<0.001	0.003	0.003	0.002	<0.001	0.018	0.016	<0.001	<0.001
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	0.003	0.002	0.003	0.002	0.002	0.003	0.004	0.003	0.002	<0.001
Zinc	mg/L	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***	0.015	0.003	0.007	0.002	0.005	0.003	0.013	0.012	0.004	0.002

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	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
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	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
Physical Parameters																											
pH	pH units	--	7.97	7.6	7.7	7.7	7.88	7.9	8.01	7.83	7.86	7.52	--	--	--	--	--	--	--	--	8.07	8.15	8.17	7.93	8.1	7.64	7.75	7.94
Conductivity	µS/cm	2940	682	140	209	178	188	269	236	211	243	258	--	--	--	--	--	--	--	--	185	188	211	146	203	180	123	149
Routine Parameters																												
Total Suspended Sediment	mg/L	2	4	20	6	63	75	12	27	<5	<5	<2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	***767***	***487***	***124***	***156***	***133***	***153***	***227***	***173***	***140***	***207***	***133***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	122.64	333.90	73.60	101.87	91.56	91.69	124.95	128.83	100.46	104.81	111.64	--	--	--	--	--	--	--	--	95.60	85.39	97.63	67.59	103.02	98.01	65.68	70.78
Alkalinity-Total	mg/L	793	245	55	79	58	61	84	86	79	87	99	--	--	--	--	--	--	--	--	74.6	75.2	77.6	61.6	78.3	69.6	55.9	63.7
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	74.6	72.7	77.6	61.6	78.3	69.6	55.9	63.7
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24.1	21.4	25.4	17.8	25.5	24.1	17	18.7
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.21	7.7	8.74	5.63	8.57	8.07	5.33	5.9
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.4	3.1	2.9	<2	2.9	2.8	<2	2.4
Sulphate	mg/L	37.3	162	27.4	36	42.9	43.6	63.7	52.1	40.5	33.6	34.9	--	--	--	--	--	--	--	--	24.7	24.5	26.4	16.2	30.6	24.7	12.2	20.6
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																												
Ammonia-N	mg/L	<0.05	<0.05	<0.5	<0.5	***0.1***	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	--	--	<0.02	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02
Nitrate-N	mg/L	0.258	0.137	0.11	<1	0.178	0.692	0.215	0.079	0.082	0.108	0.134	--	--	--	--	--	--	--	--	0.0601	0.0537	0.0562	0.0489	0.0522	0.0517	0.0241	0.0448
Nitrite-N	mg/L	<0.01	<0.002	<0.1	<10	0.004	0.043	<0.002	<0.002	0.004	<0.002	0.002	--	--	--	--	--	--	--	--	0.0019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphorus	mg/L	<0.06	<0.06	<0.06	<0.06	--	<0.06	<0.06	0.06	<0.06	<0.06	<0.06	--	--	--	--	--	--	--	--	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cyanide Compounds																												
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0062	0.0073	<0.0056	0.0103	0.0071	0.0067	0.011	0.0091
Cyanate	mg/L	<0.2	<0.2	<0.2	<0.2	0.08	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	0.4	0.82	0.42	1.67	0.6	0.83	0.52	0.47	0.78	0.56	0.81	--	--	--	--	--	--	--	--	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.52	<0.5
CN-WAD	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	0.008	0.002	0.002	0.002	<0.002	0.002	<0.005	<0.0055	<0.0056	<0.005	<0.005	<0.005	<0.005	<0.005
CN-SAD	mg/L	0.002	0.002	0.004	0.002	0.002	0.062	0.002	0.002	0.002	<0.002	0.002	0.002	0.002	0.004	0.002	0.002	0.004	0.002	0.004	--	--	--	--	--	--	--	--
Total Metals																												
Aluminum	mg/L	0.04	0.03	***0.34***	***0.14***	***2.66***	***1.29***	***0.76***	***1.11***	***0.17***	0.04	0.03	--	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	***0.34***	<0.2	<0.2	***0.48***	***0.41***
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	0.0008	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	<0.02	***0.03***	<0.02	<0.02	***0.0101***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.00211	<0.2	***0.00595***
Barium	mg/L	0.085	0.124	0.0563	0.0683	0.128	0.119	0.0793	0.0978	0.0699	0.0752	0.0721	--	--	--	--	--	--	--	--	0.063	0.057	0.067	0.058	0.068	0.068	0.065	0.06
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Bismuth	mg/L	<0.02	<0.02	<0.02	<0.02	<0.0005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	--	--	--	--	0.008	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	mg/L	<0.0006	<0.0006	<0.0006	<0.0006	***0.00019***	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	31.8	74.2	19.3	26.4	24.3	24.7	31.9	32.3	24.6	27.1	28.6	--	--	--	--	--	--	--	--	24.6	21.5	24.9	17.8	26.4	25.2	17.3	18.6
Chromium	mg/L	<0.001	<0.001	<0.001	0.001	0.0034	0.003	0.001	0.002	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	***0.003***	***0.006***	***0.006***	***0.006***	***0.007***	***0.007***	***0.006***	***0.008***	***0.004***	0.002	***0.004***	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.104	0.038	***0.967***	***0.558***	***3.4***	***3.33***	***1.02***	***1.94***	***0.626***	0.276	0.047	--	--	--	--	--	--	--	--	***0.351***	***0.388***	0.179	***0.497***	0.28	0.206	***0.878***	***0.619***
Lead	mg/L	<0.006	<0.006	<0.006	<0.006	***0.0044***	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	--	--	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.006	<0.006	<0.006	<0.006	0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	10.5	36.1	6.17	8.73	7.5	7.29	11	11.7	9.48	9.02	9.77	--	--	--	--	--	--	--	--	8.3	7.7	8.61	5.62	9.01	8.52	5.46	5.91
Manganese	mg/L	0.0117	0.29	0.0796	0.0453	0.147	0.0992	0.099	0.171	0.0933	0.072	0.0262	--	--	--	--	--	--	--	--	0.0402	0.0348	0.0248	0.0391	0.0436	0.0349	0.0405	0.0417
Molybdenum	mg/L	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Nickel	mg/L	<0.001	<0.001	<0.001	<0.001	0.0021	0.003	<0.001	0.003	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	1.4	6.7	0.8	1	1.4	1.4	0.9	1.3	12.9	0.9	1.3	--	--	--	--	--	--	--	--	<2	<2	<2	<2	<2	<2	<2	<2
Selenium	mg/L	***0.06***	***0.09***	<0.02	***0.02***	<0.0002	<0.02	<0.02	<0.02	***0.08***	<0.02	<0.02	--	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	6.3	16.3	4.6	5.3	11.2	7.7	6.9	7.9	7.6	6.9	6.2	--	--	--	--	--	--	--	--	4.26	4.55	4.83	4.94	5.68	5.47	5.89	5.92
Silver	mg/L	<0.002	<0.002	<0.002	<0.002	0.0001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	5.51	23	2.01	3.49	4.7	4.36	6.27	5.12	3.73	3.99	4.79	--	--	--	--	--	--	--	--	2.4	3.1	2.9	<2	3.1	3	<2	2.4
Strontium	mg/L	0.256	0.602	0.167	0.214	0.203	0.176	0.229	0.271	0.253	0.276	0.272	--	--	--	--	--	--	--	--	0.22	0.215	0.23	0.193	0.228	0.237	0.163	0.179
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	<0.006	<0.006	<0.006	0.006	<0.001	<0.006	<0.006	<0.006	<0.006	<0.006	0.009	--	--	--	--	--	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	<0.001	<0.001	0.014	0.006	0.0747	0.054	0.021	0.027	0.004	<0.001	<0.001	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	0.013
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	0.004	0.011	0.006	0.006	0.0083	0.01	0.007	0.009	0.002	0.002	<0.001	--	--	--	--	--	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.019	0.013	0.017	0.002	0.021	0.009	***0.141***	0.011	0.003	<0.001	<0.001	--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	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
Dissolved Metals																											
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00194	0.0019	0.00194	0.00163	0.00289	0.00184	0.00131	0.00151
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.059	0.055	0.067	0.052	0.065	0.064	0.054	0.053
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.141	0.225	0.103	0.15	0.195	0.143	0.209	0.175
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.025	0.0227	0.0216	0.015	0.0375	0.0319	0.012	0.0287
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.3	<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
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.14	4.49	4.85	4.75	5.39	5.16	5.46	5.52
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.216	0.214	0.234	0.192	0.22	0.227	0.16	0.178
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	29-Dec-05	5-Jan-06	9-Feb-06
Physical Parameters																											
pH	pH units	8.06	7.98	8.04	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	7.78	7.64	7.24	8.14
Conductivity	µS/cm	151	150	173	158	164	187	175	188	188	608	175	183	224	218	275	270	268	231	205	211	238	248	232	229	238	227	1320
Routine Parameters																											
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	73.92	79.32	88.61	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	122.70	115.16	115.72	774.82
Alkalinity-Total	mg/L	46.3	59.4	73.1	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	94.8	93.7	90.9	577
Bicarbonate	mg/L	46.3	59.4	73.1	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	94.8	93.7	90.9	577
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium	mg/L	19.2	20.3	23.1	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	29.8	28.8	27.9	188
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	6.37	6.38	7.42	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	10.6	10	10.3	78.1
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	13.6
Sodium	mg/L	2.4	2.4	2.8	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	4	4.2	4	39.7
Sulphate	mg/L	18.6	20.8	23.8	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	28.1	29.8	30	260
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																											
Ammonia-N	mg/L	<0.02	***0.034***	***0.034***	***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***	<0.02	<0.02	<0.02	<0.02	<0.02	***0.047***
Nitrate-N	mg/L	0.041	0.0409	0.0564	0.0591	0.053	0.067	0.048	0.0591	0.0605	0.0836	--	0.111	0.187	0.158	0.238	0.233	0.233	0.152	0.13	0.13	0.151	0.155	0.158	0.135	0.228	0.158	0.028
Nitrite-N	mg/L	<0.001	0.0011	0.0015	0.0015	0.0013	0.0032	0.0021	0.0024	0.0021	0.0013	--	0.0015	0.003	0.0026	0.0049	0.0064	0.0046	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0126
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	<0.3	<0.3	<0.3
Cyanide Compounds																											
Cyanide - T	mg/L	<0.005	0.0078	0.0073	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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	0.0357
Cyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.33	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.24
CN-WAD	mg/L	<0.005	0.0063	<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
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	***0.32***	***0.47***	<0.2	<0.2	<0.2	<0.2	<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	<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	0.00467	<0.2	<0.2	<0.2	<0.2	0.00214	<0.2	0.00113	0.00089	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.00962***
Barium	mg/L	0.058	0.06	0.063	0.06	0.063	0.066	0.063	0.064	0.065	0.065	0.062	0.065	0.064	0.066	0.069	0.069	0.074	0.071	0.07	0.067	0.079	0.081	0.079	0.077	0.084	0.076	0.462
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	<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	<0.2	<0.2	<0.2
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	<0.1	<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	<0.01	<0.01	<0.01
Calcium	mg/L	19.1	20.9	23.2	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	31	29.3	28.7	184
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	<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	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.012***	<0.01
Iron	mg/L	***0.456***	***0.33***	***0.383***	***0.352***	***0.391***	***0.426***	***0.42***	***0.505***	***0.686***	***0.707***	***0.614***	***0.329***	***0.486***	***0.395***	0.261	0.252	0.24	0.18	0.159	0.193	0.069	0.06	0.049	0.041	0.031	<0.03	0.037
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	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.023
Magnesium	mg/L	6.37	6.59	7.45	6.58	7.23	7.86	7.39	8.64	8.1	7.88	7.81	8.36	9.1	9.15	10.2	11	10.9	9.65	9.89	8.77	10.9	10.3	10.8	11	10.2	10.7	76.6
Manganese	mg/L	0.0396	0.0458	0.0784	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	0.0277	0.0269	<0.005	0.117
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	<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	<0.05	<0.05
Potassium	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	13.3
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	<0.2	<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	5.88	5.65	5.94	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	6.41	6.29	6.07	44
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	<0.01	<0.01
Sodium	mg/L	2.4	<2	2.8	2.5	2.6	2.9	3.1	2.9	3.3	2.4	2.9	3.2	4.7	3.7	6.2	6.9	6.2	4.1	3.5	3	4.2	4.2	3.8	4.2	4.4	4.1	39.1
Strontium	mg/L	0.18	0.215	0.213	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	0.283	0.287	0.254	1.66
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	<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	<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	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.03	<0.03
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0055	0.0057	<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	0.0096	0.011

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	29-Dec-05	5-Jan-06	9-Feb-06
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	<0.2	<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	<0.2	<0.2	<0.2
Arsenic	mg/L	0.00164	0.00129	0.00175	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	<0.001	0.00132	0.00191	0.00145	0.00147	0.00222	0.00188	0.00997
Barium	mg/L	0.055	0.057	0.063	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	0.074	0.081	0.074	0.472
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	<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	<0.2	<0.2	<0.2
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	<0.1	<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	<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	<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	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.199	0.2	0.225	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	<0.03	<0.03	<0.03	<0.03	0.038
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	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.023
Manganese	mg/L	0.0319	0.0536	0.0745	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	0.0257	0.0184	<0.005	0.116
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	<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	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<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	<0.2	<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	5.74	5.73	5.92	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	6.15	6.15	5.84	44.7
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	<0.01	<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	0.18	0.192	0.213	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	0.27	0.28	0.247	1.69
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	<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	<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	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.03	<0.03
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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0112

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	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
Physical Parameters																											
pH	pH units	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	8.12	8.14	7.97	7.77	7.46	7.78	7.73	7.81	7.7	7.75	7.71
Conductivity	µS/cm	254	644	371	200	1460	67.4	124	170	196	198	180	153	201	211	223	198	214	215	243	222	227	233	235	240	261	245	254
Routine Parameters																											
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	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	113.52	100.69	118.23	114.79	113.97	102.87	107.53	121.25	137.73	129.16	131.44
Alkalinity-Total	mg/L	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	77.2	85.8	113	95	87.9	87.8	99.7	95.9	97.3	102	104
Bicarbonate	mg/L	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	77.2	85.8	113	95	87.9	87.8	99.7	95.9	97.3	102	104
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2
Calcium	mg/L	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	28.6	27.3	29.4	27.2	28.8	24.5	--	28	34.7	32	34.1
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	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	9.19	9.65	10.1	10.5	11.3	9.24	--	11.2	11.4	11.3	10.6
Potassium	mg/L	<2	2.6	<2	<2	7	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<4	<2	<2	<2
Sodium	mg/L	4.8	14.4	6.3	3	92	<2	<2	2.7	3.4	3.4	3	2.2	4	4.4	4.1	3	4.4	3.8	4.4	4.2	4.4	3.8	--	<4	4.8	4.1	4.8
Sulphate	mg/L	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	34.7	30.6	39.8	33	32.4	33.8	33.8	33.5	40.2	31.5	160
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																											
Ammonia-N	mg/L	***0.031***	***0.022***	***0.091***	***0.025***	***6.69***	***0.027***	***0.028***	***0.035***	***0.051***	***0.024***	<0.02	***0.027***	***0.022***	***0.035***	***0.036***	***0.048***	***0.027***	***0.028***	***0.053***	***0.022***	***0.031***	***0.031***	***0.038***	***0.026***	***0.037***	***0.048***	<0.02
Nitrate-N	mg/L	0.163	0.46	<0.005	0.0081	0.776	0.0258	0.0565	0.0837	0.0681	0.0698	0.035	0.0338	0.0449	0.06	0.0687	0.0735	0.107	0.108	0.166	0.152	0.151	0.223	0.221	0.182	0.228	0.156	0.283
Nitrite-N	mg/L	<0.001	0.0059	<0.001	<0.001	0.0475	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0015	0.0016	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.0026	0.0015	0.006
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	<0.6	<0.3	<0.3	<0.3
Cyanide Compounds																											
Cyanide - T	mg/L	<0.0052	0.0066	0.008	0.0142	0.064	0.0174	0.0076	<0.005	<0.005	<0.005	0.0063	0.0082	<0.005	<0.005	0.0052	0.0059	0.0063	0.0093	0.0065	<0.005	<0.005	0.0072	<0.005	<0.005	<0.005	0.0054	<0.005
Cyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.005	<0.005	<0.005	<0.5	<0.5
Thiocyanate	mg/L	<0.5	<0.5	<0.5	0.85	9.36	1.02	<0.5	0.54	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CN-WAD	mg/L	<0.005	<0.005	<0.005	<0.005	0.0296	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0102	<0.005	<0.005	<0.005	0.0057	<0.5	<0.5	<0.5	<0.005	<0.005
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																											
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	***2.67***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.39***	<0.4	<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	<0.4	<0.2	<0.2	<0.2
Arsenic	mg/L	<0.2	<0.2	0.00251	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.00091	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2
Barium	mg/L	0.086	0.226	0.116	0.06	0.044	0.089	0.046	0.055	0.064	0.069	0.059	0.066	0.069	0.067	0.07	0.065	0.066	0.063	0.075	0.083	0.081	0.08	0.087	0.089	0.099	0.1	0.099
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	<0.01	<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	<0.4	<0.2	<0.2	<0.2
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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<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	<0.02	<0.01	<0.01	<0.01
Calcium	mg/L	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	29.7	25.4	30.2	28	28	25.5	27.2	29.1	35.7	32.6	34.5
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	<0.02	<0.01	<0.01	<0.01
Cobalt	mg/L	<0.01	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	***0.011***	***0.011***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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
Iron	mg/L	<0.03	0.05	0.03	0.27	***7.08***	***3.6***	***0.384***	0.29	0.14	0.076	0.252	0.278	0.233	0.26	0.282	0.284	0.258	0.235	0.192	<0.03	<0.03	0.037	***0.412***	0.065	<0.03	<0.03	0.102
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	<0.1	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
Magnesium	mg/L	11.2	30.7	17.4	9.12	23.8	3.54	5.65	7.92	8.68	9.82	8.32	7.07	8.83	9.4	9.42	8.38	9.56	9.05	10.4	10.9	10.7	9.52	9.62	11.8	11.8	11.6	11
Manganese	mg/L	<0.005	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	0.0718	0.0501	0.0831	<0.005	<0.005	0.0097	0.0378	<0.01	0.0307	0.0256	0.0135
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	<0.06	<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	<0.1	<0.05	<0.05	<0.05
Potassium	mg/L	<2	2.7	<2	<2	7.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2
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	<0.4	<0.2	<0.2	<0.2
Silicon	mg/L	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	6.09	6.35	6.11	6.05	6.21	5.4	5.93	5.77	6.9	5.97	6
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	<0.02	<0.01	<0.01	<0.01
Sodium	mg/L	4.7	14.2	6.6	2.9	92.7	<2	<2	2.8	3.6	3.8	3.2	2.3	4.1	4.3	4.4	3.1	4.5	3.7	4.6	4.3	4.4	3.9	4.5	<4	5.1	4.1	5.1
Strontium	mg/L	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	0.26	0.248	0.261	0.288	0.278	0.235	0.283	0.314	0.319	0.296	0.319
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	<0.4	<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	<0.06	<0.03	<0.03	<0.03
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.095	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.06	<0.03	<0.03	<0.03
Zinc	mg/L	<0.005	<0.005	0.0054	0.0114	0.015	0.0272	<0.005	0.0064	0.0053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0052	<0.01	<0.005	<0.005	<0.005

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	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
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	<0.2	--	<0.4	<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	--	<0.4	<0.2	<0.2	<0.2
Arsenic	mg/L	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	0.00138	0.00153	0.00199	0.00108	0.00079	0.00112	--	0.00136	0.00167	0.00125	0.00113
Barium	mg/L	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	0.063	0.07	0.074	0.081	0.088	0.076	--	0.085	0.096	0.097	0.095
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	--	<0.01	<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	--	<0.4	<0.2	<0.2	<0.2
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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	<0.2	<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	--	<0.02	<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	--	<0.02	<0.01	<0.01	<0.01
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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
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	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.01	<0.01	<0.01
Iron	mg/L	<0.03	<0.03	<0.03	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	0.095	0.113	0.09	<0.03	<0.03	<0.03	--	<0.06	<0.03	<0.03	0.041
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	--	<0.1	<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	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.01	<0.01	<0.01
Manganese	mg/L	<0.005	0.0074	0.137	0.0423	5.36	<0.005	<0.005	<0.005	0.0079	0.0077	0.0178	0.0206	0.0451	0.0501	0.0612	0.0629	0.0629	0.0309	0.0776	<0.005	<0.005	<0.005	--	<0.01	0.0215	0.0209	<0.005
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	--	<0.06	<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	--	<0.1	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	<0.6	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.4	<0.2	<0.2	<0.2
Silicon	mg/L	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	5.87	5.99	5.9	5.87	6.28	5.18	--	5.54	6.68	5.89	5.88
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	--	<0.02	<0.01	<0.01	<0.01
Strontium	mg/L	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	0.252	0.238	0.253	0.281	0.272	0.233	--	0.302	0.309	0.292	0.309
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	--	<0.4	<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	--	<0.06	<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	--	<0.02	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	<0.06	<0.03	<0.03	<0.03
Zinc	mg/L	<0.005	<0.005	0.0056	0.0061	0.01	<0.005	<0.005	<0.005	0.0092	<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

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	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	14-Feb-08	9-May-08	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08
Physical Parameters																											
pH	pH units	8.24	7.97	7.55	8.09	7.61	8.02	8.08	8.07	8.05	7.95	8.12	8.05	7.89	7.82	7.43	7.5	7.23	7.15	7.3	7.37	7.32	--	8.04	7.72	7.77	7.88	8.18
Conductivity	µS/cm	546	148	84.9	153	78.3	149	180	228	196	190	198	196	219	236	225	240	222	230	236	345	85	54	178	123	149	191	209
Routine Parameters																											
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	241	2	4	2	<2	<1
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19	***100***	***70***	***86***	--	***120***
Hardness	mg/L	269.86	70.21	50.06	79.35	47.89	77.66	96.52	117.31	93.12	89.06	92.51	98.68	106.18	115.00	--	115.73	113.66	118.04	116.22	--	--	27.00	92.00	64.00	74.00	83.00	100.00
Alkalinity-Total	mg/L	156	48	29.9	55.4	28.4	63.7	67.9	83.3	72.2	64.4	72.9	85.5	78	89.5	91	95	95	98	99	138	28	17	71	48	63	71	80
Bicarbonate	mg/L	156	48	29.9	55.4	28.4	63.7	67.9	83.3	72.2	64.4	72.9	85.5	78	89.5	111	116	120	120	120	168	34	20	86	59	77	90	97
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calcium	mg/L	65.3	19.8	13.3	20.4	12.1	20.1	25.3	30.4	23.5	23.9	23.5	24.1	27.6	28.3	28.8	30.5	30.1	30.1	29.7	43.4	11.8	7.4	24	17	20.1	22.9	26.6
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.2	0.9	0.4	<0.4	0.14	0.7
Magnesium	mg/L	23.5	5.98	3.81	6.98	3.49	6.44	8.09	9.52	7.82	7.53	7.95	7.79	8.93	10.7	9.4	10.9	10.6	11.1	10.5	16	3.4	2	7.7	5.1	5.9	6.34	8.4
Potassium	mg/L	3.3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.7	0.9	0.8	0.9	0.8	1.4	1.6	0.8	0.7	<0.4	0.6	0.65	0.6
Sodium	mg/L	18.2	2.5	<2	2.3	<2	2.6	3.2	4.2	2.7	3.3	3.6	2.9	3.4	3.9	3.7	4.3	3.9	4.4	4.3	6.2	1.5	0.9	3	2	2.6	2.77	3.5
Sulphate	mg/L	136	22.2	12.2	20.3	9.25	21.1	27	37.7	29.9	29.6	29.8	28.1	33.1	30.6	30	32.7	31.9	32	31.4	38.7	11.7	6.23	26	17	19	26.5	30
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84.2	1.8	--	--	--	--
Nutrients																											
Ammonia-N	mg/L	***0.07***	***0.08***	***0.037***	***0.026***	***0.037***	<0.02	***0.049***	***2.88***	***0.055***	***0.082***	***0.041***	***0.026***	***0.047***	***0.066***	--	--	--	--	<0.01	<0.01	***0.018***	***0.025***	0.012	<0.05	<0.05	0.005	<0.05
Nitrate-N	mg/L	0.0451	0.082	0.0238	0.0675	0.0084	0.0469	0.0644	0.0554	0.0632	0.0436	0.0647	0.121	0.107	0.0909	0.11	0.1	0.14	0.13	0.11	0.17	<0.02	<0.02	0.08	0.04	0.06	0.05	0.07
Nitrite-N	mg/L	0.0038	<0.005	0.002	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	<0.005	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.005	<0.005	<0.005	0.04	<0.005
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	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																											
Cyanide - T	mg/L	0.0112	0.0332	0.0229	0.0078	0.0181	0.0109	0.0063	<0.005	<0.005	<0.005	0.0202	0.0069	0.0073	0.0055	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thiocyanate	mg/L	0.86	1.7	1.77	<0.5	1.29	0.63	<0.5	<0.5	<0.5	<0.5	0.62	1.91	<0.5	<0.5	0.9	0.6	<0.1	0.5	1	0.5	2.2	1.3	0.6	0.4	1.3	0.4	1.1
CN-WAD	mg/L	0.0051	<0.005	0.0167	<0.005	<0.005	0.0103	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<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	0.002
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	<0.002
Total Metals																											
Aluminum	mg/L	<0.2	***0.45***	***1.1***	***0.28***	***2.68***	<0.2	<0.2	<0.2	<0.2	***0.3***	***0.35***	***10.2***	<0.2	0.0366	--	0.036	0.016	0.075	***0.178***	0.041	***0.348***	***1.68***	0.054	***0.162***	0.09	0.043	0.065
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	0.00057	--	0.0005	0.0005	0.0006	0.0006	0.0008	0.0003	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003
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	0.00222	--	0.0012	0.0012	0.0018	0.002	0.002	0.0022	0.0026	0.0016	0.0013	0.0011	0.0016	0.0013
Barium	mg/L	0.097	0.059	0.056	0.044	0.09	0.053	0.053	0.073	0.048	0.064	0.064	0.224	0.069	0.0683	--	0.083	0.077	0.09	0.091	0.115	0.048	0.06	0.054	0.046	0.052	0.06	0.062
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	<0.0005	--	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	--	0.008	0.003	0.003	0.002	0.003	0.006	0.004	<0.002	0.003	0.003	0.003	0.003
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	<0.00005	--	0.00001	0.00001	***0.00002***	***0.00003***	***0.00004***	***0.0001***	***0.00012***	***0.00002***	***0.00003***	***0.00003***	***0.00003***	***0.00002***
Calcium	mg/L	68.5	18.7	13.5	20.4	12.6	20.4	25.2	31	24.1	23.4	24.3	24.2	27.7	29.1	--	29.2	28.7	29.3	28.9	39.9	12	7.3	24.7	16.3	19	25.1	26.9
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	<0.0005	--	0.0008	<0.0005	0.0006	0.0007	<0.0005	0.0035	0.0076	<0.0005	<0.0005	0.0006	0.0008	<0.0005
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	<0.0001	--	<0.0001	<0.0001	0.0001	0.0002	0.0001	0.0004	0.0014	<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	<0.01	<0.01	<0.01	<0.01	***0.025***	<0.01	0.0015	--	0.002	0.001	0.002	0.002	***0.003***	***0.005***	***0.011***	0.002	***0.003***	***0.003***	0.002	0.002
Iron	mg/L	0.072	***0.655***	***1.65***	***0.432***	***3.61***	0.225	0.231	0.171	0.278	***0.859***	***0.474***	***12.1***	0.264	0.055	--	<0.1	<0.1	<0.1	0.3	<0.1	***0.4***	***2.3***	0.1	0.3	0.17	0.13	0.17
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	***0.055***	<0.05	0.00028	--	0.0002	<0.0001	0.0004	0.0009	0.0015	0.0007	0.0029	0.0003	0.0005	0.0003	0.0006	<0.0001
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	<0.005	--	0.002	0.003	0.003	0.003	0.003	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/L	24	5.71	3.97	6.9	3.99	6.49	8.16	9.69	8	7.44	7.73	9.29	8.99	10.9	--	10.4	10.2	10.9	10.7	14.8	3.2	2.2	8	5.1	5.7	7.6	8.1
Manganese	mg/L	0.543	0.112	0.159	0.0439	0.176	0.018	0.0299	0.0284	0.036	0.0711	0.071	0.439	0.067	0.0163	--	<0.005	<0.005	0.006	0.011	0.006	0.068	0.074	<0.005	0.022	0.022	0.028	0.031
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	0.00031	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0013	0.0019	<0.0005	0.0007	0.0005	0.0007	0.0012
Potassium	mg/L	3.3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	3.2	<2	<2	--	0.8	1.1	1	0.9	1.3	1.9	1.1	0.4	0.6	0.6	0.7	0.6
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	<0.001	--	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Silicon	mg/L	9.3	3.87	3.81	4.21	8.09	5.48	5.77	6.4	5.27	6.25	6.77	21.1	6.77	6.76	--	6.02	5.88	6.07	5.46	7.86	2.39	4.17	4.86	4.77	5.43	5.32	5.63
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	<0.00001	--	<0.0001	<0.0001	<0.0001	<0.0001	0.00002	0.00001	***0.00014***	<0.00001	<0.00001	***0.00014***	<0.00001	<0.00001
Sodium	mg/L	18.8	2.1	<2	2.2	<2	2.6	3.2	4.3	2.8	3.3	3.3	3.3	3.6	4	--	4.7	4.3	5	4.2	6.1	1.5	0.9	3	2.1	2.8	3.6	3.8
Strontium	mg/L	0.454	0.155	0.112	0.189	0.101	0.176	0.219	0.257	0.22	0.205	0.214	0.227	0.248	0.259	--	0.266	0.307	0.309	0.307	0.374	0.102	0.08	0.221	0.158	0.188	0.229	0.255
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.5	10.4	10.6	10.5	14.9	3.9	1	8.6	5.3	5.9	9.3	10.3
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	<0.0001	--	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
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	<0.0001	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Titanium	mg/L	<0.01	0.014	0.037	<0.01	0.088	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.281	<0.01	<0.01	--	0.0021	0.0011	0.0013	0.0106	0.0026	0.0054	0.0611	0.0021	0.0034	0.0015	0.0019	0.0019
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0008	<0.0005	0.0006	0.0006	<0.0005	<0.0005	<0.0005	<0.0005
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	<0.001	--	0.0003	0.0003	0.0005	0.0008	0.0004	0.0008	0.0054	0.0005	0.0008	0.0005	0.0004	0.0004
Zinc	mg/L	0.0128	0.0122	0.0147	<0.005	***0.0329***	<0.005	<0.005	<0.005	0.0051	0.0059	<0.005	***0.113***	<0.005	0.0045	--	0.007	0.005	0.003	0.01	0.018	0.019	0.018	0.009	0.006	0.018	0.006	0.009

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

Sample ID		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	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road	Victoria at Road
Date	Units	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	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	14-Feb-08	9-May-08	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08
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	0.0089	0.007	0.006	0.013	0.005	0.005	<0.005	0.184	0.194	0.019	0.064	0.05	0.02	0.02
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	0.00055	0.0007	0.0006	0.0006	0.0005	0.0008	0.001	0.0006	0.0004	0.0005	0.0005	0.0005	0.0004	0.0003
Arsenic	mg/L	0.00598	0.00218	0.00153	0.00105	0.00204	0.00128	0.00145	0.00186	0.00121	0.00099	0.00114	0.00196	0.00104	0.0019	0.0027	0.001	0.0012	0.0012	0.0011	0.0013	0.0016	0.0014	0.0013	0.0012	0.0011	0.0016	0.0013
Barium	mg/L	0.093	0.056	0.035	0.039	0.04	0.052	0.051	0.071	0.045	0.056	0.057	0.049	0.063	0.0668	0.068	0.08	0.08	0.084	0.083	0.117	0.04	0.032	0.052	0.041	0.05	0.055	0.061
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	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001
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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.002	<0.002	0.002	<0.002	0.002	0.003	0.004	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002
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	<0.00005	0.00001	<0.00001	0.00001	0.00001	0.00002	0.00003	0.00008	0.00006	0.00001	0.00001	0.00003	<0.00008	0.00002
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	<0.0005	0.0006	<0.0005	0.0014	0.0009	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0018	<0.0005
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0002	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00145	0.019	0.001	0.001	0.001	0.001	0.002	0.004	0.005	0.002	0.002	0.003	0.011	0.002
Iron	mg/L	<0.03	0.176	0.249	0.096	0.232	0.142	0.12	0.109	0.09	0.11	0.097	0.063	0.099	<0.03	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.24	0.24	0.05	0.09	0.08	0.09	0.07
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	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	0.0002	0.0004	<0.0001	0.0003	<0.0001	<0.0001	<0.0001
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	<0.005	<0.001	0.002	0.002	0.003	0.002	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	0.512	0.0703	0.0079	0.0085	0.0056	<0.005	0.0207	0.0241	0.0199	<0.005	0.0442	0.0912	0.0552	0.0133	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	0.05	0.01	0.01	<0.005	0.011	0.0171	0.028
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	0.000338	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00035	<0.001
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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0011	0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
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	--	--	--	--	--	--	--	--	--	--	--	<0.01	--
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	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0043	<0.0002
Silicon	mg/L	8.93	3.39	2.5	3.92	4.27	5.38	5.65	6.22	5.14	6.09	6.34	6.45	6.56	6.58	<0.0001	6.45	6.15	6.14	5.94	8.31	2.5	2.03	5.07	5.06	5.69	4.52	5.9
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	<0.00001	6.21	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	0.444	0.165	0.11	0.192	0.0963	0.175	0.217	0.254	0.215	0.204	0.22	0.209	0.245	0.259	0.269	0.276	0.265	0.288	0.289	0.394	0.094	0.064	0.223	0.154	0.184	0.219	0.237
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	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00005
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	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<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	<0.01	<0.0005	0.0006	0.001	0.0007	0.0007	0.0008	0.0018	0.002	0.0012	0.0012	0.001	0.0007	0.0009
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0008	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0004	<0.0005
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	<0.001	0.0013	0.0015	0.0009	0.0023	0.0007	0.0017	0.0005	0.0007	0.0004	0.0007	0.0005	0.00065	0.0003
Zinc	mg/L	0.012	0.0103	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0028	0.005	0.004	0.004	0.003	0.009	0.012	0.014	0.011	0.002	0.002	0.011	0.002	0.002

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

Sample ID		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 AL Guidelines[1]	Water License Standards[2]
Date	Units	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08	26-Nov-08	10-Dec-08		
Physical Parameters												
pH	pH units	8.02	7.83	7.98	7.96	7.71	7.44	7.39	7.41	7.22	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	209	148	178	184	216	200	200	223	222	--	--
Routine Parameters												
Total Suspended Sediment	mg/L	1	9	3	1	<2	<2	6	6	<2	--	--
Total Dissolved Solids	mg/L	***120***	***84***	***100***	***112***	***140***	***130***	***130***	***140***	***140***	--	50
Hardness	mg/L	100.00	74.00	88.00	96.00	--	--	--	--	--	--	--
Alkalinity-Total	mg/L	82	48	68	72	76	81	85	88	89	--	--
Bicarbonate	mg/L	100	59	83	87	90	100	100	100	100	--	--
Carbonate	mg/L	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	27.4	20.1	23.3	25.4	26.6	27.3	27.1	28.5	24.7	--	--
Chloride	mg/L	0.4	0.6	0.4	0.6	0.24	0.11	0.16	0.27	0.28		
Magnesium	mg/L	8.4	5.8	7.2	8	8.75	9.07	9.11	9.53	8.25	--	--
Potassium	mg/L	0.7	0.6	0.4	0.6	0.5	0.7	0.7	0.6	0.7	--	--
Sodium	mg/L	3.3	2.4	2.6	3	3.3	3.4	3.1	3.3	3	--	--
Sulphate	mg/L	29	25	27	31.6	36	26.8	27.3	29.6	26.7	--	--
Turbidity	NTU	--	--	1.6	--	--	--	--	--	--	--	--
Nutrients												
Ammonia-N	mg/L	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	0.01	0.015	--
Nitrate-N	mg/L	0.06	0.08	0.08	0.1	0.13	0.09	0.11	0.12	0.12	2.9	--
Nitrite-N	mg/L	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	0.05	0.02	0.01	0.06	--
Total Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds												
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	--
Thiocyanate	mg/L	1.1	0.4	0.5	1	0.7	0.6	<0.1	0.6	<0.1	--	--
CN-WAD	mg/L	0.002	0.002	0.002	0.002	0.002	0.004	<0.002	0.002	0.002	0.1*	0.1
CN-SAD	mg/L	<0.002	0.002	<0.002	<0.002	0.002	0.008	<0.002	<0.002	0.002	--	--
Total Metals												
Aluminum	mg/L	0.061	***0.311***	***0.149***	0.053	0.038	0.038	0.032	0.018	0.018	0.1	--
Antimony	mg/L	0.0003	0.0005	0.0003	0.0003	0.0003	0.0005	0.0003	0.0004	0.0005	--	0.15
Arsenic	mg/L	0.0013	0.0017	0.0018	0.0011	0.001	0.0016	0.001	0.0012	0.0016	0.005	--
Barium	mg/L	0.066	0.053	0.055	0.059	0.064	0.065	0.072	0.069	0.07	--	1
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	0.004	0.003	0.002	<0.002	0.003	0.002	<0.002	0.003	<0.002	--	--
Cadmium	mg/L	***0.00002***	***0.00004***	***0.00004***	***0.00002***	***0.00002***	***0.0001***	***0.0001***	***0.0003***	***0.00018***	0.000017	0.02
Calcium	mg/L	27.8	19.7	22.9	24.2	25.8	26.6	27.6	28.5	29	--	--
Chromium	mg/L	<0.0005	0.0009	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0089	0.04
Cobalt	mg/L	0.0001	0.0003	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Copper	mg/L	0.002	***0.003***	***0.003***	0.002	0.002	***0.003***	0.002	0.002	0.002	0.002 - 0.004	0.2
Iron	mg/L	0.21	***0.44***	0.3	0.19	0.15	0.09	0.07	<0.05	<0.05	0.3	1
Lead	mg/L	<0.0001	0.0006	0.0017	0.0001	<0.0001	0.0004	0.0002	0.0002	0.0007	0.001 - 0.007	0.1
Lithium	mg/L	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	0.001	<0.001	--	--
Magnesium	mg/L	8.6	5.7	7.1	7.8	8.3	8.3	8.9	9.2	9.2	--	--
Manganese	mg/L	0.032	0.037	0.049	0.042	0.049	0.038	0.03	0.029	0.02	--	0.5
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.073	--
Nickel	mg/L	0.0007	0.0011	0.0011	0.0007	0.0006	<0.0005	0.0007	<0.0005	<0.0005	0.025 - 0.15	0.3
Potassium	mg/L	0.7	0.6	0.5	0.6	0.7	0.7	0.8	0.7	0.7	--	--
Selenium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	0.001	--
Silicon	mg/L	5.17	5.88	5.98	5.83	5.18	5.98	6.02	5.83	4.56	--	--
Silver	mg/L	<0.00001	0.00004	<0.00001	<0.00001	0.00006	0.00002	0.00004	0.00002	0.00002	0.0001	0.1
Sodium	mg/L	4.1	2.8	3.1	3.2	3.7	4	4	4	4.1	--	--
Strontium	mg/L	0.275	0.173	0.208	0.227	0.238	0.265	0.273	0.295	0.296	--	--
Sulphur	mg/L	9.9	8.2	9	10	10.9	9.2	8.8	9.1	9.6	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Titanium	mg/L	0.0016	0.0102	0.0045	0.0016	0.0011	0.0014	0.0015	0.0009	0.0007	--	--
Uranium	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0006	0.0006	0.0006		
Vanadium	mg/L	0.0004	0.0012	0.0009	0.0004	0.0004	0.0004	0.0003	0.0003	0.0002	--	--
Zinc	mg/L	0.004	0.011	0.012	0.007	0.006	0.009	0.013	0.006	0.012	0.03	0.3

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

Sample ID		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 AL Guidelines[1]	Water License Standards[2]
Date	Units	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08	26-Nov-08	10-Dec-08		
Dissolved Metals												
Aluminum	mg/L	0.018	0.055	0.042	0.038	0.023	0.011	0.01	0.006	<0.005	--	--
Antimony	mg/L	0.0003	0.0005	0.0003	0.0003	0.0006	0.0007	0.0006	0.0005	0.0008	--	--
Arsenic	mg/L	0.0015	0.0012	0.0011	0.001	0.001	0.0011	0.0011	0.0012	0.0016	--	0.15
Barium	mg/L	0.066	0.051	0.056	0.057	0.06	0.061	0.06	0.065	0.067	--	--
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Boron	mg/L	<0.002	<0.002	<0.002	0.002	<0.004	<0.004	<0.004	<0.004	<0.004	--	--
Cadmium	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	<0.00001	0.00006	--	--
Chromium	mg/L	0.0006	--	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	0.0004	0.0005	--	--
Cobalt	mg/L	0.0001	<0.0005	<0.0001	<0.0001	0.00015	0.0001	0.00009	0.00004	0.00008	--	--
Copper	mg/L	0.001	<0.0001	0.002	0.002	0.003	0.002	0.003	0.001	0.001	--	--
Iron	mg/L	0.05	0.002	0.09	0.08	0.077	0.027	0.011	<0.01	<0.01	--	--
Lead	mg/L	<0.0001	0.12	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Lithium	mg/L	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Manganese	mg/L	0.026	0.022	0.042	0.042	0.0455	0.0264	0.0248	0.024	0.0214	--	--
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	0.00033	0.0003	0.00032	0.00029	0.00027	--	--
Nickel	mg/L	0.0006	0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Phosphorus	mg/L	--	--	--	--	<0.01	<0.01	<0.01	<0.01	0.01	--	--
Selenium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	--	--
Silicon	mg/L	5.62	6.16	6.22	6.22	5.71	6.02	5.72	5.66	5.94	--	--
Silver	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.25	0.167	0.194	0.223	0.232	0.257	0.251	0.265	0.266	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	--	--
Titanium	mg/L	0.0012	0.0012	0.001	0.0012	0.0008	0.0006	0.0005	0.0007	0.0005	--	--
Uranium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0004	0.0004	0.0004	0.0005	0.0004		
Vanadium	mg/L	0.0012	0.0008	0.0005	0.0004	0.0003	0.00031	0.00028	0.00026	0.00032	--	--
Zinc	mg/L	0.001	0.002	0.002	0.002	0.002	0.002	0.004	0.002	0.004	--	--

Table A4. Water Quality Parameters in Back Creek, upstream of confluence with Victoria Creek.

Sample ID	Units	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	CCME AL Guidelines[1]	Water License Standards[2]
Date		22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08		
Physical Parameters														
pH	pH units	--	8.06	7.97	8.06	8.08	8.24	8.11	7.92	8.04	8.03	7.67	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	65	269	235	240	302	308	344	228	272	269	303	--	--
Routine Parameters														
Total Suspended Sediment	mg/L	3200	9	57	5	36	2	2	8	3	1	<2	--	--
Total Dissolved Solids	mg/L	23	***162***	***145***	***143***	--	***180***	***205***	***134***	***158***	***173***	***196***	--	50
Hardness	mg/L	30	140	120	120	149	152	174	110	130	146	--	--	--
Alkalinity-Total	mg/L	21	84	78	76	96	97	113	64	80	90	95	--	--
Bicarbonate	mg/L	20	103	95	93	100	119	138	77	98	110	100	--	--
Carbonate	mg/L	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Chloride	mg/L	9	39.4	35.2	35.4	44	43.4	50.3	33.4	38.9	42.1	41.6	--	--
Calcium	mg/L	1	0.6	0.5	2.4	0.21	0.7	0.5	0.4	0.6	0.6	0.36		
Magnesium	mg/L	1.9	9.6	8.2	8.2	9.58	10.6	11.8	7.5	9	9.8	9.98	--	--
Potassium	mg/L	0.8	0.9	0.5	0.8	0.87	0.7	0.8	0.7	0.6	0.8	0.7	--	--
Sodium	mg/L	1	3.4	2.7	3.2	3.24	3.7	4.2	3.2	3.3	3.8	3.8	--	--
Sulphate	mg/L	9.41	57.6	51.1	47.3	61	62.2	69.8	50.4	57.8	62.3	65.3	--	--
Turbidity	NTU	1080	13.1	--	--	--	--	--	--	2.8	--	--	--	--
Nutrients														
Ammonia-N	mg/L	***0.039***	0.012	<0.05	<0.05	0.008	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.015	--
Nitrate-N	mg/L	<0.02	0.04	<0.01	0.06	<0.01	0.03	0.02	0.1	0.01	0.02	0.03	2.9	--
Nitrite-N	mg/L	<0.02	<0.005	<0.005	<0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	0.02	0.06	--
Total Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds														
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	0.2	0.5	--
Thiocyanate	mg/L	2.1	0.8	0.4	1.4	0.4	0.9	1.1	0.9	0.7	0.9	0.6	--	--
CN-WAD	mg/L	0.004	0.002	0.002	0.004	<0.002	0.002	0.002	0.002	0.002	0.002	0.002	--	0.1
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	--	--
Total Metals														
Aluminum	mg/L	***41.1***	***0.485***	***3.29***	***0.184***	***0.138***	***0.171***	0.053	***0.321***	***0.193***	0.058	0.036	0.1	--
Antimony	mg/L	0.0043	0.0004	0.0009	0.0004	0.0005	0.0004	0.0003	0.0005	0.0004	0.0003	0.0002	--	0.15
Arsenic	mg/L	***0.253***	0.004	***0.0224***	0.0037	0.0035	0.0033	0.0033	0.0033	0.0049	0.0024	0.0026	0.005	--
Barium	mg/L	0.857	0.063	0.099	0.054	0.062	0.058	0.064	0.057	0.057	0.06	0.073	--	1
Beryllium	mg/L	0.002	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	0.003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	0.01	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	<0.002	0.003	--	--
Cadmium	mg/L	***0.00617***	***0.00013***	***0.00039***	***0.00011***	***0.0001***	***0.00009***	***0.00009***	***0.00011***	***0.00012***	***0.00007***	***0.00006***	0.000017	0.02
Calcium	mg/L	24.5	40.5	34.9	32.7	40.3	43.2	50	32.4	39	38.8	40	--	--
Chromium	mg/L	***0.0492***	0.0005	0.0034	<0.0005	0.0005	<0.0005	<0.0005	0.001	0.0009	<0.0005	<0.0005	0.0089	0.04
Cobalt	mg/L	0.0294	0.0003	0.0019	0.0002	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0008	--	--
Copper	mg/L	***0.097***	***0.003***	***0.009***	***0.003***	0.002	***0.003***	0.002	***0.003***	***0.004***	0.002	0.002	0.002 - 0.004	0.2
Iron	mg/L	***59.1***	***0.6***	***4.4***	***0.35***	***0.45***	***0.46***	***0.49***	***0.49***	***0.54***	***0.34***	***0.38***	0.3	1
Lead	mg/L	***0.205***	0.002	***0.0172***	0.001	0.0008	0.0006	0.0003	0.001	0.0014	0.0002	0.0002	0.001 - 0.007	0.1
Lithium	mg/L	0.025	0.001	0.003	0.001	0.001	0.002	0.002	0.001	0.002	0.001	0.002	--	--
Magnesium	mg/L	11	9.7	8.6	7.7	9.5	10.3	12	7.4	9.2	9.1	9.4	--	--
Manganese	mg/L	3.03	0.156	0.37	0.19	0.227	0.321	0.389	0.218	0.36	0.397	0.788	--	0.5
Molybdenum	mg/L	0.005	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.073	--
Nickel	mg/L	***0.032***	0.0007	0.002	<0.0005	<0.0005	0.001	0.0009	0.0011	0.001	0.001	0.0012	0.025 - 0.15	0.3
Potassium	mg/L	7	0.7	1.8	0.7	0.8	0.7	0.8	0.7	0.7	0.7	0.7	--	--
Selenium	mg/L	0.001	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001	--
Silicon	mg/L	36.8	6.21	9.97	6.55	6.23	6.7	6.85	6.85	6.74	6.16	5.6	--	--
Silver	mg/L	***0.00163***	0.00009	***0.00016***	0.0001	0.00001	0.00001	<0.00001	0.00001	0.00001	<0.00001	<0.00001	0.0001	0.1
Sodium	mg/L	3	3.2	3.5	3.4	3.7	4.4	4.8	3.5	4.2	3.9	4.3	--	--
Strontium	mg/L	0.21	0.251	0.243	0.218	0.288	0.304	0.355	0.218	0.276	0.278	0.287	--	--
Sulphur	mg/L	3.7	19.2	16.3	14.8	19.6	20.6	23.3	16.5	19.6	19.6	19.4	--	--
Thallium	mg/L	0.00075	<0.00005	0.00009	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	mg/L	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Titanium	mg/L	1.33	0.0126	0.1	0.005	0.0071	0.0063	0.003	0.0114	0.0068	0.0029	<0.0005	--	--
Uranium	mg/L	0.0064	0.0015	0.0016	0.0009	0.0011	0.001	0.0014	0.0006	0.0009	0.0009	0.0008		
Vanadium	mg/L	0.125	0.0014	0.0082	0.001	0.0009	0.0007	0.0005	0.0011	0.001	0.0004	0.0004	--	--
Zinc	mg/L	***0.506***	0.016	***0.043***	0.012	0.006	0.011	0.006	0.013	0.022	0.006	0.011	0.03	0.3

Table A4. Water Quality Parameters in Back Creek, upstream of confluence with Victoria Creek.

Sample ID	Units	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	Back Creek	CCME AL Guidelines[1]	Water License Standards[2]
Date		22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08		
Dissolved Metals														
Aluminum	mg/L	0.213	0.016	0.023	0.039	0.01	0.012	0.007	0.032	0.019	0.012	0.009	--	--
Antimony	mg/L	0.0006	0.0005	0.0005	0.0007	0.0006	0.0004	0.0003	0.0005	0.0004	0.0003	0.0005	--	--
Arsenic	mg/L	0.0036	0.0022	0.0028	0.0031	0.0028	0.0026	0.0027	0.0024	0.0028	0.0022	0.0022	--	0.15
Barium	mg/L	0.041	0.055	0.046	0.05	0.053	0.055	0.06	0.052	0.059	0.059	0.073	--	--
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	--	--
Boron	mg/L	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	--	--
Cadmium	mg/L	0.00016	0.00007	0.00009	0.00009	<0.00008	0.00007	0.00005	0.00009	0.00007	0.00007	0.00008	--	--
Chromium	mg/L	<0.0005	<0.0005	0.0006	<0.0005	0.0015	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0004	--	--
Cobalt	mg/L	0.0006	0.0001	0.0001	0.0001	0.00016	0.0001	0.0002	<0.0005	0.0002	0.0003	0.00069	--	--
Copper	mg/L	0.018	0.004	0.002	0.003	<0.001	0.002	0.002	0.0002	0.002	0.002	0.003	--	--
Iron	mg/L	0.41	0.06	0.03	0.14	0.24	0.13	0.03	0.002	0.19	0.14	0.149	--	--
Lead	mg/L	0.0012	<0.0001	0.0003	<0.0001	0.0001	<0.0001	<0.0001	0.15	<0.0001	<0.0001	<0.0001	--	--
Lithium	mg/L	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0001	0.001	0.001	<0.001	--	--
Manganese	mg/L	0.175	0.171	0.206	0.19	0.21	0.31	0.381	0.208	0.349	0.437	0.792	--	--
Molybdenum	mg/L	0.175	<0.001	<0.001	<0.001	0.00069	<0.001	<0.001	<0.001	<0.001	<0.001	0.00045	--	--
Nickel	mg/L	0.0016	0.0009	<0.0005	<0.0005	<0.001	<0.0005	0.0007	0.0006	<0.0005	0.0006	0.001	--	--
Phosphorus	mg/L	--	--	--	--	<0.01	--	--	--	--	--	<0.01	--	--
Selenium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	--	--
Silicon	mg/L	2.3	5.75	5.74	6.85	5.28	6.84	6.96	7.23	6.97	6.63	6.34	--	--
Silver	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.06	0.263	0.232	0.224	0.275	0.277	0.332	0.212	0.237	0.262	0.275	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	--	--
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	--	--
Titanium	mg/L	0.0061	0.0026	0.0026	0.002	0.0006	0.0015	0.0024	0.0023	0.0018	0.002	0.0011	--	--
Uranium	mg/L	<0.0005	0.0013	0.0012	0.0008	0.0009	0.001	0.0012	0.0006	0.0008	0.0009	0.0008		
Vanadium	mg/L	0.0012	0.0006	0.0006	0.0012	0.00076	0.0003	0.0011	0.0007	0.0005	0.0003	0.00016	--	--
Zinc	mg/L	0.01	0.003	0.006	0.004	0.002	0.002	0.001	0.003	0.002	0.002	0.004	--	--

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A5. Water Quality Parameters in Dome Creek at DX and D1.

Sample ID		Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X
Date	Units	26-Jul-07	9-Aug-07	18-Sep-07	9-May-08	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08
Physical Parameters																
pH	pH units	--	7.59	7.77	7.33	--	7.7	7.69	7.74	7.34	7.94	7.54	7.86	7.93	8.01	7.28
Conductivity	µS/cm	--	538	478	136	92	256	422	387	418	396	485	487	532	544	562
Routine Parameters																
Total Suspended Sediment	mg/L	--	--	--	--	29	8	2	28	14	190	110	6	8	34	22
Total Dissolved Solids	mg/L	--	--	--	--	34	***160***	***283***	***251***	--	***242***	***310***	***318***	***348***	***369***	***380***
Hardness	mg/L	--	--	--	--	41	120	218	194	199	188	243	251	274	289	0.029
Alkalinity-Total	mg/L	--	86	76	34	27	54	83	75	78	74	97	86	96	101	107
Bicarbonate	mg/L	--	86	76	42	30	65	102	91	100	91	118	105	116	123	130
Carbonate	mg/L	--	<2.0	<2.0	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Hydroxide	mg/L	--	<2.0	<2.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calcium	mg/L	--	78.3	65.5	18.4	11.9	34.7	62	55.7	57.7	53.3	69.4	71.3	77.3	81.4	79.2
Chloride	mg/L	--	--	--	--	1.1	<0.4	<0.4	3.4	0.07	0.8	<0.4	1.5	0.5	0.4	0.07
Magnesium	mg/L	--	19.6	16.2	4.6	2.8	8.6	15.4	13.4	13.3	13.4	17	17.7	19.6	20.9	20.3
Potassium	mg/L	--	3.8	4.7	6.9	2.3	3.8	3.9	3.9	3.66	4.2	4.2	3.8	4	4.1	3.8
Sodium	mg/L	--	4.2	4.3	1	0.8	3	3.8	3.8	3.49	3.9	4.4	4	4.1	4.6	4.4
Sulphate	mg/L	--	191	162	26	16.2	78	148	126	136	122	156	168	185	197	195
Turbidity	NTU	--	--	--	--	1	3.4	--	--	--	--	--	--	0.8	--	--
Nutrients																
Ammonia-N	mg/L	--	***0.183***	***0.226***	0.011	***0.016***	0.013	<0.05	<0.05	0.007	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01
Nitrate-N	mg/L	--	0.0133	0.0325	<0.02	<0.02	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.06	0.03	0.05	0.05
Nitrite-N	mg/L	--	<0.0010	<0.0010	<0.02	<0.02	<0.005	<0.005	<0.005	0.04	<0.005	<0.005	<0.005	<0.005	<0.005	***0.12***
Total Phosphorus	mg/L	--	1.96	0.82	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	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
Thiocyanate	mg/L	--	0.88	2.32	2.2	1.6	0.7	0.2	1.4	0.3	1.2	1.2	0.2	1.1	1.1	0.7
CN-WAD	mg/L	--	--	--	0.004	0.004	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	0.006	0.002	0.002	0.002	<0.002	<0.002	<0.002	0.002	0.002
Total Metals																
Aluminum	mg/L	--	***13.3***	***6.08***	***0.174***	***0.236***	***0.118***	0.03	***0.167***	***1.18***	***2.62***	***4.38***	***0.15***	***0.613***	0.066	0.055
Antimony	mg/L	--	<0.20	<0.20	0.0006	0.0008	0.0009	0.0009	0.0011	0.0016	0.0022	0.0026	0.0009	0.0013	0.0008	0.001
Arsenic	mg/L	--	<0.20	<0.20	***0.0067***	***0.0054***	0.0028	0.0018	***0.0073***	***0.016***	***0.029***	***0.0473***	0.0039	***0.018***	0.002	0.0028
Barium	mg/L	--	0.274	0.169	0.024	0.021	0.03	0.038	0.038	0.052	0.081	0.12	0.043	0.054	0.043	0.049
Beryllium	mg/L	--	<0.0050	<0.0050	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth	mg/L	--	<0.20	<0.20	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Boron	mg/L	--	<0.10	<0.10	0.003	0.002	<0.002	0.002	0.002	0.003	0.002	0.004	0.002	<0.002	<0.002	<0.002
Cadmium	mg/L	--	<0.010	<0.010	***0.00004***	***0.00003***	0.00001	0.00001	***0.00006***	***0.0001***	***0.00022***	***0.00035***	***0.00002***	***0.0001***	***0.00002***	***0.00003***
Calcium	mg/L	--	90.9	68.5	18.4	12	35.4	60.1	52.7	56.2	54.6	71.3	69.4	75.7	77	75.5
Chromium	mg/L	--	***0.016***	<0.010	0.0026	0.0009	<0.0005	<0.0005	<0.0005	***0.022***	0.0031	0.0054	<0.0005	0.001	0.0005	<0.0005
Cobalt	mg/L	--	<0.010	<0.010	0.0001	0.0002	<0.0001	<0.0001	0.0002	0.001	0.0014	0.0024	0.0002	0.0007	0.0001	0.0002
Copper	mg/L	--	***0.032***	***0.017***	***0.003***	***0.003***	0.002	0.001	***0.003***	***0.006***	***0.008***	***0.013***	0.002	***0.004***	0.001	0.001
Iron	mg/L	--	***21.9***	***10.9***	0.2	0.3	0.2	<0.1	***0.64***	***2.08***	***3.95***	***6.98***	0.26	***1.6***	0.15	0.2
Lead	mg/L	--	<0.050	<0.050	0.0003	0.0006	0.0003	0.0001	0.0012	0.0026	***0.005***	***0.0076***	0.0004	0.002	0.0002	0.0003
Lithium	mg/L	--	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.004	0.001	0.002	0.001	0.001
Magnesium	mg/L	--	24.6	18.2	4.2	3.1	8.8	15.4	12.9	13.9	13.5	18.4	17.5	19.4	20.1	19.7
Manganese	mg/L	--	0.576	0.319	0.007	0.014	<0.005	0.031	0.086	0.082	0.089	0.153	0.022	0.112	0.028	0.038
Molybdenum	mg/L	--	<0.030	<0.030	***<0.001***	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	mg/L	--	<0.050	<0.050	***<0.0005***	0.0005	<0.0005	<0.0005	<0.0005	0.01	0.003	0.0054	0.0006	0.0008	0.0007	0.0007
Potassium	mg/L	--	5.2	5.3	6.7	2.4	3.7	4.2	3.7	3.7	4.3	4.9	3.7	4.1	4	4
Selenium	mg/L	--	<0.20	<0.20	***<0.0002***	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002
Silicon	mg/L	--	18.9	12.9	3.03	2.41	4.21	4.44	4.52	5.84	7.6	9.63	4.48	5.14	4.6	4.52
Silver	mg/L	--	<0.010	<0.010	0.00002	0.00008	<0.00001	<0.00001	0.00002	0.00005	***0.00011***	***0.00017***	0.00002	0.00002	<0.00001	0.00004
Sodium	mg/L	--	4.9	4.6	0.9	1	3.2	4.4	4.1	4.2	4.2	5.3	4.5	5.1	4.6	4.8
Strontium	mg/L	--	0.27	0.235	0.067	0.048	0.115	0.196	0.17	0.19	0.199	0.257	0.238	0.259	0.263	0.256
Sulphur	mg/L	--	--	--	9	5.4	25.3	46.6	40.1	43.5	40.6	52.4	54.8	59.7	62.6	59.3
Thallium	mg/L	--	<0.20	<0.20	***<0.00005***	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.0001	0.00015	<0.00005	<0.00005	<0.00005	<0.00005
Tin	mg/L	--	<0.030	<0.030	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table A5. Water Quality Parameters in Dome Creek at DX and D1.

Sample ID		Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X	Dome-X
Date	Units	26-Jul-07	9-Aug-07	18-Sep-07	9-May-08	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08
Titanium	mg/L	--	0.505	0.236	0.0044	0.0108	0.0058	0.002	0.0089	0.0585	0.1	0.179	0.0124	0.0369	0.0069	0.0062
Uranium	mg/L	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	mg/L	--	0.068	<0.030	0.0006	0.0011	0.0006	0.0003	0.0013	0.0046	0.0091	0.0164	0.0007	0.0052	0.0003	0.0004
Zinc	mg/L	--	***0.185***	***0.065***	0.009	0.009	0.004	0.006	0.01	0.016	0.026	***0.045***	0.008	0.014	***0.043***	0.008
Dissolved Metals																
Aluminum	mg/L	--	<0.20	<0.20	0.13	0.06	0.015	0.008	0.011	<0.01	0.013	0.01	0.011	0.01	0.008	0.006
Antimony	mg/L	--	<0.20	<0.20	0.0008	0.0009	0.0011	0.0011	0.0013	0.0014	0.0013	0.0012	0.001	0.0009	0.001	0.0013
Arsenic	mg/L	0.00492	0.0123	0.00598	0.0066	0.0034	0.0025	0.0019	0.002	0.0026	0.0027	0.0028	0.0023	0.0021	0.0019	0.0014
Barium	mg/L	--	0.064	0.067	0.021	0.018	0.03	0.035	0.031	0.032	0.044	0.05	0.043	0.043	0.043	0.046
Beryllium	mg/L	--	<0.0050	<0.0050	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004
Bismuth	mg/L	--	<0.20	<0.20	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001
Boron	mg/L	--	<0.10	<0.10	0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004
Cadmium	mg/L	--	<0.010	<0.010	0.00003	0.00002	<0.00001	<0.00001	0.00001	<0.00008	0.00001	0.00002	0.00002	0.00002	0.00002	0.00003
Chromium	mg/L	--	<0.010	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0004
Cobalt	mg/L	--	<0.010	<0.010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00014	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	0.00016
Copper	mg/L	--	<0.010	<0.010	0.003	0.002	0.001	<0.001	0.002	<0.001	0.002	0.001	<0.0001	0.001	<0.001	0.005
Iron	mg/L	--	0.328	0.416	0.13	0.08	0.02	<0.01	0.03	0.02	0.03	0.01	0.001	0.03	0.02	0.027
Lead	mg/L	--	<0.050	<0.050	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.03	<0.0001	<0.0001	<0.0001
Lithium	mg/L	--	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001
Manganese	mg/L	--	0.248	0.182	<0.005	<0.005	<0.005	0.022	0.046	0.0272	0.017	0.023	0.018	0.017	0.017	0.029
Molybdenum	mg/L	--	<0.030	<0.030	<0.001	<0.001	<0.001	<0.001	<0.001	0.00008	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00002
Nickel	mg/L	--	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.0005	0.0006	<0.0005	<0.0005	<0.0005	0.004
Phosphorus	mg/L	--	<0.30	<0.30	--	--	--	--	--	<0.01	--	--	--	--	--	<0.01
Selenium	mg/L	--	<0.20	<0.20	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006
Silicon	mg/L	--	4.17	5.06	3.42	2.22	4.44	4.66	4.63	3.82	4.96	5	4.79	4.87	4.77	4.68
Silver	mg/L	--	<0.010	<0.010	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	--	0.229	0.214	0.063	0.046	0.121	0.191	0.164	0.168	0.179	0.222	0.23	0.228	0.252	0.248
Thallium	mg/L	--	<0.20	<0.20	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001
Tin	mg/L	--	<0.030	<0.030	<0.001	<0.001	<0.001	<0.001	<0.001	0.0007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001
Titanium	mg/L	--	<0.010	<0.010	0.0031	0.0012	0.0034	0.0012	0.0043	0.0003	0.0034	0.0058	0.0063	0.0047	0.0057	0.0007
Uranium	mg/L	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004
Vanadium	mg/L	--	<0.030	<0.030	0.0006	0.0004	0.0004	0.0006	0.0004	0.00042	0.0004	0.0012	0.0006	0.0004	0.0003	0.00012
Zinc	mg/L	--	<0.0050	<0.0050	0.008	0.009	0.004	0.004	0.005	0.002	0.002	0.002	0.002	0.002	0.002	0.004

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A5. Water Quality Parameters in Dome Creek at DX and D1.

Sample ID		D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	CCME AL Guidelines[1]	Water License Standards[2]
Date	Units	26-Jul-07	9-Aug-07	18-Sep-07	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08		
Physical Parameters																
pH	pH units	8.11	8.17	8.25	8.14	8.05	8.05	7.95	8.23	8.08	8.1	8.17	8.23	7.98	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	1050	1030	1130	998	924	1020	1080	1130	1140	789	1090	1050	1130	--	--
Routine Parameters																
Total Suspended Sediment	mg/L	--	--	--	<1	1	14	<2	3	28	11	2	2	4	--	--
Total Dissolved Solids	mg/L	--	--	--	***738***	***678***	***734***	--	***821***	***819***	***547***	***782***	***796***	***841***	--	50
Hardness	mg/L	--	--	--	603	548	603	668	689	678	453	640	656	0.72	--	--
Alkalinity-Total	mg/L	253	244	244	205	199	202	230	248	266	174	234	246	256	--	--
Bicarbonate	mg/L	253	244	244	250	242	246	280	302	324	213	286	300	310	--	--
Carbonate	mg/L	<2.0	<2.0	<2.0	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<2.0	<2.0	<2.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	166	162	169	157	143	157	178	180	176	119	167	171	169	--	--
Chloride	mg/L	--	--	--	<0.4	<0.4	3.6	0.25	0.7	0.5	0.6	0.5	3.1	0.17		
Magnesium	mg/L	53.1	56	55.7	51.2	46.5	51	54.4	58.4	57.5	37.7	54	55.5	55	--	--
Potassium	mg/L	3.5	3.1	3.8	3.4	2.9	3.5	3.47	3.6	3.6	3	3.6	3.7	3.4	--	--
Sodium	mg/L	5.7	4.8	5.5	5	4.2	5.2	5	5.6	5.4	4.4	5.2	5.4	4.4	--	--
Sulphate	mg/L	357	360	399	399	362	392	416	424	416	277	411	410	438	--	--
Turbidity	NTU	--	--	--	0.4	--	--	--	--	--	--	1.3	--	--	--	--
Nutrients																
Ammonia-N	mg/L	***0.76***	***0.042***	***0.047***	0.006	<0.05	<0.05	0.007	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.015	--
Nitrate-N	mg/L	0.0988	0.0598	0.0518	0.05	0.03	0.04	0.03	0.03	0.02	0.13	0.17	0.12	0.09	2.9	--
Nitrite-N	mg/L	<0.0010	<0.0010	0.0011	<0.005	<0.005	<0.005	***0.1***	<0.005	<0.005	<0.005	<0.005	<0.005	***0.23***	0.06	--
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	--	--
Thiocyanate	mg/L	0.74	0.78	0.79	0.8	0.8	1.3	<0.1	1.1	1	0.7	0.7	1	0.7	--	--
CN-WAD	mg/L	--	--	--	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	--	0.1
CN-SAD	mg/L	--	--	--	0.002	0.002	0.002	<0.002	0.002	<0.002	<0.002	<0.002	0.002	0.002	--	--
Total Metals																
Aluminum	mg/L	<0.20	<0.20	<0.20	0.012	0.017	0.015	***0.154***	0.012	0.034	***0.104***	0.029	0.028	0.037	0.1	--
Antimony	mg/L	<0.20	<0.20	<0.20	0.0083	0.0081	0.0091	0.0096	0.0095	0.0088	0.0058	0.0076	0.0072	0.0084	--	0.15
Arsenic	mg/L	<0.20	<0.20	<0.20	***0.0118***	***0.0116***	***0.0149***	***0.0255***	***0.0116***	***0.0129***	***0.0179***	***0.0166***	***0.0151***	***0.0172***	0.005	--
Barium	mg/L	0.022	0.014	0.017	0.029	0.027	0.023	0.026	0.023	0.023	0.028	0.022	0.021	0.02	--	1
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	<0.10	<0.10	<0.10	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.005	0.004	0.005	--	--
Cadmium	mg/L	<0.010	<0.010	<0.010	***0.00026***	***0.00015***	***0.0005***	***0.00136***	***0.00053***	***0.00071***	***0.00123***	***0.00492***	***0.00427***	***0.00607***	0.000017	0.02
Calcium	mg/L	168	159	171	157	138	150	156	171	176	114	160	160	162	--	--
Chromium	mg/L	<0.010	<0.010	<0.010	<0.0005	<0.0005	<0.0005	0.0012	***0.0317***	0.0021	<0.0005	<0.0005	<0.0005	<0.0005	0.0089	0.04
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.0001	<0.0001	<0.0001	0.0004	0.0004	0.0001	0.0004	0.0008	0.0007	0.0007	--	--
Copper	mg/L	<0.010	<0.010	<0.010	0.001	***0.003***	0.002	***0.004***	0.002	0.001	0.002	0.002	0.001	0.002	0.002 - 0.004	0.2
Iron	mg/L	0.04	0.078	0.147	<0.1	<0.1	0.12	***0.64***	***0.32***	0.12	0.29	0.22	0.2	0.24	0.3	1
Lead	mg/L	<0.050	<0.050	<0.050	0.0004	0.0003	0.0007	0.002	<0.0001	0.0003	0.0023	0.0006	0.0006	0.0006	0.001 - 0.007	0.1
Lithium	mg/L	<0.010	<0.010	0.01	0.009	0.008	0.009	0.01	0.011	0.011	0.007	0.013	0.011	0.014	--	--
Magnesium	mg/L	53.8	55.6	56.1	52.4	46.4	49.8	51.7	56.7	58.4	36.5	52.4	52.1	53.8	--	--
Manganese	mg/L	0.0806	0.15	0.318	<0.005	0.006	0.032	0.186	0.027	0.062	0.256	0.671	0.592	0.688	--	0.5
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.073	--
Nickel	mg/L	<0.050	<0.050	<0.050	<0.0005	<0.0005	0.001	0.0047	0.0123	0.0013	0.0012	0.0021	0.0024	0.0026	0.025 - 0.15	0.3
Potassium	mg/L	3.5	3	3.6	3	3.2	3.2	3.2	3.4	3.7	2.9	3.6	3.7	3.5	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0004	0.0003	0.001	--
Silicon	mg/L	6.5	5.6	6.45	5.22	4.97	5.82	5.86	5.86	5.91	6.06	5.96	5.99	5.62	--	--
Silver	mg/L	<0.010	<0.010	<0.010	0.00004	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	0.00003	<0.00001	<0.00001	0.00002	0.0001	0.1
Sodium	mg/L	5.7	4.9	5.5	4.7	4.7	5.4	5.4	5.9	5.8	4.5	5.4	5.4	5.5	--	--
Strontium	mg/L	0.401	0.36	0.415	0.386	0.365	0.404	0.414	0.457	0.474	0.325	0.442	0.468	0.452	--	--
Sulphur	mg/L	--	--	--	136	115	127	132	140	142	89.6	131	132	133	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00007	0.00007	0.00008	0.0008	--
Tin	mg/L	<0.030	<0.040	<0.030	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--

Table A5. Water Quality Parameters in Dome Creek at DX and D1.

Sample ID		D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	CCME AL Guidelines[1]	Water License Standards[2]
Date	Units	26-Jul-07	9-Aug-07	18-Sep-07	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08		
Titanium	mg/L	<0.010	<0.010	<0.010	0.0035	0.0032	0.0031	0.0213	0.0108	0.0116	0.0113	0.0098	0.0105	0.0107	--	--
Uranium	mg/L	--	--	--	0.004	0.0037	0.0037	0.0036	0.0036	0.0036	0.002	0.0035	0.0033	0.0038		
Vanadium	mg/L	<0.030	<0.030	<0.030	0.0002	0.0004	0.0005	0.001	<0.0001	0.0004	0.0006	0.0004	0.0003	0.0004	--	--
Zinc	mg/L	***0.175***	***0.223***	***0.338***	***0.11***	***0.051***	***0.176***	***0.206***	***0.19***	***0.183***	***0.289***	***1.4***	***1.12***	***1.26***	0.03	0.3
Dissolved Metals																
Aluminum	mg/L	<0.20	<0.20	<0.20	0.01	0.006	0.007	<0.01	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	--	--
Antimony	mg/L	<0.20	<0.20	<0.20	0.0081	0.009	0.0101	0.0101	0.0097	0.0096	0.0062	0.0082	0.0085	0.0094	--	--
Arsenic	mg/L	0.0103	0.0106	0.00433	0.0122	0.0126	0.0126	0.0131	0.0122	0.013	0.0099	0.008	0.0077	0.0062	--	0.15
Barium	mg/L	0.021	0.015	0.018	0.029	0.025	0.021	0.021	0.022	0.022	0.027	0.023	0.02	0.018	--	--
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	--	--
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	--	--
Boron	mg/L	<0.10	<0.10	<0.10	0.003	0.003	0.003	<0.004	0.004	0.003	0.002	0.003	0.004	<0.004	--	--
Cadmium	mg/L	<0.010	<0.010	<0.010	0.00019	0.00011	0.00036	0.00046	0.00041	0.00062	0.00092	0.00436	0.00433	0.00578	--	--
Chromium	mg/L	<0.010	<0.010	<0.010	<0.0005	<0.0005	<0.0005	0.0038	<0.0005	0.0008	--	<0.0005	<0.0005	<0.0004	--	--
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.0001	<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.0005	0.0007	0.0005	0.00071	--	--
Copper	mg/L	<0.010	<0.010	<0.010	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.0003	0.001	<0.001	0.011	--	--
Iron	mg/L	<0.030	<0.030	<0.030	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.001	<0.01	<0.01	<0.01	--	--
Lead	mg/L	<0.050	<0.050	<0.050	<0.0001	0.0002	<0.0001	0.0002	<0.0001	<0.0001	0.02	<0.0001	<0.0001	0.0004	--	--
Lithium	mg/L	<0.010	<0.010	<0.010	0.008	0.008	0.008	0.008	0.009	0.01	<0.0001	0.011	0.01	0.01	--	--
Manganese	mg/L	0.0767	0.146	0.301	<0.005	<0.005	<0.005	0.0082	0.018	0.028	0.24	0.706	0.652	0.72	--	--
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.001	<0.001	<0.001	0.00022	<0.001	<0.001	<0.001	<0.001	<0.001	0.00021	--	--
Nickel	mg/L	<0.050	<0.050	<0.050	<0.0005	<0.0005	0.0011	<0.001	<0.0005	0.0009	0.0007	<0.0005	0.001	0.004	--	--
Phosphorus	mg/L	<0.30	<0.30	<0.30	--	--	--	<0.01	--	--	--	--	--	<0.01	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.0002	<0.0002	<0.0002	<0.0006	<0.0002	<0.0002	0.0002	0.0002	<0.0002	<0.0006	--	--
Silicon	mg/L	6.4	5.59	6.31	5.58	5.26	6.03	5.3	6.2	6.04	6.41	6.44	6.33	6.07	--	--
Silver	mg/L	<0.010	<0.010	<0.010	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.399	0.356	0.406	0.386	0.358	0.408	0.425	0.427	0.432	0.317	0.402	0.442	0.448	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.00005	<0.00005	<0.00005	<0.00001	<0.00005	<0.00005	<0.00005	0.00007	0.00006	0.00007	--	--
Tin	mg/L	<0.030	<0.030	<0.030	<0.001	<0.001	<0.001	0.0004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	--	--
Titanium	mg/L	<0.010	<0.010	<0.010	0.0177	0.0028	0.003	0.0005	0.0115	0.0122	0.01	0.0107	0.0063	0.0007	--	--
Uranium	mg/L	--	--	--	0.0034	0.0032	0.0032	0.0032	0.0035	0.0034	0.002	0.0033	0.0032	0.0033		
Vanadium	mg/L	<0.030	<0.030	<0.030	0.0007	0.0012	0.0009	0.0012	0.0004	0.0022	0.0014	0.0011	0.0002	0.00017	--	--
Zinc	mg/L	0.169	0.218	0.304	0.101	0.047	0.148	0.141	0.17	0.17	0.253	1.38	1.15	1.32	--	--

Table A6. 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	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	29-Sep-05	5-Oct-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	7.94	7.99
Conductivity	µS/cm	684	717	880	781	924	688	598	896	655	662	766	1330	1220	982	1160	1250	1080	1100	1060	805	915	1070	1300
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	604.22	646.79
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	--	153	138
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	--	153	138
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2
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	161	181
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	48.5	46
Potassium	mg/L	2.3	3.6	2.5	2.9	2.4	<2	<2	2.4	<2	<2	2.7	4.2	3.7	3.5	3.3	3.6	3.7	3.2	3.8	2	3.3	3.8	5.6
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	30.8	54.7
Sulphate	mg/L	269	293	375	320	380	273	248	399	283	282	319	629	582	431	495	567	464	475	421	309	399	461	611
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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***	***1.33***	***1.84***
Nitrate-N	mg/L	0.0285	0.0329	0.096	0.251	0.375	0.229	0.175	0.302	0.155	0.148	0.173	0.865	0.732	0.508	0.54	0.698	0.539	0.667	0.672	0.484	--	0.969	2.21
Nitrite-N	mg/L	0.0024	<0.001	0.0027	0.0031	0.0064	0.0037	0.0099	0.0045	0.0049	0.0041	0.0051	***0.0916***	0.0533	0.0281	0.0329	0.0414	0.0366	0.0354	0.0346	0.0242	--	0.035	***0.108***
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
Cyanide Compounds																								
Cyanide - T		0.0217	0.0128	0.0057	0.0162	0.0104	0.0147	0.0225	0.0127	0.0187	0.0183	<0.005	0.054	0.0382	0.031	0.0269	0.0386	0.0254	0.0359	0.0303	0.0241	0.0207	0.027	0.0237
Cyanate	mg/L	<2.5	<5	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
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	<0.5	1.66	1.43	1.55	1.99	1.76
CN-WAD	mg/L	<0.005	<0.005	<0.005	<0.0059	<0.0056	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0126	0.0174	0.0082	0.006	0.0211	0.0094	0.0107	0.0117	0.0052	0.0054	0.0089	0.0099
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																								
Aluminum	mg/L	***0.67***	***0.78***	***0.22***	<0.2	***0.48***	<0.2	***0.5***	<0.2	***0.97***	***0.64***	***0.32***	***1.46***	<0.2	***0.34***	<0.2	<0.2	<0.2	<0.2	<0.2	***0.42***	<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
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.016***	<0.2	***0.0146***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.0104***	<0.2	<0.2
Barium	mg/L	0.051	0.05	0.045	0.048	0.068	0.056	0.062	0.059	0.07	0.052	0.054	0.102	0.068	0.058	0.06	0.056	0.048	0.044	0.046	0.057	0.037	0.041	0.038
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
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
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	<0.1	<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
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	162	183
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
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	0.011	<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	***0.024***	***0.011***	<0.01	<0.01	<0.01	<0.01	<0.01	***0.016***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.011***	<0.01	<0.01	***0.016***
Iron	mg/L	***2.32***	***3.61***	***2.26***	***2.86***	***6.03***	***1.91***	***2.01***	***1.51***	***2.77***	***1.86***	***1.64***	***6.77***	***2.25***	***2***	***2.08***	***2.02***	***1.61***	***2.17***	***1.97***	***2.34***	***1.55***	***2.27***	***1.87***
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
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	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	32.7	34.2	47.9	37.5	43.1	29.7	29.6	47.1	32	30.6	38	37.7	41.9	39.1	48.2	47.8	43.6	48.8	45.4	37.8	40.4	48.5	46.1
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	1.74	2.22
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
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
Potassium	mg/L	2.3	3.8	2.4	2.8	2.4	<2	<2	2.6	<2	<2	2.8	4.2	3.7	3.4	3.3	3.6	3.8	3	4	2.1	3.2	3.9	5.7
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
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	5.8	4.58
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	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	5.8	8.1	8.4	10	11.9	8.1	6.5	11.9	7.6	7.4	9.8	60.8	46	28.6	35.2	40.2	31.7	31.1	30	18.9	21	31.1	56
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	0.442	0.481
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
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
Titanium	mg/L	0.031	0.034	0.013	<0.01	0.025	<0.01	0.023	<0.01	0.045	0.026	0.012	0.068	0.011	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.04	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	***0.0391***	***0.0315***	0.0136	0.0062	0.0261	0.0071	0.0085	<0.005	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	0.0114	***0.0355***

Table A6. 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	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	29-Sep-05	5-Oct-05
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	<0.2	<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
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	0.00269	0.00447
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	0.037	0.035
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
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
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	<0.1	<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
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
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	<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	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	0.241	0.101	<0.03	0.303	0.075	1.09	0.868	0.174	0.681	0.507	0.287	0.213	0.139	0.304	0.103	<0.03	0.178	0.172	0.206	0.875	0.199	0.088	0.039
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
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	<0.01	<0.01	<0.01	<0.01	<0.01
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	1.72	2.13
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
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
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
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
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	5.52	4.3
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	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01
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	0.438	0.48
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
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
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
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.04	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0148	0.0066	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0053	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0055	0.0054	0.0188

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A6. 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	Upper Dome	Upper Dome	Upper Dome
Date		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	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06
Physical Parameters																								
pH	pH units	***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	7.96	7.99	8.09	7.95
Conductivity	µS/cm	1900	1570	1570	1960	1730	1550	1530	1770	--	2090	1800	2370	1880	1870	6560	573	311	564	749	790	952	995	610
Routine Parameters																								
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	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	435.11	535.99	569.50	355.68
Alkalinity-Total	mg/L	124	142	167	164	162	166	166	194	--	210	172	243	189	190	822	83.3	37.3	78.5	93.8	113	139	138	89.7
Bicarbonate	mg/L	<2	142	167	164	162	166	166	194	--	210	172	243	189	190	822	83.3	37.3	78.5	93.8	113	139	138	89.7
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium	mg/L	203	223	250	250	234	223	222	239	--	308	263	318	257	273	983	78.7	37.6	73.7	95.2	107	136	137	84.3
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	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	42.3	47.3	51.8	32.2
Potassium	mg/L	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	3.1	3.9	2.9	2.1
Sodium	mg/L	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	8.8	12.1	13.4	7.1
Sulphate	mg/L	641	732	778	837	796	738	716	859	--	1070	832	1190	921	931	3830	223	109	223	323	343	396	449	250
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																								
Ammonia-N	mg/L	***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***	***0.182***	***0.288***	***0.253***	***0.064***
Nitrate-N	mg/L	2.35	2.86	2.72	***2.98***	2.84	1.96	1.59	2.5	***--***	2.68	2.16	2.43	1.9	1.53	***8***	0.0199	0.0457	0.0373	0.14	0.253	0.32	0.353	0.0899
Nitrite-N	mg/L	***0.134***	***0.164***	***0.147***	***0.146***	***0.143***	***0.0969***	***0.077***	***0.132***	***--***	***0.123***	***0.0797***	***0.103***	***0.091***	***0.09***	***0.423***	0.0024	0.0023	0.0013	0.0035	0.0042	0.0058	0.0062	0.003
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	<1.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Cyanide Compounds																								
Cyanide - T		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	0.0091	<0.005	0.0067	0.0159
Cyanate	mg/L	5.23	0.63	<0.5	<0.5	<0.5	<0.5	0.57	0.51	--	1.56	1.56	33.6	<0.5	2.46	143	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	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	1.01	1.09	1.06	1.29
CN-WAD	mg/L	0.0097	0.0181	0.017	0.021	0.0801	0.026	0.029	0.0548	--	0.0568	0.0351	0.0224	0.0607	0.0493	0.0626	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***--***	<0.2	***0.67***	<0.2	<0.2	<0.2	<1	***1.44***	***0.28***	***1.41***	<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	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	<0.2	<0.2	***0.0272***	<0.2	***0.0498***	***0.0176***	<0.2	<0.2	--	<0.2	***0.31***	<0.2	<0.2	<0.2	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	mg/L	0.039	0.039	0.039	0.042	0.056	0.05	0.048	0.057	--	0.069	0.102	0.071	0.052	0.054	0.203	0.056	0.045	0.057	0.048	0.043	0.051	0.058	0.037
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	<0.025	<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	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	--	0.14	0.12	0.16	0.11	0.13	0.57	<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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	201	215	254	244	240	228	224	242	--	309	273	333	255	275	1080	81.5	41.1	75.3	100	105	136	142	87.7
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	<0.05	<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	0.013	0.011	<0.01	0.014	--	0.019	0.016	0.019	0.015	0.015	0.073	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	***0.016***	***0.027***	***0.025***	***0.021***	<0.01	<0.01	<0.01	<0.01	***--***	***0.011***	***0.032***	<0.01	<0.01	<0.01	<0.05	***0.012***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	***1.69***	***2.2***	***2.01***	***2.8***	***7.3***	***3.73***	***2.52***	***6.77***	***--***	***5.47***	***58.4***	***6.17***	***5.85***	***5.9***	***9.21***	***3.93***	***1.31***	***3.29***	***2.62***	***2.37***	***1.91***	***2.39***	***1.27***
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	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	0.015	<0.01	<0.01	0.023	0.012	0.014	<0.01	--	<0.01	<0.01	0.013	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	47.8	46.7	50.2	45.1	34.4	43.8	49.7	37.1	--	48.1	36.7	44.2	34.6	37	176	30.3	11.9	29.3	39.1	42	47.7	52.2	33.2
Manganese	mg/L	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	0.491	0.466	0.442	0.211
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	<0.15	<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	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	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	3	3.9	3.1	2.2
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	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	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	3.92	4.11	4.21	4.45
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	<0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	62.5	74.1	83.3	84.2	105	76.5	65.5	111	--	153	113	146	127	132	582	5	5.7	4.7	8.8	8.8	12.2	13.9	7.3
Strontium	mg/L	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	0.313	0.393	0.401	0.247
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	<1	<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	<0.15	<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	0.034	<0.01	<0.01	<0.01	<0.05	0.069	<0.01	0.074	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	***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	0.0109	0.0064	<0.005	0.0061

Table A6. 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	Upper Dome	Upper Dome	Upper Dome
Date		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	8-Jun-06	15-Jun-06	22-Jun-06	6-Jul-06
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	<1	<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	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	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	0.00202	0.00235	0.00273	0.00863
Barium	mg/L	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	0.036	0.047	0.052	0.034
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	<0.025	<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	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	--	0.13	0.1	0.15	0.12	0.13	0.69	<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	<0.05	<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	<0.05	<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	0.012	<0.01	<0.01	0.015	--	0.019	0.015	0.019	0.016	0.016	0.078	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.011	0.015	0.013	0.011	<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
Iron	mg/L	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	0.032	0.038	<0.03	0.729
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	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	0.014	0.01	<0.01	0.022	0.015	0.015	<0.01	--	<0.01	<0.01	0.015	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	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	<0.005	0.394	0.0637	0.365	0.368	0.169
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	<0.15	<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	<0.25	<0.05	<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	<1.5	<0.3	<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	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	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	3.79	3.96	3.92	4.26
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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	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	0.316	0.388	0.386	0.239
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	<1	<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	<0.15	<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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.15	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Table A6. 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	Upper Dome	Upper Dome	Upper Dome	Upper Dome
Date		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	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07	9-May-08	22-May-08
Physical Parameters																									
pH	pH units	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	7.88	8.48	8.07	7.95	7.73	7.42	--
Conductivity	µS/cm	825	1340	999	1250	1220	1270	1430	1580	1760	544	350	994	462	855	773	1140	1060	1080	1030	968	1220	1490	304	665
Routine Parameters																									
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	59
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	***371***
Hardness	mg/L	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	576.66	527.84	520.73	660.83	692.00	--	328.00
Alkalinity-Total	mg/L	103	469	141	170	160	170	176	205	205	75.7	43.9	128	65.3	128	107	176	176	177	167	152	192	202	41	88
Bicarbonate	mg/L	103	469	141	170	160	170	176	205	205	75.7	43.9	128	65.3	128	107	176	176	177	155	152	192	202	50	100
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	12	<2	<2	<2	<6	<6
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<5	<5
Calcium	mg/L	116	201	129	178	178	192	205	219	264	72.4	52.2	151	68.8	124	114	167	153	152	139	136	165	208	37.6	83.1
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.7
Magnesium	mg/L	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	51.8	43.9	44.9	56.5	42	13	29.3
Potassium	mg/L	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	3.3	2.3	3.7	3	3.9	3.8	3.4	4.1	6.9	2.4	2.5
Sodium	mg/L	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	21.7	22.7	16.8	26.5	73.7	3.8	7.4
Sulphate	mg/L	318	579	427	535	547	558	632	695	847	200	126	432	178	355	303	462	430	419	392	389	495	617	104	263
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14
Nutrients																									
Ammonia-N	mg/L	***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***	***1.15***	***1.5***	***1.14***	***2.29***	***5.95***	***0.116***	***0.27***
Nitrate-N	mg/L	0.128	0.745	0.496	1.27	1.71	1.99	***3.1***	***3.96***	***4.04***	0.17	0.11	0.352	0.171	0.213	0.186	0.237	0.229	0.33	0.635	0.841	1.26	***3.76***	0.06	0.2
Nitrite-N	mg/L	0.0064	0.0456	0.0183	0.0393	0.0359	0.0132	0.0488	***0.106***	***0.13***	0.0089	0.0104	0.0164	0.0076	0.0127	0.0069	0.0216	0.0231	0.0195	0.0271	0.0185	0.0369	***0.111***	<0.02	0.04
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	--	--
Cyanide Compounds																									
Cyanide - T		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	0.0258	0.0153	0.0169	0.0223	0.0355	--	--
Cyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	19.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.87	<0.5	<0.5	<0.5	0.9	1.2	<0.2	0.4
Thiocyanate	mg/L	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	1.14	1.85	1.41	2	5.3	2.3	1.4
CN-WAD	mg/L	<0.005	0.0268	0.0073	0.0118	0.0104	0.007	0.016	0.0233	0.0353	<0.005	<0.005	0.0085	<0.005	0.0065	0.0083	<0.005	<0.005	0.0083	0.007	<0.005	0.0138	0.0288	0.004	0.004
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02	0.038
Total Metals																									
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.33***	***0.53***	<0.2	***0.48***	<0.2	***0.21***	<0.2	<0.2	<0.2	***0.29***	<0.2	<0.2	0.0193	***0.37***	***0.727***
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	0.00084	0.0018	0.0033
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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.0314***	***0.0067***	***0.0184***
Barium	mg/L	0.045	0.068	0.039	0.05	0.049	0.04	0.047	0.052	0.069	0.028	0.034	0.035	0.044	0.046	0.041	0.05	0.032	0.036	0.04	0.033	0.035	0.0585	0.039	0.053
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	<0.0025	<0.0001	<0.0001
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	<0.0025	<0.0005	<0.0005
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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.056	0.026	0.026
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	***0.00039***	***0.00028***	***0.00023***
Calcium	mg/L	121	201	129	189	177	198	216	217	265	69.7	50.2	145	65.7	126	116	166	152	148	139	135	170	205	37.5	84
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	<0.0025	0.0012	0.0019
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00999	0.0011	0.0015
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	***0.024***	<0.01	<0.01	<0.01	***0.00704***	***0.006***	***0.007***
Iron	mg/L	***1.55***	***1.16***	***1.47***	***1.54***	***1.69***	***1.61***	***2.06***	***4.78***	***4.59***	***1.76***	***1.97***	***1.12***	***1.56***	***1.28***	***1.08***	***1.32***	***1.15***	***1.85***	***2.23***	***1.48***	***2.17***	***3.34***	***0.7***	***2.2***
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	<0.00025	0.0012	0.0027
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	<0.01	<0.01	<0.01	<0.025	0.002	0.003
Magnesium	mg/L	42.2	46.2	45.1	45.9	47.7	49.8	39.7	35.4	39.7	23.3	14.9	41.9	19.5	41.8	37.9	52.2	52.8	50.3	43.9	44.6	57.4	41.6	12.1	30.4
Manganese	mg/L	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	1.3	1.56	1.09	2.06	5.69	0.442	0.619
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	0.00127	<0.001	<0.001
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	0.0036	0.0007	0.0005
Potassium	mg/L	2.2	5.8	3.6	5.2	3.9	5.1	5.8	5.6	8.6	3.6	2	3	<2	3.3	2.3	3.7	3.1	3.8	3.5	3.4	4.4	6.8	2.5	2.7
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	<0.005	<0.0002	<0.0002
Silicon	mg/L	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	5.66	6.21	5.78	6.12	6.22	2.34	3.89
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	<0.00005	0.00002	***0.00012***
Sodium	mg/L	10.5	54.4	23.2	43.3	48.3	43.8	69.8	75	101	6.1	4.9	22.9	9.8	19.6	15.3	23.5	20.4	21	22.5	16.7	27.8	73.4	3.4	7.7
Strontium	mg/L	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	0.434	0.398	0.356	0.493	0.648	0.125	0.258
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33.4	85.5
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	<0.0005	<0.00005	<0.00005
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	<0.0005	<0.001	<0.001
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	0.019	<0.01	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	0.0079	0.0469
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0005	0.0012
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	<0.005	0.0012	0.0045
Zinc	mg/L	<0.005	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	***0.0414***	0.0161	0.0091	0.0121	0.0202	***0.084***	***0.031***

Table A6. 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	Upper Dome	Upper Dome	Upper Dome	Upper Dome	Upper Dome
Date		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	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07	9-May-08	22-May-08
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	<0.005	0.222	0.046
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	0.00081	0.002	0.0032
Arsenic	mg/L	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	0.00807	0.00285	0.00304	0.00228	0.0104	0.0048	0.0054
Barium	mg/L	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	0.031	0.031	0.031	0.029	0.056	0.034	0.04
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	<0.0025	<0.0001	<0.0001
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	<0.0025	<0.0005	<0.0005
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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.056	0.023	0.022
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	0.00039	0.00022	0.00007
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	<0.0025	0.0005	<0.0005
Cobalt	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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00983	0.0009	0.001
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	<0.01	<0.01	<0.01	0.00559	0.005	0.003
Iron	mg/L	0.213	<0.03	0.045	<0.03	<0.03	<0.03	<0.03	<0.03	0.038	0.338	0.419	0.042	0.436	0.11	0.285	<0.03	<0.03	<0.03	0.031	0.069	0.032	0.062	0.39	0.27
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	<0.00025	0.0003	0.0002
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	<0.01	<0.01	<0.01	<0.025	0.001	0.002
Manganese	mg/L	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	1.15	1.39	1.04	1.94	5.65	0.418	0.55
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	0.00127	<0.001	<0.001
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	0.0038	0.0007	<0.0005
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	--	--
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	<0.005	<0.0002	<0.0002
Silicon	mg/L	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	5.47	5.73	5.55	5.79	6.11	2.53	2.9
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	<0.00005	<0.00001	<0.00001
Strontium	mg/L	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	0.442	0.386	0.36	0.479	0.654	0.115	0.244
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	<0.0005	<0.00005	<0.00005
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	<0.0005	<0.001	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0032	0.0026
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0005	0.001
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	<0.005	0.0007	0.0012
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0137	0.043	0.0097	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.0067	0.0197	0.07	0.014

Table A6. 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	CCME Al Guidelines[1]	Water License Standards[2]
Date		5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08	26-Nov-08	10-Dec-08		
Physical Parameters																	
pH	pH units	8.02	7.99	7.94	7.9	8.18	7.96	8.06	8.16	8.17	7.87	7.32	7.35	7.26	7.23	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	1100	899	962	874	992	1160	907	979	993	1170	1240	1220	1390	1440	--	--
Routine Parameters																	
Total Suspended Sediment	mg/L	9	58	80	41	16	7	80	9	13	11	17	22	18	8	--	--
Total Dissolved Solids	mg/L	***863***	***677***	***691***	--	***701***	***857***	***650***	***700***	***731***	***864***	***932***	***948***	***971***	***1070***	--	50
Hardness	mg/L	648.00	512.00	492.00	489.00	554.00	632.00	504.00	548.00	559.00	1.85	4.86	--	--	--	--	--
Alkalinity-Total	mg/L	160	149	138	135	152	187	132	168	182	202	204	200	207	212	--	--
Bicarbonate	mg/L	195	182	168	160	186	228	161	205	222	250	250	240	250	260	--	--
Carbonate	mg/L	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	166	128	136	123	139	167	131	136	147	165	194	191	201	198	--	--
Chloride	mg/L	1.1	0.9	2.3	0.43	1	1.7	1.1	1	1.5	0.84	0.47	1.8	1.72	2.38		
Magnesium	mg/L	57	46.6	36.7	44.2	50.5	52.5	43.1	50.5	46.5	53.3	36.8	37.1	37.2	36.2	--	--
Potassium	mg/L	3.9	3	3.6	2.83	3	3.8	3.8	3	3.5	3.4	4.8	4.8	5.4	5.5	--	--
Sodium	mg/L	20.2	14.1	28.1	10.4	13.5	24.6	11.3	11	17.2	18.5	54.5	50.3	60.4	60.2	--	--
Sulphate	mg/L	520	394	399	358	402	494	380	396	405	483	494	517	513	592	--	--
Turbidity	NTU	9.6	--	--	--	--	--	--	7.6	--	--	--	--	--	--	--	--
Nutrients																	
Ammonia-N	mg/L	***1.34***	***0.69***	***1.57***	***0.366***	***0.7***	***1.64***	***0.42***	***0.62***	***1.06***	***1.2***	***4.8***	***3.9***	***5.6***	***5***	0.015	--
Nitrate-N	mg/L	0.36	0.29	0.53	0.13	0.24	0.51	0.47	0.39	1.1	0.91	1.87	2.5	2.51	2.9	2.9	--
Nitrite-N	mg/L	0.012	0.009	0.031	***0.1***	0.006	0.015	0.008	<0.005	0.015	0.02	***0.07***	***0.07***	***0.22***	***0.4***	0.06	--
Total Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																	
Cyanide - T		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	1.1	<0.2	<0.2	<0.2	0.3	0.9	0.3	--	0.3	0.3	0.4	1.5	1.7	0.4	--	--
Thiocyanate	mg/L	0.5	1.3	4.4	0.4	1.3	2.6	0.6	--	1.6	2	5.4	5.9	5.9	4.6	--	--
CN-WAD	mg/L	0.004	0.004	0.008	0.002	0.004	0.004	0.008	--	0.004	0.006	0.018	0.03	0.022	0.3	--	0.1
CN-SAD	mg/L	0.068	0.076	0.22	0.064	0.026	0.06	0.058	--	0.16	0.32	1.1	1.3	0.94	1.4	--	--
Total Metals																	
Aluminum	mg/L	***0.208***	***2.19***	***0.35***	***0.828***	***0.231***	***0.175***	***0.831***	***0.242***	***0.251***	0.099	0.029	0.024	0.045	0.024	0.1	--
Antimony	mg/L	0.0027	0.0028	0.0021	0.0022	0.0028	0.0024	0.0121	0.0032	0.0026	0.0035	0.0009	0.0008	0.0007	0.0006	--	0.15
Arsenic	mg/L	***0.012***	***0.0196***	***0.0144***	***0.0121***	***0.0151***	***0.0139***	***0.0261***	***0.01***	***0.0127***	***0.0118***	***0.0236***	***0.0222***	***0.0281***	***0.0225***	0.005	--
Barium	mg/L	0.05	0.072	0.067	0.061	0.052	0.056	0.061	0.04	0.047	0.043	0.054	0.054	0.066	0.048	--	1
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	0.046	0.034	0.041	0.033	0.042	0.047	0.039	0.035	0.032	0.044	0.057	0.054	0.068	0.086	--	--
Cadmium	mg/L	***0.00008***	***0.00014***	***0.00014***	***0.00009***	***0.0001***	***0.0001***	***0.00052***	***0.00022***	***0.00022***	***0.00026***	***0.00031***	***0.00197***	***0.00046***	***0.00044***	0.000017	0.02
Calcium	mg/L	159	125	129	110	133	164	128	131	138	159	186	186	208	209	--	--
Chromium	mg/L	0.0005	0.0047	0.0009	0.0022	0.0009	0.0011	0.0015	0.0008	0.0008	0.0008	0.001	0.0011	0.0013	0.0015	0.0089	0.04
Cobalt	mg/L	0.0023	0.003	0.0044	0.002	0.0018	0.0034	0.0018	0.0014	0.0026	0.0031	0.0099	0.009	0.0112	0.0114	--	--
Copper	mg/L	***0.003***	***0.008***	***0.006***	***0.005***	***0.004***	***0.004***	***0.009***	0.002	***0.004***	***0.003***	***0.005***	***0.005***	***0.007***	***0.004***	0.002 - 0.004	0.2
Iron	mg/L	***1.6***	***4***	***2.27***	***2.31***	***2.1***	***1.96***	***1.6***	***1.1***	***2.09***	***1.72***	***5.64***	***5.62***	***4.17***	***2.69***	0.3	1
Lead	mg/L	0.0007	***0.0032***	0.0008	0.0012	0.0008	0.0004	***0.006***	0.0005	0.0003	0.0004	0.0002	0.0003	0.0005	0.0003	0.001 - 0.007	0.1
Lithium	mg/L	0.004	0.005	0.003	0.004	0.004	0.004	0.005	0.007	0.005	0.008	0.002	0.002	0.002	0.002	--	--
Magnesium	mg/L	55.3	47	35.4	41	47.8	52.5	42.4	49.1	44.3	52.2	33.4	34.2	35.8	35.2	--	--
Manganese	mg/L	1.33	0.912	1.92	0.619	0.881	1.7	0.612	0.701	1.38	1.76	4.95	4.75	5.62	5.76	--	0.5
Molybdenum	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	0.073	--
Nickel	mg/L	0.0018	0.0044	<0.0005	0.0052	0.0021	0.0021	0.0027	0.0007	0.0024	0.002	0.0032	0.0033	0.0046	0.002	0.025 - 0.15	0.3
Potassium	mg/L	3.4	3.5	3.5	2.5	2.9	3.9	3.7	3.1	3.4	3.7	4.9	4.8	5.6	5.8	--	--
Selenium	mg/L	0.0003	0.0002	0.0002	0.0002	<0.0002	0.0009	0.0003	0.0003	<0.0002	0.0003	<0.0002	0.0004	0.0003	0.0005	0.001	--
Silicon	mg/L	4.61	7.09	5.23	5.37	5.17	5.18	5.8	5.68	5.59	5.4	5.84	5.6	5.81	4.9	--	--
Silver	mg/L	<0.00001	<0.00001	0.00003	0.00001	0.00001	0.00001	0.00006	<0.00001	0.00003	0.00008	0.00003	0.00004	0.00005	0.00003	0.0001	0.1
Sodium	mg/L	19.3	14.3	27.3	10.6	14.4	25.6	11.5	11.2	16.6	20.8	53.2	51.7	60.5	64.4	--	--
Strontium	mg/L	0.434	0.437	0.437	0.371	0.434	0.551	0.411	0.457	0.498	0.518	0.648	0.617	0.713	0.811	--	--
Sulphur	mg/L	166	125	129	112	133	164	124	128	129	152	175	175	197	203	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	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	--	--
Titanium	mg/L	0.0145	0.105	0.0206	0.0551	0.0204	0.0206	0.0469	0.0208	0.0204	0.0127	0.0128	0.0119	0.0165	0.0085	--	--
Uranium	mg/L	0.0022	0.0026	0.0018	0.0014	0.0015	0.0018	0.0016	0.0024	0.0022	0.0024	0.0024	0.0022	0.0023	0.0024		
Vanadium	mg/L	0.0016	0.0122	0.0042	0.0051	0.0019	0.001	0.0035	0.0014	0.001	0.001	0.0009	0.0007	0.001	0.001	--	--
Zinc	mg/L	0.019	0.022	0.018	0.02	0.016	0.015	***0.048***	***0.07***	***0.055***	***0.103***	0.016	0.019	0.021	0.018	0.03	0.3

Table A6. 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	CCME Al Guidelines[1]	Water License Standards[2]
Date		5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08	26-Nov-08	10-Dec-08		
Dissolved Metals																	
Aluminum	mg/L	0.011	0.036	0.029	0.04	0.021	0.01	0.039	0.026	0.012	<0.005	0.012	<0.005	<0.005	<0.005	--	--
Antimony	mg/L	0.0028	0.0027	0.0024	0.0024	0.0029	0.0025	0.0134	0.0034	0.0031	0.0038	0.0008	0.0009	0.0006	0.0007	--	--
Arsenic	mg/L	0.0034	0.0046	0.0044	0.0054	0.0041	0.0047	0.0119	0.0045	0.0037	0.0029	0.0042	0.0065	0.0079	0.0088	--	0.15
Barium	mg/L	0.047	0.038	0.048	0.045	0.043	0.045	0.051	0.04	0.043	0.037	0.039	0.043	0.05	0.053	--	--
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Boron	mg/L	0.039	0.033	0.041	0.03	0.035	0.046	0.039	0.029	0.033	0.035	0.042	0.049	0.053	0.055	--	--
Cadmium	mg/L	0.00002	0.00004	0.00007	<0.00008	0.00004	0.00005	0.00024	0.00012	0.00014	0.00016	0.00016	0.00016	0.0002	0.00025	--	--
Chromium	mg/L	<0.0005	0.0005	<0.0005	0.0023	<0.0005	0.0008	--	<0.0005	<0.0005	<0.0004	0.0007	0.0018	0.0011	0.0013	--	--
Cobalt	mg/L	0.0019	0.0016	0.0035	0.00123	0.0011	0.0029	<0.0005	0.0009	0.0018	0.00276	0.00686	0.00792	0.00811	0.00813	--	--
Copper	mg/L	0.002	0.002	0.003	0.003	0.002	0.002	0.0011	0.002	0.003	0.003	0.004	0.003	0.002	0.002	--	--
Iron	mg/L	0.02	<0.01	0.05	0.25	0.02	<0.01	0.005	0.02	0.02	0.016	0.021	<0.01	0.021	0.033	--	--
Lead	mg/L	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.08	<0.0001	<0.0001	<0.0001	0.0005	<0.0001	0.0006	<0.0001	--	--
Lithium	mg/L	0.003	0.004	0.002	0.003	0.003	0.004	0.0002	0.005	0.004	0.004	0.001	0.001	<0.001	0.001	--	--
Manganese	mg/L	1.34	0.874	1.98	0.64	0.785	1.71	0.586	0.727	1.46	1.85	4.86	4.67	5.65	5.5	--	--
Molybdenum	mg/L	<0.001	<0.001	<0.001	0.00037	<0.001	<0.001	<0.001	<0.001	<0.001	0.00056	0.00094	0.00096	0.00097	0.00099	--	--
Nickel	mg/L	<0.0005	0.0016	<0.0005	0.002	0.0006	0.0017	0.0011	<0.0005	0.0014	0.003	0.003	0.003	0.003	0.003	--	--
Phosphorus	mg/L	--	--	--	<0.01	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	0.02	--	--
Selenium	mg/L	0.0003	<0.0002	<0.0002	<0.0006	0.0002	0.0003	<0.0002	0.0003	<0.0002	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	--	--
Silicon	mg/L	4.7	4.56	5.12	4.54	5.26	5.07	5.53	5.72	5.58	5.25	5.64	5.43	5.6	5.85	--	--
Silver	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.486	0.415	0.424	0.35	0.397	0.501	0.394	0.412	0.471	0.503	0.54	0.611	0.664	0.675	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Tin	mg/L	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Titanium	mg/L	0.0211	0.0015	0.0126	0.0009	0.0109	0.0186	0.0141	0.0102	0.0125	0.0008	0.0008	0.0006	0.001	0.0006	--	--
Uranium	mg/L	0.0022	0.002	0.0016	0.0012	0.0015	0.0018	0.0016	0.0022	0.0021	0.0022	0.0016	0.0019	0.0018	0.0019		
Vanadium	mg/L	0.0006	0.0014	0.0009	0.00096	0.0003	0.0022	0.0012	0.0007	0.0004	0.0002	0.00041	0.00048	0.00057	0.00065	--	--
Zinc	mg/L	0.009	0.005	0.005	0.004	0.004	0.004	0.018	0.031	0.036	0.063	0.008	0.008	0.007	0.007	--	--

Table A7. 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		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	15-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	7.67
Conductivity	µS/cm	530	620	620	915	600	935	1000	730	590	770	1650	1600	2100	2050	2050	--	2300	2310	2640	2650	2500	2600	2450
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	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***	***1910***
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	775.01
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	105
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	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	1150
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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***	***11***
Nitrate-N	mg/L	0.19	<0.05	<0.05	0.67	0.3	0.49	1.55	1.04	0.4	0.56	0.83	0.91	0.58	0.78	0.73	--	1.05	0.97	0.5	1.03	0.87	0.77	0.98
Nitrite-N	mg/L	0.01	<0.003	<0.003	0.006	0.04	***0.11***	***0.49***	***0.064***	0.039	***0.074***	***0.067***	***0.076***	***0.106***	***0.109***	***0.099***	--	***0.115***	***9.88***	***0.14***	***9.84***	***0.157***	***0.13***	***0.139***
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	<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	53.2
CN-WAD	mg/L	0.02	0.011	<0.005	0.011	0.038	0.055	0.012	0.02	0.268	0.201	0.028	6.23	0.156	--	0.026	0.089	0.019	0.049	0.417	0.077	0.069	0.094	0.249
CN-SAD	mg/L	0.04	0.038	0.008	0.057	0.2	0.561	0.183	0.489	0.998	22.1	12.5	13.4	16.6	--	17.7	0.09	24.6	0.074	0.374	0.095	1.27	1.84	0.45
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	0.07
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	<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	<0.02
Barium	mg/L	0.139	0.177	0.177	0.0804	0.0839	0.135	0.132	0.102	0.0951	0.125	0.118	0.134	0.101	0.0818	0.254	--	0.0734	0.092	0.087	0.078	0.0721	0.0678	0.0656
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	<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	279
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	<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	0.056
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***	***0.261***
Iron	mg/L	***30***	***40***	***40***	***1.51***	***4.9***	***5.38***	***5.18***	***5.7***	***4.5***	***9.14***	***5.53***	***4.82***	***4.9***	***1.85***	***1.72***	--	***2.87***	***5.65***	***3.43***	***3.93***	***2.89***	***2.96***	***2.78***
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	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	17.8	21.2	20.9	56.3	19.7	28.3	28.3	33.9	25.4	26.6	22	27	26.2	23	20.9	--	24.2	21	21	19.6	21.2	21.8	19
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	1.96
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	<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	***0.037***
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	9.7
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	<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	3.91
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	<0.001
Sodium	mg/L	19.2	18.3	18.2	12.8	15.1	29	33	19.7	19.3	24	132	133	183	178	170	--	224	219	251	228	224	247	227
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	0.859
Sulphur	mg/L	43.5	54	54	142	68.2	110	110	100	77.7	84	229	253	337	288	308	--	386	--	--	--	384	428	380
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	<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	0.003
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<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	***0.044***

Table A7. 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		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	15-Dec-99
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A7. 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	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		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	17-Sep-01	22-Oct-01	21-May-02	20-Jun-02	20-Jun-02	3-Jul-02	15-Jul-02
Physical Parameters																												
pH	pH units	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	7.52	7.32	7.45	7.54	7.5	7.6	7.3
Conductivity	µS/cm	570	335	850	430	1050	620	490	720	340	750	740	1450	1250	1700	460	460	884	1050	596	781	723	687	796	582	1160	1120	1230	1430
Routine Parameters																												
Total Suspended Sediment	mg/L	56	193	51	4040	47	405	1770	132	1190	21	32	<5	18	10	913	1250	700	252	76	35	14	11	37	1320	90	80	376	286
Total Dissolved Solids	mg/L	***485***	***310***	***673***	***373***	***823***	***497***	***391***	***577***	***283***	***623***	***622***	***1190***	***981***	***1440***	***314***	***337***	***707***	***853***	***473***	***627***	***647***	***527***	***733***	***307***	***1150***	***920***	***1270***	***1210***
Hardness	mg/L	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	312.44	373.09	327.67	617.23	579.38	606.20	703.02
Alkalinity-Total	mg/L	39	41	72	50	77	54	62	44	27	75	78	117	99	180	105	44	66	70	67	92	92	96	133	85	79	74	64	75
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	257	122	379	158	501	271	193	334	122	377	383	661	558	860	--	146	473	586	270	334	351	310	323	247	634	595	718	933
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																												
Ammonia-N	mg/L	***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***	***0.16***	***0.38***	***0.1***	***0.97***	***1.3***	***1.47***	***1.83***
Nitrate-N	mg/L	0.23	0.208	0.555	0.421	--	***7.48***	--	--	--	--	--	--	--	0.3	0.1	1.1	***3***	***4.12***	1.52	2.06	1.74	1.51	0.853	0.219	2.05	2.1	--	2.35
Nitrite-N	mg/L	***0.234***	***0.093***	***0.23***	--	--	--	--	--	--	--	--	--	--	<1	<0.5	<0.5	***0.077***	***0.129***	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	***0.15***	--	<0.002
Total Phosphorus	mg/L	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	0.08	0.12	1.62	0.12	--	0.26	0.28
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	0.07	0.83	<0.2	0.06	<0.1	0.33	0.16
Thiocyanate	mg/L	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	<0.05	1.28	1.35	1.65	--	1.26	0.42
CN-WAD	mg/L	0.18	0.002	--	0.015	0.01	0.007	0.004	0.003	<0.002	<0.001	<0.001	0.013	0.006	0.018	0.006	0.006	0.01	0.01	0.006	0.003	0.007	0.008	0.004	0.002	0.002	--	0.012	<0.002
CN-SAD	mg/L	0.228	0.016	--	0.026	0.104	0.028	0.06	0.082	0.022	0.044	0.062	0.172	0.052	0.114	0.004	0.018	0.058	0.036	0.017	0.19	0.013	0.014	0.012	<0.002	0.024	--	0.038	<0.002
Total Metals																												
Aluminum	mg/L	***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***	***0.19***	***0.2***	***8.09***	***1.51***	***2.91***	***3.81***	***3.86***
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	<0.006	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	<0.02	<0.02
Arsenic	mg/L	***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***	***0.04***	***0.03***	***0.2***	***0.04***	--	***0.09***	***0.1***
Barium	mg/L	0.118	0.108	0.0657	0.317	0.075	0.159	0.183	0.072	0.132	0.053	0.0573	0.102	0.0802	0.0606	0.13	0.0749	0.173	0.161	0.122	0.0918	0.0582	0.0506	0.0579	0.182	0.126	0.152	0.238	0.204
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	0.008	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	<0.02	<0.02
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.055	--	--	--	--	--	--	0.06	--	--
Cadmium	mg/L	***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	<0.0006	<0.0006	***0.0017***	<0.0006	<0.001	<0.0006	***0.0006***
Calcium	mg/L	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	83.9	97.8	83.9	171	157	174	207
Chromium	mg/L	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	<0.001	<0.001	***0.012***	0.003	0.005	***0.009***	0.008
Cobalt	mg/L	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	<0.001	<0.001	0.006	0.007	0.008	0.008	0.008
Copper	mg/L	***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***	***0.008***	***0.024***	***0.073***	***0.03***	***0.012***	***0.024***	***0.033***
Iron	mg/L	***6.08***	***0.77***	***2.9***	***27***	***2.41***	***8.7***	***8.84***	***2.83***	***7.2***	***1.22***	***1.19***	***0.918***	***1.79***	***0.376***	***10***	***0.507***	***8.46***	***7***	***5.49***	***3.67***	***1.46***	***1.58***	***2.2***	***19.4***	***4.06***	***5.64***	***10.3***	***11.2***
Lead	mg/L	***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	<0.005	<0.006	***0.078***	***0.009***	***0.009***	***0.013***	***0.008***
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.005	0.003	<0.006	<0.005	<0.005	<0.006	0.008	<0.006	--	0.006	<0.006
Magnesium	mg/L	19.5	16	36.2	24.1	30.9	22	18.9	25.9	12.5	28.8	28.9	42.2	34	85.7	17	12.3	30	34.9	22.3	29.6	29.9	25	31.3	28.7	46.2	45.5	41.7	45.2
Manganese	mg/L	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	0.396	0.543	0.981	0.61	0.769	0.687	0.857
Molybdenum	mg/L	<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	<0.01	<0.01	<0.01	<0.01	<0.005	<0.01	<0.01
Nickel	mg/L	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	0.002	<0.001	0.012	0.007	<0.002	0.009	0.009
Potassium	mg/L	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	0.7	2.3	4	5.2	5.9	5.7	6.9
Selenium	mg/L	<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	<0.02	<0.02	<0.02	<0.02	--	<0.02	<0.02
Silicon	mg/L	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	5.8	6.2	11.6	5.5	--	7.6	7.3
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	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002
Sodium	mg/L	24.8	6.95	25.3	15.9	47.7	28.6	16.2	27.8	9.72	25.4	25.3	63.9	57.6	56.4	6.96	15	41.3	54.1	22.2	25.9	18.4	19.1	13.7	5.37	53.8	57	58.4	75.1
Strontium	mg/L	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	0.239	0.281	0.198	0.366	0.452	0.389	0.439
Sulphur	mg/L	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	84.9	90.2	67.6	210	--	217	246
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	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	<0.005	<0.006	<0.006	<0.006	<0.05	<0.006	<0.006
Titanium	mg/L	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	0.004	0.006	0.301	0.067	0.117	0.182	0.189
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	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	0.005	0.004	0.031	0.012	0.013	0.036	0.03
Zinc	mg/L	***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	0.023	0.02	***0.194***	0.03	***0.036***	***0.053***	***0.067***

Table A7. 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	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		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	17-Sep-01	22-Oct-01	21-May-02	20-Jun-02	20-Jun-02	3-Jul-02	15-Jul-02
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A7. 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	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		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	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
Physical Parameters																													
pH	pH units	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	7.78	7.51	--	--	--	--	--	--	--	--	--	6.61	8.06
Conductivity	µS/cm	1080	1310	1080	660	664	907	1390	650	650	920	853	934	1130	1100	990	852	831	--	--	--	--	--	--	--	--	--	575	570
Routine Parameters																													
Total Suspended Sediment	mg/L	61	313	113	318	216	118	23	52	54	13	141	230	145	58	54	87	44	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	***887***	***1030***	***853***	***533***	***547***	***673***	***1190***	***537***	***517***	***754***	***740***	***700***	***1030***	***879***	***813***	***640***	***673***	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	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	446.77	403.12	--	--	--	--	--	--	--	--	--	280.02	285.09
Alkalinity-Total	mg/L	72	79	72	97	98	159	252	100	101	115	72	84	97	30.7	114	139	140	--	--	--	--	--	--	--	--	--	81.2	84.2
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	81.2	84.2
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2	<2
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2	<2
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69.6	71.4
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26.2	26.4
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2	3.1
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.9	8
Sulphate	mg/L	610	733	591	290	287	405	661	340	340	389	451	451	629	557	547	462	304	--	--	--	--	--	--	--	--	--	216	218
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																													
Ammonia-N	mg/L	***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***	***0.11***	***0.2***	--	--	--	--	--	--	--	--	--	***0.0553***	***0.126***
Nitrate-N	mg/L	1.89	2.41	2.25	0.532	0.521	0.463	0.75	0.19	0.17	<1	1.69	1.62	1.84	--	0.808	0.572	0.432	--	--	--	--	--	--	--	--	--	0.0257	0.0344
Nitrite-N	mg/L	<0.002	<0.002	0.042	<0.002	<0.002	<0.002	<0.002	***0.1***	<0.1	<10	***0.077***	0.047	0.028	--	0.028	0.022	0.007	--	--	--	--	--	--	--	--	--	0.0045	0.002
Total Phosphorus	mg/L	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	<0.06	0.23	--	--	--	--	--	--	--	--	--	<0.3	<0.3
Cyanide Compounds																													
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0244	0.0172
Cyanate	mg/L	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	0.07	<0.2	--	--	--	--	--	--	--	--	--	<2.5	<5
Thiocyanate	mg/L	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	0.84	0.94	--	--	--	--	--	--	--	--	--	1.06	0.62
CN-WAD	mg/L	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	0.002	<0.002	0.002	0.002	0.008	<0.002	<0.002	0.002	0.002	0.002	--	<0.005	<0.005
CN-SAD	mg/L	0.008	0.014	0.008	0.002	0.002	<0.002	0.004	0.004	0.004	0.05	0.008	0.046	0.008	--	0.004	0.004	0.002	0.002	0.002	0.008	0.008	0.014	0.008	0.02	0.004	--	--	--
Total Metals																													
Aluminum	mg/L	***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***	***0.98***	***0.77***	--	--	--	--	--	--	--	--	--	***0.46***	***1.51***
Antimony	mg/L	<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	<0.02	<0.02	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Arsenic	mg/L	***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***	<0.02	***0.02***	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Barium	mg/L	0.126	0.198	0.102	0.116	0.116	0.0674	0.0873	0.0577	0.055	0.0584	0.131	0.141	0.123	0.085	0.0869	0.0822	0.0748	--	--	--	--	--	--	--	--	--	0.051	0.073
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.005
Bismuth	mg/L	<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	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	0.062	--	--	0.04	--	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.1
Cadmium	mg/L	<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	<0.0006	<0.0006	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Calcium	mg/L	161	198	157	95.3	99.4	152	231	88.2	87.1	128	121	138	167	126	153	110	109	--	--	--	--	--	--	--	--	--	69.6	71.3
Chromium	mg/L	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	0.002	<0.001	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Cobalt	mg/L	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	<0.001	0.002	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Copper	mg/L	***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***	***0.009***	***0.004***	--	--	--	--	--	--	--	--	--	<0.01	***0.011***
Iron	mg/L	***5.11***	***16.4***	***5.62***	***6.67***	***6.11***	***3.11***	***2.89***	***2.24***	***1.92***	***1.58***	***5.1***	***6.06***	***4.04***	***3.22***	***3.16***	***5.17***	***6.79***	--	--	--	--	--	--	--	--	--	***2.45***	***6.07***
Lead	mg/L	<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***	<0.006	<0.006	--	--	--	--	--	--	--	--	--	<0.05	<0.05
Lithium	mg/L	<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	<0.006	<0.006	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Magnesium	mg/L	35.6	42.7	37.4	30.4	32	50.1	71	29.3	29	40.7	30	36.4	48.1	36.5	45.3	41.8	31.8	--	--	--	--	--	--	--	--	--	25.8	26
Manganese	mg/L	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	0.84	0.938	--	--	--	--	--	--	--	--	--	0.683	0.855
Molybdenum	mg/L	<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	<0.01	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Nickel	mg/L	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	<0.001	<0.001	--	--	--	--	--	--	--	--	--	<0.05	<0.05
Potassium	mg/L	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	<0.3	3.1	--	--	--	--	--	--	--	--	--	<2	3.3
Selenium	mg/L	<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	***0.18***	<0.02	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Silicon	mg/L	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	8.5	8.3	--	--	--	--	--	--	--	--	--	2.7	4.59
Silver	mg/L	<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	<0.002	<0.002	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Sodium	mg/L	57.4	67.6	46.3	16	16.7	16.8	33.6	6.73	6.67	22.7	37.6	38.8	50.6	34.5	37	17.7	15.3	--	--	--	--	--	--	--	--	--	5.8	8.1
Strontium	mg/L	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	0.339	0.322	--	--	--	--	--	--	--	--	--	0.23	0.244
Sulphur	mg/L	179	222	193	93.8	98.3	142	224	114	114	139	146	157	189	140	161	110	97.8	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Tin	mg/L	<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	0.021	0.023	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Titanium	mg/L	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	0.044	0.023	--	--	--	--	--	--	--	--	--	0.017	0.076
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	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	0.009	0.006	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Zinc	mg/L	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	0.018	0.017	--	--	--	--	--	--	--	--	--	***0.0309***	***0.0439***

Table A7. 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	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		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	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
Dissolved Metals																													
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Antimony	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00941	0.0116
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.042	0.052
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.005	<0.005
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.1
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Chromium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.391	0.502
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.601	0.741
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.17	2.63
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Strontium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.233	0.245
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2
Tin	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.03
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0113	<0.005

Table A7. 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	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
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	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
Physical Parameters																												
pH	pH units	8	8.13	8.15	7.98	7.67	7.78	7.78	7.89	8.07	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
Conductivity	µS/cm	658	614	751	532	512	694	497	519	585	842	931	801	979	985	899	927	884	687	770	923	1130	1220	1430	1400	1480	1320	1280	1360
Routine Parameters																												
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	330.27	316.41	369.16	255.46	263.87	374.96	252.63	252.71	304.16	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
Alkalinity-Total	mg/L	104	102	113	85.2	70.5	81.8	80.6	88.9	99.2	113	129	117	139	147	151	150	135	101	--	140	140	148	160	160	157	171	157	180
Bicarbonate	mg/L	104	107	113	85.2	70.5	81.8	80.6	88.9	99.2	113	129	117	139	147	151	150	135	101	--	140	140	148	160	160	157	171	157	180
Carbonate	mg/L	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium	mg/L	91.8	82.2	95.5	66	66.5	92.6	67.5	67.1	76.4	121	125	109	137	142	132	135	127	93.5	108	136	162	175	189	216	212	181	188	181
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	31.5	26.8	31.3	22.3	24.1	33.5	23	23.3	27.9	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
Potassium	mg/L	<2	2.4	<2	<2	<2	<2	<2	<2	2.2	2.4	2.6	2.7	2.7	2.7	3.2	2.5	3.2	<2	2.9	3.5	4.8	5.1	7.7	7.9	6.7	5.4	5	3.5
Sodium	mg/L	7.8	9.1	10.2	6.8	6	9.3	6.4	6.8	8	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
Sulphate	mg/L	256	228	275	192	195	282	188	200	232	344	398	327	392	414	368	378	333	252	316	376	512	532	632	682	724	525	571	626
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																												
Ammonia-N	mg/L	***0.071***	***0.168***	***0.22***	***0.111***	***0.074***	***0.103***	***0.069***	***0.061***	***0.08***	***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***
Nitrate-N	mg/L	0.0881	0.19	0.256	0.164	0.14	0.21	0.109	0.114	0.13	0.465	0.642	0.469	0.556	0.659	0.565	0.643	0.609	0.423	--	1.02	1.9	1.99	2.5	2.45	2.59	1.74	1.52	1.5
Nitrite-N	mg/L	0.0051	0.0053	0.0103	0.0061	0.0131	0.0137	0.0072	0.0065	0.0124	0.0464	0.0525	0.0284	0.0439	0.057	0.0553	0.045	0.0375	0.0225	--	0.0458	***0.0852***	***0.0933***	***0.124***	***0.118***	***0.124***	***0.0707***	***0.0763***	***0.0652***
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	<0.3	<0.3	<0.3	<0.3
Cyanide Compounds																												
Cyanide - T	mg/L	0.0086	0.0139	0.014	0.0182	0.0199	0.0145	0.0125	0.0173	<0.005	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
Cyanate	mg/L	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.69	<0.5	0.63	<0.5	<0.5	0.99
Thiocyanate	mg/L	0.58	0.91	0.64	1	<5	0.75	0.99	1.08	0.89	<0.5	1.9	1.05	1.34	<0.5	9.24	<0.5	1.08	0.99	1.1	1.83	1.78	0.91	1.84	1.3	2.17	1.83	2.57	1.62
CN-WAD	mg/L	<0.005	<0.0055	<0.0056	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0063	<0.005	<0.005	0.0052	<0.005	0.0058	<0.005	<0.005	<0.005	<0.005	0.0079	0.0058	0.0076	0.0101	0.0115	0.0173	0.0205	0.0193	0.0111
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																												
Aluminum	mg/L	***0.71***	<0.2	<0.2	<0.2	***0.41***	<0.2	***0.43***	***0.41***	***0.25***	<0.2	<0.2	<0.2	***0.22***	<0.2	<0.2	<0.2	<0.2	***0.41***	***0.21***	<0.2	<0.2	***0.22***	<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	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	***0.026***	<0.2	***0.0275***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.0301***	<0.2	<0.2	<0.2	<0.2	***0.0295***	<0.2	***0.0319***	***0.0214***	<0.2
Barium	mg/L	0.062	0.052	0.071	0.062	0.063	0.065	0.057	0.051	0.057	0.066	0.067	0.055	0.061	0.058	0.053	0.052	0.049	0.053	0.043	0.05	0.048	0.056	0.049	0.044	0.05	0.055	0.057	0.056
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	<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	<0.2	<0.2	<0.2	<0.2
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	<0.1	<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	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	85.6	81.7	95.9	65.7	66.1	94.1	64.4	64.6	76.3	120	128	111	135	143	132	132	126	96.9	109	141	159	171	192	219	211	186	187	187
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	<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	<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	<0.01	<0.01	<0.01	***0.016***	***0.022***	***0.015***	***0.019***	<0.01	<0.01	<0.01
Iron	mg/L	***2.79***	***1.98***	***2.41***	***1.77***	***2.03***	***1.68***	***1.95***	***1.68***	***1.88***	***2.18***	***1.99***	***1.75***	***2.42***	***2.46***	***2.35***	***2.74***	***2.63***	***2.66***	***2.43***	***2.41***	***2.11***	***2.48***	***2.07***	***2.1***	***2.53***	***3.73***	***2.98***	***4.13***
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	<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	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	0.018	0.011	<0.01
Magnesium	mg/L	28.3	27.3	31.5	22.2	24	34	22.3	22.2	27.6	30.5	33.5	31.3	37.2	38.3	35.8	41.2	37.2	31.3	34.9	38.6	40.3	40.9	42.5	44.1	42.1	39.7	37.3	44
Manganese	mg/L	0.37	0.465	0.478	0.352	0.293	0.431	0.29	0.29	0.338	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
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	<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	<0.05	<0.05	<0.05
Potassium	mg/L	2.6	2.3	<2	<2	<2	<2	<2	<2	2.1	2.4	2.7	2.7	2.6	2.7	3.1	2.6	3.2	<2	2.9	3.7	4.7	5	7.7	8	6.5	5.6	5	3.5
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	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	3.96	3.63	4.02	4.14	4.72	4.76	5.11	5.3	5.87	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
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	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	8.5	9	10.1	6.7	6	9.5	6.1	6.4	7.9	27.8	32.1	22.3	29.2	27.9	24	25.8	23.6	15.2	20.5	32.8	46.8	53	64.8	71.5	73	62.5	61.9	60.8
Strontium	mg/L	0.25	0.245	0.284	0.235	0.202	0.292	0.201	0.192	0.229	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
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	<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	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	0.04	<0.01	<0.01	<0.01	0.016	<0.01	0.016	0.016	0.011	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.03	<0.03	<0.03
Zinc	mg/L	0.0193	0.0063	0.0065	0.0093	0.0076	0.0054	0.0134	0.0103	0.0093	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

Table A7. 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	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
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	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
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	<0.2	<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	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	0.00691	0.016	0.00935	0.0196	0.0154	0.0123	0.0171	0.0185	0.0219	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
Barium	mg/L	0.054	0.049	0.065	0.057	0.052	0.06	0.05	0.046	0.053	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
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	<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	<0.2	<0.2	<0.2	<0.2
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	<0.1	<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	<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	<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	<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	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.014	<0.01	<0.01	<0.01
Iron	mg/L	0.147	1.06	0.374	1.14	0.928	0.399	0.909	0.835	0.811	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
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	<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	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.01	0.02	0.014	<0.01
Manganese	mg/L	0.289	0.415	0.45	0.2	0.169	0.412	0.233	0.246	0.307	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
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	<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	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
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	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	2.94	3.49	3.83	4.01	4.31	4.57	4.91	5.14	5.62	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
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	<0.01	<0.01	<0.01
Strontium	mg/L	0.262	0.238	0.286	0.234	0.2	0.284	0.206	0.201	0.231	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
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	<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	<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	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.03	<0.03	<0.03
Zinc	mg/L	<0.005	<0.005	<0.005	0.0054	<0.005	<0.005	0.0055	0.0064	<0.005	<0.005	<0.005	0.0063	<0.005	<0.005	<0.005	<0.005	<0.005	0.0061	0.0066	0.0058	0.0082	0.012	0.0209	0.0231	0.0315	0.0178	0.0115	0.0081

Table A7. 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	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		1-Dec-05	8-Dec-05	15-Dec-05	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	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07	12-Jul-07
Physical Parameters																													
pH	pH units	7.62	7.81	8.04	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	7.78	8.03	7.97
Conductivity	µS/cm	1440	2430	2380	1800	1530	2110	633	303	509	695	696	835	872	553	700	1030	849	998	994	1050	1210	1370	601	411	1060	339	686	650
Routine Parameters																													
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	660.99	1205.80	1125.47	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	191.41	374.19	355.26
Alkalinity-Total	mg/L	178	331	281	211	170	264	94.6	<2	64.3	98.7	108	133	128	86.3	112	156	126	145	132	142	221	194	78.7	46.4	126	47.5	106	97.6
Bicarbonate	mg/L	178	331	281	211	170	264	94.6	<2	64.3	98.7	108	133	128	86.3	112	156	126	145	132	142	175	194	78.7	46.4	126	47.5	106	97.6
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	8.5	<2	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium	mg/L	195	356	358	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	50	96.4	93.5
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	34.4	72.3	66.8	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	15.7	30.5	29.9
Potassium	mg/L	6.2	15.6	14.8	9.5	7	11.8	4.1	2.1	2.4	2	2.9	3.5	2.6	<2	<2	4	3.3	3.6	2.9	3.9	3.5	5.1	4.1	2.4	3.7	<2	2.6	<2
Sodium	mg/L	80	146	174	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	5.7	16.2	13.7
Sulphate	mg/L	638	1220	1220	851	680	522	252	103	182	286	286	332	369	217	261	414	342	412	417	435	483	582	226	270	471	123	269	240
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																													
Ammonia-N	mg/L	***4.97***	***8.28***	***7.89***	***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***	***0.177***	***0.769***	***0.618***
Nitrate-N	mg/L	1.81	***3.02***	***3.15***	1.43	0.798	<0.025	0.0502	0.0232	0.064	0.191	0.241	0.302	0.329	0.103	0.147	0.634	0.641	1.04	1.46	1.87	2.17	2.6	0.116	0.276	0.566	0.0641	0.252	0.268
Nitrite-N	mg/L	***0.0844***	***0.118***	***0.18***	***0.078***	***0.126***	<0.005	0.0051	0.0013	0.0032	0.002	0.0056	0.011	0.0081	0.01	0.0053	***0.0679***	0.0271	0.0489	0.0235	0.0102	0.032	***0.0625***	0.0131	0.0184	0.0224	0.0028	0.01	0.0131
Total Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	<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	0.0395	0.0557	0.0646	0.0521	0.0321	0.0253	0.0239	0.0332	0.0187	0.0122	0.012	<0.005	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	0.0227	0.0182	0.0145
Cyanate	mg/L	<0.5	<0.5	<0.5	0.69	1.17	20.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.57	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	3.06	4.62	4.25	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	1.55	1.17	0.93
CN-WAD	mg/L	0.0236	0.0267	0.0401	0.0222	0.0488	0.0089	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0095	0.005	<0.005	<0.005	0.005	0.0075	0.0112	<0.005	0.0078	0.0061	<0.005	<0.005	<0.005
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																													
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***5.36***	***0.76***	***0.37***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.47***	<0.2	***0.54***	<0.2	***0.4***
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	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	mg/L	0.076	0.183	0.149	0.169	0.163	0.211	0.047	0.118	0.059	0.059	0.049	0.057	0.065	0.041	0.048	0.069	0.05	0.054	0.05	0.047	0.055	0.064	0.034	0.041	0.053	0.044	0.045	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	<0.005	<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	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	<0.1	<0.1	0.13	<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	<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	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	205	362	345	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	50.6	98.9	93.3
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	<0.01	<0.01	<0.01
Cobalt	mg/L	0.01	0.021	0.019	0.013	<0.01	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	***0.013***	<0.01	<0.01	<0.01	<0.025	<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
Iron	mg/L	***3***	***4.21***	***0.714***	***19.3***	***14.1***	***17.1***	0.282	***8.28***	***2.53***	***2.34***	***1.71***	***1.81***	***2.22***	***1.74***	***2.37***	***2.45***	***2.14***	***2.43***	***2.46***	***2.46***	***2.92***	***1.78***	***0.432***	***2.03***	***1.1***	***1.56***	***1.44***	***2.28***
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	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	36.2	73.3	64.1	51.6	40.8	64.2	30.3	16.1	22.5	32	33	37.8	44.4	26.3	33.7	36.7	35.2	37	36.7	39.1	37.7	37.3	22.9	13.8	42.7	15.8	30.9	29.7
Manganese	mg/L	4.58	6.43	6.75	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	0.293	0.894	0.792
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	<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	<0.05	<0.05	<0.05
Potassium	mg/L	6.5	15.7	14.2	9.9	7.3	12.4	4.3	3.1	2.5	2.2	2.9	3.5	2.7	<2	<2	4.1	3.5	3.9	2.9	4.1	4.4	4.9	4	2.4	3.7	<2	2.6	2
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	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	6.64	14	10.6	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	3.94	4.55	5.3
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	<0.01	<0.01	<0.01
Sodium	mg/L	86.3	149	169	118	87.2	130	11.1	3.2	7.9	11.6	13.2	15	16.9	8.2	10.9	38.6	26.8	33.5	36.9	37.6	42.6	57.1	13.3	11.5	35.2	5.6	16.4	13.6
Strontium	mg/L	0.603	1.06	1.04	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	0.143	0.287	0.254
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	<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	<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	0.267	0.032	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	0.017	<0.01	0.019	<0.01	0.018
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.03	<0.03	<0.03
Zinc	mg/L	0.0195	***0.599***	***0.0855***	***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	0.0256	0.0106	0.0136

Table A7. 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	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road	Dome at Road
Date		1-Dec-05	8-Dec-05	15-Dec-05	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	3-May-07	16-May-07	31-May-07	14-Jun-07	28-Jun-07	12-Jul-07
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	<0.2	<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	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	0.0048	0.0208	0.0104	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	0.00915	0.00857	0.0105
Barium	mg/L	0.069	0.17	0.154	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	0.036	0.04	0.036
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	<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	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	<0.1	0.1	0.14	<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	<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	<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	<0.01	<0.01	<0.01
Cobalt	mg/L	0.011	0.019	0.018	0.013	<0.01	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	<0.025	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.163	0.124	0.131	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	0.568	0.437	0.644
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	<0.05	<0.05	<0.05
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	4.34	6.16	6.98	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	0.139	0.422	0.247
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	<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	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
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	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	6.16	13.3	10.9	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	3.3	4.39	4.79
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	<0.01	<0.01	<0.01
Strontium	mg/L	0.564	1.05	1.08	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	0.141	0.285	0.255
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	<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	<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	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.03	<0.03	<0.03
Zinc	mg/L	0.0161	0.488	0.0822	0.0889	0.134	0.193	0.0341	0.0241	0.0088	<0.005	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005	0.0053	<0.005	0.0053	0.009	0.0756	0.0157	<0.005	0.0123	0.0057	0.0062

Table A7. 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	CCME AL Guidelines[1]	Water License Standards[2]
Date		26-Jul-07	9-Aug-07	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07	30-Nov-07	9-May-08	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08		
Physical Parameters																								
pH	pH units	8.05	8.08	7.68	8.12	7.99	7.71	7.24	6.84	7.47	--	7.97	7.98	7.89	7.85	8.15	7.96	8.05	8.11	8.13	7.76	7.31	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	965	934	1050	891	860	1030	776	641	316	301	911	764	707	746	871	968	806	912	871	1050	987	--	--
Routine Parameters																								
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	6	8	12	5	<2	6	7	120	142	18	27	46	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	***328***	***698***	***566***	***488***	***--***	***607***	***688***	***574***	***639***	***655***	***799***	***705***	--	50
Hardness	mg/L	529.13	523.59	510.17	447.46	456.90	547.24	348.00	296.33	--	278.00	513.00	422.00	369.00	372.00	467.00	512.00	455.00	497.00	506.00	1.63	3.21	--	--
Alkalinity-Total	mg/L	151	157	135	140	139	169	185	207	46	82	133	134	111	118	137	165	138	146	170	188	181	--	--
Bicarbonate	mg/L	151	157	135	140	139	169	185	252	56	100	162	164	136	140	168	201	168	178	207	230	220	--	--
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	140	129	155	119	119	139	93.1	84.3	39.2	72.5	138	109	96	100	121	136	116	130	129	145	151	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	1.2	1.2	0.7	0.8	0.93	1.3	1	0.9	0.9	1	1.11	1.2		
Magnesium	mg/L	42.7	44.4	42.1	36.8	39	46.9	28.1	20.9	11.9	23.6	40.9	36.2	31.4	29.6	40	41.6	40.4	41.7	45	46.4	33.6	--	--
Potassium	mg/L	3.1	2.3	5.7	3.3	3	3.7	3	2.3	2.5	2.6	3.4	2.5	2.5	2.42	2.7	3.1	3	3.6	2.9	3.1	3.8	--	--
Sodium	mg/L	20.8	18.6	28	21.3	15.2	23.7	21.5	16.2	6.3	11.5	19.7	14.6	14.1	11.2	17.2	21.4	9.2	12.7	12.5	17.9	37.1	--	--
Sulphate	mg/L	416	365	427	343	333	402	232	143	106	233	415	321	276	280	342	384	322	362	363	454	348	--	--
Turbidity	NTU	--	--	--	--	--	--	--	--	--	3.7	9.9	--	--	--	--	--	--	14.8	--	--	--	--	--
Nutrients																								
Ammonia-N	mg/L	***0.734***	***0.885***	***0.526***	***1.16***	***0.75***	***1.51***	***3.61***	***2.8***	***0.175***	***0.432***	***0.94***	***0.57***	***0.51***	***0.24***	***0.71***	***1***	***0.23***	***0.52***	***0.63***	***1.09***	***2.2***	0.015	--
Nitrate-N	mg/L	0.647	0.442	0.602	0.654	0.823	1.14	<0.005	<0.01	0.1	0.23	0.48	0.35	0.42	0.31	0.37	0.52	0.3	0.47	0.56	0.81	1.04	2.9	--
Nitrite-N	mg/L	***0.065***	0.0202	0.0206	0.027	0.0224	0.0357	0.0044	0.006	<0.02	0.04	0.012	0.008	0.012	***0.1***	0.012	0.028	0.005	0.007	0.006	0.03	0.04	0.06	--
Total Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																								
Cyanide - T	mg/L	0.0083	0.0105	0.0144	0.0153	0.0137	0.0174	0.0173	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.3	<0.2	0.4	0.7	<0.2	<0.2	<0.2	0.4	0.6	0.3	0.2	0.4	0.4	1.4	--	--
Thiocyanate	mg/L	1.43	1.31	1.22	1.63	1.16	1.22	0.81	0.8	2.3	1.5	1	0.5	1.6	0.5	1.5	1.6	0.5	0.9	1.5	1.4	2.2	--	--
CN-WAD	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.0102	<0.005	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.006	0.002	0.006	0.004	0.004	0.006	0.01	--	0.1
CN-SAD	mg/L	--	--	--	--	--	--	--	0.006	0.028	0.028	0.02	0.022	0.03	0.002	0.05	0.01	0.02	0.058	0.052	0.14	0.42	--	--
Total Metals																								
Aluminum	mg/L	<0.2	<0.2	***0.36***	<0.2	<0.2	<0.2	***0.131***	***0.112***	***0.233***	***0.156***	0.061	***0.199***	0.083	***0.154***	***0.224***	***0.118***	***3.56***	***1.18***	***0.261***	***0.305***	***0.267***	0.1	--
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.00225	0.001	0.0018	0.0026	0.0035	0.0026	0.0021	0.0021	0.0023	0.0019	0.0072	0.0136	0.0026	0.0029	0.0015	--	0.15
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.14***	***0.19***	***0.0077***	***0.0122***	***0.0129***	***0.0256***	***0.0167***	***0.021***	***0.0185***	***0.02***	***0.0414***	***0.0313***	***0.016***	***0.0184***	***0.043***	0.005	--
Barium	mg/L	0.055	0.034	0.044	0.038	0.037	0.041	0.118	0.116	0.039	0.043	0.058	0.049	0.051	0.056	0.063	0.062	0.124	0.063	0.046	0.055	0.066	--	1
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	0.013	0.012	0.024	0.023	0.032	0.033	0.026	0.03	0.036	0.033	0.026	0.039	0.023	0.037	0.039	--	--
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.000481***	***0.00014***	***0.00018***	***0.00016***	***0.0001***	***0.00013***	***0.00008***	***0.00008***	***0.00011***	***0.00011***	***0.00052***	***0.00022***	***0.00016***	***0.0002***	***0.00034***	0.000017	0.02
Calcium	mg/L	141	134	140	120	119	141	97.6	84.7	38.1	74.8	136	110	88.7	103	119	136	114	127	119	141	137	--	--
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00102	0.0021	0.0005	0.0024	<0.0005	<0.0005	0.0005	***0.148***	0.0009	0.0009	0.0056	0.0025	0.001	0.0014	0.0015	0.0089	0.04
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00246	0.0023	0.0014	0.0015	0.0021	0.0017	0.0016	0.0026	0.0021	0.0026	0.0029	0.0019	0.0016	0.003	0.0059	--	--
Copper	mg/L	<0.01	<0.01	***0.021***	<0.01	<0.01	<0.01	***0.00843***	***0.004***	***0.005***	***0.004***	0.002	***0.004***	***0.003***	***0.007***	***0.003***	***0.003***	***0.01***	***0.008***	0.002	***0.003***	***0.005***	0.002 - 0.004	0.2
Iron	mg/L	***2.08***	***1.82***	***2.25***	***1.99***	***1.99***	***1.33***	***25.7***	***35.2***	***0.5***	***1***	***1.1***	***2.1***	***1.45***	***2.69***	***2.08***	***2.14***	***4.97***	***2.54***	***1.92***	***2.34***	***5.81***	0.3	1
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***0.0125***	0.0028	0.0009	0.0017	0.0029	0.0015	0.0007	0.0005	0.0007	0.0004	***0.0098***	***0.0051***	0.0012	0.0011	0.0025	0.001 - 0.007	0.1
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	0.002	0.002	0.002	0.005	0.002	0.002	0.003	0.003	0.006	0.006	0.004	0.006	0.002	--	--
Magnesium	mg/L	43	45.9	39	35.9	38.8	47.4	29.2	20.6	11	24.3	41	36.4	28.9	34.3	38.5	42.2	40.1	41.1	42.3	45.1	29.6	--	--
Manganese	mg/L	1.04	1.1	0.89	1.22	0.902	1.58	2.93	3.34	0.755	0.803	0.951	0.825	0.729	0.746	1.06	1.46	0.614	0.796	0.847	1.62	3.01	--	0.5
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.000226	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.073	--
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.00176	0.0014	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	***0.0624***	0.0048	0.0019	0.0057	0.002	0.0018	0.0021	0.003	0.025 - 0.15	0.3
Potassium	mg/L	3.1	2.5	5.5	3	3.1	3.7	3.2	2.5	2.6	2.6	3	2.8	2.6	2.5	2.6	3.1	3.4	3.8	2.7	3.3	3.7	--	--
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.001	0.0003	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	0.0004	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	0.0006	0.0002	0.001	--
Silicon	mg/L	5.84	5.09	5.03	6	5.86	6.43	9.92	8.26	2.18	2.85	4.1	4.46	4.74	5.19	5.5	5.52	7.96	6.66	5.43	5.36	6.62	--	--
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.000035	<0.0001	0.00003	***0.00011***	<0.00001	<0.00001	0.00009	<0.00001	0.00002	0.00002	***0.00015***	0.00006	<0.00001	0.00004	0.00009	0.0001	0.1
Sodium	mg/L	21.1	19.5	26.7	20.6	15.4	23.5	22.2	16.4	5.7	11.6	18.9	14.8	13.6	12.8	17	22.4	9.8	12.8	12	19.8	35.3	--	--
Strontium	mg/L	0.424	0.371	0.389	0.346	0.326	0.415	0.315	0.314	0.128	0.232	0.388	0.384	0.291	0.323	0.378	0.45	0.415	0.4	0.407	0.455	0.474	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	47	33.9	74.9	137	103	85.5	98.8	114	130	103	119	112	131	124	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00006	<0.00005	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	mg/L	<0.03	<0.04	<0.03	<0.03	<0.03	<0.03	<0.0001	<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	--	--
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0082	0.0043	0.0008	0.0079	0.007	0.004	0.0155	0.0172	0.0143	0.171	0.0731	0.0186	0.0204	0.0234	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	<0.0005	0.0009	0.0018	0.0018	0.001	0.0012	0.0013	0.0015	0.0022	0.002	0.0018	0.0021	0.0018		
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.0024	0.0017	0.0008	0.0012	0.0013	0.0025	0.0012	0.0004	0.0015	0.0012	0.0134	0.0047	0.0016	0.002	0.0024	--	--
Zinc	mg/L	0.0068	0.0075	***0.0564***	0.0069	0.006	0.0139	***0.0959***	***0.054***	***0.048***	0.021	0.012	0.018	0.014	0.015	0.012	0.012	***0.051***	***0.045***	***0.041***	***0.063***	***0.044***	0.03	0.3

Table A7. 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	CCME AL Guidelines[1]	Water License Standards[2]
Date		26-Jul-07	9-Aug-07	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07	30-Nov-07	9-May-08	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08		
Dissolved Metals																								
Aluminum	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.007	0.008	0.164	0.052	0.013	0.02	0.044	0.03	0.016	0.013	0.049	0.027	0.018	0.007	<0.005	--	--
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0006	0.0004	0.0019	0.0026	0.0034	0.0027	0.0025	0.0022	0.0023	0.002	0.0076	0.0134	0.0031	0.0031	0.0011	--	--
Arsenic	mg/L	0.0043	0.00394	0.00694	0.00436	0.00339	0.00287	0.00636	0.0084	0.0062	0.0076	0.0037	0.0056	0.0112	0.0099	0.0048	0.0054	0.0087	0.0072	0.0052	0.0031	0.0059	--	0.15
Barium	mg/L	0.051	0.03	0.037	0.032	0.031	0.04	0.0924	0.075	0.035	0.041	0.056	0.04	0.049	0.047	0.054	0.056	0.08	0.056	0.042	0.045	0.045	--	--
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.00004	--	--
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	--	--
Boron	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.014	0.011	0.022	0.018	0.028	0.028	0.025	0.022	0.028	0.032	0.024	0.032	0.022	0.028	0.028	--	--
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.000139	0.00001	0.00015	0.00009	0.00004	0.00005	0.00007	<0.00008	0.00004	0.00005	0.00006	0.00009	0.00007	0.00008	0.00008	--	--
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	0.0017	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003	<0.0005	0.0009	--	<0.0005	<0.0005	<0.0004	0.0008	--	--
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00208	0.0018	0.0013	0.0016	0.0017	0.0015	0.0014	0.00143	0.0014	0.0023	<0.0005	0.0011	0.001	0.00237	0.0041	--	--
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0023	0.025	0.005	0.003	0.002	0.002	0.003	0.012	0.002	0.002	0.0007	0.005	0.002	0.003	0.002	--	--
Iron	mg/L	0.068	0.041	0.048	0.193	0.073	0.098	0.396	0.5	0.39	0.45	0.06	0.03	0.6	0.48	0.05	0.02	0.003	0.06	0.04	0.023	0.043	--	--
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.00005	<0.0001	0.0003	0.0004	<0.0001	0.0001	0.0001	0.0003	<0.0001	<0.0001	0.07	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	0.001	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.0001	0.004	0.004	0.003	0.001	--	--
Manganese	mg/L	0.968	1.01	0.8	1.08	0.85	1.47	2.67	3.24	0.783	0.761	0.945	0.802	0.783	0.696	1.04	1.44	0.466	0.786	0.887	1.63	3.21	--	--
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.000157	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00039	<0.001	<0.001	<0.001	<0.001	<0.001	0.00048	0.00051	--	--
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.00098	0.0014	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	0.004	0.0008	0.0017	0.0008	<0.0005	0.0008	0.002	0.002	--	--
Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--	<0.01	--	--	--	--	--	<0.01	<0.01	--	--
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0026	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0006	--	--
Silicon	mg/L	5.6	5.01	4.65	5.74	5.67	6.23	8.7	<0.0001	2.42	2.77	4.2	4.38	5.07	4.22	5.41	5.39	5.81	5.49	5.73	5.48	6.3	--	--
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00001	8.72	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.418	0.363	0.409	0.331	0.316	0.415	0.31	0.279	0.118	0.217	0.42	0.354	0.295	0.312	0.348	0.413	0.386	0.377	0.407	0.436	0.401	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00003	<0.00001	--	--
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	--	--
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	0.0029	0.0022	0.0158	0.003	0.0028	0.0009	0.0093	0.015	0.0117	0.0095	0.0111	0.0009	0.0008	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	<0.0005	0.0007	0.0018	0.0016	0.001	0.001	0.0013	0.0014	0.002	0.0018	0.0018	0.0019	0.0012		
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	0.0037	0.0007	0.001	0.0007	0.0011	0.0008	0.001	0.0004	0.0021	0.0018	0.0008	0.0005	0.00024	0.00046	--	--
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.0091	0.0477	0.033	0.041	0.011	0.007	0.006	0.013	0.009	0.003	0.002	0.006	0.014	0.016	0.032	0.016	--	--

Table A8. Water Quality Parameters in Pony Creek at the upstream location.

Sample ID	Units	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	CCME AL Guidelines[1]	Water License Standards[2]
Date		22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08		
Physical Parameters														
pH	pH units	--	7.71	7.49	7.64	7.28	7.79	7.48	7.71	7.78	7.84	6.95	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	65	261	256	183	217	232	269	268	332	352	435	--	--
Routine Parameters														
Total Suspended Sediment	mg/L	3	<1	<1	1	<2	36	<1	<1	<1	2	28	--	--
Total Dissolved Solids	mg/L	27	***163***	***160***	***112***	--	***133***	***158***	***165***	***203***	***236***	***290***	--	50
Hardness	mg/L	31	130	120	88	104	100	130	130	161	186	--	--	--
Alkalinity-Total	mg/L	12	44	52	43	46	47	53	42	56	63	67	--	--
Bicarbonate	mg/L	20	53	63	52	60	57	64	51	68	77	80	--	--
Carbonate	mg/L	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	9.2	37.5	36.4	25.9	31.1	30.5	37.5	38.6	47.4	54.6	58.1	--	--
Chloride	mg/L	1.1	0.6	0.4	3.1	0.17	0.7	<0.4	0.5	0.5	0.6	0.51		
Magnesium	mg/L	2	8.7	8.2	5.7	6.39	7	8.1	8.4	10.4	12	13.5	--	--
Potassium	mg/L	0.8	0.6	<0.4	0.4	0.36	<0.4	<0.4	<0.4	<0.4	0.5	0.5	--	--
Sodium	mg/L	0.9	3.5	3.6	3.1	3.04	3.5	3.8	3.5	3.6	4.3	4.2	--	--
Sulphate	mg/L	13.5	86.2	79.9	47.8	58.4	63.7	76.4	88.5	108	126	158	--	--
Turbidity	NTU	1.1	0.7	--	--	--	--	--	--	0.9	--	--	--	--
Nutrients														
Ammonia-N	mg/L	***0.019***	0.009	<0.05	<0.05	***0.021***	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	0.015	--
Nitrate-N	mg/L	<0.02	<0.01	<0.01	0.06	0.01	0.01	0.03	0.02	0.01	0.01	<0.01	2.9	--
Nitrite-N	mg/L	<0.02	<0.005	<0.005	<0.005	0.04	<0.005	<0.005	<0.005	<0.005	<0.005	0.02	0.06	--
Total Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds														
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	0.5	--
Thiocyanate	mg/L	1.4	0.6	0.3	1.5	0.6	1	1.2	0.6	0.8	1.1	0.6	--	--
CN-WAD	mg/L	0.002	0.002	0.002	0.004	<0.002	0.002	0.002	0.002	0.004	0.002	0.002	0.1*	0.1
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	--	--
Total Metals														
Aluminum	mg/L	***0.271***	0.029	0.081	0.064	0.048	0.038	0.034	0.039	0.035	0.016	***0.163***	0.1	--
Antimony	mg/L	0.0003	0.0005	0.0005	0.0006	0.0004	0.0005	0.0004	0.0005	0.0005	0.0004	0.0004	--	0.15
Arsenic	mg/L	0.0025	0.0013	0.0017	0.002	0.0019	0.0018	0.002	0.0017	0.002	0.0014	***0.0066***	0.005	--
Barium	mg/L	0.03	0.05	0.061	0.038	0.04	0.043	0.051	0.052	0.06	0.068	0.084	--	1
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Cadmium	mg/L	***0.00015***	***0.00002***	***0.00003***	***0.00004***	***0.00003***	***0.00003***	***0.00003***	***0.00003***	***0.00003***	***0.00003***	***0.00007***	0.000017	0.02
Calcium	mg/L	9.9	37.6	35.8	23.9	27.9	31.2	37.8	37	46.4	51.8	58.5	--	--
Chromium	mg/L	0.0015	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	0.0008	0.0005	<0.0005	0.0089	0.04
Cobalt	mg/L	0.0002	<0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0001	0.0002	0.0002	0.0008	--	--
Copper	mg/L	***0.004***	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	0.001	0.002 - 0.004	0.2
Iron	mg/L	***0.4***	<0.1	0.2	0.13	0.15	0.17	0.22	0.13	0.21	0.16	***1.22***	0.3	1
Lead	mg/L	0.0005	<0.0001	0.0002	0.0003	0.0002	<0.0001	0.0001	<0.0001	0.0002	0.0001	0.0006	0.001 - 0.007	0.1
Lithium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	--	--
Magnesium	mg/L	2.1	8.7	8.4	5.4	6.2	6.8	8.4	8.2	10.2	11.5	13.1	--	--
Manganese	mg/L	0.052	<0.005	0.035	0.03	0.059	0.08	0.11	0.048	0.096	0.085	0.316	--	0.5
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.073	--
Nickel	mg/L	0.001	<0.0005	<0.0005	<0.0005	<0.0005	0.0011	0.0008	0.0005	0.0005	<0.0005	0.001	0.025 - 0.15	0.3
Potassium	mg/L	0.8	<0.4	0.6	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.5	0.6	--	--
Selenium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001	--
Silicon	mg/L	2	4.54	5.73	6.05	6.07	6.43	5.82	6.63	6.28	6.19	5.6	--	--
Silver	mg/L	0.00003	<0.00001	0.00008	***0.00038***	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	0.00001	0.0001	0.1
Sodium	mg/L	1.1	3.6	4.2	3.2	3.5	3.9	4.5	4	4.1	4.3	5	--	--
Strontium	mg/L	0.069	0.248	0.225	0.157	0.189	0.208	0.259	0.265	0.337	0.376	0.429	--	--
Sulphur	mg/L	4.7	28.4	25.8	15	18.7	21.7	25.6	28.1	35.3	40.7	47.1	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Titanium	mg/L	0.0032	0.0011	0.0024	0.0018	0.003	0.0021	0.0026	0.0035	0.0032	0.0031	0.0048	--	--

Table A8. Water Quality Parameters in Pony Creek at the upstream location.

Sample ID	Units	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	Pony u/s	CCME AL Guidelines[1]	Water License Standards[2]
Date		22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08		
Uranium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Vanadium	mg/L	0.0005	0.0002	0.0004	0.0004	0.0003	0.0002	0.0004	0.0002	0.0003	0.0002	0.0007	--	--
Zinc	mg/L	0.011	0.007	0.007	0.011	0.007	0.007	0.008	0.011	0.012	0.007	0.015	0.03	0.3
Dissolved Metals														
Aluminum	mg/L	0.22	0.029	0.024	0.04	0.02	0.02	0.019	0.023	0.017	0.012	0.017	--	--
Antimony	mg/L	0.0006	0.0007	0.0008	0.0008	0.0009	0.0005	0.0004	0.0006	0.0005	0.0005	0.0033	--	--
Arsenic	mg/L	0.002	0.0016	0.0015	0.0018	0.002	0.0016	0.002	0.0016	0.0018	0.0015	0.0031	--	0.15
Barium	mg/L	0.028	0.049	0.055	0.039	0.037	0.042	0.048	0.053	0.062	0.066	0.033	--	--
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	--	--
Boron	mg/L	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	--	--
Cadmium	mg/L	0.00003	0.00001	0.00002	0.00003	<0.00008	0.00002	0.00003	0.00002	0.00003	0.00003	0.00416	--	--
Chromium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0004	--	--
Cobalt	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.00013	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	0.0004	--	--
Copper	mg/L	0.003	0.001	0.001	0.002	<0.001	0.001	0.001	<0.0001	<0.001	<0.001	0.034	--	--
Iron	mg/L	0.22	0.06	0.02	0.07	0.13	0.06	0.07	0.001	0.08	0.06	0.013	--	--
Lead	mg/L	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.07	<0.0001	<0.0001	0.0004	--	--
Lithium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	0.001	--	--
Manganese	mg/L	<0.005	<0.005	<0.005	0.007	0.0423	0.011	0.066	0.035	0.084	0.083	0.281	--	--
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	0.00004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00002	--	--
Nickel	mg/L	0.0009	<0.0005	<0.0005	<0.0005	0.002	0.0007	0.0007	<0.0005	<0.0005	<0.0005	0.013	--	--
Phosphorus	mg/L	--	--	--	--	<0.01	--	--	--	--	--	<0.01	--	--
Selenium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	--	--
Silicon	mg/L	1.97	4.89	5.59	6.59	5.48	6.58	6.77	6.78	6.66	6.46	5.49	--	--
Silver	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.065	0.264	0.229	0.159	0.181	0.203	0.245	0.257	0.299	0.364	0.352	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00001	--	--
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	0.0004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	--	--
Titanium	mg/L	0.0018	0.0037	0.0014	0.002	0.0007	0.002	0.0026	0.0033	0.003	0.0021	0.0014	--	--
Uranium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004		
Vanadium	mg/L	0.0003	0.0003	0.0004	0.0003	0.00032	0.0001	0.0007	0.0005	0.0003	0.0002	0.00013	--	--
Zinc	mg/L	0.011	0.004	0.004	0.006	0.004	0.002	0.002	0.003	0.003	0.006	0.414	--	--

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A9. Water Quality Parameters in Pony Creek at the downstream location.

Sample ID	Units	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	CCME AL Guidelines[1]	Water License Standards[2]
Date		22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08		
Physical Parameters														
pH	pH units	--	7.55	7.69	7.71	7.13	7.86	7.36	7.7	--	7.81	6.99	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	72	253	248	183	249	232	290	292	--	357	418	--	--
Routine Parameters														
Total Suspended Sediment	mg/L	<3	1	10	1	86	4	48	54	--	53	22	--	--
Total Dissolved Solids	mg/L	30	***159***	***157***	***110***	--	***136***	***175***	***182***	--	***242***	***287***	--	50
Hardness	mg/L	34	120	120	86	116	100	138	143	--	192	--	--	--
Alkalinity-Total	mg/L	13	37	45	37	43	43	61	52	--	64	72	--	--
Bicarbonate	mg/L	20	45	54	45	50	53	74	63	--	78	90	--	--
Carbonate	mg/L	<6	<6	<6	<6	<6	<6	<6	<6	--	<6	<6	--	--
Hydroxide	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	--	<5	<5	--	--
Calcium	mg/L	10	34.7	35.9	25.7	34.3	30.6	40.6	42.1	--	56.3	60.8	--	--
Chloride	mg/L	1.2	<0.4	<0.4	2.6	0.09	0.7	0.4	<0.4	--	0.5	0.34		
Magnesium	mg/L	2.1	8.2	8	5.4	7.33	7.1	9	9.3	--	12.6	13.8	--	--
Potassium	mg/L	0.9	0.6	<0.4	<0.4	0.37	<0.4	0.4	0.4	--	0.6	0.6	--	--
Sodium	mg/L	1	3.3	3.5	2.9	3.04	3.5	3.8	3.6	--	4.4	4.6	--	--
Sulphate	mg/L	16	90	82.7	50.9	75.9	68.1	84.3	95.6	--	129	146	--	--
Turbidity	NTU	0.8	0.5	--	--	--	--	--	--	--	--	--	--	--
Nutrients														
Ammonia-N	mg/L	0.014	0.011	<0.05	<0.05	0.007	<0.05	<0.05	<0.05	--	<0.05	<0.01	0.015	--
Nitrate-N	mg/L	<0.02	0.06	0.02	0.01	0.04	0.02	0.02	0.07	--	0.03	0.08	2.9	--
Nitrite-N	mg/L	<0.02	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	--	<0.005	0.02	0.06	--
Total Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds														
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.2	<0.2	0.5	--
Thiocyanate	mg/L	1.4	0.6	0.8	0.7	0.6	0.6	0.8	0.7	--	0.9	0.7	--	--
CN-WAD	mg/L	0.002	0.002	0.002	0.004	<0.002	0.002	0.002	0.002	--	0.002	0.002	0.1*	0.1
CN-SAD	mg/L	0.002	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	--	<0.002	0.002	--	--
Total Metals														
Aluminum	mg/L	***0.225***	0.056	0.079	0.054	***1.59***	0.07	***0.199***	***0.143***	***0.132***	***0.256***	***0.111***	0.1	--
Antimony	mg/L	0.0009	0.0039	0.0039	0.0031	0.0242	0.0016	0.0045	0.0014	0.0017	0.0031	0.0031	--	0.15
Arsenic	mg/L	0.003	***0.0051***	***0.0089***	0.0047	***0.352***	0.0047	***0.0182***	***0.006***	***0.0057***	***0.0257***	***0.0059***	0.005	--
Barium	mg/L	0.025	0.041	0.046	0.031	0.065	0.039	0.039	0.049	0.048	0.054	0.035	--	1
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0019	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	<0.002	<0.002	<0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	--	--
Cadmium	mg/L	***0.0003***	***0.00188***	***0.00032***	***0.0004***	***0.00624***	***0.00048***	***0.00238***	***0.00093***	***0.00126***	***0.00242***	***0.004***	0.000017	0.02
Calcium	mg/L	10.4	35.2	34	24.4	32.7	31.2	39.8	40.9	48.8	53.6	55.4	--	--
Chromium	mg/L	0.0008	<0.0005	<0.0005	<0.0005	0.0016	0.0009	0.0006	0.0005	<0.0005	0.0007	<0.0005	0.0089	0.04
Cobalt	mg/L	<0.0001	0.0002	<0.0001	<0.0001	0.0018	<0.0001	0.0002	0.0002	0.0001	0.0003	0.0004	--	--
Copper	mg/L	***0.008***	***0.016***	***0.007***	***0.009***	***0.135***	***0.006***	***0.023***	***0.008***	***0.009***	***0.014***	***0.022***	0.002 - 0.004	0.2
Iron	mg/L	0.2	<0.1	0.2	0.07	***8.48***	0.1	***0.5***	0.24	0.18	***0.58***	0.12	0.3	1
Lead	mg/L	0.0008	0.0018	***0.0036***	0.0008	***0.178***	0.0015	***0.012***	0.0028	0.0028	***0.0133***	***0.0033***	0.001 - 0.007	0.1
Lithium	mg/L	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001	0.002	--	--
Magnesium	mg/L	2.4	8.3	7.8	5.2	7.2	6.9	9	9.2	10.9	12	12.9	--	--
Manganese	mg/L	0.019	0.073	0.013	0.011	0.502	0.02	0.172	0.07	0.089	0.12	0.274	--	0.5
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.073	--
Nickel	mg/L	0.0008	0.0006	<0.0005	<0.0005	0.0017	0.0007	0.0012	0.0007	0.0007	0.0011	0.0019	0.025 - 0.15	0.3
Potassium	mg/L	0.9	<0.4	0.5	<0.4	0.5	<0.4	0.4	0.4	0.4	0.6	0.6	--	--
Selenium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	0.001	--
Silicon	mg/L	2.05	4.45	5.16	5.98	7.43	6.36	5.6	6.61	6.13	6.24	5.34	--	--
Silver	mg/L	0.00003	<0.00001	0.00007	***0.0002***	***0.00287***	0.00004	***0.00021***	0.00005	0.00006	***0.00011***	0.00006	0.0001	0.1
Sodium	mg/L	1.2	3.2	3.6	3.1	3.5	3.6	4.4	4.1	4.3	4.4	4.7	--	--
Strontium	mg/L	0.072	0.21	0.23	0.155	0.215	0.211	0.266	0.284	0.35	0.371	0.363	--	--
Sulphur	mg/L	5.4	29.4	25.8	16.2	24.6	22.8	27.9	30.8	37	42	43.3	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	0.00011	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--

Table A9. Water Quality Parameters in Pony Creek at the downstream location.

Sample ID	Units	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	Pony d/s	CCME AL Guidelines[1]	Water License Standards[2]
Date		22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08		
Titanium	mg/L	0.0025	0.0013	0.0025	0.0012	0.0354	0.0031	0.008	0.0081	0.0076	0.0122	0.0034	--	--
Uranium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Vanadium	mg/L	0.0004	0.0001	0.0003	0.0003	0.004	0.0002	0.0005	0.0004	0.0005	0.0008	0.0004	--	--
Zinc	mg/L	***0.04***	***0.163***	***0.032***	***0.046***	***0.389***	***0.042***	***0.197***	***0.096***	***0.131***	***0.122***	***0.417***	0.03	0.3
Dissolved Metals														
Aluminum	mg/L	0.195	0.045	0.02	0.044	0.03	0.025	0.025	0.028	--	0.019	0.009	--	--
Antimony	mg/L	0.001	0.0043	0.0036	0.0035	0.0032	0.0015	0.0033	0.0012	--	0.0018	0.0006	--	--
Arsenic	mg/L	0.0024	0.0045	0.0044	0.0041	0.0038	0.0035	0.0048	0.0031	--	0.0038	0.0014	--	0.15
Barium	mg/L	0.024	0.039	0.042	0.029	0.024	0.037	0.034	0.047	--	0.045	0.075	--	--
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	--	<0.0001	<0.00004	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0001	--	--
Boron	mg/L	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	--	<0.002	<0.004	--	--
Cadmium	mg/L	0.00023	0.00168	0.00027	0.00035	0.00273	0.00068	0.00135	0.00085	--	0.00131	0.00006	--	--
Chromium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	--	--	<0.0005	<0.0004	--	--
Cobalt	mg/L	0.0002	0.0002	<0.0001	<0.0001	0.00021	<0.0001	0.0002	<0.0005	--	<0.0001	0.00026	--	--
Copper	mg/L	0.008	0.014	0.005	0.008	0.025	0.007	0.018	<0.0001	--	0.007	0.002	--	--
Iron	mg/L	0.19	0.04	<0.01	0.04	0.05	0.04	0.02	0.006	--	0.02	0.073	--	--
Lead	mg/L	0.0003	0.0007	0.0002	0.0002	0.0006	0.0004	0.0003	0.03	--	0.0002	<0.0001	--	--
Lithium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0002	--	<0.001	<0.001	--	--
Manganese	mg/L	<0.005	0.095	<0.005	0.011	0.119	0.025	0.165	0.054	--	0.073	0.144	--	--
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	0.00002	<0.001	<0.001	<0.001	--	<0.001	<0.00002	--	--
Nickel	mg/L	0.0007	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	0.001	<0.0005	--	0.0006	<0.001	--	--
Phosphorus	mg/L	--	--	--	--	0.01	--	--	--	--	--	<0.01	--	--
Selenium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0002	<0.0002	<0.0002	--	<0.0002	<0.0006	--	--
Silicon	mg/L	2.05	4.77	5.5	6.33	4.99	6.47	6.42	6.67	--	6.22	6.23	--	--
Silver	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00004	<0.00001	--	<0.00001	<0.00001	--	--
Strontium	mg/L	0.064	0.225	0.232	0.152	0.193	0.199	0.25	0.278	--	0.36	0.423	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00005	<0.00005	<0.00005	--	<0.00005	<0.00001	--	--
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	--	<0.001	<0.0001	--	--
Titanium	mg/L	0.0018	0.0044	0.0009	0.001	0.001	0.0019	0.0032	0.0034	--	0.0039	0.0008	--	--
Uranium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0004	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0004		
Vanadium	mg/L	0.0003	0.0002	0.0003	0.0005	0.00017	0.0001	0.0006	0.0004	--	0.0002	0.00009	--	--
Zinc	mg/L	0.036	0.171	0.027	0.046	0.22	0.061	0.194	0.072	--	0.118	0.009	--	--

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	8-Dec-99	8-Dec-99	15-Dec-99	15-Dec-99	17-Jan-00
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	8.62	--	8.5	8.5	8.1
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	4100	--	3890	4000	4000
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	<5	--	--	5	4
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***	***3470***	--	--	***3430***	***3580***
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	1316.44	--	1398.80	1299.46	1455.56
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	115	--	--	109	128
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	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	2030	--	--	2080	2000
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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***	***15.1***	--	***11.4***	***14***	***40.1***
Nitrate-N	mg/L	0.38	0.13	0.33	1.32	2.35	1.34	1.51	1.67	1.3	1.59	1.53	1.73	1.78	0.89	--	1.93	2.35	2.11	2.2	<0.1	2.14	2.19	2.12	1.14	0.92	--	1.1	2.03	2.14
Nitrite-N	mg/L	0.01	<0.015	<0.003	0.005	<0.003	0.02	***0.089***	***0.087***	***0.068***	***0.187***	***0.098***	***0.127***	***0.145***	***0.168***	--	***0.21***	***0.307***	***25.5***	***0.179***	<0.05	***21.1***	***0.35***	***16.3***	***0.168***	***0.167***	--	***0.12***	***0.153***	***0.271***
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	<0.06	--	0.1	<0.06	1.29
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	--	--	77.3	--	20.7	--	14.1
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	94.4	13.3	4.93	13	4.93
CN-WAD	mg/L	32	140	65	13	14.7	11.7	9.76	10.1	9.97	10.1	7.77	31.5	10.2	7.21	10	0.28	7.6	7.03	6.24	9.74	7.27	7.3	8.69	6.6	8.2	--	7.4	8	7.85
CN-SAD	mg/L	39	152	68	69	56	60	50.9	50.3	48.3	48.9	50.3	60.2	59.7	55.8	10.04	61.2	6.9	7.01	59.4	6.23	7.12	7.52	8.89	7.98	10.8	--	9.55	9.22	9.39
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	<0.01	--	***0.13***	<0.01	0.09
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	<0.02	--	--	<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	<0.02	--	--	<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	0.03	0.032	0.0262	0.033	0.032	0.03	0.037	0.0288	0.0292	--	0.041	0.028	0.054
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3	0.32	--	0.31	0.26	0.3	0.32	--	--	--	0.31	--	0.28
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	***0.0005***	--	<0.001	<0.0005	***0.002***
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	492	--	523	488	536
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	<0.001	--	<0.005	<0.001	<0.005
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	0.125	--	0.162	0.121	0.171
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***	***12.4***	--	***11.7***	***12.9***	***14.5***
Iron	mg/L	***9.68***	***1.78***	***1.3***	***0.558***	0.196	***0.431***	0.183	0.201	0.145	***0.597***	0.137	0.18	0.206	***0.341***	--	0.189	0.13	***1.75***	0.122	***1.95***	***1.8***	***0.65***	***0.651***	***0.572***	***0.493***	--	***0.65***	***0.488***	***2.08***
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	<0.005	--	<0.005	<0.005	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	33.4	19.9	14.3	12.7	11.9	13	14.5	16.3	14.5	14	15.8	15.3	16.6	15.6	--	18.2	20.3	18.7	19.2	19	19.4	22.7	23.2	19.5	21.3	--	22.5	19.6	28.4
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	2.65	--	3.43	2.67	5.6
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	0.008	--	0.015	0.006	***0.151***
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***	***0.076***	--	***0.078***	***0.075***	***0.087***
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	21	--	18.7	24	24.1
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	<0.02	<0.02	<0.04	--	<0.02	<0.02	--	<0.02	--	--	<0.2	--	<0.02	<0.02	--	--	<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	2.23	--	--	2.24	--
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***	***0.055***	--	***0.009***	***0.052***	***0.145***
Sodium	mg/L	346	709	396	420	464	419	440	499	455	449	463	428	461	442	--	452	461	404	501	438	385	437	451	408	446	--	235	459	417
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	1.21	--	1.56	1.16	1.7
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	<0.005	--	<0.05	0.006	<0.05
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	<0.001	--	0.028	<0.001	0.019
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.002	--	<0.001	<0.002	0.002
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***	***0.033***	--	0.015	***0.034***	***0.036***

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	8-Dec-99	8-Dec-99	15-Dec-99	15-Dec-99	17-Jan-00
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	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
Physical Parameters																														
pH	pH units	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	8.46	8.55	8.59	8.27	8.19	7.83	7.69	7.6	8.2	7.7
Conductivity	µS/cm	4100	3940	4300	17400	4060	3740	3750	4150	3000	2050	2000	2200	2400	2400	2500	2400	2400	2200	2250	2550	2600	2750	2900	3200	3200	3000	3400	1650	2000
Routine Parameters																														
Total Suspended Sediment	mg/L	34	5	5	8	8	14	12	9	8	14	12	20	14	13	12	11	12	12	9	9	6	5	7	6	7	8	8	5	20
Total Dissolved Solids	mg/L	***3270***	***3030***	***2630***	***5090***	***3580***	***3430***	***3460***	***3760***	***2620***	***1680***	***1670***	***1960***	***2040***	***2080***	***2060***	***2000***	***2030***	***1870***	***2020***	***2150***	***2230***	***2330***	***2570***	***2650***	***2720***	***2800***	***2780***	***1210***	***1500***
Hardness	mg/L	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	873.56	853.96	957.98	1094.05	1113.18	1195.43	1339.51	1205.42	558.03	710.68
Alkalinity-Total	mg/L	151	--	145	--	<1	150	148	43	116	70	65	79	81	83	86	97	88	77	92	104	70	87	73	106	112	131	133	91	73
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	3890	--	270	6000	2190	2630	2620	2400	1830	1230	1220	1290	1440	1460	1410	1420	1380	1210	1200	1270	1330	1460	1560	1660	1680	1700	1780	--	837
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																														
Ammonia-N	mg/L	***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***	***12.3***	***13.4***	***17***	***15.4***	***15***	***17.9***	***20.6***	***21.2***	***5.57***	***9.68***
Nitrate-N	mg/L	2	1.96	1.86	1.84	2.04	1.38	1.99	1.8	1.19	1.25	1.31	0.858	1.25	--	8.09	--	--	--	--	--	--	--	--	0.69	1.2	1	0.9	0.4	0.4
Nitrite-N	mg/L	<0.02	***0.275***	***13.6***	<0.01	***0.253***	<0.04	<0.04	***0.095***	***1.19***	***4.07***	***4.3***	<0.01	--	--	--	--	--	--	--	--	--	--	--	***0.21***	***0.27***	***0.31***	<2	<0.5	<0.5
Total Phosphorus	mg/L	<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	<0.06	<0.06	<0.06	<0.06	<0.06	<0.1	0.05	<0.06	0.06	<0.06
Cyanide Compounds																														
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	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	15.2	15.5	16	15	13.5	23.6	8.94	11.6	0.14	5.13
Thiocyanate	mg/L	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	87.8	81.8	93.2	98.8	115	121	262	163	75.1	85.3
CN-WAD	mg/L	8.5	7.5	7.57	6.65	7.6	7.57	7.08	5.6	3.1	0.677	0.7	--	1.72	0.467	0.516	0.306	0.257	0.383	0.215	0.033	0.341	0.386	0.789	0.699	0.485	0.095	0.634	0.036	0.428
CN-SAD	mg/L	9.11	7.4	8.35	8.91	7.4	15.6	12.2	20	4.3	0.574	0.6	--	2.32	1.15	0.688	0.702	0.26	1.69	0.792	0.63	0.504	5.18	3.07	3.33	2.76	0.43	5.4	2.65	0.604
Total Metals																														
Aluminum	mg/L	<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	***0.13***	0.08	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	0.1	0.01
Antimony	mg/L	<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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02
Arsenic	mg/L	<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	<0.02	<0.02	<0.02	***0.03***	<0.02	<0.04	<0.02	<0.02	***0.11***	***0.02***
Barium	mg/L	0.0372	0.04	0.0353	0.046	0.05	0.0375	0.0378	0.0371	0.0357	0.022	0.0225	0.0214	0.0225	0.0235	0.0258	0.0245	0.0256	0.258	0.0309	0.0375	0.0345	0.0302	0.0291	0.0318	0.0396	0.0396	0.0394	0.0183	0.0268
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Boron	mg/L	--	0.2	--	0.26	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	***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***	***0.0006***	<0.0005	<0.0005	***0.001***	***0.001***	***0.002***	***0.001***	***0.0014***	***0.0017***	***0.0012***
Calcium	mg/L	528	496	504	503	547	497	461	547	328	278	271	249	308	329	401	274	344	281	304	315	306	346	399	406	433	478	437	203	260
Chromium	mg/L	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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.002	<0.001
Cobalt	mg/L	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	0.07	0.073	0.073	0.078	0.077	0.091	0.087	0.086	0.03	0.034
Copper	mg/L	***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***	***0.705***	***0.65***	***0.805***	***0.916***	***0.894***	***0.996***	***0.928***	***0.851***	***0.444***	***0.184***
Iron	mg/L	***1.74***	***1.62***	***1.25***	<0.005	***1.52***	***1.84***	***1.71***	***1.83***	***2.06***	***1.1***	***1.13***	***1.01***	***1.07***	***0.938***	***1.34***	***0.88***	***1.07***	***1.42***	***2.01***	***0.878***	***0.341***	***0.593***	***1.36***	***0.971***	***1.69***	***2.56***	***2.2***	***0.874***	0.017
Lead	mg/L	<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	***0.006***	<0.005	***0.006***	<0.005	***0.36***	***0.29***	***0.007***	<0.006	***0.024***	<0.006
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	26.2	<0.01	26.1	29.8	31.7	27.1	27.4	33	23.8	14.7	15	15.5	17.7	18.1	21.8	16.7	18.2	17.8	21.1	21.1	21.8	22.8	23.7	24.1	27.7	35.4	27.7	12.4	14.9
Manganese	mg/L	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	3.01	2.65	2.4	2.82	3.06	4.07	5.45	5.67	1.7	2.82
Molybdenum	mg/L	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	0.012	<0.005	0.007	0.01	<0.005	<0.02	<0.01	<0.01	<0.01	<0.01
Nickel	mg/L	***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	0.024	0.024	0.021	0.021	***0.67***	***0.54***	***0.029***	***0.028***	0.011	0.013
Potassium	mg/L	22	26	23	17.5	25	26	21	26	12	11.5	11.8	13.3	13	13	18	12.9	15	14	17	14	13	15	14	14	18	23	18.9	7.9	10.6
Selenium	mg/L	<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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02
Silicon	mg/L	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	2.93	2.83	2.67	2.75	2.93	3.24	3.41	3.2	1.7	1.8
Silver	mg/L	***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	<0.001	<0.001	***0.004***	***0.004***	***0.005***	***0.007***	***0.007***	***0.006***	***0.004***	<0.002
Sodium	mg/L	481	447	480	517	481	476	444	503	279	224	219	197	234	256	310	220	256	212	228	248	251	281	315	373	353	380	348	120	159
Strontium	mg/L	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	0.867	0.909	0.947	0.884	0.981	1.12	1.06	1.03	0.433	0.554
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<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	<0.005	0.006	<0.005	<0.005	<0.005	<0.01	<0.005	<0.006	<0.006	<0.006
Titanium	mg/L	<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	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	<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	--	--	--	0.007	0.007	0.017	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.014
Zinc	mg/L	***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***	0.03	0.023	0.013	0.024	***1***	***0.969***	***0.0342***	0.03	***0.036***	***0.393***

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	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
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	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
Physical Parameters																														
pH	pH units	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	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
Conductivity	µS/cm	1860	2040	1910	2030	1990	2100	2410	2600	2760	2810	3090	3030	954	1950	2080	2200	2280	2470	2470	2450	2210	2540	2630	4000	3040	3060	2840	2980	1100
Routine Parameters																														
Total Suspended Sediment	mg/L	11	9	8	5	6	9	4	8	12	10	3	3	4	10	5	5	6	5	7	5	20	10	16	12	6	6	236	6	8
Total Dissolved Solids	mg/L	***1670***	***1770***	***1790***	***1760***	***1850***	***1860***	***2140***	***2170***	***2500***	***2390***	***2560***	***2650***	***600***	***1620***	***2170***	***1890***	***1990***	***1950***	***2000***	***2070***	***2030***	***2230***	***2390***	***2750***	***2740***	***3070***	***2600***	***2770***	***930***
Hardness	mg/L	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	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
Alkalinity-Total	mg/L	82	94	96	101	101	111	135	149	169	177	190	192	43	106	104	107	106	117	116	130	115	150	173	339	72	210	206	212	62
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1330	1260	1450	1220	1360	1490	1430	1490	1720	1670	1870	2150	506	1150	1280	1480	1510	1530	1560	1600	1370	1550	1590	1850	1890	1890	2150	1900	769
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																														
Ammonia-N	mg/L	***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***	***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***
Nitrate-N	mg/L	0.339	0.219	0.272	0.461	0.65	0.378	0.435	0.527	0.741	1.42	1.25	1.25	0.331	0.267	--	0.072	0.077	<0.02	<0.02	0.671	0.588	0.366	0.852	1.08	1.19	1.27	1.53	1.03	1.3
Nitrite-N	mg/L	***0.069***	<0.01	***1.17***	***1.31***	***0.69***	0.02	***0.642***	<0.01	<0.01	***0.45***	***0.625***	***0.477***	***0.073***	***0.303***	--	<0.01	<0.01	<0.01	<0.01	***0.51***	<0.002	***0.373***	***0.561***	***0.385***	***0.511***	***0.255***	<0.01	<0.01	<0.1
Total Phosphorus	mg/L	<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	<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
Cyanide Compounds																														
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	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	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
Thiocyanate	mg/L	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	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
CN-WAD	mg/L	0.062	0.012	0.05	0.02	0.02	0.11	0.062	0.191	0.08	0.12	0.41	0.048	0.01	0.028	0.018	<0.002	0.01	0.012	0.012	0.016	0.014	0.04	0.28	0.04	0.04	0.038	0.04	0.026	0.014
CN-SAD	mg/L	0.358	0.494	0.08	0.133	0.307	0.244	0.282	1.04	0.44	1.04	1.24	1.58	0.128	0.36	0.4	<0.002	0.164	0.03	0.058	0.05	0.078	0.25	1.2	0.3	0.114	0.48	0.3	0.26	0.26
Total Metals																														
Aluminum	mg/L	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	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
Antimony	mg/L	<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	<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	***0.06***	***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***	***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***
Barium	mg/L	0.0276	0.0351	0.0399	0.0323	0.0323	0.0347	0.0386	0.044	0.0496	0.0479	0.0521	0.0453	0.0136	0.0321	0.033	0.033	0.0349	0.0374	0.0388	0.0411	0.0391	0.0518	0.0493	0.054	0.055	0.0523	0.0487	0.0471	0.0172
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	<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	--	--	0.167	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	***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	<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***
Calcium	mg/L	270	291	333	314	312	309	386	350	377	397	472	413	130	294	301	337	328	360	371	362	360	488	421	426	458	451	426	468	144
Chromium	mg/L	<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	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
Cobalt	mg/L	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	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
Copper	mg/L	***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***	***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***
Iron	mg/L	***0.801***	***0.96***	***1.05***	***0.481***	***0.821***	***1.31***	***2.24***	***3.89***	***4.08***	***5.26***	***3.6***	***2.94***	***0.623***	***1.7***	***1.47***	***1.44***	***1.23***	***1.43***	***1.5***	***1.88***	***1.44***	***3***	***4.24***	***4.02***	***3.37***	***2.28***	***2.98***	***1.67***	***1.23***
Lead	mg/L	***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***	***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***
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	<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
Magnesium	mg/L	16.3	22.8	26.5	25.6	32.4	31.7	27.7	33.7	34.1	34.2	42.4	36.1	11.1	25	23.7	26.2	29.2	32.9	33.9	34.4	37.1	48.8	40.9	40.7	42.2	42.1	39.3	44	18.1
Manganese	mg/L	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	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
Molybdenum	mg/L	<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	<0.01	<0.01	<0.01	<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	0.012	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	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
Potassium	mg/L	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	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
Selenium	mg/L	<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	<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
Silicon	mg/L	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	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
Silver	mg/L	<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	<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	172	177	192	181	173	179	233	224	281	280	319	294	61.2	173	174	192	196	210	217	208	182	273	252	281	297	297	281	299	78.6
Strontium	mg/L	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	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
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<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	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
Titanium	mg/L	<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	<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
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	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	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
Zinc	mg/L	***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***	***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***

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	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
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	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
Physical Parameters																													
pH	pH units	7.8	7.88	7.85	7.95	8.02	8.23	8.41	7.97	7.88	7.87	7.46	--	--	--	--	--	--	--	--	--	--	--	7.68	7.8	6.8	7.96	7.7	7.91	7.95
Conductivity	µS/cm	1920	1830	1840	1910	2120	2370	2340	2500	2630	2630	2960	--	--	--	--	--	--	--	--	--	--	--	2310	2510	2290	1620	1950	1820	1730
Routine Parameters																													
Total Suspended Sediment	mg/L	6	17	19	17	11	<5	6	5	8	10	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	***1690***	***1690***	***1670***	***1530***	***1930***	***2240***	***2080***	***2030***	***2360***	***2320***	***2530***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	801.13	801.89	815.62	818.20	1011.29	1066.46	1114.16	981.73	1046.43	1021.92	1249.62	--	--	--	--	--	--	--	--	--	--	--	1140.00	877.89	690.27	766.79	835.34	660.09	689.04
Alkalinity-Total	mg/L	115	104	104	102	111	95	97	144	156	160	204	--	--	--	--	--	--	--	--	--	--	--	199	209	185	120	153	134	114
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	199	209	185	120	153	134	114
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<1.0	<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
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	379	252	233	232	290	228	211
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47	32	34.3	32.8	40.1	30	31.1
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14.4	8.3	9.2	10.8	9.9	9.9	8
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	208	140	134	122	133	105	96
Sulphate	mg/L	1010	1210	1210	1120	1260	1575	1590	1630	1490	1510	1750	--	--	--	--	--	--	--	--	--	--	--	1190	1180	1170	787	996	882	1090
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																													
Ammonia-N	mg/L	***14***	***11.9***	***11.6***	***10.1***	***11.4***	--	***8.76***	***12.8***	***12***	***12.3***	***17.4***	--	--	--	--	--	--	--	--	--	--	--	***12.9***	***12.2***	***8.5***	***8.21***	***9.14***	***8.85***	***6.2***
Nitrate-N	mg/L	<1.0	0.915	0.906	0.796	1.05	--	1.22	1.91	2.08	2.13	2.3	--	--	--	--	--	--	--	--	--	--	--	1.81	1.66	1.83	1.82	1.52	1.75	2.63
Nitrite-N	mg/L	<10	***0.108***	***0.107***	<0.01	***0.116***	--	***0.205***	***0.232***	***0.217***	***0.22***	***0.279***	--	--	--	--	--	--	--	--	--	--	--	***0.164***	***0.067***	***0.132***	***0.105***	***0.093***	***0.078***	***0.121***
Total Phosphorus	mg/L	<0.06	--	--	<0.06	<0.06	<0.1	<0.06	<0.06	<0.06	<0.06	0.12	--	--	--	--	--	--	--	--	--	--	--	<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
Cyanate	mg/L	0.28	1.75	1.53	0.38	3.54	--	0.89	0.14	0.03	0.36	1.34	--	--	--	--	--	--	--	--	--	--	--	<1.0	<5.0	<2.5	<5.0	2.2	<1.0	<1.0
Thiocyanate	mg/L	8.15	6.98	6.92	4.53	3.5	--	4.84	5.51	7.71	8.54	22.2	--	--	--	--	--	--	--	--	--	--	--	7.39	5.21	3.62	4.07	2.02	1.47	1.78
CN-WAD	mg/L	0.008	0.01	0.012	0.034	0.006	0.04	0.006	<0.002	0.034	0.02	0.016	0.026	0.032	0.024	0.028	0.002	0.01	0.004	0.008	0.008	0.008	0.008	0.0257	0.106	0.0273	0.0295	0.0435	0.0229	0.0149
CN-SAD	mg/L	0.024	0.038	0.04	0.14	0.022	--	0.04	0.024	0.048	0.028	0.044	0.174	0.038	0.18	0.27	0.39	0.048	0.23	0.29	0.26	0.66	0.86	--	--	--	--	--	--	--
Total Metals																													
Aluminum	mg/L	***1.89***	***0.197***	***0.259***	***1.44***	***2.33***	<0.06	***1.22***	0.03	0.04	0.04	0.02	--	--	--	--	--	--	--	--	--	--	--	<0.20	***0.21***	***0.28***	***0.37***	<0.20	<0.20	<0.20
Antimony	mg/L	<0.02	0.0427	0.043	<0.02	<0.02	<0.06	<0.02	0.08	0.09	0.06	0.08	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	***0.08***	***0.0729***	***0.0745***	***0.09***	***0.03***	<0.06	***0.07***	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	--	***0.0354***	***0.0311***	<0.20	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.0298	0.037	0.038	0.0314	0.0347	0.031	0.0287	0.0383	0.041	0.0409	0.0451	--	--	--	--	--	--	--	--	--	--	--	0.048	0.049	0.038	0.036	0.038	0.024	0.03
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth	mg/L	<0.02	<0.001	<0.001	<0.02	<0.02	--	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	--	0.156	0.155	--	--	0.11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.13	0.16	0.11	0.13	0.13	0.11	0.11
Cadmium	mg/L	***0.0014***	***0.00266***	***0.00257***	***0.0027***	***0.0022***	<0.006	***0.001***	<0.0006	***0.0011***	<0.0006	***0.0011***	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	271	269	274	278	339	369	382	327	359	351	428	--	--	--	--	--	--	--	--	--	--	--	326	293	222	250	273	217	222
Chromium	mg/L	<0.001	0.0019	0.0018	<0.001	<0.001	<0.006	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	0.018	0.0222	0.022	0.016	0.018	0.025	0.021	0.03	0.032	0.03	0.036	--	--	--	--	--	--	--	--	--	--	--	0.021	0.025	0.016	0.015	0.019	0.011	0.014
Copper	mg/L	***0.068***	***0.074***	***0.076***	***0.079***	***0.094***	***0.032***	***0.073***	***0.057***	***0.061***	***0.059***	***0.043***	--	--	--	--	--	--	--	--	--	--	--	***0.011***	***0.011***	***0.045***	***0.042***	***0.041***	***0.051***	***0.04***
Iron	mg/L	***1.38***	***1.6***	***1.6***	***1.32***	***1.26***	***0.667***	***0.542***	***2.49***	***2.88***	***2.79***	***3.26***	--	--	--	--	--	--	--	--	--	--	--	***8.25***	***5.74***	***2.64***	***2.19***	***2.08***	***1.27***	***1.13***
Lead	mg/L	***0.01***	***0.0497***	***0.0518***	***0.037***	***0.018***	<0.06	<0.006	<0.006	***0.007***	<0.006	***0.006***	--	--	--	--	--	--	--	--	--	--	--	<0.050	<0.050	***0.056***	<0.050	<0.050	<0.050	<0.050
Lithium	mg/L	<0.006	0.004	0.004	<0.006	<0.006	--	<0.006	<0.006	<0.006	<0.006	<0.006	--	--	--	--	--	--	--	--	--	--	--	<0.020	<0.010	<0.010	0.017	<0.010	<0.010	<0.010
Magnesium	mg/L	30.2	31.6	31.9	30.1	40	35.2	38.9	40.1	36.4	35.3	43.9	--	--	--	--	--	--	--	--	--	--	--	38.4	35.5	33	34.6	37.3	28.7	32.7
Manganese	mg/L	6.09	5.58	5.68	5.1	5.72	3.61	3.21	6.4	8.46	8.27	9.69	--	--	--	--	--	--	--	--	--	--	--	9.78	8.85	5.83	7.78	6.93	4.86	4.96
Molybdenum	mg/L	<0.01	0.005	0.005	<0.01	<0.01	0.02	<0.01	<0.01	0.02	0.01	0.01	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	0.032	<0.030	<0.030	<0.030	<0.030
Nickel	mg/L	0.004	0.0044	0.0039	0.003	0.007	<0.02	0.003	<0.001	0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	11.8	12.2	13.1	12.9	14.3	14.7	12.6	14.3	14.1	16.7	17.8	--	--	--	--	--	--	--	--	--	--	--	10.4	9.7	8.9	11.6	8.7	9.6	8.6
Selenium	mg/L	<0.02	0.0007	0.0005	<0.02	<0.02	<0.06	<0.02	***0.23***	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	3.1	4.14	4.23	3.4	3.4	2.74	2.7	3.8	4.1	4.1	4.7	--	--	--	--	--	--	--	--	--	--	--	5.83	5.07	3.57	4	3.68	2.41	2.69
Silver	mg/L	<0.002	***0.0009***	***0.0009***	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	162	148	152	150	170	197	187	200	218	213	263	--	--	--	--	--	--	--	--	--	--	--	167	158	129	135	116	100	102
Strontium	mg/L	0.567	0.74	0.739	0.602	0.69	1.42	0.793	0.933	0.909	0.898	1.03	--	--	--	--	--	--	--	--	--	--	--	0.848	0.869	0.693	0.804	0.693	0.55	0.588
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tin	mg/L	<0.006	<0.002	<0.002	<0.006	<0.006	<0.06	<0.006	0.04	0.051	0.047	0.07	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Titanium	mg/L	0.001	0.0196	0.021	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	0.029	0.0006	0.0007	0.029	0.031	<0.01	0.042	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	***0.067***	***0.114***	***0.151***	***0.076***	***0.054***	0.024	0.009	0.006	0.021	0.022	0.009	--	--	--	--	--	--	--	--	--	--	--	0.0223	0.0282	***0.12***	***0.106***	***0.12***	***0.132***	***0.136***

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	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
Dissolved Metals																												
Aluminum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Arsenic	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0357	0.0025	0.0109	0.00423	0.0049	0.008	0.0068
Barium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.046	0.038	0.036	0.03	0.038	0.024	0.027
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.16	0.14	0.12	0.13	0.13	0.11	<0.10
Cadmium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Cobalt	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.024	0.021	0.018	0.01	0.019	0.012	0.012
Copper	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	0.019	0.016	0.014	0.019	0.019
Iron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.074	0.033	0.219	0.031	0.034	0.031	<0.03
Lead	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Manganese	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11.1	7.64	6.07	7.09	7.4	5.22	4.76
Molybdenum	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
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
Silicon	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.77	3.97	3.45	3.37	3.45	2.39	2.41
Silver	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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
Titanium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<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

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	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	7.97	8.01	7.66	7.71	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	1690	1760	1740	1770	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	633.76	732.97	749.61	758.77	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	119	119	120	100	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	119	119	120	100	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	<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	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hydroxide	mg/L	<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	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	mg/L	208	225	233	244	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
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	31.4	35.3	35.9	36.7	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	9.7	9.8	10.2	10.3	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	113	113	116	116	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	813	887	917	881	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
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																														
Ammonia-N	mg/L	***7.03***	***7.78***	***7.03***	***6.89***	***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	2.16	2.25	2.56	2.29	***3.07***	2.86	***3.11***	***3.21***	***3.44***	***3.4***	***4.05***	***3.97***	***4.22***	***4.32***	***4.29***	--	***4.69***	***4.86***	***4.71***	***5.24***	***5.18***	***5***	***3.39***	1.89	1.71	1.16	0.599	0.536	0.352
Nitrite-N	mg/L	***0.103***	***0.117***	***0.129***	***0.109***	***0.178***	***0.184***	***0.297***	***0.255***	***0.324***	***0.388***	***0.439***	***0.488***	***0.46***	***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	<0.30	<0.30	<0.30	<0.30
Cyanide Compounds																														
Cyanide - T	mg/L	0.029	0.0283	0.0255	0.0275	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	1.23	1.2	2	2.8	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	1.24	0.9	0.99	1.01	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	0.0109	0.0107	0.0124	0.0134	0.0114	0.0078	0.0052	<0.0050	0.0056	<0.0050	0.0056	0.0062	0.0063	0.0065	0.0062	<0.0050	0.0086	0.0075	0.0075	0.0098	0.0182	0.0153	0.0135	0.0294	0.0262	0.0211	0.0186	0.0608	0.0522
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	<0.20	<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	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	<0.20	<0.20	***0.0296***	<0.20	***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	0.03	0.033	0.034	0.034	0.033	0.032	0.032	0.033	0.031	0.033	0.032	0.029	0.029	0.028	0.028	0.029	0.028	0.028	0.028	0.031	0.031	0.029	0.041	0.039	0.04	0.047	0.06	0.06	0.067
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	<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	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	0.11	0.12	0.13	0.15	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	<0.010	<0.010	<0.010	<0.010
Calcium	mg/L	203	233	239	243	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	<0.010	<0.010	<0.010	<0.010
Cobalt	mg/L	0.011	0.013	0.013	0.013	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	***0.037***	***0.048***	***0.044***	***0.051***	***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	***0.922***	***0.772***	***0.695***	***0.683***	***0.633***	***0.63***	***0.317***	0.218	0.135	0.136	0.139	0.176	0.261	0.298	***0.354***	***0.933***	***0.47***	***0.473***	***0.478***	***0.636***	***0.583***	***0.934***	***2.44***	***1.27***	***1.19***	***1.38***	***1.56***	***2.82***	***1.46***
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	***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	<0.010	<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	30.8	36.7	37.1	36.9	34.6	35.8	35	36.6	36.4	39.2	37.8	37.6	40.4	39.8	41.7	39	40.2	39.3	42.3	44.4	47	41.6	45.9	50.9	49.9	58.4	75.8	73.5	85.3
Manganese	mg/L	4.98	5.5	5.51	5.37	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	<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	<0.050	<0.050	<0.050	<0.050
Potassium	mg/L	9.4	10.3	10.6	10.4	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	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	2.58	3	2.98	3.06	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	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	110	119	120	115	115	115	117	114	115	118	114	114	111	112	109	115	118	111	111	119	135	102	125	136	142	154	188	180	239
Strontium	mg/L	0.613	0.627	0.661	0.657	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	<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	<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	<0.010	<0.010	<0.010	<0.010
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.030	<0.030	<0.030	<0.030
Zinc	mg/L	***0.14***	***0.117***	***0.109***	***0.127***	***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***

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	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
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	<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	<0.20	<0.20	<0.20	<0.20
Arsenic	mg/L	0.00845	0.0091	0.00942	0.0107	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	0.029	0.03	0.032	0.032	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	<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	<0.20	<0.20	<0.20	<0.20
Boron	mg/L	0.12	0.12	0.12	0.14	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	<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	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	0.012	0.013	0.013	0.013	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	0.024	0.031	0.029	0.035	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	<0.03	<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	<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	0.013	<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	5.01	5.28	5.37	5.38	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	<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	<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	<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	<0.20	<0.20	<0.20	<0.20
Silicon	mg/L	2.44	2.73	2.77	2.83	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	<0.01	<0.01	<0.01	<0.01
Strontium	mg/L	0.626	0.609	0.639	0.654	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	<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	<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	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.03	<0.03	<0.03	<0.03
Zinc	mg/L	0.0853	0.0796	0.0748	0.0866	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 A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	19-Apr-07	3-May-07	16-May-07	31-May-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	7.99	8.17	7.71	7.72
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	4030	3800	1030	717
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	2098.01	1863.67	566.96	322.22
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	296	269	36.1	28.2
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	296	269	36.1	28.2
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	<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	<1.0	<2.0	<2.0	<2.0	<2.0	<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	661	624	166	102
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	105	93.1	34.9	17.8
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	33.7	34	8.7	5.7
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	244	238	40.5	28.7
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	2490	2210	512	329
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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***	***4.76***	***5.28***	***0.876***	***1.03***
Nitrate-N	mg/L	0.642	--	1.81	1.76	1.56	1.48	1.31	1.37	1.34	1.25	1.44	1.63	1.93	2.21	2.48	2.79	***3.3***	***3.97***	***4.12***	***4.39***	***3.87***	***3.28***	***3***	1.55	0.379	2.14	1.91	1.77	1.08
Nitrite-N	mg/L	0.021	--	0.0452	0.06	***0.0649***	***0.062***	***0.0812***	***0.0902***	***0.0869***	***0.0971***	***0.108***	***0.111***	***0.125***	***0.122***	0.0595	***0.0837***	***0.115***	***0.12***	***0.117***	***0.107***	***0.0779***	0.0425	0.0415	***0.355***	0.0207	0.027	0.0236	0.0287	0.04
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	<0.30	<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	0.0233	0.0185	0.0102	0.0174
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	2.46	1.5	<0.50	<0.50
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	1.17	1.21	0.52	1.87
CN-WAD	mg/L	0.0358	--	0.0197	0.0105	0.0255	0.0208	0.0129	0.0202	0.0149	0.0343	0.0397	0.0096	0.0104	<0.0050	0.008	0.017	0.0086	0.0106	0.011	0.0068	0.0063	1.24	1.2	<0.0050	0.0062	<0.0050	<0.0050	<0.0050	0.0059
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	<0.20	<0.20	<0.20	***0.24***
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	<0.20	<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	<0.20	<0.20	<0.20	<0.20
Barium	mg/L	0.209	--	0.03	0.026	0.027	0.026	0.026	0.026	0.029	0.03	0.028	0.025	0.023	0.022	0.021	0.03	0.025	0.026	0.03	0.031	0.029	0.029	0.03	0.06	0.055	0.023	0.032	<0.010	<0.010
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	<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	<0.40	<0.20	<0.20	<0.20	<0.20	<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	0.36	0.28	<0.10	<0.10
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	<0.010	<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	667	603	169	101
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	<0.010	<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	<0.010	<0.010	<0.010	<0.010
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	***0.079***	***0.094***	***0.038***	***0.054***
Iron	mg/L	***38.3***	--	***2.76***	***1.5***	***1.5***	***1.51***	***1.41***	***1.12***	***1.18***	***1.09***	***0.842***	***0.483***	***0.478***	***0.536***	***0.578***	***2.39***	***0.699***	***0.676***	***0.648***	***0.67***	***1.05***	***0.453***	***0.449***	***14.9***	***14.7***	***0.405***	***0.718***	0.075	***0.656***
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	<0.050	<0.050	<0.050	***0.052***
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	<0.010	<0.010	<0.010	<0.010
Magnesium	mg/L	106	--	31.2	33.8	35.4	36.8	37.5	37.5	40.9	38.5	39.9	41	39.9	38.2	41.8	39.2	45.5	51.9	60.4	71.8	62.8	78.1	83.8	37	35.4	105	86.9	35.2	17
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	4.92	4.38	1.77	0.922
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	<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	<0.10	<0.050	<0.050	<0.050	<0.050	<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	31.9	32.3	8.7	5.5
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	<0.20	<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	5.71	5.21	1.13	1.02
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	<0.010	<0.010	<0.010	<0.010
Sodium	mg/L	250	--	71.5	66.2	71.9	80.5	88.3	81.8	107	108	118	117	112	107	114	111	126	155	155	190	175	210	221	119	121	232	226	40.5	27.3
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	1.38	1.46	0.378	0.21
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	<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	<0.060	<0.030	<0.030	<0.030	<0.030	<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	<0.010	<0.010	<0.010	<0.010
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.030	<0.030	<0.030	<0.030
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	***0.226***	***0.212***	***0.157***	***0.176***

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond
Date		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	19-Apr-07	3-May-07	16-May-07	31-May-07
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	<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	<0.40	<0.20	<0.20	<0.20	<0.20	<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	0.022	0.0226	0.0195	0.0302
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	0.025	0.031	<0.010	<0.010
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	<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	<0.40	<0.20	<0.20	<0.20	<0.20	<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	0.38	0.3	<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	<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	<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	<0.01	<0.01	<0.01	<0.01
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	0.074	0.08	0.028	0.032
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	<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	<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
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	<0.01	<0.01	<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	4.89	4.4	1.48	0.898
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	<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	<0.10	<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	<0.60	<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	<0.40	<0.20	<0.20	<0.20	<0.20	<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	5.64	5	1.05	0.72
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	<0.01	<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	1.45	1.51	0.381	0.222
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	<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	<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	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<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	0.221	0.194	0.145	0.139

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	CCME AL Guidelines[1]	Water License Standards[2]
Date		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	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08		
Physical Parameters																									
pH	pH units	7.76	7.91	8.07	7.9	7.34	8.08	7.75	7.77	7.84	7.76	--	7.93	8.21	7.84	8.01	8.09	8	7.95	8.2	8.16	7.83	7.66	7.63	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	1090	1200	1300	1320	1380	1440	1420	1560	2220	3300	1290	1600	1500	1640	1670	1680	1680	1280	1400	1340	1840	2410	2720	--	--
Routine Parameters																									
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	22	44	1	11	<2	34	63	12	24	8	28	7	12	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	***950***	***1420***	***1300***	***1330***	--	***1350***	***1360***	***1010***	***1090***	***1080***	***1320***	***2220***	***2620***	--	50
Hardness	mg/L	531.83	596.16	632.89	659.78	651.05	673.89	709.62	782.09	1180.00	1836.14	638.00	899.00	824.00	847.00	905.00	888.00	881.00	700.00	766.00	758.00	--	--	--	--	--
Alkalinity-Total	mg/L	40.9	47.4	49.4	68.3	71.9	98	103	109	181	279	60	64	38	49	55	74	91	82	136	159	218	309	362	--	--
Bicarbonate	mg/L	40.9	47.4	49.4	68.3	71.9	98	103	109	181	340	70	79	46	59	70	90	111	100	166	194	270	380	440	--	--
Carbonate	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<6	<6	<6	<6	<6	<6	<6	<6	<6	<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	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	177	183	205	203	212	218	226	239	354	605	197	281	260	267	290	281	275	228	242	238	310	483	502	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	1.7	2.1	1.8	2.2	2.1	2.4	2.2	1.2	1.3	1.8	2.32	2.68	3.81		
Magnesium	mg/L	31.8	33.4	32.2	34.5	35.9	37	38.1	45	71.5	103	35.2	48	42.8	43.8	43.7	45.3	47.4	31.7	39.1	40	56.3	89.8	101	--	--
Potassium	mg/L	11.3	12.8	13.3	12.6	15	17.7	17.7	18.2	27.8	43	12.1	18.5	15.5	18.4	19	20.3	21	11.9	13.4	13.8	17.9	27.2	32.3	--	--
Sodium	mg/L	49.9	54.7	54.4	53.5	59.8	56.1	52.2	55.5	91.9	147	41	63.4	52.6	61.5	55.9	58.9	57.6	27.5	28.1	28.7	38.7	65.2	70.7	--	--
Sulphate	mg/L	550	599	632	663	661	725	699	768	1210	1860	639	968	907	910	950	899	907	664	685	667	752	1340	1660	--	--
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	45.1	48.1	--	--	--	--	--	--	27.9	--	--	--	--	--	--
Nutrients																									
Ammonia-N	mg/L	***1.44***	***1.18***	***0.778***	***0.418***	***0.164***	***0.375***	***1.06***	***1.1***	***2.62***	***3.97***	***2.13***	***1.7***	***0.08***	***0.1***	***0.025***	<0.05	<0.05	***0.78***	***0.48***	***0.68***	***0.99***	***1.2***	***1.8***	0.015	--
Nitrate-N	mg/L	1.94	2.09	1.54	1.21	0.817	0.577	0.956	1.18	1.44	1.83	1.2	1.78	1.2	1.12	0.64	0.32	0.03	1.56	1.22	1.34	1.95	2.2	***3.32***	2.9	--
Nitrite-N	mg/L	***0.0733***	***0.111***	***0.104***	***0.0711***	0.0391	0.028	0.028	0.0432	0.037	***<0.02***	***0.09***	***0.073***	0.054	0.052	***0.07***	0.01	<0.005	0.047	0.019	0.014	***0.11***	<0.01	***0.18***	0.06	--
Total Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																									
Cyanide - T	mg/L	0.0189	0.0133	0.0121	0.0074	0.012	0.0151	0.0118	0.0302	0.0177	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	1.8	0.8	0.3	<0.2	0.2	<0.2	0.3	0.5	<0.2	0.3	<0.2	0.6	0.9	0.5	--
Thiocyanate	mg/L	1.54	1.53	1.01	1.05	0.97	1.4	1.72	1.25	1.1	0.8	1.6	0.6	0.6	1.7	0.5	0.8	1.3	1	0.8	1.7	0.7	0.6	0.9	--	--
CN-WAD	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0061	0.0077	0.004	0.006	0.006	0.006	0.006	0.002	0.008	0.002	0.002	0.006	0.004	0.004	0.006	0.014	--	0.1
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	0.01	0.11	0.076	0.042	0.046	0.02	0.01	0.002	0.062	0.036	0.048	0.06	0.036	0.046	--	--
Total Metals																									
Aluminum	mg/L	***0.3***	<0.20	<0.20	<0.20	<0.20	<0.20	***0.29***	<0.20	***0.108***	***0.16***	***1.51***	***0.399***	0.036	***0.341***	0.082	***0.27***	***0.109***	***0.561***	***0.668***	***0.336***	***0.498***	***0.136***	***0.101***	0.1	--
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0692	0.0797	0.0651	0.0726	0.0981	0.0975	0.0879	0.076	0.0708	0.0939	0.104	0.09	0.132	0.15	***0.204***	--	0.15
Arsenic	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	***0.2***	<0.20	<0.20	***0.123***	***0.13***	***0.157***	***0.107***	***0.101***	***0.129***	***0.0994***	***0.123***	***0.0965***	***0.173***	***0.257***	***0.169***	***0.273***	***0.212***	***0.224***	0.005	--
Barium	mg/L	0.014	0.012	0.011	<0.010	0.012	0.016	0.016	0.017	0.027	0.04	0.036	0.023	0.01	0.02	0.014	0.023	0.025	0.023	0.028	0.028	0.038	0.038	0.05	--	1
Beryllium	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0025	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0025	<0.001	0.0018	0.0009	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	0.0006	0.001	<0.0005	0.001	<0.0005	<0.0005	--	--
Boron	mg/L	<0.10	0.12	0.13	0.12	0.14	0.14	0.13	0.15	0.203	0.333	0.11	0.157	0.13	0.156	0.168	0.237	0.222	0.11	0.148	0.105	0.215	0.235	0.297	--	--
Cadmium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.00285***	***0.00462***	***0.0038***	***0.00181***	***0.00055***	***0.00334***	***0.00159***	***0.00125***	***0.00073***	***0.00366***	***0.00247***	***0.00198***	***0.00341***	***0.00428***	***0.00601***	0.000017	0.02
Calcium	mg/L	164	183	201	206	203	210	222	238	351	575	186	268	254	258	249	259	268	222	230	226	317	453	560	--	--
Chromium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0025	0.002	0.0017	<0.0005	0.0007	0.0006	<0.0005	0.0007	<0.0005	0.001	0.0011	0.0008	<0.001	0.0006	0.0007	0.0089	0.04
Cobalt	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00293	0.0036	0.0029	0.0026	0.0022	0.0021	0.0022	0.002	0.0012	0.0026	0.0024	0.0025	0.0036	0.0033	0.0043	--	--
Copper	mg/L	***0.056***	***0.045***	***0.053***	***0.05***	***0.061***	***0.108***	***0.068***	***0.073***	***0.0828***	***0.15***	***0.103***	***0.156***	***0.036***	***0.057***	***0.043***	***0.06***	***0.054***	***0.052***	***0.077***	***0.07***	***0.1***	***0.114***	***0.142***	0.002 - 0.004	0.2
Iron	mg/L	***1.22***	0.228	0.202	0.275	***0.398***	***1.84***	***0.72***	***0.827***	***0.612***	***0.8***	***2***	***1.1***	<0.1	***0.67***	0.16	***0.77***	***0.55***	***0.77***	***1.76***	***1.1***	***1.7***	***0.55***	***0.46***	0.3	1
Lead	mg/L	***0.087***	<0.050	<0.050	<0.050	<0.050	***0.053***	<0.050	<0.050	***0.0193***	***0.0249***	***0.112***	***0.0558***	***0.0047***	***0.0664***	***0.0146***	***0.036***	***0.0159***	***0.0502***	***0.0776***	***0.0431***	***0.0852***	***0.0227***	***0.0202***	0.001 - 0.007	0.1
Lithium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.025	0.01	0.005	0.006	0.005	0.006	0.006	0.009	0.009	0.006	0.009	0.007	0.01	0.013	0.016	--	--
Magnesium	mg/L	29.7	33.8	31.8	35.3	35	36.3	37.7	45.6	71.6	97.2	34.9	47.4	43.5	43.4	41.2	43.4	47.3	31.5	37.3	38.1	55.8	81.7	104	--	--
Manganese	mg/L	0.748	0.489	0.378	0.354	0.313	0.331	0.669	0.604	1.1	1.1	1.35	0.455	0.175	0.547	0.345	0.362	0.123	1.43	1.16	1.2	1.81	1.75	2.23	--	0.5
Molybdenum	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.00403	0.005	0.003	0.004	0.004	0.003	0.003	0.004	0.003	0.002	0.004	0.004	0.005	0.006	0.008	0.073	--
Nickel	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.0026	0.0087	0.0011	0.0025	0.0015	0.0018	0.0022	0.0031	0.0025	0.0034	0.0019	0.004	0.0065	0.0048	0.0099	0.025 - 0.15	0.3
Potassium	mg/L	10.4	13	13.3	13	14.5	15.5	16.9	19.1	27.8	39.6	13.1	18.1	15.9	17.9	17.5	19.8	20.9	11.4	13.2	13.4	19	26.4	33.8	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0050	***0.002***	<0.0002	<0.0002	0.0002	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	***0.0012***	0.001	--
Silicon	mg/L	1.39	1.4	1.56	1.37	1.69	2.26	2.8	2.94	4.51	6.25	4.77	2.56	0.41	1.95	1.49	3.16	3.48	3.8	4.24	3.65	4.89	5.25	6.37	--	--
Silver	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	***0.000141***	***0.0003***	***0.00153***	***0.00076***	***0.00011***	***0.00064***	***0.0002***	***0.00049***	***0.00026***	***0.00052***	***0.00094***	***0.00055***	***0.00119***	***0.00025***	***0.00021***	0.0001	0.1
Sodium	mg/L	46.2	52.5	54	55	57.3	55.4	51.6	56.4	91.6	136	40.8	61.8	53.2	60.4	58.9	58.5	58.5	27.2	27.9	28	41.2	58.6	74.8	--	--
Strontium	mg/L	0.354	0.425	0.443	0.442	0.476	0.52	0.511	0.586	0.838	1.44	0.454	0.566	0.572	0.594	0.607	0.674	0.717	0.523	0.626	0.662	0.883	1.2	1.37	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	624	214	309	293	302	295	295	301	216	215	211	296	434	567	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.00050	0.00032	0.00035	0.00034	0.0003	0.0004	0.00031	0.00027	0.0002	0.00028	0.00031	0.00024	0.00038	0.00051	0.00075	0.0008	--
Tin	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.00050	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	--	--
Titanium	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	0.048	0.0227	0.0107	0.0064	0.0076	0.0319	0.0266	0.0227	0.0236	0.0195	0.0196	0.0216	0.029	0.0385	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	0.0014	0.0018	0.0015	0.0016	0.0014	0.0016	0.0015	0.0012	0.002	0.0018	0.0026	0.005	0.0056		
Vanadium	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.0050	0.0008	0.0029	0.0009	0.0002	0.0007	0.0003	0.0007	0.0003	0.0008	0.0015	0.0007	0.001	0.0007	0.0006	--	--
Zinc	mg/L	***0.168***	***0.0773***	***0.0798***	***0.089***	***0.0707***	***0.0886***	***0.0877***	***0.102***	***0.189***	***0.326***	***0.247***	***0.102***	0.019	***0.172***	***0.063***	***0.063***	***0.038***	***0.194***	***0.14***	***0.114***	***0.208***	***0.25***	***0.275***	0.03	0.3

Table A10. Water Quality Parameters in the Tailings Pond.

Sample ID	Units	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	Tailings Pond	CCME AL Guidelines[1]	Water License Standards[2]
Date		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	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08		
Dissolved Metals																										
Aluminum	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0050	<0.005	0.019	0.01	0.015	0.033	0.02	0.009	0.006	0.041	0.01	0.007	<0.005	<0.005	<0.005	--	--
Antimony	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0693	0.0866	0.0492	0.0657	0.107	0.0905	0.0912	0.0776	0.0753	0.0983	0.104	0.0996	0.135	0.141	0.207	--	--
Arsenic	mg/L	0.0436	0.0469	0.0554	0.059	0.0524	0.0468	0.0526	0.0472	0.0552	0.0786	0.0363	0.0465	0.101	0.0813	0.0866	0.0723	0.0674	0.116	0.129	0.0962	0.11	0.111	***0.165***	--	0.15
Barium	mg/L	0.01	0.01	0.01	<0.010	0.01	0.012	0.013	0.014	0.0258	0.039	0.02	0.018	0.009	0.015	0.014	0.018	0.022	0.017	0.02	0.021	0.027	0.029	0.036	--	--
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.00004	<0.00004	--	--
Bismuth	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0025	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	--	--
Boron	mg/L	0.1	0.12	0.13	0.11	0.15	0.14	0.13	0.15	0.202	0.311	0.097	0.152	0.127	0.151	0.144	0.19	0.216	0.119	0.118	0.107	0.138	0.173	0.218	--	--
Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00236	0.00452	0.00247	0.00082	0.00046	0.00239	0.0015	0.00085	0.00062	0.00298	0.00156	0.00167	0.00269	0.00334	0.00461	--	--
Chromium	mg/L	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0025	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0004	0.0012	0.0014	--	--
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00279	0.0038	0.0025	0.0024	0.0024	0.002	0.00189	0.0016	0.0012	<0.0005	0.002	0.0021	0.00296	0.00266	0.00359	--	--
Copper	mg/L	0.031	0.028	0.038	0.041	0.037	0.039	0.042	0.043	0.0587	0.125	0.057	0.057	0.028	0.034	0.038	0.039	0.042	0.0024	0.045	0.044	0.059	0.072	0.107	--	--
Iron	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.1	0.12	0.01	<0.01	<0.01	0.01	0.01	0.06	0.037	0.01	0.02	0.019	<0.01	<0.010	--	--
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.00077	0.001	0.0011	0.0004	0.0005	0.0011	0.0008	0.0006	0.0009	0.03	0.0006	0.0007	0.001	0.0008	0.001	--	--
Lithium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.025	0.011	0.004	0.006	0.006	0.006	0.006	0.006	0.008	0.0012	0.006	0.006	0.007	0.008	0.011	--	--
Manganese	mg/L	0.58	0.39	0.35	0.284	0.165	0.237	0.643	0.557	1.06	1.2	1.31	0.335	0.148	0.541	0.389	0.321	0.09	1.42	1.11	1.19	1.89	1.56	2.07	--	--
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.00446	0.006	1.31	0.003	0.003	0.003	0.00313	0.003	0.003	0.002	0.003	0.003	0.00432	0.0044	0.00556	--	--
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0025	0.0088	0.0016	<0.0005	0.0015	<0.0005	0.001	<0.0005	0.0025	0.003	<0.0005	0.0025	0.007	0.007	0.01	--	--
Phosphorus	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	--	--	--	--	--	<0.01	--	--	--	--	--	<0.01	<0.01	0.02	--	--
Selenium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.005	0.0007	<0.0002	0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0006	0.0008	--	--
Silicon	mg/L	1.11	1.22	1.41	1.31	1.7	2.09	2.3	2.57	4.17	6.3	1.56	1.71	0.19	1.32	1.28	2.74	3.35	3.32	3.14	3.05	4	6.2	6.93	--	--
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.01	<0.00005	<0.0001	<0.00001	0.00001	0.00002	0.00003	<0.00001	<0.00001	0.00003	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.376	0.418	0.444	0.432	0.49	0.512	0.524	0.583	0.862	1.48	0.422	0.632	0.599	0.628	0.63	0.621	0.679	0.511	0.573	0.618	0.867	1.05	1.36	--	--
Thallium	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0005	0.00034	0.00025	0.00027	0.00026	0.00029	0.00025	0.00026	0.00021	0.00026	0.00028	0.00022	0.0003	0.00034	0.0005	--	--
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	--	--
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.032	0.005	0.0394	0.0064	0.0075	0.0002	0.0242	0.0281	0.0248	0.0175	0.0207	0.0008	0.001	0.0008	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	0.0012	0.0017	0.0013	0.0014	0.0012	0.0016	0.0015	0.0012	0.0017	0.0017	0.0024	0.003	0.0038		
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	0.003	0.0005	0.0004	0.0004	0.0006	0.00026	0.0002	0.0009	0.0007	0.0008	0.0003	0.00019	0.00046	0.00056	--	--
Zinc	mg/L	0.11	0.0571	0.0608	0.0635	0.045	0.0264	0.055	0.0683	0.161	0.295	0.144	0.036	0.016	0.096	0.044	0.022	0.02	0.12	0.044	0.062	0.108	0.164	0.219	--	--

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	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		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	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-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	6.99	7.03	7.23	7.5	--	7.41
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	3200	3200	2800	3250	2900	2950
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	21	16	18	31	31	4.93	29	35	26
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***	***2780***	***2760***	***2590***	***2800***	***2560***	***2550***
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	1266.81	1098.11	1015.00	1213.67	1098.46	896.88
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	137	158	126	142	148	134
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	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	1800	1860	1800	1980	1690	1840
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																														
Ammonia-N	mg/L	***12.7***	***12.4***	***12.5***	***13.3***	***18.7***	***25.4***	***18***	***12.5***	***31.3***	***16.6***	***24.5***	***24***	***22.7***	***20.1***	***18.9***	--	***17.7***	***16.8***	***18.9***	***19.2***	***20.7***	***19.2***	***17.2***	***17.2***	***15.3***	***14.8***	***13.2***	***15.3***	***14.2***	***15***
Nitrate-N	mg/L	0.12	<0.05	<0.05	1	1.15	1.88	1.47	1.48	2.3	0.45	1.94	1.92	<0.1	1.33	0.21	--	0.26	0.76	0.72	0.47	0.37	0.47	1.05	1.2	1.5	1.15	1.14	--	***7.44***	--
Nitrite-N	mg/L	0.02	0.06	0.02	<0.003	0.003	***0.1***	***0.13***	0.059	***0.101***	0.005	***0.34***	***4.74***	<0.05	***2.38***	***0.112***	--	0.053	***0.116***	<0.02	***0.551***	<0.02	0.049	***1.05***	***1.2***	***0.604***	<0.01	--	--	--	--
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	<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	18.6	3.3	8.1	10.7	15.1	12
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	106	1140	99.3	123	111	111
CN-WAD	mg/L	11	23	17.5	26	13	0.332	0.126	10.2	0.128	34	0.249	12	17	16.3	10	--	16.2	13.6	11.3	9.48	9.08	6.5	4.3	2.6	3.08	--	4.39	3.66	2.55	3.23
CN-SAD	mg/L	17	21	45	27	36	34.5	57	41.8	38.8	58.6	47.5	13.5	18.2	16.5	19.8	--	17.5	15.1	12.2	10.1	13.4	20	6.91	3.8	8.25	--	4.93	4.94	2.59	5.21
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	***0.17***	***0.15***	***0.51***	***0.5***	***0.27***	0.09
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	<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***	***0.04***	<0.02	<0.02	<0.02	<0.02	<0.02
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	0.077	0.074	0.073	0.0578	--	0.0642	0.056	0.0603	0.0567	0.0575	0.0559	0.0522	0.0529	0.0661	0.0632	0.0691	0.0545	0.0692	0.0553
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***	***0.0033***	***0.0032***	***0.0024***	***0.0025***	***0.003***	***0.0024***
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	439	382	354	423	380	310
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	0.002	0.002	0.001	<0.001	0.001	<0.001
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	0.128	0.118	0.095	0.11	0.1	0.095
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***	***7.2***	***6.5***	***5.07***	***6.15***	***4.84***	***4.06***
Iron	mg/L	***10.9***	***8.18***	***11.2***	***10.1***	***8.19***	***11.6***	***9.15***	***11.4***	***7.03***	***8.77***	***8.63***	***10.3***	***11.4***	***11.1***	***9.02***	--	***12.3***	***10.4***	***9.69***	***8.28***	***7.92***	***9.39***	***8.15***	***7.78***	***9.85***	***7.7***	***7.04***	***7.17***	***6.23***	***7.49***
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	<0.005	***0.009***	***0.01***	<0.005	<0.005	<0.005
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	34.5	31.6	39.2	36.8	38.3	47.8	45.9	50.6	41.5	41.4	41.2	41.9	38.2	36.5	35.8	--	44.8	36.8	35.7	33.6	32.3	39.8	35.2	33.5	41.4	35	31.8	38.2	36.3	29.8
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	13	11.4	9.52	11.6	10.8	9.6
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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
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***	***0.067***	***0.065***	***0.05***	***0.056***	***0.05***	***0.052***
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	15	14.4	11	22	12	10
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	<0.02	<0.02	***0.03***	<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	4.62	4.33	4.56	3.96	4.41	4.25
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***	***0.014***	***0.014***	***0.014***	***0.016***	***0.011***	***0.007***
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	357	302	263	328	290	260
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	0.913	0.838	0.682	0.815	0.784	0.767
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	<0.05	<0.05	<0.05	<0.005	--	<0.005	<0.005	0.007	0.72	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<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	<0.001	<0.001	0.01	<0.001	<0.001	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.002	<0.002	<0.002	<0.002	0.01	0.02
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***	***0.063***	***0.066***	***0.056***	***0.047***	***0.064***	***0.061***

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	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		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	20-Jun-00	29-Jun-00	13-Jul-00	26-Jul-00	8-Aug-00	23-Aug-00
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	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		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	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
Physical Parameters																															
pH	pH units	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	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
Conductivity	µS/cm	2900	2450	2700	2600	2950	2850	2800	2500	--	2700	2600	2500	2440	2650	2220	2540	2350	2360	2420	2490	2220	2320	2280	2320	2320	2360	2410	2640	2650	2600	2550
Routine Parameters																															
Total Suspended Sediment	mg/L	27	27	24	490	50	35	27	24	--	40	22	--	19	29	8	14	15	14	11	13	18	17	17	11	14	23	23	26	19	11	3
Total Dissolved Solids	mg/L	***2500***	***2130***	***2420***	***2340***	***2560***	***2470***	***2230***	***1920***	--	***2180***	***2050***	***1940***	***2340***	***2480***	***2190***	***2330***	***2270***	***2070***	***2140***	***2010***	***1890***	***1850***	***1880***	***1810***	***1780***	***1930***	***1980***	***2420***	***2380***	***2340***	***2270***
Hardness	mg/L	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	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
Alkalinity-Total	mg/L	141	85	117	99	97	114	126	140	--	149	131	125	156	157	148	156	152	151	143	149	153	162	159	165	160	164	152	178	176	180	175
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1970	1310	1440	1320	1470	1520	1350	1270	--	1440	--	1100	1800	1880	1590	1530	1570	1550	1430	1400	1290	1290	1300	1310	1310	1410	1420	1620	1630	13.4	1660
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																															
Ammonia-N	mg/L	***14.3***	***11.7***	***15.6***	***11.4***	***13.4***	***15.6***	***14.4***	***14.3***	--	***16.4***	***8.54***	***13.3***	***16.9***	***14.6***	***15.4***	***13.8***	***12.1***	***14.3***	***12.8***	***14.5***	***14.5***	***12.9***	***13***	***13.3***	***13.3***	***13.5***	***12***	***12.3***	***12.7***	***13.3***	***11.1***
Nitrate-N	mg/L	--	--	--	--	--	--	0.48	0.9	--	0.6	0.5	0.8	0.718	0.526	0.97	0.966	0.94	1.01	1.04	1.56	2.09	2.11	2.09	1.85	2.46	1.32	0.686	--	--	0.309	0.634
Nitrite-N	mg/L	--	--	--	--	--	--	***0.15***	***0.16***	--	--	--	--	***0.192***	***0.185***	***0.219***	***0.276***	***0.239***	***0.199***	***0.551***	***1.02***	***1.1***	***0.685***	***0.946***	***0.663***	***0.554***	***0.561***	***0.235***	--	--	<0.01	<0.01
Total Phosphorus	mg/L	<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	<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
Cyanide Compounds																															
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanate	mg/L	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	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
Thiocyanate	mg/L	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	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
CN-WAD	mg/L	3.14	2.13	1.71	1.59	1.83	1.54	1.12	0.935	--	1.48	1.2	0.852	0.662	0.368	0.744	0.367	0.333	0.624	0.176	0.485	0.188	0.12	0.34	0.4	0.33	0.1	0.08	0.068	0.062	<0.002	0.036
CN-SAD	mg/L	3.44	3.57	2.41	2.89	6.09	4.27	3.46	2.49	--	2.38	1.12	3.41	1.78	0.69	0.63	1.94	0.897	1.54	0.684	2.99	0.6	1.72	1.88	1.24	0.88	1.02	0.3	0.52	0.42	<0.002	0.42
Total Metals																															
Aluminum	mg/L	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	<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
Antimony	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.006	<0.02	0.02	0.04	<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
Arsenic	mg/L	<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***	***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***
Barium	mg/L	0.0526	0.0539	0.0564	0.262	0.0682	0.055	0.0547	0.0597	0.0579	0.0698	0.0548	0.0587	0.0682	0.074	0.0762	0.0686	0.0622	0.0572	0.0564	0.056	0.0536	0.0479	0.0506	0.0514	0.0522	0.0529	0.0524	0.0662	0.0699	0.0628	0.0603
Beryllium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	<0.008	<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
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.105	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	***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***	<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
Calcium	mg/L	405	296	339	331	341	370	334	336	376	349	254	337	377	400	381	389	359	319	360	311	283	302	321	337	316	328	346	398	407	436	353
Chromium	mg/L	<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	<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
Cobalt	mg/L	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	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
Copper	mg/L	***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***	***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***
Iron	mg/L	***9.99***	***8.82***	***10.4***	***17.6***	***9.62***	***10.9***	***12.2***	***11.8***	***12.4***	***11.9***	***5.91***	***0.559***	***10.2***	***10.4***	***8.36***	***11.3***	***11.2***	***10***	***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***
Lead	mg/L	<0.005	<0.005	<0.005	***0.018***	***0.094***	***0.012***	<0.005	<0.01	<0.005	<0.006	***0.014***	***0.009***	<0.006	<0.005	***0.007***	<0.006	<0.005	<0.005	<0.006	<0.01	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	***0.007***	<0.006	***0.007***
Lithium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.006	0.005	<0.006	<0.005	<0.005	<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
Magnesium	mg/L	38.3	25.8	30.6	32.8	29.2	26.3	23.3	26.3	26.2	26.6	24.4	22	34	35.8	34.7	35.4	27.5	24.4	23.7	27.8	21.6	21.6	23.3	24.4	24.4	22.6	25.6	36.2	37.2	38.3	31.2
Manganese	mg/L	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	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
Molybdenum	mg/L	<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	<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
Nickel	mg/L	***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	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
Potassium	mg/L	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	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
Selenium	mg/L	<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	<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
Silicon	mg/L	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	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
Silver	mg/L	***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	<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
Sodium	mg/L	327	243	281	269	295	302	314	272	284	256	161	198	238	239	228	262	254	238	266	231	230	228	238	234	227	207	200	214	216	236	221
Strontium	mg/L	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	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
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	<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	<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
Titanium	mg/L	--	--	--	0.147	<0.001	<0.001	<0.001	<0.002	<0.001	0.01	<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	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	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	<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
Zinc	mg/L	***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***	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

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	Seep	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		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	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
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	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		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	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
Physical Parameters																															
pH	pH units	7.02	6.94	6.88	6.51	6.96	6.95	***11.6***	8.56	6.95	6.94	6.78	6.79	6.79	6.8	7	7.02	7.15	6.95	7.06	7.04	7.12	6.92	6.93	--	--	--	--	--	--	--	--
Conductivity	µS/cm	2630	2510	2390	2390	2230	2220	3410	2330	2330	2350	2360	2470	2490	2400	2550	2340	2420	2420	2370	2410	2260	2180	2160	--	--	--	--	--	--	--	--
Routine Parameters																															
Total Suspended Sediment	mg/L	22	18	27	27	31	34	28	27	18	16	206	30	30	29	26	28	25	18	13	19	16	12	12	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	***2240***	***2180***	***2250***	***2020***	***2010***	***1990***	***2030***	***1950***	***2010***	***1990***	***2030***	***2210***	***2230***	***2170***	***2360***	***2190***	***2120***	***2150***	***1920***	***1940***	***1910***	***1530***	***1510***	--	--	--	--	--	--	--	--
Hardness	mg/L	1113.09	1035.78	1024.94	1049.09	990.11	1022.94	878.33	913.30	969.86	974.03	959.49	1140.97	1145.97	1060.23	1154.59	1082.13	1089.71	1178.43	902.04	897.01	843.72	827.91	812.11	--	--	--	--	--	--	--	--
Alkalinity-Total	mg/L	176	177	166	166	163	166	329	101	166	159	163	169	176	183	198	182	189	192	184	183	173	166	168	--	--	--	--	--	--	--	--
Bicarbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbonate	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydroxide	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sulphate	mg/L	1670	1670	1500	1400	1310	1430	1360	1340	1430	1380	1520	1510	1540	1850	1410	1550	1430	1500	1850	1460	1200	1170	1170	--	--	--	--	--	--	--	--
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																															
Ammonia-N	mg/L	***10.4***	***12.4***	***13.7***	***10.7***	***15***	***15***	***12.4***	***11.7***	***12.1***	***12.3***	***12.3***	***13.2***	***13.3***	***8.1***	***15***	***12.5***	***11.3***	***13.4***	***13.8***	***13.9***	***12.3***	***11.6***	***11.6***	--	--	--	--	--	--	--	--
Nitrate-N	mg/L	0.506	0.498	0.479	1.04	1.86	1.9	1.71	1.69	1.57	1.59	1.23	1.12	1.08	0.97	<1	1.1	1.03	0.633	2.27	2.2	2.15	2.37	2.37	--	--	--	--	--	--	--	--
Nitrite-N	mg/L	<0.01	***0.512***	***0.983***	***0.827***	***0.548***	***0.657***	***0.354***	***0.284***	***0.258***	***0.29***	<0.01	<0.01	<0.01	***0.7***	--	***0.427***	***0.463***	***0.365***	***0.457***	***0.462***	***0.386***	***0.338***	***0.336***	--	--	--	--	--	--	--	--
Total Phosphorus	mg/L	0.06	0.09	<0.06	0.07	0.07	<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	1.35	1.23	1.68	2.44	0.18	0.17	0.63	2.55	2.7	2.58	1.97	1.5	2.6	1.29	2.07	2.74	4.44	2.69	1.34	0.92	0.82	1.22	2.43	--	--	--	--	--	--	--	--
Thiocyanate	mg/L	52.6	49.7	47.6	43.5	35.9	36.9	39.5	39	35.4	35.3	39.2	41.1	40.5	40.2	40.5	36.7	34.8	32.5	17.8	17.8	17.2	15.4	15.4	--	--	--	--	--	--	--	--
CN-WAD	mg/L	0.048	0.054	0.056	0.17	0.4	0.32	0.08	0.064	0.034	0.038	0.052	0.036	0.028	0.062	0.032	0.042	0.042	0.032	<0.002	0.004	0.03	0.024	0.034	0.026	0.02	0.024	0.02	0.018	0.024	0.016	0.022
CN-SAD	mg/L	0.136	0.6	0.088	0.64	1.32	1.56	0.82	0.34	0.25	0.46	0.62	0.28	0.52	0.56	0.086	0.106	0.32	0.152	0.036	0.038	0.084	0.062	0.072	0.68	0.088	1.4	0.114	0.62	0.094	0.156	0.46
Total Metals																															
Aluminum	mg/L	0.06	0.08	0.07	0.04	0.04	0.03	0.03	0.03	0.04	0.03	0.06	0.02	0.02	0.03	***1.89***	0.042	***1.44***	***2.11***	0.03	***0.56***	0.01	0.03	0.02	--	--	--	--	--	--	--	--
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	0.0021	<0.02	<0.02	0.03	0.06	0.04	0.03	0.06	--	--	--	--	--	--	--	--
Arsenic	mg/L	***0.07***	<0.02	***0.1***	***0.03***	***0.03***	***0.07***	<0.02	<0.02	***0.09***	***0.12***	***0.11***	***0.1***	***0.09***	***0.02***	***0.03***	***0.0301***	***0.06***	***0.03***	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--
Barium	mg/L	0.0634	0.0618	0.0627	0.0574	0.0508	0.0509	0.0491	0.0487	0.0469	0.0466	0.041	0.0493	0.0502	0.0539	0.0571	0.07	0.061	0.0607	0.0498	0.05	0.0468	0.0424	0.0418	--	--	--	--	--	--	--	--
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	<0.001	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--
Boron	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.105	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/L	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	***0.0014***	***0.0013***	***0.001***	***0.0008***	<0.0006	***0.0007***	<0.0006	***0.0012***	***0.0009***	***0.00072***	***0.0006***	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	--	--	--	--	--	--	--	--
Calcium	mg/L	388	361	356	366	347	358	309	323	344	346	341	399	401	367	400	370	376	399	303	300	293	287	281	--	--	--	--	--	--	--	--
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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--
Cobalt	mg/L	0.047	0.046	0.043	0.041	0.036	0.037	0.031	0.031	0.03	0.033	0.028	0.032	0.033	0.027	0.032	0.0393	0.032	0.036	0.037	0.034	0.032	0.027	0.027	--	--	--	--	--	--	--	--
Copper	mg/L	***0.059***	***0.051***	***0.05***	***0.032***	***0.033***	***0.031***	***0.036***	***0.027***	***0.029***	***0.027***	***0.021***	***0.021***	***0.022***	***0.022***	***0.028***	***0.02***	***0.02***	***0.019***	***0.012***	***0.016***	***0.011***	***0.014***	***0.009***	--	--	--	--	--	--	--	--
Iron	mg/L	***12.4***	***12***	***13.9***	***13.6***	***12.8***	***13.1***	***12.7***	***12.6***	***11.3***	***11.3***	***10.2***	***12.9***	***13***	***10.6***	***9.53***	***9.7***	***8.12***	***8.46***	***9.09***	***8.97***	***10.1***	***10.6***	***10.4***	--	--	--	--	--	--	--	--
Lead	mg/L	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	***0.007***	<0.006	<0.006	<0.006	<0.006	0.0004	<0.006	<0.006	<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	<0.006	0.003	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	--	--	--	--	--	--	--	--
Magnesium	mg/L	35	32.6	33	32.8	30	31.3	25.9	25.9	26.9	26.7	26.2	35.1	35.1	34.9	37.8	38.4	36.6	44.2	35.3	35.9	27.2	27	26.8	--	--	--	--	--	--	--	--
Manganese	mg/L	10.3	9.71	9.72	9.27	8.42	8.68	7.86	8.33	8.2	8.23	7.47	8.58	8.66	8.84	10	10.2	10	10.3	8.48	8.33	8.99	7.67	7.52	--	--	--	--	--	--	--	--
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	0.003	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	--	--	--	--	--	--	--	--
Nickel	mg/L	0.016	0.016	0.017	0.012	0.013	0.011	0.01	0.009	0.006	0.006	0.004	0.003	0.003	0.002	0.003	0.0026	0.003	0.006	<0.001	0.006	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--
Potassium	mg/L	13.4	13.8	13.8	13.9	13.4	13.9	12	11.1	12.3	12.1	13.8	20	20	10.7	12.1	10.9	11.3	12	3.9	8.1	9.9	10.1	10	--	--	--	--	--	--	--	--
Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	***0.04***	***0.06***	<0.02	***0.04***	***0.03***	<0.02	***0.04***	***0.08***	<0.02	<0.02	0.0005	<0.02	<0.02	***0.17***	***0.12***	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--
Silicon	mg/L	4.7	4.9	5.1	4.8	4.8	4.8	4.7	5	4.6	4.6	4.6	4.9	5	4.8	5.1	5.93	5.3	5.1	5.6	5.7	5.5	4.8	4.7	--	--	--	--	--	--	--	--
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	***0.0005***	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--	--	--
Sodium	mg/L	239	228	234	242	238	243	222	217	222	223	212	223	224	181	210	189	206	217	194	196	190	188	182	--	--	--	--	--	--	--	--
Strontium	mg/L	0.834	0.787	0.776	0.767	0.723	0.714	0.687	0.71	0.732	0.726	0.694	0.782	0.812	0.824	0.856	1.05	0.86	0.878	0.889	0.897	0.808	0.709	0.702	--	--	--	--	--	--	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin	mg/L	0.011	<0.006	0.013	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.002	0.011	<0.006	0.031	0.042	0.021	0.04	0.039	--	--	--	--	--	--	--	--
Titanium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.003	<0.001	<0.001	<0.001	<0.001	0.0202	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	<0.001	<0.001	0.002	<0.001	0.002	<0.001	0.036	0.041	0.041	0.043	0.039	0.04	0.043	0.041	0.04	0.0013	0.037	0.037	<0.001	0.002	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--
Zinc	mg/L	0.013	0.016	0.019	0.015	***0.034***	***0.039***	0.006	0.007	***0.083***	***0.078***	0.013	0.021	0.021	0.006	0.008	0.016	0.012	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	Seep	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		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	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
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	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	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		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	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
Physical Parameters																															
pH	pH units	--	--	7.66	7.7	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	7.43	7.71	7.51
Conductivity	µS/cm	--	--	2170	2170	2110	2140	2100	2080	2290	2030	2090	2140	2020	2150	2140	1700	2170	2090	2230	2160	2060	2060	2080	2020	1860	1880	1880	1970	1970	1890	1930
Routine Parameters																															
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	--	--	905.00	892.93	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	843.80	910.38	813.01
Alkalinity-Total	mg/L	--	--	189	182	191	177	190	183	196	180	192	208	189	126	198	165	205	207	215	209	207	213	206	189	--	194	179	182	172	190	188
Bicarbonate	mg/L	--	--	189	182	191	177	190	183	196	180	192	208	189	126	198	165	205	207	215	209	207	213	206	189	--	194	179	182	172	190	188
Carbonate	mg/L	--	--	<1	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	--	--	<1	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium	mg/L	--	--	303	295	270	313	310	307	308	291	298	304	292	316	318	252	302	319	329	313	328	310	306	281	275	288	261	282	269	275	288
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	35.9	32.9	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	33	31.9	34.6
Potassium	mg/L	--	--	9.2	9.1	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	8.9	8.5	7.3
Sodium	mg/L	--	--	152	131	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	133	136	149
Sulphate	mg/L	--	--	1080	1060	1090	1090	1120	1080	1300	985	1100	1130	1010	1130	1110	830	1150	1090	1110	1120	1080	1070	942	967	924	941	944	976	957	1030	970
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																															
Ammonia-N	mg/L	--	--	***11.7***	***9.78***	***10.5***	***9.73***	***9.84***	***9.83***	***9.49***	***9.32***	***11.1***	***10.6***	***10.1***	***9.83***	***10.1***	***7.71***	***11.7***	***9.66***	***10.3***	***10.5***	***10***	***9.83***	***8.95***	***9.29***	***8.9***	***8.54***	***9.66***	***8.97***	***8.54***	***8.52***	***9.04***
Nitrate-N	mg/L	--	--	1.65	1.38	1.51	0.779	1.63	1.48	2.32	1.6	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***	***4.1***	***3.93***	***3.62***	***3.41***
Nitrite-N	mg/L	--	--	***0.167***	***0.081***	***0.145***	***0.14***	***0.156***	***0.17***	***0.223***	***0.172***	***0.191***	***0.253***	***0.157***	***0.22***	***0.228***	***0.28***	***0.206***	***0.206***	***0.191***	***0.188***	***0.204***	***0.242***	***0.237***	***0.286***	--	***0.223***	***0.262***	***0.298***	***0.27***	***0.252***	***0.201***
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	<0.3	<0.3	<0.3	<0.3	<0.3
Cyanide Compounds																															
Cyanide - T	mg/L	--	--	0.063	0.089	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	0.0707	0.0969	0.139
Cyanate	mg/L	--	--	<1.5	<5	<2.5	11.8	<1	<1	<1	1.38	1.3	<1	3.3	2.6	1.4	<1	22.2	17.8	3.36	1.8	<0.5	28.9	<1	<0.5	<1	<1	0.51	1.26	15.3	1.6	<1
Thiocyanate	mg/L	--	--	9.32	7.5	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	6.95	5.3	5.85
CN-WAD	mg/L	0.018	0.018	0.0273	0.0581	0.0655	0.0391	0.0488	0.0737	0.0569	0.0436	0.0411	0.0441	0.0357	0.0614	0.0422	0.0253	0.0236	0.0354	0.0403	0.0489	0.0636	0.0201	0.0611	0.0407	0.0364	0.0462	0.038	0.0671	0.0357	0.0579	0.0569
CN-SAD	mg/L	0.118	0.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																															
Aluminum	mg/L	--	--	<0.2	***0.29***	<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	<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	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	--	--	***0.0485***	***0.0714***	<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	<0.2	***0.0459***	<0.2
Barium	mg/L	--	--	0.048	0.055	0.058	0.071	0.063	0.058	0.068	0.064	0.079	0.065	0.075	0.064	0.067	0.083	0.062	0.063	0.064	0.06	0.057	0.057	0.057	0.058	0.051	0.054	0.055	0.056	0.05	0.051	0.056
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	<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	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	--	--	0.12	0.14	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	0.11	0.11	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	<0.01	<0.01	<0.01	<0.01	<0.01
Calcium	mg/L	--	--	299	301	261	297	307	316	315	306	305	307	291	316	312	253	308	333	331	318	337	299	316	288	274	301	260	284	281	307	269
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	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	--	--	0.019	0.021	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	0.019	0.018	0.02
Copper	mg/L	--	--	<0.01	***0.011***	<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	<0.01	<0.01	<0.01
Iron	mg/L	--	--	***12.2***	***10.6***	***11.7***	***16.8***	***9.46***	***10.8***	***7.04***	***8.67***	***5.94***	***6.37***	***5.07***	***6.58***	***6.94***	***4.42***	***7.63***	***7.98***	***7.51***	***7.33***	***9.04***	***8.84***	***9.85***	***9.84***	***9.28***	***9.77***	***8.74***	***9.24***	***9.31***	***11.6***	***10.9***
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	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	--	--	<0.02	<0.01	<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	0.018	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.014	<0.01	<0.01	0.02	<0.01	<0.01
Magnesium	mg/L	--	--	35.6	34.3	35.1	35	35.9	32.8	37.1	32.1	34.6	35	32.2	30.9	33.7	26	34.6	36.6	39.1	34.5	34.8	36.6	34.9	33.7	31.4	33.4	31.9	34.5	34.5	34.9	34.3
Manganese	mg/L	--	--	9.19	7.89	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	8.93	8.62	7.66
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	<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	<0.05	<0.05	<0.05	<0.05
Potassium	mg/L	--	--	9.2	9.6	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	9.3	9.4	7
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	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	--	--	5.69	5.14	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	5.62	5.83	5.29
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	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	--	--	152	135	153	165	134	146	144	148	153	158	139	145	147	117	146	150	150	147	146	138	141	134	141	146	137	140	139	149	147
Strontium	mg/L	--	--	0.793	0.865	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	0.806	0.813	0.807
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	<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	<0.03	<0.03	<0.03	<0.03	<0.03
Titanium	mg/L	--	--	<0.01	<0.01	<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	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.04	<0.03	<0.03	<0.03	<0.03	<0.03	<0.04	<0.03
Zinc	mg/L	--	--	0.0076	0.015	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	0.0122	0.011	0.0082

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	Seep	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		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	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
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	<0.2	<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	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	mg/L	--	--	0.0032	0.0033	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	0.0029	0.0017	0.0371
Barium	mg/L	--	--	0.044	0.046	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	0.044	0.042	0.054
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	<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	<0.2	<0.2	<0.2	<0.2	<0.2
Boron	mg/L	--	--	0.12	0.14	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	<0.1	<0.1	<0.1	0.1	<0.1	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	<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	<0.01	<0.01	<0.01	<0.01
Cobalt	mg/L	--	--	0.019	0.021	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	0.017	0.016	0.021
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	0.013	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	mg/L	--	--	0.434	0.109	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	0.145	0.501	5.21
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	<0.05	<0.05	<0.05	<0.05
Lithium	mg/L	--	--	<0.02	<0.01	<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	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.014	<0.01	<0.01	0.017	<0.01	<0.01
Manganese	mg/L	--	--	9.42	7.73	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	8.39	7.84	8.1
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	<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	<0.05	<0.05	<0.05	<0.05
Phosphorus	mg/L	--	--	<0.3	<0.3	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Selenium	mg/L	--	--	<0.2	<0.2	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Silicon	mg/L	--	--	5.41	4.51	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	5.03	4.93	5.5
Silver	mg/L	--	--	<0.01	<0.01	<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	<0.01	<0.01	<0.01
Strontium	mg/L	--	--	0.807	0.827	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	0.768	0.739	0.822
Thallium	mg/L	--	--	<0.2	<0.2	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Tin	mg/L	--	--	<0.03	<0.03	<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	<0.03	<0.03	<0.03
Titanium	mg/L	--	--	<0.01	<0.01	<0.01	<0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	--	--	<0.03	<0.03	<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	<0.03	<0.04	<0.03
Zinc	mg/L	--	--	0.0055	0.0059	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	0.0078	0.0079	<0.005

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	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		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	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
Physical Parameters																															
pH	pH units	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	7.68	7.83	7.7	7.58	7.79	7.7	7.73	7.7	7.68	7.75
Conductivity	µS/cm	1990	1940	1990	2000	2000	2030	1970	1980	1950	1980	1940	1990	1880	1950	1860	1900	1700	73.5	1670	1710	1750	1980	1900	1860	1990	1940	1830	1840	1730	1760	1820
Routine Parameters																															
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	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	867.65	822.14	886.31	838.86	891.31	796.90	861.78	736.60	849.37	792.40
Alkalinity-Total	mg/L	181	174	178	196	197	195	190	179	180	189	194	194	191	200	208	189	188	18.8	183	212	197	226	250	231	247	238	176	226	200	189	213
Bicarbonate	mg/L	181	174	178	196	197	195	190	179	180	189	194	194	191	200	208	189	188	18.8	183	212	197	226	250	231	247	238	176	226	200	189	213
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hydroxide	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Calcium	mg/L	297	287	273	280	290	260	284	295	262	270	289	294	268	265	256	247	244	11	227	237	256	294	277	288	272	296	261	278	261	276	270
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	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	31.7	34.8	32.1	32.3	33	32.1	31.1	30.1	29.7	32.4
Potassium	mg/L	9.3	8.7	6	8.4	7.8	8.3	9.6	8.1	9.7	9	9.3	<10	8.5	9.2	8.4	8.7	8.6	<2	7.7	7.1	8.6	9.9	8.2	9.4	8.5	10.1	9.5	8.9	7.4	8.8	7.4
Sodium	mg/L	144	134	132	137	130	121	141	108	126	138	143	141	130	137	127	137	119	<2	108	117	120	139	128	125	126	129	122	110	114	116	117
Sulphate	mg/L	933	979	972	992	989	1020	977	962	957	964	979	978	907	925	879	889	780	8.94	752	802	830	924	903	899	903	880	855	847	795	800	815
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																															
Ammonia-N	mg/L	***8.71***	***8.3***	***8.8***	***8.64***	***8.62***	***9.4***	***8.43***	***8.8***	***8.36***	***8.44***	***8.46***	***9.78***	***8.21***	***8.24***	***10.6***	***8.67***	***8.75***	***0.039***	***6.14***	***8.52***	***7.78***	***10***	***8.75***	***9.32***	***11***	***9***	***8.34***	***8.64***	***8.44***	***7.8***	***8.15***
Nitrate-N	mg/L	***3.56***	***3.26***	***3.36***	***3.06***	2.69	2.38	2.62	2.57	2.15	2.17	1.75	1.8	1.56	1.33	0.982	0.826	0.843	0.009	0.672	0.696	0.686	0.707	0.741	0.995	0.172	1.79	2.79	***3.56***	***4.89***	***5.34***	***5.8***
Nitrite-N	mg/L	***0.199***	***0.192***	***0.188***	***0.185***	***0.148***	***0.172***	***0.139***	***0.105***	***0.0859***	***0.103***	***0.097***	***0.129***	***0.099***	***0.102***	0.0505	0.0483	0.0578	<0.001	0.0541	***0.0741***	***0.0606***	***0.0662***	***0.0626***	***0.0729***	0.0131	***0.064***	***0.138***	***0.162***	***0.127***	0.0525	***0.122***
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	<1.5	<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	***0.532***	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	0.03	0.0907	0.0309	0.0268	0.13	0.037	0.0603	0.0327	0.0462	0.0627
Cyanate	mg/L	<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	<0.72	<0.72	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5
Thiocyanate	mg/L	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	13.3	12.6	12.2	4.66	10.1	8.34	8.24	6.93	7.79	7.66
CN-WAD	mg/L	0.0661	0.0482	0.0663	0.056	0.0512	0.0591	0.0747	0.0546	0.137	0.0866	0.075	0.0628	0.0391	0.0774	0.124	0.0518	0.0371	<0.005	0.0272	0.0316	0.0366	0.0309	0.0329	0.0308	0.0294	0.124	0.0335	0.0535	0.0207	0.0223	0.0436
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	<1	<0.2	<0.2	<0.2	<0.2	<0.2	***1.29***	<0.2	<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	<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
Arsenic	mg/L	***0.0433***	***0.0446***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1	***0.0469***	<0.2	<0.2	***0.0693***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	mg/L	0.051	0.049	0.05	0.051	0.056	0.057	0.054	0.044	0.052	0.053	0.054	0.056	0.058	0.05	0.051	0.055	0.049	0.064	0.05	0.052	0.05	0.053	0.054	0.054	0.056	0.058	0.058	0.058	0.058	0.059	0.05
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	<0.025	<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	<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
Boron	mg/L	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	0.11	0.14	0.12	0.13	<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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	303	292	283	286	307	298	298	291	266	267	291	318	275	253	265	271	259	11.5	232	238	263	295	272	300	281	302	267	291	245	289	268
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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.019	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	0.018	0.021	0.018	0.02	0.018	0.017	0.017	0.016	0.018	0.014
Copper	mg/L	***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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.012***	<0.01
Iron	mg/L	***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***	***9.87***	***1.43***	***7.94***	***9.27***	***8.63***	***7.64***	***8.15***	***5.07***	***8.46***	***7.82***	***6.77***	***9***	***8.87***	***10***	***10.6***
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	<0.25	<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	0.02	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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	mg/L	36.5	33.6	32.5	35.8	34.1	35.2	37.5	32.2	35.5	33.9	35.7	39.4	33.4	31.2	30.2	32.1	29.5	3.52	27.7	29.8	29.8	31.8	34.7	33.3	33.3	33.3	31.6	32.8	30.3	31	29.9
Manganese	mg/L	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	8.24	7.65	8.45	8.17	8.91	8.14	8.46	7.36	8.46	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	<0.15	<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	<0.25	<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
Potassium	mg/L	9.5	8.7	6.3	8.5	8.5	10.1	9.9	8.2	9.9	8.9	9.4	<10	8.7	8.7	8.7	9.1	9.3	<2	7.9	7.2	8.9	10	8.3	9.8	8.9	10.2	9.5	9.4	6.8	9.5	8.3
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	<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
Silicon	mg/L	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	4.97	5.44	5.1	5.43	5.65	5.34	6.15	5.01	5.96	5.91
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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	146	132	140	137	142	168	147	108	127	136	145	145	134	130	129	140	125	<2	110	117	125	139	131	130	131	131	120	117	111	122	115
Strontium	mg/L	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	0.805	0.742	0.814	0.808	0.843	0.783	0.831	0.728	0.828	0.748
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	<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
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	<0.15	<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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.035	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.15	<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	0.0101	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	0.0078	0.0062	0.008	0.0078	0.0073	0.0083	0.009	0.0101	0.0276	0.0109

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	Seep	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		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	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
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	<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
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	<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
Arsenic	mg/L	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	0.0031	0.0035	0.0032	0.0038	0.0029	0.006	0.0032	0.0025	0.00216	0.0025
Barium	mg/L	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	0.05	0.051	0.049	0.051	0.054	0.054	0.049	0.053	0.051	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	<0.025	<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	<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
Boron	mg/L	0.12	0.12	0.11	0.11	0.13	0.11	0.12	0.12	0.12	0.13	0.15	<0.5	0.14	0.14	0.13	0.12	0.11	<0.1	<0.1	0.11	<0.1	0.12	0.13	<0.1	0.11	<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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.017	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	0.018	0.019	0.017	0.021	0.018	0.017	0.016	0.016	0.017	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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.163	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	0.09	0.07	0.051	0.054	0.062	0.041	0.047	0.073	0.084	0.062
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	<0.25	<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	0.02	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.05	0.021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	mg/L	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	8.16	7.74	8.08	7.86	8.8	8.05	7.61	7.47	7.86	6.89
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	<0.15	<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	<0.25	<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	<0.3	<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	<0.3	<0.3	<0.3	<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	<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
Silicon	mg/L	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	4.77	5.29	4.7	5.05	5.38	5.11	5.41	5.08	5.34	5.42
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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.82	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	0.799	0.738	0.782	0.778	0.832	0.79	0.779	0.691	0.787	0.71
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	<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
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	<0.15	<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	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	<0.15	<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	0.0073	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	0.0053	<0.005	0.0054	<0.005	0.0052	<0.005	0.0052	0.0072	0.0098	0.0058

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	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		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	12-Jul-07	26-Jul-07	9-Aug-07	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07	29-Nov-07
Physical Parameters																										
pH	pH units	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	7.7	7.74	7.58	7.5	7.46	7.06	7.62	7.61	7.32	7.59	7.24
Conductivity	µS/cm	1820	1800	1780	1750	1840	1770	1830	1860	3680	3770	2020	1860	1470	1710	1280	1820	1560	1990	1920	1920	1730	1620	1630	1730	1660
Routine Parameters																										
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardness	mg/L	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	617.03	874.04	819.26	930.22	891.06	866.96	785.18	718.76	721.42	730.00	731.99
Alkalinity-Total	mg/L	207	186	182	47.3	192	201	190	194	269	297	221	209	155	204	147	226	164	241	246	242	234	219	225	209	205
Bicarbonate	mg/L	207	186	182	47.3	192	201	190	194	269	297	221	209	155	204	147	226	164	241	246	242	234	219	225	209	250
Carbonate	mg/L	<2	<2	<2	<2	<2	<2	<1	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<6
Hydroxide	mg/L	<2	<2	<2	<1	<2	<2	<1	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5
Calcium	mg/L	255	275	277	309	262	--	289	280	612	644	291	282	226	264	212	286	268	307	291	288	254	241	225	225	240
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	31.5	30.5	31.8	33.8	32.4	--	36.7	35.9	99.7	93.5	36	33.2	25.9	35.6	24.7	37.1	33.3	37.5	37.8	38	32.5	29.4	33.5	34.3	30.9
Potassium	mg/L	7.5	8.7	8.8	8.5	7.2	--	16.2	9.1	33.9	36	7.7	9	6.6	6.9	6.3	8.7	6.9	8.7	7.4	8.6	8.5	8	7.6	7.7	7.2
Sodium	mg/L	111	115	102	123	107	--	119	114	245	255	115	111	90.9	105	77.3	114	89.6	116	110	115	94.6	90.6	88.2	96.7	90.3
Sulphate	mg/L	824	871	870	848	869	839	896	934	2240	2350	958	829	680	772	578	829	750	904	895	781	744	644	666	734	753
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																										
Ammonia-N	mg/L	***9.36***	***8.52***	***9.34***	***7.73***	***8.5***	***8.09***	***8.32***	***8.52***	***8.48***	***7.08***	***8***	***7.17***	***6.73***	***6.42***	***4.97***	***8.84***	***7.45***	***8.44***	***7.87***	***8.42***	***7.29***	***8.15***	***8.6***	***7.8***	***6***
Nitrate-N	mg/L	***5.45***	***5.06***	***4.29***	***4.04***	***3.81***	***3.27***	2.87	***3.31***	2.23	1.86	1.83	1.38	0.567	1.2	1.11	0.984	1.06	1.05	1.4	1.64	***3.05***	***2.93***	***4.91***	***5.93***	***6.35***
Nitrite-N	mg/L	***0.196***	***0.174***	***0.201***	***0.173***	***0.278***	***0.176***	***0.162***	***0.138***	0.0311	0.0217	***0.127***	***0.127***	***0.0854***	0.0561	***0.0837***	***0.0601***	***0.0617***	0.0548	0.051	0.0583	***0.137***	<0.1	***0.161***	***0.149***	***0.15***
Total Phosphorus	mg/L	<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	<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	0.0435	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	0.0616	0.051	0.0228	0.0479	0.0287	0.0643	0.0299	0.0426	0.0794	0.067	--
Cyanate	mg/L	<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	1.5	2.4	<0.5	0.57	<0.5	<0.5	<0.5	<0.5	3.24	5.25	1.2
Thiocyanate	mg/L	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	7.22	12.1	10.9	13.8	14.2	11.5	10.4	10.5	9.01	9.53	12.2
CN-WAD	mg/L	0.0406	0.118	0.0442	0.0434	0.032	8.1	7.35	7.87	0.0059	0.0478	0.0385	0.026	0.0455	0.0323	0.0268	0.051	<0.005	0.0482	0.0321	0.047	0.0252	0.0414	0.028	0.047	0.014
CN-SAD	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.6
Total Metals																										
Aluminum	mg/L	<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	***0.34***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0221	0.033
Antimony	mg/L	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.00097	0.001
Arsenic	mg/L	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.0361***	***0.0422***
Barium	mg/L	0.052	0.052	0.055	0.055	0.06	0.057	0.057	0.058	0.034	0.031	0.05	0.048	0.042	0.047	0.053	0.059	0.053	0.055	0.043	0.06	0.053	0.062	0.051	0.0517	0.058
Beryllium	mg/L	<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	<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	<0.2	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0025	<0.0005
Boron	mg/L	0.11	<0.1	0.1	0.11	0.13	0.1	<0.2	0.11	0.35	0.32	0.14	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.078	0.076
Cadmium	mg/L	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.00116***	***0.00112***
Calcium	mg/L	265	280	296	284	272	284	287	290	618	658	306	280	234	258	208	288	272	310	293	285	260	240	232	234	242
Chromium	mg/L	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0025	0.0012
Cobalt	mg/L	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	0.011	0.016	0.015	0.016	0.018	0.015	0.013	0.012	0.013	0.0137	0.0137
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	***0.011***	<0.02	<0.01	***0.085***	***0.082***	<0.01	<0.01	***0.012***	<0.01	***0.013***	<0.01	***0.012***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.00738***	***0.011***
Iron	mg/L	***11.4***	***12.9***	***12.5***	***13***	***12.6***	***12.6***	***12.8***	***14***	***0.434***	***0.375***	***14.5***	***11.1***	***10.9***	***10.3***	***6.86***	***7.27***	***7.11***	***7.2***	***8.71***	***6.94***	***6.88***	***9.64***	***12.2***	***13.3***	***14.6***
Lead	mg/L	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.00025	0.0001
Lithium	mg/L	<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	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.025	0.001
Magnesium	mg/L	31.2	31.5	34.3	32.8	35.1	34	37	37.3	101	95.7	37.5	31.8	25.7	34.8	23.7	37.6	34	37.9	38.7	37.7	33	29	34.5	35.4	31
Manganese	mg/L	7.85	8.44	9.38	8.88	7.58	8.66	8.99	8.68	4.29	4.7	8.43	8.07	6.3	7.25	5.54	9	7.47	9.76	8.59	8.84	8	7.18	7.64	7.96	7.98
Molybdenum	mg/L	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.00164	0.002
Nickel	mg/L	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0046	0.0044
Potassium	mg/L	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	6	8.8	6.8	9	7.5	8.6	7.9	7.6	7.5	8	7.3
Selenium	mg/L	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	0.0005
Silicon	mg/L	5.94	6.32	6.43	6.59	6.12	6	5.93	6.02	5.55	5.38	6.23	5.7	4.81	5.34	4.85	5.82	5.65	6.23	5.59	6.08	6.22	5.98	6.48	6.4	6.1
Silver	mg/L	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.000068	0.0001
Sodium	mg/L	108	119	110	117	118	114	120	118	240	262	123	106	90.9	104	73.9	115	90.8	119	110	114	96.6	88.8	88.2	100	91.6
Strontium	mg/L	0.688	0.782	0.871	0.834	0.724	0.861	0.894	0.821	1.38	1.6	0.829	0.785	0.608	0.716	0.547	0.84	0.69	0.878	0.764	0.85	0.775	0.682	0.728	0.709	0.827
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	248
Thallium	mg/L	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.00005
Tin	mg/L	<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	<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	<0.02	<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	0.011	<0.01	<0.01	<0.01	0.0164
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	0.0015
Zinc	mg/L	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	0.0226	0.0096	0.009	0.0097	0.0098	0.0068	0.0085	0.0063	0.0057	0.0096	0.017

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	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		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	12-Jul-07	26-Jul-07	9-Aug-07	23-Aug-07	18-Sep-07	3-Oct-07	17-Oct-07	15-Nov-07	29-Nov-07
Dissolved Metals																										
Aluminum	mg/L	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.005
Antimony	mg/L	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.00078	0.001
Arsenic	mg/L	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	0.00501	0.00284	0.00301	0.0041	0.00322	0.00279	0.00349	0.0028	0.0028	0.00226	0.0028
Barium	mg/L	0.045	0.043	0.045	0.052	0.048	--	0.05	0.049	0.034	0.03	0.04	0.042	0.035	0.043	0.047	0.054	0.044	0.047	0.036	0.038	0.033	0.03	0.03	0.045	0.048
Beryllium	mg/L	<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	<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	<0.2	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0025	<0.0005
Boron	mg/L	0.1	0.1	<0.1	<0.1	0.11	--	<0.2	0.11	0.33	0.31	0.13	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.075	0.064
Cadmium	mg/L	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00057	0.00048
Chromium	mg/L	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0025	0.0014
Cobalt	mg/L	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	0.01	0.015	0.016	0.016	0.019	0.014	0.011	0.013	0.01	0.0131	0.0115
Copper	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.02	<0.01	0.075	0.07	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.00462	0.032
Iron	mg/L	0.055	0.322	0.075	0.066	0.075	--	<0.06	0.044	<0.03	<0.03	0.06	0.086	0.158	0.107	0.822	0.054	0.072	0.059	0.043	0.035	0.058	0.054	0.051	0.058	0.04
Lead	mg/L	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0001
Lithium	mg/L	<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	<0.02	<0.02	<0.01	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.025	<0.001
Manganese	mg/L	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	5.35	8.73	7.23	9.56	8.49	8.73	7.51	7.22	7.36	7.79	7.78
Molybdenum	mg/L	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.00146	0.006
Nickel	mg/L	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0037	0.0044
Phosphorus	mg/L	<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	<0.3	<0.3	<0.3	<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	--	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.0002
Silicon	mg/L	5.28	5.67	5.43	6.13	5.29	--	5.37	5.35	5.42	5.14	5.4	5.34	4.14	5.12	4.45	5.35	5.21	5.89	5.28	5.74	5.73	5.74	5.74	5.7	<0.0001
Silver	mg/L	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.00005	5.89
Strontium	mg/L	0.697	0.749	0.802	0.765	0.668	--	0.881	0.79	1.41	1.58	0.768	0.804	0.58	0.713	0.566	0.828	0.685	0.855	0.761	0.837	0.73	0.683	0.716	0.698	0.74
Thallium	mg/L	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.00005
Tin	mg/L	<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	<0.03	<0.03	<0.03	<0.03	<0.05	<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	--	<0.02	<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	<0.0005
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.005	0.0024
Zinc	mg/L	<0.005	0.0068	<0.005	<0.005	<0.005	--	<0.01	<0.005	0.194	0.162	<0.005	0.007	0.0158	<0.005	0.0139	0.0062	0.0059	0.0066	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.014

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seepage	Seepage	Seepage	Seepage	CCME AL Guidelines[1]	Water License Standards[2]
Date		15-Dec-07	28-Dec-07	10-Jan-08	24-Jan-08	14-Feb-08	28-Feb-08	13-Mar-08	27-Mar-08	10-Apr-08	24-Apr-08	9-May-08	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08	26-Nov-08	10-Dec-08	14-Jan-09		
Physical Parameters																															
pH	pH units	7.4	7.06	6.99	7.08	7.02	6.99	7	7.1	7.18	7.14	7.18	--	7.63	7.48	7.39	7.24	7.83	7.42	7.52	7.65	7.82	7	7.05	6.97	7.01	6.96	7.3	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	1730	1650	1610	1600	1740	1590	1590	1590	1590	961	1570	1540	1560	1570	1940	1800	1730	1760	1430	1610	1700	1520	1550	1540	1670	1650	1700	--	--
Routine Parameters																															
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	18	22	19	31	24	21	<2	25	21	38	28	39	70	38	24	31	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	***915***	***1250***	***1290***	***1530***	--	***1310***	***1340***	***1080***	***1210***	***1380***	***1170***	***1160***	***1210***	***1220***	***1270***	***1310***	--	50
Hardness	mg/L	758.23	754.52	763.91	719.15	739.46	728.20	751.48	720.30	745.63	389.24	677.51	618.00	733.00	739.00	862.00	822.00	788.00	778.00	639.00	714.00	800.00	--	--	--	--	--	793.00	--	--
Alkalinity-Total	mg/L	210	206	212	208	218	221	216	230	251	119	213	211	232	233	246	252	247	259	209	231	248	239	228	227	228	229	237	--	--
Bicarbonate	mg/L	255	251	259	253	266	270	264	280	306	145	259	260	283	284	300	310	301	316	255	282	302	290	280	280	280	280	289	--	--
Carbonate	mg/L	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	262	263	252	254	260	256	253	257	248	139	223	202	240	246	293	280	263	260	214	238	268	213	248	241	244	236	263	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--	--	--	10.8	12	3.4	4.4	3.93	3.6	3.8	10.7	12	17.6	3.06	0.43	1.86	2.08	2.92	11.5		
Magnesium	mg/L	32.3	31.2	34	31.9	33.8	35	34	34.2	34.2	17.8	31.4	27.6	32.7	30.4	32	29.8	32	31	25.4	28.8	31.9	31.8	34.4	34.4	33.9	32.3	33.3	--	--
Potassium	mg/L	8	7.5	7.4	7.4	7.6	7.5	7.3	7.5	7.5	4.6	6.6	5.7	7	7.1	8.9	7.56	7.5	7.6	6.8	7	7.9	5.7	6.6	6.8	7.2	6.9	7	--	--
Sodium	mg/L	100	98.6	95.1	96.2	98.4	98.2	97.3	97	99.3	50.4	86.5	78	93.9	97.7	125	72.2	97.9	102	78.6	87.9	99	71.3	90.7	85	90.4	85.4	89.8	--	--
Sulphate	mg/L	794	814	778	787	690	730	724	672	772	365	672	619	724	764	909	822	752	776	617	691	799	669	611	662	663	708	766	--	--
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	66.8	102	--	--	--	--	--	--	76.4	--	--	--	--	--	--	--	--	--
Nutrients																															
Ammonia-N	mg/L	***7.24***	***8***	***6***	***7***	***5***	***6***	***5.9***	***12.4***	***4.5***	***3.18***	***4.51***	***5.09***	***7***	***5.98***	***7.79***	***7.5***	***6.92***	***7.48***	***5.6***	***7.26***	***7.98***	***5.3***	***6.5***	***6.3***	***8.1***	***7.5***	***11***	0.015	--
Nitrate-N	mg/L	***5.06***	***5.96***	***4.65***	***3.44***	2.6	2.53	2.76	2.35	2.32	1.24	1.9	2	2.36	1.97	1.04	1.05	1.26	1.31	2.07	2.27	***3.6***	***3.69***	***3.97***	***5.27***	***5.27***	***5.33***	***4.62***	2.9	--
Nitrite-N	mg/L	***0.2***	***0.26***	***0.24***	***0.18***	***0.21***	***0.14***	***0.32***	***0.33***	***0.37***	***0.16***	***0.44***	***0.39***	***0.185***	***0.171***	***0.19***	***0.19***	0.038	0.052	***0.1***	***0.07***	***0.12***	***0.31***	***0.16***	***0.24***	***0.6***	***0.56***	***0.23***	0.06	--
Total Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide Compounds																															
Cyanide - T	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.3
Cyanate	mg/L	2.8	3.3	2.7	1.7	3.6	2	2.5	3.4	3.3	0.3	2.7	3.4	1.2	<0.2	<0.2	3	0.8	0.8	1.5	<0.2	1.2	0.7	0.8	2.4	2.1	0.6	<0.2	0.5	--
Thiocyanate	mg/L	12.3	13.6	12.9	14.5	14.9	17.2	17	18.7	19	8.1	13.7	14	14.9	16.8	31	22	28	28	17.6	16.2	19	12.5	13.7	14.8	131	11.8	13.2	--	--
CN-WAD	mg/L	0.018	0.012	0.008	0.016	0.012	0.016	0.002	0.02	0.022	0.01	0.02	0.018	0.022	0.022	0.028	0.02	0.044	0.02	0.028	0.022	0.024	0.026	0.024	0.136	0.024	0.04	0.02	--	0.1
CN-SAD	mg/L	1.7	2.6	1.5	1.2	0.52	0.96	1	0.76	1.3	0.07	1.1	0.92	0.34	2.4	1.5	10	2	2.4	0.88	5	1.4	1.2	1.8	3.2	2.2	3.2	2.8	--	--
Total Metals																															
Aluminum	mg/L	***0.298***	0.031	0.024	0.05	0.037	0.034	0.042	0.042	0.057	***0.724***	***0.147***	0.049	0.026	0.023	0.03	0.04	0.035	0.021	***0.136***	0.044	***0.15***	0.027	0.029	0.025	0.036	0.03	0.027	0.1	--
Antimony	mg/L	0.002	0.001	0.001	0.0012	0.0016	0.0014	0.001	0.0011	0.001	0.0104	0.0018	0.0011	0.001	0.0009	0.0012	0.0008	0.0008	0.0008	0.0012	0.0009	0.0009	0.0009	0.0011	0.0008	0.001	0.001	0.001	--	0.15
Arsenic	mg/L	***0.149***	***0.0398***	***0.0468***	***0.0489***	***0.0538***	***0.0482***	***0.0392***	***0.043***	***0.05***	***0.0666***	***0.0369***	***0.0316***	***0.0294***	***0.034***	***0.0467***	***0.0381***	***0.0359***	***0.0272***	***0.0449***	***0.0237***	***0.039***	***0.0339***	***0.0387***	***0.0326***	***0.0351***	***0.0357***	***0.042***	0.005	--
Barium	mg/L	0.067	0.052	0.061	0.055	0.061	0.065	0.068	0.072	0.071	0.054	0.057	0.052	0.058	0.056	0.057	0.058	0.059	0.076	0.065	0.066	0.063	0.058	0.057	0.06	0.06	0.052	0.059	--	1
Beryllium	mg/L	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Bismuth	mg/L	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--
Boron	mg/L	0.08	0.082	0.081	0.083	0.078	0.08	0.11	0.08	0.112	0.051	0.082	0.079	0.084	0.078	0.088	0.092	0.098	0.091	0.083	0.096	0.079	0.077	0.076	0.079	0.09	0.106	0.091	--	--
Cadmium	mg/L	***0.00156***	***0.00133***	***0.00118***	***0.00112***	***0.00107***	***0.00098***	***0.001***	***0.00108***	***0.00107***	***0.00137***	***0.00101***	***0.00096***	***0.00082***	***0.00066***	***0.00049***	***0.00046***	***0.00055***	***0.00055***	***0.00089***	***0.00068***	***0.00059***	***0.00067***	***0.0007***	***0.00076***	***0.00085***	***0.00104***	***0.00115***	0.000017	0.02
Calcium	mg/L	253	253	250	239	244	239	247	236	244	128	222	204	236	234	273	249	242	261	210	237	248	212	235	242	253	253	244	--	--
Chromium	mg/L	0.0022	0.0037	0.0012	0.0012	0.0008	0.0006	0.0026	0.002	0.0026	0.0019	0.0021	0.001	0.0008	0.0033	0.0006	0.001	***0.062***	0.0022	0.0012	0.0012	0.001	0.0014	0.0014	0.0011	0.0015	0.0015	0.0044	0.0089	0.04
Cobalt	mg/L	0.016	0.016	0.0154	0.0141	0.0151	0.0148	0.013	0.0147	0.016	0.0077	0.0145	0.014	0.0152	0.0165	0.0217	0.0201	0.0186	0.0172	0.0136	0.0178	0.019	0.0148	0.016	0.0158	0.0174	0.0165	0.016	--	--
Copper	mg/L	***0.028***	***0.008***	***0.016***	***0.008***	***0.007***	***0.006***	***0.006***	***0.006***	***0.006***	***0.023***	***0.011***	***0.009***	***0.006***	***0.006***	***0.006***	***0.007***	***0.009***	***0.006***	***0.014***	***0.01***	***0.01***	***0.007***	***0.008***	***0.008***	***0.009***	***0.008***	***0.008***	0.002 - 0.004	0.2
Iron	mg/L	***18***	***15***	***17***	***15.7***	***17.3***	***17.7***	***16***	***16***	***14***	***5.2***	***9***	***9***	***8.6***	***8***	***10.8***	***7.43***	***7.92***	***6.92***	***8.37***	***10.1***	***11.3***	***10.2***	***14.7***	***14.2***	***13.1***	***12.8***	***16.8***	0.3	1
Lead	mg/L	***0.0037***	0.0002	0.0002	0.0005	0.0003	0.0003	<0.0002	0.0002	0.0002	***0.0354***	0.0027	0.0007	0.0002	0.0002	0.0002	0.0006	<0.0001	<0.0001	0.0008	<0.0001	<0.0002	<0.0001	0.0002	0.0001	0.0003	0.0003	0.0002	0.001 - 0.007	0.1
Lithium	mg/L	<0.002	<0.002	0.001	0.001	0.001	0.001	<0.002	0.001	0.002	0.002	0.002	0.001	0.001	0.001	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	--	--
Magnesium	mg/L	30.7	29.8	33.9	29.7	31.6	31.9	32.7	31.8	33.1	16.9	29.9	27.6	30.9	29.9	30.7	29.6	29.8	32	25.1	28.8	30	29.5	29.4	30.9	31.2	31.2	32	--	--
Manganese	mg/L	8.54	8.37	8.36	8.06	8.35	8.23	8.18	7.53	7.59	3.71	7.05	6.62	7.51	7.39	9.07	8.1	7.65	8.34	6.44	7.58	8.42	7.31	7.62	7.81	8.37	8.42	8.27	--	0.5
Molybdenum	mg/L	<0.002	<0.002	0.002	0.002	0.002	0.002	<0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	<0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.073	--
Nickel	mg/L	0.0048	0.0048	0.0162	0.0096	0.0094	0.0056	0.0056	0.0042	0.0051	0.0013	0.0046	0.0039	0.0082	<0.0005	<0.0005	0.0106	***0.0303***	0.0054	0.0054	0.0055	0.0061	0.0056	0.0015	0.0055	0.0053	0.0037	0.0046	0.025 - 0.15	0.3
Potassium	mg/L	7.8	7.6	7.3	7	7.3	7.5	7.2	7.3	7	4.4	6.6	6.3	6.5	7.2	8.5	7.5	7.2	7.7	6.7	7	7.2	6.2	6.4	6.8	7	7.3	6.6	--	--
Selenium	mg/L	0.0008	0.0008	0.001	0.0006	0.0007	0.0006	0.001	0.0007	***0.0012***	0.0003	0.0004	0.0003	0.0005	0.0004	0.0006	<0.0002	0.0006	0.0008	0.0006	0.0005	<0.0004	0.0004	0.0004	***0.0012***	0.0005	0.0006	0.0004	0.001	--
Silicon	mg/L	6.99	6.46	6.63	6.29	6.56	6.6	6.4	6.07	5.26	4.6	5.44	4.98	5.87	6.07	6.35	5.97	5.71	6.12	5.6	6.13	6.07	5.49	6.43	5.57	6.29	5.59	5.59	--	--
Silver	mg/L	***0.002***	<0.0002	<0.0001	***0.0002***	***0.00018***	***0.0002***	0.00008	0.0001	***0.00016***	***0.00061***	***0.00011***	***0.00016***	0.00003	0.00002	0.00009	0.00007	0.00005	0.00005	0.0001	0.00006	0.00004	0.00007	0.00005	0.00007	0.00007	0.00006	0.0001	0.0001	0.1
Sodium	mg/L	97.5	97.6	93.6	89.8	95.4	99.7	95.8	95.1	95.2	47.1	84.3	83.2	94.8	95.4	121	107	96.9	106	79.1	87.6	92.9	76.4	85.2	87.3	89	91.9	86	--	--
Strontium	mg/L	0.774	0.868	0.892	0.8	0.793	0.819	0.86	0.909	0.865	0.409	0.75	0.709	0.712	0.78	0.917	0.822	0.807	0.886	0.672	0.804	0.862	0.766	0.791	0.778	0.836	0.941	0.856	--	--
Sulphur	mg/L	260	260	264	242	256	254	255	241	246	132	226	217	242	242	297	266	247	266	204	234	247	201	229	237	245	248	242	--	--
Thallium	mg/L	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0008	--
Tin	mg/L	<0.002	<0.002	<0.001	<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	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Titanium	mg/L	0.0311	0.017	0.0121	0.0128	0.0121	0.0127	0.015	0.0127	0.014	0.0191	0.0119	0.0059	0.0066	0.0055	0.0065	0.0272	0.0209	0.0213	0.0203	0.0162	0.019	0.0106	0.0106	0.0165	0.0203	0.0101	0.0153	--	--
Uranium	mg/L	--	--	--	--	0.0023	0.0023	0.0022	0.0026	0.0027	0.0014	0.0025	0.0024	0.0025	0.0028	0.0029	0.0027	0.0028	0.0024	0.0025	0.0028	0.0025	0.0031	0.0026	0.0025	0.0026	0.0026	0.0024		
Vanadium	mg/L	0.0041	0.002	0.0027	0.0029	0.003	0.003	0.002	0.0015	0.002	0.0028	0.0021	0.0018	0.0015	0.0017	0.0018	0.0009	<0.0001	0.0008	0.001	0.0011	0.0009	0.0016	0.0013	0.001	0.0014	0.0014	0.0016	--	--
Zinc	mg/L	0.024	0.02	0.029	0.024	0.018	0.015	0.02	0.02	0.016	***0.052***	0.025	0.02	0.015	0.013	0.02	0.016	0.019	0.014	***0.034***	0.021	0.024	0.015	0.015	0.017	0.018	0.018	0.024	0.03	0.3

Table A11. Water Quality Parameters in the Seepage Pond.

Sample ID	Units	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seep	Seepage	Seepage	Seepage	Seepage	CCME AL Guidelines[1]	Water License Standards[2]
Date		15-Dec-07	28-Dec-07	10-Jan-08	24-Jan-08	14-Feb-08	28-Feb-08	13-Mar-08	27-Mar-08	10-Apr-08	24-Apr-08	9-May-08	22-May-08	5-Jun-08	19-Jun-08	4-Jul-08	16-Jul-08	31-Jul-08	14-Aug-08	4-Sep-08	19-Sep-08	2-Oct-08	15-Oct-08	30-Oct-08	12-Nov-08	26-Nov-08	10-Dec-08	14-Jan-09				
Dissolved Metals																															
Aluminum	mg/L	<0.005	0.027	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	0.03	0.009	0.011	0.009	<0.005	0.007	<0.01	0.005	0.005	0.011	0.007	0.006	<0.005	<0.005	0.005	<0.005	<0.005	0.006	--	--
Antimony	mg/L	0.0009	0.001	0.0008	0.001	0.0014	0.0013	0.0012	0.0012	0.0011	0.0058	0.0012	0.0011	0.001	0.0011	0.0013	0.001	0.0008	0.0008	0.0012	0.0008	0.0009	0.001	0.0008	0.0009	0.0008	0.001	0.0011	--	--
Arsenic	mg/L	0.0025	0.0456	0.0027	0.0019	0.0023	0.0021	0.003	0.0032	0.0038	0.0198	0.0034	0.0025	0.004	0.0055	0.0033	0.0064	0.0038	0.0041	0.0034	0.0027	0.0035	0.0018	0.0018	0.0034	0.0041	0.0044	0.004	--	0.15
Barium	mg/L	0.05	0.056	0.053	0.055	0.054	0.054	0.056	0.063	0.065	0.043	0.05	0.047	0.053	0.048	0.038	0.013	0.031	0.027	0.049	0.06	0.057	0.044	0.036	0.044	0.043	0.043	0.058	--	--
Beryllium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.0001	--	--
Bismuth	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	--	--
Boron	mg/L	0.077	0.081	0.085	0.089	0.09	0.085	0.081	0.078	0.083	0.042	0.074	0.066	0.076	0.075	0.084	0.067	0.083	0.089	0.086	0.084	0.083	0.06	0.056	0.067	0.071	0.076	0.087	--	--
Cadmium	mg/L	0.00054	0.00126	0.00048	0.00047	0.00034	0.00032	0.0003	0.00049	0.00046	0.00094	0.0004	0.00059	0.00043	0.00048	0.00035	0.00026	0.00039	0.0004	0.00073	0.00052	0.00052	0.00045	0.00032	0.00039	0.00031	0.00038	0.00066	--	--
Chromium	mg/L	0.0012	0.0048	0.0016	0.0011	0.0008	<0.0005	0.0022	0.0021	0.0024	0.0006	0.0006	0.0008	0.0011	0.001	0.0006	0.0054	<0.0005	0.0014	--	0.0007	<0.0005	0.0004	0.001	0.0012	0.0013	0.0016	0.0022	--	--
Cobalt	mg/L	0.0154	0.0133	0.0116	0.0131	0.0124	0.012	0.0121	0.013	0.0138	0.0071	0.0124	0.0117	0.0144	0.0158	0.0202	0.0179	0.0145	0.0175	0.0009	0.0133	0.0147	0.0118	0.011	0.0135	0.0128	0.0128	0.0123	--	--
Copper	mg/L	0.019	0.008	0.012	0.002	0.004	0.004	0.004	0.003	0.004	0.024	0.012	0.007	0.006	0.005	0.004	0.009	0.006	0.005	0.0129	0.007	0.006	0.006	0.003	0.003	0.002	0.001	0.002	--	--
Iron	mg/L	0.15	15.5	0.11	1.87	0.08	0.13	0.21	0.48	0.16	2.29	0.07	0.18	0.07	0.05	0.1	0.13	0.05	0.04	0.01	0.07	0.06	0.059	0.56	1.35	2.9	3.65	3.5	--	--
Lead	mg/L	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0037	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0002	<0.0001	<0.0001	0.1	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	--	--
Lithium	mg/L	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	<0.0001	0.001	0.001	<0.001	0.001	0.001	0.001	0.001	0.001	--	--
Manganese	mg/L	8.43	8.51	8.3	8.4	8.82	8.67	8.06	8.11	7.76	3.76	6.82	6.27	7.44	7.94	9.86	8.56	7.88	8.34	6.49	7.68	8.99	7.66	7.91	7.67	8.54	8.6	8.76	--	--
Molybdenum	mg/L	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.00148	0.001	0.001	0.002	0.002	0.002	0.00139	0.00099	0.00127	0.00132	0.0012	0.001	--	--
Nickel	mg/L	0.0059	<0.0005	0.0016	<0.0005	<0.0005	0.0044	0.0088	0.0007	0.0023	<0.0005	<0.0005	0.0024	0.001	<0.0005	<0.0005	0.006	0.003	0.0051	0.0049	0.0018	0.0043	0.006	0.004	0.005	0.004	0.004	0.0042	--	--
Phosphorus	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02	--	--	--	--	--	0.01	<0.01	0.02	0.01	<0.01	--	--	--
Selenium	mg/L	0.0006	0.0007	0.0006	0.0003	0.0007	0.0004	0.0004	0.0006	0.0005	<0.0002	0.0002	0.0003	0.0005	0.0002	0.0003	0.0025	0.0004	0.0005	0.0003	<0.0002	<0.0002	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0003	--	--
Silicon	mg/L	6.42	6.71	6.22	6.36	6.34	6.33	6.31	6.51	6.35	3.78	5.56	5.21	5.98	6.08	6.45	5.16	6.17	6.04	5.85	6.11	6.21	5.7	6.09	6.12	6.09	6.6	6.49	--	--
Silver	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00003	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	--	--
Strontium	mg/L	0.812	0.801	0.834	0.807	0.858	0.795	0.806	0.849	0.836	0.401	0.63	0.62	0.787	0.801	0.905	0.811	0.762	0.806	0.669	0.729	0.882	0.734	0.661	0.783	0.78	0.805	0.871	--	--
Thallium	mg/L	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00003	0.00001	<0.00001	<0.00001	0.00001	<0.00005	--	--
Tin	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	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	--	--
Titanium	mg/L	0.0132	0.0192	0.0126	0.0186	0.0133	0.0124	0.014	0.013	0.0126	0.0043	0.0067	0.0046	0.0263	0.0053	0.0062	0.001	0.0198	0.0223	0.0116	0.0174	0.0103	0.0014	0.0007	0.0008	0.0016	0.0008	0.0163	--	--
Uranium	mg/L	--	--	--	--	0.0021	0.0023	0.002	0.0026	0.0027	0.0013	0.0022	0.0021	0.0025	0.0024	0.0025	0.0023	0.0028	0.0025	0.0025	0.0027	0.0024	0.0024	0.0017	0.002	0.002	0.0021	0.0024		
Vanadium	mg/L	0.0035	0.0039	0.004	0.0012	0.0031	0.0004	0.0056	0.0052	0.0054	0.0014	0.0014	0.0016	0.0015	0.0022	0.0011	0.00161	0.0007	0.0032	0.0018	0.0012	0.0006	0.00035	0.00057	0.00077	0.00082	0.00088	0.0037	--	--
Zinc	mg/L	0.009	0.012	0.007	0.014	0.01	0.009	0.01	0.009	0.011	0.024	0.015	0.017	0.01	0.01	0.011	0.009	0.007	0.007	0.019	0.011	0.013	0.006	0.007	0.008	0.007	0.007	0.011	--	--

Table A12. 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	Pit - Top	Pit - Top	Pit - Top	Pit - Top	Pit - Top	Pit - Top	Pit - Top	Pit - Top
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	14-Feb-08	19-Jun-08	16-Jul-08	14-Aug-08	2-Oct-08	12-Nov-08	10-Dec-08	14-Jan-09
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	7.48	8.06	8.01	8	8.09	7.54	7.43	7.71
Conductivity	µS/cm	1570	278	1600	--	1990	2260	605	994	1250	1320	1350	1430	1450	1670	1030	1210	1300	1350	1350	1420	1490
Routine Parameters																						
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	2	15	5	--	<2	1
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	***825***	--	***998***	***1060***	***1110***	***1110***	***1190***
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	--	627.00	745.00	774.00	812.00	--	--	934.00
Alkalinity-Total	mg/L	229	24.3	158	--	210	223	41	95.7	113	122	127	158	171	187	102	115	136	158	169	191	209
Bicarbonate	mg/L	229	24.3	158	--	210	223	41	95.7	86.7	122	106	193	208	228	124	140	166	193	210	230	254
Carbonate	mg/L	<2	<2	<2	--	<1	<2	<2	<2	26.1	<2	21	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Hydroxide	mg/L	<2	<2	<2	--	<1	<2	<2	<2	<1	<2	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calcium	mg/L	236	36.7	253	--	--	--	96.4	180	210	215	207	245	259	285	173	208	213	224	230	226	265
Chloride		--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.5	0.44	0.5	1.5	0.28	0.97	<0.4
Magnesium	mg/L	70.5	9.68	81.3	--	--	--	24.1	50.1	60.2	66.2	63	71.1	73.5	82.2	47.5	55	58.9	61.3	63	59.7	66.4
Potassium	mg/L	2.4	<2	2.8	--	--	--	<2	<2	2.2	2.4	2.5	2.5	2.7	3	1.6	2.11	2.2	2.1	2.2	2.3	2.3
Sodium	mg/L	9.3	<2	9.6	--	--	--	2.1	5.1	7.2	7.6	8	9.7	10.6	11.3	5.5	5.73	7.6	8.4	8.8	8.9	11.3
Sulphate	mg/L	747	111	815	--	1120	1290	271	481	609	627	653	733	781	784	536	614	635	664	673	650	717
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																						
Ammonia-N	mg/L	<0.02	***0.022***	***0.023***	***0.116***	***0.21***	***0.116***	<0.02	<0.02	***0.053***	***0.04***	<0.02	***0.1***	***0.13***	***0.09***	<0.05	0.011	<0.05	<0.05	<0.01	***0.03***	***0.12***
Nitrate-N	mg/L	***3.79***	0.303	1.24	--	2.12	1.7	0.363	0.528	0.0406	<0.005	<0.005	0.82	0.91	0.7	0.32	0.3	0.75	2.29	***3.19***	***3.72***	***3.3***
Nitrite-N	mg/L	0.0059	0.0022	0.0041	--	0.0089	0.0057	0.0018	0.0026	0.0198	<0.001	<0.001	<0.005	<0.02	<0.02	<0.005	***0.07***	<0.005	<0.005	<0.01	***0.22***	<0.005
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	--	--	--	--	--	--	--	--	--	--
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	0.012	0.017	0.01	0.072	0.057	0.044	0.07	0.032	0.036	0.026
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	0.009	0.009	0.0099	0.0046	0.0049	0.0067	0.0064	0.0083	0.0096	0.0092
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	***0.0175***	***0.0184***	***0.0198***	***0.0098***	***0.0122***	***0.0117***	***0.0096***	***0.0081***	***0.0087***	***0.009***
Barium	mg/L	0.019	<0.01	0.017	0.017	0.017	<0.01	<0.01	0.012	0.016	0.015	0.013	0.016	0.018	0.02	0.014	0.012	0.015	0.019	0.02	***0.022***	***0.021***
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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<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	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.1	<0.1	<0.1	<0.1	0.004	0.006	0.005	0.005	0.004	0.005	0.004	0.004	0.006	0.006
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	***0.00305***	***0.00416***	***0.00489***	***0.00655***	***0.00569***	***0.00598***	***0.0144***	***0.0154***	***0.0177***	***0.0153***
Calcium	mg/L	257	37.2	267	333	348	377	98	179	212	213	222	226	248	268	167	183	212	208	223	***244***	***245***
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	<0.0005	<0.0005	<0.0005	0.0018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
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	<0.0001	0.0002	0.0003	0.0002	0.0004	0.0002	0.0013	0.0009	0.0009	0.0005
Copper	mg/L	***0.016***	***0.012***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	***0.026***	***0.014***	***0.013***	***0.019***	***0.018***	***0.018***	***0.023***	***0.034***	***0.027***	***0.05***	***0.043***	***0.04***	***0.04***
Iron	mg/L	<0.03	0.095	<0.03	<0.03	0.044	0.064	0.059	<0.03	0.054	0.067	0.048	<0.1	<0.1	<0.1	0.1	0.13	0.11	0.2	0.12	0.1	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	0.0007	0.002	0.0012	0.0028	0.0027	***0.0033***	***0.0052***	***0.0048***	***0.0031***	0.0029
Lithium	mg/L	0.013	<0.01	0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	0.01	<0.01	0.008	0.011	0.01	0.006	0.007	0.009	0.009	0.008	0.011	0.009
Magnesium	mg/L	76.2	9.8	86	104	108	116	23.7	49.6	60.5	65.5	63.9	64.7	69.1	77.3	47.4	51.9	59.9	57.3	59	62.9	63.1
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	0.266	0.236	0.155	0.168	0.964	0.745	***0.724***	***0.664***
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	<0.001	<0.001	<0.001	<0.001	<0.001	<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	<0.05	<0.05	<0.05	<0.05	0.005	0.0027	0.0027	0.002	0.0022	0.0016	0.003	0.003	***0.0032***	***0.0029***
Potassium	mg/L	2.5	<2	3	3.5	3	3.2	<2	<2	2.2	2.5	2.5	2.3	2.8	2.8	1.8	1.9	2.2	2.2	2.1	2.3	2.2
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	<0.0002	0.0009	0.0002	0.0002	0.0004	<0.0002	<0.0002	<0.0002	0.0002	0.0003
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	5.38	2.86	2.85	3.62	4.37	4.7	5.37	5.79
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	<0.0001	<0.0001	0.00001	0.00002	0.00004	0.00004	0.00004	0.00007	0.00004	0.00005
Sodium	mg/L	10.1	<2	10	12.8	12	12.7	2.1	5.2	7.3	7.7	8.2	9.2	10.3	11	5.8	6.4	8.3	8.3	9.6	10.7	10.4
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	1.02	0.568	0.657	0.78	0.908	0.813	1.05	0.97
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	--	231	244	273	172	193	213	207	215	224	227
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	0.00009	0.0001	0.00011	0.00008	0.00009	0.00009	0.0001	0.00011	0.00012	0.00012
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	<0.001	<0.001	<0.001	<0.001	<0.001	<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	<0.01	<0.01	<0.01	0.0177	0.0135	0.0121	0.0048	0.0213	0.0153	0.0158	0.0145	0.0116	0.0128
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0045	0.0023	0.0024	0.0027	--	0.003	0.0034	0.0033
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	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0028	0.0002	0.0002	0.0002
Zinc	mg/L	***0.892***	***0.16***	***0.382***	***0.725***	***0.832***	***1.17***	***1.02***	***0.529***	***0.496***	***0.347***	***0.354***	***0.561***	***0.798***	***0.863***	***0.823***	***0.658***	***0.603***	***1.32***	***1.38***	***1.47***	***1.52***

Table A12. 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	Pit - Top	Pit - Top	Pit - Top	Pit - Top	Pit - Top	Pit - Top	Pit - Top	Pit - Top
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	14-Feb-08	19-Jun-08	16-Jul-08	14-Aug-08	2-Oct-08	12-Nov-08	10-Dec-08	14-Jan-09
Dissolved Metals																						
Aluminum	mg/L	<0.2	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.005	<0.005	0.007	<0.01	0.006	0.007	<0.005	<0.005	<0.005
Antimony	mg/L	<0.2	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.0095	0.0091	0.0098	0.0048	0.0048	0.0072	0.0074	0.0086	0.0098	0.0104
Arsenic	mg/L	0.0138	0.00265	0.0126	--	--	--	0.00336	0.00726	0.00915	0.013	0.0143	0.0177	0.0164	0.0184	0.0058	0.0066	0.0092	0.0044	0.005	0.0052	0.0077
Barium	mg/L	0.017	<0.01	0.016	--	--	--	<0.01	0.012	0.016	0.014	0.012	0.017	0.018	0.02	0.013	0.012	0.014	0.019	0.016	0.019	0.022
Beryllium	mg/L	<0.005	<0.005	<0.005	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.00004	<0.00004	<0.0001
Bismuth	mg/L	<0.2	<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	<0.0001	<0.0001	<0.0005
Boron	mg/L	<0.1	<0.1	<0.1	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	0.004	0.005	0.006	0.004	<0.004	0.005	0.005	0.006	<0.004	0.005
Cadmium	mg/L	<0.01	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	0.00241	0.0034	0.00345	0.00627	0.00575	0.00633	0.0167	0.0148	0.0153	0.0166
Chromium	mg/L	<0.01	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	<0.0005	0.0005	<0.0005	0.0016	0.0006	<0.0005	0.0006	0.0007	0.001
Cobalt	mg/L	<0.01	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.0001	0.0001	0.00033	0.0002	0.0011	0.0009	0.00077	0.0005
Copper	mg/L	0.01	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	0.01	0.015	0.008	0.013	0.015	0.03	0.027	0.025	0.032
Iron	mg/L	<0.03	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.03
Lead	mg/L	<0.05	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0001	<0.0001	<0.0001	0.0002	0.0002	0.0003	0.0004	0.0009	0.0004	0.0005
Lithium	mg/L	<0.01	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	0.01	<0.01	0.009	0.01	0.01	0.006	0.006	0.008	0.008	0.008	0.008	0.009
Manganese	mg/L	0.233	0.112	0.0291	--	--	--	0.338	0.0852	0.14	0.0107	<0.005	<0.005	<0.005	<0.005	0.217	0.154	0.151	0.836	0.723	0.666	0.7
Molybdenum	mg/L	<0.03	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	<0.001	<0.001	<0.001	0.00015	<0.001	<0.001	0.00019	0.00017	<0.001
Nickel	mg/L	<0.05	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	0.002	<0.0005	<0.0005	0.0012	0.001	0.0015	0.0025	0.004	0.003	0.003
Phosphorus	mg/L	<0.3	<0.3	<0.3	--	--	--	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	<0.01	--	--	<0.01	<0.01	--
Selenium	mg/L	<0.2	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0002	<0.0002	<0.0006	<0.0006	<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	5.65	2.86	2.43	3.69	4.62	5.45	6.43	6.54
Silver	mg/L	<0.01	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	0.725	0.11	0.823	--	--	--	0.27	0.513	0.654	0.685	0.69	0.882	0.986	1.09	0.611	0.654	0.743	0.864	0.848	0.959	1.01
Thallium	mg/L	<0.2	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.0001	0.0001	0.0001	0.00007	0.00002	0.0001	0.0001	0.00006	0.0001	0.00012
Tin	mg/L	<0.03	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	<0.001	<0.001	<0.001	0.0002	<0.001	<0.001	<0.0001	<0.0001	<0.001
Titanium	mg/L	<0.01	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	0.0126	0.0204	0.015	0.0046	0.0002	0.019	0.0095	0.0003	0.0004	0.0154
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0042	0.002	0.002	0.0025	--	0.0026	0.0026	0.0034
Vanadium	mg/L	<0.03	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	0.002	0.0007	0.0029	0.0006	0.0004	0.0013	0.0002	0.00019	0.0002	0.0025
Zinc	mg/L	0.806	0.141	0.344	--	--	--	0.974	0.511	0.337	0.184	0.027	0.519	0.683	0.74	0.761	0.632	0.64	1.34	1.46	1.26	1.56
Chlorophyll-a		--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	0.5	0.8	3	0.8	6	2
Phaeophytin		--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.5	2	<0.5	<0.5	10	1	3

[1] - Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME 2007).

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

-- - No data available

Bold - Value exceeds the Water License Standard

Bold - Value exceeds the CCME Guideline for the Protection of Freshwater Aquatic Life

Table A12. 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	Pit-Middle	Pit-Middle	Pit-Middle	Pit-Middle	Pit-Middle	Pit-Middle	Pit - Middle	Pit - Middle
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	14-Feb-08	19-Jun-08	16-Jul-08	14-Aug-08	2-Oct-08	12-Nov-08	10-Dec-08	14-Jan-09
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	7.28	7.99	7.98	8	8.09	7.22	7.19	7.51
Conductivity	µS/cm	2180	2000	--	2580	2770	1880	1850	1270	1850	1450	1740	2120	2120	1070	1210	1310	1360	1550	1670	1710
Routine Parameters																					
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	4	<2	9	6	--	<2	<1
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	***847***	--	***1010***	***1040***	***1330***	***1380***	***1410***
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	--	644.00	722.00	787.00	802.00	--	--	1090.00
Alkalinity-Total	mg/L	216	188	--	247	263	184	180	117	157	136	180	242	216	105	114	144	154	156	174	192
Bicarbonate	mg/L	216	188	--	247	263	184	180	105	157	129	219	295	263	128	140	176	188	190	210	234
Carbonate	mg/L	<2	<2	--	<1	<2	<2	<2	11.9	<2	7.5	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6
Hydroxide	mg/L	<2	<2	--	<1	<2	<2	<2	<1	<2	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calcium	mg/L	327	258	--	--	--	306	346	415	306	227	302	396	385	177	209	216	221	270	273	300
Chloride		--	--	--	--	--	--	--	--	--	--	--	--	--	<0.4	0.44	0.6	1.8	1.62	0.99	<0.4
Magnesium	mg/L	105	83.4	--	--	--	100	111	132	104	66.6	94.2	114	118	48.8	48.5	59.9	60.7	83.5	83.6	83.8
Potassium	mg/L	3.1	2.9	--	--	--	2.7	3.5	4.3	3.5	2.4	3.1	<4	<4	1.6	2.02	2.3	2.1	2.7	2.8	2.8
Sodium	mg/L	12.7	9.7	--	--	--	11.5	11.3	13.4	10.4	7.9	11	16	15	5.8	5.48	7.6	8.3	10.4	11.1	12.5
Sulphate	mg/L	1270	1180	--	1650	1690	1010	1090	609	935	705	945	1220	1060	550	621	639	656	848	857	893
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrients																					
Ammonia-N	mg/L	***0.027***	***0.024***	***0.089***	***0.271***	***0.023***	***0.033***	<0.02	***0.034***	***0.044***	<0.02	***0.1***	***0.14***	***0.07***	<0.05	0.005	<0.05	<0.05	<0.01	***0.03***	***0.13***
Nitrate-N	mg/L	2.67	0.916	--	0.31	0.603	1.49	0.993	0.25	0.25	<0.005	0.57	0.38	0.47	0.32	0.31	0.76	2.27	2.39	2.6	2.46
Nitrite-N	mg/L	***0.071***	0.0026	--	***0.082***	0.011	0.0041	0.0019	0.017	<0.001	<0.001	<0.005	<0.02	<0.02	<0.005	***0.08***	<0.005	<0.005	***0.14***	***0.54***	<0.005
Total Phosphorus	mg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	--	--
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	0.012	0.02	0.02	***0.105***	0.071	0.048	0.072	0.034	0.045	0.033
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.006	0.0043	0.0043	0.0042	0.005	0.0065	0.0064	0.0056	0.0054	0.0045
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.0158***	***0.0229***	***0.019***	***0.0141***	***0.0129***	***0.0114***	***0.0092***	***0.0062***	***0.0069***	***0.0066***
Barium	mg/L	<0.01	0.017	0.012	0.012	<0.01	0.011	0.014	0.013	0.014	0.013	0.016	0.01	0.02	0.016	0.013	0.016	0.02	0.018	***0.017***	***0.015***
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<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	<0.2	<0.2	<0.2	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<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	<0.1	<0.1	<0.1	0.004	0.006	0.005	0.004	0.004	0.005	0.004	0.004	0.005	0.006
Cadmium	mg/L	***0.017***	<0.01	<0.01	***0.012***	<0.01	<0.01	<0.01	***0.012***	<0.01	<0.01	***0.00822***	***0.0159***	***0.013***	***0.00909***	***0.00572***	***0.00588***	***0.0147***	***0.0251***	***0.0242***	***0.0286***
Calcium	mg/L	328	266	371	434	422	300	328	425	293	233	288	354	351	226	183	211	213	285	***284***	***304***
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006
Cobalt	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0001	0.0008	0.0006	0.0003	0.0004	0.0002	0.0014	0.0015	0.0012	0.0013
Copper	mg/L	***0.011***	<0.01	***0.011***	<0.01	<0.01	***0.016***	***0.025***	***0.038***	***0.02***	***0.014***	***0.018***	***0.023***	***0.02***	***0.031***	***0.035***	***0.027***	***0.05***	***0.084***	***0.071***	***0.085***
Iron	mg/L	0.033	<0.03	<0.03	0.262	***0.479***	0.064	0.05	0.082	0.08	0.054	<0.1	0.2	<0.2	0.2	0.15	0.11	0.21	0.16	0.12	0.09
Lead	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0006	0.0009	0.0008	***0.0056***	***0.0032***	0.003	***0.0054***	***0.0039***	0.0028	0.0019
Lithium	mg/L	0.011	<0.01	<0.01	0.014	0.017	<0.01	<0.01	<0.01	0.014	0.01	0.01	0.02	0.01	0.008	0.007	0.008	0.009	0.011	0.012	0.012
Magnesium	mg/L	109	85.8	114	159	150	98.7	106	136	100	69.9	89.4	108	109	68.5	52	59.6	58.8	84.8	84.3	91.7
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	0.752	0.62	0.156	0.17	0.821	1.4	***1.21***	***1.52***
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	<0.002	<0.002	<0.001	<0.001	<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	<0.05	<0.05	<0.05	0.0028	0.0034	0.0034	0.0024	0.0016	0.0016	0.003	0.0038	***0.0035***	***0.0038***
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	3.6	2.5	1.9	2.2	2.1	2.7	2.9	3
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0002	<0.0004	<0.0004	0.0003	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0005
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	3.79	3.43	2.9	3.58	4.46	4.44	4.06	4.37
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0002	<0.00002	0.00002	***0.0003***	0.00003	0.00005	0.00005	0.00005	0.00005
Sodium	mg/L	13.1	10	13.4	14.2	14.4	11.2	10.8	13.8	9.9	8.6	10.8	15	13	8.4	6.6	8.2	8.4	11.5	12.9	13.9
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	1.12	0.761	0.663	0.783	0.92	0.946	1.07	1.08
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	304	379	373	240	192	212	211	298	293	321
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0001	0.0001	0.0001	0.0001	0.00009	0.00009	0.0001	0.00014	0.00012	0.00014
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	<0.002	<0.002	<0.001	<0.001	<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	<0.01	0.01	0.0236	0.0201	0.016	0.0065	0.0208	0.0155	0.0162	0.0211	0.0162	0.0192
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.0054	0.0034	0.0024	0.0027	--	0.0037	0.0034	0.004
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.0002	0.0004	0.0002	0.0003	0.0002	0.0001	0.0028	0.0002	0.0002	0.0002
Zinc	mg/L	***1.57***	***0.38***	***1.2***	***1.32***	***1.23***	***1.18***	***0.926***	***1.27***	***0.835***	***0.448***	***1.1***	***2.26***	***1.83***	***1.22***	***0.699***	***0.627***	***1.32***	***2.18***	***2.17***	***2.7***

Table A12. 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	Pit-Middle	Pit-Middle	Pit-Middle	Pit-Middle	Pit-Middle	Pit-Middle	Pit - Middle	Pit - Middle
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	14-Feb-08	19-Jun-08	16-Jul-08	14-Aug-08	2-Oct-08	12-Nov-08	10-Dec-08	14-Jan-09
Dissolved Metals																					
Aluminum	mg/L	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.005	<0.005	0.007	<0.01	0.007	0.007	<0.005	<0.005	<0.005
Antimony	mg/L	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.0062	0.004	0.0042	0.0048	0.0047	0.0072	0.0075	0.0058	0.0054	0.0068
Arsenic	mg/L	0.0199	0.0135	--	--	--	0.00615	0.00922	0.00766	0.0107	0.0129	0.0147	0.0116	0.0118	0.0059	0.0069	0.0089	0.0045	0.0027	0.0032	0.0059
Barium	mg/L	<0.01	0.017	--	--	--	0.011	0.013	0.012	0.014	0.013	0.017	0.014	0.017	0.012	0.011	0.014	0.019	0.015	0.015	0.018
Beryllium	mg/L	<0.005	<0.005	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.00004	<0.00004	<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	<0.0001	<0.0001	<0.0005
Boron	mg/L	<0.1	<0.1	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	0.003	0.005	0.005	0.003	<0.004	0.004	0.003	0.005	<0.004	0.005
Cadmium	mg/L	0.017	<0.01	--	--	--	0.01	0.01	0.011	<0.01	<0.01	0.00599	0.0144	0.0101	0.00608	0.00552	0.00646	0.0166	0.0232	0.0227	0.0249
Chromium	mg/L	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	0.0008	0.002	0.0022	<0.0005	0.0014	0.0005	<0.0005	0.0006	0.0008	0.0011
Cobalt	mg/L	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.0001	0.0003	0.00026	0.0002	0.0011	0.00141	0.00117	0.0008
Copper	mg/L	0.012	<0.01	--	--	--	<0.01	0.021	0.024	<0.01	<0.01	0.017	0.009	0.017	0.008	0.012	0.016	0.03	0.058	0.054	0.058
Iron	mg/L	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.010	<0.01	<0.01
Lead	mg/L	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0001	<0.0001	<0.0001	0.0002	0.0002	0.0005	0.0004	0.0004	0.0002	0.0002
Lithium	mg/L	0.01	0.01	--	--	--	<0.01	<0.01	<0.01	0.015	<0.01	0.009	0.014	0.014	0.006	0.006	0.008	0.008	0.01	0.008	0.011
Manganese	mg/L	0.785	0.0317	--	--	--	0.558	0.599	0.395	<0.005	0.0112	<0.005	0.59	0.14	0.208	0.15	0.156	0.826	1.29	1.23	1.28
Molybdenum	mg/L	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	<0.001	<0.001	<0.001	0.00013	<0.001	<0.001	0.0001	0.00004	<0.001
Nickel	mg/L	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	0.0022	<0.0005	<0.0005	0.0011	0.001	0.0016	0.0025	0.004	0.004	0.0036
Phosphorus	mg/L	<0.3	<0.3	--	--	--	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	<0.01	--	--	0.01	0.01	--
Selenium	mg/L	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.0003	<0.0002	0.0003	0.0002	<0.0006	<0.0002	<0.0002	<0.0006	<0.0006	0.0004
Silicon	mg/L	3.69	3.62	--	--	--	3.67	3.17	3.26	3.27	3.15	4.48	4.3	4.2	2.89	2.32	3.7	4.56	4.55	4.9	5.14
Silver	mg/L	0.011	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00004
Strontium	mg/L	0.87	0.841	--	--	--	0.869	0.962	1.09	0.943	0.734	1.03	1.18	1.21	0.612	0.652	0.742	0.875	0.937	1.02	1.05
Thallium	mg/L	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.00012	0.00014	0.00013	0.00007	0.00003	0.0001	0.0001	0.00007	0.00012	0.00014
Tin	mg/L	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.0001	<0.0001	<0.001
Titanium	mg/L	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	0.0171	0.0309	0.0238	0.0049	0.0004	0.0192	0.0103	0.0003	0.0003	0.0209
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.0053	0.0021	0.002	0.0026	--	0.003	0.0036	0.0038
Vanadium	mg/L	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	0.0025	0.0049	0.0054	0.0006	0.00036	0.0013	0.0002	0.00017	0.00026	0.0028
Zinc	mg/L	1.61	0.356	--	--	--	1.17	1.07	1.22	0.778	0.221	1.05	1.87	1.62	0.805	0.698	0.356	1.38	1.9	1.86	2.22
Chlorophyll-a		--	--	--	--	--	--	--	--	--	--	--	--	--	7.1	2	1.4	3	3	2	0.5
Phaeophytin		--	--	--	--	--	--	--	--	--	--	--	--	--	1.4	2	<0.5	<0.5	1	0.8	2

Table A12. 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	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit - Bottom	Pit - Bottom	CCME AL Guidelines[1]	Water License Standards[2]
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	14-Feb-08	19-Jun-08	16-Jul-08	14-Aug-08	2-Oct-08	12-Nov-08	10-Dec-08	14-Jan-09		
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	7.13	7.58	7.51	7.5	7.94	7.01	7.05	7.26	6.5 - 9.0	6.0 to 8.5
Conductivity	µS/cm	3140	3080	--	2790	3030	2460	2530	2350	2630	2320	2630	2590	2720	2190	1700	2320	1660	2340	2500	2550	--	--
Routine Parameters																						
Total Suspended Sediment	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	374	<2	11	5	--	4	2	--	--
Total Dissolved Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	***1860***	--	***1990***	***1320***	***2230***	***2270***	***2250***	--	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	--	1390.00	1250.00	1540.00	1020.00	--	--	1720.00	--	--
Alkalinity-Total	mg/L	281	258	--	265	276	232	236	203	223	216	250	262	260	221	164	231	162	231	250	246	--	--
Bicarbonate	mg/L	281	258	--	265	276	232	236	203	223	216	305	320	317	270	200	282	197	280	300	300	--	--
Carbonate	mg/L	<2	<2	--	<1	<2	<2	<2	<2	<2	<2	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	--
Hydroxide	mg/L	<2	<2	--	<1	<2	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	--
Calcium	mg/L	488	429	--	--	--	388	501	211	483	392	533	497	507	365	342	403	269	408	396	444	--	--
Chloride		--	--	--	--	--	--	--	--	--	--	--	--	--	0.6	0.61	0.9	1.3	1.23	1.37	0.7		
Magnesium	mg/L	234	217	--	--	--	150	177	60.1	151	128	164	176	172	118	97.1	130	84.1	144	141	148	--	--
Potassium	mg/L	6.2	6.5	--	--	--	4.2	5.7	2.2	5	4.3	6	6	6	3.9	3.36	4.6	2.6	4.7	4.8	5	--	--
Sodium	mg/L	18.8	15.9	--	--	--	14	15	7.1	14	11.8	16	17	16	12.1	9.16	13.5	9.7	14.8	14.4	18.9	--	--
Sulphate	mg/L	2030	1960	--	1810	1930	1540	319	539	1480	1330	1660	1740	1670	1220	944	1300	862	1500	1510	1480	--	--
Turbidity	NTU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Nutrients																							
Ammonia-N	mg/L	***0.119***	***0.365***	***0.448***	***0.242***	<0.02	***0.199***	***0.032***	<0.02	***0.109***	***0.206***	***0.25***	***0.36***	***0.2***	***0.2***	0.006	***0.06***	<0.05	***0.24***	***0.34***	***0.3***	0.015	--
Nitrate-N	mg/L	0.365	0.032	--	<0.1	0.58	0.449	0.0546	0.389	0.197	0.131	<0.05	<0.02	0.06	0.17	0.32	0.22	1.68	0.59	0.53	0.4	2.9	--
Nitrite-N	mg/L	***0.076***	0.0211	--	<0.02	<0.02	0.0218	0.0021	<0.001	0.0236	0.0016	<0.02	<0.02	<0.02	<0.02	***0.09***	<0.02	<0.005	***0.29***	<0.01	<0.02	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	--	--	--	--	--	--	--	--	--	--	--	--
Total Metals																							
Aluminum	mg/L	***1.07***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.01	0.096	0.02	***0.515***	0.088	***0.12***	0.072	0.039	0.041	0.028	0.1	--
Antimony	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0007	0.0008	0.0009	0.0037	0.0042	0.0025	0.0054	0.0022	0.0028	0.0024	--	0.15
Arsenic	mg/L	<0.2	<0.2	<0.2	<0.2	***0.24***	<0.2	<0.2	<0.2	<0.2	<0.2	***0.116***	***0.108***	***0.101***	***0.0443***	***0.0139***	***0.0238***	***0.0081***	***0.006***	0.0062	0.0062	0.005	--
Barium	mg/L	0.04	0.015	0.016	0.014	0.011	0.011	0.012	0.016	<0.01	<0.01	0.02	0.02	0.026	0.026	0.014	0.02	0.019	0.017	***0.017***	***0.01***	--	1
Beryllium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0002	--	--
Bismuth	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.001	--	--
Boron	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.006	0.007	0.006	0.004	0.005	0.009	0.004	0.005	0.007	0.007	--	--
Cadmium	mg/L	***0.029***	<0.01	<0.01	***0.01***	<0.01	***0.01***	***0.015***	<0.01	***0.011***	***0.012***	***0.0135***	***0.011***	***0.011***	***0.0103***	***0.0111***	***0.0136***	***0.0224***	***0.03***	***0.026***	***0.0291***	0.000017	0.02
Calcium	mg/L	479	450	471	412	475	399	486	209	432	407	493	459	465	342	263	406	252	438	***428***	***423***	--	--
Chromium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	0.002	<0.001	<0.0005	0.004	<0.001	<0.0005	<0.0005	<0.0005	<0.001	0.0089	0.04
Cobalt	mg/L	<0.01	0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	0.0034	0.0051	0.0047	0.0025	0.0007	0.002	0.0018	0.0037	0.0038	0.0028	--	--
Copper	mg/L	***0.095***	<0.01	<0.01	<0.01	<0.01	<0.01	***0.016***	***0.029***	***0.015***	***0.014***	***0.023***	***0.021***	***0.021***	***0.036***	***0.07***	***0.041***	***0.092***	***0.103***	0.06	0.072	0.002 - 0.004	0.2
Iron	mg/L	***3.82***	***1.8***	***5.47***	***1.31***	***8.45***	0.061	0.081	0.087	0.211	***0.651***	***2***	***3.5***	***3.4***	***1.5***	0.2	***0.47***	0.25	0.17	0.24	0.37	0.3	1
Lead	mg/L	***0.116***	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.002	***0.0039***	0.002	***0.022***	***0.0037***	***0.0089***	***0.0051***	***0.0031***	0.0019	0.002	0.001 - 0.007	0.1
Lithium	mg/L	0.025	0.028	<0.01	0.014	0.016	0.012	<0.02	<0.01	0.018	0.016	0.02	0.02	0.02	0.011	0.01	0.01	0.011	0.017	0.018	0.01	--	--
Magnesium	mg/L	237	203	196	148	216	156	174	61.2	139	133	152	161	160	114	81.8	130	76.6	149	147	139	--	--
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	5.39	3.45	0.526	2.87	1.4	6.32	***6.66***	***6.23***	--	0.5
Molybdenum	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.002	<0.002	<0.002	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.002	0.073	--
Nickel	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0041	0.004	0.0039	0.0031	0.0036	0.0038	0.004	0.0058	***0.0055***	***0.0056***	0.025 - 0.15	0.3
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	5.6	4.2	2.8	4.4	2.5	4.9	4.9	4.7	--	--
Selenium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.001	0.001	<0.0004	0.0002	0.0008	<0.0004	0.0002	0.0004	0.0004	<0.0004	0.001	--
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	4.09	4.78	3.37	4.21	4.25	4.35	4.44	4.59	--	--
Silver	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0002	<0.0002	0.00004	***0.00017***	0.00005	***0.00014***	0.00004	0.00006	0.00005	0.00007	0.0001	0.1
Sodium	mg/L	19.6	16.5	16.2	13.8	16.9	14.2	15.1	6.8	13.6	13.2	15	16	15	12.1	9.6	14	9.8	15.9	16.7	16	--	--
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	1.38	1.09	0.935	1.3	1.04	1.29	1.54	1.36	--	--
Sulphur	mg/L	--	--	--	--	--	--	--	--	--	--	533	531	531	381	288	440	264	498	480	482	--	--
Thallium	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0002	0.0002	0.0002	0.00013	0.00012	0.0001	0.00013	0.00018	0.00013	0.0001	0.0008	--
Tin	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.002	<0.002	<0.002	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.002	--	--
Titanium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.0401	0.0293	0.0258	0.0135	0.031	0.0314	0.0206	0.0355	0.0252	0.0282	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.005	0.0043	0.0037	0.0046	--	0.0051	0.0044	0.0047		
Vanadium	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.0002	0.0007	0.0002	0.0016	0.0002	<0.0002	0.0033	0.0002	0.0003	0.0003	--	--
Zinc	mg/L	***2.09***	***1.49***	***0.958***	***1.16***	***0.696***	***1.25***	***1.43***	***0.422***	***1.18***	***1.22***	***1.69***	***1.3***	***1.21***	***1.41***	***1.36***	***1.56***	***1.97***	***2.87***	***2.46***	***2.77***	0.03	0.3

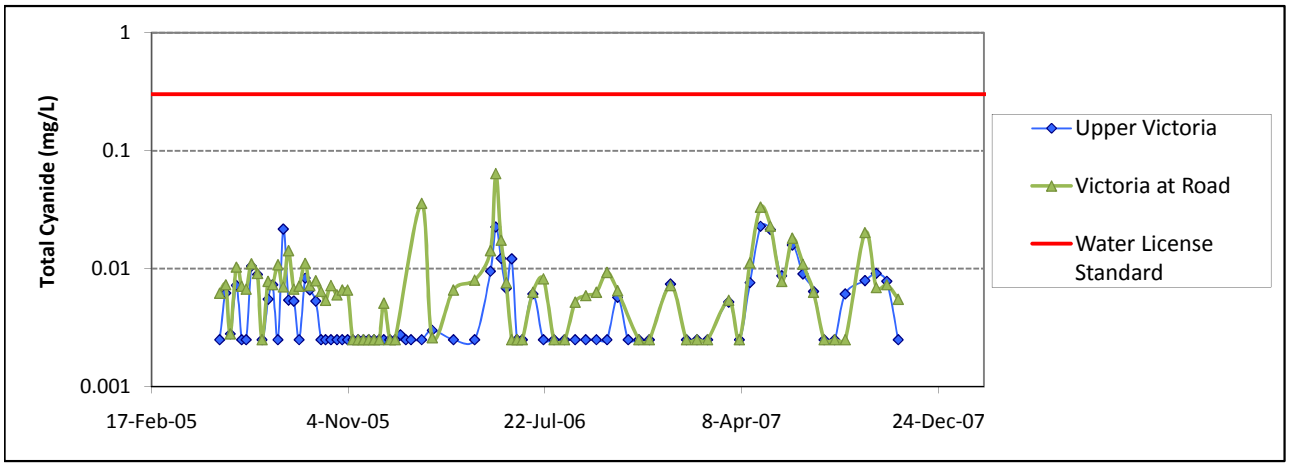
Table A12. Water Quality Parameters in the Brown - McDade Pit.

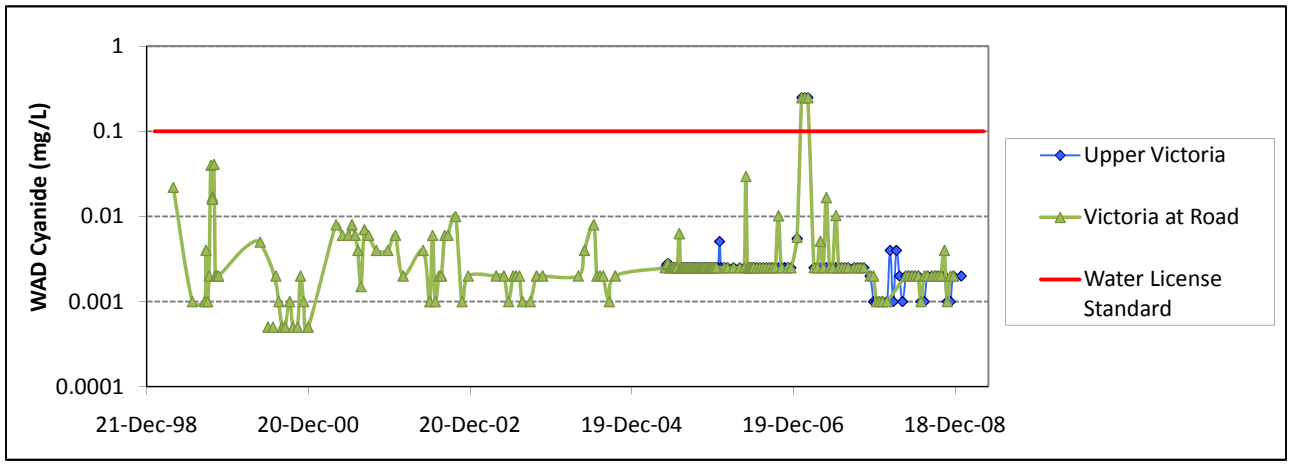
Sample ID	Units	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit-Bottom	Pit - Bottom	Pit - Bottom	CCME AL Guidelines[1]	Water License Standards[2]
Date		15-Dec-05	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	14-Feb-08	19-Jun-08	16-Jul-08	14-Aug-08	2-Oct-08	12-Nov-08	10-Dec-08	14-Jan-09		
Dissolved Metals																							
Aluminum	mg/L	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.007	<0.005	<0.005	<0.05	--	--
Antimony	mg/L	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.0006	0.0004	0.0002	0.0028	0.0034	0.0022	0.0059	0.0026	0.0024	0.002	--	--
Arsenic	mg/L	0.0047	0.00216	--	--	--	0.00401	0.00482	0.00873	0.0104	0.00338	0.0091	0.0032	0.0027	0.0057	0.0052	0.0087	0.0024	0.0024	0.0007	<0.002	--	0.15
Barium	mg/L	0.015	0.016	--	--	--	0.011	0.012	0.015	<0.01	<0.01	0.017	0.016	0.018	0.017	0.014	0.017	0.019	0.013	0.012	0.01	--	--
Beryllium	mg/L	<0.005	<0.005	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.00004	<0.0001	<0.0001	<0.00004	<0.00004	<0.001	--	--
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	<0.0001	<0.0001	<0.005	--	--
Boron	mg/L	<0.1	<0.1	--	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	0.006	0.006	0.006	0.004	<0.004	0.005	0.004	0.005	<0.004	<0.02	--	--
Cadmium	mg/L	0.021	<0.01	--	--	--	<0.01	0.016	<0.01	<0.01	0.011	0.00972	0.00013	0.00009	0.00841	0.0118	0.0135	0.026	0.0304	0.0229	0.0246	--	--
Chromium	mg/L	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	0.0012	0.0025	0.0021	<0.0005	0.0023	0.001	<0.0005	0.0008	0.0012	<0.005	--	--
Cobalt	mg/L	<0.01	0.014	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	0.003	0.0044	0.004	0.0022	0.00036	0.0004	0.0018	0.00323	0.00358	0.003	--	--
Copper	mg/L	<0.01	<0.01	--	--	--	<0.01	0.013	0.01	<0.01	<0.01	0.012	0.018	0.01	0.004	0.024	0.02	0.082	0.086	0.033	0.06	--	--
Iron	mg/L	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.010	<0.01	<0.1	--	--
Lead	mg/L	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.0001	<0.0001	<0.0001	0.0003	0.0001	<0.0001	0.0003	0.0004	<0.0001	<0.001	--	--
Lithium	mg/L	0.023	0.027	--	--	--	0.013	<0.02	<0.01	0.019	0.014	0.014	0.019	0.018	0.012	0.01	0.014	0.01	0.014	0.014	0.01	--	--
Manganese	mg/L	3.08	11.1	--	--	--	3.59	3.1	0.139	0.0609	1.15	4.47	5.71	5.89	3.75	1.02	2.98	1.63	5.72	7.72	6.94	--	--
Molybdenum	mg/L	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	<0.001	<0.001	<0.001	0.0001	<0.001	<0.001	0.00006	0.00004	<0.01	--	--
Nickel	mg/L	<0.05	<0.05	--	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	0.0032	<0.0005	<0.0005	0.0028	0.002	0.0035	0.0032	0.007	0.005	<0.005	--	--
Phosphorus	mg/L	<0.3	<0.3	--	--	--	<0.3	<0.3	<0.3	<0.3	<0.3	--	--	--	--	<0.01	--	--	0.02	<0.01	--	--	--
Selenium	mg/L	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0002	<0.0002	<0.0006	<0.0006	<0.002	--	--
Silicon	mg/L	3.95	3.68	--	--	--	3.5	3.82	3.05	3.54	3.62	4.75	4.5	4.1	3.96	2.9	4.14	4.14	4.25	4.49	4.9	--	--
Silver	mg/L	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0001	--	--
Strontium	mg/L	1.31	1.28	--	--	--	1.01	1.21	0.652	1.18	1.11	1.32	1.43	1.53	1.19	1.04	1.23	1.01	1.39	1.41	1.43	--	--
Thallium	mg/L	<0.2	<0.2	--	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	0.00015	<0.00005	<0.00005	0.0001	0.00006	0.00012	0.00013	0.0001	0.0001	<0.0005	--	--
Tin	mg/L	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.0001	<0.0001	<0.01	--	--
Titanium	mg/L	<0.01	<0.01	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	0.0188	0.0433	0.034	0.0102	0.0004	0.0395	0.0125	0.0003	0.0003	0.033	--	--
Uranium	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	0.0047	0.0038	0.0034	0.0039	--	0.0041	0.0036	<0.005		
Vanadium	mg/L	<0.03	<0.03	--	--	--	<0.03	<0.03	<0.03	<0.03	<0.03	0.0034	0.0056	0.0053	0.0013	0.00061	0.0024	0.0002	0.00029	0.00038	0.003	--	--
Zinc	mg/L	1.75	1.56	--	--	--	1.22	1.46	0.219	1.04	1.08	1.43	0.493	0.419	1.23	1.46	1.47	2.12	2.47	1.69	2.37	--	--
Chlorophyll-a		--	--	--	--	--	--	--	--	--	--	--	--	--	6	8	3	6	2	1	0.5	--	--
Phaeophytin		--	--	--	--	--	--	--	--	--	--	--	--	--	6	8	2	<0.5	0.8	0.7	0.8	--	--

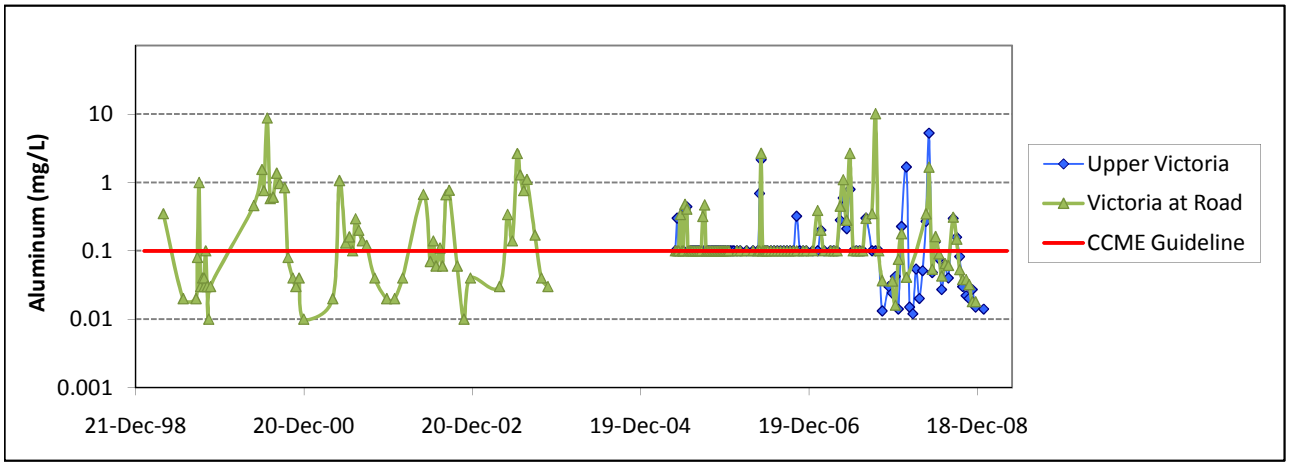
Due to the extensive size of Appendix A, it was not produced in print copy. A digital copy of the compiled water quality data for the Mt. Nansen site can be found on the accompanying compact disk.

Appendix B. Graphical Presentation of Selected Water Quality

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







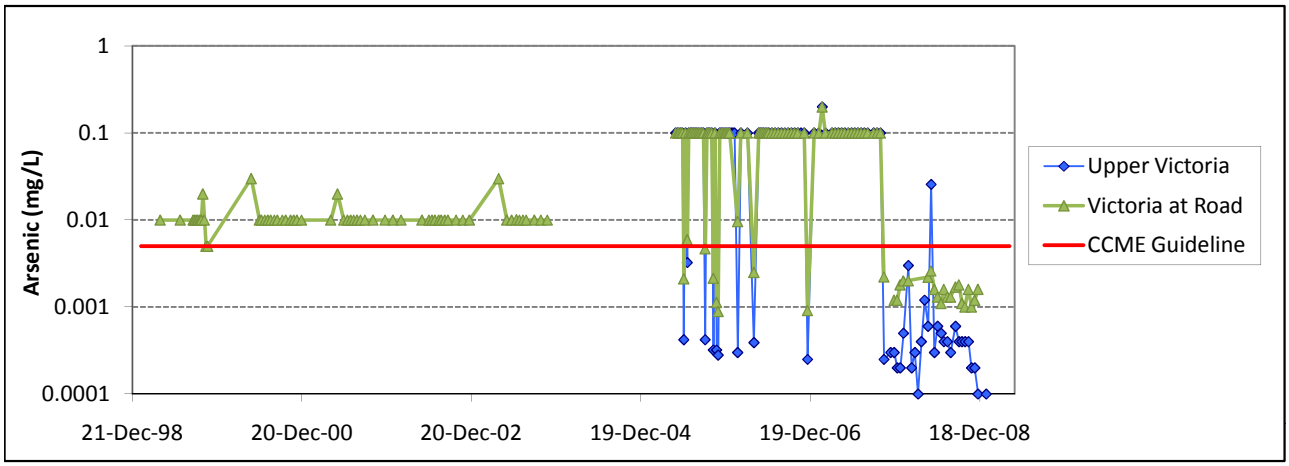
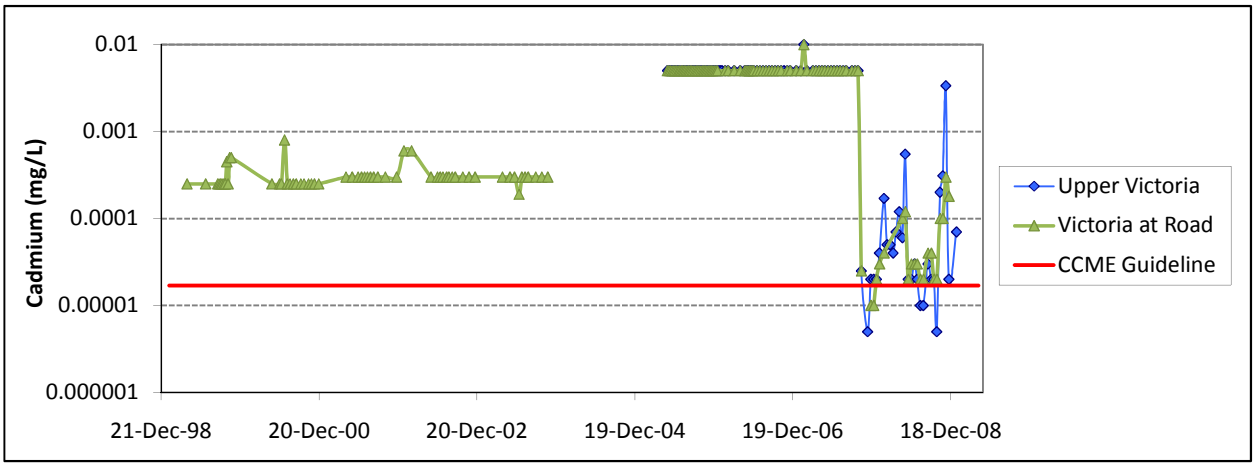
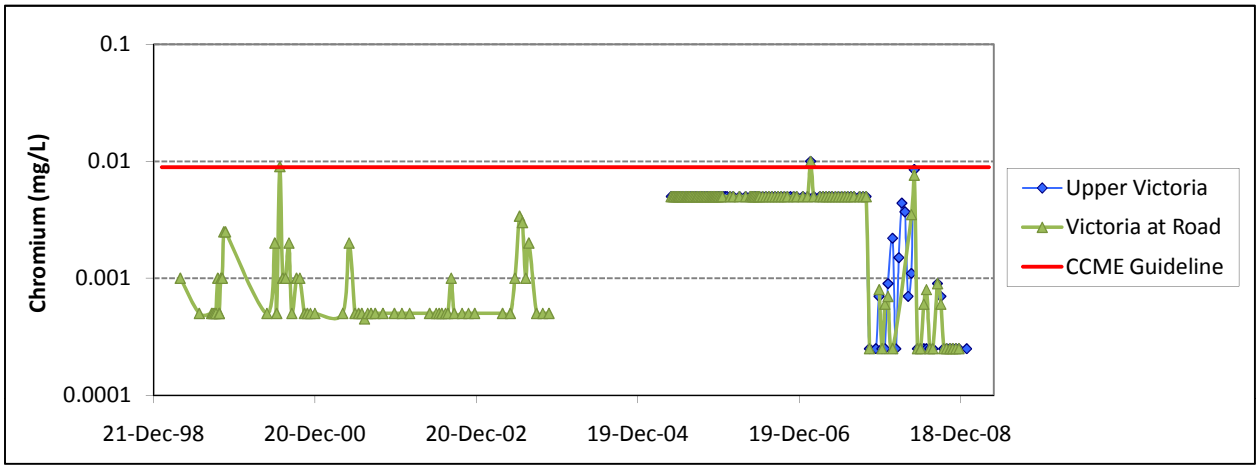
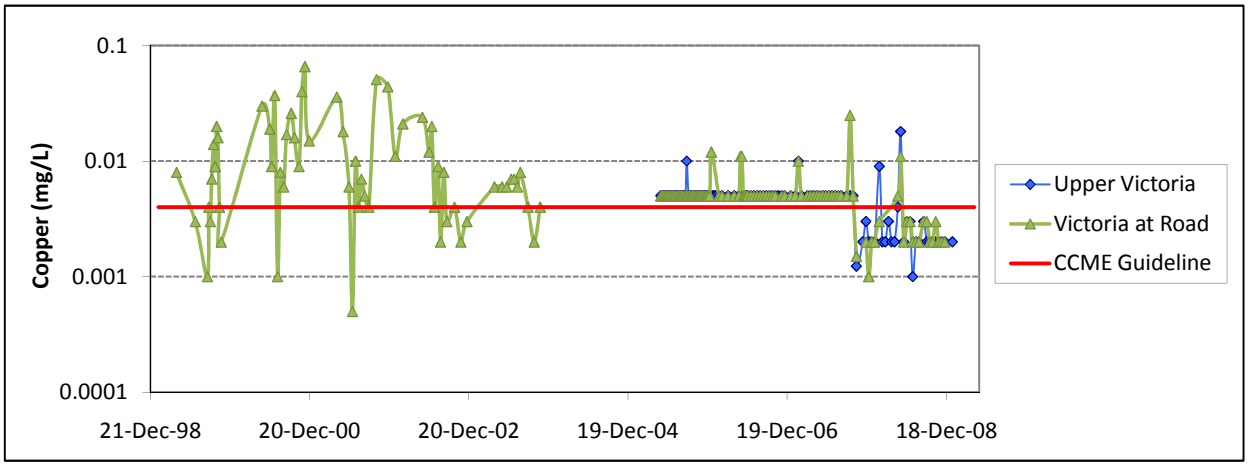


Figure B1. Historical trends of selected water quality parameters in Victoria Creek continued.







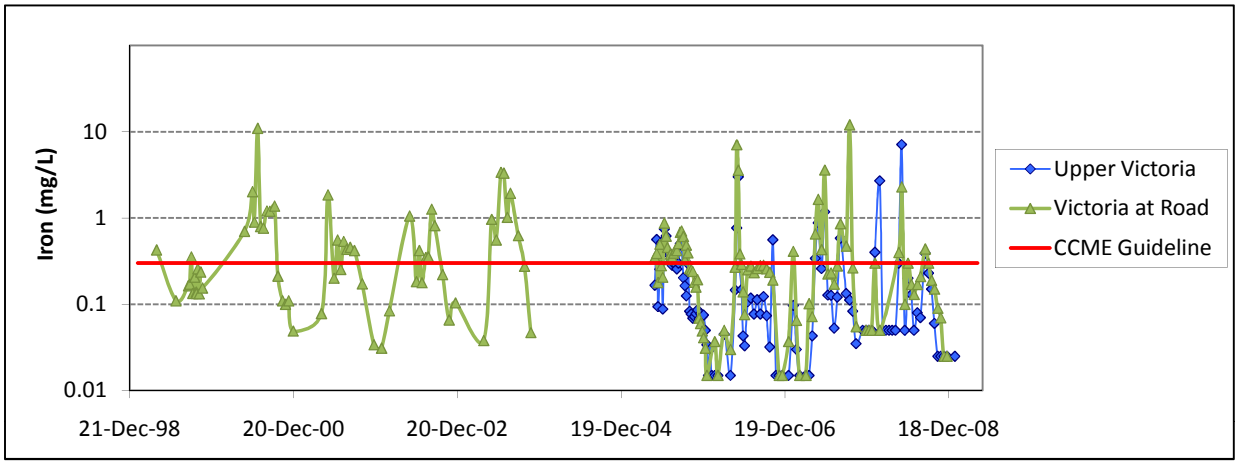
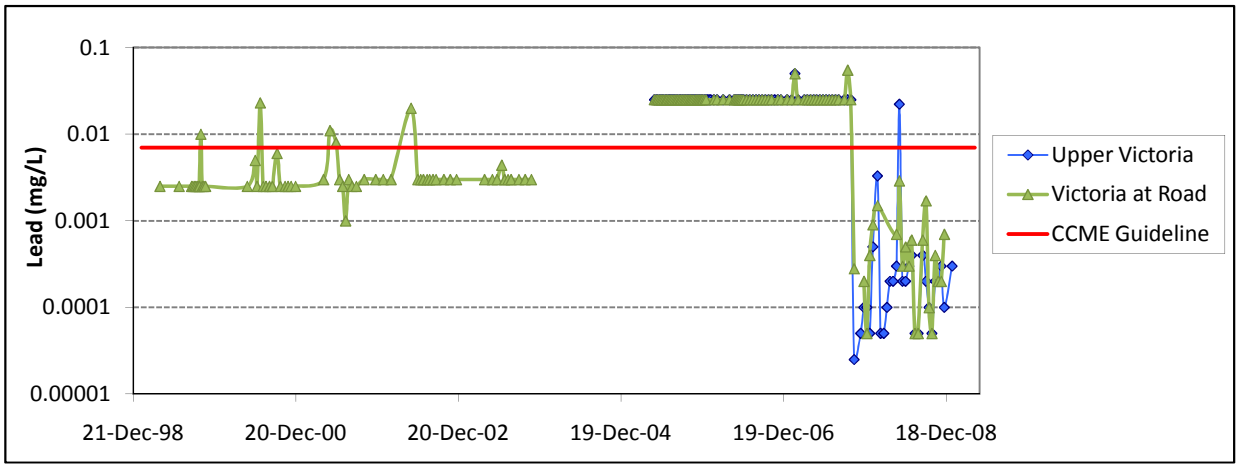
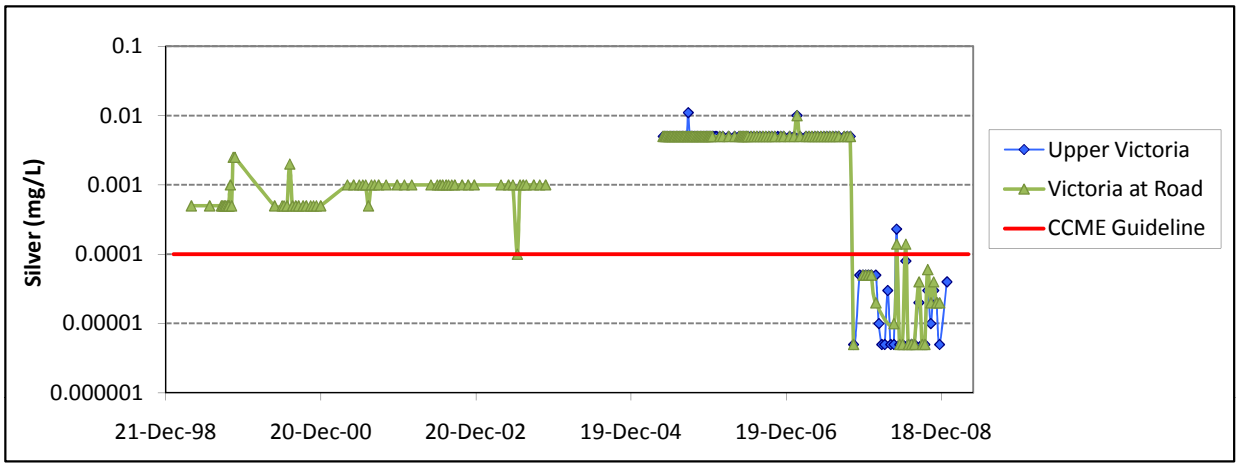
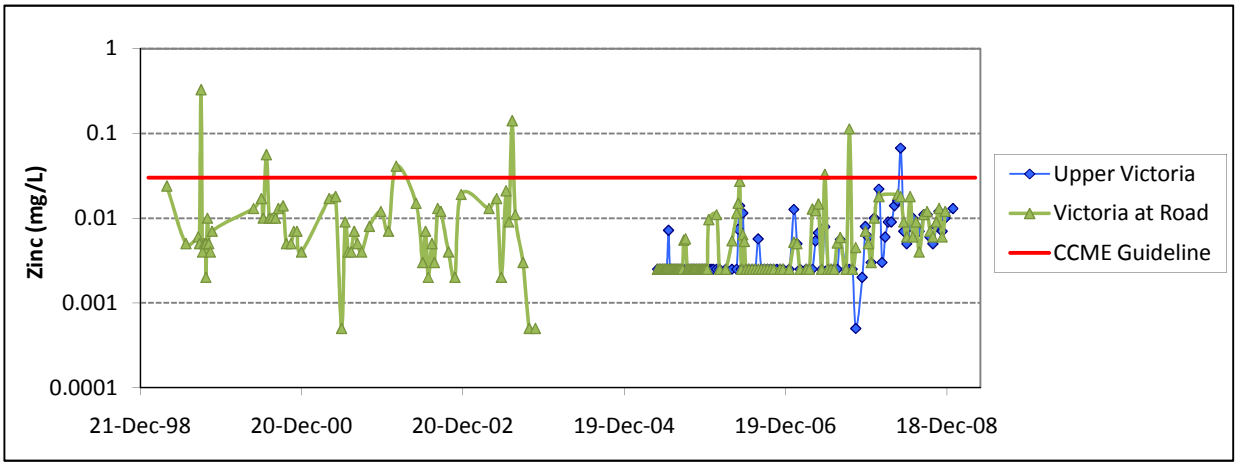


Figure B1. Historical trends of selected water quality parameters in Victoria Creek continued.

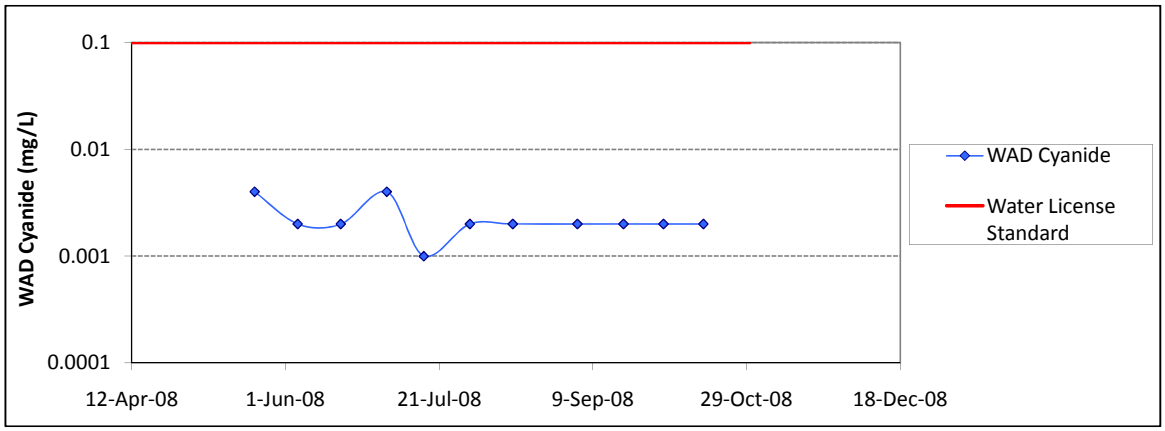


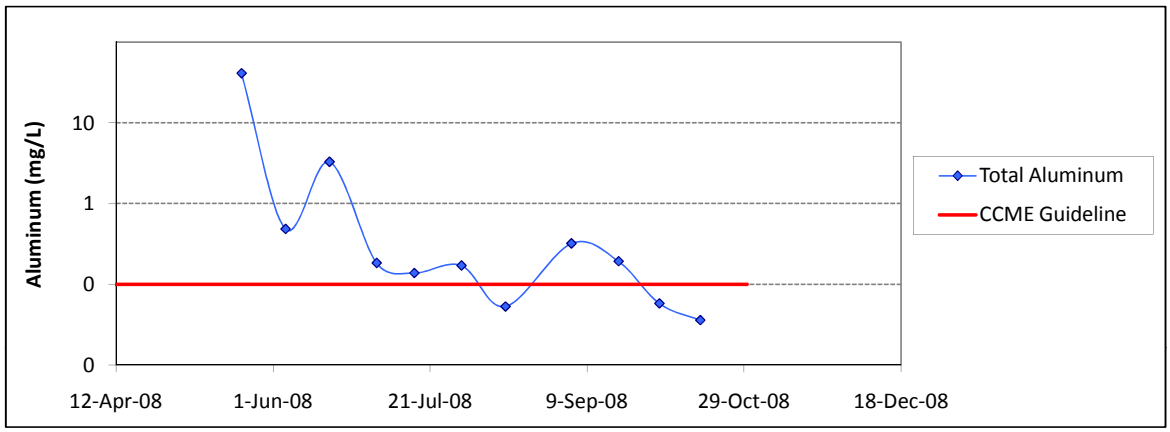


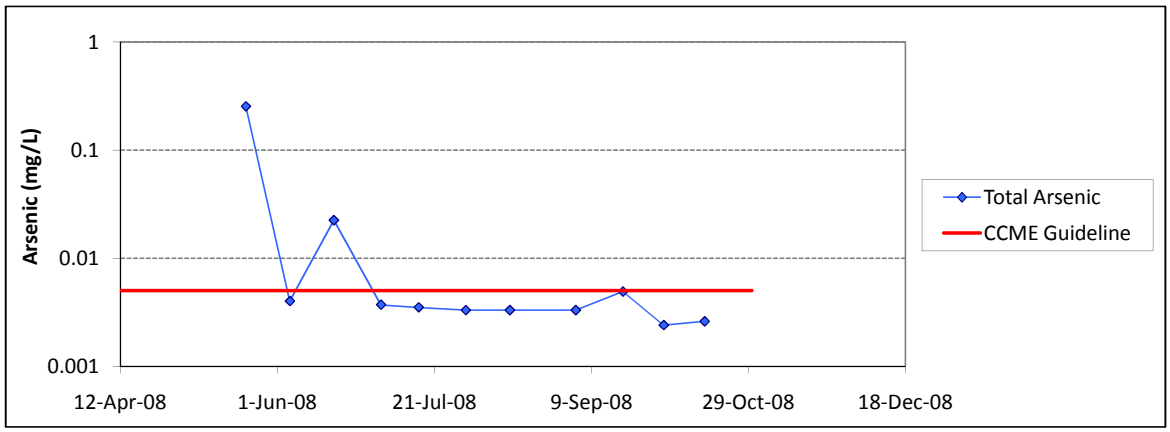


Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

Figure B2. Historical trends of selected water quality parameters in Back Creek.







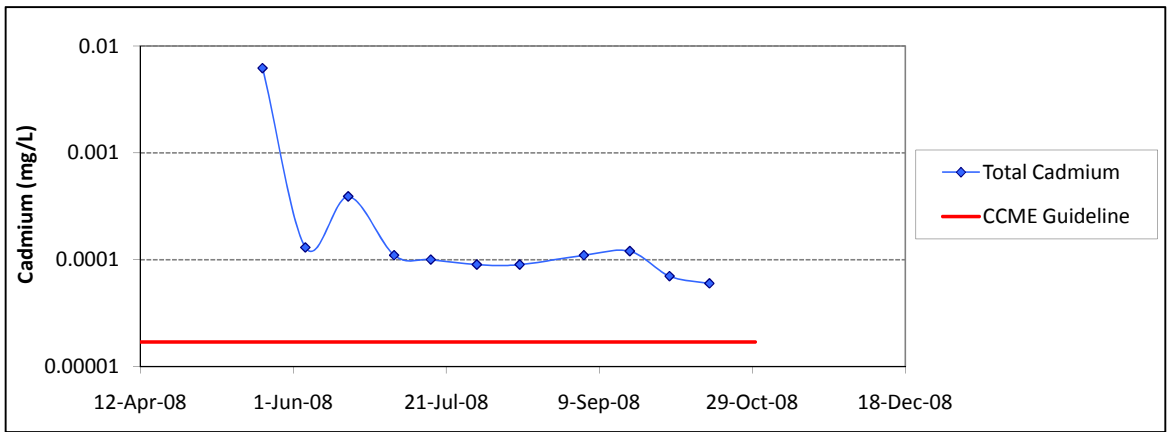
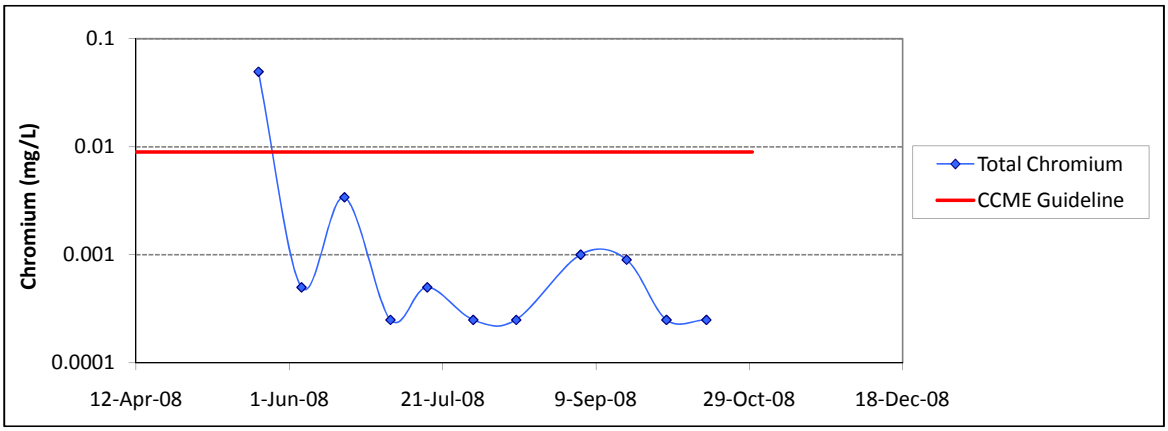
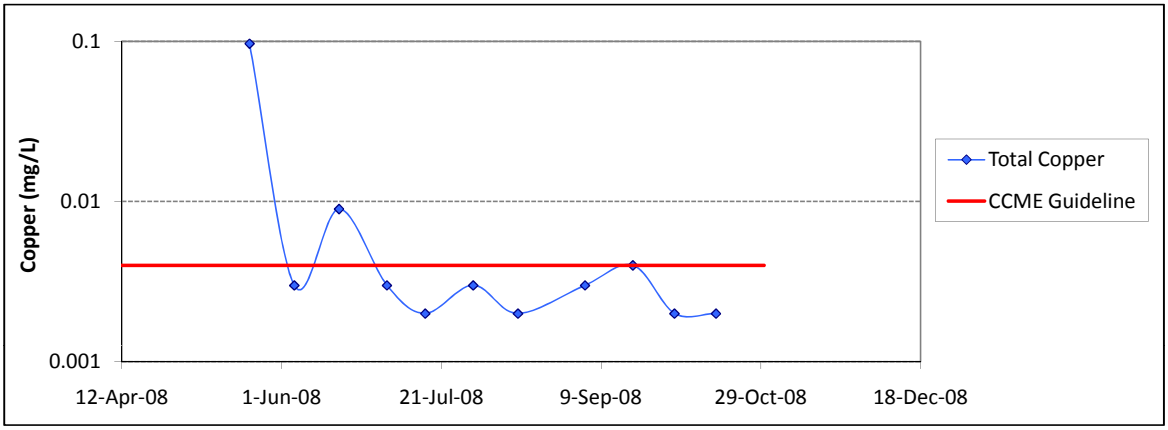
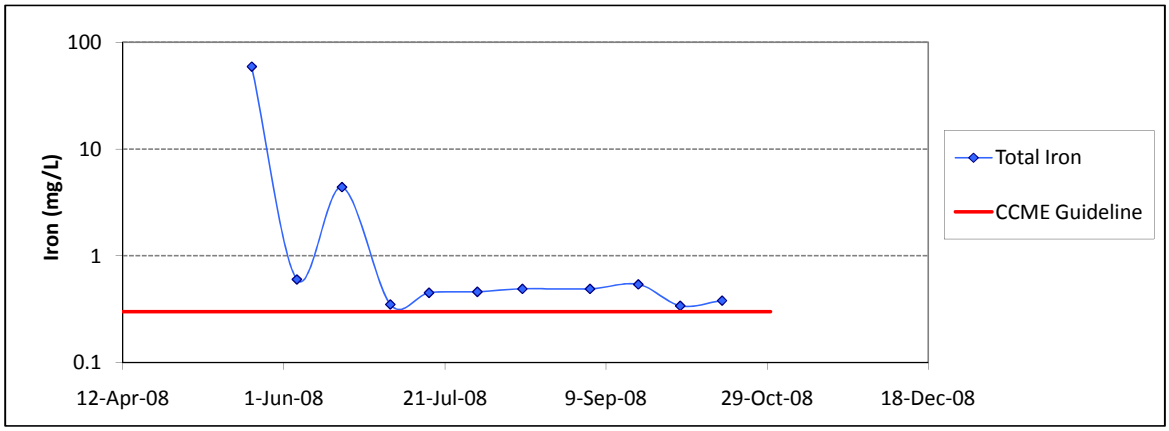


Figure B2. Historical trends of selected water quality parameters in Back Creek continued.







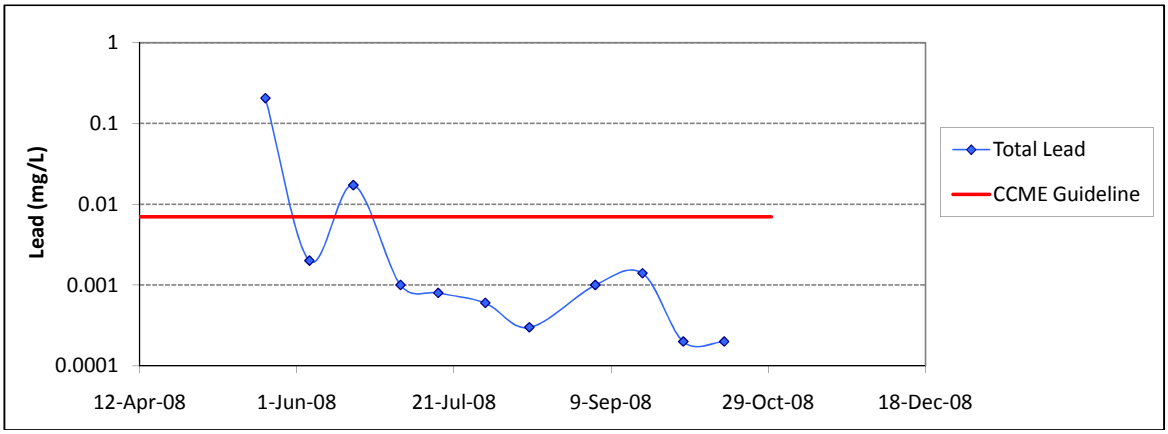
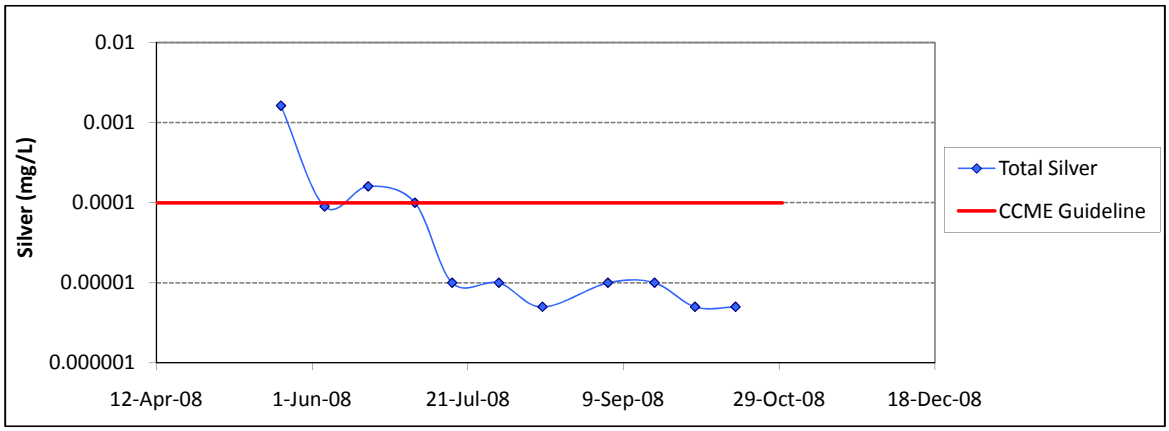
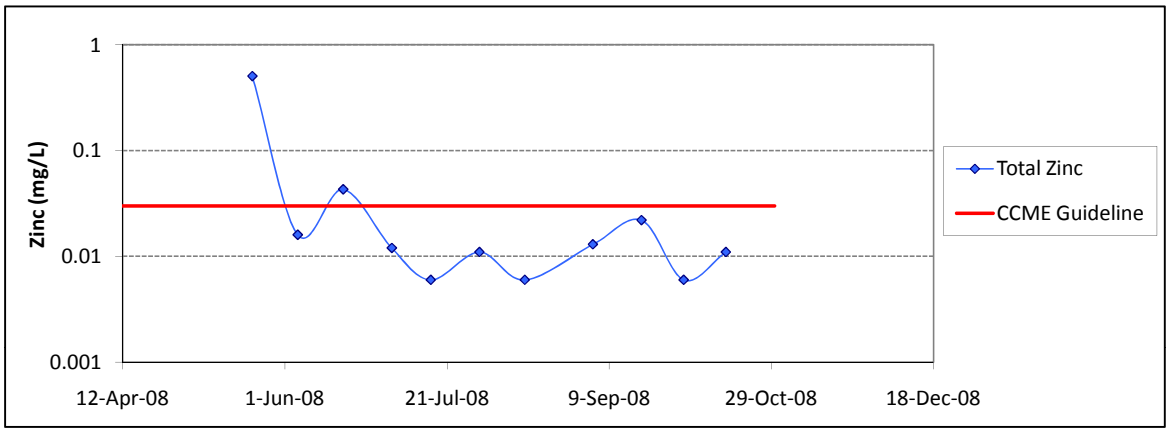


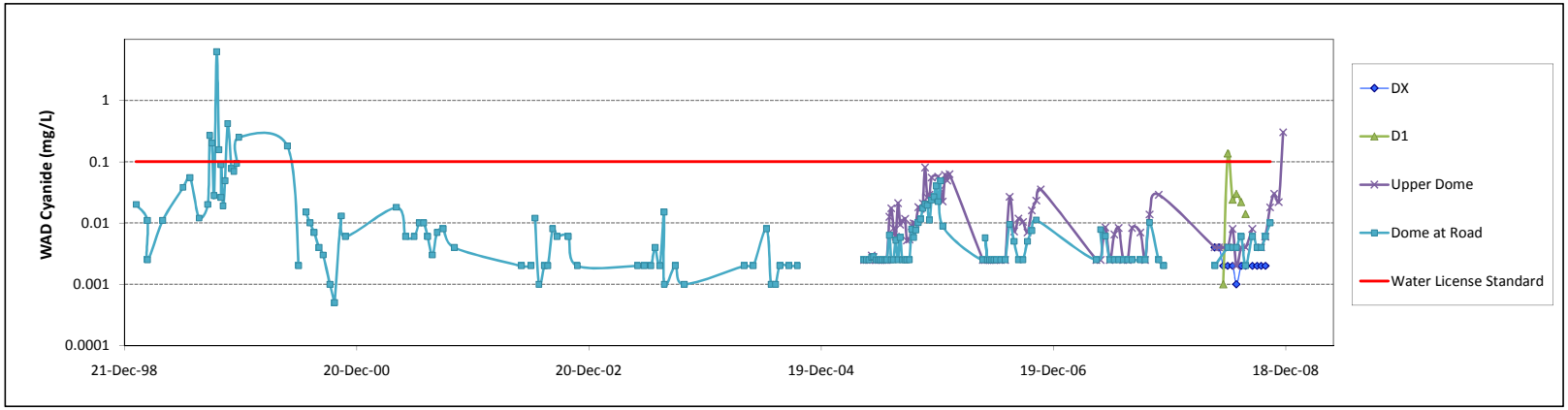
Figure B2. Historical trends of selected water quality parameters in Back Creek continued.

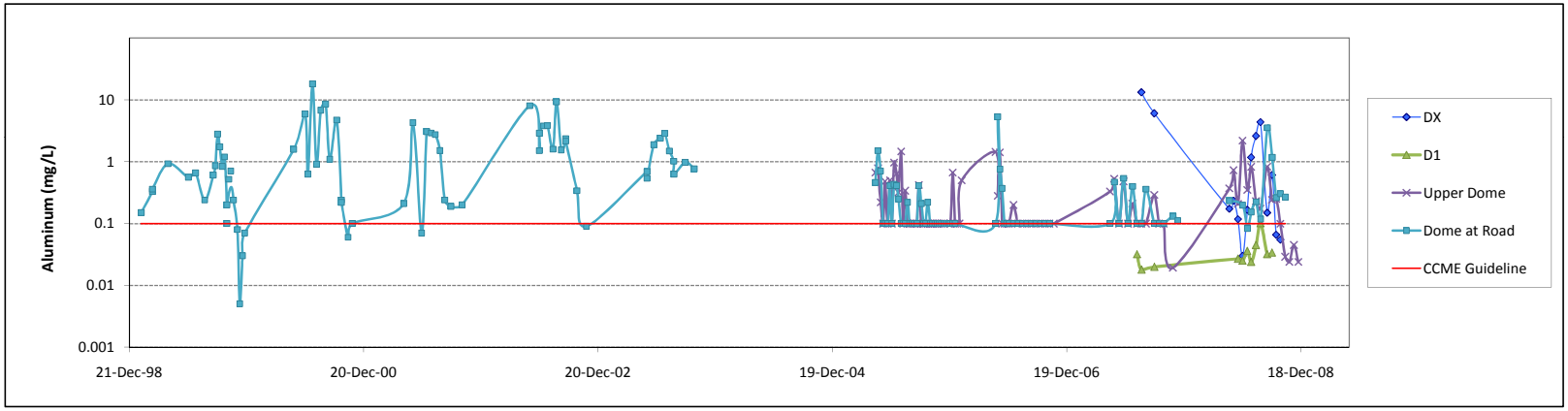




Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

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





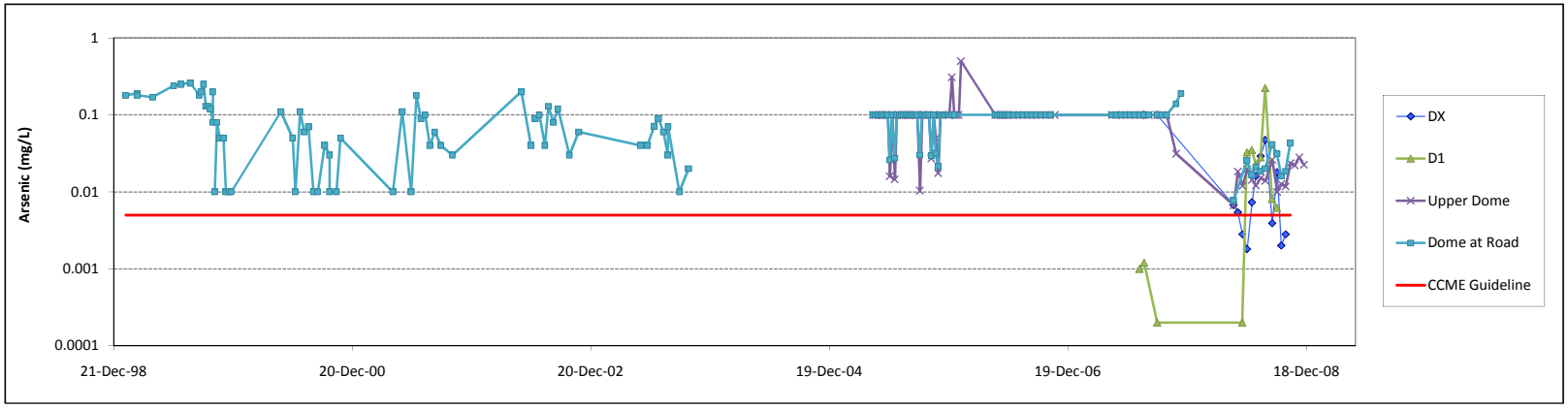
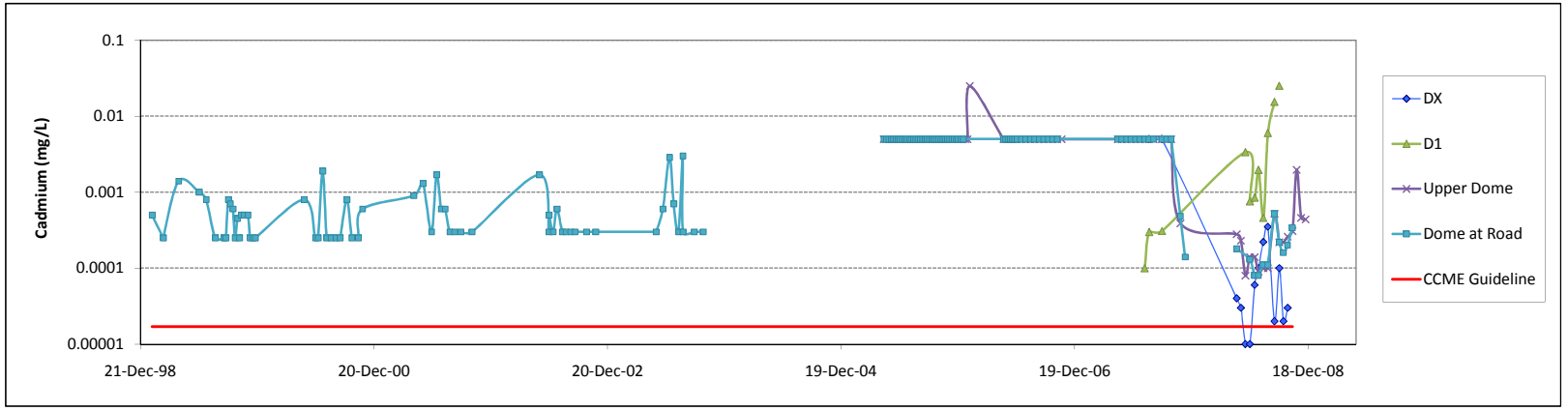
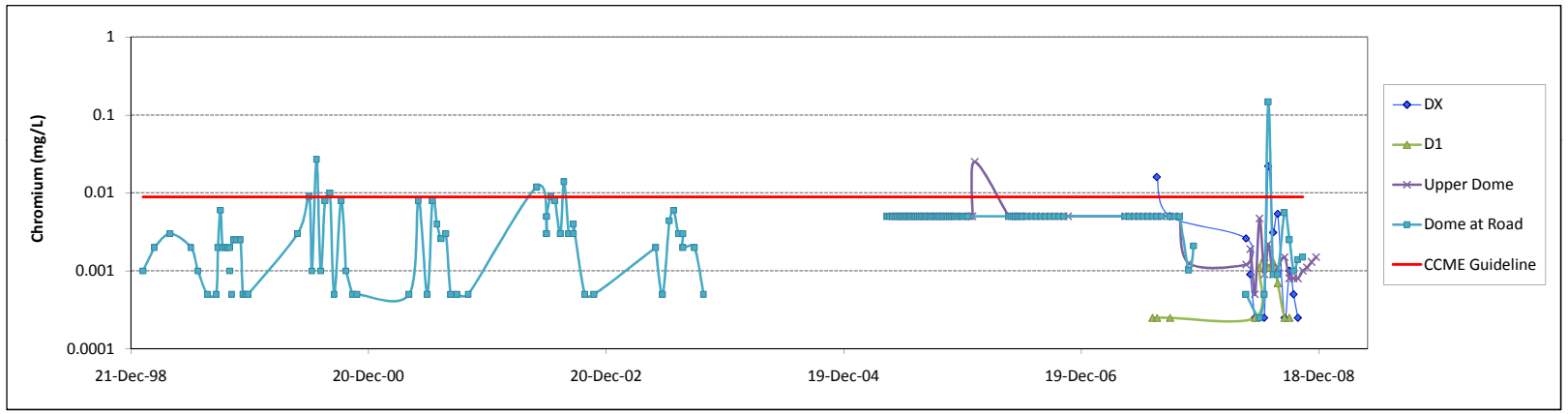


Figure B3. Historical trends of selected water quality parameters in Dome Creek continued.





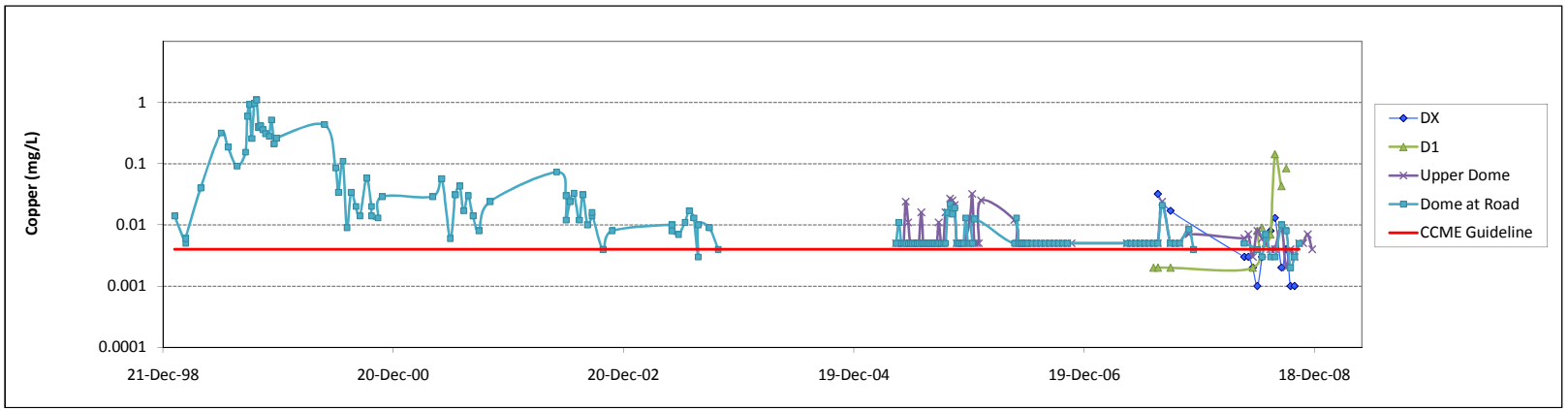
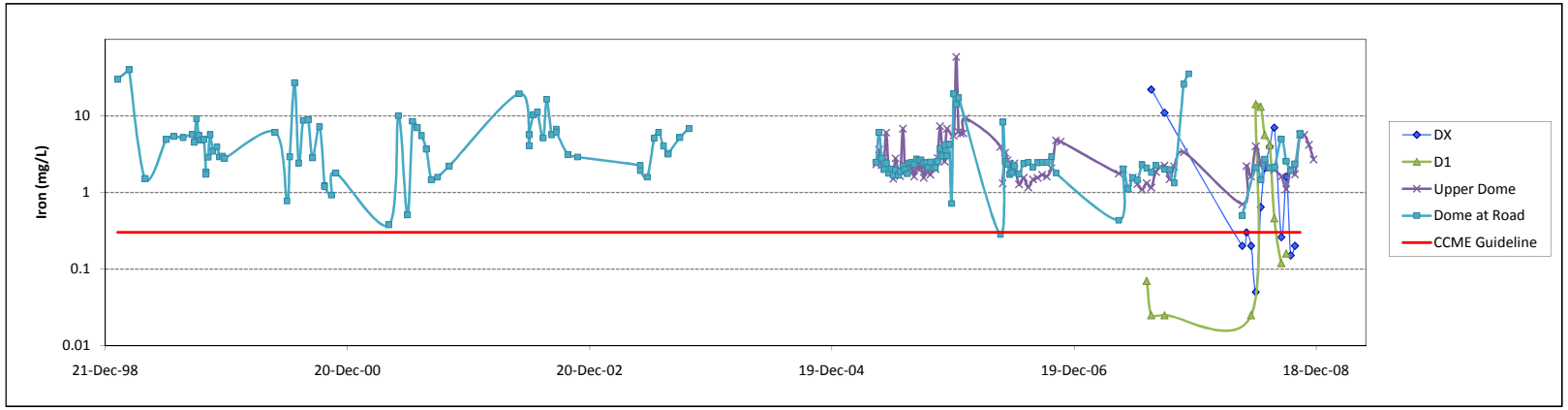
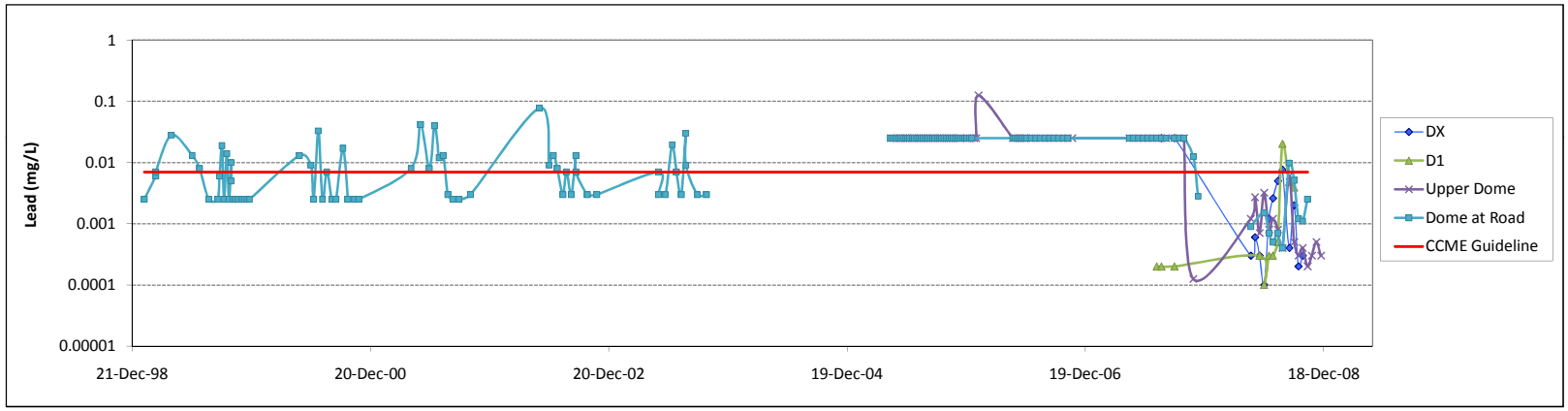


Figure B3. Historical trends of selected water quality parameters in Dome Creek continued.





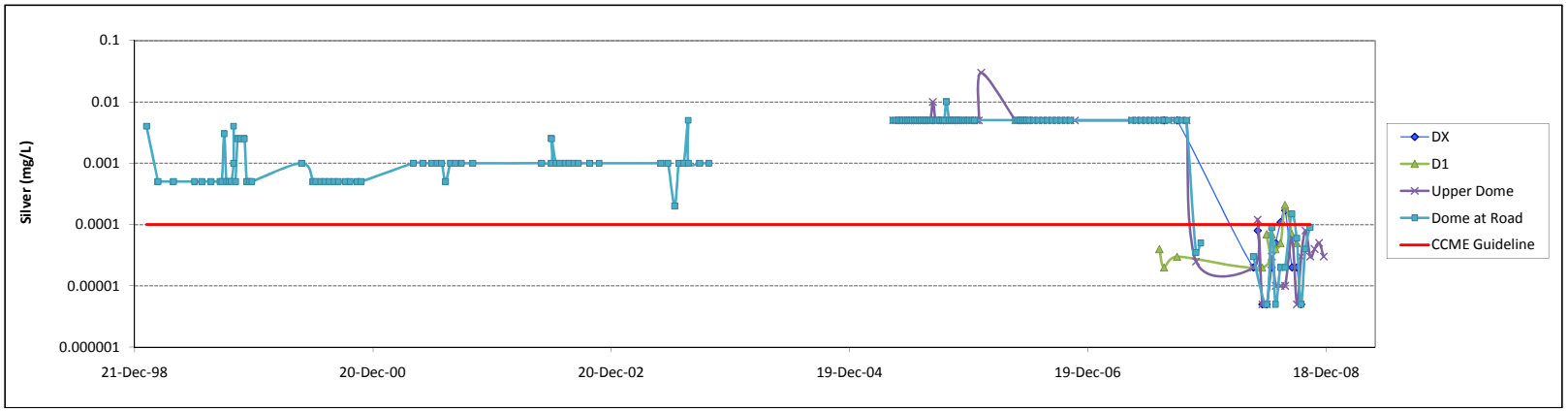
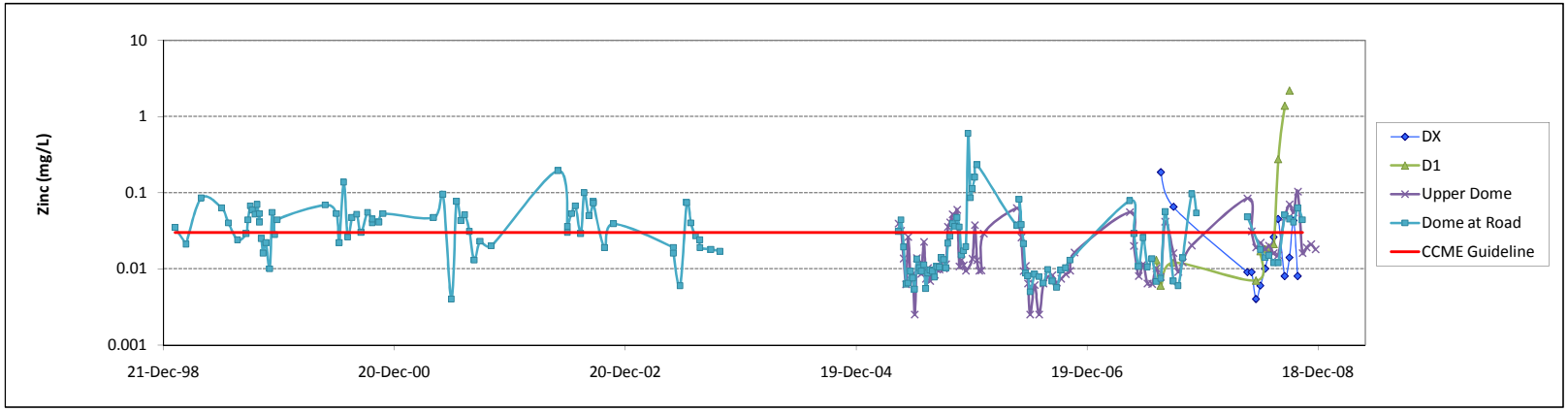
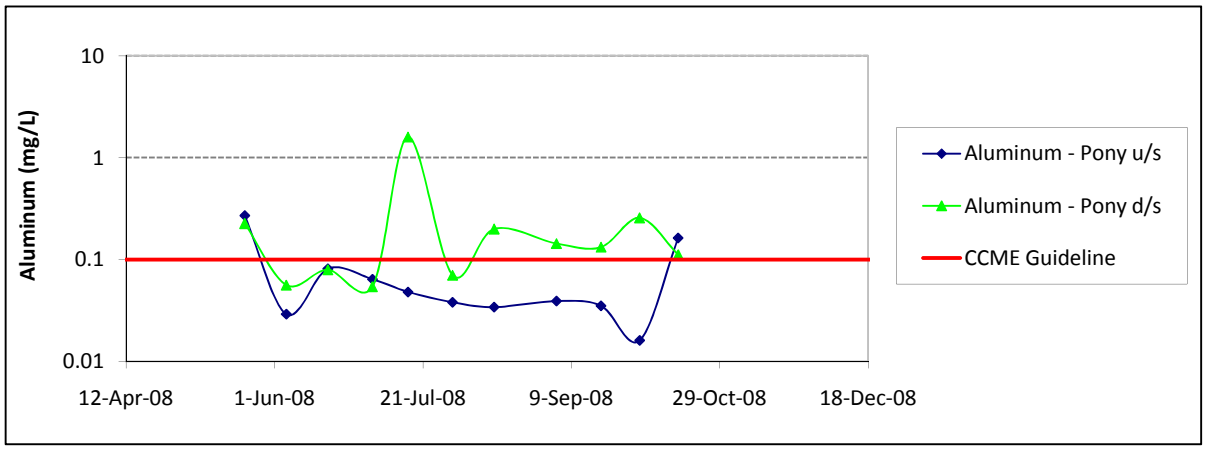


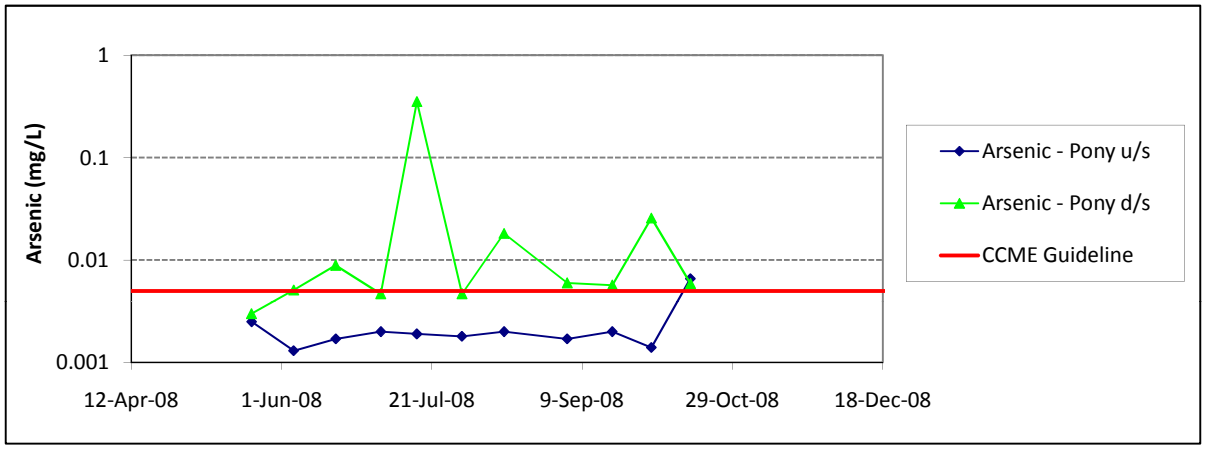
Figure B3. Historical trends of selected water quality parameters in Dome Creek continued.



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 Pony Creek.





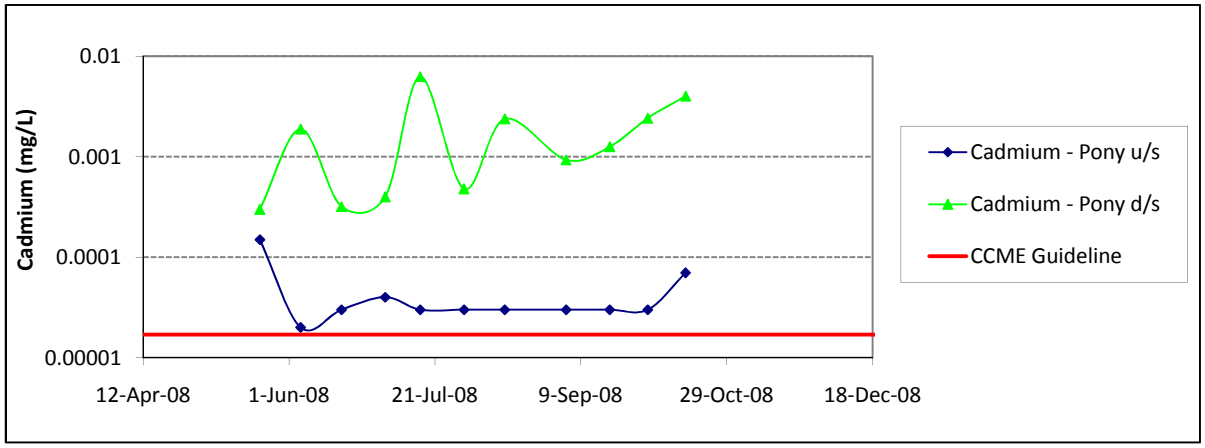
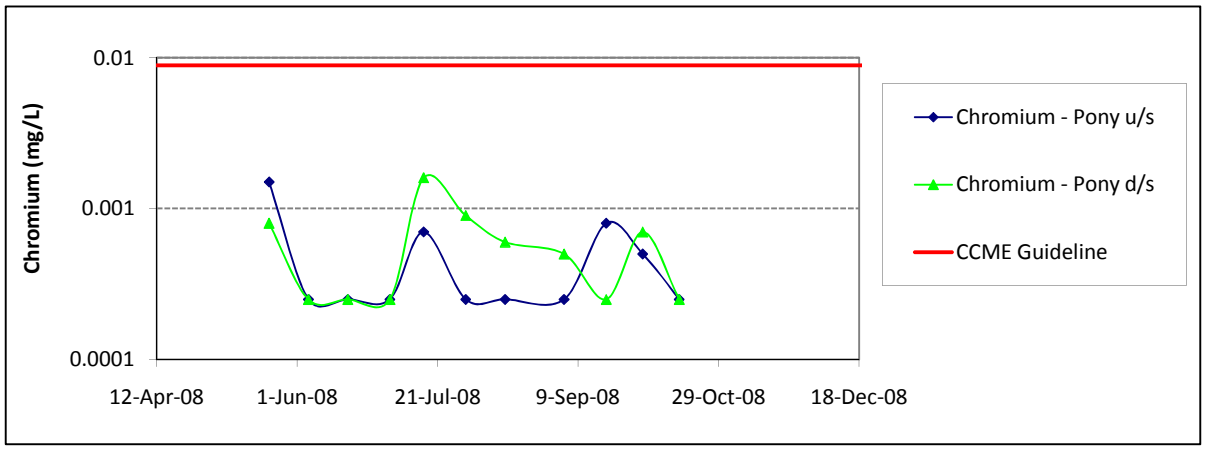
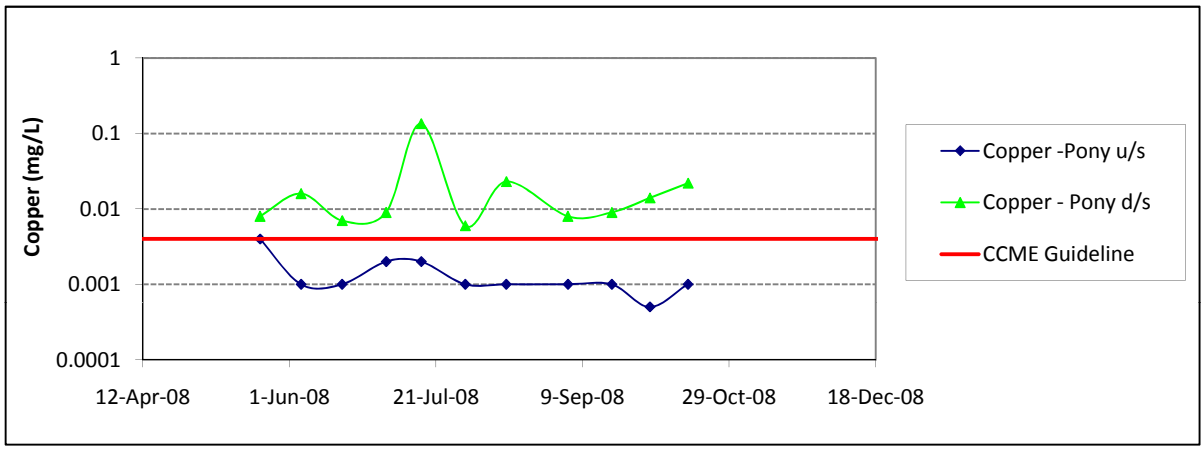


Figure B4. Historical trends of selected water quality parameters in Pony Creek continued.





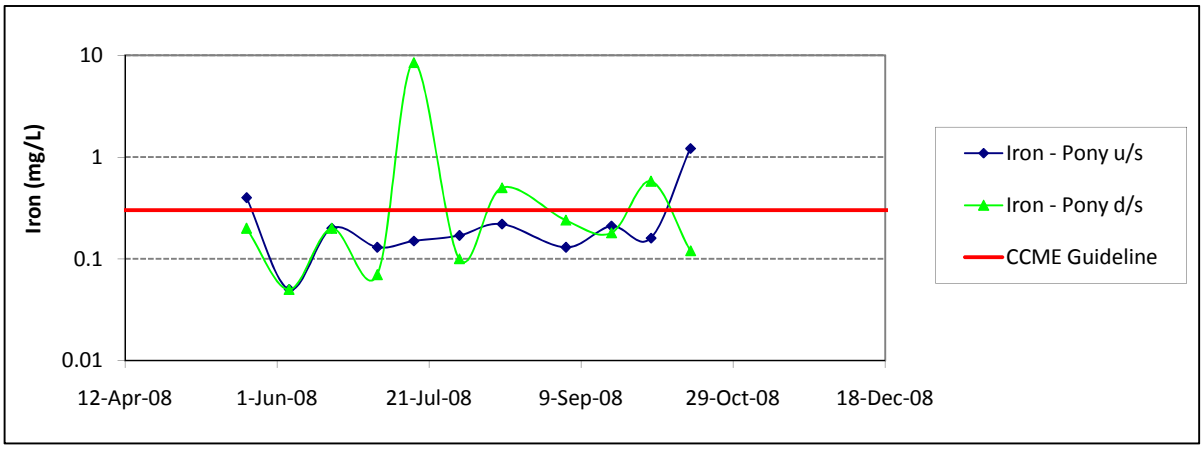
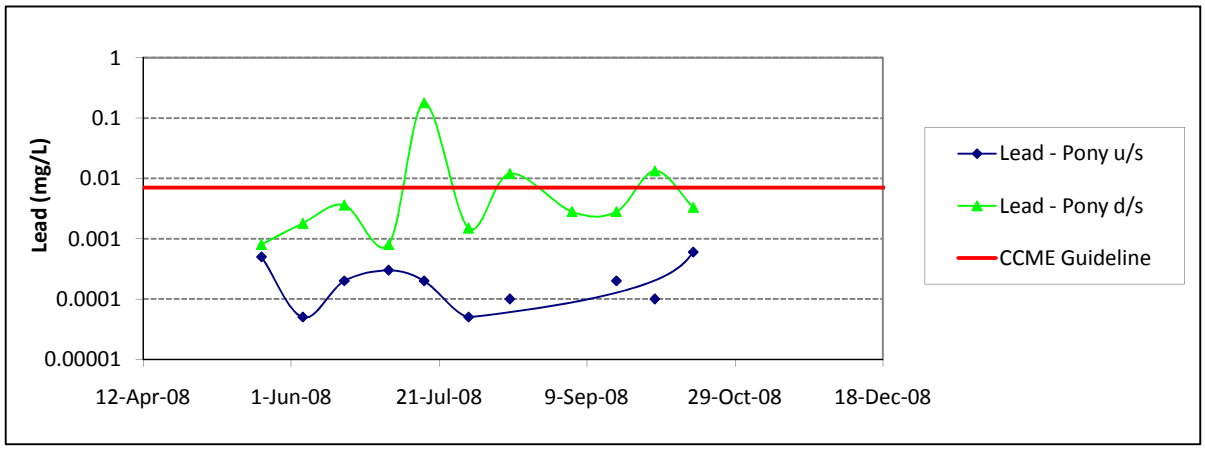
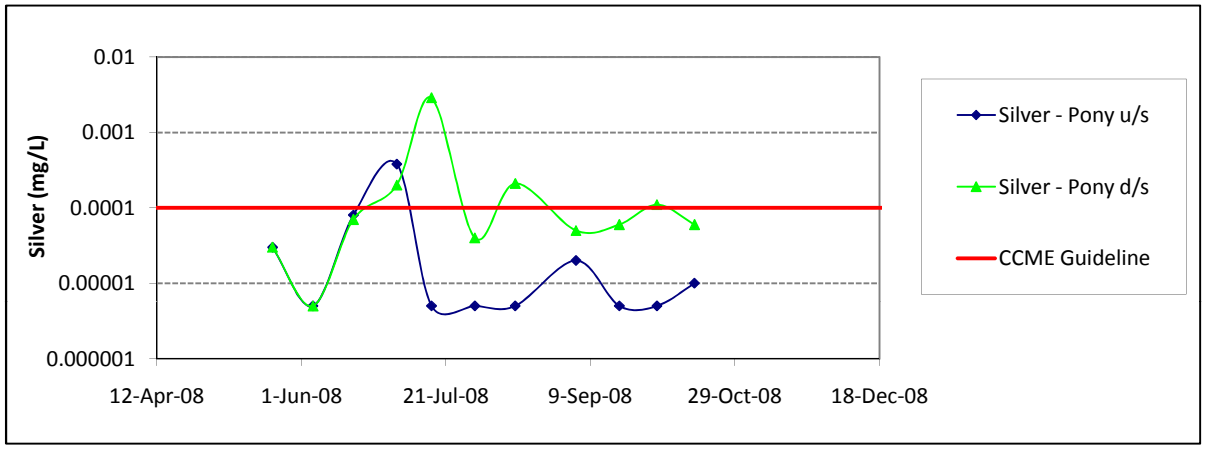
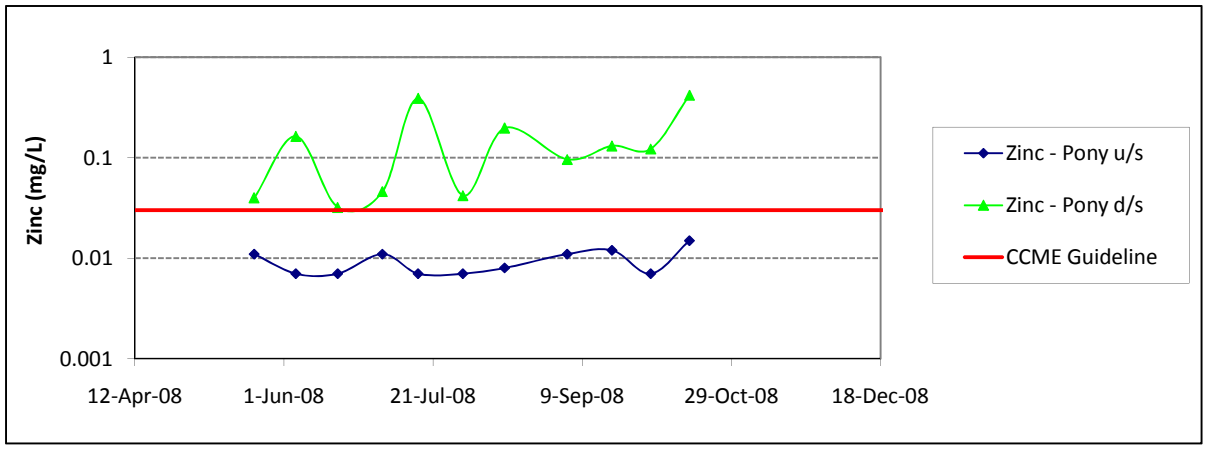


Figure B4. Historical trends of selected water quality parameters in Pony Creek continued.

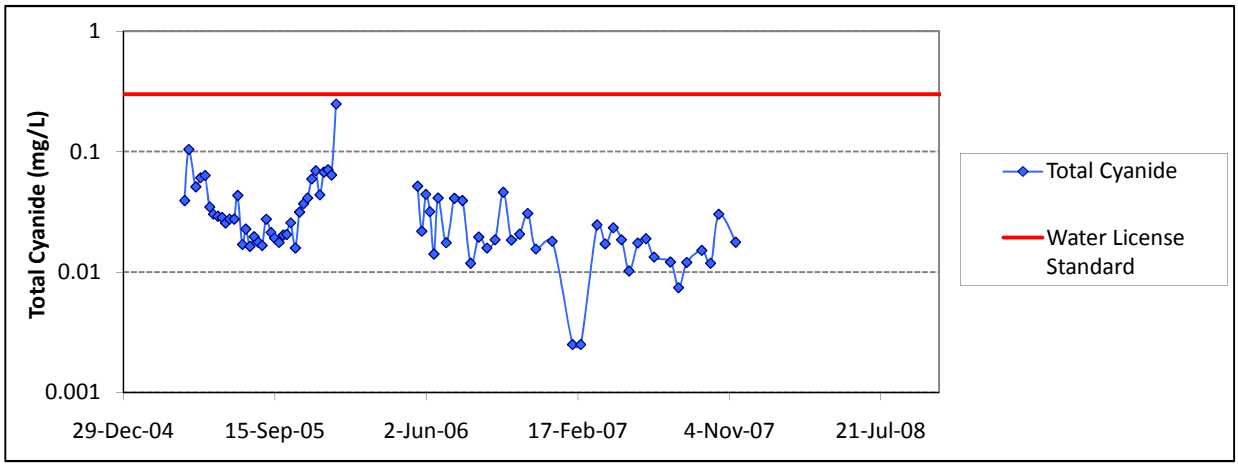


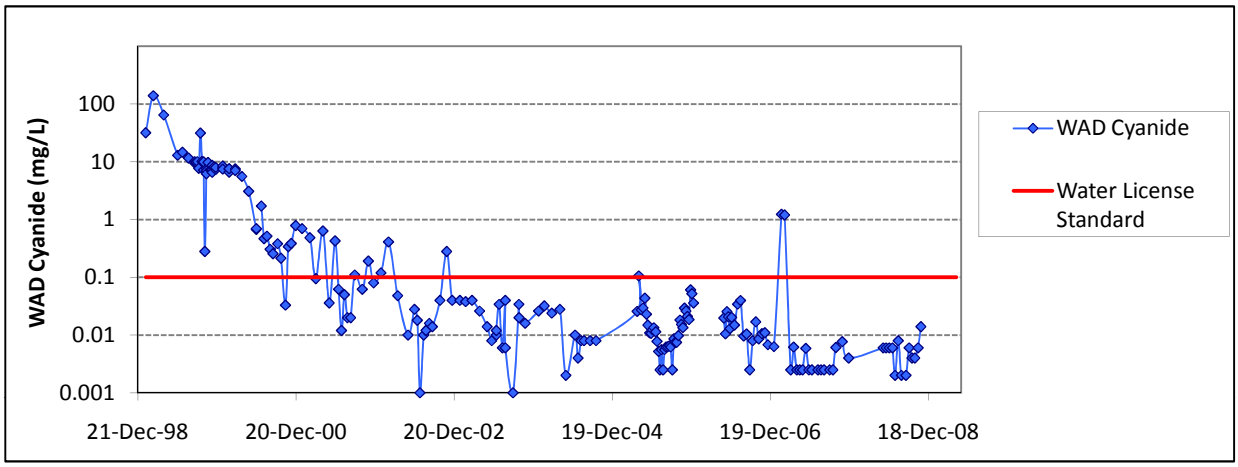


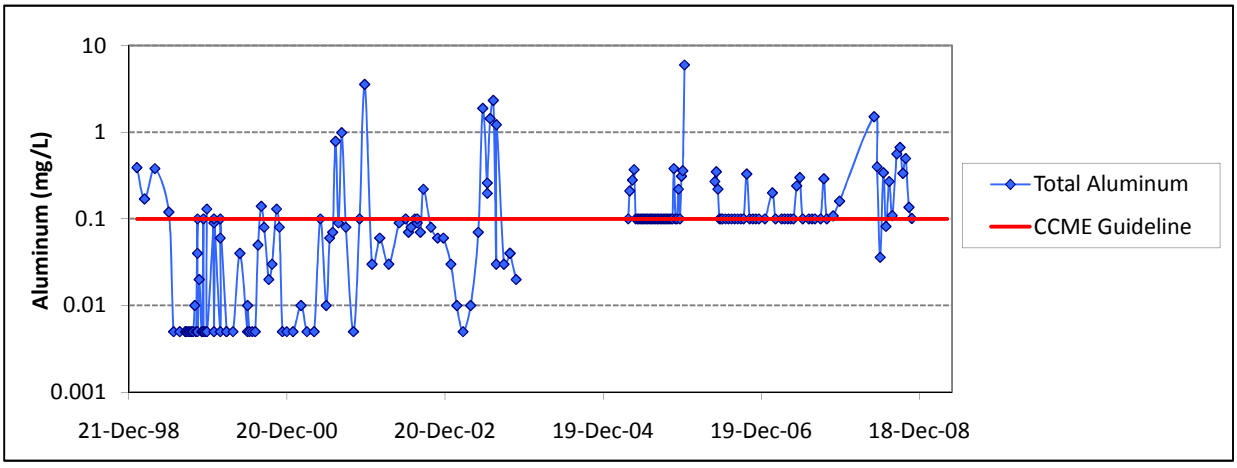


Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.
u/s - upstream site
d/s - downstream site

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







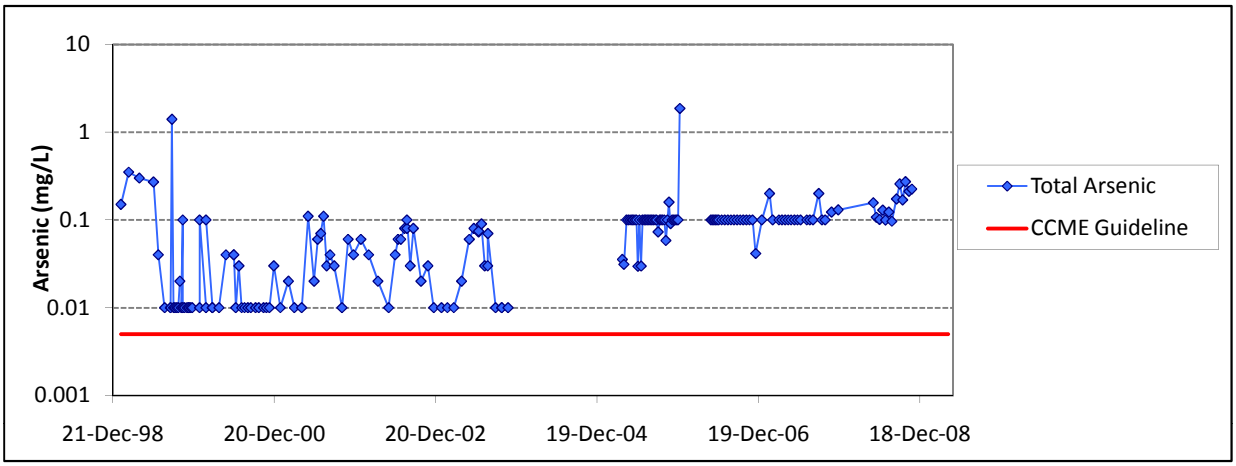
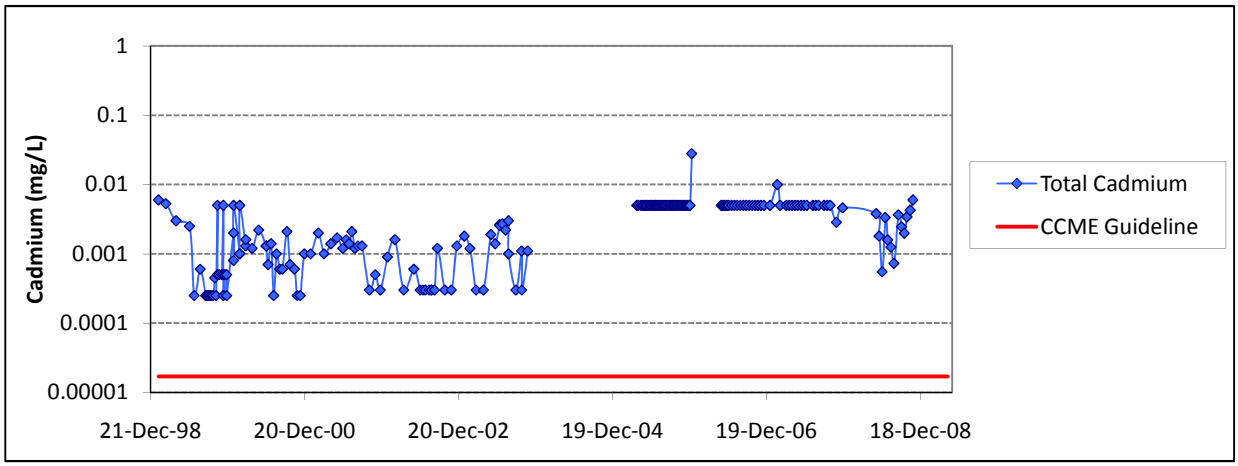
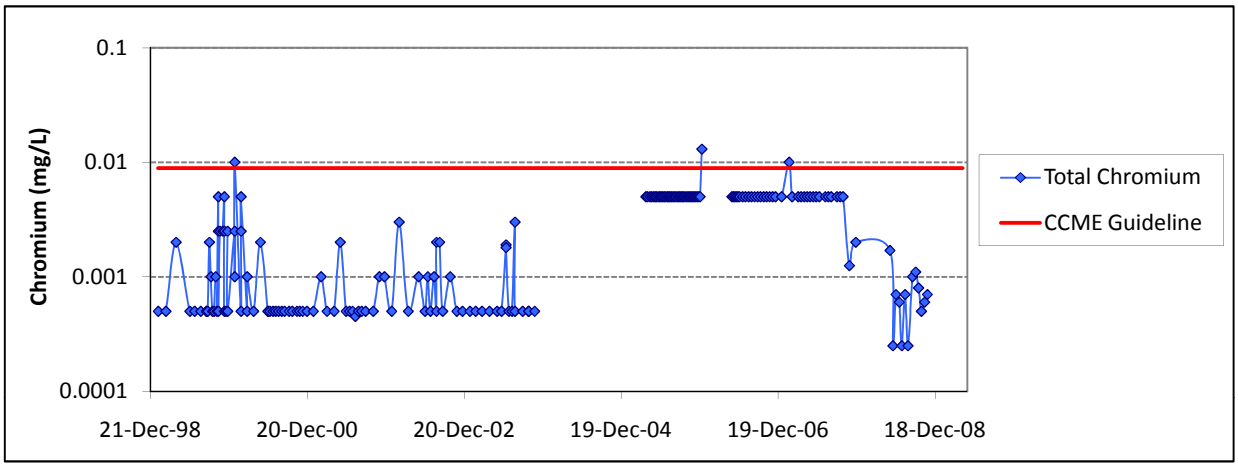
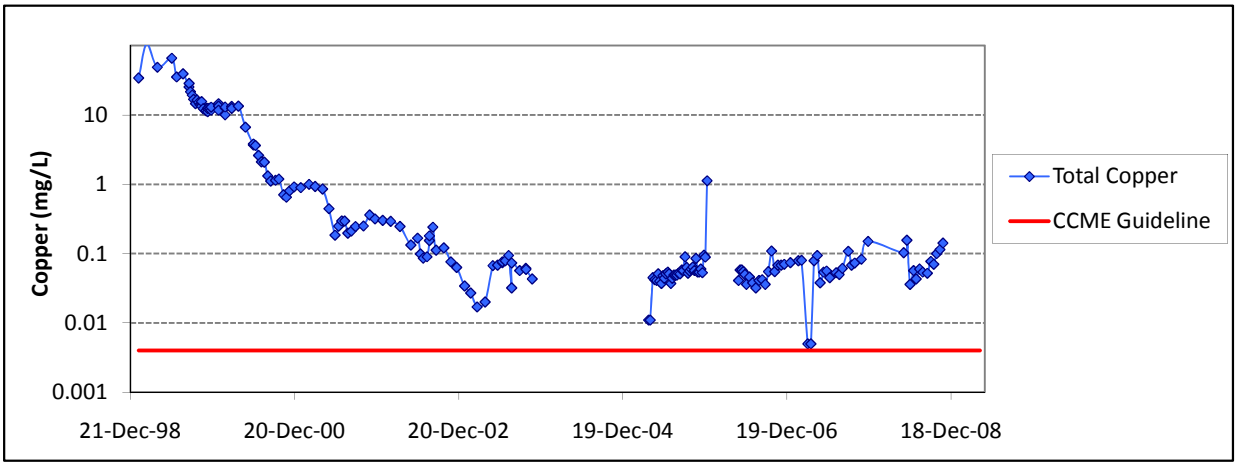


Figure B5. Historical trends of selected water quality parameters in the Tailings Pond continued.







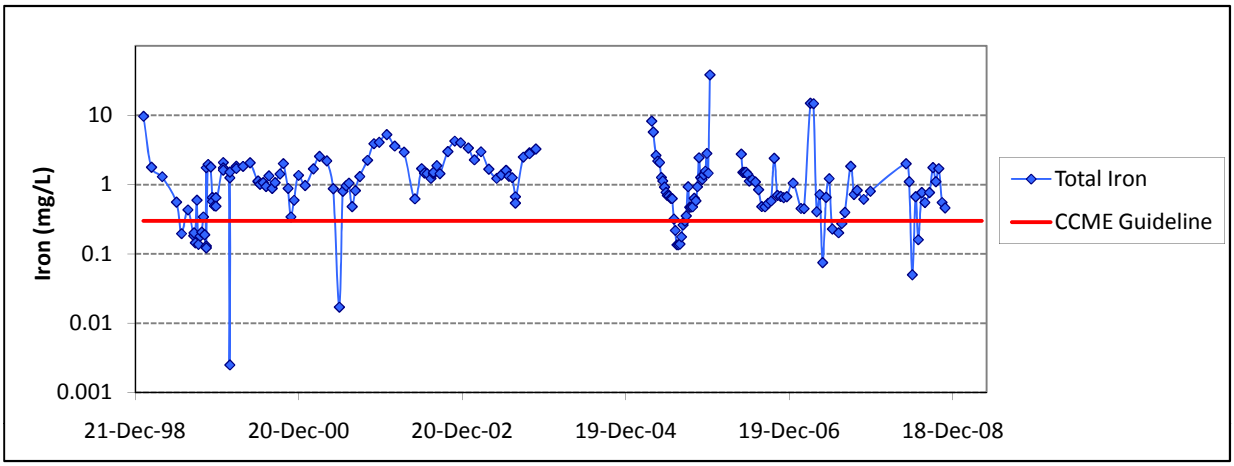
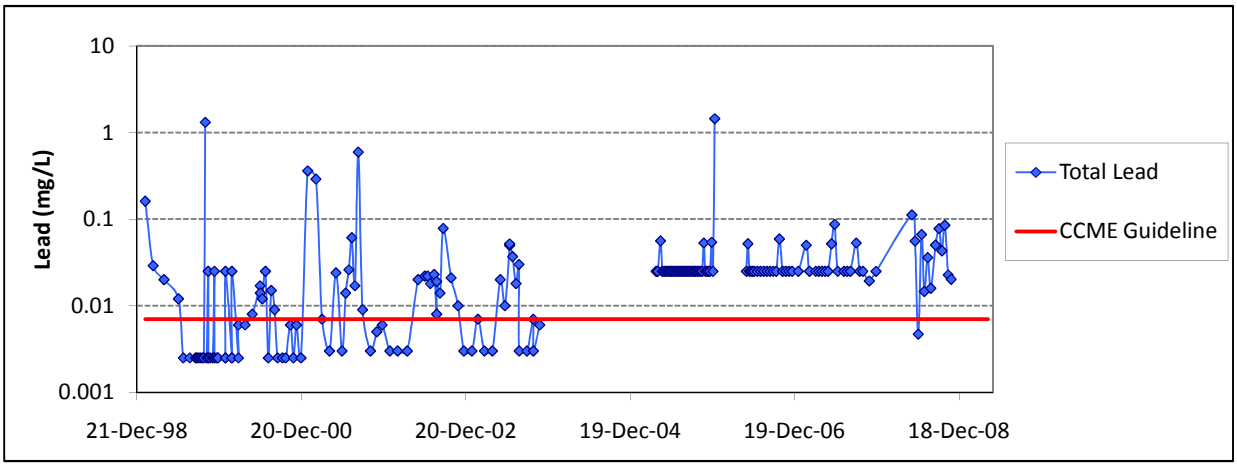
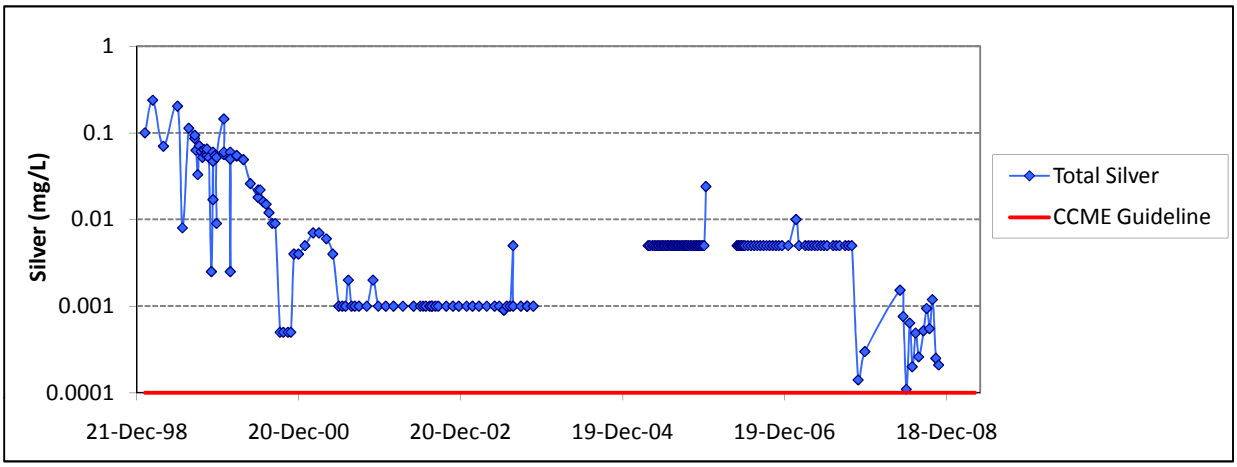
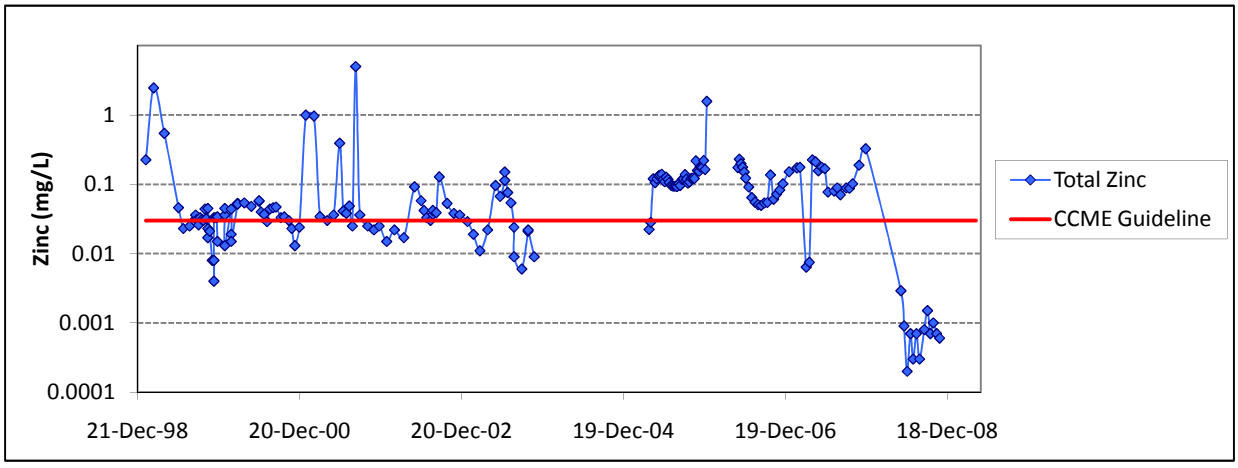


Figure B5. Historical trends of selected water quality parameters in the Tailings Pond continued.

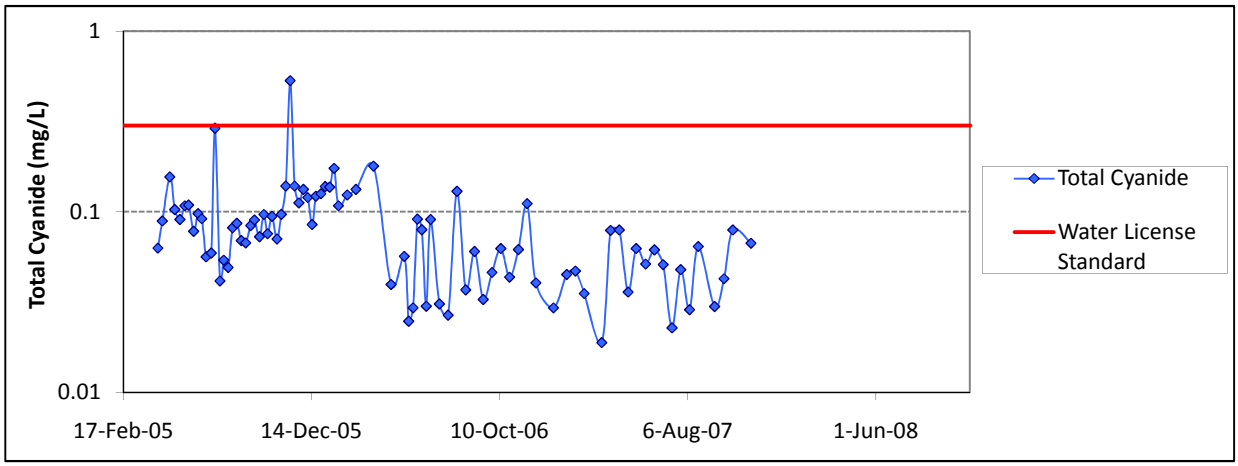


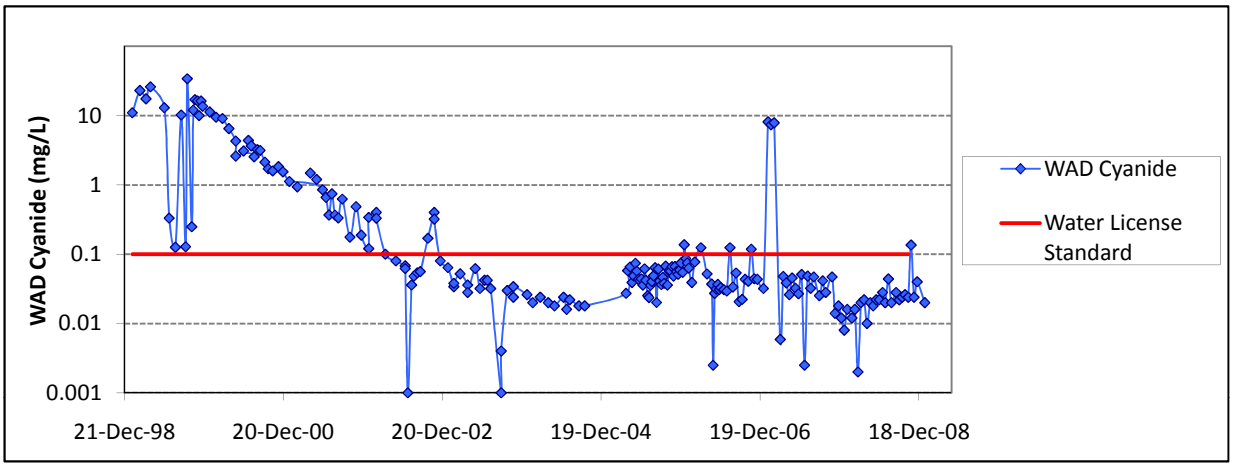


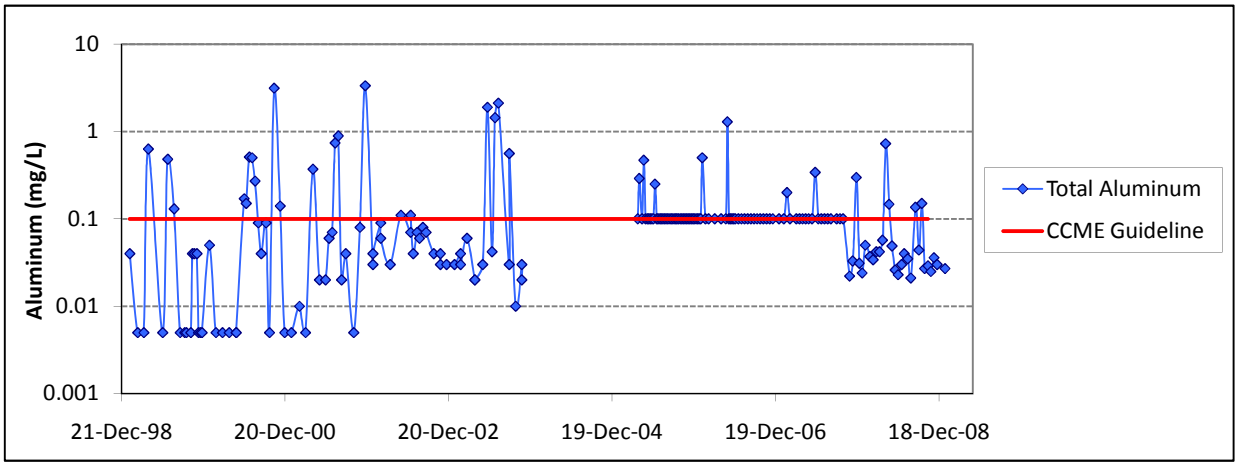


Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

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







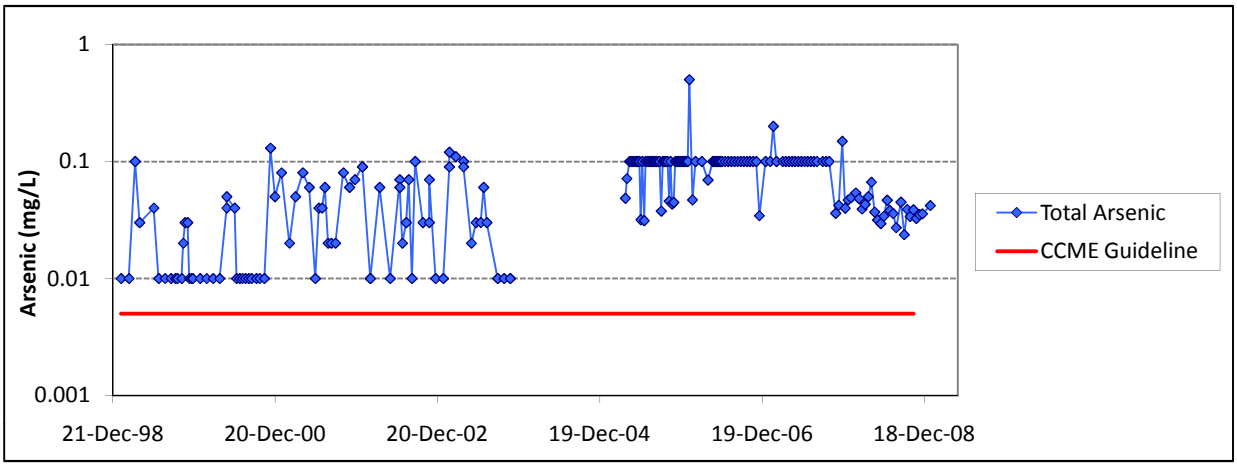
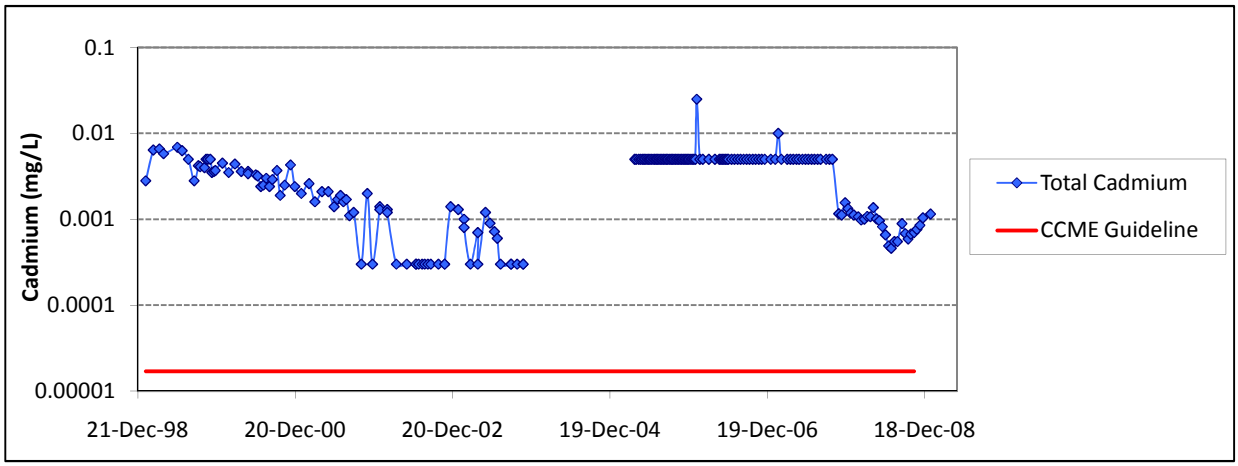
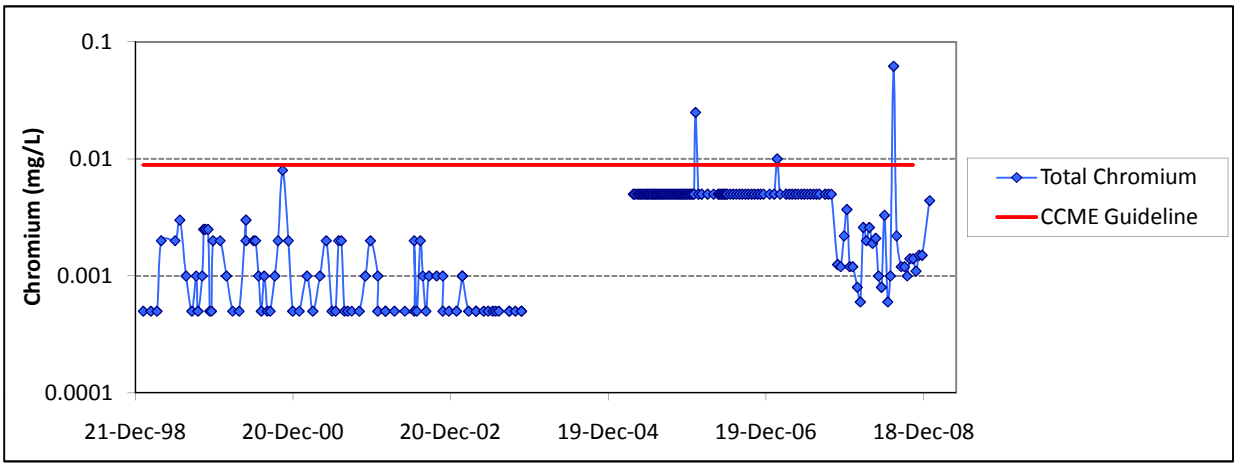
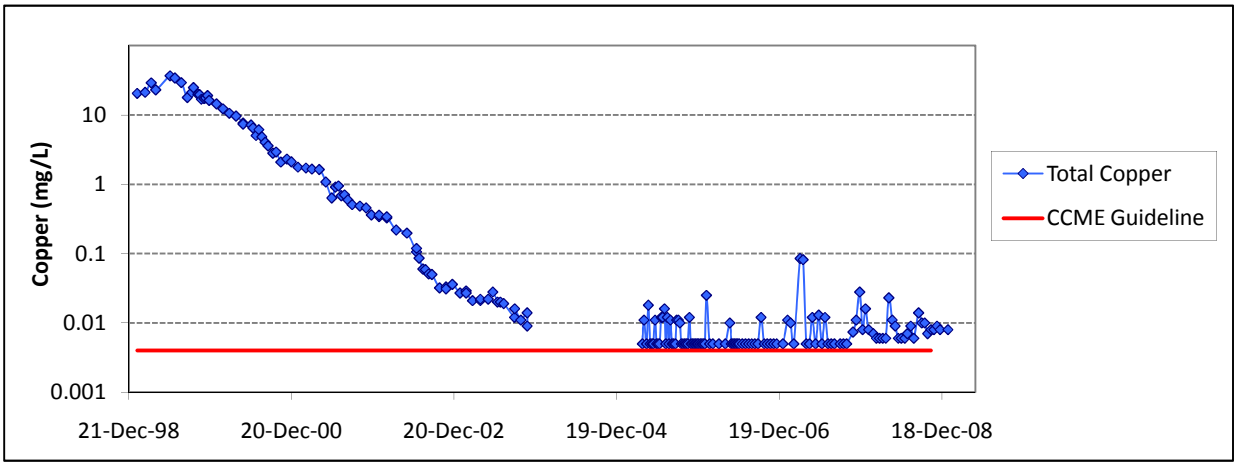


Figure B6. Historical trends of selected water quality parameters in the Seepage Pond continued.







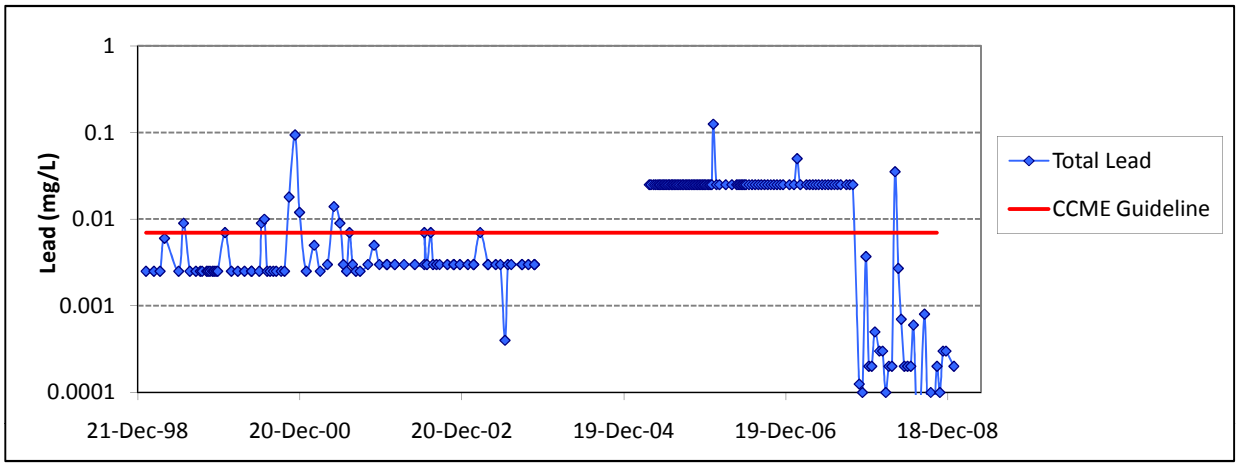
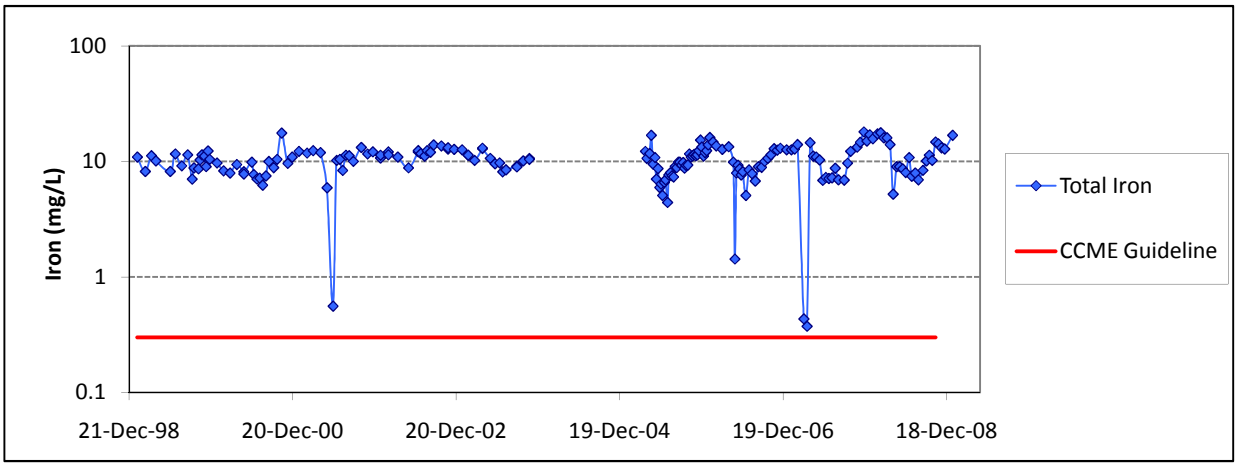
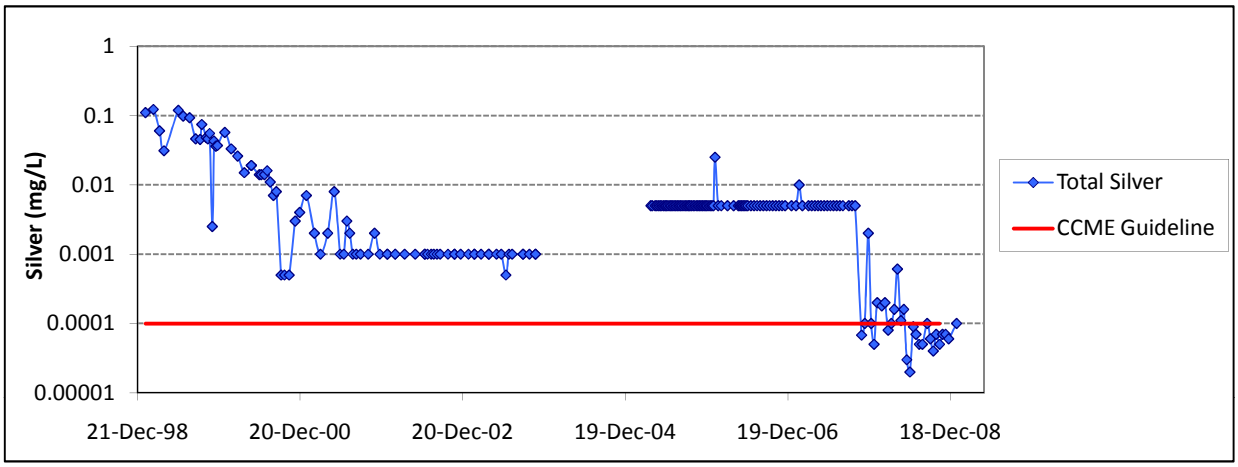
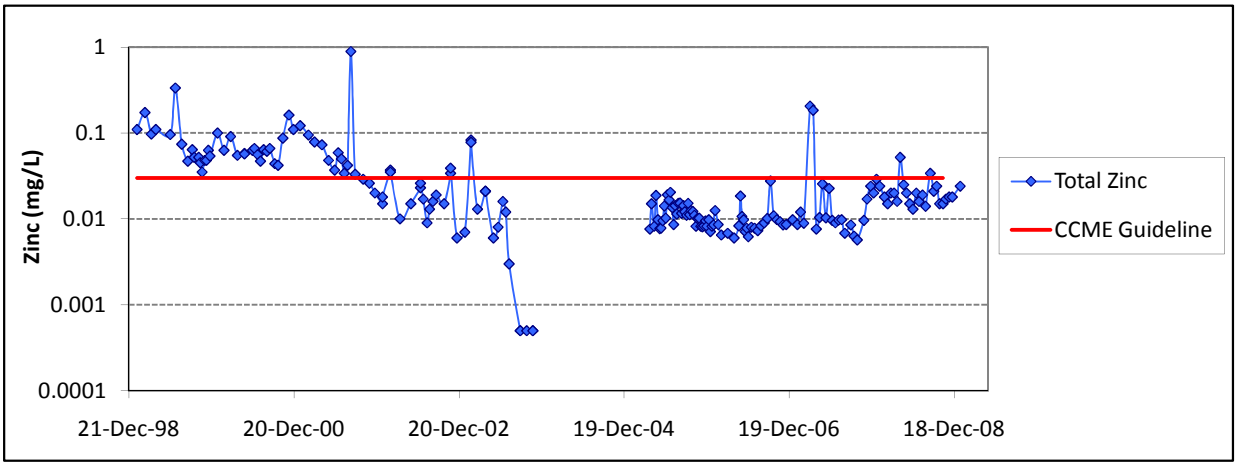


Figure B6. Historical trends of selected water quality parameters in the Seepage Pond continued.

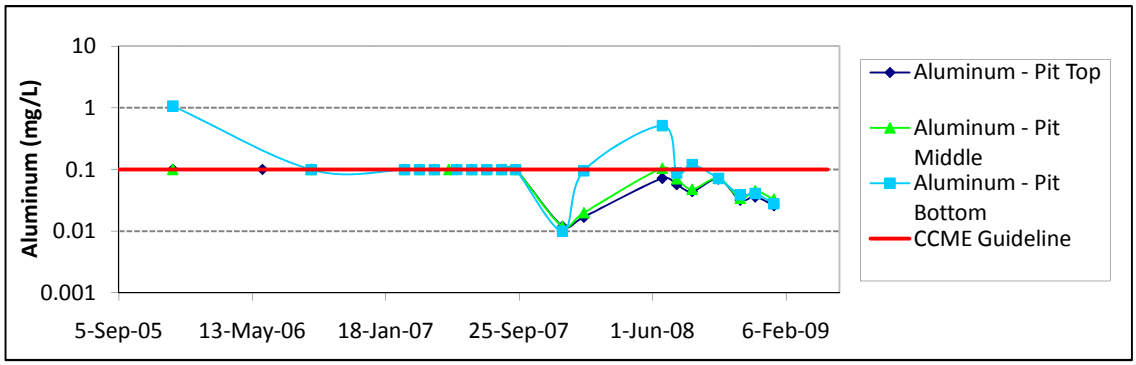


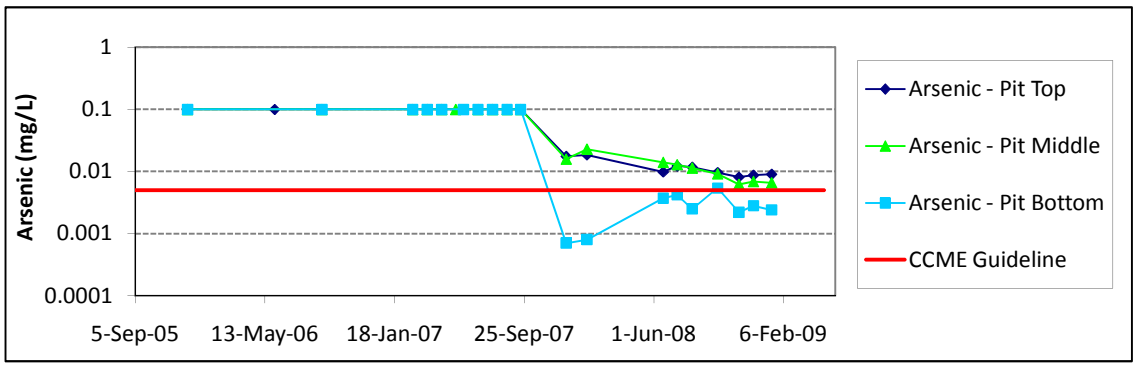


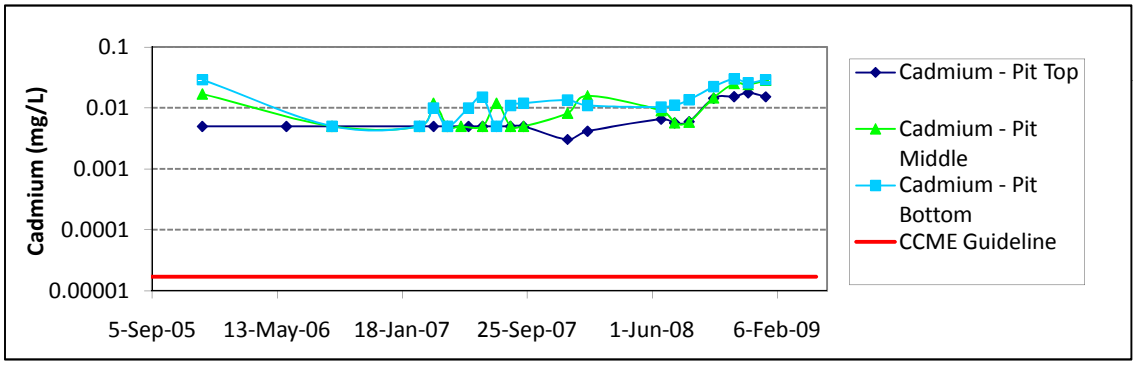


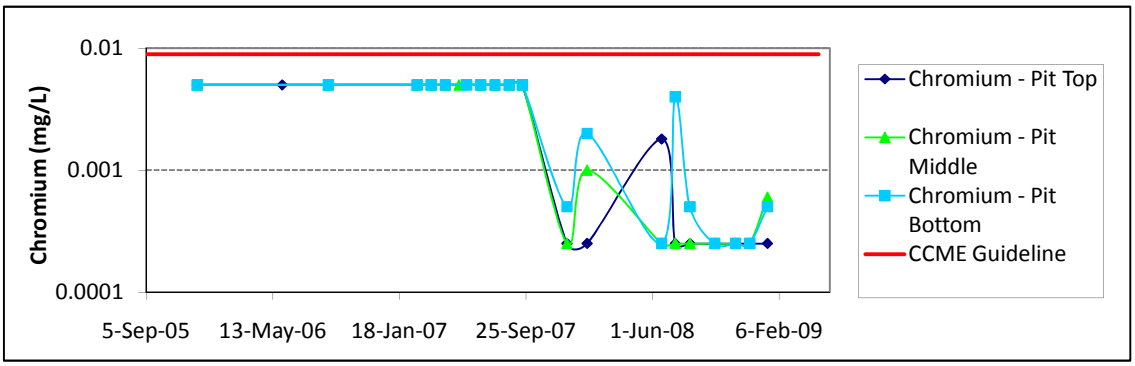
Note: Samples with concentrations that were below laboratory detection were graphed using half the detection limit.

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









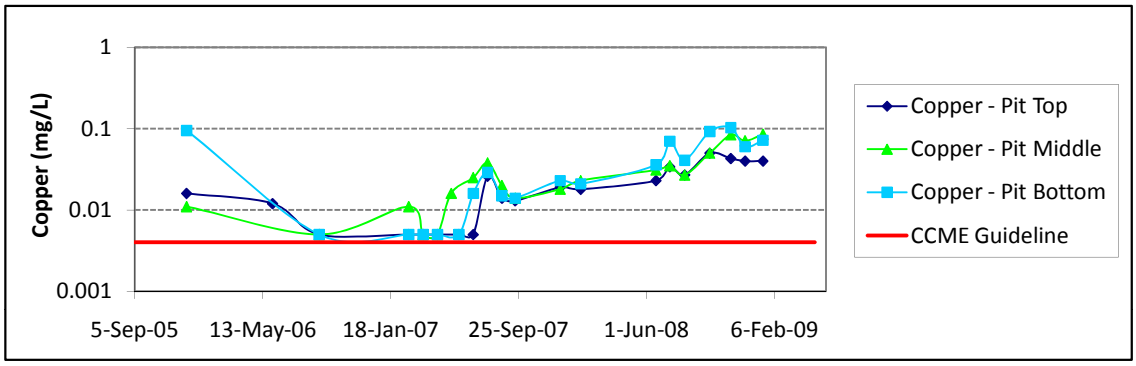
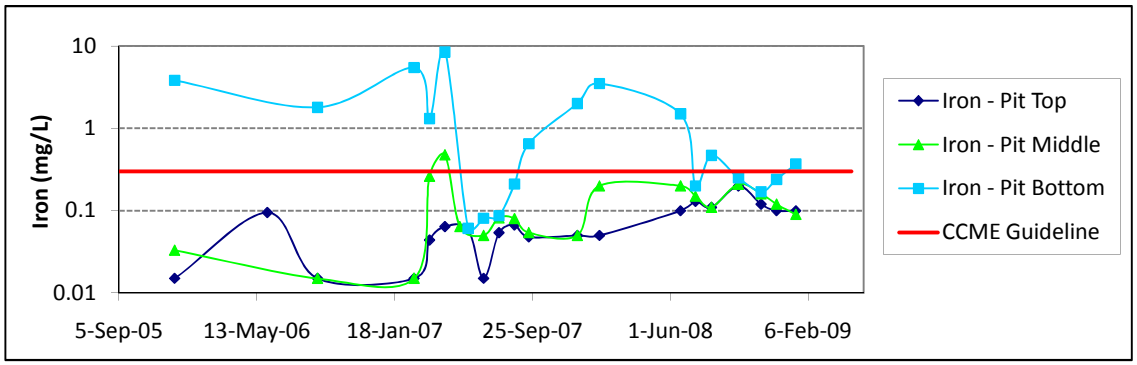
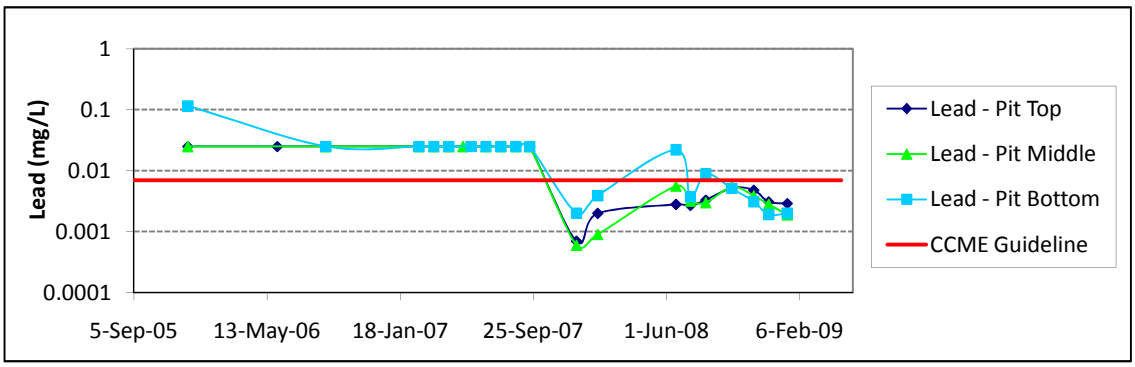
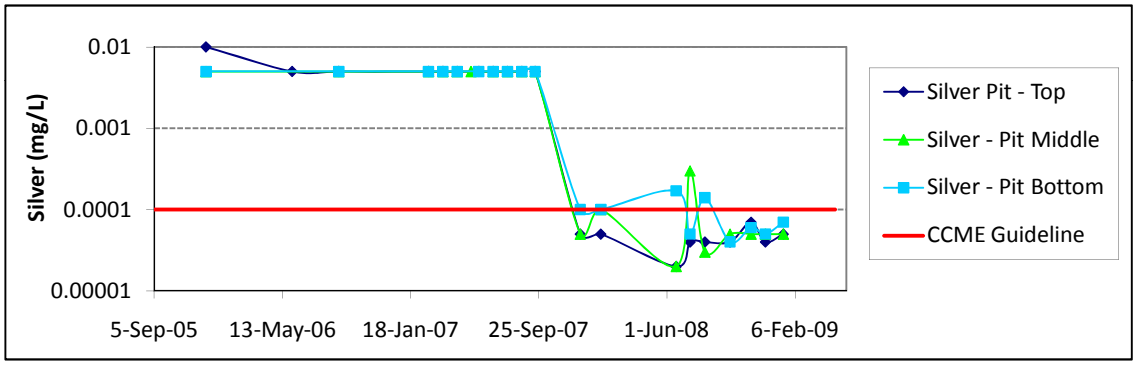
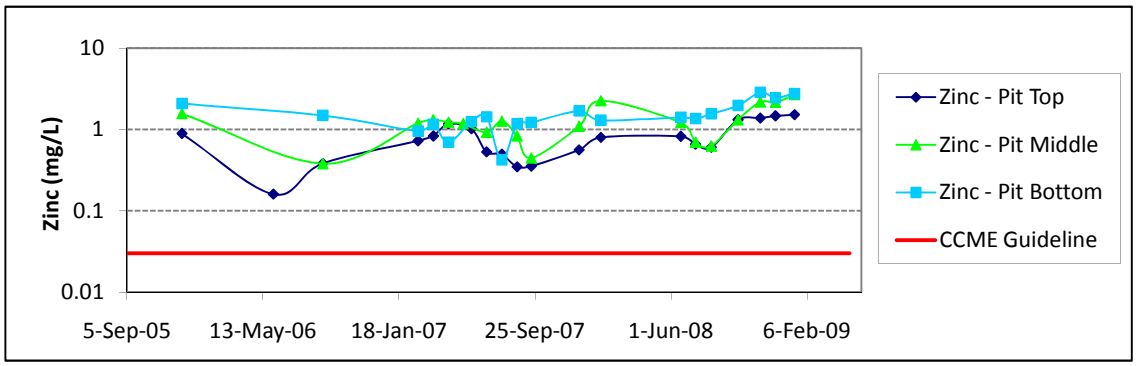


Figure B7. Historical trends of selected water quality parameters in the Brown-McDade Pit continued.









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