GOLDEN PREDATOR EXPLORATION LTD.

BREWERY CREEK MINE

2017 ANNUAL WATER LICENCE REPORT

SUBMITTED TO THE YUKON WATER BOARD

WATER USE LICENCE QZ96-007

2017 ANNUAL QUARTZ MINING LICENSE REPORT

SUBMITTED TO YUKON GOVERNMENT, ENERGY MINES AND RESOURCES

YUKON QUARTZ MINING LICENSE A99-001

February 2018

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1 INTRODUCTION

The Brewery Creek Mine is currently owned by Golden Predator Exploration Ltd. (Golden Predator), who signed a purchase agreement with Alexco Resource Corp. in early 2012. The property is located in central Yukon approximately 55 km east of Dawson City and was operated as a conventional open pit heap leach continuously from 1996 through 2001; reclamation and closure began in 2002. With the exception of a few remaining site facilities used for site storage and exploration, the mine has been closed and reclaimed. The mine closure and reclamation objectives are outlined in the 2003 Decommissioning and Reclamation Plan (DRP) required under the Water Use Licence.

The mine was operated and closed under Type A Water Use Licence QZ96-007 (originally issued as QZ94-003 in August 1995) and Quartz Mining License A99-001 issued in June 1999. Both licenses expire in 2021. The Water Use Licence was most recently amended in March of 2012 (Amendment 8, QZ11-035), which addressed updated closure conditions and monitoring. Golden Predator also holds a Type B Water Use Licence MN12-038, which was issued in August 2012, and expires on July 5, 2022. Under this licence Golden Predator has the right to obtain groundwater and upgrade the existing septic system on site for a larger camp.

Golden Predator holds a Class 4 Mining Land Use Approval for the Brewery Creek property (LQ00364), which was updated from a Class 3 approval on July 6, 2012. With this Class 4 approval, Golden Predator has been able to extend their exploration beyond the previous licence boundaries.

This report summarizes the 2017 monitoring data and activities relevant to the Water Use Licence QZ96-007, and the Quartz Mining License A99-001. Many aspects of the required monitoring under QZ96-007 and A99-001 have now been completed.

2 OVERVIEW OF ACTIVITIES

As of 2017, under Water-Use Licence QZ96-007, compliance monitoring of surface and groundwater is annual, with the exception of five sites. The following tasks and activities were completed in 2017:

June 2017

- Site inspection;
- Collection of levelogger data; and
- Semi-annual compliance surface water and groundwater monitoring.

September 2017

- Site inspection;
- Collection of levelogger data; and
- Annual compliance surface water.

October 2017

- Site inspection; and
- Annual compliance groundwater monitoring.

3 MONITORING PROGRAMS AND STUDIES

3.1 WATER USE

There was no water withdrawn from the authorized sources (Laura Creek, Lucky Creek, Pacific Creek, Lee Creek, North Fork of the South Klondike River, and the South Klondike River,) or the well located at BC-23 during 2017.

3.2 CLIMATE

Requirements under QZ96-007 for the climatic monitoring is described in the Solutions Management Plan, the Blue Zone Monitoring and Assessment Program, and the Heap Leach Pad Cover and Facilities Monitoring Program. As per these programs and QZ96-007, climatic monitoring was discontinued in 2010, as the heap was deemed detoxified according to specific monitoring requirements ("detoxification of the heap shall be deemed to have occurred when the concentration of Total Cyanide measured at monitoring station BC-28a in accordance with Schedules A and B is equal to or lower than 2.0 mg/L for five consecutive years of monitoring").

3.3 SURFACE WATER QUALITY MONITORING

3.3.1 *Surface Water Sampling Methods*

Monitoring and sampling was carried out in accordance with the procedures and standards described in the Guidance Document for the Sampling and Analysis of Metal Mining Effluents (April 2001, EPS2/MM/5, Minerals and Metals Division, Environment Canada) (EC, 2001). All samples were preserved and filtered on the day of collection, where applicable, and were kept cool throughout shipment to Maxxam Analytics Inc. Samples were analyzed for the following parameters:

- Routine parameters (conductivity, pH, alkalinity, hardness, hydroxide, carbonate);
- Total suspended and dissolved solids (TSS/TDS);
- Ammonia;
- Anions (nitrite, nitrate, fluoride, sulphate, cholride, bromide, ortho-phosphate);
- Dissolved organic carbon (DOC);
- Cyanide (Weak Acid Dissociable and Total); and
- Total and dissolved metals (suite of 33 metals, including all parameters found in the Canadian Council of Ministers of the Environment (CCME) guidelines and Metal Mining and Effluent Regulation (MMER).

QA/QC samples, such as duplicates and field and trip blanks were collected as part of each sampling event.

3.3.2 *Water Quality Guidelines*

Clause 46 of Water Licence QZ96-007 states that:

"Water quality at monitoring stations BC-31, BC-34 and BC-39 shall not exceed the water quality guidelines specified for the protection of aquatic life contained in the Canadian Environmental Quality Guidelines prepared by the Canadian Council of Ministers of Environment, as amended from time to time."

As such, for the receiving water quality data assessment, water quality parameters were screened against Canadian Water Quality Guidelines for Protection of Aquatic Life (CWQG; CCME 2012), provided in Table 3-1. Some water quality guidelines vary on the basis of water hardness (e.g., cadmium, copper, and lead; CCME 2012).

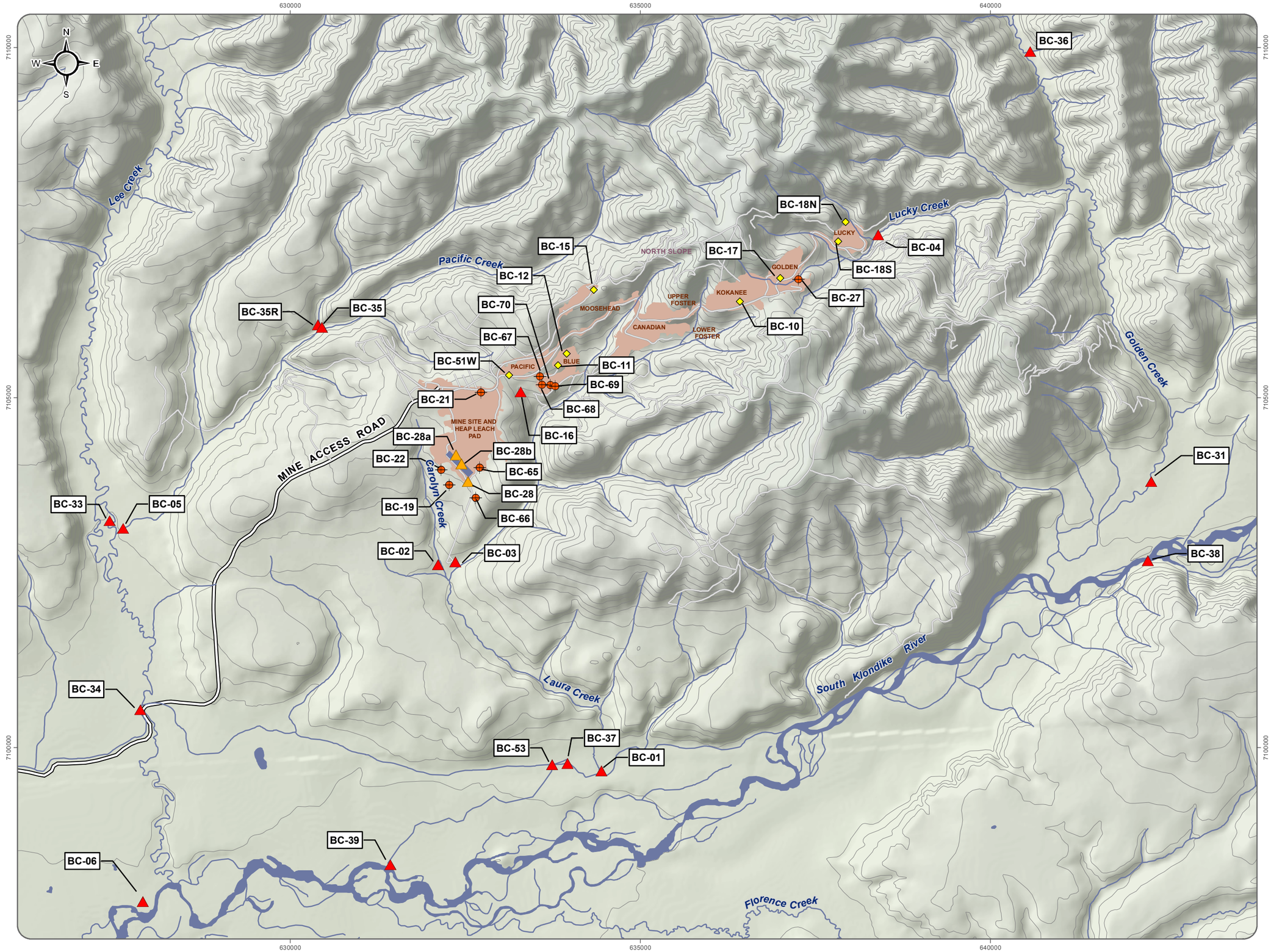
Two guidelines have been derived for nitrate under the CCME Water Quality Guidelines for Protection of Aquatic Life based on the species measured; the guideline for ionic nitrate is 13 mg/L, while for nitrate as nitrogen it is 3.0 mg/L.

In addition to the CCME guideline, Laura Creek at station BC-39 has an established site-specific selenium criterion of 0.0038 mg/L as defined as per Clause 38(d) of Water Licence QZ96-007.

Table 3-1: Canadian Water Quality Guidelines

Parameter	Units	Guideline	
		Source	Value
Aluminum [a]	µg/L	CWQG	100
Arsenic	µg/L	CWQG	5
Cadmium [b]	µg/L	CWQG	$10^{0.83[\log10(\text{hardness})]-2.46}$
Chromium	µg/L	CWQG	1
Copper	µg/L	CWQG	$e^{0.8545[\ln(\text{hardness})]-1.465} * 0.2$
Cyanide - WAD	µg/L	CWQG	5
Iron	µg/L	CWQG	300
Lead	µg/L	CWQG	$e^{1.273[\ln(\text{hardness})]-4.705}$
Mercury	µg/L	CWQG	0.026
Molybdenum	µg/L	CWQG	73
Nickel	µg/L	CWQG	$e^{0.76[\ln(\text{hardness})]+1.06}$
Nitrate Nitrogen	µg/L	CWQG	3000
Selenium	µg/L	CWQG/SSWQS	1/3.8
Silver	µg/L	CWQG	0.25
Thallium	µg/L	CWQG	0.8
Zinc	µg/L	CWQG	30
pH	pH units	CWQG	6.5 - 9.0

[a] If pH ≥ 6.5
[b] Cadmium has two guidelines: one for short term exposure and one for long term exposure. Only the long-term guideline is presented here as it is the most conservative.



GOLDEN PREDATOR
TSX: GPD

BREWERY CREEK MINE

FIGURE 3-1
WATER QUALITY MONITORING STATIONS

- Surface Water
- Groundwater
- Heap Effluent
- Pit/Dump Discharge
- Watercourse
- Waterbody
- Access Road
- Other Roads/Trails
- Mine Area
- Contour (100 m interval)

1:52,000 *when printed on 11 x 17 inch paper*

0 0.5 1 1.5 2 2.5

kelometres

ALEXCO ENVIRONMENTAL GROUP

NAD 83 UTM Zone 7N

D:\Project\All Projects\BreweryCreek\Maps\1-Overview_Maps\WQ_Stations\04-GW_AND_SW\WQ_Stations_20180222.mxd
(*Last edited by: amatlashevska;22/02/2018/12:45 PM*)

3.3.3 *Surface Water Quality Results*

Surface water quality monitoring stations are presented in

Figure 3-1. Water Licence QZ96-007 specifies three compliance points for surface water quality: BC-31, BC-34, and BC-39, that must meet CCME Guidelines for the Protection of Aquatic Life. BC-39 was dry; BC-34 exceeded in selenium and BC-31 exceeded in aluminum, iron and selenium.

The CCME guideline for total selenium is 0.001 mg/L. The results of the September 2017 compliance monitoring trip indicated that both BC-31 (0.0017 mg/L) and BC-34 (0.0025 mg/L) exceeded for selenium. However, it has been previously documented that associated upstream reference stations also exceed the selenium guideline indicating that elevated concentrations of selenium are naturally occurring in the area.

The CCME guideline for total iron is 0.3 mg/L and the results of the water quality analysis on BC-31 found 0.601 mg/L of total iron. Aluminium has a CCME of 0.1 mg/L for ph $\geq$ 6.5 and was measured at 0.246 mg/L at BC-31. While BC-36 (background station in same watershed) was not sampled in 2017, previous years show that this baseline station has exceeded the CCME for both aluminium and iron concurrently with BC-31 (i.e., July 26, 2013) indicating the area has naturally high levels.

Compliance station, BC-39 was dry during the September 2017 sampling event.

All surface water data and in situ parameters were summarized and compared to CCME Guidelines for the Protection of Aquatic Life, which are provided in Appendix A. Plots and a brief discussion of historical trends are also included in Appendix A. The original lab reports are provided in Appendix B and field reports are provided as Appendix C, which includes photos of the sites.

3.4 GROUNDWATER QUALITY

3.4.1 *Groundwater Sampling Methods*

Monitoring and sampling was carried out in accordance with the procedures and standards described in the *Standard Guide for Sampling Ground-Water Monitoring Wells* (STM D4448-01, ASTM International, PA, USA). All samples were preserved and filtered on the day of collection, where applicable, and kept cool until shipment to Maxxam Analytics Inc. Samples were analyzed for the following parameters:

- Routine parameters (conductivity, pH, alkalinity, hardness, hydroxide, carbonate);
- Total dissolved solids;
- Ammonia;
- Anions (nitrite, nitrate, fluoride, sulphate, chloride, bromide, ortho-phosphate);
- Cyanide (Weak Acid Dissociable and Total); and
- Dissolved metals (suite of 33 metals at low level detection limits).

QA/QC samples were collected as part of each sampling event.

3.4.2 *Groundwater Results*

There are seven single groundwater wells plus two nested installations for a total of eleven groundwater monitoring wells to be monitored annually under the Water License. Two of these wells, BC-65 and BC-66 (1 and 2), are compliance points that are to be monitored semi-annually if the heap land application is discharging. BC-66(1) is the shallow of the two nested wells and was dry during both monitoring events. BC-66 (2) is the deeper well and was sampled twice. Water levels and samples were collected on July 20th and October 12th of 2017 for BC-65 and BC-66 (2). The results of these two samples were all well below the site specific maximum allowable concentrations specified within Clause 43 of Water Licence QZ96-007, as shown in Table 3-2.

Table 3-2: BC-66 Site Specific Max Allowable Concentrations

		Station Name	BC-65	BC-66(1)	BC-66 (2)	
Description	**Units**	**QZ96-007 Standards**	**Land Application Piezometer**	**Land Application Piezometer**	**Land Application Piezometer (Deep Well)**	
Sample Date			**June and September 2016**	**June and September 2016**	**20 June 2017**	**12 October 2017**
Ammonia Total	mg/L	7.5	Well was dry for both sampling events	Well was dry for both sampling events	0.072	<0.0050
Cyanide, Total	mg/L	1			0.00617	0.00488
Cyanide, Weak Acid Dissociable	mg/L	0.125			0.004	0.00225
Aluminum (Al), Dissolved	mg/L	3			0.00078	0.00104
Antimony (Sb), Dissolved	mg/L	0.5			0.000156	0.000132
Arsenic (As), Dissolved	mg/L	0.25			0.000152	0.000481
Bismuth (Bi), Dissolved	mg/L	0.25			<0.0000050	<0.0000050
Cadmium (Cd), Dissolved	mg/L	0.05			0.000013	0.0000241
Chromium (Cr), Dissolved	mg/L	0.24			0.00028	0.00018
Copper (Cu), Dissolved	mg/L	0.1			0.000283	0.000198
Iron (Fe), Dissolved	mg/L	5			0.0028	0.0027
Lead (Pb), Dissolved	mg/L	0.1			0.000006	0.0000096
Manganese (Mn), Dissolved	mg/L	6			0.000149	0.00049
Molybdenum (Mo), Dissolved	mg/L	0.25			0.000149	0.000168
Nickel (Ni), Dissolved	mg/L	0.25			0.000325	0.000438
Selenium (Se), Dissolved	mg/L	0.3			0.0156	0.0181
Silver (Ag), Dissolved	mg/L	0.05			<0.0000050	<0.0000050
Zinc (Zn), Dissolved	mg/L	0.25			0.00069	0.00101

In October 2017, six wells were successfully sampled, while the remaining wells were either frozen, blocked, or dry. The lab reports are provided in Appendix B and field reports are provided as Appendix C, which includes photos of the sites.

3.5 IN-PIT AND HEAP EFFLUENT MONITORING STATIONS WATER QUALITY RESULTS

3.5.1 *Methods*

Mined out pits were used effectively as sediment control basins. Snow melt and precipitation run-off was directed to the closest inactive pit. Samples from all pits were taken from surface standing water within each pit. All samples were preserved and filtered on the day of collection, where applicable, and were kept cool until shipment to Maxxam Analytics Inc. Samples were analyzed for the following parameters:

- Routine parameters (conductivity, pH, alkalinity, hardness, hydroxide, carbonate);
- Total suspended and dissolved solids;
- Ammonia;
- Anions (nitrite, nitrate, fluoride, sulphate, chloride, bromide, ortho-phosphate);
- Cyanide (Weak Acid Dissociable and Total); and
- Total and dissolved metals (suite of 33 metals, at low level detection limits).

QA/QC samples were collected as part of each sampling event.

3.5.2 *Effluent Quality Standards*

During the 2012 Mine Engineering Inspection, Brewery Creek mine was completing management of the waters stored in the ponds below the heap. Inspection of the discharge channel from the outflow of the overflow pond siphon pipe (final discharge point) has demonstrated each year that the discharge water goes to ground and does not enter any receiving surface water directly. The heap effluent now infiltrates into the ground within the reclaimed ponds which meets water licence requirements.

In 2017, no effluent was discharged from the heap or the biological treatment or overflow ponds, and as such the effluent quality standards prescribed in Clause 44 do not apply. BC-28 was not flowing as there is no discharge from pond 3: the water level was low. BC-28A is the discharge from the heap into the first pond which is by way of a valve. The valve was opened at 13:30 and sampled at 14:24 to purge the line as much as possible. BC-28B was sampled on the southeast side of the pond as the overflow channel to pond 3 was not flowing.

The lysimeter compliance point, BC-70, is held to the same site specific maximum allowable standards as the wells, BC-65 and BC-66. The lysimeter reservoir was dry during each compliance monitoring trip and could therefore not be sampled. It is not known why BC-70 fails to accumulate water, the above ground installation has been checked for obvious damage.

3.5.3 *Results*

There are twelve mine water related sites that require monitoring under QZ96-007 including pit water/discharge and effluent from the heap. Seven of those twelve sites had water present. Several are reclaimed areas that no longer have runoff or standing water. Those sites with "discharge" in their description tend to only have standing pit water.

In-pit and heap effluent samples were collected from the following stations:

- BC-10: Kokanee Pit and Dump;
- BC-12: Blue Pit;
- BC-15: Moosehead Pit;
- BC-17: Golden Pit and Dump;
- BC-51W: Pacific Pit; and
- BC-53: Laura Creek Wetland.

Stations located at BC-9 (Upper Foster Pit and Dump), BC-13 (Moosehead West Waste Dump) and BC-14 (Moosehead East Waste Dump) were removed from Water Licence QZ96-007 in Amendment #8 and are therefore no longer required to be monitored.

Some observations from September 2017 sites visited:

- Lucky pit and dump sites, BC-18N and BC-18S, do not have water present. These sites have been reclaimed; BC-18N is a dry flat area and BC-18S is a grassy reclaimed hillslope with trees starting to fill in. These sites should be removed from the monitoring schedule;
- Pacific gulch, BC-16, is the overflow draining from Pacific pit. This channel is dry and appears to have been for some time. Previous evidence of spring runoff eroding the road and flowing down this gulch has been repaired, but this water would not be associated with Pacific Pit;
- BC-11, Blue Waste Dump, is a reclaimed waste rock storage area with a 0.5-metre soil cover with no signs of surface water running at any time of year, it is being rapidly reclaimed by trees;
- pH levels in Pacific Pit (BC-51W) remained consistently low since 2008 and again were observed to be low in 2017; and
- BC-28 observed at the waypoint for this site which is a culvert on the access road below Pond #3 (overflow pond). Pond 3 does have water but this water infiltrates rather than flowing from the pond. [Sept 2017]

3.6 BIOASSAY MONITORING

Bioassays were not collected during 2017 as the site was not actively discharging.

3.7 HYDROLOGY

Stream flow measurements for stations situated along Laura Creek, Golden Creek, Lucky Creek, Lee Creek, and Pacific Creek were conducted in 2017 during the regularly scheduled monitoring period in September, where conditions allowed. Measurements were taken according to the procedures and standards described in the

Guidance Document for Flow Measurement of Metal Mining Effluents (April 2001, EPS 2/MM/4, Mineral and Metal Division, Environment Canada), and all data are presented in Table 3-3.

Table 3-3 Summary of 2017 Stream Flow Measurements

Station	Discharge (L/s)
	26-Sept-2017
BC-1	147
BC-3	127
BC-4	26
BC-5	1886
BC-31	1097
BC-34	2296
BC-39	Dry
BC-53	139

Due to BC-53's difficult access, it was recommended that BC-37 become the site for BC-53. BC-37 is located a few hundred metres upstream and water quality, as well as discharge should be effectively similar.

3.8 SEDIMENT AND BENTHIC MONITORING

There was no sediment or benthic monitoring completed in 2017, as water licence requirements for this site were only required until 2009. Sediment and benthic monitoring were last completed in 2012 as part of Golden Predator's extended baseline monitoring program at Brewery Creek.

3.9 LEAK DETECTION AND RECOVERY SYSTEMS

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

3.10 AIR QUALITY

No air quality monitoring for mercury emissions was conducted in 2017. Refining activities were discontinued resulting in the dismantlement of the ADR facility in 2004.

3.11 EFFECTS ON WILDLIFE

The fence constructed in June 2006 to prevent wildlife from entering the process ponds was removed in 2008 during the final reclamation of the ponds. There is no liner remaining on site to pose any wildlife entrapment risk. Among the wildlife observed throughout the year were moose, and a bear, as well as caribou signs.

4 ADDITIONAL PLANS AND STUDIES

4.1 ADAPTIVE MANAGEMENT PLAN

As part of the Adaptive Management Plan there are actions to be taken if BC-39 exceeds the site specific maximum allowable total selenium concentration of 3.8 µg/L. However, BC-39 was dry and was not sampled this year.

4.2 IMPACT STUDY OF LOWER LAURA CREEK

The purpose of the study is to characterize the potential effects to lower Laura Creek and the South Klondike River resulting from the release of effluents from the project. As per Water-Use LicenceQZ96-007 the Lower Laura Creek Impact Study is submitted every three years with the last study conducted in 2016, as such no study is required this year.

5 REAGENT AND WASTE MANAGEMENT

5.1 SPILL OCCURRENCE AND RESPONSE

There were no reportable spills that occurred in 2017.

5.2 REAGENT STORAGE AND HANDLING

Other than some miscellaneous laboratory chemicals, there are no reagents or chemicals in storage at the Brewery Creek Mine.

6 WATER MANAGEMENT

6.1 DIRECT RELEASE

There was no direct release of solution in 2017. Heap drainage is diverted into the barren pond (biological treatment cell) and overflows into the overflow pond where it infiltrates into the ground. The infiltrating water meets water licence discharge requirements. Heap surface water is directed to the pregnant pond (now sediment settling pond) where it likewise infiltrates into the ground. In 2017, no effluent was discharged from the heap or the biological treatment or overflow ponds, and as such the effluent quality standards prescribed in Clause 44 do not apply. Sites BC-28, 28a, and 28b were visited in June and September 2017, and samples were collected from BC-28a and BC-28b.

The 2016 inspection indicated that the process ponds were intact with no signs or erosion or overtopping and that no remedial action was required.

7 GEOTECHNICAL INVESTIGATION

A geotechnical engineering inspection is required under Water Use Licence QZ96-007 every five years, starting in 2009, with the next one scheduled for 2019. Additionally, under the current QML A99-001 an inspection is required every two years, with the last inspection conducted by Justin Pigage, P. Eng of Tetra Tech EBA Inc. in 2016. Therefore, no inspection was required at the site in 2017.

8 CONCLUSION

A summary of the key points of this report are as follows:

- There was no direct release of solution in 2017. The heap drainage is diverted into the barren pond which passes into the overflow pond where it infiltrates into the ground. Heap surface water is directed to the pregnant pond (now sediment settling pond) where it likewise infiltrates into the ground. The ponds are partially filled as precipitation and run-off is greater than the infiltration rate. As there was no discharge in 2017 the BC-28, 28a, or 28c samples did not trigger the effluent quality standards in Clause 44.
- Water LicenceQZ96-007 specifies three compliance points for surface water quality:
    - BC-34 must meet CCME Guidelines for the Protection of Aquatic Life. BC-34 had an exceedance of selenium. However, past background water quality has been shown to have exceedances indicating elevated levels occur naturally.
    - BC-31 must meet CCME Guidelines for the Protection of Aquatic Life. There were exceedances of selenium, iron and aluminum. However, past background water quality has been shown to have exceedances indicating elevated levels occur naturally.
    - BC-39 was dry during the September 2017 sampling event.
- The wells BC-65 and BC-66 (1/2), are compliance points for the site. BC-65 was dry in 2017. BC-66(2) is the deeper well and water levels and samples were collected in September and June of 2017. The results of BC-66 were all well below the site specific maximum allowable concentrations specified within Clause 43 of Water Licence QZ96-007.
- The lysimeter compliance point, BC-70, is held to the same site specific maximum allowable standards as the wells, BC-65 and BC-66. The lysimeter reservoir was dry during each compliance monitoring trip and could therefore not be sampled.

9 REFERENCES

Canadian Council of the Ministers of the Environment, 2017. *Canadian Water Quality Guidelines for the Protection of Aquatic Life*.

Environment Canada (EC), 2001. *Guidance Document for the Sampling and Analysis of Metal Mining Effluents (EPS 2/MM/5 – April 2001)*

APPENDIX A

WATER QUALITY DATA SUMMARY

Brewery Creek Mine

2017 Water Quality Assessment

February 26, 2018

Prepared for:

GOLDEN PREDATOR EXPLORATION LTD

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. INTRODUCTION

Mining activities were carried out at the Brewery Creek Mine over a five-year period between 1996 and 2000 by Loki Gold Corp. and Viceroy Resource Corp. Ore processing (9.5 million tonnes of ore) employed conventional heap leach technology on run of mine ore, commencing in November 1996. Brewery Creek originally operated under Water Use Licence (WUL) QZ94-003, issued in August 1995 and under Quartz Mining License (QML) A99-001 issued in June 1999. In July 1997 the mine began operating under WUL QZ96-007, created as a result of an amendment application to WUL QZ94-003. Brewery Creek ceased active mining operations in September of 2000 and no additional ore was added to the heap leach after this date. This cessation date was more than two years earlier than predicted in the planning and permitting stages, due primarily to depressed gold prices. Active cyanide leaching of the heap leach pad continued until December 2001. Detoxification of the heap leach was completed in the second and third quarters of 2002 with some release of detoxified waters over 2002 and 2003 and regular post closure monitoring. In March 2005 licences and permits were again transferred, from Viceroy to Alexco Resource Corp. (after Alexco purchased the property (Access, 2010)).

In 2011, Alexco applied for an amendment QZ11-035 to licence QZ96-007 with the aim of clarifying and unifying licence conditions to reflect the current post-closure phase of the mine, in anticipation of a transfer of ownership to Golden Predator Corp. (now Golden Predator Exploration Ltd.). In 2012 Golden Predator Corp. purchased the Brewery Creek property from Alexco with the intent of amending the Water Licence to re-open the mine site.

The subject of this report is an examination of the results of the 2017 water quality monitoring program carried out by Golden Predator at the Brewery Creek Mine pursuant to the licence conditions of WL QZ96-007. The results and discussion herein include results of all sampling carried out over the course of the mine life, including a discussion of the 2017 data relative to historical conditions. The 2017 monitoring program reflects the current post-closure phase of the mine life.

The principal receiving creeks in the Brewery Creek Mine area are Lee Creek, Laura Creek, and Golden Creek which are tributaries of the South Klondike River. Three additional creeks are included in this assessment: Pacific Creek, Carolyn Creek, and Lucky Creek, the main tributaries to Lee, Laura and Golden Creeks, respectively (**Error! Reference source not found.Error! Reference source not found.**).

Lee Creek and Pacific Creek both occur in the northwest portion of the Brewery Creek property. Lee Creek headwaters originate 46 kilometres north of the property and flow due south, converging with Pacific Creek east of the property, eventually flowing into the South Klondike River. Pacific Creek headwaters originate immediately north of the mine in two separate forks, which converge and flow southwest into Lee Creek.

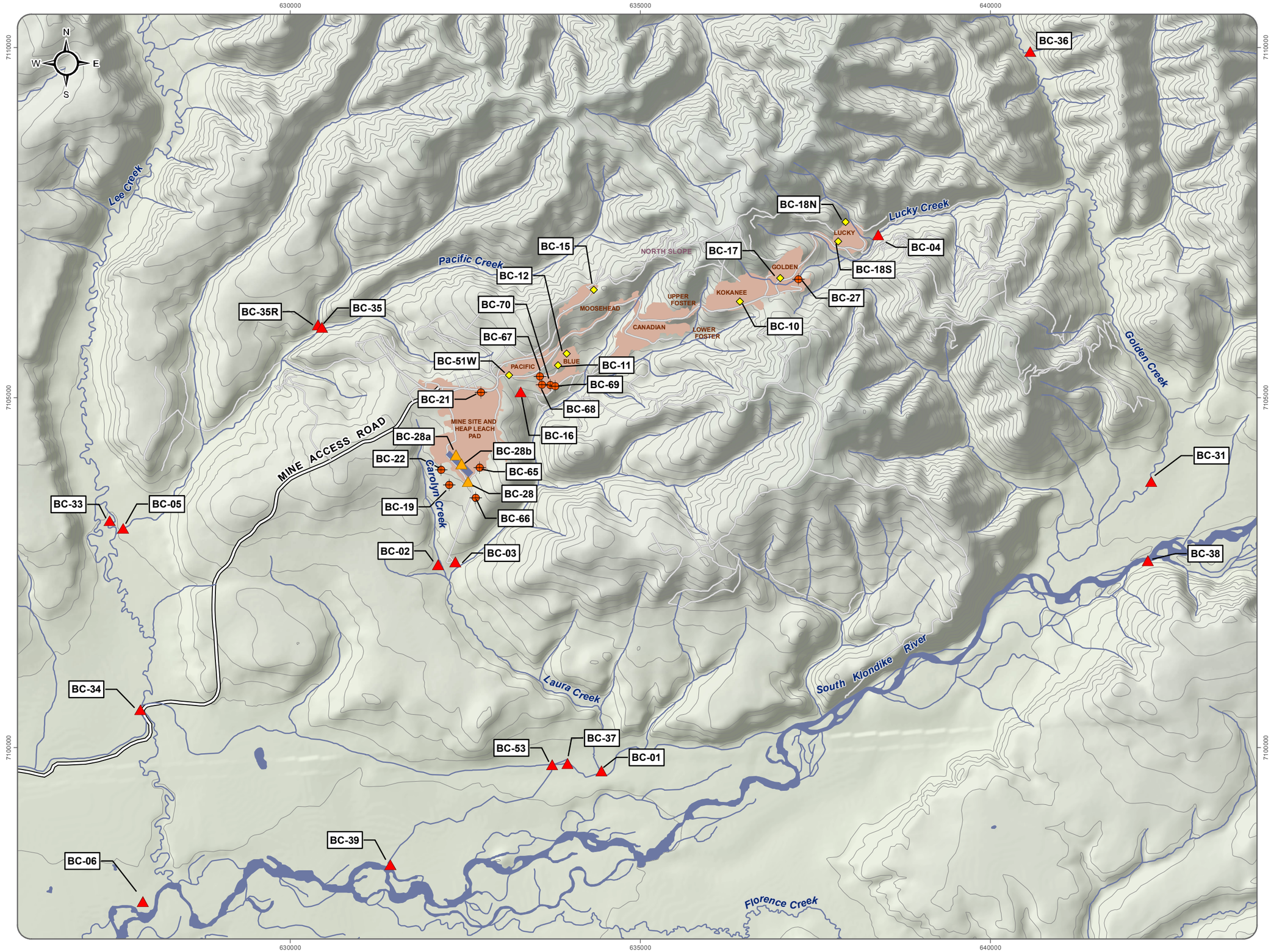
Laura and Carolyn Creeks receive runoff from a total combined area of 30.5 km^2. Flow in the upper reaches of these creeks is seasonal, while lower Laura Creek flows year round with the exception of occasional freezing conditions in winter. Carolyn Creek joins Laura Creek roughly two kilometres from its headwaters, with both eventually flowing to the South Klondike River via a wetlands area in lower Laura Creek. Laura and Carolyn Creeks were the historical receivers for mine effluent deposited from the Brewery Creek heap leach pad both during mining activities and post-closure reclamation. The leach pad and ponds were situated within the boundary of the two watersheds, and a land application system was employed during post- closure drain-down of the heap over the watershed boundary separating the streams.

The historical workings consist of seven open pit areas (nine pits total), which influenced the receiving watersheds variously. The following pits were worked during the past phase of mining at Brewery Creek:

- Pacific;

- Blue;
- West Canadian;
- Canadian;
- Upper Fosters;
- Lower Fosters;
- Kokanee;
- Golden; and
- Lucky.

The majority of mining occurred in the Laura Creek drainage; the Pacific, Blue, Canadian, Fosters and Kokanee developments, as well as a significant portion of the Moosehead development and the heap leach facility are all located within the Carolyn and Laura Creek watersheds. The Golden and Lucky developments lie within the Lucky Creek watershed, while the Moosehead pit also lies partially within the Pacific Creek catchment.



GOLDEN PREDATOR
TSX: GPD

BREWERY CREEK MINE

FIGURE 1-1
WATER QUALITY MONITORING STATIONS

- Surface Water
- Groundwater
- Heap Effluent
- Pit/Dump Discharge
- Watercourse
- Waterbody
- Access Road
- Other Roads/Trails
- Mine Area
- Contour (100 m interval)

1:52,000 *when printed on 11 x 17 inch paper*

0 0.5 1 1.5 2 2.5

kelometres

ALEXCO ENVIRONMENTAL GROUP

NAD 83 UTM Zone 7N

D:\Project\All\Projects\BreweryCreek\Maps\1-Overview_Maps\WQ_Stations\04-GW_AND_SW\WQ_Stations_20180222.mxd
(*Last edited by: amatlashevska;22/02/2018/12:45 PM*)

2. WATER QUALITY MONITORING PROGRAM

Environmental monitoring at Brewery Creek has transitioned to the post-closure phase, which as of 2017 involves annual monitoring of water quality surveillance sites where conditions allow, with a few sites to be monitored on a semi-annual schedule. Annual sampling events are typically conducted in September or October, during lower-flow conditions. The amount of environmental monitoring has declined since closure of the heap has been accomplished and the drain down solutions treated. Environmental monitoring under QZ96-007 during the post-closure period has been reduced commensurate with the expected level of site activity. The current water quality monitoring schedule is presented in Appendix A. Water quality sampling was performed as required by Schedule B of Water Licence QZ96-007, and results can be found in Appendix B to this memo.

2.1 EFFLUENT QUALITY STANDARDS AND WATER QUALITY GUIDELINES

Clause 46 of Water Licence QZ96-007 states that:

"Water quality at monitoring stations BC-31, BC-34 and BC-39 shall not exceed the water quality guidelines specified for the protection of aquatic life contained in the Canadian Environmental Quality Guidelines prepared by the Canadian Council of Ministers of Environment, as amended from time to time."

As such, for the receiving water quality data assessment, water quality parameters were screened against Canadian Water Quality Guidelines for Protection of Aquatic Life (CWQG; CCME 2012) (Table 2-1). Some water quality guidelines vary on the basis of water hardness (e.g., cadmium, copper, lead; CCME 2012).

In addition to the CCME guideline, Laura Creek at station BC-39 has an established site-specific selenium criterion of 0.0038 mg/L as defined as per Clause 38(d) of Water Licence QZ96-007. Furthermore, the Laura Creek AMP (2004) indicated the company would also use a site-specific selenium water quality objective (SSWQO) of 0.0038 mg/L at Laura Creek station BC-53. Therefore, this report includes the use of the SSWQO guideline for comparison on the Laura Creek and Carolyn Creek watersheds.

Table 2-1 Relevant Canadian Water Quality Guidelines

Parameter	Units	Guideline	
		Source	Value (mg/L)
Antimony	mg/L	Ontario PWQO	0.02
Arsenic	mg/L	CWQG	0.005
Copper [a]	mg/L	CWQG	varies
Lead [a]	mg/L	CWQG	varies
Nitrate Nitrogen	mg/L	CWQG	3.00
Selenium	mg/L	CWQG/SSWQO	0.001/0.0038
Zinc	mg/L	CWQG	0.03
Total Suspended Solids (TSS)	mg/L	n/a	n/a

*Hardness-dependent.

For the receiving environment water quality assessment, a reference condition has also been established using pooled reference data for the Brewery Creek region collected between 2008 and 2012. These values reflect the upper limit on the range of variability in the region and can be used together with CCME guidelines and Water Licence standards, or where guidelines and standards are not available or appropriate. These reference guidelines are used in this report for comparison

and assessment of the Lee Creek and Golden Creek watersheds. It has been determined that these reference conditions are not appropriate for use in the Laura Creek watershed, where reference data were not available for use in developing the reference condition.

For effluent and groundwater monitoring stations relating to heap effluent discharge via direct discharge and groundwater infiltration, water quality results were screened against the effluent quality standards established in Clause 42, 43 and 44 of WL QZ96-007 (**Error! Reference source not found.**). Clauses 42 and 44 of the licence refer to standards for heap discharges either via land application or directly to surface water, respectively. Clause 43 refers to standards for groundwater stations immediately down gradient of the heap.

Table 2-2 Effluent Quality Standards (mg/L), Water License QZ96-007

Parameter	Maximum Concentration (mg/L)		
	Clause 42	Clause 43	Clause 44
WAD Cyanide	0.25	0.125	0.25
Total Cyanide	2.0	1.0	2.0
Ammonia (as N)	15.0	7.5	5.0
Copper	0.5	0.1	0.2
Arsenic	0.5	0.25	0.5
Antimony	1.0	0.5	1.0
Mercury	0.005	0.0025	0.005
Zinc	0.5	0.25	0.5
Selenium	0.75	0.3	0.25
Lead	0.2	0.1	0.2
Aluminum	1.0	3.0	1.0
Bismuth	0.5	0.25	0.5
Cadmium	0.1	0.05	0.1
Chromium	0.5	0.25	0.5
Iron	1.0	5.0	1.0
Manganese	2.0	6.0	2.0
Molybdenum	0.5	0.25	0.5
Nickel	0.8	0.25	0.5
Silver	0.1	0.05	0.1
pH	-	-	6.0 to 9.5
Suspended Solids	-	-	50

3. WATER QUALITY RESULTS

The following sections address the three main watersheds and tributaries in the project area, which are each assessed on three different levels. First, where relevant, a comment on the quality of the data is made with respect to both method detection limit (MDL) and the occurrence of zero values in the dataset for selected parameters. Second, the data are assessed in relation to the benchmark concentrations selected for this assessment (CCME and reference condition). Third and lastly, summary statistics and trends in the data are discussed, with a focus on the 2017 data in relation to historical results. At the end of each watershed chapter, the discussion expands to identify issues more broadly associated with each watershed on the whole, and summary remarks are made. All water quality data for surface water, groundwater, and in-pit water are presented in summary tables within Appendix A.

3.1 LUCKY AND GOLDEN CREEKS

A total of three stations were established on Lucky and Golden Creek catchments to determine and assess water quality characteristics (**Error! Reference source not found.**). BC-04 is located on Lucky Creek below all mine related developments, and thus reflects the cumulative impact of all mining activities on that stream. Two stations are located on Golden Creek, one

upstream of the confluence with Lucky Creek (BC-36), and the other downstream of it (BC-31). Monitoring at BC-31 began in 1991, before the commencement of mining, while monitoring at BC-04 began in 1995, shortly before mining commenced. BC-36 has been monitored periodically, beginning in 1996 for a year, and resuming again in mid-2007 until 2014.

Table 3-1 WQ Stations on Lucky and Golden Creeks

Stations on Lucky and Golden Creeks		Included in Assessment
BC-36	Golden Creek upstream of Lucky Creek	Yes (up to 2014)
BC-31	Golden Creek downstream of Lucky Creek	Yes
BC-04	Lucky Creek d/s from Lucky Pit	Yes

3.1.1 SELENIUM

Selenium concentrations exceeded the CCME guideline (0.001 mg/L) in all samples and at all sites on Lucky and Golden Creeks in 2017. Data collected during monitoring prior to 2004 was confounded by the presence of high MDLs. Lower detection limits were used in recent years, which confirmed that both background and receiving waters exceeded the CCME guideline. Indeed, selenium concentrations measured in Golden Creek upstream of mine related developments (site BC-36) were often higher than those measured downstream (BC-31), indicating the selenium concentrations are naturally elevated. Trends for selenium show no change over the last decade (see Figure 3-1).

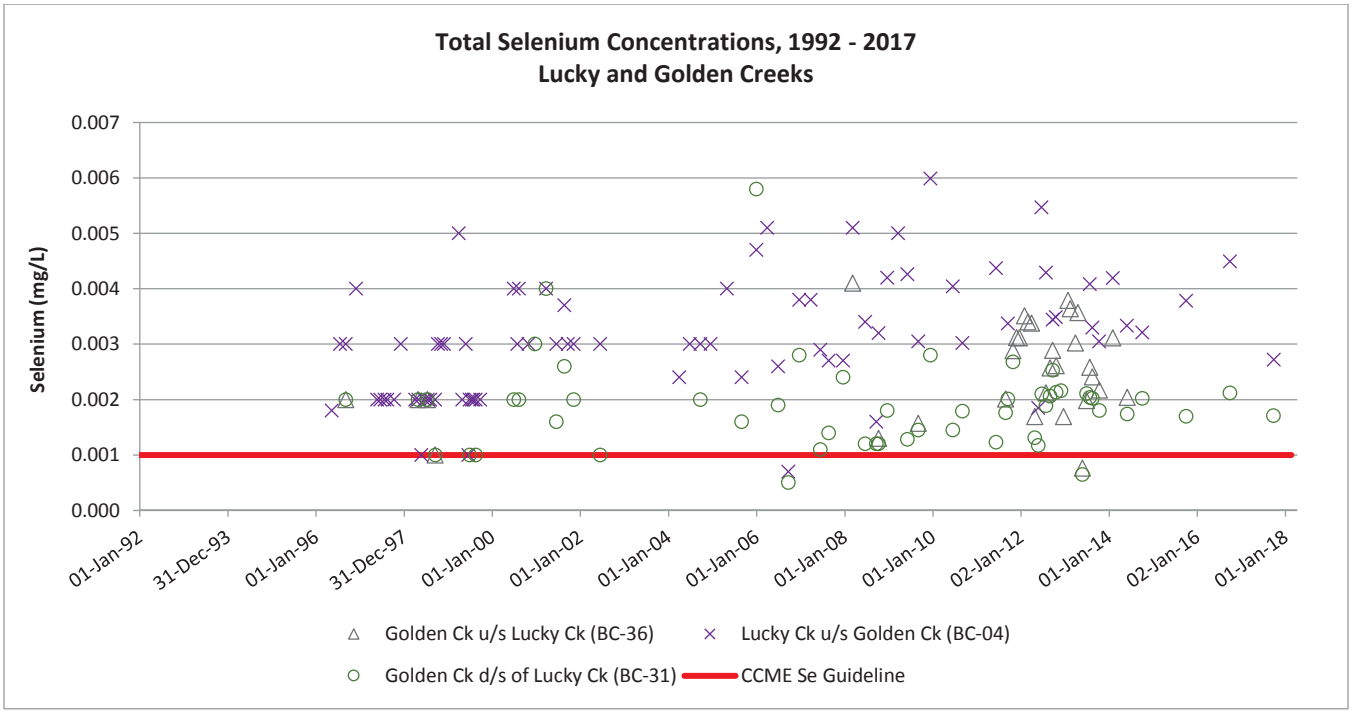


Figure 3-1 Selenium Concentrations on Lucky and Golden Creeks (1992-2017)

3.1.2 ANTIMONY

Antimony concentrations at the background station on Golden Creek (BC-36) were significantly lower than at the downstream receiving environment station (BC-31), as shown on **Error! Reference source not found.**. Concentrations of antimony were higher in Lucky Creek (mean background concentration at BC-36 was 20-fold lower than the concentration at BC-04), suggesting that Lucky Creek is likely the primary source of antimony entering Golden Creek.

Antimony results at BC-31 have remained relatively constant throughout the pre-mining, mining, and decommissioning and reclamation phases of the mine life, indicating that antimony concentrations may not have been impacted greatly by mining activities. Moreover, concentrations at BC-31 have remained well below the Ontario preliminary water quality objective (PWQO) for antimony (0.020 mg/L).

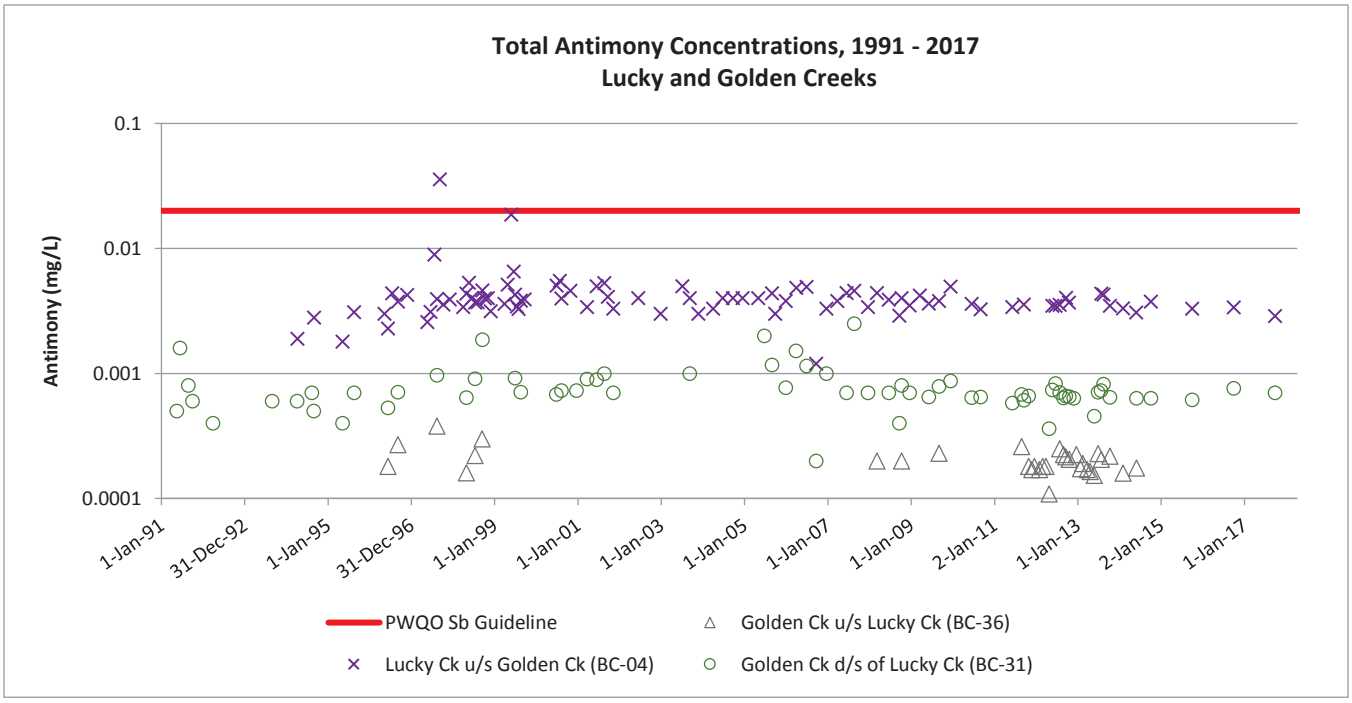


Figure 3-2 Antimony Concentrations on Lucky and Golden Creeks (1991-2017). Note Log Scale.

3.1.3 ARSENIC

Arsenic concentrations in Golden and Lucky Creek exhibited a similar pattern to antimony, with the data suggesting that Lucky Creek was the primary source of arsenic to Golden Creek, as shown on **Error! Reference source not found.**. Arsenic concentrations were consistent through all three mine phases. Results at BC-04 were at or near the CCME guideline, exceeding the guideline in approximately 40% of samples all samples collected. Arsenic concentrations in the Golden Creek receiving environment (BC-31) remained below the CCME guideline at all times.

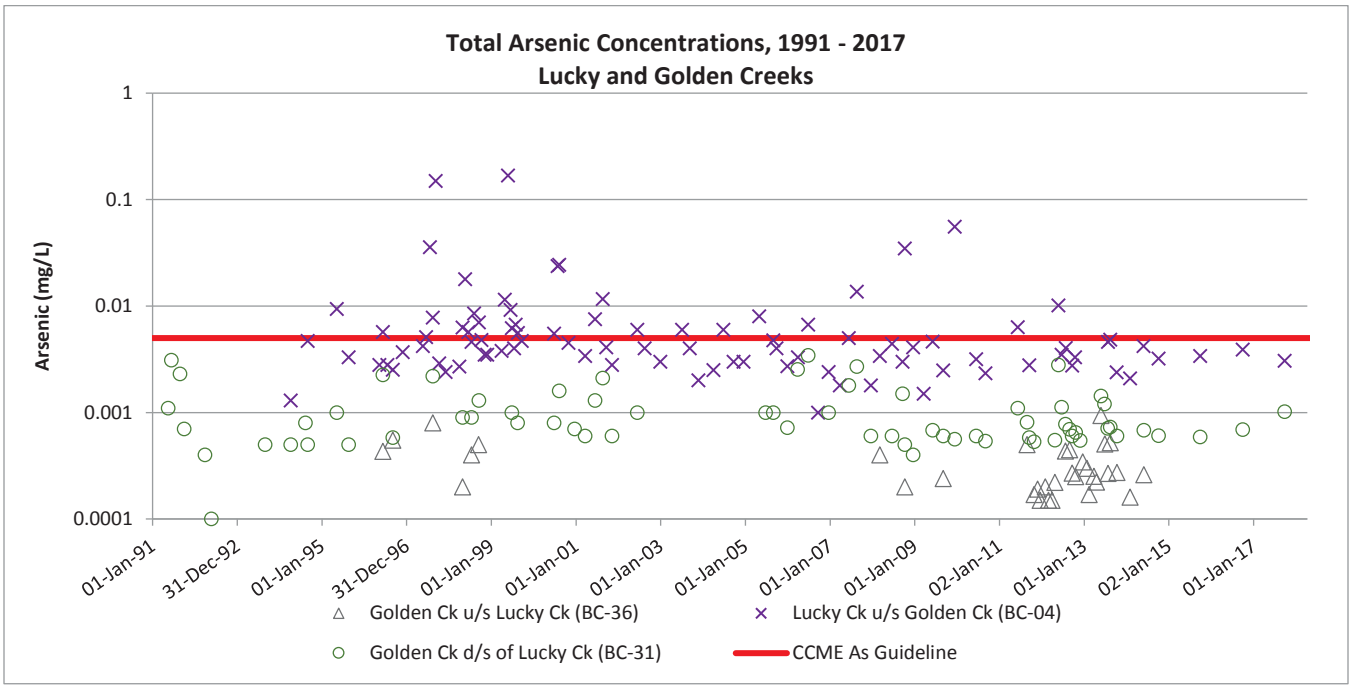


Figure 3-3 Arsenic Concentrations on Lucky and Golden Creeks (1991-2017). Note Log Scale.

3.1.4 LUCKY AND GOLDEN CREEKS SUMMARY

Water quality data collected in the Lucky and Golden Creek watershed indicated no increasing or decreasing trend for the major parameters assessed in this report, or those regulated under QZ96-007. Data for all parameters assessed were generally at or below CCME guidelines with the exception of selenium, which appears to be naturally elevated in this region.

Additional parameters zinc, copper, lead, total suspended solids and nitrate are presented graphically in Appendix B for Lucky and Golden Creeks.

3.2 LEE AND PACIFIC CREEKS

Five water quality monitoring stations were established between Lee and Pacific creeks; two on Lee Creek and three on Pacific Creek, as detailed in Table 3-2Table 2-1. Each creek contains one reference station, and at least one receiving environment station. The reference stations were used in establishing the reference benchmark for the watershed, while the receiving stations are assessed here relative to those benchmarks. The reference stations are currently not part of the license and were not sampled in 2017.

Table 3-2 WQ Stations on Lee and Pacific Creeks

Stations on Pacific Creek and Lee Creek		Included in Assessment
BC-35R	Pacific Creek Reference Station	No
BC-33	Lee Creek Reference Station	No
BC-35	Pacific Creek below Leach Pad	No
BC-05	Pacific Creek before confluence w/ Lee Creek	Yes

BC-34	Lee Creek below confluence w/ Pacific Creek	Yes

Station BC-35 on Pacific Creek was impacted by previous developments in the northern region of the property, including the Moosehead pit; however, station BC-05 is better situated to represent the cumulative downstream impacts of mining on this Creek. Additionally, data are not available for BC-35 earlier than 2008, which limits the usefulness of this station for background information. As such, BC-35 was not used or considered in this assessment.

In August 2011, a new reference station (BC-35R) was established on the north branch Pacific Creek as a result of a lack of available background data for this stream. Data collected at this station were used in establishing the reference conditions referred to in Section 2.2

3.2.1 SELENIUM

The interpretation of selenium results obtained on Lee and Pacific Creeks were confounded by the occurrence of high MDLs for the entire dataset, and zero values on some early dates prior to mining. The typical MDL observed was 0.001 mg/L, which precludes an interpretation of the data with respect to the CCME guideline (also 0.001mg/L). Although it is known that these values are below the CCME guideline of 0.001mg/L, it is not known to what degree. In addition, among all other results only two show values higher than a practical quantitative limit set at three times the MDL. These results can be seen in Figure 3-4 as a flat line in the data series prior to 2002, and vary after that date. In the presence of high MDLs and lacking additional information, it is unclear at what rate selenium results exceed the CCME guideline, or to what degree they are below.

Despite these challenges, the pooled reference dataset for 2008 – 2017 provided insight into background conditions for the watershed. Selenium is one of two parameters, the other being copper, for which the reference condition was higher than the CCME guideline, and therefore a more appropriate benchmark for comparison.

Of all observations, only two were higher than the reference condition, both in 2008, as shown **Error! Reference source not found.**, leading to a low rate of results exceeding the benchmark. Also notable was the low variability in selenium concentrations over the entire record; results were generally at or near the MDL for all samples collected. None of the results obtained in 2017 exceeded the background condition in the downstream receiver on Lee Creek (BC-34), although the results were in excess of the CCME guideline.

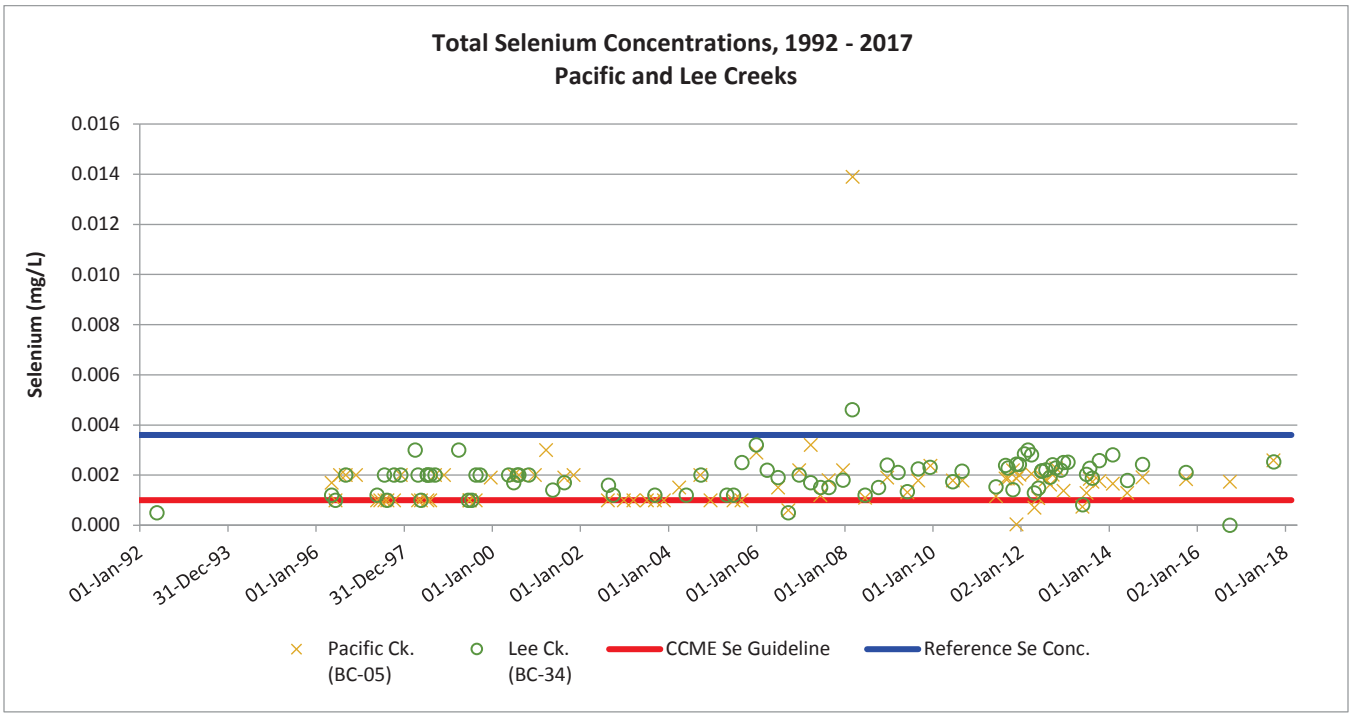


Figure 3-4 Selenium Concentrations on Lee and Pacific (1992-2017)

3.2.2 ANTIMONY

Antimony results were not generally problematic with respect to high MDLs, except over one period at each station (BC-34: mid-2002 through mid-2005; BC-05: 2002 through mid-2005). In these cases, MDLs were higher than the reference concentration, but lower than the Ontario PWQO guideline (0.02 mg/L). Overall concentrations showed little variability from the 0.0003 mg/L reference benchmark, or between non-mining, mining, and reclamation periods, as shown on **Error! Reference source not found.**. The mean at both station BC-05 (Pacific Creek receiver) and BC-34 (Lee Creek receiver) was less than the Ontario PWQO by one order of magnitude.

In Pacific Creek, antimony exhibited consistently higher results at the downstream receiver station than the reference benchmark, including during pre-mining. None of the results obtained in 2017 exceeded the Ontario PWQO for antimony in the downstream receiver on Lee Creek.

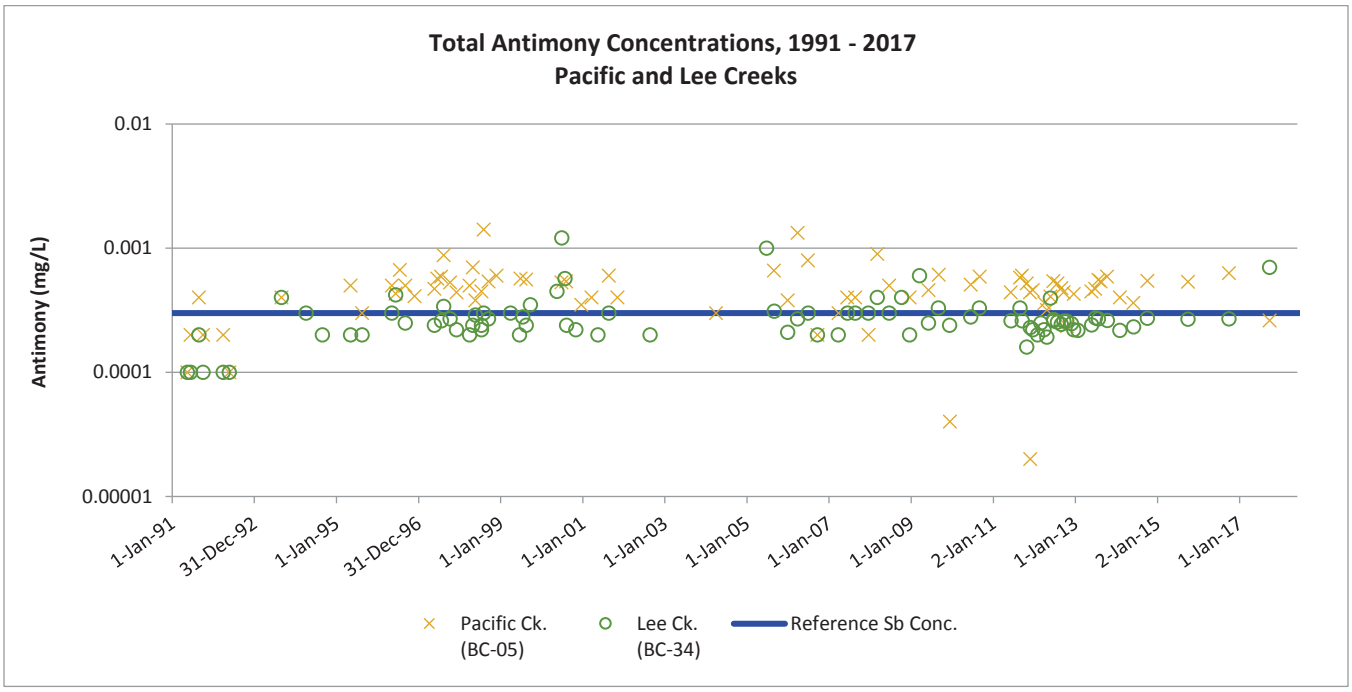


Figure 3-5 Antimony Concentrations on Lee and Pacific Creeks (1991-2017)

3.2.3 ARSENIC

Arsenic exceeded the reference condition concentration (0.001 mg/L) in less than 10% of samples in Pacific Creek during the mining and decommissioning and reclamation phases, and in Lee Creek during the decommissioning phase. It did not exceed reference in Pacific Creek on any occasions prior to mining, as shown on **Error! Reference source not found.**. None of the results obtained in 2017 exceeded the CCME guideline for arsenic in the downstream receiver on Lee or Pacific Creeks.

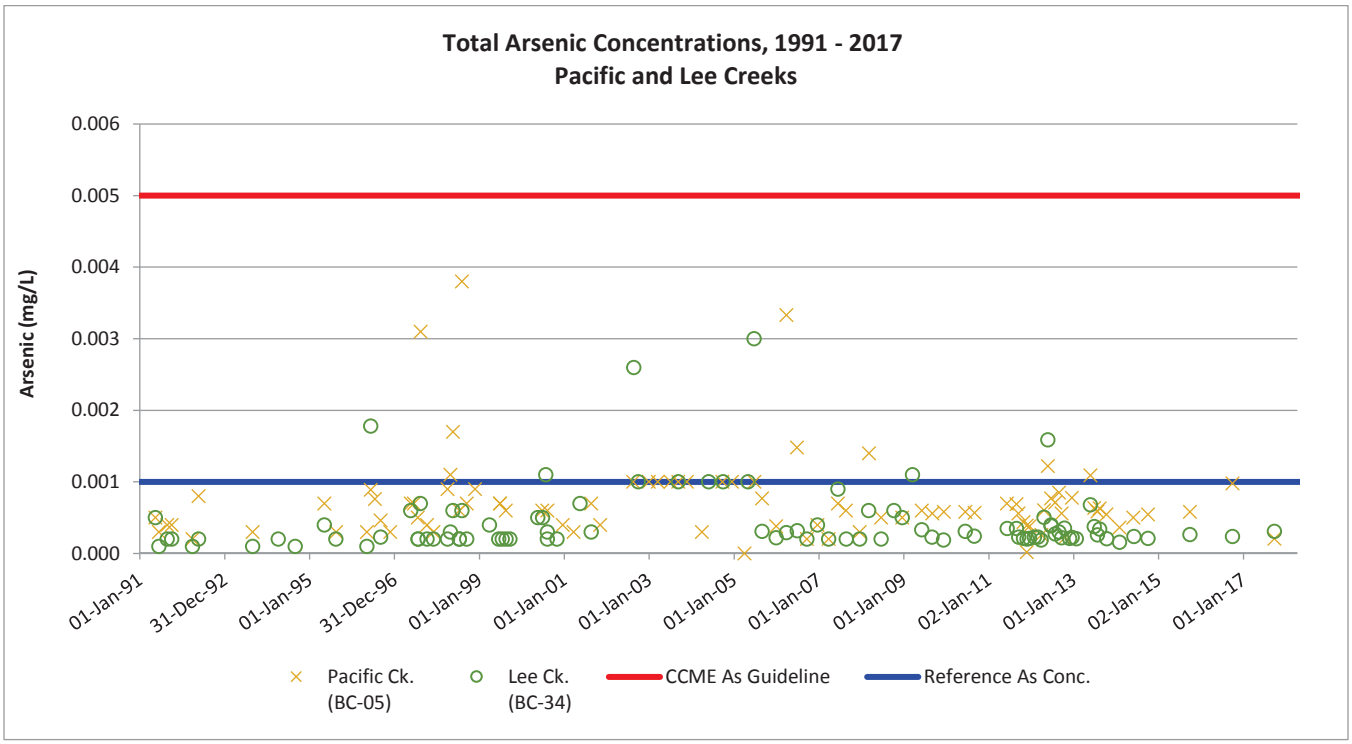


Figure 3-6 Arsenic Concentrations on Lee and Pacific Creeks (1991-2017)

3.2.4 ZINC, COPPER, AND LEAD

In Lee Creek, it was noted that zinc, copper and lead occasionally exceeded reference condition concentrations (<10% of the time). Zinc and copper also occasionally <10% of the time) exceeded their CCME guidelines. However, these elements do not generally pose a threat in Lee Creek, as higher-than-reference concentrations occurred both prior to and after production activities began in 1996.

In Pacific Creek, lead exceeded the reference condition concentration <10% of the time during pre-mining and mining conditions, but not during decommissioning and reclamation. Copper was found to exceed the reference condition concentration <10% of the time only during pre-mining conditions.

The pre-mine variability of zinc, copper and lead in Lee Creek, and of copper and lead in Pacific Creek above the reference condition indicate that these elements do not pose a risk to these watersheds as a result of mining. Moreover, the reference condition concentrations for both zinc and lead are below CCME guidelines.

In 2017 copper, lead, and zinc concentrations were all below their respective CCME guidelines; plots detailing trend data as well as 2017 data are provided in Appendix B and Appendix A respectively.

3.2.5 NITRATE

Nitrate-N concentrations in Lee and Pacific Creeks were well below the CCME guideline, as shown on Figure 3-7, during pre-mine, mining, and decommissioning and reclamation phases.

In 2004, a fire occurred at the Brewery Creek Mine primarily within the Laura and Carolyn Creek watersheds, but also affected the Lee and Pacific Creek watersheds to a lesser extent. Fire-caused changes in nutrient availability that can have enormous effects on the downstream environment; in particular, fires have a great influence on nitrate concentrations, as the availability of this nutrient increases following forest fires. The post-fire flush of inorganic nitrogen is not solely due to the physical breakdown of plant and animal tissues by fire; it is also a function of the enhanced activity of microbes in the warmer and more alkaline soil of a recently-burned forest.

Nitrate results in Pacific Creek, and to a lesser extent in Lee Creek, showed a minor spike in the years after the fire. Increased nutrient availability may be responsible for the high values observed in Pacific Creek in 2007, 2008 and 2014, and may be responsible for the increase in overall concentrations of nitrate on Lee Creek. None of the results obtained in 2017 exceeded the CCME guideline for nitrate in the downstream receiver on Lee Creek or on Pacific Creek.

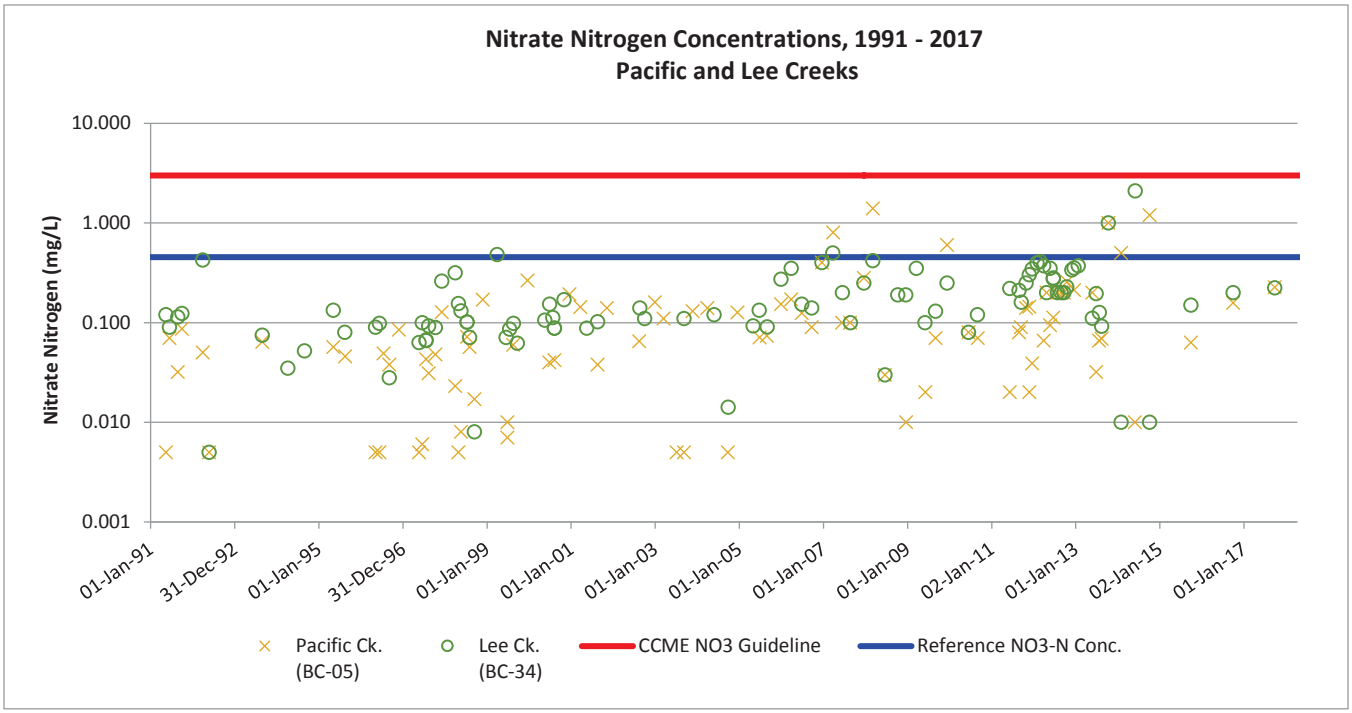


Figure 3-7 Nitrate Nitrogen Concentrations on Lee and Pacific Creeks (1991-2017). Note Log Scale

3.2.6 LEE AND PACIFIC CREEKS SUMMARY

Only one notable increase in metals content was noted in Pacific and Lee Creeks over the course of the mine life. Pacific Creek saw levels of arsenic above reference during mining and decommissioning and reclamation (<10% of samples), indicating that mining may have had an impact on arsenic concentrations. However, all arsenic samples analysed during this period of elevated values were well below the CCME guideline. Pacific Creek saw high levels of antimony (>50% exceeding reference) during all periods, indicating that the reference condition may not appropriately characterize antimony at this station. In Lee Creek, antimony, zinc, copper and lead concentrations were observed to exceed reference <10% of the time in all samples; however, this was found to be true during pre-mining conditions, and was not particular to mining or decommissioning and reclamation. Nitrate-N exhibited values above the reference condition, but not CCME, in the years following the 2004 forest fire at Brewery Creek, indicating that the fire had a measurable effect on this parameter, and could also be influencing the results of other parameters.

The results of this study indicate that none of the parameters investigated in Lee Creek or Pacific Creek occur at concentrations which would lead to a designation as a contaminant of concern. In general, concentrations are below CCME guidelines and in cases where they exceed CCME, such variability is observed even during pre- mining conditions, indicating that mining activities have not had an adverse impact on receiving water quality. Moreover, observed concentrations were not elevated during either mining or decommissioning and reclamation relative to reference concentrations, with the exception of arsenic on Pacific Creek, leading to the conclusion that the impact to the Pacific Creek and Lee Creek receiving environments is negligible even relative to background (which is generally lower than CCME). Only arsenic in Pacific Creek was observed to have increased above reference.

No notable changes in water quality were observed in Pacific and Lee Creeks during 2017. In general, results were below CCME guidelines with the exception of selenium, which appears to be naturally elevated in surface waters around the site.

3.3 LAURA AND CAROLYN CREEKS

Seven stations were established on Laura and Carolyn Creek watersheds, as shown on Table 3-3. Six of these are located on Laura Creek, and one on Carolyn Creek. Monitoring of stations BC-01, BC-02 and BC-03 began in 1991, before the commencement of mining. As a result of impacts observed in the lower portion of Laura Creek during mining and at the start of decommissioning and reclamation, a program was established to assess water quality in the Lower Laura Creek system. This program used additional stations established in the lower portion of the creek, including BC-37, BC-53 and BC-39. Of those, only BC-39 has been analyzed in this assessment, as the results of the Lower Laura Creek system are presented in the Impact Study on Lower Laura Creek (AEG, 2017).

Table 3-3 WQ Stations on Laura and Carolyn Creeks

Stations on Carolyn Creek and Laura Creek		Included in Assessment?
BC-32	Laura Creek below Exploration Camp	No
BC-03	Laura Creek above confluence w/ Carolyn Creek	Yes
BC-01	Laura Creek 50m u/s Ditch Road	Yes
BC-37	Laura Creek @ Ditch Road	No
BC-53	Laura Creek 50m d/s Ditch Road	No
BC-39	Laura Creek in the side channel of South Klondike River	Yes (up till 2016)
BC-02	Carolyn Creek before confluence with Laura Creek	Yes (up till 2015)

3.3.1 SELENIUM

High MDLs for selenium complicated analysis of results obtained on Laura and Carolyn Creeks (as was the case for Lee and Pacific Creeks), especially prior to mining. However, higher results (>MDL) observed in Carolyn Creek after 2003 allowed analysis of selenium at least on that stream, as shown on Figure 3-8. On Laura Creek however, results were often at or near the detection limit.

Another factor related to the MDL that influenced interpretation of water quality was that the SSWQO established during the previous 1996 water licencing process was only slightly less than four times the typical MDL. A Practical Quantitative Limit (PQL) of five times the MDL is considered prudent in assessing water quality results, although a PQL of three times the MDL is sometimes used.

Carolyn Creek saw the greatest increase in selenium concentrations over the study period, reaching over 0.03 mg/L in August 2004, and nearly as high on several other occasions between 2005 and 2008, at which point concentrations decreased. During

the decommissioning and reclamation phase at Brewery Creek, Carolyn Creek exceeded the SSWQO for selenium in 48% of samples, compared with only 6% during mining, and 14% prior to mining.

During the period between 2005 and 2008, upstream concentrations of selenium on Laura Creek were occasionally higher than the SSWQO, reaching 0.006 mg/L on one occasion at BC-01. These results drove values up in the downstream reaches of Laura Creek at BC-39 as well. In June 2007 during the spring freshet, BC-39 reached as high as the site-specific standard of 0.0038 mg/L. These higher concentrations however have abated more recently (since 2008).

Despite an observed increase in selenium concentrations on Laura Creek, results were rarely in excess of the SSWQO, and in no cases exceeded the standard >10% of the time at any station on Laura Creek (BC-01, BC-03 and BC-39). Nonetheless, selenium is regarded as a contaminant of concern within the Carolyn and Laura Creek watershed as a result of the observed high concentrations of selenium in Carolyn Creek relative to background conditions, and the earlier need to establish an SSWQO for this area.

The 2016 results were below the site-specific objective. BC-01 and BC-03 were above CCME, but were within the trend that had been observed throughout mine life.

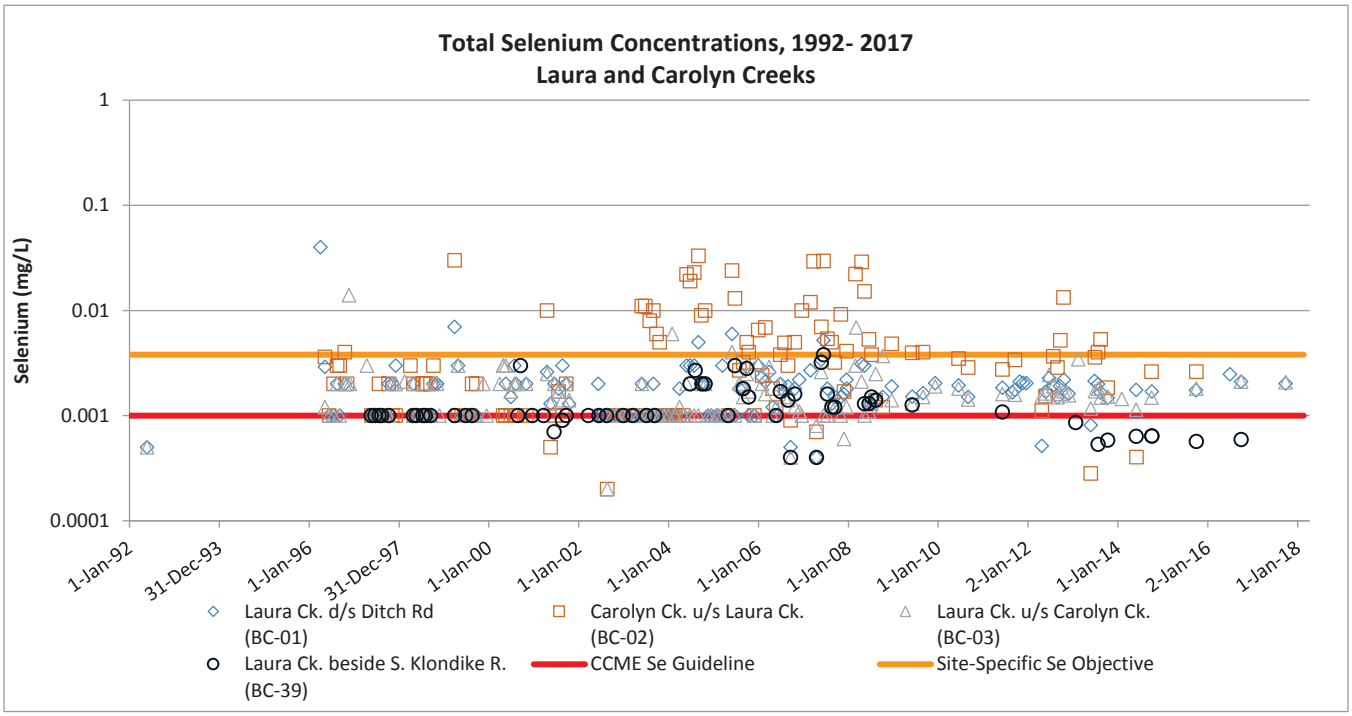


Figure 3-8 Selenium Concentrations on Laura and Carolyn Creeks (1992-2017). Note Log Scale.

3.3.2 ARSENIC

Arsenic results were not affected by high MDLs. The results show that arsenic concentrations increased in the Laura and Carolyn Creek watersheds primarily after the start of mining; however, the limited background dataset for these sites makes comparison with background benchmarks tenuous.

Arsenic concentrations did not show a specific trend for any sites, but all four stations analyzed have exceeded the CCME guideline in the past, as shown on Figure 3-9. At BC-01, arsenic exceeded the CCME guideline in excess of 60% of results

during production and decommissioning and reclamation, but only exceeded CCME 15% of the time prior to mining. At BC-02 and BC-03, arsenic was in excess of CCME >10% of the time both during production and decommissioning and reclamation, and exceeded CCME more commonly during mining and reclamation than it did prior to mining. Both BC-01 and BC-03 were found to be above the CCME guideline for arsenic in 2017. At BC-39, which is a compliance point with respect to CCME guidelines, arsenic exceeded the guideline 5% of the time during mining, and 13% of the time during decommissioning and reclamation; however, arsenic concentrations have remained below the CCME guideline since summer 2007.

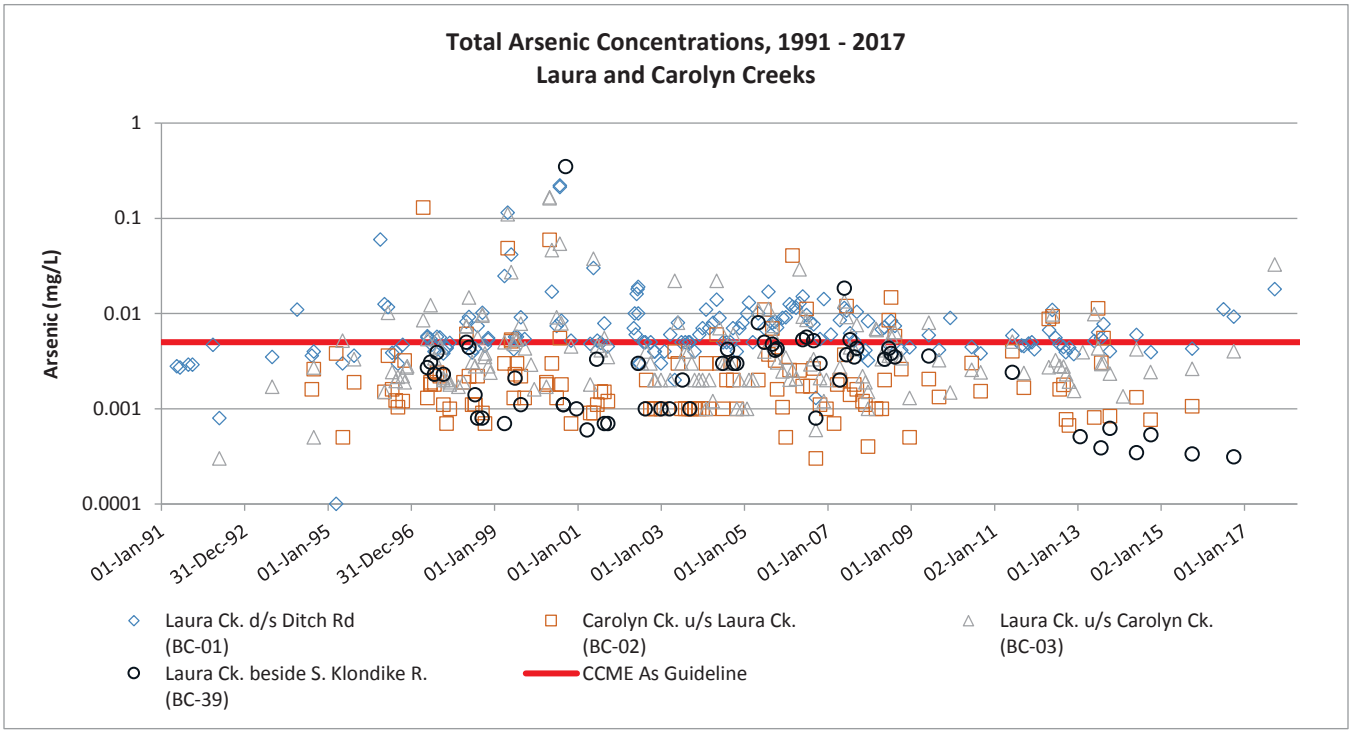


Figure 3-9 Arsenic Concentrations on Laura and Carolyn Creeks (1991 – 2017). Note Log Scale.

3.3.3 ZINC

Like arsenic, the zinc dataset was not impacted by high MDLs. Relative to the arsenic time series for these sites, zinc exceeded CCME with significantly lower frequency. Although zinc values spiked somewhat during production, Figure 3-10 shows a bimodal distribution where zinc again peaks after 2005. The June 2004 fire in the Carolyn and Laura Creek watersheds may have increased the availability of soils containing some zinc for erosion into river waters. In the absence of dissolved zinc concentrations with which to compare the total zinc results, this is difficult to confirm. Zinc concentrations at site BC-39 exceeded to CCME guideline on three occasions (July 1997, September 2000, and May 2007). Since May 2007, zinc concentrations at BC-39 have remained below the CCME guideline.

Both BC-01 and BC-03 exceeded the zinc CCME guideline in September 2017. The TSS for this sampling event was above average, which may explain why parameters, such as zinc, were elevated at that time.

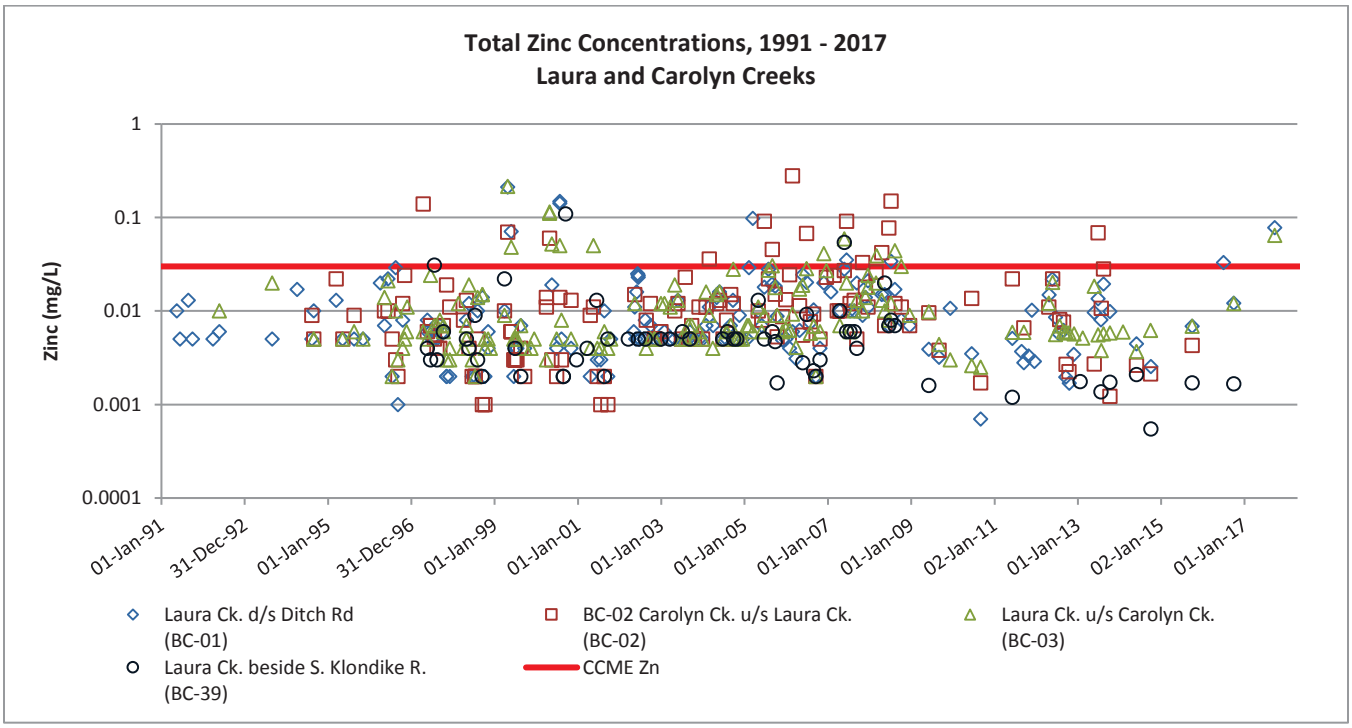


Figure 3-10 Zinc Concentrations on Laura and Carolyn Creeks (1991 – 2017). Note Log Scale.

3.3.4 COPPER

Copper results exhibited variation about the CCME guideline, but do not indicate any specific trend, as shown on Figure 3-11. All upstream stations (BC-01, BC-02 and BC-03) show copper results exceeding the CCME guideline >10% of the time during all phases (pre-mine, production, and decommissioning and reclamation).

Results indicate that copper has not become a concern in the Laura Creek watershed as a result of mining. The CCME copper guideline was exceeded at BC-01 and BC-03 in September 2017, but were within the trend that had been observed throughout mine life, and were associated with a high TSS event.

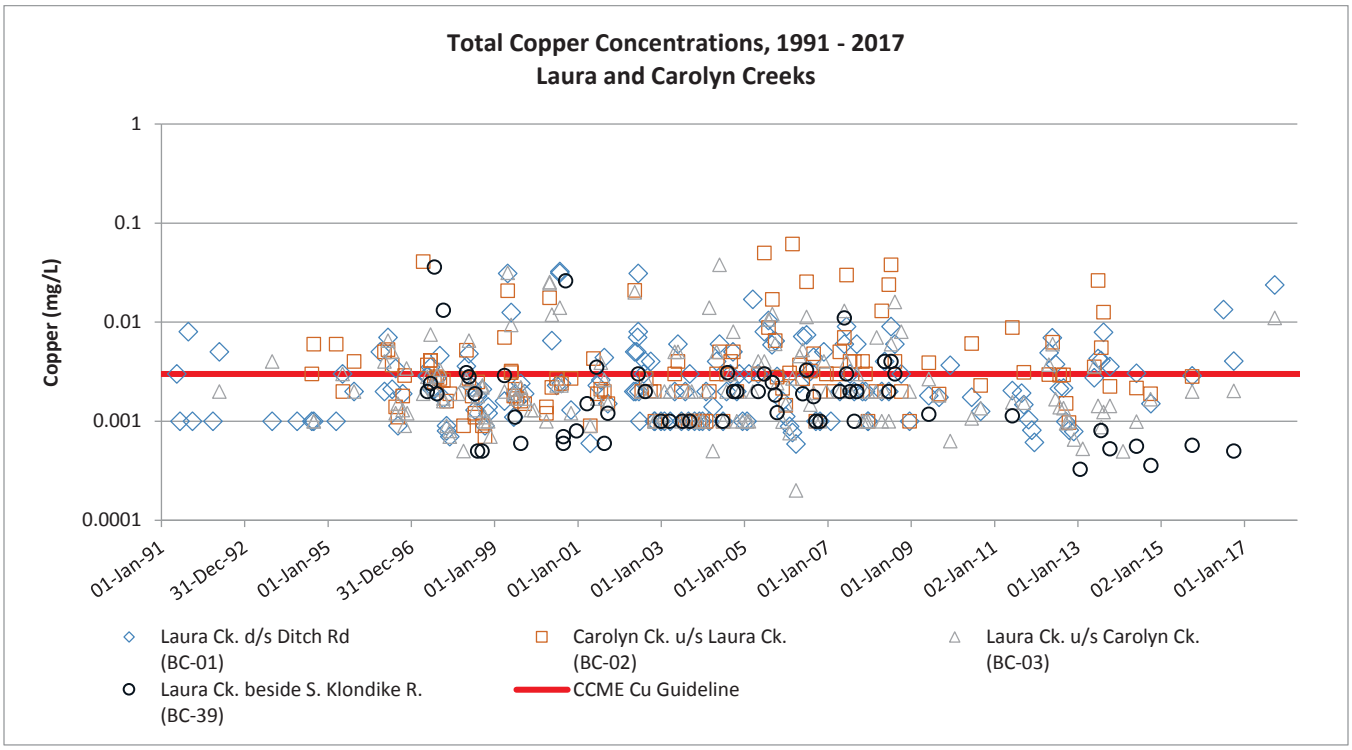


Figure 3-11 Copper Concentrations on Laura and Carolyn Creeks (1991 – 2017). Note Log Scale.

3.3.5 TOTAL SUSPENDED SOLIDS

Total suspended solids (TSS) often exhibits a seasonal pattern during high and low flow periods. On Figure 3-12, all samples that exceeded the reference TSS value of 33 mg/L occurred during the summer months, especially during May and June, at the spring freshet. The high TSS at BC-01 and BC-03 in September 2017 could be associated with a precipitation event and may explain the occurrence of the high values observed for copper and zinc at this time.

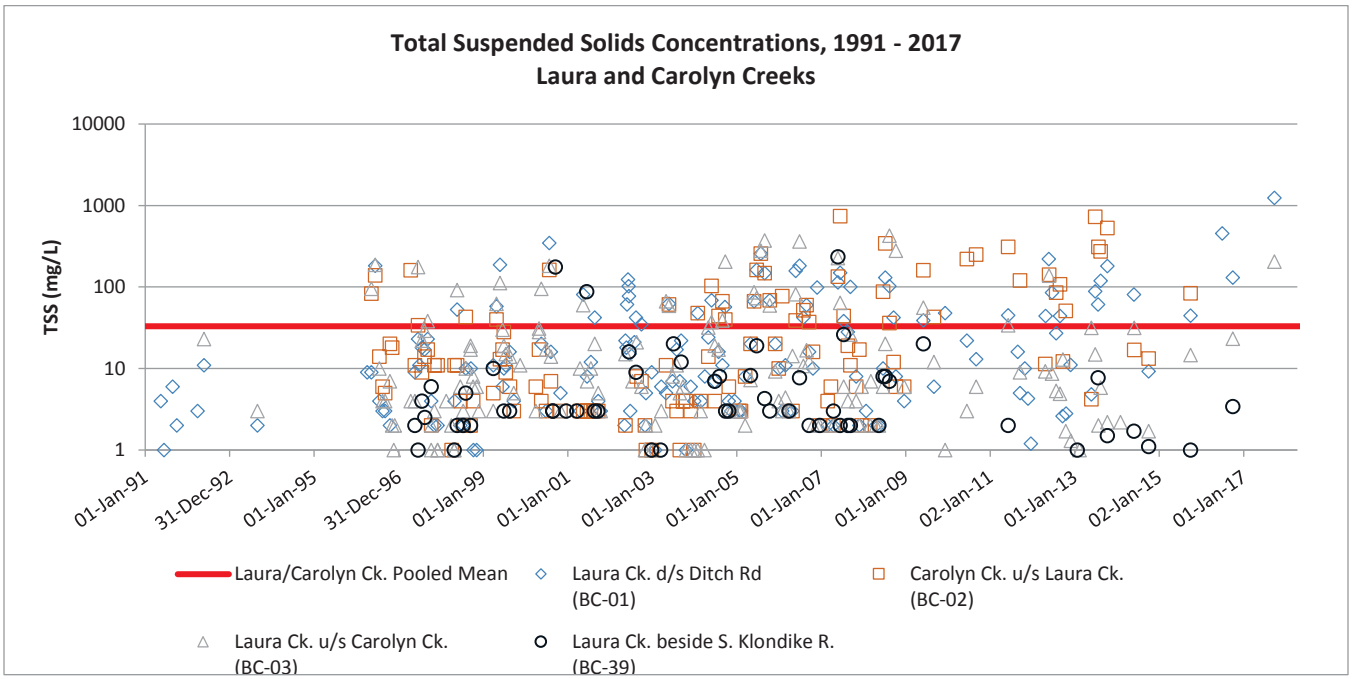


Figure 3-12 Total Suspended Solids Concentrations on Laura and Carolyn Creeks (1991-2017). Note Log Scale.

3.3.6 NITRATE

As mentioned in Section 3.1.2.5, in 2004 a fire occurred at the Brewery Creek Mine within the Laura and Carolyn Creek watersheds which likely had an impact on the amount of nitrate observed here. Perhaps more significant, however, was the release of detoxified heap solution in 2002 and 2003 to the Laura Creek watershed. These releases and later free-draining of the heap would have resulted in an increase in nitrate to the Carolyn and Laura Creek systems. Figure 3-13 shows just such an increase in Carolyn Creek, beginning in September 2002.

In 2002, the Laura and Carolyn Creek watersheds also saw the implementation of an evapotranspiration cover over the Blue Waste Rock Storage Area and Heap Leach Pad, as a part of the decommissioning and closure effort. These covers require the application of fertilizers to facilitate plant growth. Fertilizers can have an impact on surface waters as nutrients dissolve into runoff and are carried into the downstream environment, and could be a source of nitrate here.

Nitrate concentrations increased sharply in Laura and Carolyn Creeks in the years following release of detoxified heap solution, implementation of the waste rock and heap leach covers, and the forest fire. Figure 3-13 shows that these watersheds were still absorbing the effects of increased nitrogen inputs, as evidenced by sustained high nitrate concentrations up to 2014; however, nitrate concentrations have declined since 2015 such that they were below the CCME guideline.

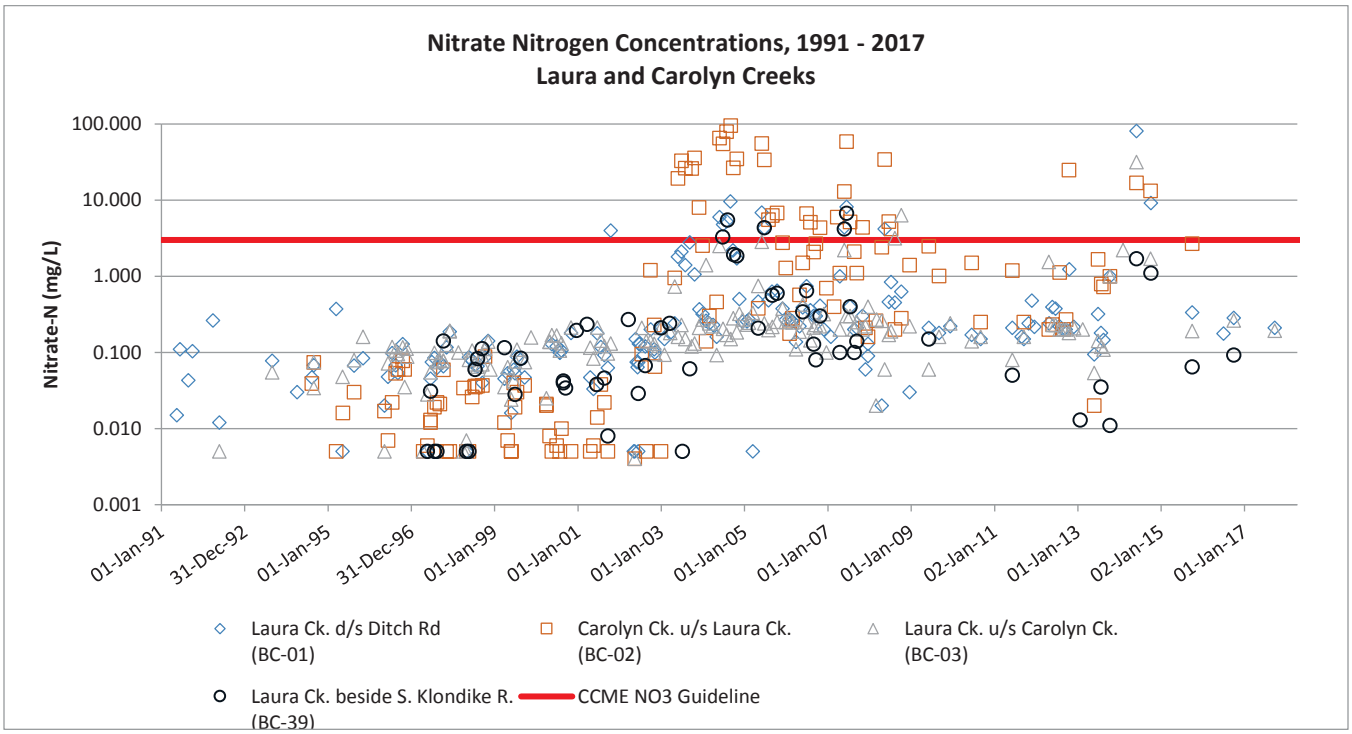


Figure 3-13 Nitrate Nitrogen Concentrations on Laura and Carolyn Creeks (1991-2017). Note Log Scale.

3.3.7 LAURA AND CAROLYN CREEKS SUMMARY

The mechanisms causing the elevated concentrations with each of these parameters differ in origin and spatial distribution. Arsenic CCME exceedances were observed at all sites and over most phases of mining and decommissioning and reclamation. Copper exceeded the CCME guideline in >10% of samples for all sites and during all periods, but was higher than the CCME guideline prior to the start of mining in 1996. Zinc did not generally pose a significant risk, and elevated values may be associated with environmental conditions caused by the 2004 fire. Nitrate concentrations were also elevated during decommissioning and reclamation as a result of the combined influences of released detoxified heap solution, implementation of the waste rock and heap leach covers, and the 2004 forest fire.

Selenium has an elevated SSWQO to reflect conditions associated with the natural mineralogy of the area; results have consistently met this objective at the compliance station BC-39.

Additional parameters antimony and lead are presented graphically in Appendix B for Laura and Carolyn Creeks.

3.4 SOUTH KLONDIKE RIVER

Datasets for the South Klondike River were affected by data at or near the MDL, particularly for the early years of monitoring. Constituent concentrations in samples collected from the South Klondike River generally tended to be lower than elsewhere on the property for all parameters. Concentrations were typically below both CCME and reference conditions thresholds for all constituents of interest, with only occasional, sporadic exceedances (Appendix B)..

No trends indicating increased concentration of parameters of interest have been observed in the South Klondike River as a result of mining activities at the Brewery Creek Mine during 1996 – 2000. Moreover, no appreciable effects have been

observed during the significant period of decommissioning and reclamation activities at the mine. Zinc, copper, lead, selenium, arsenic, TSS, and antimony water quality results are presented graphically in Appendix B

3.5 GROUNDWATER QUALITY

Like surface water monitoring, groundwater monitoring at Brewery Creek has transitioned to the post-closure phase, which involves annual monitoring of groundwater piezometers at all wells in the license except BC-65 and 66 which are still bi-annual. These annual events are typically conducted during September or October, during low-flow conditions. The amount of environmental monitoring at BC-19, BC-21, BC-22, BC-65 and BC-66 has reduced in frequency since closure of the heap has been accomplished and the drain down solutions treated. Similarly, since closure of the Blue Waste Rock Storage area has been achieved, monitoring at stations BC-67, BC-68 and BC-69 has been reduced. Piezometers located at stations BC-20, BC-23, BC-24, BC-25 and BC-26 were removed from license QZ96-007 in Amendment #8 and are therefore no longer required to be monitored.

3.5.1 HEAP PAD GROUNDWATER MONITORING

Monitoring at stations BC-19, BC-21 and BC-22 showed no sign of increasing or decreasing trends for most metals, total and WAD cyanide, nitrate or ammonia. Antimony levels appear to have decreased slightly in 2012 to 2016. At BC-21, arsenic levels appear to be slightly higher in 2012 to 2016 than the average for the decommissioning and reclamation period, but are not as high as during production. Data are presented graphically in Appendix C. Note that where results were below the MDL, half of the MDL was used in the graphs. Although WAD and total cyanide concentrations appear to be decreasing, this is an artefact of lower MDLs in the recent years.

3.5.2 LAND APPLICATION AREA GROUNDWATER MONITORING

Monitoring at station BC-66 showed no sign of increasing or decreasing trends for most metals, total and WAD cyanide, nitrate or ammonia. All results were in compliance with respect to Clause 43 of Water Licence QZ96-007. BC-65 was dry in 2016 and 2017 for both June and September sampling events. Data are presented graphically in Appendix C.

3.5.3 BLUE WRSA GROUNDWATER MONITORING

Monitoring at stations BC-67 and BC-69 showed no sign of increasing or decreasing trends for metals, total and WAD cyanide, nitrate or ammonia. The exception is dissolved selenium at BC-69 which has shown a decreasing trend over time. Monitoring could not be carried out at Blue WRSA stations BC-68 and BC-70 during 2016 or 2017. Attempts to sample these locations will continue in future years. Data are presented graphically in Appendix C.

3.6 IN-PIT WATER QUALITY

Mined out pits were used effectively as sediment control basins during operations and mine decommissioning. Snow melt and precipitation run-off is directed to the closest inactive pit. Pit samples were taken from surface standing water within each pit in 2017.

- BC-10: Kokanee Pit and Dump;
- BC-12: Blue Pit;
- BC-15: Moosehead Pit;

- BC-16: Pacific Gulch (typically dry);
- BC-17: Golden Pit and Dump; and
- BC-51W: Pacific Pit (west side).

The following points highlight pit water characteristics:

- Water that is contained in all pits either exfiltrates or evaporates;
- Neither the Pacific nor Blue Pits discharge to surface waters; water infiltrates through the pit bottoms;
- Although the Blue Pit (BC-12) exhibited relatively low pH values in 2012 (4.85 in June), pH values obtained during the 2017 sampling were neutral. These pH values are considerably higher than historic (mining) results in the Blue Pit and suggest pit chemistry is stable and not trending towards any acid rock drainage concerns. pH levels in Pacific Pit (BC-51W) have been consistent since 2008; and
- Previous years' sampling in the Moosehead Pit (BC-15) showed higher levels of selenium. This trend reversed beginning in 2009, and selenium levels in Moosehead from 2009-2017 continued to be below 0.05 mg/L, with a result of 0.023 mg/L in 2017.

Overall, the results of pit water sampling indicate no upward trends from previous years.

3.7 HEAP EFFLUENT WATER QUALITY

In 2017, no water was discharged into the receiving environment via direct discharge or land application from the over flow pond, heap discharge pond, or the Biological Treatment Cell. The associated samples sites (BC-28, 28a, and 28b) were sampled in June and September 2017 but were not compared to the effluent quality standards provided in Water License QZ96-007 Clauses 42 and 44 because there was no discharge.

4. SUMMARY

- No contaminants of concern have been identified for Lucky, Golden, Lee and Pacific Creeks.
- Selenium concentrations in Laura and Carolyn Creeks increased several years after land application of the heap effluent. The land application system ceased operations in 2000, while concentrations of selenium in the environment began rising in Carolyn Creek in 2003, and in Laura Creek in 2004 but have been generally lower since 2009.
- The 2004 fire event had a significant impact on some parameters in Laura and Carolyn Creeks. The fire also had an impact on nitrate concentrations in Lee and Pacific Creeks, as well as slowly impacting the South Klondike River.
- Concentrations of constituents of interest in the South Klondike River were lower than CCME guidelines in 99% of samples collected over all three periods (pre-mining, production and decommissioning). No impacts have been observed in the river as a result of mining activities at the Brewery Creek Mine during 1996 – 2000. Moreover, no effects have been observed during the period of decommissioning and reclamation activities at the mine from 2000 – 2017.

5. REFERENCES

Access Consulting Group, 2010. *Brewery Creek from Assessment and Permitting through Production to Post Closure: A Post Closure Analysis of a Northern Heap Leach Mine*. MPERG Report 2009-4.

Alexco Environmental Group Inc. (AEG), 2017. Lower Laura Creek Impact Study, in *2016 Brewery Creek Annual Report.*

Canadian Council of the Ministers of the Environment, 2012. *Canadian Water Quality Guidelines for the Protection of Aquatic Life*.

Ontario Ministry of Environment and Energy, 1994. *Policies, Guidelines Provincial Water Quality Objective of the Ministry of Environment and Energy (Ontario)*

APPENDIX A
TABULAR DATA

Golden Predator Exploration Ltd.
Brewery Creek Mine

Water Quality Assessment
2017 Surface Water Data

Station			BC-53	BC-51W	BC-34	BC-28a	BC-28a	BC-28	BC-17	BC-15	BC-12
Station Description		CCME Guideline	Lower Laura Creek 50m d/s of Ditch Road	Pacific Pit - west side	Lee Creek at Ditch Road	Discharge from heap	Discharge from heap	Overflow Pond decant	Golden Pit and Dump	Moosehead Pit discharge	Blue Pit
Sample Date			9/25/2017	9/26/2017	9/26/2017	6/20/2017	9/26/2017	6/20/2017	9/26/2017	9/26/2017	9/26/2017
Discharge (Flow)	L/s		138.5		2295.7						
StaffGauge Reading/Water Level	m										
pH (field)	pH units	6.5-9	9.93	3.24	8.46	8.05	9.55	7.61	8.73	8.55	7.1
pH (lab)	pH units	6.5-9	8.19	3.63	8.22		8.17		8.31	8.21	7.46
Specific Conductivity (field)	µS/cm		377	567	274	3541	1546	1244	506	847	961
Conductivity (lab)	µS/cm		542	636	564		1910		633	1020	1230
Temperature (field)	C		3.45	8.87	3.13	4.1	10.49	17	7.93	8.17	9.79
Hardness (from dissolved)	mg/L		284	234	290	965	427		334	579	705
Alkalinity, Total	mg/L		140	<0.50	146		46		186	149	33
Total Dissolved Solids	mg/L		338	370	356				404	746	1010
Total Suspended Solids	mg/L		318	2.2	7.5	1.1	13.3		1	1	83.5
Chloride	mg/L	120	0.98	0.93	0.71				0.79	0.6	1.2
Sulphate, Dissolved	mg/L		150	251	164				167	399	630
Ion Balance	N/A		0.99	1.1	0.92				0.94	1	1
Ammonia Total	mg/L	0.197	0.052	0.016	0.016	0.13	0.051		<0.0050	<0.0050	0.016
Nitrate, as N	mg/L	3	0.207	<0.0020	0.224				0.004	<0.0020	0.0031
Cyanide, Total	mg/L					0.412	0.0273				
Cyanide, Weak Acid Dissociable	mg/L	0.005				0.0268	0.0186				
Silver (Ag), Total	mg/L	0.00025	0.000067	0.000056	<0.000010	<0.000025	0.0000059		<0.0000050	<0.0000050	0.0000083
Aluminum (Al), Total	mg/L	*	4.27	3.41	0.07	0.0084	0.0234		0.00596	0.0125	0.0444
Arsenic (As), Total	mg/L	0.005	0.0103	0.0203	0.000308	0.255	0.0508		0.0317	0.04	0.00732
Barium (Ba), Total	mg/L		0.217	0.0245	0.0526	0.0391	0.0829		0.0365	0.0335	0.0273
Beryllium (Be), Total	mg/L		0.000176	0.00776	<0.000010	<0.000050	<0.000010		<0.000010	<0.000010	0.000187
Bismuth (Bi), Total	mg/L		0.000055	<0.000010	<0.000010	<0.000025	<0.0000050		<0.0000050	<0.0000050	<0.0000050
Boron (B), Total	mg/L	1.5	<0.010	<0.010	<0.010	<0.050	0.019		<0.010	<0.010	0.016
Calcium (Ca), Total	mg/L		67.4	43	73.2	314	123		82	130	175
Cadmium (Cd), Total	mg/L	*	0.000213	0.00261	0.000133	0.000259	0.0000114		0.0000074	0.0000189	0.00097
Cobalt (Co), Total	mg/L		0.00373	0.0296	0.000118	0.556	0.295		0.0000276	0.0000119	0.0136
Chromium (Cr), Total	mg/L	0.001	0.00702	0.00069	0.00021	<0.00050	0.00012		<0.00010	<0.00010	<0.00010
Copper (Cu), Total	mg/L	*	0.0112	0.143	0.00143	0.00129	0.00104		0.000194	0.000228	0.0021
Iron (Fe), Total	mg/L	0.3	6.74	3.83	0.2	0.146	0.0213		0.016	0.0087	0.532
Mercury (Hg), Total	mg/L	0.000026	<0.0000020	0.0000145	0.0000021	0.0000402	0.0000064		0.0000022	0.0000029	0.0000069
Potassium (K), Total	mg/L		1.57	2.15	0.77	4.76	5.03		1.44	1.03	3.47
Lithium (Li), Total	mg/L		0.0157	0.00827	0.00284	0.0047	0.00242		0.00864	0.0016	0.00861
Magnesium (Mg), Total	mg/L		28.9	24.8	29.1	72.5	27.1		33.9	64.6	62.3
Manganese (Mn), Total	mg/L		0.224	1.48	0.0188	0.0214	0.0136		0.00571	0.00286	0.824
Molybdenum (Mo), Total	mg/L	0.073	0.00255	<0.000050	0.00165	0.0168	0.0125		0.00539	0.000979	0.000464
Sodium (Na), Total	mg/L		4.4	0.71	1.6	384	223		1.47	0.512	1.3
Nickel (Ni), Total	mg/L	*	0.0136	0.0963	0.00313	0.00662	0.00123		0.000317	0.000457	0.0715
Lead (Pb), Total	mg/L	*	0.00319	0.000197	0.000083	<0.000025	0.0000797		0.0000482	0.0000209	0.0000848
Phosphorous (p), Total	mg/L		0.222	0.0196	0.0178	0.048	0.0134		0.0069	0.0063	0.0067
Antimony (Sb), Total	mg/L		0.00267	0.0016	0.000302	1.63	0.897		0.0397	0.00399	0.0272
Selenium (Se), Total	mg/L	0.001	0.00184	0.00249	0.00252	0.139	0.0987		0.00218	0.0227	0.000522
Tin (Sn), Total	mg/L		<0.00020	<0.00020	<0.00020	<0.0010	<0.00020		<0.00020	<0.00020	<0.00020
Strontium (Sr), Total	mg/L		0.32	0.294	0.291	1.45	0.593		0.576	1.14	1.07
Sulphur (S), Total	mg/L		50.6	84	55.4	265	99.3		53.1	144	221
Tellurium, total	mg/L										
Thorium, total	mg/L										
Titanium (Ti), Total	mg/L		0.113	<0.0020	0.0022	<0.0025	<0.00050		<0.00050	<0.00050	<0.00050
Uranium (U), Total	mg/L	0.015	0.00275	0.00221	0.00198	0.0201	0.00614		0.00809	0.00436	0.000576
Vanadium (V), Total	mg/L		0.0128	<0.00020	0.00117	<0.0010	0.00041		<0.00020	<0.00020	<0.00020
Zinc (Zn), Total	mg/L	0.03	0.0307	0.269	0.0142	0.0085	0.00136		0.00241	0.00035	0.106
Zirconium (Zr), Total	mg/L		0.00064	<0.00010	<0.00010	<0.00050	<0.00010		<0.00010	<0.00010	<0.00010
Silicon (Si), Total	mg/L		11.4	8.24	3.61	3.85	1.35		3.65	2.07	4.65

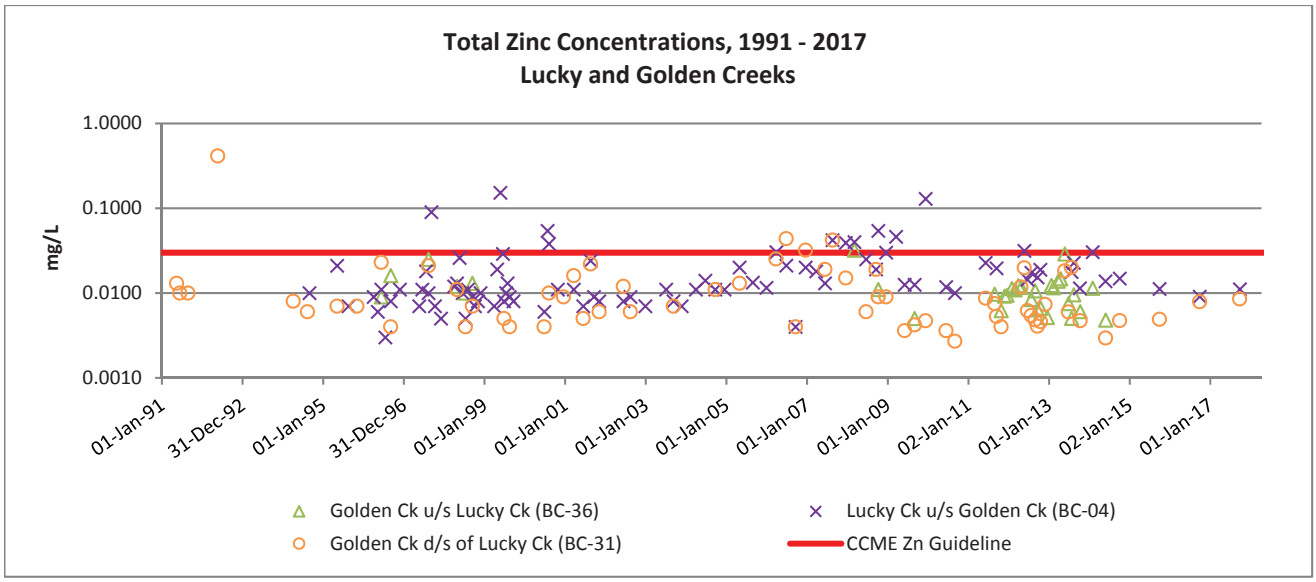
CCME Guideline for Aquatic life (first column): Results or detection limits above the CCME guideline are flagged in red
The * indicates the guideline is calculated based on pH (Al) or hardness (Cd, Cu, Pb, Ni)

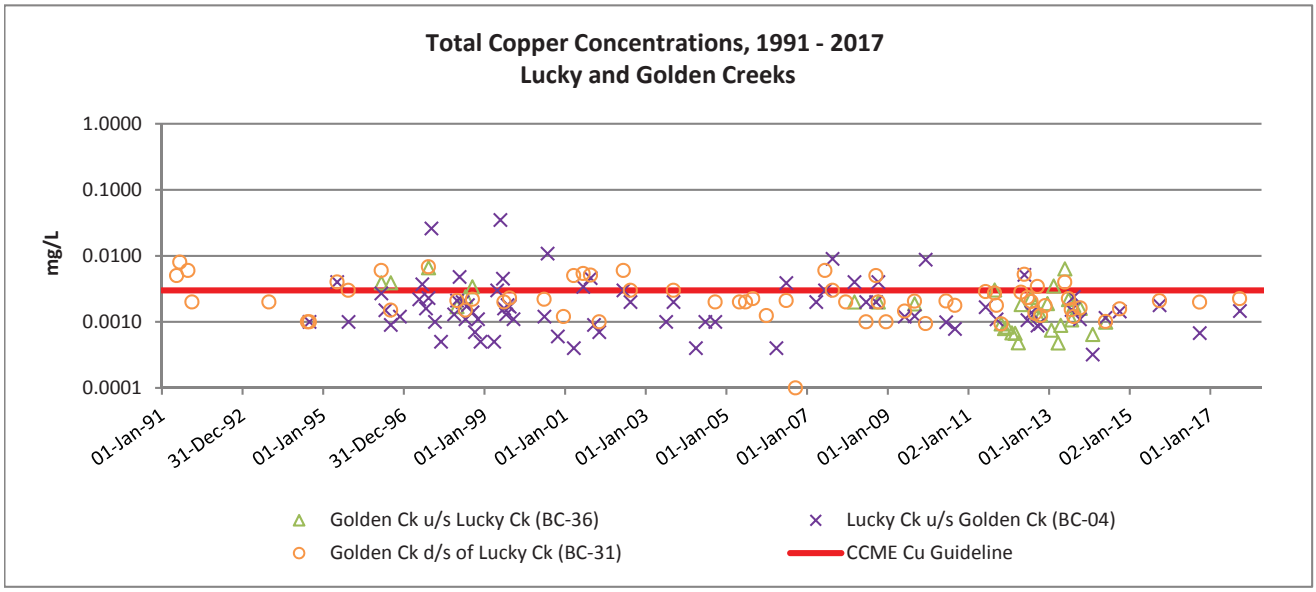
Station			BC-10	BC-6	BC-4	BC-31	BC-5	BC-3	BC-1
Station Description		CCME Guideline	Kokanee Pit and Dump	South Klondike R. d/s from confluence w/ Lee Creek	Lucky Creek d/s of Lucky Pit	Golden Creek above confluence w/ South Klondike R.	Pacific Creek u/s from confluence w/ Lee Creek	Laura Creek, above confluence w/ Carolyn Creek	Laura Creek, 50m u/s from Ditch Road
Sample Date			9/26/2017	9/25/2017	9/26/2017	9/25/2017	9/25/2017	9/25/2017	9/25/2017
Discharge (Flow)	L/s				26	1098.7	1885.9	126.9	147.2
StaffGauge Reading/Water Level	m					0.689			0.392
pH (field)	pH units	6.5-9	8.76	8.6	8.13	8.94		8.9	9.01
pH (lab)	pH units	6.5-9	8.27	8.09	8.02	8.23	8.24	8.15	8.16
Specific Conductivity (field)	µS/cm		374	405	331	426		440	438
Conductivity (lab)	µS/cm		434	475	461	531	566	540	548
Temperature (field)	C		8.74	4.92	1.48	3.43		3.21	3.26
Hardness (from dissolved)	mg/L		227	249	241	280	304	319	278
Alkalinity, Total	mg/L		142	131	106	152	147	131	140
Total Dissolved Solids	mg/L		228	282	376	334	364	360	344
Total Suspended Solids	mg/L		1.5	<1.0	15.8	20.7	4.9	205	1240
Chloride	mg/L	120	0.82	<0.50	0.8	0.83	0.69	1.1	1.2
Sulphate, Dissolved	mg/L		93.2	120	142	143	153	149	151
Ion Balance	N/A		0.96	0.99	0.97	0.95	1	1.2	0.96
Ammonia Total	mg/L	0.197	0.009	0.01	0.034	0.015	0.013	0.027	0.041
Nitrate, as N	mg/L	3	0.0022	0.154	0.183	0.271	0.226	0.193	0.211
Cyanide, Total	mg/L			<0.00050					<0.00050
Cyanide, Weak Acid Dissociable	mg/L	0.005		<0.00050					<0.00050
Silver (Ag), Total	mg/L	0.00025	0.0000224	<0.0000050	<0.000010	0.00001	<0.0000050	0.000081	0.000134
Aluminum (Al), Total	mg/L	*	0.0418	0.0205	0.208	0.246	0.0301	2.81	9.75
Arsenic (As), Total	mg/L	0.005	0.0189	0.000313	0.00306	0.00102	0.000207	0.0328	0.018
Barium (Ba), Total	mg/L		0.159	0.0542	0.0711	0.0739	0.0515	0.147	0.416
Beryllium (Be), Total	mg/L		<0.000010	<0.000010	<0.000010	0.000014	<0.000010	0.000326	0.000416
Bismuth (Bi), Total	mg/L		<0.0000050	<0.0000050	<0.000010	<0.000010	<0.0000050	0.000069	0.000119
Boron (B), Total	mg/L	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050
Calcium (Ca), Total	mg/L		55.1	62.7	52.5	66.2	75.8	70.9	72.1
Cadmium (Cd), Total	mg/L	*	0.0000492	0.0000779	0.000198	0.0000914	0.00013	0.000522	0.00045
Cobalt (Co), Total	mg/L		0.0000621	0.0000407	0.000747	0.000301	0.0000649	0.00549	0.00803
Chromium (Cr), Total	mg/L	0.001	0.00012	0.00012	0.00052	0.00054	0.00012	0.00546	0.0151
Copper (Cu), Total	mg/L	*	0.000721	0.000936	0.00146	0.00225	0.00118	0.011	0.0238
Iron (Fe), Total	mg/L	0.3	0.0849	0.0623	0.653	0.601	0.0774	6.82	14.8
Mercury (Hg), Total	mg/L	0.000026	0.0000028	<0.0000020	0.0000032	0.0000028	<0.0000020	0.0000023	0.0000023
Potassium (K), Total	mg/L		1.76	0.79	1.03	0.89	0.811	1.77	1.9
Lithium (Li), Total	mg/L		0.00319	0.00286	0.00812	0.00523	0.00264	0.0175	0.0212
Magnesium (Mg), Total	mg/L		22.5	23.3	24.9	29.6	30.4	31.3	33.4
Manganese (Mn), Total	mg/L		0.0145	0.0103	0.108	0.0451	0.0131	0.319	0.389
Molybdenum (Mo), Total	mg/L	0.073	0.00389	0.00128	0.002	0.00148	0.00158	0.0022	0.00247
Sodium (Na), Total	mg/L		0.759	2.1	2.28	1.95	1.64	3.98	5
Nickel (Ni), Total	mg/L	*	0.000698	0.00171	0.00438	0.00315	0.00278	0.0224	0.0276
Lead (Pb), Total	mg/L	*	0.00016	0.0000588	0.000225	0.000306	0.0000387	0.00309	0.00759
Phosphorous (p), Total	mg/L		0.0226	0.0101	0.0225	0.0298	0.0151	0.19	0.763
Antimony (Sb), Total	mg/L		0.104	0.000299	0.00289	0.0007	0.000262	0.00486	0.00284
Selenium (Se), Total	mg/L	0.001	0.00439	0.00175	0.00272	0.00171	0.00259	0.00207	0.00202
Tin (Sn), Total	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0010
Strontium (Sr), Total	mg/L		0.427	0.266	0.335	0.326	0.305	0.343	0.36
Sulphur (S), Total	mg/L		30	42.2	45.9	49.6	56.5	56.3	57
Tellurium, total	mg/L								
Thorium, total	mg/L								
Titanium (Ti), Total	mg/L		0.00137	<0.00050	0.0066	0.007	0.001	0.08	0.224
Uranium (U), Total	mg/L	0.015	0.00775	0.00155	0.00191	0.00273	0.00206	0.00282	0.00331
Vanadium (V), Total	mg/L		0.00032	0.00061	0.0017	0.00205	0.00091	0.0115	0.0268
Zinc (Zn), Total	mg/L	0.03	0.00147	0.00857	0.0111	0.0085	0.0137	0.0645	0.0777
Zirconium (Zr), Total	mg/L		<0.00010	<0.00010	0.00024	0.00018	<0.00010	0.00056	0.00128
Silicon (Si), Total	mg/L		2.22	3.29	3.9	4.28	3.43	8.77	19.2

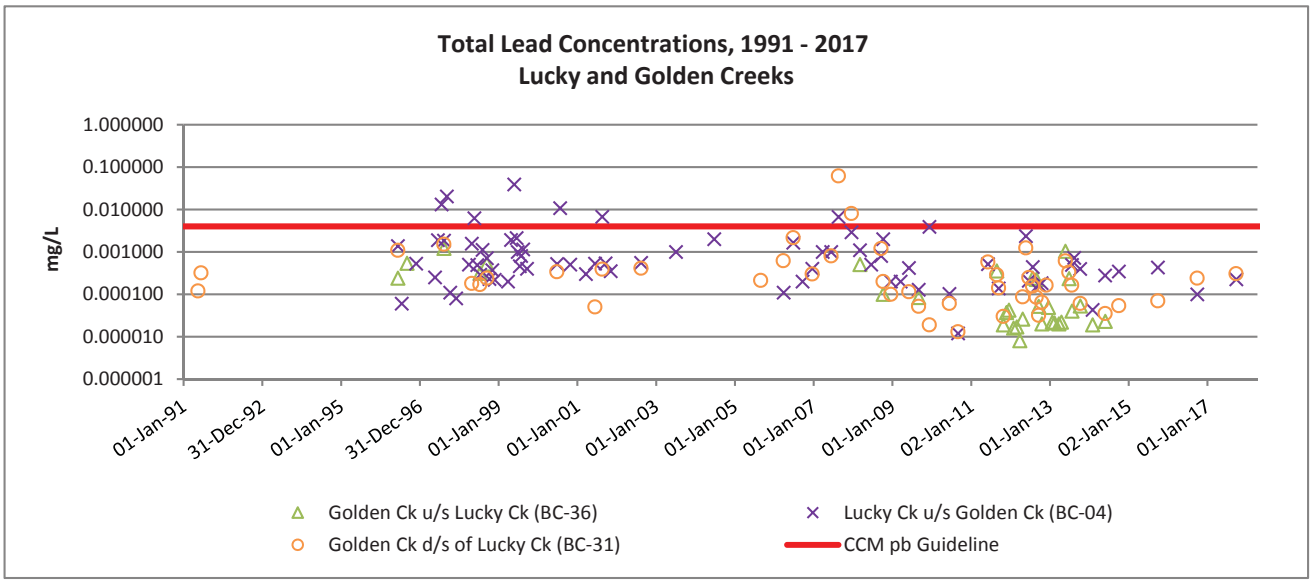
CCME Guideline for Aquatic life (first column): Results or detection limits above the CCME guideline are flagged in red
The * indicates the guideline is calculated based on pH (Al) or hardness (Cd, Cu, Pb, Ni)

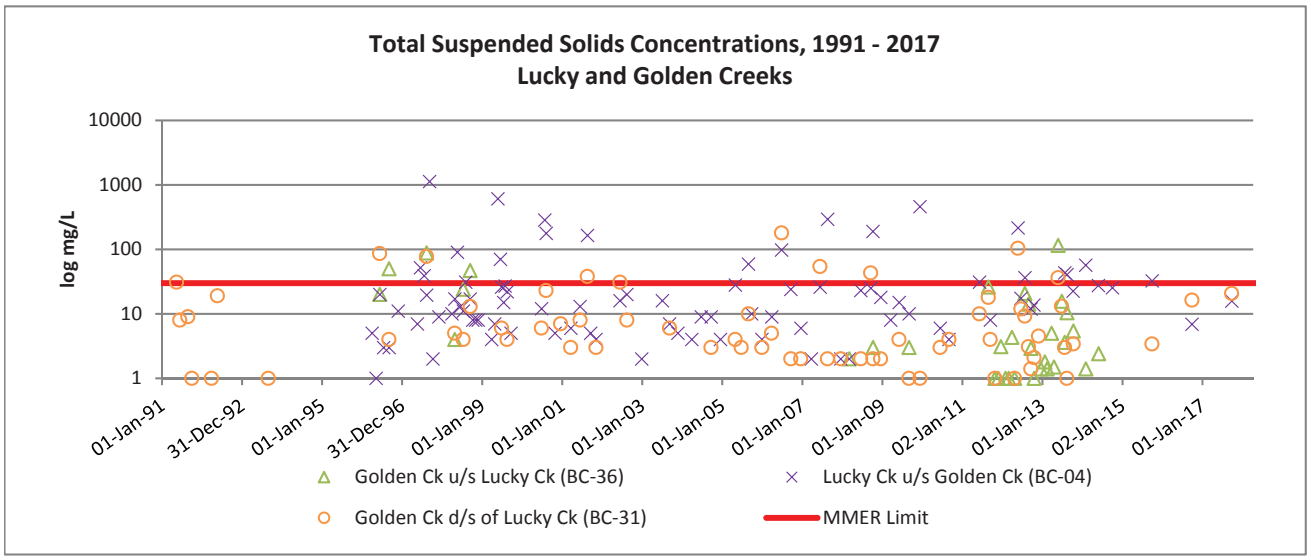
Station		**BC-66**	**BC-69**	**BC-67**	**BC-66**	**BC-27**	**BC-21**	**BC-19**
Description		Land Application Piezometer (Deep Well)	Blue WRSA Piezometer (Deep Well)	Blue WRSA Piezometer	Land Application Piezometer (Deep Well)	Piezometer RC97-2026	Piezometer RC95-1354	Piezometer RC94-843
Sample Date		6/20/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017	10/12/2017
pH (field)	pH units	7.41	7.02	7.3	7.29	8.12	7.04	7.08
pH (lab)	pH units	8.42	7.73	7.71	8.12	7.94	7.47	7.24
Specific Conductivity (field)	µS/cm	742.9	828.7	491.4	774.4	863	1393	1333
Conductivity (lab)	µS/cm	753	872	515	746	776	1360	1370
Temperature (field)	C	4.8	3.4	4.4	2.7	3.1	1.5	1.5
Hardness (from dissolved)	mg/L	343	530	292	417	522	752	843
Alkalinity, Total	mg/L	258	377	227	252	151	279	289
Total Dissolved Solids	mg/L		528	286	432	628	1070	1050
Total Suspended Solids	mg/L	7.4						
Chloride	mg/L	5.1	2.3	1.4	4.9	0.63	1.2	0.76
Sulphate, Dissolved	mg/L	28.4	135	52.6	30.6	274	526	491
Ion Balance	N/A	0.89	1	1.1	1.1	1.2	0.94	1.1
Ammonia Total	mg/L	0.072	0.02	0.033	<0.0050	0.051	0.24	0.014
Nitrate, as N	mg/L	33.3	0.0049	0.004	29.6	<0.0020	0.0138	0.828
Cyanide, Total	mg/L	0.00617	<0.00050	<0.00050	0.00488	<0.00050	<0.00050	<0.00050
Cyanide, Weak Acid Dissociable	mg/L	0.004	<0.00050	<0.00050	0.00225	<0.00050	<0.00050	<0.00050
Aluminum (Al), Dissolved	mg/L	0.00078	0.00075	0.00088	0.00104	0.00092	0.00202	0.00327
Antimony (Sb), Dissolved	mg/L	0.000156	0.0056	0.0938	0.000132	0.00205	0.000166	0.000178
Arsenic (As), Dissolved	mg/L	0.000152	0.0397	0.00573	0.000481	0.112	0.0205	0.000519
Barium (Ba), Dissolved	mg/L	0.047	0.0244	0.0586	0.0477	0.0097	0.0141	0.0052
Beryllium (Be), Dissolved	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Bismuth (Bi), Dissolved	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Boron (B), Dissolved	mg/L	<0.010	<0.010	0.011	<0.010	<0.010	0.03	0.027
Cadmium (Cd), Dissolved	mg/L	0.000013	0.000368	0.000161	0.0000241	0.0000666	0.0000711	0.00136
Calcium (Ca), Dissolved	mg/L	68.9	94.7	69.8	78.4	125	160	188
Chromium (Cr), Dissolved	mg/L	0.00028	0.00069	0.00064	0.00018	0.00015	0.00026	0.00022
Copper (Cu), Dissolved	mg/L	0.000283	<0.000050	0.00088	0.000198	0.000214	0.000642	0.000267
Iron (Fe), Dissolved	mg/L	0.0028	0.0381	0.109	0.0027	1.58	0.659	0.0051
Lead (Pb), Dissolved	mg/L	0.000006	0.0000093	0.0000314	0.0000096	0.0000106	0.0000646	0.0000254
Lithium (Li), Dissolved	mg/L	0.0182	0.00873	0.0069	0.0217	0.0112	0.041	0.0413
Magnesium (Mg), Dissolved	mg/L	41.6	71.3	28.5	53.7	51.2	85.9	90.5
Manganese (Mn), Dissolved	mg/L	0.000149	0.317	0.55	0.00049	0.234	2.23	0.568
Mercury (Hg), Dissolved	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Molybdenum (Mo), Dissolved	mg/L	0.000149	0.0011	0.0021	0.000168	0.0113	0.000414	<0.000050
Nickel (Ni), Dissolved	mg/L	0.000325	0.0081	0.0279	0.000438	0.00239	0.00622	0.00526
Phosphorous (P), Dissolved	mg/L	0.0052	0.0102	0.0161	0.0058	0.064	0.0042	0.0241
Potassium (K), Dissolved	mg/L	2.29	6.39	1.94	2.58	1.45	3.25	2.8
Selenium (Se), Dissolved	mg/L	0.0156	0.000777	<0.000040	0.0181	<0.000040	0.000545	0.00615
Silicon (Si), Dissolved	mg/L	4.18	3.06	4.28	4.82	3.82	5	7.69
Silver (Ag), Dissolved	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na), Dissolved	mg/L	9.95	2.7	2	12.4	1.94	8.28	12.9
Strontium (Sr), Dissolved	mg/L	0.417	0.482	0.309	0.388	0.77	0.524	0.571
Sulphur (S), Dissolved	mg/L	8.6	41.7	17.3	10.6	104	157	173
Tellurium, dissolved	mg/L							
Thallium (Tl), Dissolved	mg/L	0.000011	0.0000837	0.000142	0.0000136	0.0000098	0.0000172	0.0000548
Thorium, dissolved	mg/L							
Tin (Sn), Dissolved	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti), Dissolved	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Uranium (U), Dissolved	mg/L	0.001	0.00412	0.00861	0.00115	0.0123	0.00266	0.00108
Vanadium (V), Dissolved	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn), Dissolved	mg/L	0.00069	0.0938	0.0694	0.00101	0.0268	0.11	0.0404
Zirconium (Zr), Dissolved	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

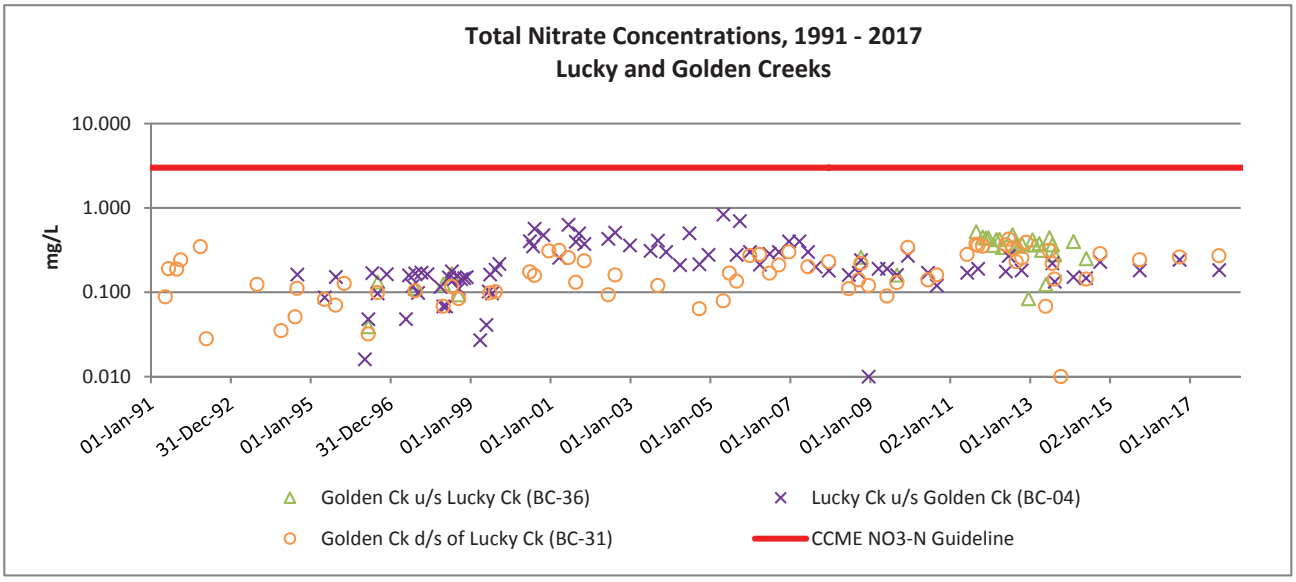
APPENDIX B
SURFACE WATER GRAPHICAL DATA

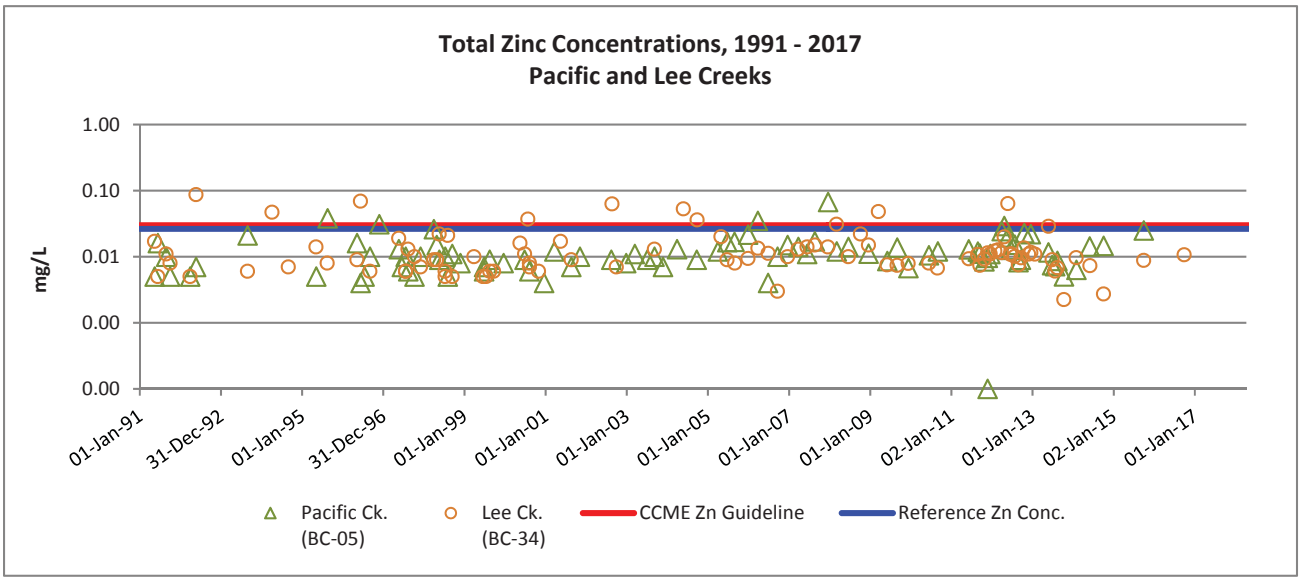

Total Zinc Concentrations, 1991 - 2017
Lucky and Golden Creeks
mg/L
1.0000
0.1000
0.0100
0.0010
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
CCME Zn Guideline

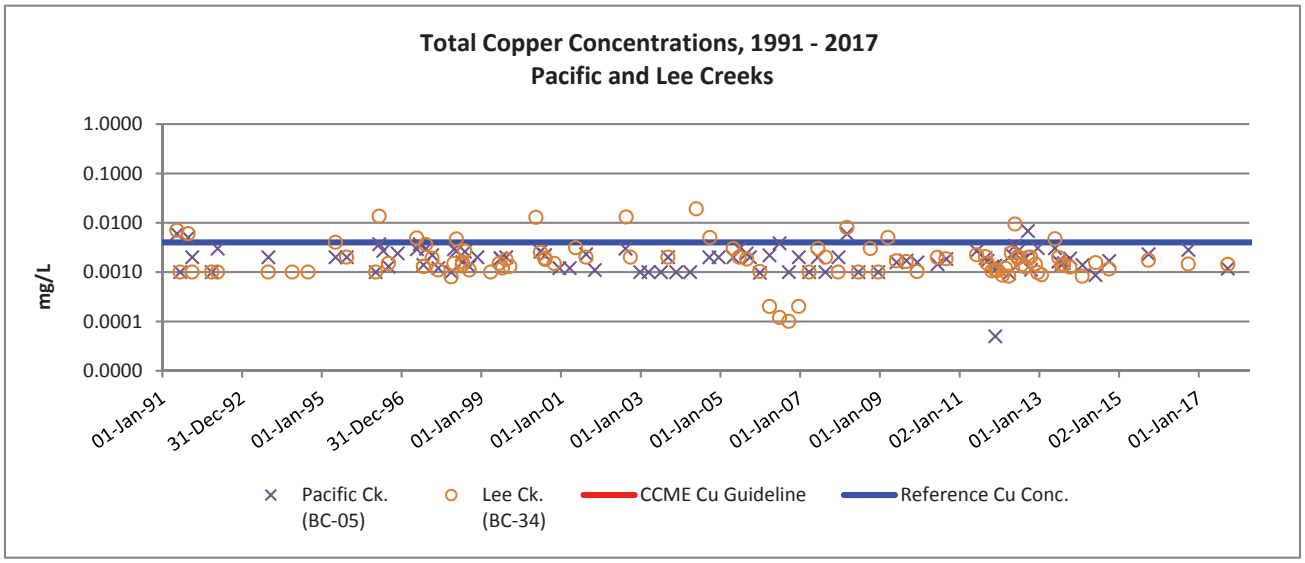

Total Copper Concentrations, 1991 - 2017
Lucky and Golden Creeks
mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
CCME Cu Guideline

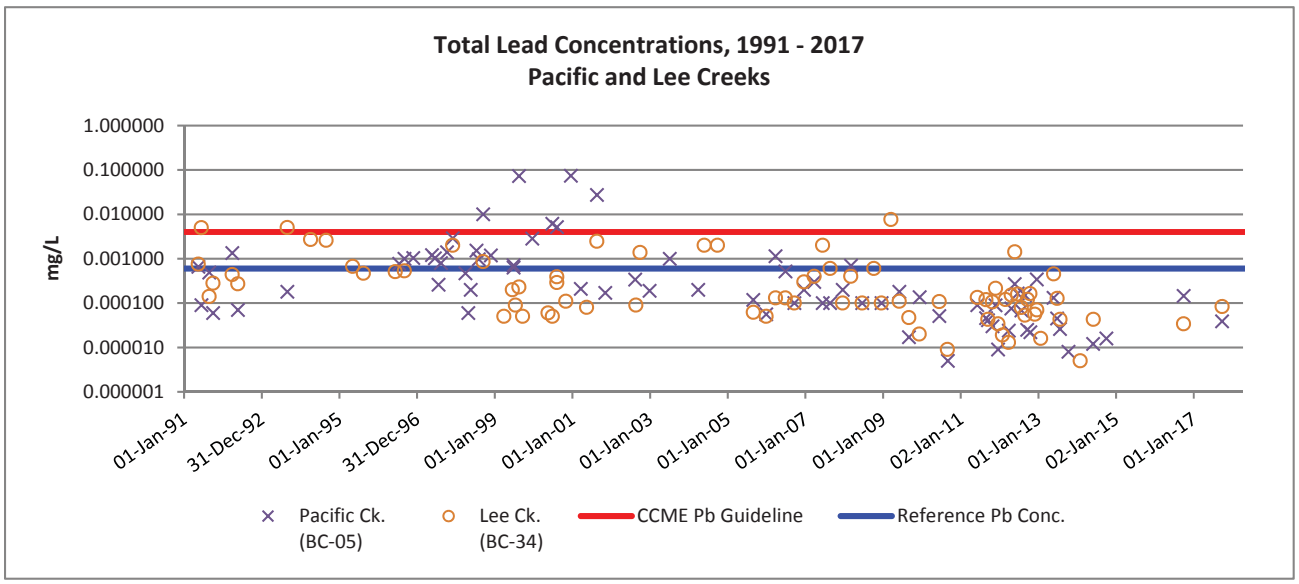

Total Lead Concentrations, 1991 - 2017
Lucky and Golden Creeks
mg/L
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
0.000001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
CCM pb Guideline

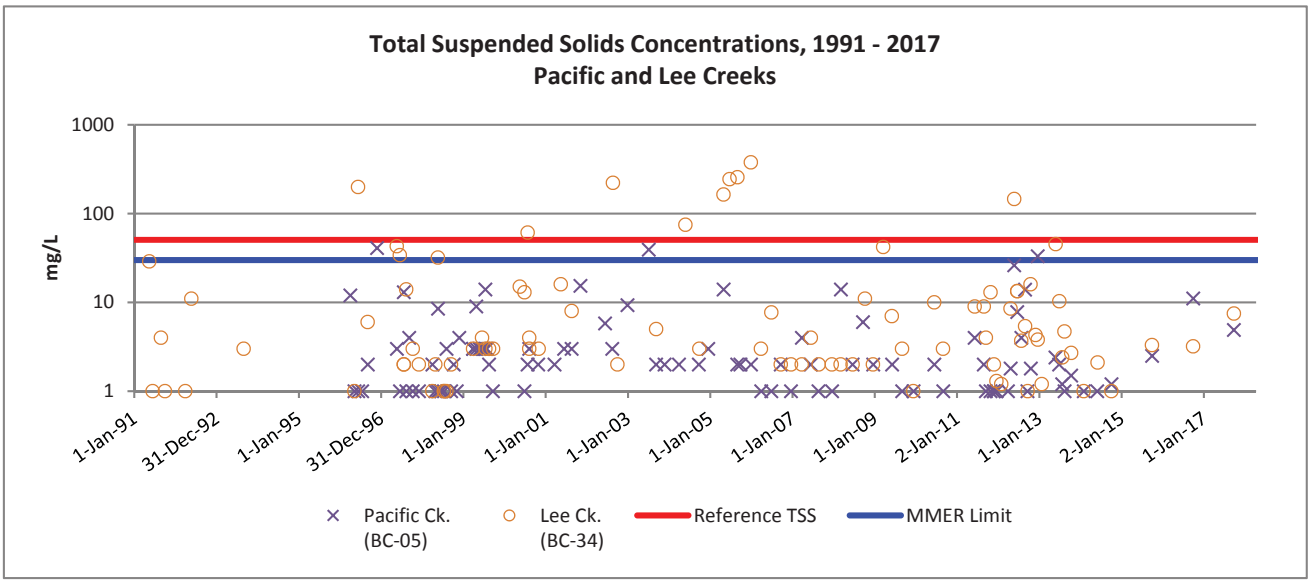

Total Suspended Solids Concentrations, 1991 - 2017
Lucky and Golden Creeks
log mg/L
10000
1000
100
10
1
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
MMER Limit

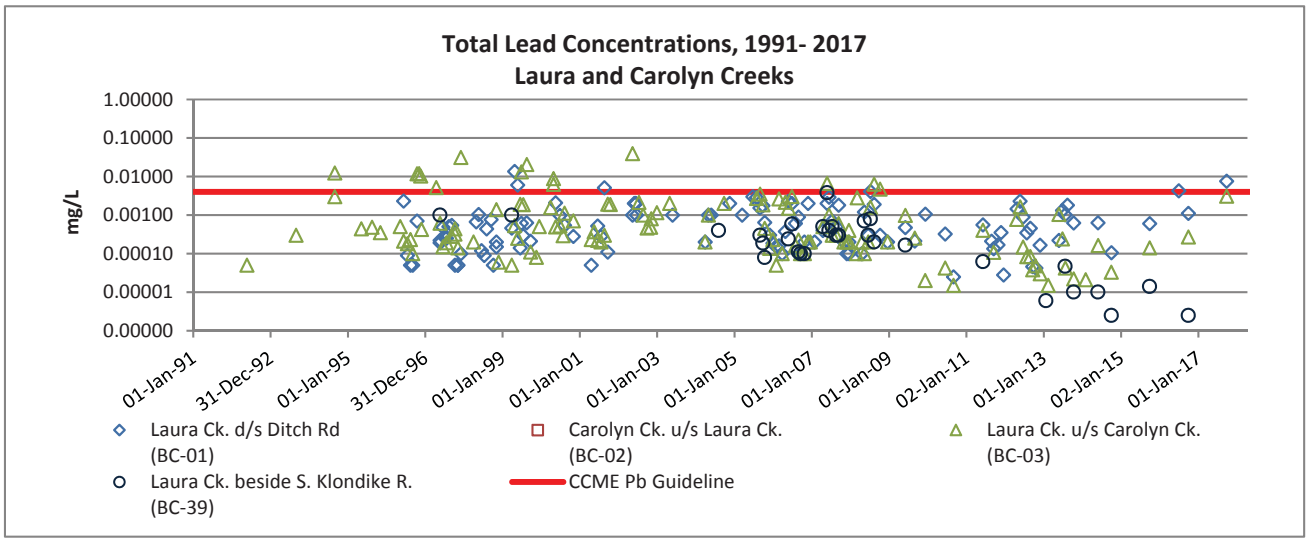

Total Nitrate Concentrations, 1991 - 2017
Lucky and Golden Creeks
mg/L
10.000
1.000
0.100
0.010
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
CCME NO3-N Guideline

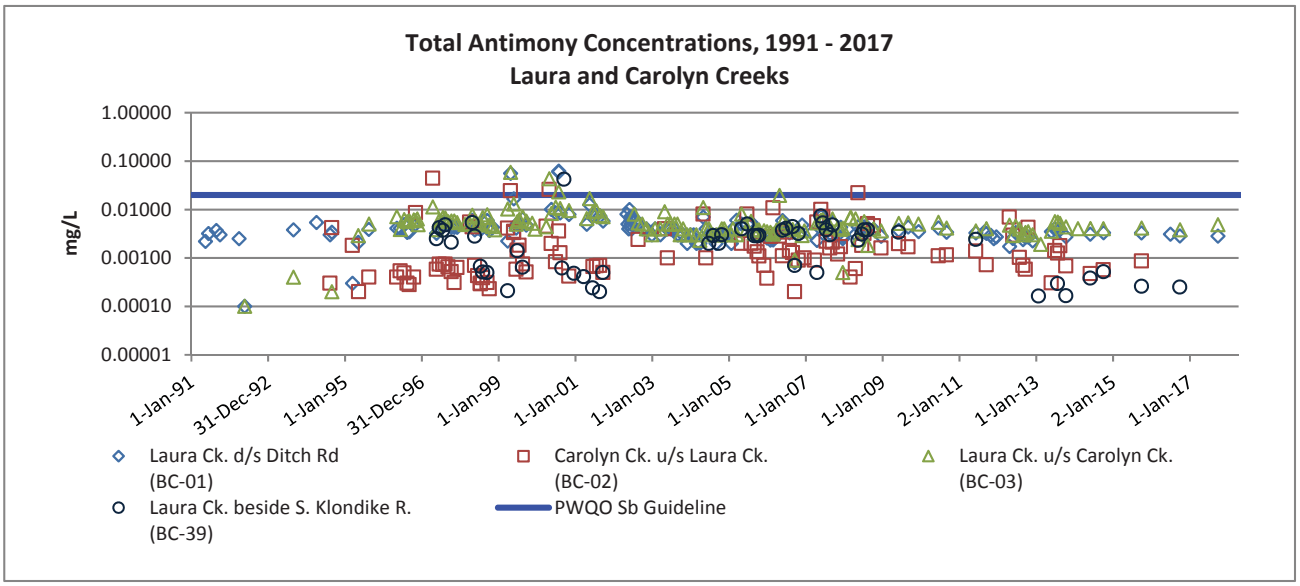

Total Zinc Concentrations, 1991 - 2017
Pacific and Lee Creeks
mg/L
1.00
0.10
0.01
0.00
0.00
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Pacific Ck. (BC-05)
Lee Ck. (BC-34)
CCME Zn Guideline
Reference Zn Conc.

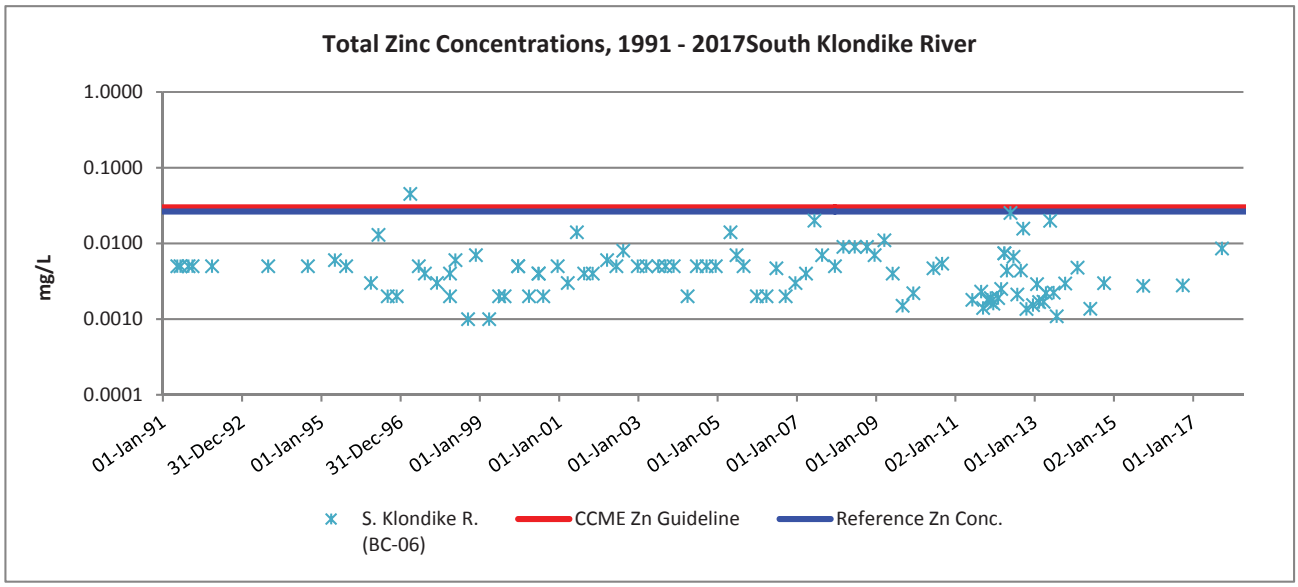

Total Copper Concentrations, 1991 - 2017
Pacific and Lee Creeks
mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
0.0000
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Pacific Ck. (BC-05)
Lee Ck. (BC-34)
CCME Cu Guideline
Reference Cu Conc.

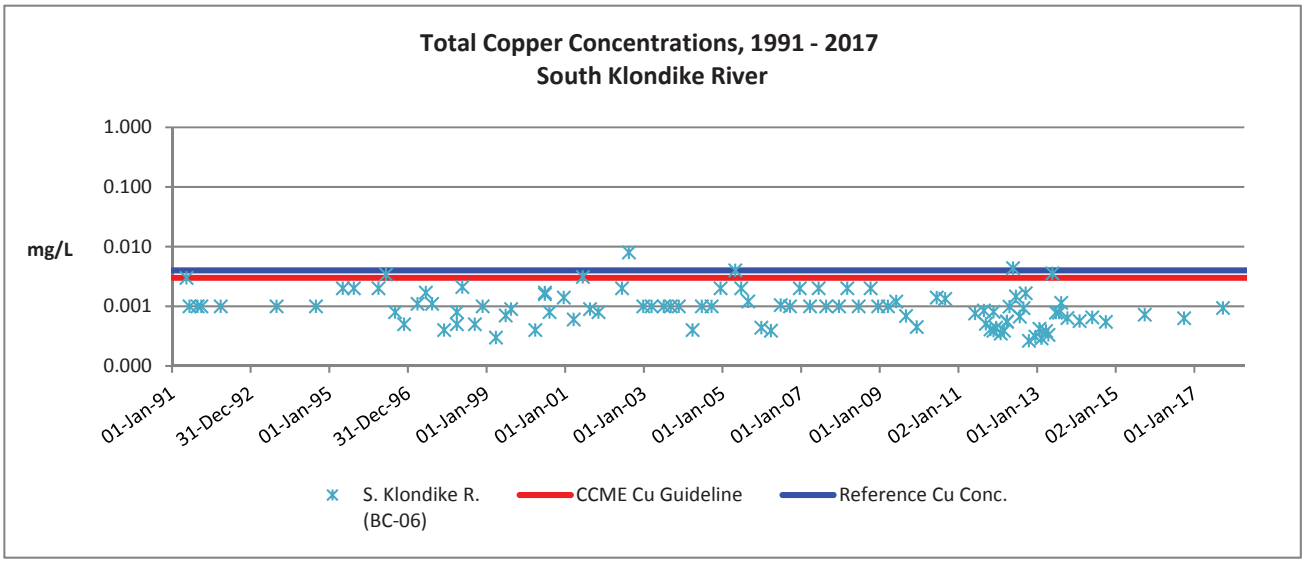

Total Lead Concentrations, 1991 - 2017
Pacific and Lee Creeks
mg/L
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
0.000001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Pacific Ck. (BC-05)
Lee Ck. (BC-34)
CCME Pb Guideline
Reference Pb Conc.

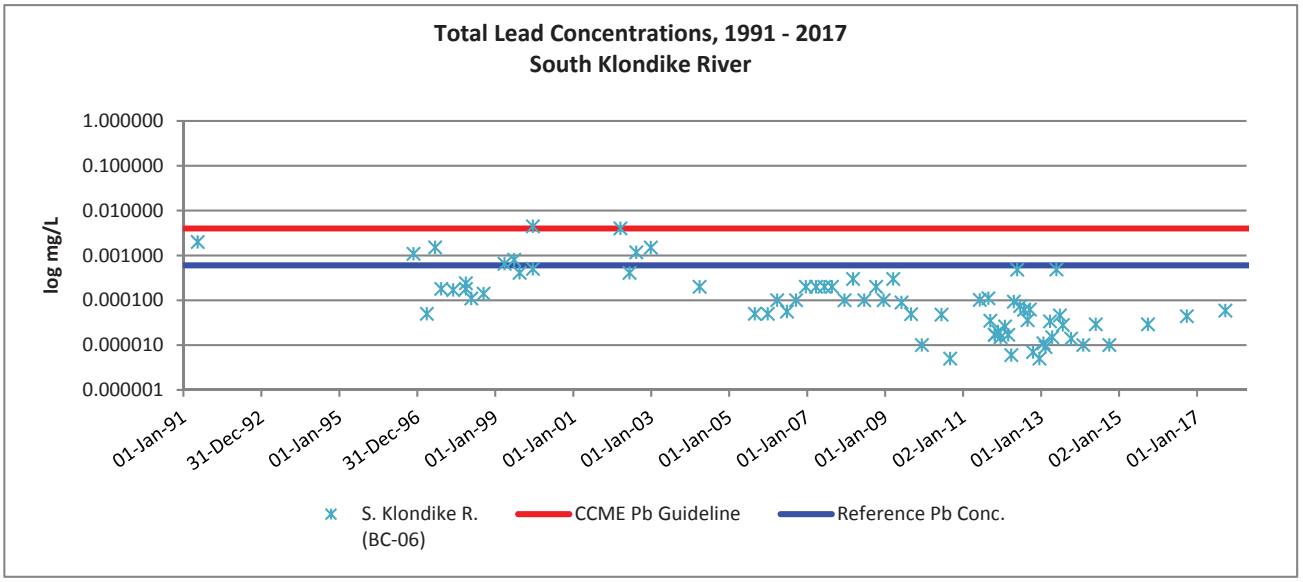

Total Suspended Solids Concentrations, 1991 - 2017
Pacific and Lee Creeks
mg/L
1000
100
10
1
1-Jan-91
31-Dec-92
1-Jan-95
31-Dec-96
1-Jan-99
1-Jan-01
1-Jan-03
1-Jan-05
1-Jan-07
1-Jan-09
2-Jan-11
1-Jan-13
2-Jan-15
1-Jan-17
Pacific Ck. (BC-05)
Lee Ck. (BC-34)
Reference TSS
MMER Limit

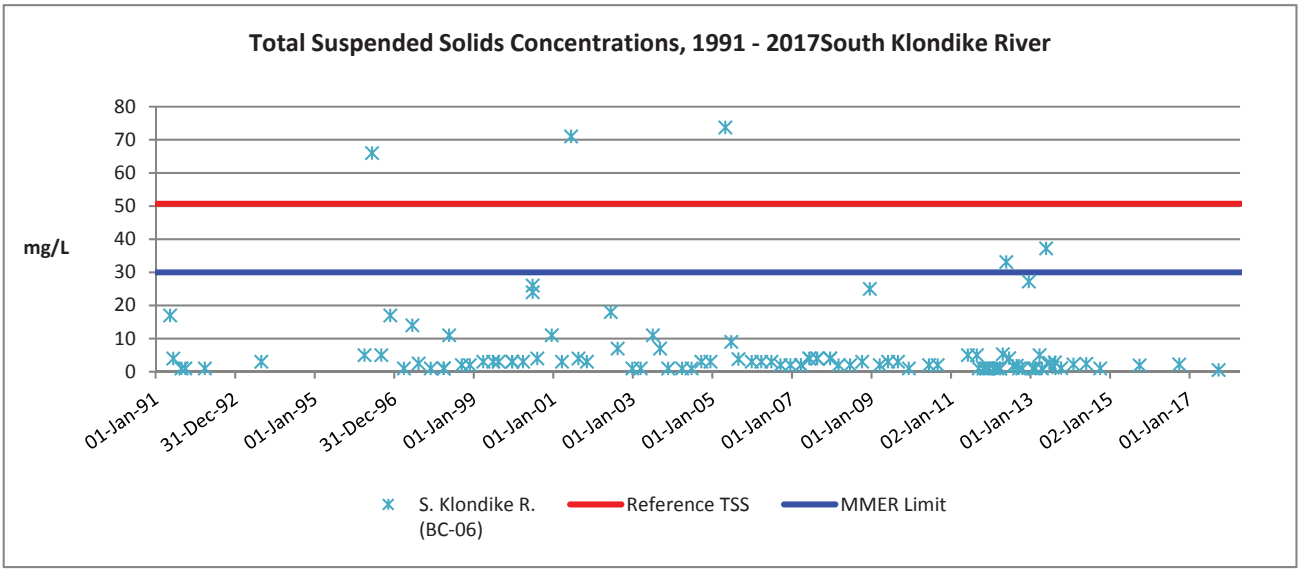

Total Lead Concentrations, 1991- 2017
Laura and Carolyn Creeks
mg/L
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
0.00000
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
Laura Ck. d/s Ditch Rd (BC-01)
Carolyn Ck. u/s Laura Ck. (BC-02)
Laura Ck. u/s Carolyn Ck. (BC-03)
Laura Ck. beside S. Klondike R. (BC-39)
CCME Pb Guideline

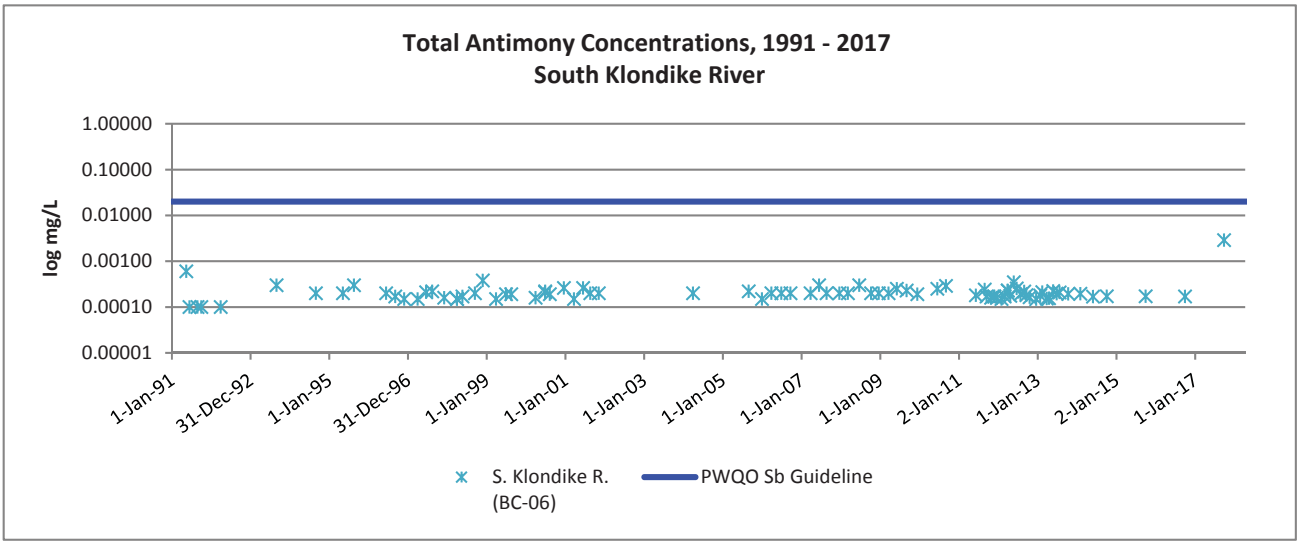

Total Antimony Concentrations, 1991 - 2017
Laura and Carolyn Creeks
mg/L
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
1-Jan-91
31-Dec-92
1-Jan-95
31-Dec-96
1-Jan-99
1-Jan-01
1-Jan-03
1-Jan-05
1-Jan-07
1-Jan-09
2-Jan-11
1-Jan-13
2-Jan-15
1-Jan-17
Laura Ck. d/s Ditch Rd (BC-01)
Carolyn Ck. u/s Laura Ck. (BC-02)
Laura Ck. u/s Carolyn Ck. (BC-03)
Laura Ck. beside S. Klondike R. (BC-39)
PWQO Sb Guideline

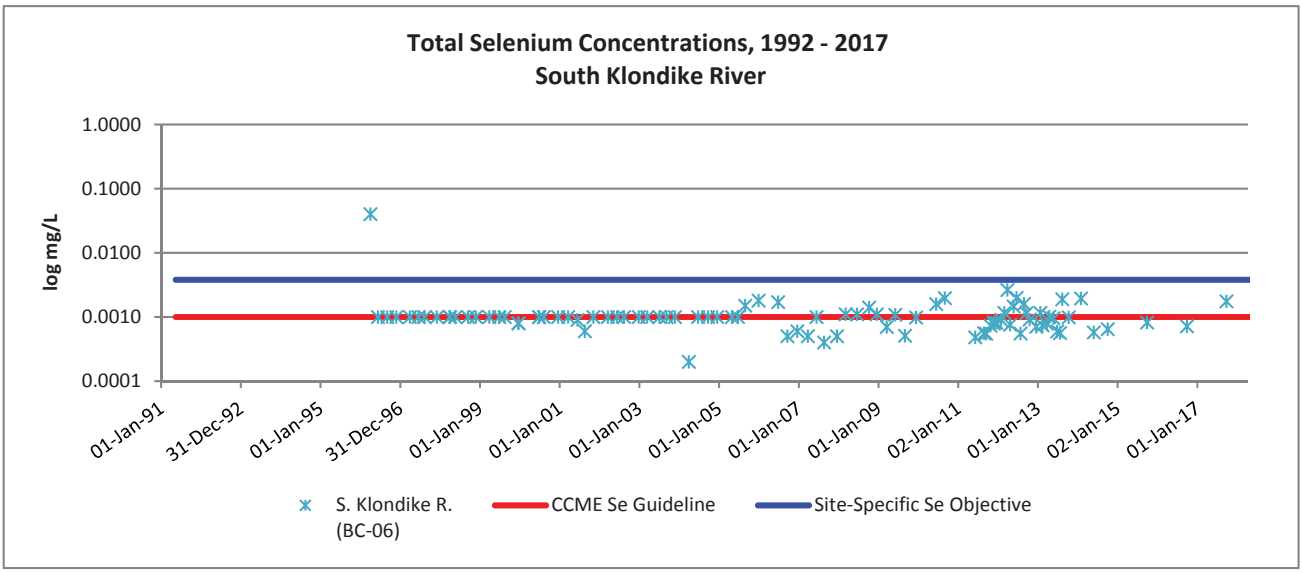

Total Zinc Concentrations, 1991 - 2017South Klondike River
mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
S. Klondike R. (BC-06)
CCME Zn Guideline
Reference Zn Conc.

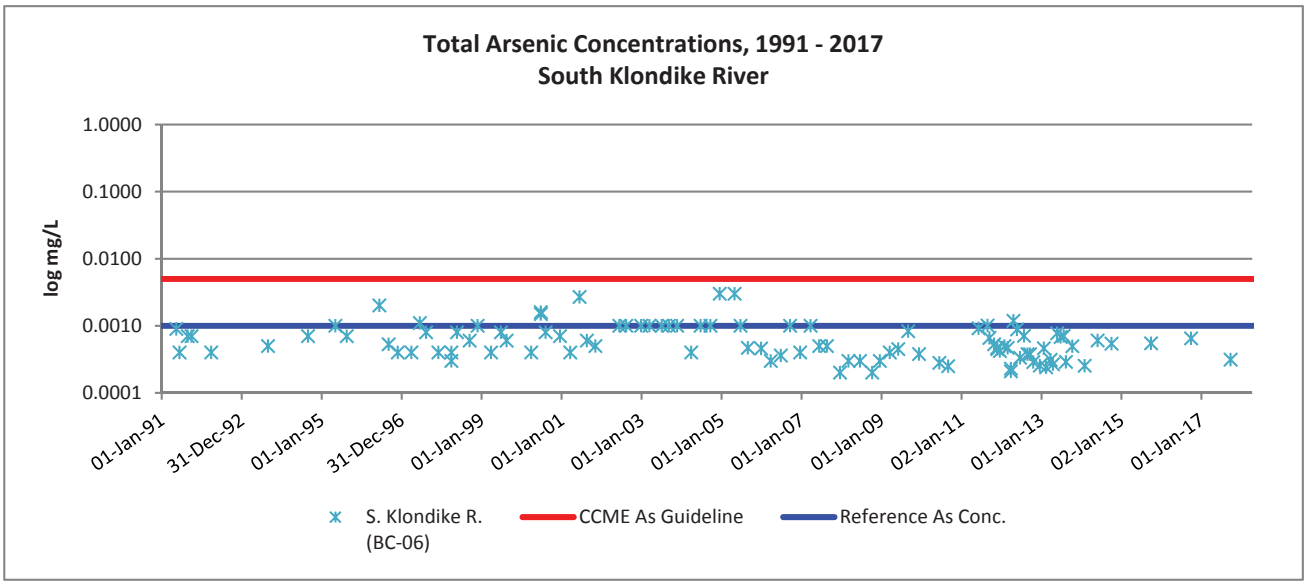

Total Copper Concentrations, 1991 - 2017
South Klondike River
mg/L
1.000
0.100
0.010
0.001
0.000
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
S. Klondike R. (BC-06)
CCME Cu Guideline
Reference Cu Conc.


Total Lead Concentrations, 1991 - 2017
South Klondike River
log mg/L
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
0.000001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
S. Klondike R. (BC-06)
CCME Pb Guideline
Reference Pb Conc.

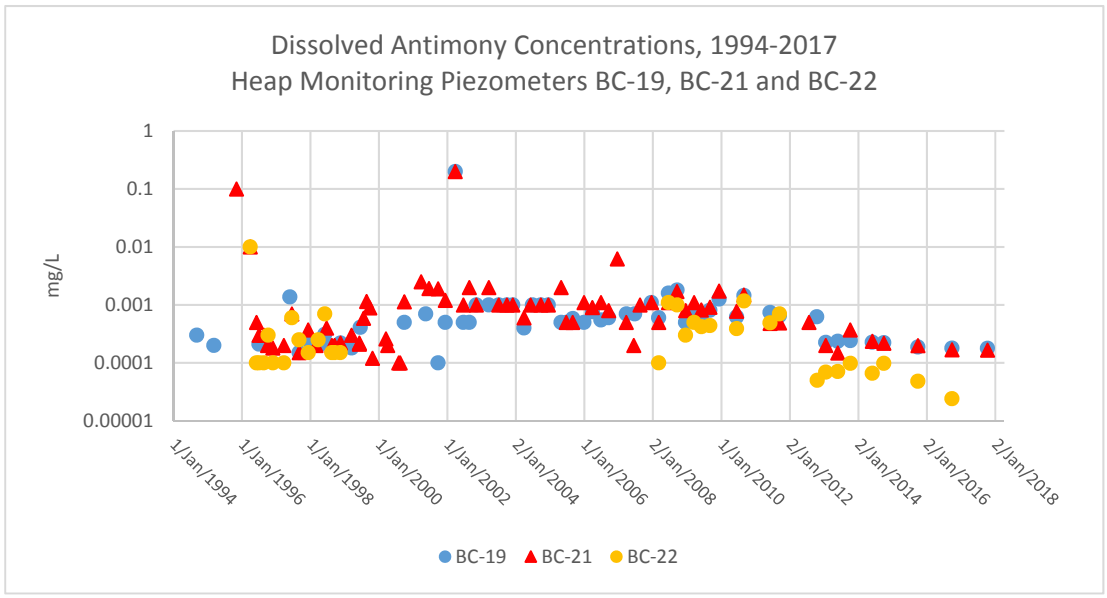

Total Suspended Solids Concentrations, 1991 - 2017South Klondike River
mg/L
80
70
60
50
40
30
20
10
0
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
S. Klondike R. (BC-06)
Reference TSS
MMER Limit

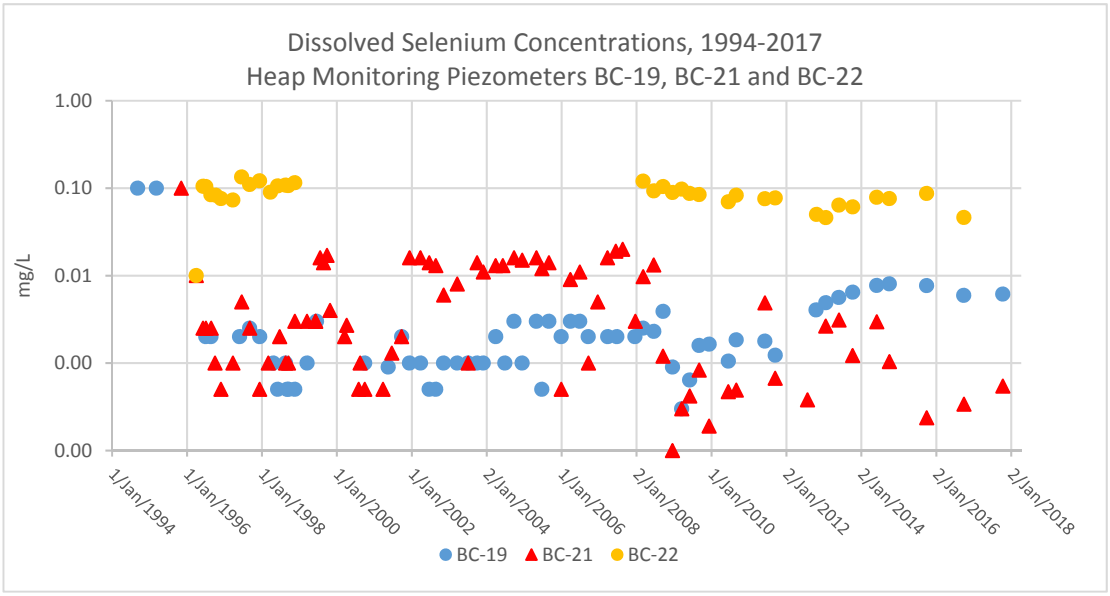

Total Antimony Concentrations, 1991 - 2017
South Klondike River
log mg/L
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
1-Jan-91
31-Dec-92
1-Jan-95
31-Dec-96
1-Jan-99
1-Jan-01
1-Jan-03
1-Jan-05
1-Jan-07
1-Jan-09
2-Jan-11
1-Jan-13
2-Jan-15
1-Jan-17
S. Klondike R. (BC-06)
PWQO Sb Guideline

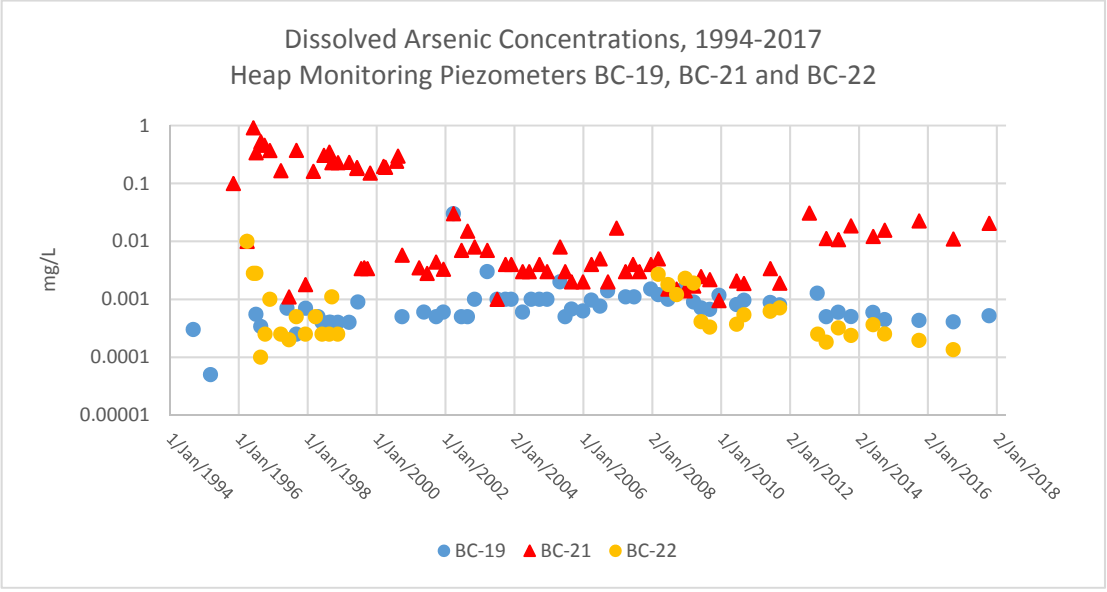

Total Selenium Concentrations, 1992 - 2017
South Klondike River
log mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
S. Klondike R. (BC-06)
CCME Se Guideline
Site-Specific Se Objective

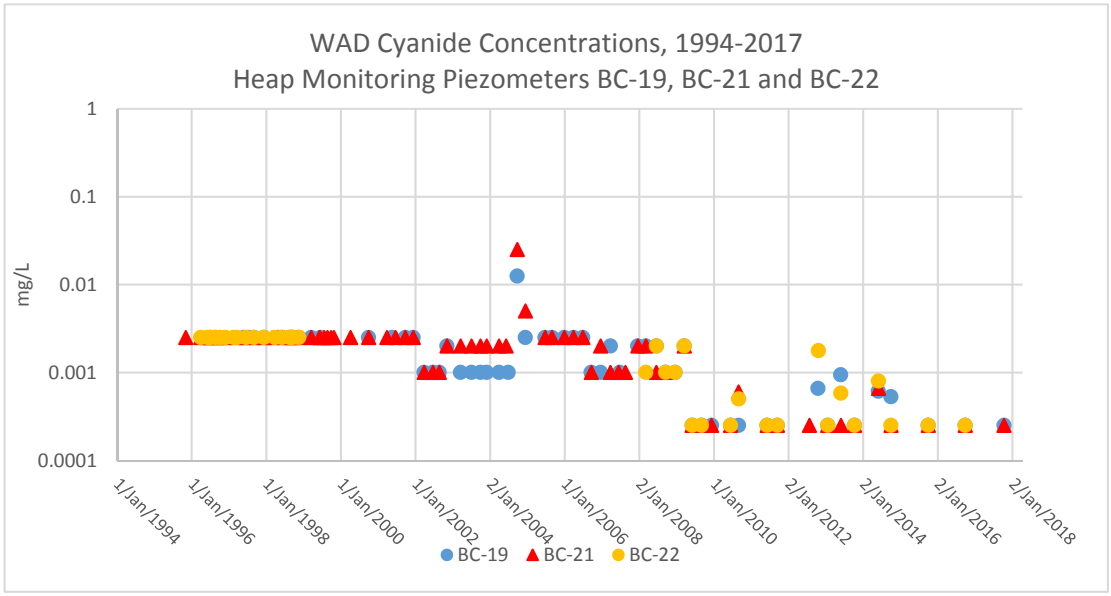

Total Arsenic Concentrations, 1991 - 2017
South Klondike River
log mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
S. Klondike R. (BC-06)
CCME As Guideline
Reference As Conc.

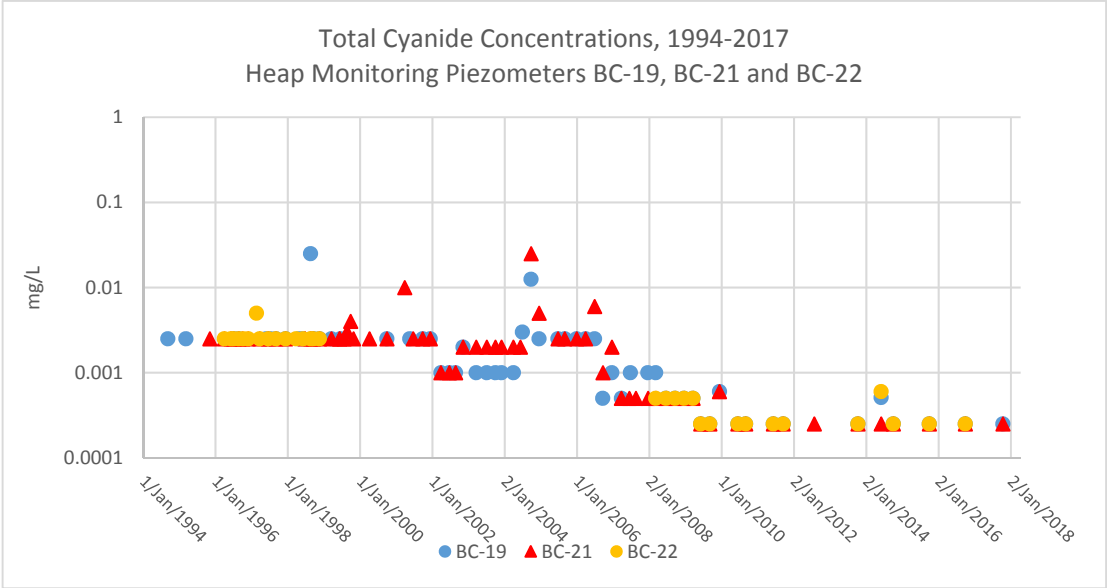
APPENDIX C
GROUNDWATER GRAPHICAL DATA

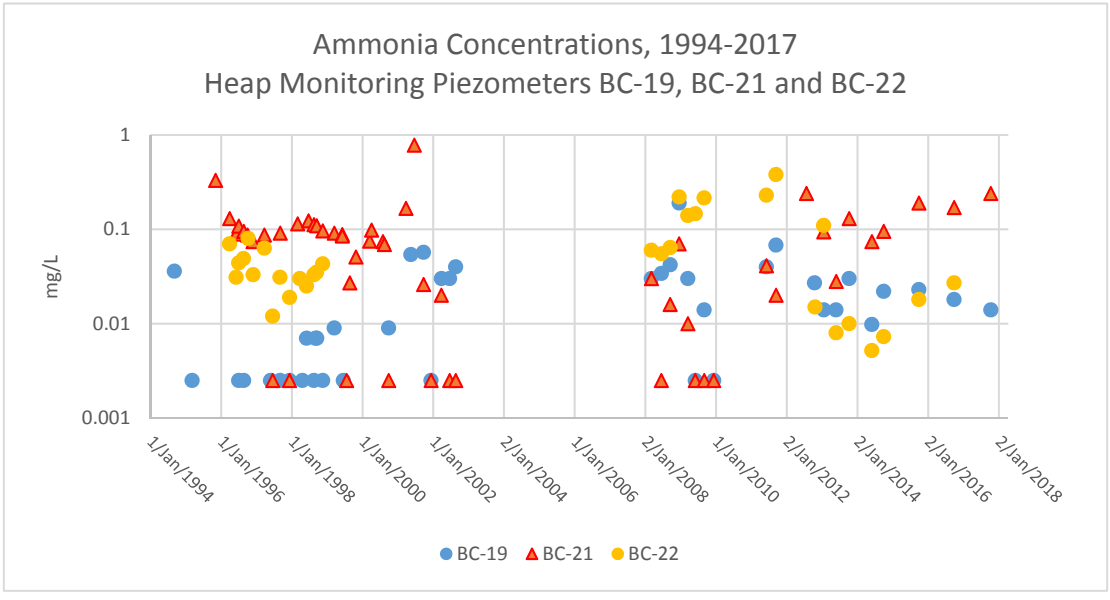

Dissolved Antimony Concentrations, 1994-2017
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
1/Jan/1994
1/Jan/1996
1/Jan/1998
1/Jan/2000
1/Jan/2002
2/Jan/2004
1/Jan/2006
2/Jan/2008
1/Jan/2010
2/Jan/2012
2/Jan/2014
2/Jan/2016
2/Jan/2018
BC-19
BC-21
BC-22

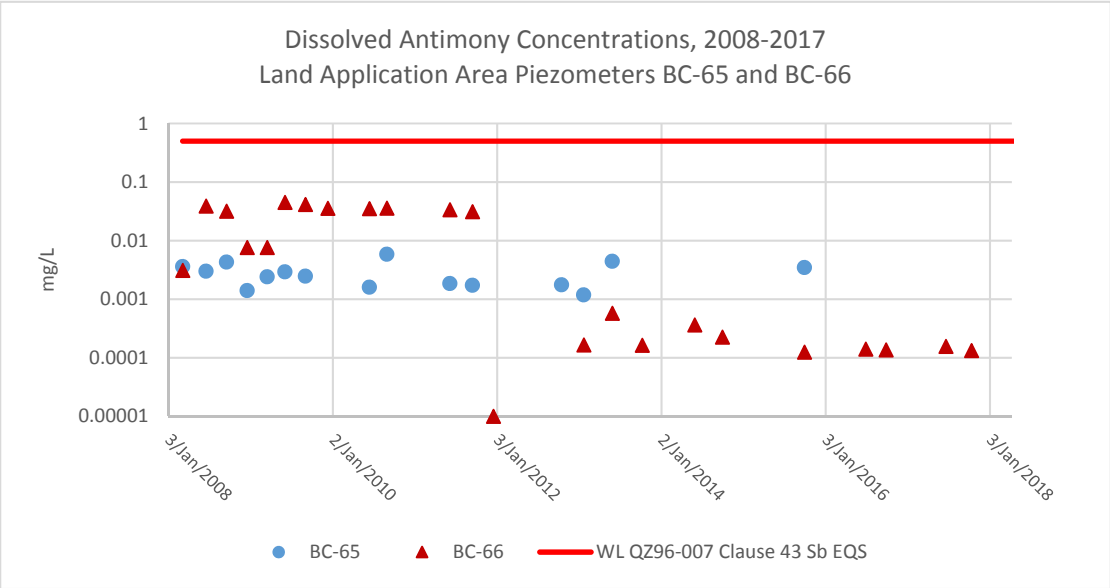

Dissolved Selenium Concentrations, 1994-2017
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1.00
0.10
0.01
0.00
0.00
1/Jan/1994
1/Jan/1996
1/Jan/1998
1/Jan/2000
1/Jan/2002
2/Jan/2004
1/Jan/2006
2/Jan/2008
1/Jan/2010
2/Jan/2012
2/Jan/2014
2/Jan/2016
2/Jan/2018
BC-19
BC-21
BC-22

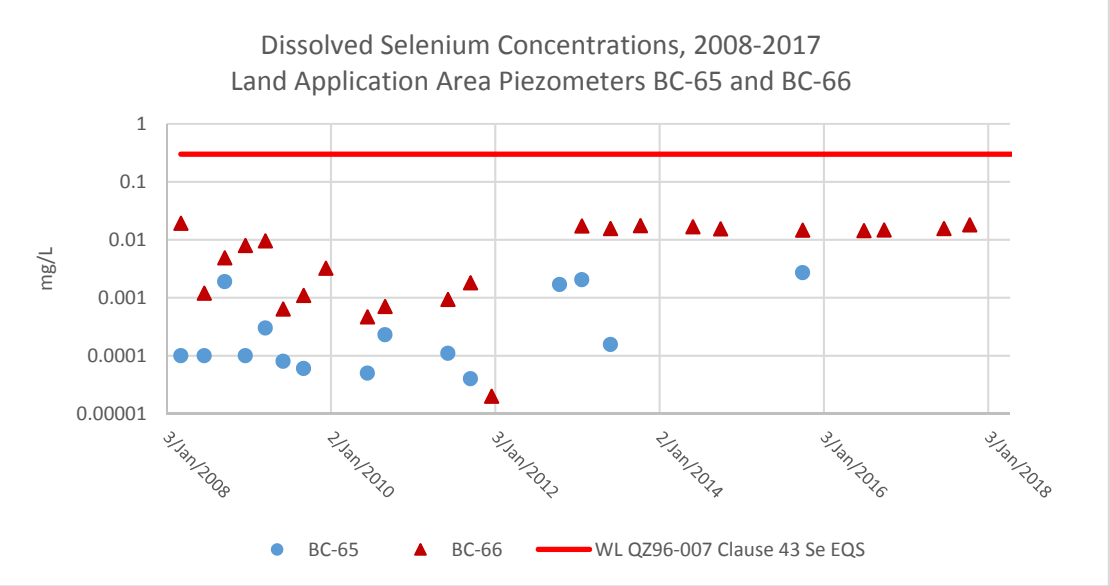

Dissolved Arsenic Concentrations, 1994-2017
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
1/Jan/1994
1/Jan/1996
1/Jan/1998
1/Jan/2000
1/Jan/2002
2/Jan/2004
1/Jan/2006
2/Jan/2008
1/Jan/2010
2/Jan/2012
2/Jan/2014
2/Jan/2016
2/Jan/2018
BC-19
BC-21
BC-22

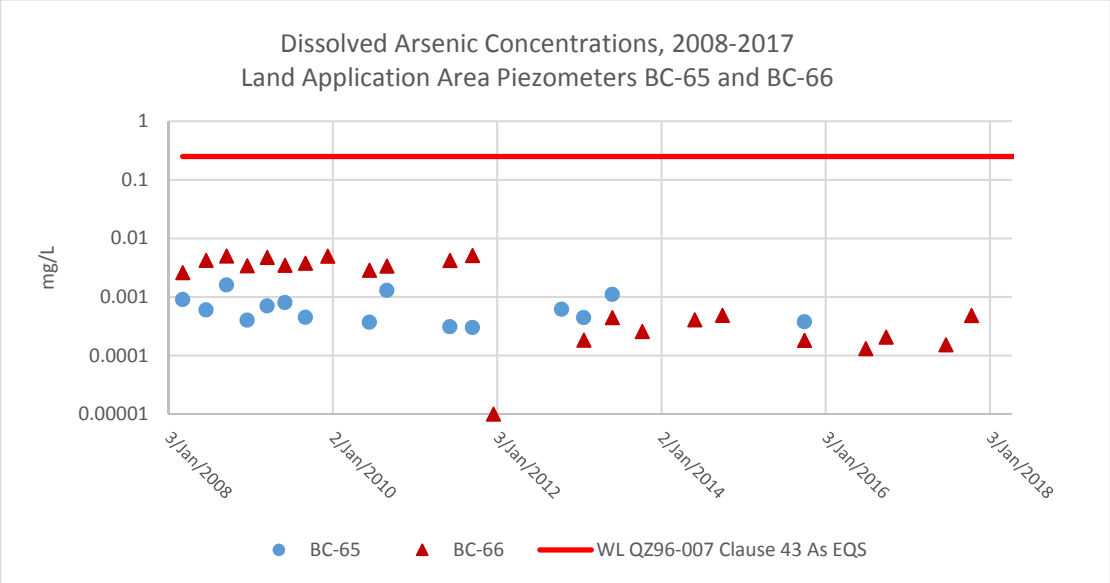

WAD Cyanide Concentrations, 1994-2017
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
0.0001
1/Jan/1994
1/Jan/1996
1/Jan/1998
1/Jan/2000
1/Jan/2002
2/Jan/2004
1/Jan/2006
2/Jan/2008
1/Jan/2010
2/Jan/2012
2/Jan/2014
2/Jan/2016
2/Jan/2018
BC-19
BC-21
BC-22

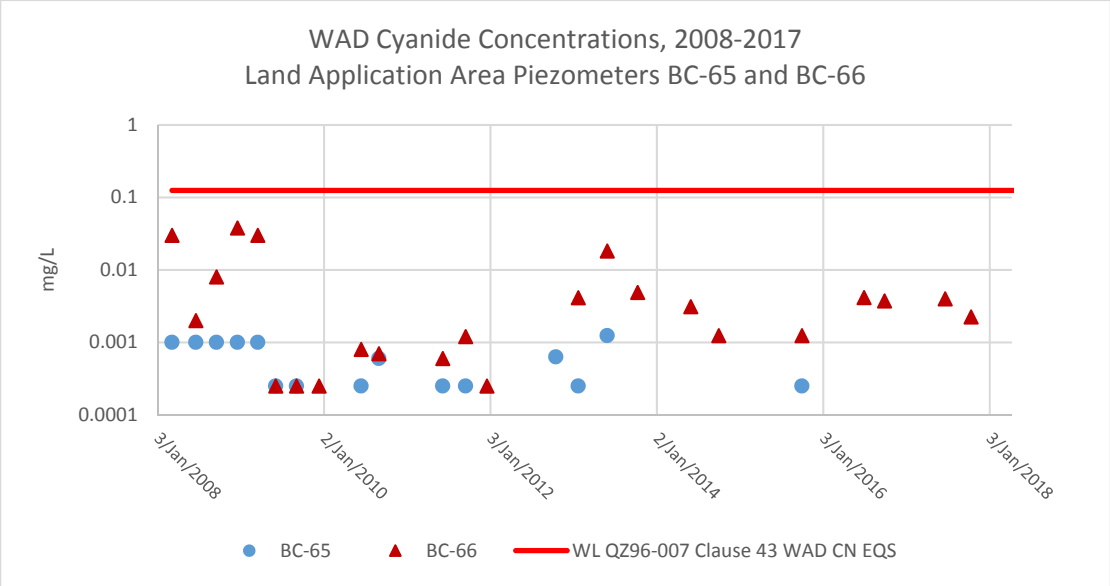

Total Cyanide Concentrations, 1994-2017
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
0.0001
1/Jan/1994
1/Jan/1996
1/Jan/1998
1/Jan/2000
1/Jan/2002
2/Jan/2004
1/Jan/2006
2/Jan/2008
1/Jan/2010
2/Jan/2012
2/Jan/2014
2/Jan/2016
2/Jan/2018
BC-19
BC-21
BC-22

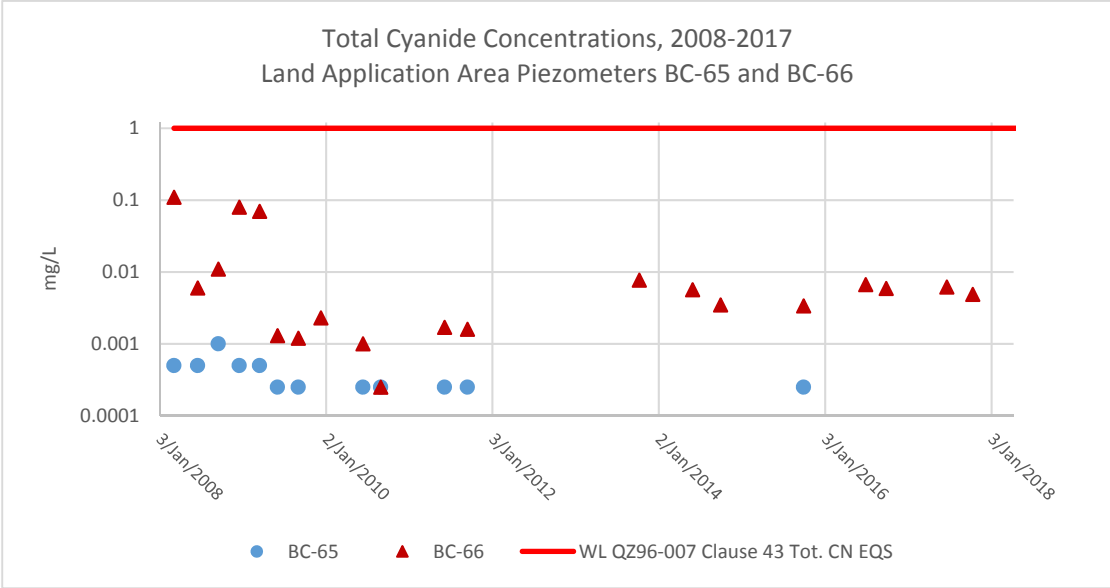

Ammonia Concentrations, 1994-2017
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
1/Jan/1994
1/Jan/1996
1/Jan/1998
1/Jan/2000
1/Jan/2002
2/Jan/2004
1/Jan/2006
2/Jan/2008
1/Jan/2010
2/Jan/2012
2/Jan/2014
2/Jan/2016
2/Jan/2018
BC-19
BC-21
BC-22

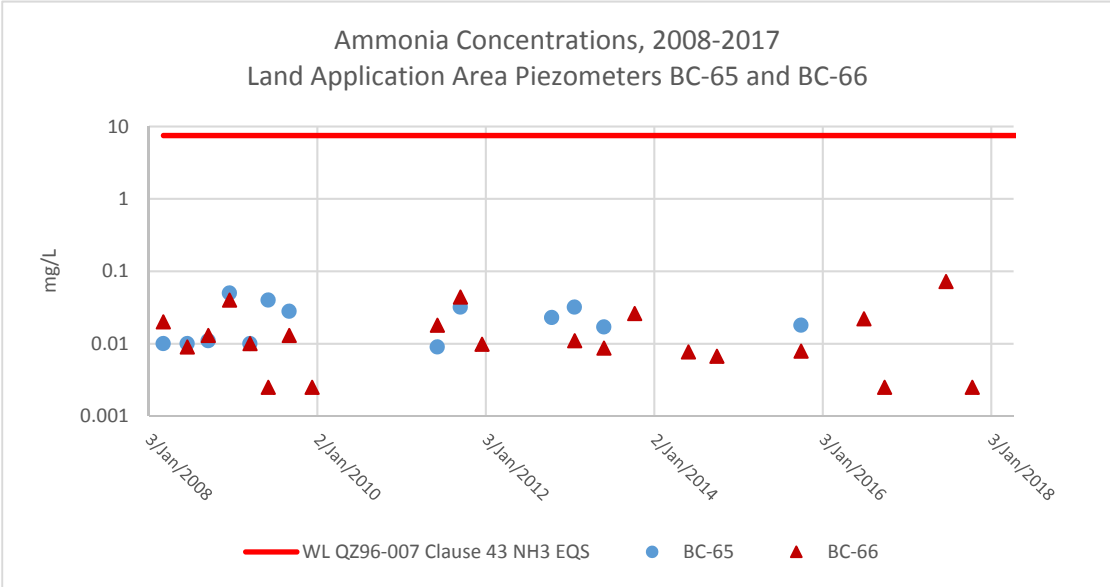

Dissolved Antimony Concentrations, 2008-2017
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-65
BC-66
WL QZ96-007 Clause 43 Sb EQS

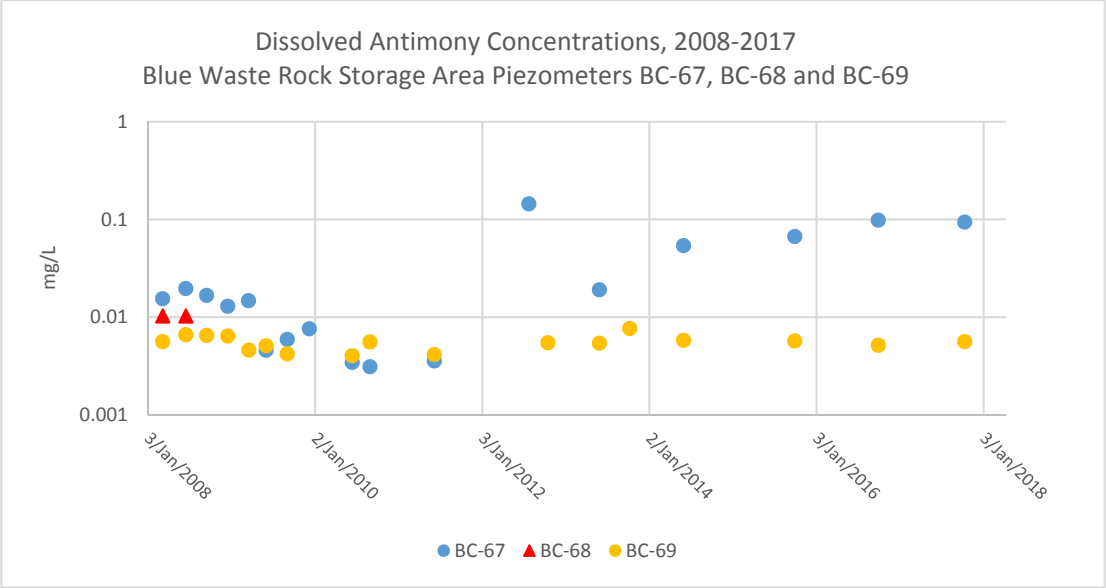

Dissolved Selenium Concentrations, 2008-2017
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-65
BC-66
WL QZ96-007 Clause 43 Se EQS

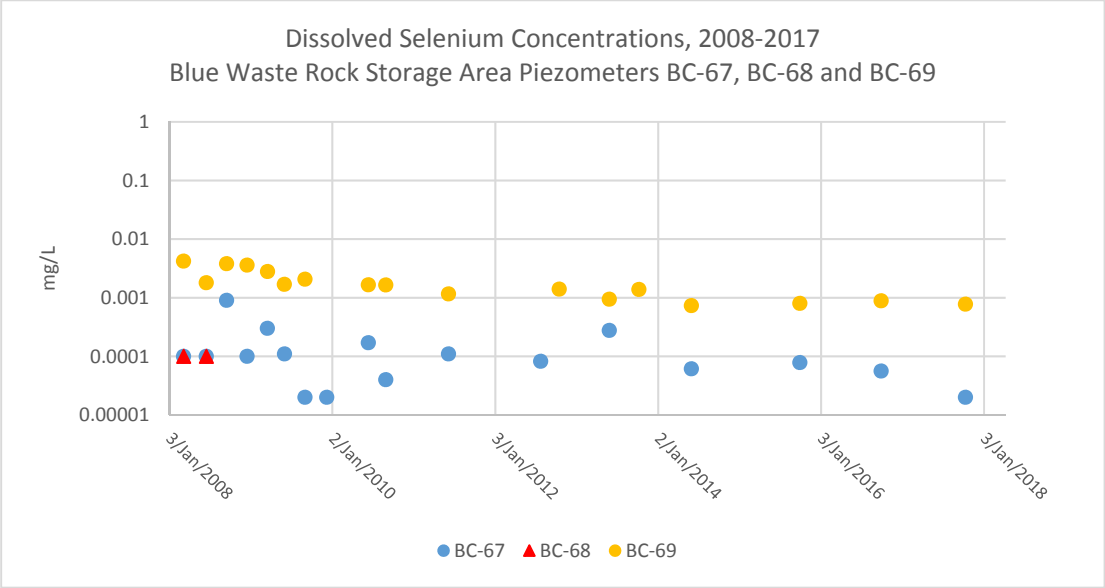

Dissolved Arsenic Concentrations, 2008-2017
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-65
BC-66
WL QZ96-007 Clause 43 As EQS

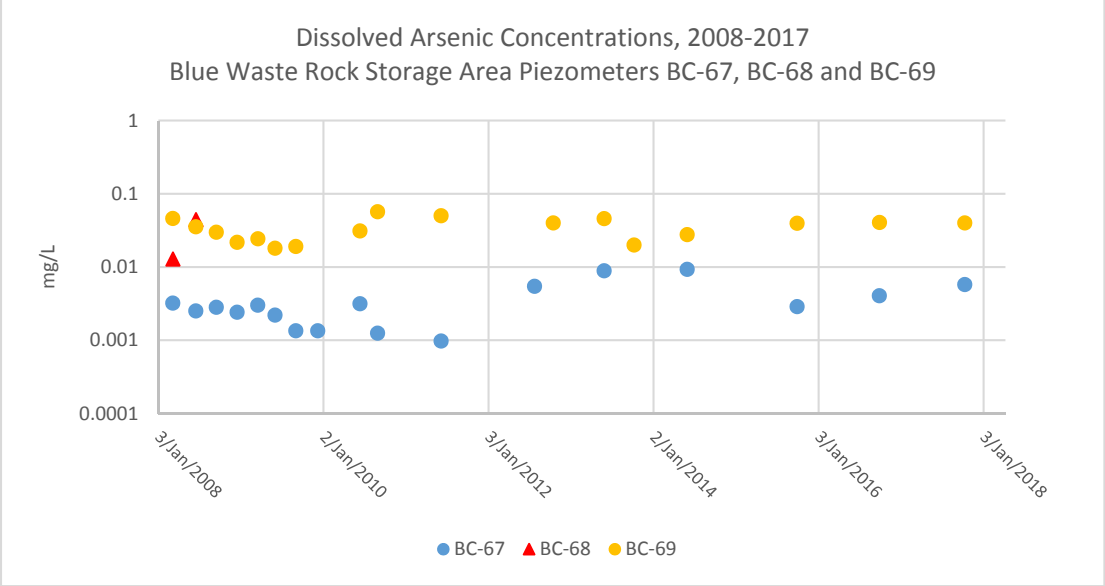

WAD Cyanide Concentrations, 2008-2017
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-65
BC-66
WL QZ96-007 Clause 43 WAD CN EQS

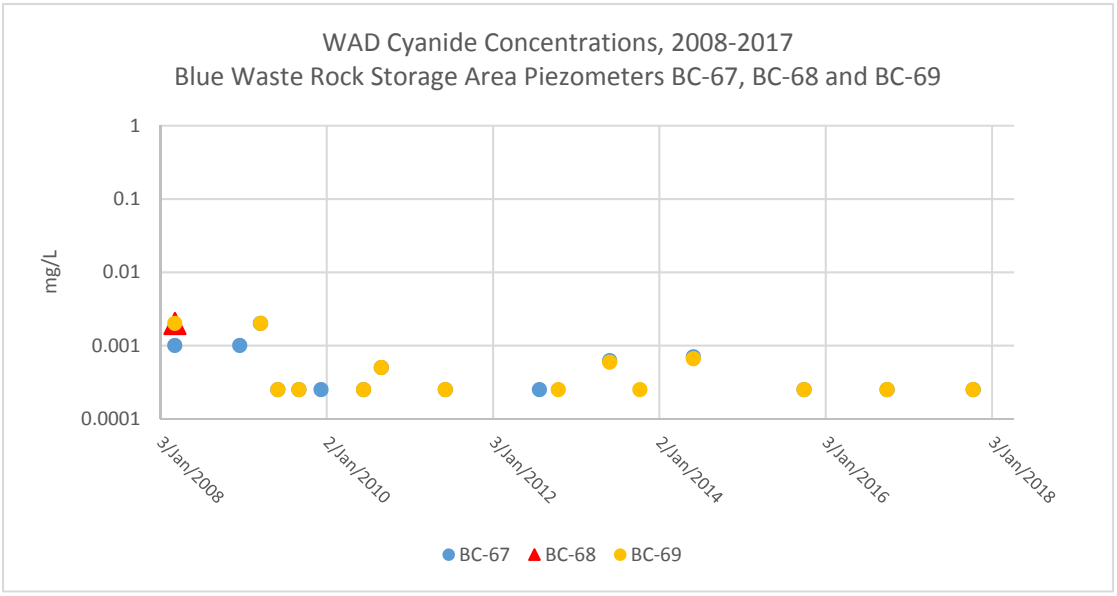

Total Cyanide Concentrations, 2008-2017
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-65
BC-66
WL QZ96-007 Clause 43 Tot. CN EQS

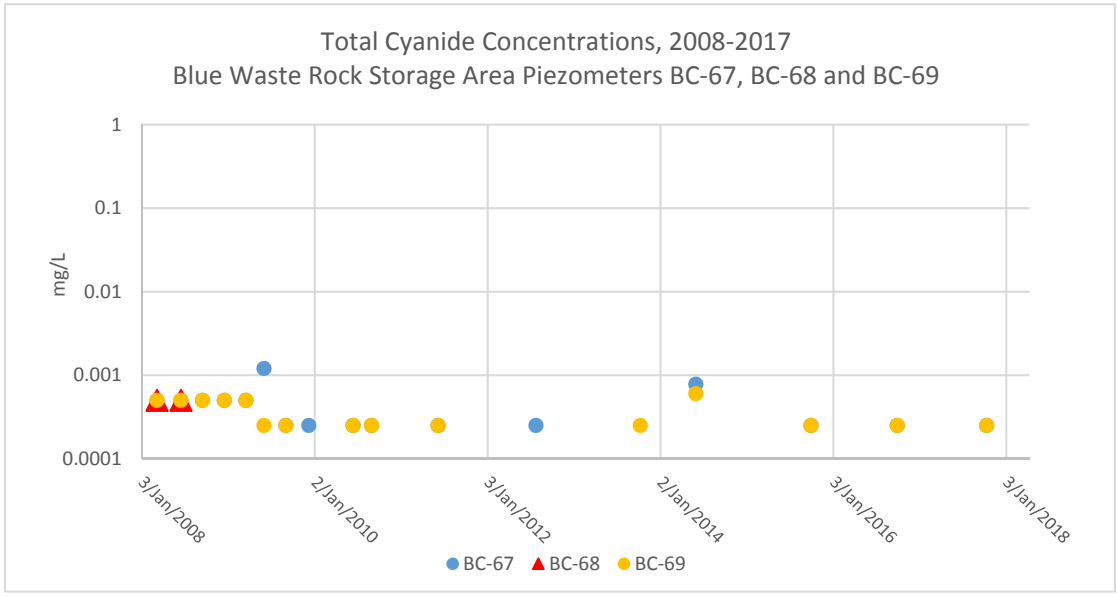

Ammonia Concentrations, 2008-2017
Land Application Area Piezometers BC-65 and BC-66
mg/L
10
1
0.1
0.01
0.001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
WL QZ96-007 Clause 43 NH3 EQS
BC-65
BC-66

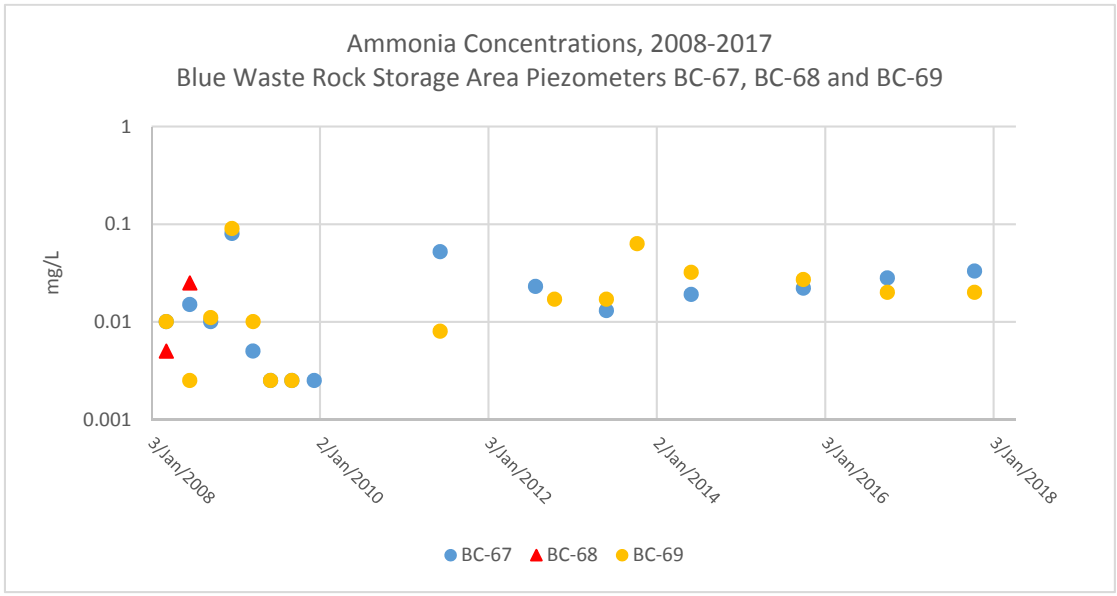

Dissolved Antimony Concentrations, 2008-2017
Blue Waste Rock Storage Area Piezometers BC-67, BC-68 and BC-69
mg/L
1
0.1
0.01
0.001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-67
BC-68
BC-69


Dissolved Selenium Concentrations, 2008-2017
Blue Waste Rock Storage Area Piezometers BC-67, BC-68 and BC-69
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-67
BC-68
BC-69


Dissolved Arsenic Concentrations, 2008-2017
Blue Waste Rock Storage Area Piezometers BC-67, BC-68 and BC-69
mg/L
1
0.1
0.01
0.001
0.0001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-67
BC-68
BC-69


WAD Cyanide Concentrations, 2008-2017
Blue Waste Rock Storage Area Piezometers BC-67, BC-68 and BC-69
mg/L
1
0.1
0.01
0.001
0.0001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-67
BC-68
BC-69


Total Cyanide Concentrations, 2008-2017
Blue Waste Rock Storage Area Piezometers BC-67, BC-68 and BC-69
mg/L
1
0.1
0.01
0.001
0.0001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-67
BC-68
BC-69


Ammonia Concentrations, 2008-2017
Blue Waste Rock Storage Area Piezometers BC-67, BC-68 and BC-69
mg/L
1
0.1
0.01
0.001
3/Jan/2008
2/Jan/2010
3/Jan/2012
2/Jan/2014
3/Jan/2016
3/Jan/2018
BC-67
BC-68
BC-69

APPENDIX B

LAB REPORTS – CERTIFICATE OF ANALYSIS

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: SURFACE WATER
Site Location: BREWERY CREEK
Your C.O.C. #: 08439656

Attention:Kai Woloshyn

Alexco Environmental Group Inc.
Unit 3 Calcite Business Centre
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 2V3

Report Date: 2017/06/29
Report #: R2405438
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B750815
Received: 2017/06/23, 13:20

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Water	2	2017/06/24	2017/06/27	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	2	N/A	2017/06/26	BBY6SOP-00011	SM 22 4500-Cl- E m
Cyanide SAD (strong acid dissociable)	6	N/A	2017/06/27	BBY6SOP-00004	SM 22 4500-CN O m
Cyanide WAD (weak acid dissociable)	6	N/A	2017/06/27	BBY6SOP-00004	SM 22 4500-CN O m
Conductance - water	1	2017/06/24	2017/06/27	BBY6SOP-00026	SM 22 2510 B m
Conductance - water	1	2017/06/27	2017/06/27	BBY6SOP-00026	SM 22 2510 B m
Hardness Total (calculated as CaCO3)	4	N/A	2017/06/27	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	6	N/A	2017/06/27	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	5	N/A	2017/06/26	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Dissolved-LowLevel) by CVAF	1	N/A	2017/06/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	3	2017/06/26	2017/06/26	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	1	2017/06/29	2017/06/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance (as Cations/Anions Ratio)	2	N/A	2017/06/27	BBY WI-00033	Auto Calc
Ion Balance	2	N/A	2017/06/27	BBY WI-00033	SM 22 1030E
Sum of cations, anions	2	N/A	2017/06/27	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	6	N/A	2017/06/27	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	6	N/A	2017/06/26	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	N/A	2017/06/27	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	4	N/A	2017/06/27	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Unpreserved)	1	2017/06/24	2017/06/26	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	5	N/A	2017/06/26	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	2	N/A	2017/06/23	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	2	N/A	2017/06/23	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	2	N/A	2017/06/24	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	5	N/A	2017/06/26	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	1	2017/06/24	2017/06/27	BBY6SOP-00026	SM 22 4500-H+ B m
pH Water (1)	1	2017/06/27	2017/06/27	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	2	N/A	2017/06/26	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Suspended Solids-Low Level	6	2017/06/26	2017/06/27	BBY6SOP-00034	SM 22 2540 D

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: SURFACE WATER
Site Location: BREWERY CREEK
Your C.O.C. #: 08439656

Attention:Kai Woloshyn

Alexco Environmental Group Inc.
Unit 3 Calcite Business Centre
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 2V3

Report Date: 2017/06/29
Report #: R2405438
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B750815
Received: 2017/06/23, 13:20

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Megan Smith, Project Manager
Email: msmith@maxxam.ca
Phone# (604) 734 7276

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RJ0574		RJ0575	RJ0576			RJ0577		
Sampling Date		2017/06/20 14:24		2017/06/20 14:00	2017/06/20 16:31			2017/06/20 14:45		
COC Number		08439656		08439656	08439656			08439656		
	UNITS	BC-28A	RDL	BC-28B	BC-66	RDL	QC Batch	FIELD DUPLICATE	RDL	QC Batch
Calculated Parameters										
Anion Sum	meq/L				8.3	N/A	8673679		N/A	8673679
Cation Sum	meq/L				7.4	N/A	8673679		N/A	8673679
Filter and HNO3 Preservation	N/A	FIELD		FIELD	FIELD		ONSITE	FIELD		ONSITE
Ion Balance	N/A				0.89	0.010	8673678		0.010	8673678
Ion Balance (% Difference)	%				11	N/A	8674399		N/A	8674399
Nitrate (N)	mg/L				33.3	0.10	8673495		0.10	8673495
Misc. Inorganics										
Strong Acid Dissoc. Cyanide (CN)	mg/L	0.412 (1)	0.0050	0.0515	0.00617	0.00050	8677223	0.407 (1)	0.0050	8677223
Weak Acid Dissoc. Cyanide (CN)	mg/L	0.0268	0.00050	0.0402	0.00400	0.00050	8677236	0.0191	0.00050	8677236
Alkalinity (Total as CaCO3)	mg/L				258	0.50	8674852			8674852
Alkalinity (PP as CaCO3)	mg/L				5.19	0.50	8674852			8674852
Bicarbonate (HCO3)	mg/L				302	0.50	8674852			8674852
Carbonate (CO3)	mg/L				6.23	0.50	8674852			8674852
Hydroxide (OH)	mg/L				<0.50	0.50	8674852			8674852
Anions										
Dissolved Sulphate (SO4)	mg/L				28.4	0.50	8677099			8677099
Dissolved Chloride (Cl)	mg/L				5.1	0.50	8677085			8677085
Nutrients										
Total Ammonia (N)	mg/L	0.13	0.0050	0.12	0.072	0.0050	8676145	0.11	0.0050	8676146
Nitrate plus Nitrite (N)	mg/L				33.3 (1)	0.10	8675142			
Nitrite (N)	mg/L				0.0168	0.0020	8675143			
Physical Properties										
Conductivity	uS/cm				753	1.0	8674853			
pH	pH				8.42		8674854			
Physical Properties										
Total Suspended Solids	mg/L	1.1	1.0	2.9	7.4	1.0	8676448	<1.0	1.0	8676448

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RJ0578		RJ0579		
Sampling Date		2017/06/20 16:00		2017/06/23 13:20		
COC Number		08439656		08439656		
	UNITS	FIELD BLANK	QC Batch	TRIP BLANK	RDL	QC Batch
Calculated Parameters						
Anion Sum	meq/L	0.014	8673679		N/A	8673679
Cation Sum	meq/L	0.0024	8673679		N/A	8673679
Filter and HNO3 Preservation	N/A	FIELD	ONSITE			ONSITE
Ion Balance	N/A	0.17 (1)	8673678		0.010	8673678
Ion Balance (% Difference)	%	71	8674399		N/A	8674399
Nitrate (N)	mg/L	<0.0020	8673495		0.0020	8673495
Misc. Inorganics						
Strong Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	8677223	<0.00050	0.00050	8677223
Weak Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	8677236	<0.00050	0.00050	8677236
Alkalinity (Total as CaCO3)	mg/L	0.70	8674852		0.50	8674852
Alkalinity (PP as CaCO3)	mg/L	<0.50	8674852		0.50	8674852
Bicarbonate (HCO3)	mg/L	0.85	8674852		0.50	8674852
Carbonate (CO3)	mg/L	<0.50	8674852		0.50	8674852
Hydroxide (OH)	mg/L	<0.50	8674852		0.50	8674852
Anions						
Dissolved Sulphate (SO4)	mg/L	<0.50	8677099		0.50	8677099
Dissolved Chloride (Cl)	mg/L	<0.50	8677085		0.50	8677085
Nutrients						
Total Ammonia (N)	mg/L	<0.0050	8676145	<0.0050	0.0050	8675223
Nitrate plus Nitrite (N)	mg/L	<0.0020	8675142		0.0020	
Nitrite (N)	mg/L	<0.0020	8675143		0.0020	
Physical Properties						
Conductivity	uS/cm	1.1	8674853		1.0	
pH	pH	5.68	8674854			
Physical Properties						
Total Suspended Solids	mg/L	<1.0	8676448	<1.0	1.0	8676448

RDL = Reportable Detection Limit

(1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		RJ0574		RJ0575			RJ0576		
Sampling Date		2017/06/20 14:24		2017/06/20 14:00			2017/06/20 16:31		
COC Number		08439656		08439656			08439656		
	UNITS	BC-28A	QC Batch	BC-28B	RDL	QC Batch	BC-66	RDL	QC Batch
Misc. Inorganics									
Dissolved Hardness (CaCO3)	mg/L	965	8673330	897	0.50	8673330	343	0.50	8673330
Elements									
Dissolved Mercury (Hg)	mg/L	0.0000337	8676209	0.0000173 (1)	0.0000020	8679540	<0.0000020	0.0000020	8676209
Dissolved Metals by ICPMS									
Dissolved Aluminum (Al)	mg/L	0.0077	8675038	0.0754	0.0025	8675038	0.00078	0.00050	8675038
Dissolved Antimony (Sb)	mg/L	1.62	8675038	1.47	0.00010	8675038	0.000156	0.000020	8675038
Dissolved Arsenic (As)	mg/L	0.269	8675038	0.179	0.00010	8675038	0.000152	0.000020	8675038
Dissolved Barium (Ba)	mg/L	0.0376	8675038	0.0296	0.00010	8675038	0.0470	0.000020	8675038
Dissolved Beryllium (Be)	mg/L	<0.000050	8675038	<0.000050	0.000050	8675038	<0.000010	0.000010	8675038
Dissolved Bismuth (Bi)	mg/L	<0.000025	8675038	<0.000025	0.000025	8675038	<0.0000050	0.0000050	8675038
Dissolved Boron (B)	mg/L	<0.050	8675038	<0.050	0.050	8675038	<0.010	0.010	8675038
Dissolved Cadmium (Cd)	mg/L	0.000257	8675038	<0.000025	0.000025	8675038	0.0000130	0.0000050	8675038
Dissolved Chromium (Cr)	mg/L	<0.00050	8675038	<0.00050	0.00050	8675038	0.00028	0.00010	8675038
Dissolved Cobalt (Co)	mg/L	0.521	8675038	0.472	0.000025	8675038	0.0709	0.0000050	8675038
Dissolved Copper (Cu)	mg/L	0.00132	8675038	0.00174	0.00025	8675038	0.000283	0.000050	8675038
Dissolved Iron (Fe)	mg/L	0.136	8675038	<0.0050	0.0050	8675038	0.0028	0.0010	8675038
Dissolved Lead (Pb)	mg/L	<0.000025	8675038	<0.000025	0.000025	8675038	0.0000060	0.0000050	8675038
Dissolved Lithium (Li)	mg/L	0.0039	8675038	0.0035	0.0025	8675038	0.0182	0.00050	8675038
Dissolved Manganese (Mn)	mg/L	0.0203	8675038	0.00465	0.00025	8675038	0.000149	0.000050	8675038
Dissolved Molybdenum (Mo)	mg/L	0.0170	8675038	0.0168	0.00025	8675038	0.000149	0.000050	8675038
Dissolved Nickel (Ni)	mg/L	0.00645	8675038	0.00503	0.00010	8675038	0.000325	0.000020	8675038
Dissolved Phosphorus (P)	mg/L	0.038	8675038	<0.010	0.010	8675038	0.0052	0.0020	8675038
Dissolved Selenium (Se)	mg/L	0.141	8675038	0.136	0.00020	8675038	0.0156	0.000040	8675038
Dissolved Silicon (Si)	mg/L	3.55	8675038	1.16	0.25	8675038	4.18	0.050	8675038
Dissolved Silver (Ag)	mg/L	<0.000025	8675038	<0.000025	0.000025	8675038	<0.0000050	0.0000050	8675038
Dissolved Strontium (Sr)	mg/L	1.58	8675038	1.38	0.00025	8675038	0.417	0.000050	8675038
Dissolved Thallium (Tl)	mg/L	0.000287	8675038	0.000220	0.000010	8675038	0.0000110	0.0000020	8675038
Dissolved Tin (Sn)	mg/L	<0.0010	8675038	<0.0010	0.0010	8675038	<0.00020	0.00020	8675038
Dissolved Titanium (Ti)	mg/L	<0.0025	8675038	<0.0025	0.0025	8675038	<0.00050	0.00050	8675038
Dissolved Uranium (U)	mg/L	0.0193	8675038	0.0168	0.000010	8675038	0.00100	0.0000020	8675038

RDL = Reportable Detection Limit
(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		RJ0574		RJ0575			RJ0576		
Sampling Date		2017/06/20 14:24		2017/06/20 14:00			2017/06/20 16:31		
COC Number		08439656		08439656			08439656		
	UNITS	**BC-28A**	**QC Batch**	**BC-28B**	**RDL**	**QC Batch**	**BC-66**	**RDL**	**QC Batch**
Dissolved Vanadium (V)	mg/L	<0.0010	8675038	<0.0010	0.0010	8675038	<0.00020	0.00020	8675038
Dissolved Zinc (Zn)	mg/L	0.00930	8675038	0.00121	0.00050	8675038	0.00069	0.00010	8675038
Dissolved Zirconium (Zr)	mg/L	<0.00050	8675038	<0.00050	0.00050	8675038	<0.00010	0.00010	8675038
Dissolved Calcium (Ca)	mg/L	281	8673331	258	0.25	8673331	68.9	0.050	8673331
Dissolved Magnesium (Mg)	mg/L	63.7	8673331	61.4	0.25	8673331	41.6	0.050	8673331
Dissolved Potassium (K)	mg/L	4.39	8673331	4.22	0.25	8673331	2.29	0.050	8673331
Dissolved Sodium (Na)	mg/L	326	8673331	304	0.25	8673331	9.95	0.050	8673331
Dissolved Sulphur (S)	mg/L	253	8673331	247	15	8673331	8.6	3.0	8673331

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		RJ0577		RJ0578	RJ0579		
Sampling Date		2017/06/20 14:45		2017/06/20 16:00	2017/06/23 13:20		
COC Number		08439656		08439656	08439656		
	UNITS	FIELD DUPLICATE	RDL	FIELD BLANK	TRIP BLANK	RDL	QC Batch
Misc. Inorganics							
Dissolved Hardness (CaCO3)	mg/L	991	0.50	<0.50	<0.50	0.50	8673330
Elements							
Dissolved Mercury (Hg)	mg/L	0.0000366	0.0000020	<0.0000020	<0.0000020	0.0000020	8676209
Dissolved Metals by ICPMS							
Dissolved Aluminum (Al)	mg/L	0.0098	0.0025	0.00063	<0.00050	0.00050	8675038
Dissolved Antimony (Sb)	mg/L	1.63	0.00010	0.000103	<0.000020	0.000020	8675038
Dissolved Arsenic (As)	mg/L	0.265	0.00010	0.000153	<0.000020	0.000020	8675038
Dissolved Barium (Ba)	mg/L	0.0378	0.00010	<0.000020	<0.000020	0.000020	8675038
Dissolved Beryllium (Be)	mg/L	<0.000050	0.000050	<0.000010	<0.000010	0.000010	8675038
Dissolved Bismuth (Bi)	mg/L	<0.000025	0.000025	<0.0000050	<0.0000050	0.0000050	8675038
Dissolved Boron (B)	mg/L	<0.050	0.050	<0.010	<0.010	0.010	8675038
Dissolved Cadmium (Cd)	mg/L	0.000248	0.000025	<0.0000050	<0.0000050	0.0000050	8675038
Dissolved Chromium (Cr)	mg/L	<0.00050	0.00050	<0.00010	<0.00010	0.00010	8675038
Dissolved Cobalt (Co)	mg/L	0.533	0.000025	<0.0000050	<0.0000050	0.0000050	8675038
Dissolved Copper (Cu)	mg/L	0.00127	0.00025	<0.000050	<0.000050	0.000050	8675038
Dissolved Iron (Fe)	mg/L	0.143	0.0050	0.0067	<0.0010	0.0010	8675038
Dissolved Lead (Pb)	mg/L	<0.000025	0.000025	0.0000070	<0.0000050	0.0000050	8675038
Dissolved Lithium (Li)	mg/L	0.0040	0.0025	<0.00050	<0.00050	0.00050	8675038
Dissolved Manganese (Mn)	mg/L	0.0207	0.00025	0.000080	<0.000050	0.000050	8675038
Dissolved Molybdenum (Mo)	mg/L	0.0170	0.00025	<0.000050	<0.000050	0.000050	8675038
Dissolved Nickel (Ni)	mg/L	0.00681	0.00010	<0.000020	<0.000020	0.000020	8675038
Dissolved Phosphorus (P)	mg/L	0.037	0.010	<0.0020	<0.0020	0.0020	8675038
Dissolved Selenium (Se)	mg/L	0.148	0.00020	<0.000040	<0.000040	0.000040	8675038
Dissolved Silicon (Si)	mg/L	3.63	0.25	<0.050	<0.050	0.050	8675038
Dissolved Silver (Ag)	mg/L	<0.000025	0.000025	<0.0000050	<0.0000050	0.0000050	8675038
Dissolved Strontium (Sr)	mg/L	1.53	0.00025	<0.000050	<0.000050	0.000050	8675038
Dissolved Thallium (Tl)	mg/L	0.000280	0.000010	<0.0000020	<0.0000020	0.0000020	8675038
Dissolved Tin (Sn)	mg/L	<0.0010	0.0010	<0.00020	<0.00020	0.00020	8675038
Dissolved Titanium (Ti)	mg/L	<0.0025	0.0025	<0.00050	<0.00050	0.00050	8675038
Dissolved Uranium (U)	mg/L	0.0184	0.000010	<0.0000020	<0.0000020	0.0000020	8675038
Dissolved Vanadium (V)	mg/L	<0.0010	0.0010	<0.00020	<0.00020	0.00020	8675038

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		RJ0577		RJ0578	RJ0579		
Sampling Date		2017/06/20 14:45		2017/06/20 16:00	2017/06/23 13:20		
COC Number		08439656		08439656	08439656		
	UNITS	FIELD DUPLICATE	RDL	FIELD BLANK	TRIP BLANK	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00951	0.00050	<0.00010	<0.00010	0.00010	8675038
Dissolved Zirconium (Zr)	mg/L	<0.00050	0.00050	<0.00010	<0.00010	0.00010	8675038
Dissolved Calcium (Ca)	mg/L	292	0.25	<0.050	<0.050	0.050	8673331
Dissolved Magnesium (Mg)	mg/L	63.6	0.25	<0.050	<0.050	0.050	8673331
Dissolved Potassium (K)	mg/L	4.43	0.25	<0.050	<0.050	0.050	8673331
Dissolved Sodium (Na)	mg/L	324	0.25	<0.050	<0.050	0.050	8673331
Dissolved Sulphur (S)	mg/L	256	15	<3.0	<3.0	3.0	8673331
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID		RJ0574		RJ0575		RJ0577		
Sampling Date		2017/06/20 14:24		2017/06/20 14:00		2017/06/20 14:45		
COC Number		08439656		08439656		08439656		
	UNITS	BC-28A	QC Batch	BC-28B	QC Batch	FIELD DUPLICATE	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	1080	8673677	996	8673677	1120	0.50	8673677
Elements								
Total Mercury (Hg)	mg/L	0.0000402	8676126	0.0000094	8679890	0.0000401	0.0000020	8676126
Total Metals by ICPMS								
Total Aluminum (Al)	mg/L	0.0084	8675523	0.0933	8675523	0.0097	0.0025	8675523
Total Antimony (Sb)	mg/L	1.63	8675523	1.50	8675523	1.65	0.00010	8675523
Total Arsenic (As)	mg/L	0.255	8675523	0.175	8675523	0.256	0.00010	8675523
Total Barium (Ba)	mg/L	0.0391	8675523	0.0320	8675523	0.0404	0.00010	8675523
Total Beryllium (Be)	mg/L	<0.000050	8675523	<0.000050	8675523	<0.000050	0.000050	8675523
Total Bismuth (Bi)	mg/L	<0.000025	8675523	<0.000025	8675523	<0.000025	0.000025	8675523
Total Boron (B)	mg/L	<0.050	8675523	<0.050	8675523	<0.050	0.050	8675523
Total Cadmium (Cd)	mg/L	0.000259	8675523	<0.000025	8675523	0.000272	0.000025	8675523
Total Chromium (Cr)	mg/L	<0.00050	8675523	<0.00050	8675523	<0.00050	0.00050	8675523
Total Cobalt (Co)	mg/L	0.556	8675523	0.505	8675523	0.543	0.000025	8675523
Total Copper (Cu)	mg/L	0.00129	8675523	0.00231	8675523	0.00131	0.00025	8675523
Total Iron (Fe)	mg/L	0.146	8675523	0.0206	8675523	0.142	0.0050	8675523
Total Lead (Pb)	mg/L	<0.000025	8675523	<0.000025	8675523	<0.000025	0.000025	8675523
Total Lithium (Li)	mg/L	0.0047	8675523	0.0043	8675523	0.0049	0.0025	8675523
Total Manganese (Mn)	mg/L	0.0214	8675523	0.0152	8675523	0.0215	0.00025	8675523
Total Molybdenum (Mo)	mg/L	0.0168	8675523	0.0169	8675523	0.0169	0.00025	8675523
Total Nickel (Ni)	mg/L	0.00662	8675523	0.00533	8675523	0.00702	0.00010	8675523
Total Phosphorus (P)	mg/L	0.048	8675523	0.032	8675523	0.052	0.010	8675523
Total Selenium (Se)	mg/L	0.139	8675523	0.136	8675523	0.141	0.00020	8675523
Total Silicon (Si)	mg/L	3.85	8675523	1.25	8675523	3.85	0.25	8675523
Total Silver (Ag)	mg/L	<0.000025	8675523	<0.000025	8675523	<0.000025	0.000025	8675523
Total Strontium (Sr)	mg/L	1.45	8675523	1.34	8675523	1.48	0.00025	8675523
Total Thallium (Tl)	mg/L	0.000324	8675523	0.000243	8675523	0.000302	0.000010	8675523
Total Tin (Sn)	mg/L	<0.0010	8675523	<0.0010	8675523	<0.0010	0.0010	8675523
Total Titanium (Ti)	mg/L	<0.0025	8675523	<0.0025	8675523	<0.0025	0.0025	8675523
Total Uranium (U)	mg/L	0.0201	8675523	0.0188	8675523	0.0204	0.000010	8675523
Total Vanadium (V)	mg/L	<0.0010	8675523	<0.0010	8675523	<0.0010	0.0010	8675523

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID		RJ0574		RJ0575		RJ0577		
Sampling Date		2017/06/20 14:24		2017/06/20 14:00		2017/06/20 14:45		
COC Number		08439656		08439656		08439656		
	UNITS	**BC-28A**	**QC Batch**	**BC-28B**	**QC Batch**	**FIELD DUPLICATE**	**RDL**	**QC Batch**
Total Zinc (Zn)	mg/L	0.00850	8675523	0.00099	8675523	0.00864	0.00050	8675523
Total Zirconium (Zr)	mg/L	<0.00050	8675523	<0.00050	8675523	<0.00050	0.00050	8675523
Total Calcium (Ca)	mg/L	314	8674003	283	8674003	323	0.25	8674003
Total Magnesium (Mg)	mg/L	72.5	8674003	70.3	8674003	76.2	0.25	8674003
Total Potassium (K)	mg/L	4.76	8674003	4.64	8674003	4.97	0.25	8674003
Total Sodium (Na)	mg/L	384	8674003	363	8674003	395	0.25	8674003
Total Sulphur (S)	mg/L	265	8674003	256	8674003	261	15	8674003
RDL = Reportable Detection Limit								

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID		RJ0579		
Sampling Date		2017/06/23 13:20		
COC Number		08439656		
	UNITS	TRIP BLANK	RDL	QC Batch
Calculated Parameters				
Total Hardness (CaCO3)	mg/L	<0.50	0.50	8673677
Elements				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8676126
Total Metals by ICPMS				
Total Aluminum (Al)	mg/L	<0.00050	0.00050	8675523
Total Antimony (Sb)	mg/L	<0.000020	0.000020	8675523
Total Arsenic (As)	mg/L	<0.000020	0.000020	8675523
Total Barium (Ba)	mg/L	<0.000020	0.000020	8675523
Total Beryllium (Be)	mg/L	<0.000010	0.000010	8675523
Total Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8675523
Total Boron (B)	mg/L	<0.010	0.010	8675523
Total Cadmium (Cd)	mg/L	<0.0000050	0.0000050	8675523
Total Chromium (Cr)	mg/L	<0.00010	0.00010	8675523
Total Cobalt (Co)	mg/L	<0.0000050	0.0000050	8675523
Total Copper (Cu)	mg/L	<0.000050	0.000050	8675523
Total Iron (Fe)	mg/L	<0.0010	0.0010	8675523
Total Lead (Pb)	mg/L	<0.0000050	0.0000050	8675523
Total Lithium (Li)	mg/L	<0.00050	0.00050	8675523
Total Manganese (Mn)	mg/L	<0.000050	0.000050	8675523
Total Molybdenum (Mo)	mg/L	<0.000050	0.000050	8675523
Total Nickel (Ni)	mg/L	<0.000020	0.000020	8675523
Total Phosphorus (P)	mg/L	<0.0020	0.0020	8675523
Total Selenium (Se)	mg/L	<0.000040	0.000040	8675523
Total Silicon (Si)	mg/L	<0.050	0.050	8675523
Total Silver (Ag)	mg/L	<0.0000050	0.0000050	8675523
Total Strontium (Sr)	mg/L	<0.000050	0.000050	8675523
Total Thallium (Tl)	mg/L	<0.0000020	0.0000020	8675523
Total Tin (Sn)	mg/L	<0.00020	0.00020	8675523
Total Titanium (Ti)	mg/L	<0.00050	0.00050	8675523
Total Uranium (U)	mg/L	<0.0000020	0.0000020	8675523
Total Vanadium (V)	mg/L	<0.00020	0.00020	8675523
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID		RJ0579		
Sampling Date		2017/06/23 13:20		
COC Number		08439656		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
Total Zinc (Zn)	mg/L	<0.00010	0.00010	8675523
Total Zirconium (Zr)	mg/L	<0.00010	0.00010	8675523
Total Calcium (Ca)	mg/L	<0.050	0.050	8674003
Total Magnesium (Mg)	mg/L	<0.050	0.050	8674003
Total Potassium (K)	mg/L	<0.050	0.050	8674003
Total Sodium (Na)	mg/L	<0.050	0.050	8674003
Total Sulphur (S)	mg/L	<3.0	3.0	8674003
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

TEST SUMMARY

Maxxam ID: RJ0574
Sample ID: BC-28A
Matrix: Water

Collected: 2017/06/20
Shipped:
Received: 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide SAD (strong acid dissociable)	TECH/COL	8677223	N/A	2017/06/27	Wilson Au Yueng
Cyanide WAD (weak acid dissociable)	TECH/COL	8677236	N/A	2017/06/27	Wilson Au Yueng
Hardness Total (calculated as CaCO3)	CALC	8673677	N/A	2017/06/27	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8673330	N/A	2017/06/27	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8676209	N/A	2017/06/26	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8676126	2017/06/26	2017/06/26	Edwin Lamigo
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8673331	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8674003	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8675523	N/A	2017/06/27	Andrew An
Ammonia-N (Preserved)	KONE/COL	8676145	N/A	2017/06/26	Clare Kwok
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/06/23	Terry Shore
Total Suspended Solids-Low Level	BAL/BAL	8676448	2017/06/26	2017/06/27	Beatriz Ortega

Maxxam ID: RJ0574 Dup
Sample ID: BC-28A
Matrix: Water

Collected: 2017/06/20
Shipped:
Received: 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide SAD (strong acid dissociable)	TECH/COL	8677223	N/A	2017/06/27	Wilson Au Yueng
Cyanide WAD (weak acid dissociable)	TECH/COL	8677236	N/A	2017/06/27	Wilson Au Yueng
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte
Elements by ICPMS Low Level (total)	ICP/CRCM	8675523	N/A	2017/06/27	Andrew An

Maxxam ID: RJ0575
Sample ID: BC-28B
Matrix: Water

Collected: 2017/06/20
Shipped:
Received: 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide SAD (strong acid dissociable)	TECH/COL	8677223	N/A	2017/06/27	Wilson Au Yueng
Cyanide WAD (weak acid dissociable)	TECH/COL	8677236	N/A	2017/06/27	Wilson Au Yueng
Hardness Total (calculated as CaCO3)	CALC	8673677	N/A	2017/06/27	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8673330	N/A	2017/06/27	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8679540	N/A	2017/06/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8679890	2017/06/29	2017/06/29	Edwin Lamigo
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8673331	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8674003	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8675523	N/A	2017/06/27	Andrew An
Ammonia-N (Preserved)	KONE/COL	8676145	N/A	2017/06/26	Clare Kwok
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/06/23	Terry Shore
Total Suspended Solids-Low Level	BAL/BAL	8676448	2017/06/26	2017/06/27	Beatriz Ortega

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

TEST SUMMARY

Maxxam ID: RJ0576
Sample ID: BC-66
Matrix: Water

Collected: 2017/06/20
Shipped:
Received: 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8674852	2017/06/24	2017/06/27	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8677085	N/A	2017/06/26	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8677223	N/A	2017/06/27	Wilson Au Yueng
Cyanide WAD (weak acid dissociable)	TECH/COL	8677236	N/A	2017/06/27	Wilson Au Yueng
Conductance - water	AT/ALK	8674853	2017/06/27	2017/06/27	Maria Maclean
Hardness (calculated as CaCO3)	CALC	8673330	N/A	2017/06/27	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8676209	N/A	2017/06/26	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8673678	N/A	2017/06/27	Automated Statchk
Ion Balance	CALC	8674399	N/A	2017/06/27	Automated Statchk
Sum of cations, anions	CALC	8673679	N/A	2017/06/27	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8673331	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte
Ammonia-N (Preserved)	KONE/COL	8676145	N/A	2017/06/26	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8675142	N/A	2017/06/23	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8675143	N/A	2017/06/23	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8673495	N/A	2017/06/24	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/06/23	Terry Shore
pH Water	AT/ALK	8674854	2017/06/27	2017/06/27	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8677099	N/A	2017/06/26	Balwinder Bassi
Total Suspended Solids-Low Level	BAL/BAL	8676448	2017/06/26	2017/06/27	Beatriz Ortega

Maxxam ID: RJ0576 Dup
Sample ID: BC-66
Matrix: Water

Collected: 2017/06/20
Shipped:
Received: 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8674852	2017/06/24	2017/06/27	Maria Maclean
Conductance - water	AT/ALK	8674853	2017/06/27	2017/06/27	Maria Maclean
pH Water	AT/ALK	8674854	2017/06/24	2017/06/27	Maria Maclean

Maxxam ID: RJ0577
Sample ID: FIELD DUPLICATE
Matrix: Water

Collected: 2017/06/20
Shipped:
Received: 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide SAD (strong acid dissociable)	TECH/COL	8677223	N/A	2017/06/27	Wilson Au Yueng
Cyanide WAD (weak acid dissociable)	TECH/COL	8677236	N/A	2017/06/27	Wilson Au Yueng
Hardness Total (calculated as CaCO3)	CALC	8673677	N/A	2017/06/27	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8673330	N/A	2017/06/27	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8676209	N/A	2017/06/26	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8676126	2017/06/26	2017/06/26	Edwin Lamigo
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8673331	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8674003	N/A	2017/06/27	Automated Statchk

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

TEST SUMMARY

Maxxam ID: RJ0577 **Collected:** 2017/06/20
Sample ID: FIELD DUPLICATE **Shipped:**
Matrix: Water **Received:** 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (total)	ICP/CRCM	8675523	N/A	2017/06/27	Andrew An
Ammonia-N (Preserved)	KONE/COL	8676146	N/A	2017/06/26	Clare Kwok
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/06/23	Terry Shore
Total Suspended Solids-Low Level	BAL/BAL	8676448	2017/06/26	2017/06/27	Beatriz Ortega

Maxxam ID: RJ0578 **Collected:** 2017/06/20
Sample ID: FIELD BLANK **Shipped:**
Matrix: Water **Received:** 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8674852	2017/06/24	2017/06/27	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8677085	N/A	2017/06/26	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8677223	N/A	2017/06/27	Wilson Au Yueng
Cyanide WAD (weak acid dissociable)	TECH/COL	8677236	N/A	2017/06/27	Wilson Au Yueng
Conductance - water	AT/ALK	8674853	2017/06/27	2017/06/27	Maria Maclean
Hardness (calculated as CaCO3)	CALC	8673330	N/A	2017/06/27	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8676209	N/A	2017/06/26	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8673678	N/A	2017/06/27	Automated Statchk
Ion Balance	CALC	8674399	N/A	2017/06/27	Automated Statchk
Sum of cations, anions	CALC	8673679	N/A	2017/06/27	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8673331	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte
Ammonia-N (Preserved)	KONE/COL	8676145	N/A	2017/06/26	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8675142	N/A	2017/06/23	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8675143	N/A	2017/06/23	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8673495	N/A	2017/06/24	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/06/23	Terry Shore
pH Water	AT/ALK	8674854	2017/06/27	2017/06/27	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8677099	N/A	2017/06/26	Balwinder Bassi
Total Suspended Solids-Low Level	BAL/BAL	8676448	2017/06/26	2017/06/27	Beatriz Ortega

Maxxam ID: RJ0578 Dup **Collected:** 2017/06/20
Sample ID: FIELD BLANK **Shipped:**
Matrix: Water **Received:** 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte

Maxxam ID: RJ0579 **Collected:** 2017/06/23
Sample ID: TRIP BLANK **Shipped:**
Matrix: Water **Received:** 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide SAD (strong acid dissociable)	TECH/COL	8677223	N/A	2017/06/27	Wilson Au Yueng

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

TEST SUMMARY

Maxxam ID: RJ0579
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2017/06/23
Shipped:
Received: 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide WAD (weak acid dissociable)	TECH/COL	8677236	N/A	2017/06/27	Wilson Au Yueng
Hardness Total (calculated as CaCO3)	CALC	8673677	N/A	2017/06/27	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8673330	N/A	2017/06/27	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8676209	N/A	2017/06/26	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8676126	2017/06/26	2017/06/26	Edwin Lamigo
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8673331	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8674003	N/A	2017/06/27	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8675523	N/A	2017/06/27	Andrew An
Ammonia-N (Unpreserved)	KONE/COL	8675223	2017/06/24	2017/06/26	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8676448	2017/06/26	2017/06/27	Beatriz Ortega

Maxxam ID: RJ0579 Dup
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2017/06/23
Shipped:
Received: 2017/06/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8675038	N/A	2017/06/26	Jeffrey Laporte

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

GENERAL COMMENTS

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

Package 1	4.7°C

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER) Comments

Matrix Spike Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.
Sample RJ0574 [BC-28A] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.
Sample RJ0575 [BC-28B] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.
Sample RJ0577 [FIELD DUPLICATE] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.

LOW LEVEL TOTAL METALS WITH CV HG (WATER) Comments

Sample RJ0574 [BC-28A] Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.
Sample RJ0575 [BC-28B] Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.
Sample RJ0577 [FIELD DUPLICATE] Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

QUALITY ASSURANCE REPORT

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8674852	Alkalinity (PP as CaCO3)	2017/06/27					<0.50	mg/L	2.7	20
8674852	Alkalinity (Total as CaCO3)	2017/06/27	NC	80 - 120	98	80 - 120	<0.50	mg/L	0.40	20
8674852	Bicarbonate (HCO3)	2017/06/27					<0.50	mg/L	0.53	20
8674852	Carbonate (CO3)	2017/06/27					<0.50	mg/L	2.7	20
8674852	Hydroxide (OH)	2017/06/27					<0.50	mg/L	NC	20
8674853	Conductivity	2017/06/27			100	80 - 120	<1.0	uS/cm	1.2	20
8674854	pH	2017/06/27			102	97 - 103			0.12	N/A
8675038	Dissolved Aluminum (Al)	2017/06/26	94	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8675038	Dissolved Antimony (Sb)	2017/06/26	NC	80 - 120	93	80 - 120	<0.000020	mg/L	NC	20
8675038	Dissolved Arsenic (As)	2017/06/26	NC	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8675038	Dissolved Barium (Ba)	2017/06/26	NC	80 - 120	96	80 - 120	<0.000020	mg/L	NC	20
8675038	Dissolved Beryllium (Be)	2017/06/26	87	80 - 120	91	80 - 120	<0.000010	mg/L	NC	20
8675038	Dissolved Bismuth (Bi)	2017/06/26	90	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8675038	Dissolved Boron (B)	2017/06/26	86	80 - 120	88	80 - 120	<0.010	mg/L	NC	20
8675038	Dissolved Cadmium (Cd)	2017/06/26	94	80 - 120	93	80 - 120	<0.0000050	mg/L	NC	20
8675038	Dissolved Chromium (Cr)	2017/06/26	91	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8675038	Dissolved Cobalt (Co)	2017/06/26	NC	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8675038	Dissolved Copper (Cu)	2017/06/26	87	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20
8675038	Dissolved Iron (Fe)	2017/06/26	NC	80 - 120	93	80 - 120	<0.0010	mg/L	NC	20
8675038	Dissolved Lead (Pb)	2017/06/26	91	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8675038	Dissolved Lithium (Li)	2017/06/26	80	80 - 120	89	80 - 120	<0.00050	mg/L	NC	20
8675038	Dissolved Manganese (Mn)	2017/06/26	NC	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8675038	Dissolved Molybdenum (Mo)	2017/06/26	NC	80 - 120	94	80 - 120	<0.000050	mg/L	NC	20
8675038	Dissolved Nickel (Ni)	2017/06/26	94	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8675038	Dissolved Phosphorus (P)	2017/06/26					<0.0020	mg/L	NC	20
8675038	Dissolved Selenium (Se)	2017/06/26	NC	80 - 120	96	80 - 120	<0.000040	mg/L	NC	20
8675038	Dissolved Silicon (Si)	2017/06/26					<0.050	mg/L	NC	20
8675038	Dissolved Silver (Ag)	2017/06/26	99	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8675038	Dissolved Strontium (Sr)	2017/06/26	NC	80 - 120	96	80 - 120	<0.000050	mg/L	NC	20
8675038	Dissolved Thallium (Tl)	2017/06/26	90	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8675038	Dissolved Tin (Sn)	2017/06/26	98	80 - 120	93	80 - 120	<0.00020	mg/L	NC	20

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

QUALITY ASSURANCE REPORT(CONT'D)

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8675038	Dissolved Titanium (Ti)	2017/06/26	88	80 - 120	90	80 - 120	<0.00050	mg/L	NC	20
8675038	Dissolved Uranium (U)	2017/06/26	NC	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8675038	Dissolved Vanadium (V)	2017/06/26	95	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20
8675038	Dissolved Zinc (Zn)	2017/06/26	98	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8675038	Dissolved Zirconium (Zr)	2017/06/26					<0.00010	mg/L	NC	20
8675142	Nitrate plus Nitrite (N)	2017/06/23	105	80 - 120	109	80 - 120	<0.0020	mg/L	1.9	25
8675143	Nitrite (N)	2017/06/23	97	80 - 120	103	80 - 120	<0.0020	mg/L	NC	25
8675223	Total Ammonia (N)	2017/06/26	94	80 - 120	110	80 - 120	<0.0050	mg/L	6.8	20
8675523	Total Aluminum (Al)	2017/06/27	102	80 - 120	103	80 - 120	<0.00050	mg/L	0.99	20
8675523	Total Antimony (Sb)	2017/06/27	NC	80 - 120	93	80 - 120	<0.000020	mg/L	0.75	20
8675523	Total Arsenic (As)	2017/06/27	NC	80 - 120	99	80 - 120	<0.000020	mg/L	0.11	20
8675523	Total Barium (Ba)	2017/06/27	NC	80 - 120	100	80 - 120	<0.000020	mg/L	1.0	20
8675523	Total Beryllium (Be)	2017/06/27	93	80 - 120	93	80 - 120	<0.000010	mg/L	NC	20
8675523	Total Bismuth (Bi)	2017/06/27	88	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8675523	Total Boron (B)	2017/06/27	102	80 - 120	95	80 - 120	<0.010	mg/L	NC	20
8675523	Total Cadmium (Cd)	2017/06/27	97	80 - 120	100	80 - 120	<0.0000050	mg/L	2.2	20
8675523	Total Chromium (Cr)	2017/06/27	92	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8675523	Total Cobalt (Co)	2017/06/27	NC	80 - 120	100	80 - 120	<0.0000050	mg/L	0.18	20
8675523	Total Copper (Cu)	2017/06/27	94	80 - 120	98	80 - 120	<0.000050	mg/L	1.0	20
8675523	Total Iron (Fe)	2017/06/27	NC	80 - 120	101	80 - 120	<0.0010	mg/L	1.6	20
8675523	Total Lead (Pb)	2017/06/27	98	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8675523	Total Lithium (Li)	2017/06/27	101	80 - 120	99	80 - 120	<0.00050	mg/L	4.9	20
8675523	Total Manganese (Mn)	2017/06/27	NC	80 - 120	97	80 - 120	<0.000050	mg/L	1.7	20
8675523	Total Molybdenum (Mo)	2017/06/27	NC	80 - 120	101	80 - 120	<0.000050	mg/L	0.83	20
8675523	Total Nickel (Ni)	2017/06/27	102	80 - 120	99	80 - 120	<0.000020	mg/L	11	20
8675523	Total Phosphorus (P)	2017/06/27					<0.0020	mg/L	3.6	20
8675523	Total Selenium (Se)	2017/06/27	NC	80 - 120	101	80 - 120	<0.000040	mg/L	4.2	20
8675523	Total Silicon (Si)	2017/06/27					<0.050	mg/L	2.1	20
8675523	Total Silver (Ag)	2017/06/27	108	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8675523	Total Strontium (Sr)	2017/06/27	NC	80 - 120	99	80 - 120	<0.000050	mg/L	0.35	20
8675523	Total Thallium (Tl)	2017/06/27	96	80 - 120	98	80 - 120	<0.0000020	mg/L	3.9	20

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

QUALITY ASSURANCE REPORT(CONT'D)

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8675523	Total Tin (Sn)	2017/06/27	110	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8675523	Total Titanium (Ti)	2017/06/27	116	80 - 120	109	80 - 120	<0.00050	mg/L	NC	20
8675523	Total Uranium (U)	2017/06/27	NC	80 - 120	100	80 - 120	<0.0000020	mg/L	1.8	20
8675523	Total Vanadium (V)	2017/06/27	93	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8675523	Total Zinc (Zn)	2017/06/27	85	80 - 120	99	80 - 120	<0.00010	mg/L	1.7	20
8675523	Total Zirconium (Zr)	2017/06/27					<0.00010	mg/L	NC	20
8676126	Total Mercury (Hg)	2017/06/26	97	80 - 120	94	80 - 120	<0.0000020	mg/L	NC	20
8676145	Total Ammonia (N)	2017/06/26	100	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
8676146	Total Ammonia (N)	2017/06/26	NC	80 - 120	109	80 - 120	<0.0050	mg/L	0.51	20
8676209	Dissolved Mercury (Hg)	2017/06/26	85	80 - 120	94	80 - 120	<0.0000020	mg/L	4.1	20
8676448	Total Suspended Solids	2017/06/27			102	80 - 120	<1.0	mg/L		
8677085	Dissolved Chloride (Cl)	2017/06/26	112	80 - 120	102	80 - 120	<0.50	mg/L	1.9	20
8677099	Dissolved Sulphate (SO4)	2017/06/26	NC	80 - 120	100	80 - 120	<0.50	mg/L	0.27	20
8677223	Strong Acid Dissoc. Cyanide (CN)	2017/06/27	113	80 - 120	102	80 - 120	<0.00050	mg/L	0.81	20
8677236	Weak Acid Dissoc. Cyanide (CN)	2017/06/27	108	80 - 120	104	80 - 120	<0.00050	mg/L	2.3	20
8679540	Dissolved Mercury (Hg)	2017/06/29	82	80 - 120	94	80 - 120	<0.0000020	mg/L	1.4	20
8679890	Total Mercury (Hg)	2017/06/29	100	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

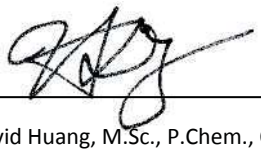
Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B750815
Report Date: 2017/06/29

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK
Sampler Initials: AM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam
A Bureau Veritas Group Company

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

CHAIN OF CUSTODY RECORD

08439656

BBY FCD-00077/05

Page 1 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required
Company Name:	Alexco Environmental Group	Company Name:	ALEXCO ENVIRONMENTAL GROUP	Quotation #:	B60937	[x] Regular TAT 5 days (Most analyses)
Contact Name:	Accounts payable	Contact Name:	KAI WOLOSHYN	P.O. #/ AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Unit 3 Calcite Business Centre, 151 Industri	Address:	UNIT 3 151 INDUSTRIAL RD	Project #:	Surface Water	Rush TAT (Surcharges will be applied)
	Whitehorse, YT PC: Y1A 2V3		Whitehorse, YK PC: V1A 2V3	Site Location:	~~Wellgreen~~ Brewery Creek	[ ] Same Day [ ] 2 Days [ ] 1 Day [ ] 3 Days
Phone:	(604) 569-3634	Phone:	(867) 668-6463	Site #:		
Email:	ap@accessconsulting.ca	Email:	kwoloshyn@alexcoresource.com, nichole@ae	Sampled By:	~~Andrew MacPhail~~	Date Required:

Regulatory Criteria	Special Instructions
[ ] BC CSR Soil [ ] BC CSR Water	[ ] Return Cooler
[ ] CCME (Specify) [ ] Other (Specify)	[ ] Ship Sample Bottles (Please Specify)
[ ] Drinking Water [ ] BC Water Quality	USE SCENARIO # 14379

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

Rush Confirmation #:

LABORATORY USE ONLY

CUSTODY SEAL Present: Y / Intact: Y

COOLER TEMPERATURES: 6.5, 1.7

COOLING MEDIA PRESENT: Y / N

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	TSS	Cyanide (Total and WAD)	Ammonia	General (ph, Conductivity Alkalinity)	Anions (Cl, Sulfate, Nitrate)	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	BC-28A		20-Jun-17	14:24		x	x	x	x	x			10		
3	BC-28B		20-Jun-17	14:00		x	x	x	x	x			10		
4	BC-66		20-Jun-17	16:31			x	x	x	x	x	x	7		
5	Field Duplicate		20-Jun-17	14:45		x	x	x	x	x			10		
6	Field Blank		20-Jun-17	16:00			x	x	x	x	x	x	7		
7	Trip Blank					x	x	x	x	x					
8															
9															
10															

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Andrew MacPhail	23/06/2017	6:00	Laurel Berthier	2017/06/23	13:20

B750815_COC

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: SURFACE WATER
Site Location: BREWERY CREEK
Your C.O.C. #: 08445318, 08445320

Attention:Leia Fougere

Alexco Environmental Group Inc.
Unit 3 Calcite Business Centre
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 2V3

Report Date: 2017/10/04
Report #: R2454256
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B784595
Received: 2017/09/27, 15:50

Sample Matrix: Water
Samples Received: 18

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Low Level	18	2017/09/29	2017/09/29	BBY6SOP-00026	SM 22 2320 B m
Chloride - Low Level	15	N/A	2017/09/29	BBY6SOP-00011	SM 22 4500-Cl- E m
Chloride - Low Level	1	N/A	2017/10/02	BBY6SOP-00011	SM 22 4500-Cl- E m
Cyanide SAD (strong acid dissociable)	6	N/A	2017/09/29	BBY6SOP-00004	SM 22 4500-CN O m
Cyanide WAD (weak acid dissociable)	6	N/A	2017/09/29	BBY6SOP-00004	SM 22 4500-CN O m
Conductance - Low Level	18	2017/09/29	2017/09/29	BBY6SOP-00026	SM 22 2510 B m
Hardness Total (calculated as CaCO3)	18	N/A	2017/10/02	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	16	N/A	2017/10/02	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	2	N/A	2017/10/03	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	18	N/A	2017/09/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	18	2017/09/29	2017/09/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance (as Cations/Anions Ratio)	14	N/A	2017/10/02	BBY WI-00033	Auto Calc
Ion Balance (as Cations/Anions Ratio)	1	N/A	2017/10/03	BBY WI-00033	Auto Calc
Ion Balance (as Cations/Anions Ratio)	1	N/A	2017/10/04	BBY WI-00033	Auto Calc
Ion Balance	14	N/A	2017/10/02	BBY WI-00033	SM 22 1030E
Ion Balance	1	N/A	2017/10/03	BBY WI-00033	SM 22 1030E
Ion Balance	1	N/A	2017/10/04	BBY WI-00033	SM 22 1030E
Sum of cations, anions	14	N/A	2017/10/02	Calc	
Sum of cations, anions	2	N/A	2017/10/03	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	16	N/A	2017/10/02	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2017/10/03	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	17	N/A	2017/09/30	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2017/10/03	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	8	2017/09/29	2017/10/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	18	N/A	2017/10/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	8	N/A	2017/09/30	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	2	N/A	2017/10/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N Low Level (Preserved)	18	N/A	2017/09/30	BBY6SOP-00009	EPA 350.1 m
Nitrate+Nitrite (N) (low level)	16	N/A	2017/09/29	BBY6SOP-00010	SM 22 4500-NO3- I m

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: SURFACE WATER
Site Location: BREWERY CREEK
Your C.O.C. #: 08445318, 08445320

Attention:Leia Fougere

Alexco Environmental Group Inc.
Unit 3 Calcite Business Centre
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 2V3

Report Date: 2017/10/04
Report #: R2454256
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B784595
Received: 2017/09/27, 15:50

Sample Matrix: Water
Samples Received: 18

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Nitrite (N) (low level)	16	N/A	2017/09/29	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	16	N/A	2017/09/30	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	17	N/A	2017/09/30	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	18	2017/09/29	2017/09/29	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate - Low Level	12	N/A	2017/09/29	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate - Low Level	4	N/A	2017/10/02	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids (Filt. Residue)	16	2017/09/29	2017/10/01	BBY6SOP-00033	SM 22 2540 C m
Total Suspended Solids-Low Level	2	2017/09/29	2017/09/29	BBY6SOP-00034	SM 22 2540 D
Total Suspended Solids-Low Level	16	2017/09/29	2017/10/01	BBY6SOP-00034	SM 22 2540 D

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your Project #: SURFACE WATER
Site Location: BREWERY CREEK
Your C.O.C. #: 08445318, 08445320

Attention:Leia Fougere

Alexco Environmental Group Inc.
Unit 3 Calcite Business Centre
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 2V3

Report Date: 2017/10/04
Report #: R2454256
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B784595
Received: 2017/09/27, 15:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Megan Smith, Project Manager
Email: msmith@maxxam.ca
Phone# (604) 734 7276

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB7374		SB7375			SB7376		
Sampling Date		2017/09/25 12:50		2017/09/25 14:30			2017/09/26 10:40		
COC Number		08445318		08445318			08445318		
	UNITS	BC-1	RDL	BC-3	RDL	QC Batch	BC-4	RDL	QC Batch
Calculated Parameters									
Anion Sum	meq/L	6.0	N/A	5.8	N/A	8779629	5.1	N/A	8774050
Cation Sum	meq/L	5.8	N/A	6.6	N/A	8779629	5.0	N/A	8774050
Filter and HNO3 Preservation	N/A	FIELD		FIELD		ONSITE	FIELD		ONSITE
Ion Balance	N/A	0.96	0.010	1.2	0.010	8779627	0.97	0.010	8774048
Ion Balance (% Difference)	%	2.0	N/A	7.0	N/A	8779628	1.6	N/A	8774049
Nitrate (N)	mg/L	0.211	0.0020	0.193	0.0020	8774051	0.183	0.0020	8774051
Misc. Inorganics									
Strong Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	0.00050		0.00050	8776007		0.00050	
Weak Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	0.00050		0.00050	8776009		0.00050	
Alkalinity (Total as CaCO3)	mg/L	140	0.50	131	0.50	8776533	106	0.50	8776533
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	0.50	8776533	<0.50	0.50	8776533
Bicarbonate (HCO3)	mg/L	171	0.50	160	0.50	8776533	130	0.50	8776533
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	0.50	8776533	<0.50	0.50	8776533
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	0.50	8776533	<0.50	0.50	8776533
Anions									
Dissolved Sulphate (SO4)	mg/L	151	0.50	149	0.50	8778310	142	0.50	8779102
Dissolved Chloride (Cl)	mg/L	1.2	0.50	1.1	0.50	8778309	0.80	0.50	8778309
Nutrients									
Total Ammonia (N)	mg/L	0.041	0.0050	0.027	0.0050	8777464	0.034	0.0050	8777464
Nitrate plus Nitrite (N)	mg/L	0.216	0.0020	0.196	0.0020	8777040	0.183	0.0020	8777040
Nitrite (N)	mg/L	0.0048	0.0020	0.0026	0.0020	8777044	<0.0020	0.0020	8777044
Physical Properties									
Conductivity	uS/cm	548	1.0	540	1.0	8776540	461	1.0	8776540
pH	pH	8.16		8.15		8776522	8.02		8776522
Physical Properties									
Total Suspended Solids	mg/L	1240 (1)	10	205 (1)	3.3	8775650	15.8	1.0	8775650
Total Dissolved Solids	mg/L	344	10	360	10	8775640	376	10	8775640

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) RDL raised due to high concentration of solids in the sample.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB7377		SB7378	SB7379			SB7380		
Sampling Date		2017/09/25 15:30		2017/09/25 09:30	2017/09/26 12:45			2017/09/26 15:10		
COC Number		08445318		08445318	08445318			08445318		
	UNITS	BC-5	RDL	BC-6	BC-10	RDL	QC Batch	BC-12	RDL	QC Batch
Calculated Parameters										
Anion Sum	meq/L	6.2	N/A	5.1	4.8	N/A	8774050	14	N/A	8774050
Cation Sum	meq/L	6.2	N/A	5.1	4.6	N/A	8774050	14	N/A	8774050
Filter and HNO3 Preservation	N/A	FIELD		FIELD	FIELD		ONSITE	FIELD		ONSITE
Ion Balance	N/A	1.0	0.010	0.99	0.96	0.010	8774048	1.0	0.010	8774048
Ion Balance (% Difference)	%	0.15	N/A	0.36	2.0	N/A	8774049	1.7	N/A	8774049
Nitrate (N)	mg/L	0.226	0.0020	0.154	0.0022	0.0020	8774051	0.0031	0.0020	8774051
Misc. Inorganics										
Strong Acid Dissoc. Cyanide (CN)	mg/L		0.00050	<0.00050		0.00050	8776007		0.00050	8776007
Weak Acid Dissoc. Cyanide (CN)	mg/L		0.00050	<0.00050		0.00050	8776009		0.00050	8776009
Alkalinity (Total as CaCO3)	mg/L	147	0.50	131	142	0.50	8776533	33.0	0.50	8776533
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8776533	<0.50	0.50	8776533
Bicarbonate (HCO3)	mg/L	180	0.50	160	173	0.50	8776533	40.3	0.50	8776533
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8776533	<0.50	0.50	8776533
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8776533	<0.50	0.50	8776533
Anions										
Dissolved Sulphate (SO4)	mg/L	153	0.50	120	93.2	0.50	8778310	630 (1)	5.0	8778289
Dissolved Chloride (Cl)	mg/L	0.69	0.50	<0.50	0.82	0.50	8778309	1.2	0.50	8778275
Nutrients										
Total Ammonia (N)	mg/L	0.013	0.0050	0.010	0.0090	0.0050	8777464	0.016	0.0050	8777463
Nitrate plus Nitrite (N)	mg/L	0.226	0.0020	0.154	0.0022	0.0020	8777040	0.0053	0.0020	8777040
Nitrite (N)	mg/L	<0.0020	0.0020	<0.0020	<0.0020	0.0020	8777044	0.0022	0.0020	8777044
Physical Properties										
Conductivity	uS/cm	566	1.0	475	434	1.0	8776540	1230	1.0	8776540
pH	pH	8.24		8.09	8.27		8776522	7.46		8776522
Physical Properties										
Total Suspended Solids	mg/L	4.9 (2)	1.1	<1.0	1.5	1.0	8775650	83.5	1.0	8775650
Total Dissolved Solids	mg/L	364	10	282	228	10	8775640	1010	10	8775640

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.
(2) RDL raised due to limited initial sample amount.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB7381			SB7382		SB7398		
Sampling Date		2017/09/26 13:20			2017/09/26 11:30		2017/09/26 16:45		
COC Number		08445318			08445318		08445320		
	UNITS	BC-15	RDL	QC Batch	BC-17	RDL	BC-28A	RDL	QC Batch
Calculated Parameters									
Anion Sum	meq/L	11	N/A	8774050	7.2	N/A		N/A	8774050
Cation Sum	meq/L	12	N/A	8774050	6.8	N/A		N/A	8774050
Filter and HNO3 Preservation	N/A	FIELD		ONSITE	FIELD		FIELD		ONSITE
Ion Balance	N/A	1.0	0.010	8774048	0.94	0.010		0.010	8774048
Ion Balance (% Difference)	%	1.4	N/A	8774049	3.1	N/A		N/A	8774049
Nitrate (N)	mg/L	<0.0020	0.0020	8774051	0.0040	0.0020		0.0020	8774051
Misc. Inorganics									
Strong Acid Dissoc. Cyanide (CN)	mg/L		0.00050	8776007		0.00050	0.0273	0.00050	8776007
Weak Acid Dissoc. Cyanide (CN)	mg/L		0.00050	8776009		0.00050	0.0186	0.00050	8776009
Alkalinity (Total as CaCO3)	mg/L	149	0.50	8776533	186	0.50	46.0	0.50	8776533
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8776533	1.62	0.50	<0.50	0.50	8776533
Bicarbonate (HCO3)	mg/L	182	0.50	8776533	222	0.50	56.1	0.50	8776533
Carbonate (CO3)	mg/L	<0.50	0.50	8776533	1.94	0.50	<0.50	0.50	8776533
Hydroxide (OH)	mg/L	<0.50	0.50	8776533	<0.50	0.50	<0.50	0.50	8776533
Anions									
Dissolved Sulphate (SO4)	mg/L	399 (1)	5.0	8778289	167	0.50		0.50	8778310
Dissolved Chloride (Cl)	mg/L	0.60	0.50	8778275	0.79	0.50		0.50	8778309
Nutrients									
Total Ammonia (N)	mg/L	<0.0050	0.0050	8777464	<0.0050	0.0050	0.051	0.0050	8777464
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	8777040	0.0040	0.0020		0.0020	8777040
Nitrite (N)	mg/L	<0.0020	0.0020	8777044	<0.0020	0.0020		0.0020	8777044
Physical Properties									
Conductivity	uS/cm	1020	1.0	8776540	633	1.0	1910	1.0	8776540
pH	pH	8.21		8776522	8.31		8.17		8776522
Physical Properties									
Total Suspended Solids	mg/L	1.0	1.0	8775650	1.0	1.0	13.3 (2)	1.8	8775650
Total Dissolved Solids	mg/L	746	10	8775640	404	10			8775640

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.
(2) RDL raised due to limited initial sample amount.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB7399			SB7400		SB7401		
Sampling Date		2017/09/26 16:30			2017/09/25 13:30		2017/09/26 09:30		
COC Number		08445320			08445320		08445320		
	UNITS	BC-28B	RDL	QC Batch	BC-31	QC Batch	BC-34	RDL	QC Batch
Calculated Parameters									
Anion Sum	meq/L		N/A	8774050	6.0	8774050	6.4	N/A	8774050
Cation Sum	meq/L		N/A	8774050	5.7	8774050	5.9	N/A	8774050
Filter and HNO3 Preservation	N/A	FIELD		ONSITE	FIELD	ONSITE	FIELD		ONSITE
Ion Balance	N/A		0.010	8774048	0.95	8774048	0.92	0.010	8774048
Ion Balance (% Difference)	%		N/A	8774049	2.9	8774049	4.0	N/A	8774049
Nitrate (N)	mg/L		0.0020	8774051	0.271	8774051	0.224	0.0020	8774051
Misc. Inorganics									
Strong Acid Dissoc. Cyanide (CN)	mg/L	0.0428	0.00050	8776007		8776007		0.00050	8776007
Weak Acid Dissoc. Cyanide (CN)	mg/L	0.0295	0.00050	8776009		8776009		0.00050	8776009
Alkalinity (Total as CaCO3)	mg/L	54.4	0.50	8776570	152	8776533	146	0.50	8776533
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8776570	<0.50	8776533	<0.50	0.50	8776533
Bicarbonate (HCO3)	mg/L	66.4	0.50	8776570	185	8776533	179	0.50	8776533
Carbonate (CO3)	mg/L	<0.50	0.50	8776570	<0.50	8776533	<0.50	0.50	8776533
Hydroxide (OH)	mg/L	<0.50	0.50	8776570	<0.50	8776533	<0.50	0.50	8776533
Anions									
Dissolved Sulphate (SO4)	mg/L		0.50		143	8779102	164	0.50	8779102
Dissolved Chloride (Cl)	mg/L		0.50		0.83	8778275	0.71	0.50	8778309
Nutrients									
Total Ammonia (N)	mg/L	0.094	0.0050	8777464	0.015	8777463	0.016	0.0050	8777463
Nitrate plus Nitrite (N)	mg/L		0.0020		0.271	8777040	0.224	0.0020	8777040
Nitrite (N)	mg/L		0.0020		<0.0020	8777044	<0.0020	0.0020	8777044
Physical Properties									
Conductivity	uS/cm	3490	1.0	8776572	531	8776540	564	1.0	8776540
pH	pH	7.92		8776562	8.23	8776522	8.22		8776522
Physical Properties									
Total Suspended Solids	mg/L	9.1 (1)	1.8	8775650	20.7	8775650	7.5	1.0	8775650
Total Dissolved Solids	mg/L				334	8775640	356	10	8775640

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) RDL raised due to limited initial sample amount.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB7402			SB7403			SB7404		
Sampling Date		2017/09/26 15:27			2017/09/25 11:00			2017/09/26 17:30		
COC Number		08445320			08445320			08445320		
	UNITS	BC-51W	RDL	QC Batch	BC-53	RDL	QC Batch	FIELD BLANK	RDL	QC Batch
Calculated Parameters										
Anion Sum	meq/L	5.3	N/A	8774050	6.0	N/A	8774050	0.018	N/A	8774050
Cation Sum	meq/L	5.7	N/A	8774050	5.9	N/A	8774050	0.0030	N/A	8774050
Filter and HNO3 Preservation	N/A	FIELD		ONSITE	FIELD		ONSITE	FIELD		ONSITE
Ion Balance	N/A	1.1	0.010	8774048	0.99	0.010	8774048	0.17 (1)	0.010	8774048
Ion Balance (% Difference)	%	3.8	N/A	8774049	0.45	N/A	8774049	71 (1)	N/A	8774049
Nitrate (N)	mg/L	<0.0020	0.0020	8774051	0.207	0.0020	8774051	<0.0020	0.0020	8774051
Misc. Inorganics										
Strong Acid Dissoc. Cyanide (CN)	mg/L		0.00050	8776007		0.00050	8776007	<0.00050	0.00050	8776007
Weak Acid Dissoc. Cyanide (CN)	mg/L		0.00050	8776009		0.00050	8776009	<0.00050	0.00050	8776009
Alkalinity (Total as CaCO3)	mg/L	<0.50 (2)	0.50	8776533	140	0.50	8776533	0.88	0.50	8776533
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8776533	<0.50	0.50	8776533	<0.50	0.50	8776533
Bicarbonate (HCO3)	mg/L	<0.50	0.50	8776533	170	0.50	8776533	1.07	0.50	8776533
Carbonate (CO3)	mg/L	<0.50	0.50	8776533	<0.50	0.50	8776533	<0.50	0.50	8776533
Hydroxide (OH)	mg/L	<0.50	0.50	8776533	<0.50	0.50	8776533	<0.50	0.50	8776533
Anions										
Dissolved Sulphate (SO4)	mg/L	251 (3)	5.0	8778310	150	0.50	8778310	<0.50	0.50	8778310
Dissolved Chloride (Cl)	mg/L	0.93	0.50	8778309	0.98	0.50	8779098	<0.50	0.50	8778309
Nutrients										
Total Ammonia (N)	mg/L	0.016	0.0050	8777463	0.052	0.0050	8777463	0.0050	0.0050	8777463
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	8777040	0.212	0.0020	8777040	<0.0020	0.0020	8777040
Nitrite (N)	mg/L	<0.0020	0.0020	8777044	0.0049	0.0020	8777044	<0.0020	0.0020	8777044
Physical Properties										
Conductivity	uS/cm	636	1.0	8776540	542	1.0	8776540	1.1	1.0	8776540
pH	pH	3.63		8776522	8.19		8776522	5.57		8776522
Physical Properties										
Total Suspended Solids	mg/L	2.2 (4)	1.2	8775650	318 (5)	3.3	8775650	<1.0	1.0	8775650

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).
(2) "Sample pH value outside pH calibration range 4 to 10, verified using pH 1.68 buffer."
(3) Detection limits raised due to dilution to bring analyte within the calibrated range.
(4) RDL raised due to limited initial sample amount.
(5) RDL raised due to high concentration of solids in the sample.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB7402			SB7403			SB7404		
Sampling Date		2017/09/26 15:27			2017/09/25 11:00			2017/09/26 17:30		
COC Number		08445320			08445320			08445320		
	UNITS	**BC-51W**	**RDL**	**QC Batch**	**BC-53**	**RDL**	**QC Batch**	**FIELD BLANK**	**RDL**	**QC Batch**
Total Dissolved Solids	mg/L	370	10	8775640	338	10	8775640	<10	10	8775640
RDL = Reportable Detection Limit										

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SB7405			SB7406		
Sampling Date		2017/09/27 15:50			2017/09/26 11:45		
COC Number		08445320			08445320		
	UNITS	TRIP BLANK	RDL	QC Batch	DUP	RDL	QC Batch
Calculated Parameters							
Anion Sum	meq/L	0.011	N/A	8774050	7.3	N/A	8774050
Cation Sum	meq/L	0.0049	N/A	8774050	7.0	N/A	8774050
Filter and HNO3 Preservation	N/A			ONSITE	FIELD		ONSITE
Ion Balance	N/A	0.43 (1)	0.010	8774048	0.96	0.010	8774048
Ion Balance (% Difference)	%	40 (1)	N/A	8774049	2.1	N/A	8774049
Nitrate (N)	mg/L	<0.0020	0.0020	8774051	<0.0020	0.0020	8774051
Misc. Inorganics							
Strong Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	0.00050	8776007		0.00050	8776007
Weak Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	0.00050	8776009		0.00050	8776009
Alkalinity (Total as CaCO3)	mg/L	0.57	0.50	8776533	184	0.50	8776533
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8776533	<0.50	0.50	8776533
Bicarbonate (HCO3)	mg/L	0.70	0.50	8776533	225	0.50	8776533
Carbonate (CO3)	mg/L	<0.50	0.50	8776533	<0.50	0.50	8776533
Hydroxide (OH)	mg/L	<0.50	0.50	8776533	<0.50	0.50	8776533
Anions							
Dissolved Sulphate (SO4)	mg/L	<0.50	0.50	8778310	172	0.50	8779102
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8778309	0.95	0.50	8778275
Nutrients							
Total Ammonia (N)	mg/L	<0.0050	0.0050	8777463	0.0050	0.0050	8777463
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	8777040	<0.0020	0.0020	8777040
Nitrite (N)	mg/L	<0.0020	0.0020	8777044	<0.0020	0.0020	8777044
Physical Properties							
Conductivity	uS/cm	<1.0	1.0	8776540	629	1.0	8776540
pH	pH	5.31		8776522	8.28		8776522
Physical Properties							
Total Suspended Solids	mg/L	<1.0	1.0	8776374	<1.1 (2)	1.1	8776374
Total Dissolved Solids	mg/L	<10	10	8775640	362	10	8775640

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).
(2) RDL raised due to limited initial sample amount.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7374		SB7375		SB7376		
Sampling Date		2017/09/25 12:50		2017/09/25 14:30		2017/09/26 10:40		
COC Number		08445318		08445318		08445318		
	UNITS	BC-1	QC Batch	BC-3	QC Batch	BC-4	RDL	QC Batch
Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	278	8779358	319	8779358	241	0.50	8773948
Elements								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8775679	<0.0000020	8775679	0.0000037	0.0000020	8775679
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	0.0548	8775563	0.0603	8780181	0.0425	0.00050	8775563
Dissolved Antimony (Sb)	mg/L	0.00274	8780181	0.00426	8780181	0.00269	0.000020	8775563
Dissolved Arsenic (As)	mg/L	0.00274	8775563	0.00296	8780181	0.00244	0.000020	8775563
Dissolved Barium (Ba)	mg/L	0.0634	8775563	0.0717	8780181	0.0657	0.000020	8775563
Dissolved Beryllium (Be)	mg/L	0.000023	8775563	0.000029	8780181	<0.000010	0.000010	8775563
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8775563	<0.0000050	8780181	<0.0000050	0.0000050	8775563
Dissolved Boron (B)	mg/L	<0.010	8775563	0.010	8780181	<0.010	0.010	8775563
Dissolved Cadmium (Cd)	mg/L	0.0000480	8775563	0.0000613	8780181	0.000148	0.0000050	8775563
Dissolved Chromium (Cr)	mg/L	0.00014	8775563	0.00019	8780181	0.00027	0.00010	8775563
Dissolved Cobalt (Co)	mg/L	0.00141	8775563	0.00159	8780181	0.000595	0.0000050	8775563
Dissolved Copper (Cu)	mg/L	0.00131	8775563	0.00152	8780181	0.00101	0.000050	8775563
Dissolved Iron (Fe)	mg/L	0.210	8775563	0.246	8780181	0.252	0.0010	8775563
Dissolved Lead (Pb)	mg/L	0.0000300	8775563	0.0000623	8780181	0.0000102	0.0000050	8775563
Dissolved Lithium (Li)	mg/L	0.0136	8775563	0.0152	8780181	0.00792	0.00050	8775563
Dissolved Manganese (Mn)	mg/L	0.148	8775563	0.162	8780181	0.104	0.000050	8775563
Dissolved Molybdenum (Mo)	mg/L	0.00210	8775563	0.00242	8780181	0.00211	0.000050	8775563
Dissolved Nickel (Ni)	mg/L	0.00644	8775563	0.00734	8780181	0.00387	0.000020	8775563
Dissolved Phosphorus (P)	mg/L	0.0076	8775563	0.0192	8780181	0.0095	0.0020	8775563
Dissolved Selenium (Se)	mg/L	0.00163	8775563	0.00179	8780181	0.00251	0.000040	8775563
Dissolved Silicon (Si)	mg/L	4.63	8775563	5.30	8780181	3.71	0.050	8775563
Dissolved Silver (Ag)	mg/L	<0.0000050	8775563	<0.0000050	8780181	<0.0000050	0.0000050	8775563
Dissolved Strontium (Sr)	mg/L	0.301	8775563	0.343	8780181	0.342	0.000050	8775563
Dissolved Thallium (Tl)	mg/L	0.0000039	8775563	0.0000033	8780181	0.0000075	0.0000020	8775563
Dissolved Tin (Sn)	mg/L	<0.00020	8775563	<0.00020	8780181	<0.00020	0.00020	8775563
Dissolved Titanium (Ti)	mg/L	<0.00050	8775563	<0.00050	8780181	<0.00050	0.00050	8775563
Dissolved Uranium (U)	mg/L	0.00188	8775563	0.00226	8780181	0.00194	0.0000020	8775563
Dissolved Vanadium (V)	mg/L	0.00051	8775563	0.00069	8780181	0.00093	0.00020	8775563
Dissolved Zinc (Zn)	mg/L	0.00670	8775563	0.00827	8780181	0.00733	0.00010	8775563
RDL = Reportable Detection Limit								

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7374		SB7375		SB7376		
Sampling Date		2017/09/25 12:50		2017/09/25 14:30		2017/09/26 10:40		
COC Number		08445318		08445318		08445318		
	UNITS	**BC-1**	**QC Batch**	**BC-3**	**QC Batch**	**BC-4**	**RDL**	**QC Batch**
Dissolved Zirconium (Zr)	mg/L	0.00019	8775563	0.00023	8780181	0.00027	0.00010	8775563
Dissolved Calcium (Ca)	mg/L	66.2	8779630	77.2	8779630	56.0	0.050	8773949
Dissolved Magnesium (Mg)	mg/L	27.3	8779630	30.7	8779630	24.5	0.050	8773949
Dissolved Potassium (K)	mg/L	1.45	8779630	1.66	8779630	1.06	0.050	8773949
Dissolved Sodium (Na)	mg/L	3.65	8779630	4.11	8779630	2.29	0.050	8773949
Dissolved Sulphur (S)	mg/L	50.7	8779630	59.3	8779630	44.1	3.0	8773949
RDL = Reportable Detection Limit								

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7377	SB7378	SB7379	SB7380	SB7381		
Sampling Date		2017/09/25 15:30	2017/09/25 09:30	2017/09/26 12:45	2017/09/26 15:10	2017/09/26 13:20		
COC Number		08445318	08445318	08445318	08445318	08445318		
	UNITS	BC-5	BC-6	BC-10	BC-12	BC-15	RDL	QC Batch
Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	304	249	227	705	579	0.50	8773948
Elements								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000021	0.0000020	8775679
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	0.00700	0.00287	0.00086	0.00279	0.00124	0.00050	8775563
Dissolved Antimony (Sb)	mg/L	0.000223	0.000234	0.102	0.0257	0.00383	0.000020	8775563
Dissolved Arsenic (As)	mg/L	0.000230	0.000275	0.0170	0.000527	0.0382	0.000020	8775563
Dissolved Barium (Ba)	mg/L	0.0494	0.0513	0.116	0.0261	0.0314	0.000020	8775563
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000119	<0.000010	0.000010	8775563
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8775563
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	0.016	<0.010	0.010	8775563
Dissolved Cadmium (Cd)	mg/L	0.0000986	0.0000687	0.0000201	0.000918	0.0000153	0.0000050	8775563
Dissolved Chromium (Cr)	mg/L	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8775563
Dissolved Cobalt (Co)	mg/L	0.0000307	0.0000266	0.0000162	0.0124	0.0000106	0.0000050	8775563
Dissolved Copper (Cu)	mg/L	0.000956	0.000658	0.000443	0.000867	0.000174	0.000050	8775563
Dissolved Iron (Fe)	mg/L	0.0212	0.0199	0.0022	0.0711	0.0013	0.0010	8775563
Dissolved Lead (Pb)	mg/L	0.0000139	0.0000052	<0.0000050	<0.0000050	<0.0000050	0.0000050	8775563
Dissolved Lithium (Li)	mg/L	0.00262	0.00282	0.00309	0.00862	0.00164	0.00050	8775563
Dissolved Manganese (Mn)	mg/L	0.00884	0.00848	0.00129	0.777	0.00162	0.000050	8775563
Dissolved Molybdenum (Mo)	mg/L	0.00153	0.00127	0.00378	0.000368	0.000963	0.000050	8775563
Dissolved Nickel (Ni)	mg/L	0.00245	0.00155	0.000498	0.0703	0.000417	0.000020	8775563
Dissolved Phosphorus (P)	mg/L	0.0083	0.0060	0.0044	0.0024	0.0031	0.0020	8775563
Dissolved Selenium (Se)	mg/L	0.00249	0.00174	0.00434	0.000558	0.0217	0.000040	8775563
Dissolved Silicon (Si)	mg/L	3.29	3.33	2.14	4.65	2.02	0.050	8775563
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8775563
Dissolved Strontium (Sr)	mg/L	0.293	0.262	0.426	1.07	1.13	0.000050	8775563
Dissolved Thallium (Tl)	mg/L	0.0000037	<0.0000020	0.0000793	0.000155	0.0000439	0.0000020	8775563
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8775563
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8775563
Dissolved Uranium (U)	mg/L	0.00194	0.00148	0.00753	0.000527	0.00427	0.0000020	8775563
Dissolved Vanadium (V)	mg/L	0.00071	0.00050	<0.00020	<0.00020	<0.00020	0.00020	8775563

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7377	SB7378	SB7379	SB7380	SB7381		
Sampling Date		2017/09/25 15:30	2017/09/25 09:30	2017/09/26 12:45	2017/09/26 15:10	2017/09/26 13:20		
COC Number		08445318	08445318	08445318	08445318	08445318		
	UNITS	**BC-5**	**BC-6**	**BC-10**	**BC-12**	**BC-15**	**RDL**	**QC Batch**
Dissolved Zinc (Zn)	mg/L	0.0102	0.00618	0.00036	0.102	0.00086 (1)	0.00010	8775563
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8775563
Dissolved Calcium (Ca)	mg/L	75.1	62.2	54.1	179	129	0.050	8773949
Dissolved Magnesium (Mg)	mg/L	28.2	22.7	22.4	62.7	62.6	0.050	8773949
Dissolved Potassium (K)	mg/L	0.801	0.771	1.72	3.59	1.00	0.050	8773949
Dissolved Sodium (Na)	mg/L	1.53	2.03	0.732	1.31	0.494	0.050	8773949
Dissolved Sulphur (S)	mg/L	51.1	40.9	30.4	222	143	3.0	8773949

RDL = Reportable Detection Limit
(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7382			SB7398		SB7399		
Sampling Date		2017/09/26 11:30			2017/09/26 16:45		2017/09/26 16:30		
COC Number		08445318			08445320		08445320		
	UNITS	BC-17	RDL	QC Batch	BC-28A	QC Batch	BC-28B	RDL	QC Batch
Misc. Inorganics									
Dissolved Hardness (CaCO3)	mg/L	334	0.50	8773948	427	8773948	1030	0.50	8773948
Elements									
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	8775679	0.0000034	8775679	0.0000060	0.0000020	8775679
Dissolved Metals by ICPMS									
Dissolved Aluminum (Al)	mg/L	0.00261	0.00050	8775563	0.0069	8775563	0.0319	0.0025	8775563
Dissolved Antimony (Sb)	mg/L	0.0383	0.000020	8775563	0.900	8775563	1.60	0.00010	8775563
Dissolved Arsenic (As)	mg/L	0.0305	0.000020	8775563	0.0496	8775563	0.162	0.00010	8775563
Dissolved Barium (Ba)	mg/L	0.0352	0.000020	8775563	0.0801	8775563	0.0336	0.00010	8775563
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8775563	<0.000050	8775563	<0.000050	0.000050	8775563
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8775563	<0.000025	8775563	<0.000025	0.000025	8775563
Dissolved Boron (B)	mg/L	<0.010	0.010	8775563	<0.050	8775563	<0.050	0.050	8775563
Dissolved Cadmium (Cd)	mg/L	0.0000140	0.0000050	8775563	<0.000025	8775563	<0.000025	0.000025	8775563
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	8775563	<0.00050	8775563	<0.00050	0.00050	8775563
Dissolved Cobalt (Co)	mg/L	0.0000251	0.0000050	8780181	0.298	8775563	0.482	0.000025	8775563
Dissolved Copper (Cu)	mg/L	0.000189	0.000050	8780181	0.00084	8775563	0.00191	0.00025	8775563
Dissolved Iron (Fe)	mg/L	0.0043	0.0010	8775563	0.0057	8775563	0.0234	0.0050	8775563
Dissolved Lead (Pb)	mg/L	0.0000227	0.0000050	8780181	0.000042	8775563	<0.000025	0.000025	8780181
Dissolved Lithium (Li)	mg/L	0.00835	0.00050	8775563	0.0025	8775563	0.0044	0.0025	8775563
Dissolved Manganese (Mn)	mg/L	0.00521	0.000050	8775563	0.00388	8775563	0.00565	0.00025	8775563
Dissolved Molybdenum (Mo)	mg/L	0.00523	0.000050	8775563	0.0121	8775563	0.0176	0.00025	8775563
Dissolved Nickel (Ni)	mg/L	0.000291	0.000020	8775563	0.00108	8775563	0.00472	0.00010	8775563
Dissolved Phosphorus (P)	mg/L	0.0072	0.0020	8775563	<0.010	8775563	<0.010	0.010	8775563
Dissolved Selenium (Se)	mg/L	0.00208	0.000040	8775563	0.101	8775563	0.133	0.00020	8775563
Dissolved Silicon (Si)	mg/L	3.56	0.050	8775563	1.28	8775563	0.59	0.25	8775563
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	8775563	<0.000025	8775563	<0.000025	0.000025	8775563
Dissolved Strontium (Sr)	mg/L	0.555	0.000050	8775563	0.587	8775563	1.35	0.00025	8775563
Dissolved Thallium (Tl)	mg/L	0.0000726	0.0000020	8775563	0.000053	8775563	0.000227	0.000010	8775563
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8775563	<0.0010	8775563	<0.0010	0.0010	8775563
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8775563	<0.0025	8775563	<0.0025	0.0025	8775563
Dissolved Uranium (U)	mg/L	0.00781	0.0000020	8775563	0.00595	8775563	0.0188	0.000010	8775563
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	8775563	<0.0010	8775563	<0.0010	0.0010	8775563
Dissolved Zinc (Zn)	mg/L	0.00135	0.00010	8775563	0.00076	8775563	0.00271	0.00050	8775563

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7382			SB7398		SB7399		
Sampling Date		2017/09/26 11:30			2017/09/26 16:45		2017/09/26 16:30		
COC Number		08445318			08445320		08445320		
	UNITS	**BC-17**	**RDL**	**QC Batch**	**BC-28A**	**QC Batch**	**BC-28B**	**RDL**	**QC Batch**
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	8775563	<0.00050	8775563	<0.00050	0.00050	8775563
Dissolved Calcium (Ca)	mg/L	79.5	0.050	8773949	125	8773949	286	0.25	8773949
Dissolved Magnesium (Mg)	mg/L	32.9	0.050	8773949	28.1	8773949	75.9	0.25	8773949
Dissolved Potassium (K)	mg/L	1.40	0.050	8773949	4.89	8773949	4.95	0.25	8773949
Dissolved Sodium (Na)	mg/L	1.43	0.050	8773949	233	8773949	386	0.25	8773949
Dissolved Sulphur (S)	mg/L	52.6	3.0	8773949	98	8773949	261	15	8773949
RDL = Reportable Detection Limit									

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7400	SB7401	SB7402	SB7403		
Sampling Date		2017/09/25 13:30	2017/09/26 09:30	2017/09/26 15:27	2017/09/25 11:00		
COC Number		08445320	08445320	08445320	08445320		
	UNITS	BC-31	BC-34	BC-51W	BC-53	RDL	QC Batch
Misc. Inorganics							
Dissolved Hardness (CaCO3)	mg/L	280	290	234	284	0.50	8775057
Elements							
Dissolved Mercury (Hg)	mg/L	0.0000031	0.0000023	0.0000040	<0.0000020	0.0000020	8775679
Dissolved Metals by ICPMS							
Dissolved Aluminum (Al)	mg/L	0.0241	0.00504	3.87	0.0182	0.00050	8775563
Dissolved Antimony (Sb)	mg/L	0.000596	0.000273	0.00155	0.00274	0.000020	8775563
Dissolved Arsenic (As)	mg/L	0.000536	0.000235	0.0213	0.00367	0.000020	8775563
Dissolved Barium (Ba)	mg/L	0.0606	0.0495	0.0273	0.0652	0.000020	8775563
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.00908	<0.000010	0.000010	8775563
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8775563
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8775563
Dissolved Cadmium (Cd)	mg/L	0.0000470	0.0000883	0.00293	0.0000194	0.0000050	8775563
Dissolved Chromium (Cr)	mg/L	0.00017	0.00011	0.00078	0.00012	0.00010	8775563
Dissolved Cobalt (Co)	mg/L	0.000110	0.0000362	0.0340	0.000596	0.0000050	8775563
Dissolved Copper (Cu)	mg/L	0.00146	0.00103	0.157	0.000931	0.000050	8775563
Dissolved Iron (Fe)	mg/L	0.0829	0.0261	4.49	0.166	0.0010	8775563
Dissolved Lead (Pb)	mg/L	0.0000323	0.0000089	0.000141	0.0000229	0.0000050	8775563
Dissolved Lithium (Li)	mg/L	0.00499	0.00271	0.00959	0.0121	0.00050	8775563
Dissolved Manganese (Mn)	mg/L	0.0238	0.00999	1.70	0.122	0.000050	8775563
Dissolved Molybdenum (Mo)	mg/L	0.00137	0.00163	<0.000050	0.00271	0.000050	8775563
Dissolved Nickel (Ni)	mg/L	0.00231	0.00242	0.107	0.00298	0.000020	8775563
Dissolved Phosphorus (P)	mg/L	0.0076	0.0063	0.0039	0.0114	0.0020	8775563
Dissolved Selenium (Se)	mg/L	0.00172	0.00239	0.00263	0.00164	0.000040	8775563
Dissolved Silicon (Si)	mg/L	3.86	3.27	9.34	5.45	0.050	8775563
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000084	<0.0000050	0.0000050	8775563
Dissolved Strontium (Sr)	mg/L	0.300	0.278	0.331	0.304	0.000050	8775563
Dissolved Thallium (Tl)	mg/L	0.0000031	0.0000031	0.000127	<0.0000020	0.0000020	8775563
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8775563
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8775563
Dissolved Uranium (U)	mg/L	0.00258	0.00190	0.00255	0.00237	0.0000020	8775563
Dissolved Vanadium (V)	mg/L	0.00075	0.00070	<0.00020	0.00090	0.00020	8775563
Dissolved Zinc (Zn)	mg/L	0.00380	0.00928	0.274	0.00124	0.00010	8775563
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7400	SB7401	SB7402	SB7403		
Sampling Date		2017/09/25 13:30	2017/09/26 09:30	2017/09/26 15:27	2017/09/25 11:00		
COC Number		08445320	08445320	08445320	08445320		
	UNITS	**BC-31**	**BC-34**	**BC-51W**	**BC-53**	**RDL**	**QC Batch**
Dissolved Zirconium (Zr)	mg/L	0.00017	<0.00010	<0.00010	0.00017	0.00010	8775563
Dissolved Calcium (Ca)	mg/L	66.6	71.8	50.1	69.4	0.050	8773949
Dissolved Magnesium (Mg)	mg/L	27.6	27.0	26.5	26.9	0.050	8773949
Dissolved Potassium (K)	mg/L	0.883	0.771	2.46	1.34	0.050	8773949
Dissolved Sodium (Na)	mg/L	1.87	1.55	0.744	4.17	0.050	8773949
Dissolved Sulphur (S)	mg/L	43.8	50.4	92.0	48.8	3.0	8773949
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7404		SB7405	SB7406		
Sampling Date		2017/09/26 17:30		2017/09/27 15:50	2017/09/26 11:45		
COC Number		08445320		08445320	08445320		
	UNITS	FIELD BLANK	QC Batch	TRIP BLANK	DUP	RDL	QC Batch
Misc. Inorganics							
Dissolved Hardness (CaCO3)	mg/L	<0.50	8775057	<0.50	345	0.50	8775057
Elements							
Dissolved Mercury (Hg)	mg/L	<0.0000020	8775679	<0.0000020	<0.0000020	0.0000020	8775679
Dissolved Metals by ICPMS							
Dissolved Aluminum (Al)	mg/L	<0.00050	8775563	<0.00050	0.00112	0.00050	8775563
Dissolved Antimony (Sb)	mg/L	<0.000020	8775563	<0.000020	0.0391	0.000020	8775563
Dissolved Arsenic (As)	mg/L	<0.000020	8780181	<0.000020	0.0306	0.000020	8775563
Dissolved Barium (Ba)	mg/L	<0.000020	8775563	<0.000020	0.0361	0.000020	8775563
Dissolved Beryllium (Be)	mg/L	<0.000010	8775563	<0.000010	<0.000010	0.000010	8775563
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8775563	<0.0000050	<0.0000050	0.0000050	8775563
Dissolved Boron (B)	mg/L	<0.010	8775563	<0.010	<0.010	0.010	8775563
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8775563	<0.0000050	0.0000056	0.0000050	8775563
Dissolved Chromium (Cr)	mg/L	<0.00010	8775563	<0.00010	<0.00010	0.00010	8775563
Dissolved Cobalt (Co)	mg/L	<0.0000050	8775563	<0.0000050	0.0000165	0.0000050	8775563
Dissolved Copper (Cu)	mg/L	<0.000050	8775563	<0.000050	0.000182	0.000050	8775563
Dissolved Iron (Fe)	mg/L	<0.0010	8775563	<0.0010	0.0037	0.0010	8775563
Dissolved Lead (Pb)	mg/L	<0.0000050	8775563	<0.0000050	0.0000147	0.0000050	8775563
Dissolved Lithium (Li)	mg/L	<0.00050	8775563	<0.00050	0.00860	0.00050	8775563
Dissolved Manganese (Mn)	mg/L	<0.000050	8775563	<0.000050	0.00502	0.000050	8775563
Dissolved Molybdenum (Mo)	mg/L	<0.000050	8775563	<0.000050	0.00539	0.000050	8775563
Dissolved Nickel (Ni)	mg/L	0.000025	8775563	<0.000020	0.000283	0.000020	8775563
Dissolved Phosphorus (P)	mg/L	<0.0020	8775563	<0.0020	0.0035	0.0020	8775563
Dissolved Selenium (Se)	mg/L	<0.000040	8775563	<0.000040	0.00202	0.000040	8775563
Dissolved Silicon (Si)	mg/L	<0.050	8775563	<0.050	3.57	0.050	8775563
Dissolved Silver (Ag)	mg/L	<0.0000050	8775563	<0.0000050	<0.0000050	0.0000050	8775563
Dissolved Strontium (Sr)	mg/L	<0.000050	8775563	<0.000050	0.567	0.000050	8775563
Dissolved Thallium (Tl)	mg/L	<0.0000020	8775563	<0.0000020	0.0000659	0.0000020	8775563
Dissolved Tin (Sn)	mg/L	<0.00020	8775563	<0.00020	<0.00020	0.00020	8775563
Dissolved Titanium (Ti)	mg/L	<0.00050	8775563	<0.00050	<0.00050	0.00050	8775563
Dissolved Uranium (U)	mg/L	<0.0000020	8775563	<0.0000020	0.00794	0.0000020	8775563
Dissolved Vanadium (V)	mg/L	<0.00020	8775563	<0.00020	<0.00020	0.00020	8775563
Dissolved Zinc (Zn)	mg/L	<0.00010	8775563	<0.00010	0.00102	0.00010	8775563
RDL = Reportable Detection Limit							

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SB7404		SB7405	SB7406		
Sampling Date		2017/09/26 17:30		2017/09/27 15:50	2017/09/26 11:45		
COC Number		08445320		08445320	08445320		
	UNITS	**FIELD BLANK**	**QC Batch**	**TRIP BLANK**	**DUP**	**RDL**	**QC Batch**
Dissolved Zirconium (Zr)	mg/L	<0.00010	8775563	<0.00010	<0.00010	0.00010	8775563
Dissolved Calcium (Ca)	mg/L	<0.050	8773949	<0.050	82.1	0.050	8773949
Dissolved Magnesium (Mg)	mg/L	<0.050	8773949	<0.050	34.0	0.050	8773949
Dissolved Potassium (K)	mg/L	<0.050	8773949	<0.050	1.45	0.050	8773949
Dissolved Sodium (Na)	mg/L	<0.050	8773949	<0.050	1.46	0.050	8773949
Dissolved Sulphur (S)	mg/L	<3.0	8773949	<3.0	53.7	3.0	8773949
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID		SB7377	SB7378	SB7379	SB7380	SB7381		
Sampling Date		2017/09/25 15:30	2017/09/25 09:30	2017/09/26 12:45	2017/09/26 15:10	2017/09/26 13:20		
COC Number		08445318	08445318	08445318	08445318	08445318		
	UNITS	BC-5	BC-6	BC-10	BC-12	BC-15	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	315	253	230	693	592	0.50	8774893
Elements								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000028	0.0000069	0.0000029	0.0000020	8775674
Total Metals by ICPMS								
Total Aluminum (Al)	mg/L	0.0301	0.0205	0.0418	0.0444	0.0125	0.00050	8775641
Total Antimony (Sb)	mg/L	0.000262	0.000299	0.104	0.0272	0.00399	0.000020	8775641
Total Arsenic (As)	mg/L	0.000207	0.000313	0.0189	0.00732	0.0400	0.000020	8775641
Total Barium (Ba)	mg/L	0.0515	0.0542	0.159	0.0273	0.0335	0.000020	8775641
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000187	<0.000010	0.000010	8775641
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8775641
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	0.016	<0.010	0.010	8775641
Total Cadmium (Cd)	mg/L	0.000130	0.0000779	0.0000492	0.000970	0.0000189	0.0000050	8775641
Total Chromium (Cr)	mg/L	0.00012	0.00012	0.00012	<0.00010	<0.00010	0.00010	8775641
Total Cobalt (Co)	mg/L	0.0000649	0.0000407	0.0000621	0.0136	0.0000119	0.0000050	8775641
Total Copper (Cu)	mg/L	0.00118	0.000936	0.000721	0.00210	0.000228	0.000050	8775641
Total Iron (Fe)	mg/L	0.0774	0.0623	0.0849	0.532	0.0087	0.0010	8775641
Total Lead (Pb)	mg/L	0.0000387	0.0000588	0.000160	0.0000848	0.0000209	0.0000050	8775641
Total Lithium (Li)	mg/L	0.00264	0.00286	0.00319	0.00861	0.00160	0.00050	8775641
Total Manganese (Mn)	mg/L	0.0131	0.0103	0.0145	0.824	0.00286	0.000050	8775641
Total Molybdenum (Mo)	mg/L	0.00158	0.00128	0.00389	0.000464	0.000979	0.000050	8775641
Total Nickel (Ni)	mg/L	0.00278	0.00171	0.000698	0.0715	0.000457	0.000020	8775641
Total Phosphorus (P)	mg/L	0.0151	0.0101	0.0226	0.0067	0.0063	0.0020	8775641
Total Selenium (Se)	mg/L	0.00259	0.00175	0.00439	0.000522	0.0227	0.000040	8775641
Total Silicon (Si)	mg/L	3.43	3.29	2.22	4.65	2.07	0.050	8775641
Total Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000224	0.0000083	<0.0000050	0.0000050	8775641
Total Strontium (Sr)	mg/L	0.305	0.266	0.427	1.07	1.14	0.000050	8775641
Total Thallium (Tl)	mg/L	0.0000049	0.0000028	0.0000864	0.000162	0.0000493	0.0000020	8775641
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8775641
Total Titanium (Ti)	mg/L	0.00100	<0.00050	0.00137	<0.00050	<0.00050	0.00050	8775641
Total Uranium (U)	mg/L	0.00206	0.00155	0.00775	0.000576	0.00436	0.0000020	8775641
Total Vanadium (V)	mg/L	0.00091	0.00061	0.00032	<0.00020	<0.00020	0.00020	8775641
Total Zinc (Zn)	mg/L	0.0137	0.00857	0.00147	0.106	0.00035	0.00010	8775641
RDL = Reportable Detection Limit								

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID		SB7377	SB7378	SB7379	SB7380	SB7381		
Sampling Date		2017/09/25 15:30	2017/09/25 09:30	2017/09/26 12:45	2017/09/26 15:10	2017/09/26 13:20		
COC Number		08445318	08445318	08445318	08445318	08445318		
	UNITS	BC-5	BC-6	BC-10	BC-12	BC-15	RDL	QC Batch
Total Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8775641
Total Calcium (Ca)	mg/L	75.8	62.7	55.1	175	130	0.050	8773951
Total Magnesium (Mg)	mg/L	30.4	23.3	22.5	62.3	64.6	0.050	8773951
Total Potassium (K)	mg/L	0.811	0.790	1.76	3.47	1.03	0.050	8773951
Total Sodium (Na)	mg/L	1.64	2.10	0.759	1.30	0.512	0.050	8773951
Total Sulphur (S)	mg/L	56.5	42.2	30.0	221	144	3.0	8773951

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID		SB7382	SB7398	SB7404	SB7405	SB7406		
Sampling Date		2017/09/26 11:30	2017/09/26 16:45	2017/09/26 17:30	2017/09/27 15:50	2017/09/26 11:45		
COC Number		08445318	08445320	08445320	08445320	08445320		
	UNITS	BC-17	BC-28A	FIELD BLANK	TRIP BLANK	DUP	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	344	418	<0.50	<0.50	345	0.50	8774893
Elements								
Total Mercury (Hg)	mg/L	0.0000022	0.0000064	<0.0000020	<0.0000020	0.0000022	0.0000020	8775674
Total Metals by ICPMS								
Total Aluminum (Al)	mg/L	0.00596	0.0234	<0.00050	<0.00050	0.00567	0.00050	8775641
Total Antimony (Sb)	mg/L	0.0397	0.897	<0.000020	<0.000020	0.0399	0.000020	8775641
Total Arsenic (As)	mg/L	0.0317	0.0508	<0.000020	<0.000020	0.0314	0.000020	8775641
Total Barium (Ba)	mg/L	0.0365	0.0829	<0.000020	<0.000020	0.0369	0.000020	8775641
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8775641
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8775641
Total Boron (B)	mg/L	<0.010	0.019	<0.010	<0.010	<0.010	0.010	8775641
Total Cadmium (Cd)	mg/L	0.0000074	0.0000114	<0.0000050	<0.0000050	0.0000088	0.0000050	8775641
Total Chromium (Cr)	mg/L	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	0.00010	8775641
Total Cobalt (Co)	mg/L	0.0000276	0.295	<0.0000050	<0.0000050	0.0000216	0.0000050	8775641
Total Copper (Cu)	mg/L	0.000194	0.00104	<0.000050	<0.000050	0.000217	0.000050	8775641
Total Iron (Fe)	mg/L	0.0160	0.0213	<0.0010	<0.0010	0.0102	0.0010	8775641
Total Lead (Pb)	mg/L	0.0000482	0.0000797	<0.0000050	<0.0000050	0.0000362	0.0000050	8775641
Total Lithium (Li)	mg/L	0.00864	0.00242	<0.00050	<0.00050	0.00848	0.00050	8775641
Total Manganese (Mn)	mg/L	0.00571	0.0136	<0.000050	<0.000050	0.00543	0.000050	8775641
Total Molybdenum (Mo)	mg/L	0.00539	0.0125	<0.000050	<0.000050	0.00532	0.000050	8775641
Total Nickel (Ni)	mg/L	0.000317	0.00123	<0.000020	<0.000020	0.000307	0.000020	8775641
Total Phosphorus (P)	mg/L	0.0069	0.0134	<0.0020	<0.0020	0.0076	0.0020	8775641
Total Selenium (Se)	mg/L	0.00218	0.0987	<0.000040	<0.000040	0.00199	0.000040	8775641
Total Silicon (Si)	mg/L	3.65	1.35	<0.050	<0.050	3.60	0.050	8775641
Total Silver (Ag)	mg/L	<0.0000050	0.0000059	<0.0000050	<0.0000050	<0.0000050	0.0000050	8775641
Total Strontium (Sr)	mg/L	0.576	0.593	<0.000050	<0.000050	0.559	0.000050	8775641
Total Thallium (Tl)	mg/L	0.0000647	0.0000468	<0.0000020	<0.0000020	0.0000717	0.0000020	8775641
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8775641
Total Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8775641
Total Uranium (U)	mg/L	0.00809	0.00614	<0.0000020	<0.0000020	0.00804	0.0000020	8775641
Total Vanadium (V)	mg/L	<0.00020	0.00041	<0.00020	<0.00020	<0.00020	0.00020	8775641
Total Zinc (Zn)	mg/L	0.00241	0.00136	<0.00010	<0.00010	0.00092	0.00010	8775641

RDL = Reportable Detection Limit

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID		SB7382	SB7398	SB7404	SB7405	SB7406		
Sampling Date		2017/09/26 11:30	2017/09/26 16:45	2017/09/26 17:30	2017/09/27 15:50	2017/09/26 11:45		
COC Number		08445318	08445320	08445320	08445320	08445320		
	UNITS	**BC-17**	**BC-28A**	**FIELD BLANK**	**TRIP BLANK**	**DUP**	**RDL**	**QC Batch**
Total Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8775641
Total Calcium (Ca)	mg/L	82.0	123	<0.050	<0.050	81.9	0.050	8773951
Total Magnesium (Mg)	mg/L	33.9	27.1	<0.050	<0.050	34.2	0.050	8773951
Total Potassium (K)	mg/L	1.44	5.03	<0.050	<0.050	1.47	0.050	8773951
Total Sodium (Na)	mg/L	1.47	223	<0.050	<0.050	1.45	0.050	8773951
Total Sulphur (S)	mg/L	53.1	99.3	<3.0	<3.0	53.3	3.0	8773951
RDL = Reportable Detection Limit								

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LL TOTAL METALS (DIGESTED) WITH CV HG

Maxxam ID		SB7374		SB7375	SB7376		SB7399		
Sampling Date		2017/09/25 12:50		2017/09/25 14:30	2017/09/26 10:40		2017/09/26 16:30		
COC Number		08445318		08445318	08445318		08445320		
	UNITS	BC-1	RDL	BC-3	BC-4	RDL	BC-28B	RDL	QC Batch
Calculated Parameters									
Total Hardness (CaCO3)	mg/L	318	0.50	306	234	0.50	992	0.50	8774893
Elements									
Total Mercury (Hg)	mg/L	0.0000023	0.0000020	0.0000023	0.0000032	0.0000020	0.0000060	0.0000020	8775674
Total Metals by ICPMS									
Total Aluminum (Al)	mg/L	9.75	0.015	2.81	0.208	0.0030	0.064	0.015	8776149
Total Antimony (Sb)	mg/L	0.00284	0.00010	0.00486	0.00289	0.000020	1.72	0.00010	8776149
Total Arsenic (As)	mg/L	0.0180	0.00010	0.0328	0.00306	0.000020	0.169	0.00010	8776149
Total Barium (Ba)	mg/L	0.416	0.00025	0.147	0.0711	0.000050	0.0342	0.00025	8776149
Total Beryllium (Be)	mg/L	0.000416	0.000050	0.000326	<0.000010	0.000010	<0.000050	0.000050	8776149
Total Bismuth (Bi)	mg/L	0.000119	0.000050	0.000069	<0.000010	0.000010	<0.000050	0.000050	8776149
Total Boron (B)	mg/L	<0.050	0.050	<0.010	<0.010	0.010	<0.050	0.050	8776149
Total Cadmium (Cd)	mg/L	0.000450	0.000025	0.000522	0.000198	0.0000050	<0.000025	0.000025	8776149
Total Chromium (Cr)	mg/L	0.0151	0.00050	0.00546	0.00052	0.00010	<0.00050	0.00050	8776149
Total Cobalt (Co)	mg/L	0.00803	0.000050	0.00549	0.000747	0.000010	0.512	0.000050	8776149
Total Copper (Cu)	mg/L	0.0238	0.00050	0.0110	0.00146	0.00010	0.00172	0.00050	8776149
Total Iron (Fe)	mg/L	14.8	0.025	6.82	0.653	0.0050	0.072	0.025	8776149
Total Lead (Pb)	mg/L	0.00759	0.00010	0.00309	0.000225	0.000020	<0.00010	0.00010	8776149
Total Lithium (Li)	mg/L	0.0212	0.0025	0.0175	0.00812	0.00050	0.0045	0.0025	8776149
Total Manganese (Mn)	mg/L	0.389	0.00050	0.319	0.108	0.00010	0.0254	0.00050	8776149
Total Molybdenum (Mo)	mg/L	0.00247	0.00025	0.00220	0.00200	0.000050	0.0171	0.00025	8776149
Total Nickel (Ni)	mg/L	0.0276	0.00050	0.0224	0.00438	0.00010	0.00478	0.00050	8776149
Total Phosphorus (P)	mg/L	0.763	0.025	0.190	0.0225	0.0050	0.031	0.025	8776149
Total Selenium (Se)	mg/L	0.00202	0.00020	0.00207	0.00272	0.000040	0.157	0.00020	8776149
Total Silicon (Si)	mg/L	19.2	0.25	8.77	3.90	0.050	0.63	0.25	8776149
Total Silver (Ag)	mg/L	0.000134	0.000050	0.000081	<0.000010	0.000010	<0.000050	0.000050	8776149
Total Strontium (Sr)	mg/L	0.360	0.00025	0.343	0.335	0.000050	1.35	0.00025	8776149
Total Thallium (Tl)	mg/L	0.000066	0.000010	0.0000564	0.0000129	0.0000020	0.000237	0.000010	8776149
Total Tin (Sn)	mg/L	<0.0010	0.0010	<0.00020	<0.00020	0.00020	<0.0010	0.0010	8776149
Total Titanium (Ti)	mg/L	0.224	0.010	0.0800	0.0066	0.0020	<0.010	0.010	8776149
Total Uranium (U)	mg/L	0.00331	0.000025	0.00282	0.00191	0.0000050	0.0187	0.000025	8776149
Total Vanadium (V)	mg/L	0.0268	0.0010	0.0115	0.00170	0.00020	<0.0010	0.0010	8776149
Total Zinc (Zn)	mg/L	0.0777	0.0050	0.0645	0.0111	0.0010	<0.0050	0.0050	8776149

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LL TOTAL METALS (DIGESTED) WITH CV HG

Maxxam ID		SB7374		SB7375	SB7376		SB7399		
Sampling Date		2017/09/25 12:50		2017/09/25 14:30	2017/09/26 10:40		2017/09/26 16:30		
COC Number		08445318		08445318	08445318		08445320		
	UNITS	BC-1	RDL	BC-3	BC-4	RDL	BC-28B	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00128	0.00050	0.00056	0.00024	0.00010	<0.00050	0.00050	8776149
Total Calcium (Ca)	mg/L	72.1	1.3	70.9	52.5	0.25	270	1.3	8773951
Total Magnesium (Mg)	mg/L	33.4	1.3	31.3	24.9	0.25	76.9	1.3	8773951
Total Potassium (K)	mg/L	1.9	1.3	1.77	1.03	0.25	4.9	1.3	8773951
Total Sodium (Na)	mg/L	5.0	1.3	3.98	2.28	0.25	387	1.3	8773951
Total Sulphur (S)	mg/L	57	15	56.3	45.9	3.0	283	15	8773951
RDL = Reportable Detection Limit									

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LL TOTAL METALS (DIGESTED) WITH CV HG

Maxxam ID		SB7400	SB7401	SB7402	SB7403		
Sampling Date		2017/09/25 13:30	2017/09/26 09:30	2017/09/26 15:27	2017/09/25 11:00		
COC Number		08445320	08445320	08445320	08445320		
	UNITS	BC-31	BC-34	BC-51W	BC-53	RDL	QC Batch
Calculated Parameters							
Total Hardness (CaCO3)	mg/L	287	302	210	287	0.50	8774893
Elements							
Total Mercury (Hg)	mg/L	0.0000028	0.0000021	0.0000145	<0.0000020	0.0000020	8775674
Total Metals by ICPMS							
Total Aluminum (Al)	mg/L	0.246	0.0700	3.41	4.27	0.0030	8776149
Total Antimony (Sb)	mg/L	0.000700	0.000302	0.00160	0.00267	0.000020	8776149
Total Arsenic (As)	mg/L	0.00102	0.000308	0.0203	0.0103	0.000020	8776149
Total Barium (Ba)	mg/L	0.0739	0.0526	0.0245	0.217	0.000050	8776149
Total Beryllium (Be)	mg/L	0.000014	<0.000010	0.00776	0.000176	0.000010	8776149
Total Bismuth (Bi)	mg/L	<0.000010	<0.000010	<0.000010	0.000055	0.000010	8776149
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8776149
Total Cadmium (Cd)	mg/L	0.0000914	0.000133	0.00261	0.000213	0.0000050	8776149
Total Chromium (Cr)	mg/L	0.00054	0.00021	0.00069	0.00702	0.00010	8776149
Total Cobalt (Co)	mg/L	0.000301	0.000118	0.0296	0.00373	0.000010	8776149
Total Copper (Cu)	mg/L	0.00225	0.00143	0.143	0.0112	0.00010	8776149
Total Iron (Fe)	mg/L	0.601	0.200	3.83	6.74	0.0050	8776149
Total Lead (Pb)	mg/L	0.000306	0.000083	0.000197	0.00319	0.000020	8776149
Total Lithium (Li)	mg/L	0.00523	0.00284	0.00827	0.0157	0.00050	8776149
Total Manganese (Mn)	mg/L	0.0451	0.0188	1.48	0.224	0.00010	8776149
Total Molybdenum (Mo)	mg/L	0.00148	0.00165	<0.000050	0.00255	0.000050	8776149
Total Nickel (Ni)	mg/L	0.00315	0.00313	0.0963	0.0136	0.00010	8776149
Total Phosphorus (P)	mg/L	0.0298	0.0178	0.0196	0.222	0.0050	8776149
Total Selenium (Se)	mg/L	0.00171	0.00252	0.00249	0.00184	0.000040	8776149
Total Silicon (Si)	mg/L	4.28	3.61	8.24	11.4	0.050	8776149
Total Silver (Ag)	mg/L	0.000010	<0.000010	0.000056	0.000067	0.000010	8776149
Total Strontium (Sr)	mg/L	0.326	0.291	0.294	0.320	0.000050	8776149
Total Thallium (Tl)	mg/L	0.0000099	0.0000039	0.000112	0.0000341	0.0000020	8776149
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8776149
Total Titanium (Ti)	mg/L	0.0070	0.0022	<0.0020	0.113	0.0020	8776149
Total Uranium (U)	mg/L	0.00273	0.00198	0.00221	0.00275	0.0000050	8776149
Total Vanadium (V)	mg/L	0.00205	0.00117	<0.00020	0.0128	0.00020	8776149
Total Zinc (Zn)	mg/L	0.0085	0.0142	0.269	0.0307	0.0010	8776149
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

LL TOTAL METALS (DIGESTED) WITH CV HG

Maxxam ID		SB7400	SB7401	SB7402	SB7403		
Sampling Date		2017/09/25 13:30	2017/09/26 09:30	2017/09/26 15:27	2017/09/25 11:00		
COC Number		08445320	08445320	08445320	08445320		
	UNITS	BC-31	BC-34	BC-51W	BC-53	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00018	<0.00010	<0.00010	0.00064	0.00010	8776149
Total Calcium (Ca)	mg/L	66.2	73.2	43.0	67.4	0.25	8773951
Total Magnesium (Mg)	mg/L	29.6	29.1	24.8	28.9	0.25	8773951
Total Potassium (K)	mg/L	0.89	0.77	2.15	1.57	0.25	8773951
Total Sodium (Na)	mg/L	1.95	1.60	0.71	4.40	0.25	8773951
Total Sulphur (S)	mg/L	49.6	55.4	84.0	50.6	3.0	8773951
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7374
Sample ID: BC-1
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8776007	N/A	2017/09/29	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8776009	N/A	2017/09/29	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Andy Lu
Hardness (calculated as CaCO3)	CALC	8779358	N/A	2017/10/03	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8779627	N/A	2017/10/03	David Huang
Ion Balance	CALC	8779628	N/A	2017/10/03	David Huang
Sum of cations, anions	CALC	8779629	N/A	2017/10/03	Andy Lu
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8779630	N/A	2017/10/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Andy Lu
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7374 Dup
Sample ID: BC-1
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An

Maxxam ID: SB7375
Sample ID: BC-3
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Andy Lu
Hardness (calculated as CaCO3)	CALC	8779358	N/A	2017/10/03	Andy Lu
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7375
Sample ID: BC-3
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ion Balance (as Cations/Anions Ratio)	CALC	8779627	N/A	2017/10/04	David Huang
Ion Balance	CALC	8779628	N/A	2017/10/04	David Huang
Sum of cations, anions	CALC	8779629	N/A	2017/10/03	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8779630	N/A	2017/10/03	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8780181	N/A	2017/10/03	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Andy Lu
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7375 Dup
Sample ID: BC-3
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz

Maxxam ID: SB7376
Sample ID: BC-4
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Andy Lu
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Andy Lu
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7376
Sample ID: BC-4
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8779102	N/A	2017/10/02	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7377
Sample ID: BC-5
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/10/02	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7377 Dup
Sample ID: BC-5
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/10/02	Andrew An

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7378
Sample ID: BC-6
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8776007	N/A	2017/09/29	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8776009	N/A	2017/09/29	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/09/30	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7379
Sample ID: BC-10
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/09/30	Andrew An

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7379
Sample ID: BC-10
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7380
Sample ID: BC-12
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778275	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/09/30	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777463	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778289	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7381
Sample ID: BC-15
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7381
Sample ID: BC-15
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride - Low Level	KONE/COL	8778275	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/09/30	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778289	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7381 Dup
Sample ID: BC-15
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo

Maxxam ID: SB7382
Sample ID: BC-17
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7382
Sample ID: BC-17
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/09/30	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7398
Sample ID: BC-28A
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Cyanide SAD (strong acid dissociable)	TECH/COL	8776007	N/A	2017/09/29	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8776009	N/A	2017/09/29	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/09/30	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7399
Sample ID: BC-28B
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776570	2017/09/29	2017/09/29	Maria Maclean
Cyanide SAD (strong acid dissociable)	TECH/COL	8776007	N/A	2017/09/29	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8776009	N/A	2017/09/29	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8776572	2017/09/29	2017/09/29	Maria Maclean

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7399
Sample ID: BC-28B
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Andy Lu
Hardness (calculated as CaCO3)	CALC	8773948	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Andy Lu
Ammonia-N Low Level (Preserved)	KONE/COL	8777464	N/A	2017/09/30	Diana Cruz
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776562	2017/09/29	2017/09/29	Maria Maclean
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7399 Dup
Sample ID: BC-28B
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776570	2017/09/29	2017/09/29	Maria Maclean
Conductance - Low Level	AT/ALK	8776572	2017/09/29	2017/09/29	Maria Maclean
pH Water	AT/ALK	8776562	2017/09/29	2017/09/29	Maria Maclean

Maxxam ID: SB7400
Sample ID: BC-31
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778275	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Andy Lu
Hardness (calculated as CaCO3)	CALC	8775057	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Andy Lu
Ammonia-N Low Level (Preserved)	KONE/COL	8777463	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7400
Sample ID: BC-31
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8779102	N/A	2017/10/02	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7401
Sample ID: BC-34
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Andy Lu
Hardness (calculated as CaCO3)	CALC	8775057	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Andy Lu
Ammonia-N Low Level (Preserved)	KONE/COL	8777463	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8779102	N/A	2017/10/02	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7402
Sample ID: BC-51W
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Andy Lu
Hardness (calculated as CaCO3)	CALC	8775057	N/A	2017/10/02	Automated Statchk

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7402
Sample ID: BC-51W
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Andy Lu
Ammonia-N Low Level (Preserved)	KONE/COL	8777463	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7402 Dup
Sample ID: BC-51W
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An

Maxxam ID: SB7403
Sample ID: BC-53
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8779098	N/A	2017/10/02	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Andy Lu
Hardness (calculated as CaCO3)	CALC	8775057	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8776149	2017/09/29	2017/10/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Andy Lu

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7403
Sample ID: BC-53
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N Low Level (Preserved)	KONE/COL	8777463	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7403 Dup
Sample ID: BC-53
Matrix: Water

Collected: 2017/09/25
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride - Low Level	KONE/COL	8779098	N/A	2017/10/02	Balwinder Bassi

Maxxam ID: SB7404
Sample ID: FIELD BLANK
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8776007	N/A	2017/09/29	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8776009	N/A	2017/09/29	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8775057	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/10/02	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777463	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7404
Sample ID: FIELD BLANK
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8775650	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7404 Dup
Sample ID: FIELD BLANK
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi

Maxxam ID: SB7405
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2017/09/27
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778309	N/A	2017/09/29	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8776007	N/A	2017/09/29	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8776009	N/A	2017/09/29	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8775057	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/09/30	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777463	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8778310	N/A	2017/09/29	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8776374	2017/09/29	2017/09/29	Casey Larson

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

TEST SUMMARY

Maxxam ID: SB7405 Dup
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2017/09/27
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang

Maxxam ID: SB7406
Sample ID: DUP
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Chloride - Low Level	KONE/COL	8778275	N/A	2017/09/29	Balwinder Bassi
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
Hardness Total (calculated as CaCO3)	CALC	8774893	N/A	2017/10/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8775057	N/A	2017/10/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8775679	N/A	2017/09/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8775674	2017/09/29	2017/09/29	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8774048	N/A	2017/10/02	Automated Statchk
Ion Balance	CALC	8774049	N/A	2017/10/02	Automated Statchk
Sum of cations, anions	CALC	8774050	N/A	2017/10/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8773949	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8775563	N/A	2017/09/30	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8773951	N/A	2017/10/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8775641	N/A	2017/09/30	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8777463	N/A	2017/09/30	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8777040	N/A	2017/09/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8777044	N/A	2017/09/29	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8774051	N/A	2017/09/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/09/28	Juvahnne Cris Roy
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean
Sulphate - Low Level	KONE/COL	8779102	N/A	2017/10/02	Balwinder Bassi
Total Dissolved Solids (Filt. Residue)	BAL/BAL	8775640	2017/09/29	2017/10/01	Prabhleen Sodhi
Total Suspended Solids-Low Level	BAL/BAL	8776374	2017/09/29	2017/09/29	Casey Larson

Maxxam ID: SB7406 Dup
Sample ID: DUP
Matrix: Water

Collected: 2017/09/26
Shipped:
Received: 2017/09/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8776533	2017/09/29	2017/09/29	Maria Maclean
Conductance - Low Level	AT/ALK	8776540	2017/09/29	2017/09/29	Maria Maclean
pH Water	AT/ALK	8776522	2017/09/29	2017/09/29	Maria Maclean

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

GENERAL COMMENTS

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

Package 1	7.0°C
Package 2	6.0°C
Package 3	7.0°C
Package 4	5.7°C

Sample SB7374 [BC-1] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample SB7375 [BC-3] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample SB7376 [BC-4] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample SB7377 [BC-5] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SB7378 [BC-6] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SB7399 [BC-28B] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample SB7400 [BC-31] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample SB7401 [BC-34] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample SB7402 [BC-51W] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample SB7403 [BC-53] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level). Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER) Comments

Sample SB7398 [BC-28A] Elements by ICPMS Low Level (dissolved): RDL raised due to concentration over linear range, sample dilution required.
Sample SB7399 [BC-28B] Elements by ICPMS Low Level (dissolved): RDL raised due to concentration over linear range, sample dilution required.
Sample SB7399 [BC-28B] Elements by ICPMS Low Level (dissolved): RDL raised due to concentration over linear range, sample dilution required.

LL TOTAL METALS (DIGESTED) WITH CV HG Comments

Sample SB7374 [BC-1] Elements by ICPMS Digested LL (total): RDL raised due to concentration over linear range, sample dilution required.
Sample SB7399 [BC-28B] Elements by ICPMS Digested LL (total): RDL raised due to concentration over linear range, sample dilution required.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

Sample SB7374, Elements by ICPMS Low Level (dissolved): Test repeated.
Sample SB7382, Elements by ICPMS Low Level (dissolved): Test repeated.
Sample SB7399, Elements by ICPMS Low Level (dissolved): Test repeated.
Sample SB7404, Elements by ICPMS Low Level (dissolved): Test repeated.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

QUALITY ASSURANCE REPORT

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8775563	Dissolved Aluminum (Al)	2017/09/30	102	80 - 120	107	80 - 120	<0.00050	mg/L	1.9	20
8775563	Dissolved Antimony (Sb)	2017/09/30	NC	80 - 120	100	80 - 120	<0.000020	mg/L		
8775563	Dissolved Arsenic (As)	2017/09/30	99	80 - 120	101	80 - 120	<0.000020	mg/L	2.8	20
8775563	Dissolved Barium (Ba)	2017/09/30	NC	80 - 120	97	80 - 120	<0.000020	mg/L	0.61	20
8775563	Dissolved Beryllium (Be)	2017/09/30	95	80 - 120	97	80 - 120	<0.000010	mg/L	7.4	20
8775563	Dissolved Bismuth (Bi)	2017/09/30	88	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8775563	Dissolved Boron (B)	2017/09/30	96	80 - 120	94	80 - 120	<0.010	mg/L	NC	20
8775563	Dissolved Cadmium (Cd)	2017/09/30	95	80 - 120	100	80 - 120	<0.0000050	mg/L	4.1	20
8775563	Dissolved Chromium (Cr)	2017/09/30	91	80 - 120	96	80 - 120	<0.00010	mg/L	14	20
8775563	Dissolved Cobalt (Co)	2017/09/30	90	80 - 120	96	80 - 120	<0.0000050	mg/L	0.57	20
8775563	Dissolved Copper (Cu)	2017/09/30	87	80 - 120	96	80 - 120	<0.000050	mg/L	3.5	20
8775563	Dissolved Iron (Fe)	2017/09/30	NC	80 - 120	99	80 - 120	<0.0010	mg/L	3.5	20
8775563	Dissolved Lead (Pb)	2017/09/30	91	80 - 120	97	80 - 120	<0.0000050	mg/L	11	20
8775563	Dissolved Lithium (Li)	2017/09/30	NC	80 - 120	96	80 - 120	<0.00050	mg/L	0.69	20
8775563	Dissolved Manganese (Mn)	2017/09/30	NC	80 - 120	94	80 - 120	<0.000050	mg/L	2.4	20
8775563	Dissolved Molybdenum (Mo)	2017/09/30	NC	80 - 120	99	80 - 120	<0.000050	mg/L	2.3	20
8775563	Dissolved Nickel (Ni)	2017/09/30	92	80 - 120	99	80 - 120	<0.000020	mg/L	0.57	20
8775563	Dissolved Phosphorus (P)	2017/09/30					<0.0020	mg/L	4.8	20
8775563	Dissolved Selenium (Se)	2017/09/30	103	80 - 120	109	80 - 120	<0.000040	mg/L	2.6	20
8775563	Dissolved Silicon (Si)	2017/09/30					<0.050	mg/L	2.0	20
8775563	Dissolved Silver (Ag)	2017/09/30	100	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8775563	Dissolved Strontium (Sr)	2017/09/30	NC	80 - 120	92	80 - 120	<0.000050	mg/L	2.1	20
8775563	Dissolved Thallium (Tl)	2017/09/30	92	80 - 120	98	80 - 120	<0.0000020	mg/L	11	20
8775563	Dissolved Tin (Sn)	2017/09/30	98	80 - 120	93	80 - 120	<0.00020	mg/L	NC	20
8775563	Dissolved Titanium (Ti)	2017/09/30	92	80 - 120	92	80 - 120	<0.00050	mg/L	NC	20
8775563	Dissolved Uranium (U)	2017/09/30	93	80 - 120	93	80 - 120	<0.0000020	mg/L	0.037	20
8775563	Dissolved Vanadium (V)	2017/09/30	94	80 - 120	96	80 - 120	<0.00020	mg/L	5.1	20
8775563	Dissolved Zinc (Zn)	2017/09/30	92	80 - 120	105	80 - 120	<0.00010	mg/L	2.3	20
8775563	Dissolved Zirconium (Zr)	2017/09/30	96	80 - 120	96	80 - 120	<0.00010	mg/L	4.2	20
8775640	Total Dissolved Solids	2017/10/01	100	80 - 120	98	80 - 120	<10	mg/L	NC	20
8775641	Total Aluminum (Al)	2017/10/02	96	80 - 120	113	80 - 120	<0.00050	mg/L	2.5	20

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

QUALITY ASSURANCE REPORT(CONT'D)

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8775641	Total Antimony (Sb)	2017/10/02	97	80 - 120	105	80 - 120	<0.000020	mg/L	6.2	20
8775641	Total Arsenic (As)	2017/10/02	102	80 - 120	102	80 - 120	<0.000020	mg/L	8.0	20
8775641	Total Barium (Ba)	2017/10/02	NC	80 - 120	101	80 - 120	<0.000020	mg/L	0.60	20
8775641	Total Beryllium (Be)	2017/10/02	104	80 - 120	106	80 - 120	<0.000010	mg/L	NC	20
8775641	Total Bismuth (Bi)	2017/10/02	93	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8775641	Total Boron (B)	2017/10/02	101	80 - 120	104	80 - 120	<0.010	mg/L	NC	20
8775641	Total Cadmium (Cd)	2017/10/02	99	80 - 120	100	80 - 120	<0.0000050	mg/L	2.6	20
8775641	Total Chromium (Cr)	2017/10/02	97	80 - 120	98	80 - 120	<0.00010	mg/L	4.6	20
8775641	Total Cobalt (Co)	2017/10/02	96	80 - 120	99	80 - 120	<0.0000050	mg/L	11	20
8775641	Total Copper (Cu)	2017/10/02	92	80 - 120	100	80 - 120	<0.000050	mg/L	2.1	20
8775641	Total Iron (Fe)	2017/10/02	82	80 - 120	101	80 - 120	<0.0010	mg/L	0.94	20
8775641	Total Lead (Pb)	2017/10/02	97	80 - 120	99	80 - 120	<0.0000050	mg/L	6.1	20
8775641	Total Lithium (Li)	2017/10/02	103	80 - 120	103	80 - 120	<0.00050	mg/L	0.43	20
8775641	Total Manganese (Mn)	2017/10/02	NC	80 - 120	94	80 - 120	<0.000050	mg/L	0.16	20
8775641	Total Molybdenum (Mo)	2017/10/02	NC	80 - 120	100	80 - 120	<0.000050	mg/L	1.7	20
8775641	Total Nickel (Ni)	2017/10/02	93	80 - 120	98	80 - 120	<0.000020	mg/L	1.7	20
8775641	Total Phosphorus (P)	2017/10/02					<0.0020	mg/L	2.4	20
8775641	Total Selenium (Se)	2017/10/02	105	80 - 120	109	80 - 120	<0.000040	mg/L	0.30	20
8775641	Total Silicon (Si)	2017/10/02					<0.050	mg/L	0.18	20
8775641	Total Silver (Ag)	2017/10/02	106	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8775641	Total Strontium (Sr)	2017/10/02	NC	80 - 120	93	80 - 120	<0.000050	mg/L	0.18	20
8775641	Total Thallium (Tl)	2017/10/02	98	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8775641	Total Tin (Sn)	2017/10/02	102	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8775641	Total Titanium (Ti)	2017/10/02	92	80 - 120	94	80 - 120	<0.00050	mg/L	NC	20
8775641	Total Uranium (U)	2017/10/02	97	80 - 120	97	80 - 120	<0.0000020	mg/L	0.57	20
8775641	Total Vanadium (V)	2017/10/02	98	80 - 120	98	80 - 120	<0.00020	mg/L	2.4	20
8775641	Total Zinc (Zn)	2017/10/02	NC	80 - 120	105	80 - 120	<0.00010	mg/L	1.1	20
8775641	Total Zirconium (Zr)	2017/10/02	96	80 - 120	96	80 - 120	<0.00010	mg/L	NC	20
8775650	Total Suspended Solids	2017/10/01			91	80 - 120	<1.0	mg/L		
8775674	Total Mercury (Hg)	2017/09/29	92	80 - 120	98	80 - 120	<0.0000020	mg/L	8.3	20
8775679	Dissolved Mercury (Hg)	2017/09/29	99	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT(CONT'D)

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8776007	Strong Acid Dissoc. Cyanide (CN)	2017/09/29	NC	80 - 120	101	80 - 120	<0.00050	mg/L	2.5	20
8776009	Weak Acid Dissoc. Cyanide (CN)	2017/09/29	103	80 - 120	101	80 - 120	<0.00050	mg/L	7.7	20
8776149	Total Aluminum (Al)	2017/10/02	NC	80 - 120	111	80 - 120	<0.0030	mg/L	0.0041	20
8776149	Total Antimony (Sb)	2017/10/02	NC	80 - 120	103	80 - 120	<0.000020	mg/L	2.1	20
8776149	Total Arsenic (As)	2017/10/02	NC	80 - 120	96	80 - 120	<0.000020	mg/L	1.7	20
8776149	Total Barium (Ba)	2017/10/02	NC	80 - 120	97	80 - 120	<0.000050	mg/L	1.6	20
8776149	Total Beryllium (Be)	2017/10/02	94	80 - 120	94	80 - 120	<0.000010	mg/L	3.3	20
8776149	Total Bismuth (Bi)	2017/10/02	98	80 - 120	98	80 - 120	<0.000010	mg/L	NC	20
8776149	Total Boron (B)	2017/10/02	102	80 - 120	105	80 - 120	<0.010	mg/L	NC	20
8776149	Total Cadmium (Cd)	2017/10/02	106	80 - 120	104	80 - 120	<0.0000050	mg/L	2.3	20
8776149	Total Chromium (Cr)	2017/10/02	100	80 - 120	101	80 - 120	<0.00010	mg/L	0.61	20
8776149	Total Cobalt (Co)	2017/10/02	NC	80 - 120	99	80 - 120	<0.000010	mg/L	0.40	20
8776149	Total Copper (Cu)	2017/10/02	NC	80 - 120	100	80 - 120	<0.00010	mg/L	2.0	20
8776149	Total Iron (Fe)	2017/10/02	NC	80 - 120	103	80 - 120	<0.0050	mg/L	0.83	20
8776149	Total Lead (Pb)	2017/10/02	100	80 - 120	100	80 - 120	<0.000020	mg/L	0.66	20
8776149	Total Lithium (Li)	2017/10/02	96	80 - 120	96	80 - 120	<0.00050	mg/L	1.3	20
8776149	Total Manganese (Mn)	2017/10/02	NC	80 - 120	93	80 - 120	<0.00010	mg/L	0.0052	20
8776149	Total Molybdenum (Mo)	2017/10/02	99	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8776149	Total Nickel (Ni)	2017/10/02	NC	80 - 120	102	80 - 120	<0.00010	mg/L	0.0065	20
8776149	Total Phosphorus (P)	2017/10/02					<0.0050	mg/L	2.7	20
8776149	Total Selenium (Se)	2017/10/02	111	80 - 120	108	80 - 120	<0.000040	mg/L	0.51	20
8776149	Total Silicon (Si)	2017/10/02					<0.050	mg/L	0.0089	20
8776149	Total Silver (Ag)	2017/10/02	106	80 - 120	110	80 - 120	<0.000010	mg/L	2.7	20
8776149	Total Strontium (Sr)	2017/10/02	NC	80 - 120	95	80 - 120	<0.000050	mg/L	0.51	20
8776149	Total Thallium (Tl)	2017/10/02	101	80 - 120	99	80 - 120	<0.0000020	mg/L	3.4	20
8776149	Total Tin (Sn)	2017/10/02	104	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20
8776149	Total Titanium (Ti)	2017/10/02	98	80 - 120	99	80 - 120	<0.0020	mg/L	NC	20
8776149	Total Uranium (U)	2017/10/02	99	80 - 120	96	80 - 120	<0.0000050	mg/L	0.73	20
8776149	Total Vanadium (V)	2017/10/02	102	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8776149	Total Zinc (Zn)	2017/10/02	NC	80 - 120	104	80 - 120	<0.0010	mg/L	1.2	20
8776149	Total Zirconium (Zr)	2017/10/02	102	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

QUALITY ASSURANCE REPORT(CONT'D)

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8776374	Total Suspended Solids	2017/09/29			96	80 - 120	<1.0	mg/L		
8776522	pH	2017/09/29			102	97 - 103			0.12	20
8776533	Alkalinity (PP as CaCO3)	2017/09/29					<0.50	mg/L	NC	20
8776533	Alkalinity (Total as CaCO3)	2017/09/29	NC	80 - 120	103	80 - 120	<0.50	mg/L	1.4	20
8776533	Bicarbonate (HCO3)	2017/09/29					<0.50	mg/L	1.4	20
8776533	Carbonate (CO3)	2017/09/29					<0.50	mg/L	NC	20
8776533	Hydroxide (OH)	2017/09/29					<0.50	mg/L	NC	20
8776540	Conductivity	2017/09/29			98	80 - 120	<1.0	uS/cm	0.32	20
8776562	pH	2017/09/29			102	97 - 103			1.5	20
8776570	Alkalinity (PP as CaCO3)	2017/09/29					<0.50	mg/L	NC	20
8776570	Alkalinity (Total as CaCO3)	2017/09/29			100	80 - 120	<0.50	mg/L	1.3	20
8776570	Bicarbonate (HCO3)	2017/09/29					<0.50	mg/L	1.3	20
8776570	Carbonate (CO3)	2017/09/29					<0.50	mg/L	NC	20
8776570	Hydroxide (OH)	2017/09/29					<0.50	mg/L	NC	20
8776572	Conductivity	2017/09/29			100	80 - 120	<1.0	uS/cm	0.58	20
8777040	Nitrate plus Nitrite (N)	2017/09/29	103	80 - 120	104	80 - 120	<0.0020	mg/L	NC	25
8777044	Nitrite (N)	2017/09/29	97	80 - 120	98	80 - 120	<0.0020	mg/L	NC	25
8777463	Total Ammonia (N)	2017/09/30			103	80 - 120	0.0090, RDL=0.0050	mg/L		
8777464	Total Ammonia (N)	2017/09/30	91	80 - 120	110	80 - 120	<0.0050	mg/L	0	20
8778275	Dissolved Chloride (Cl)	2017/09/29			97	80 - 120	<0.50	mg/L		
8778289	Dissolved Sulphate (SO4)	2017/09/29			97	80 - 120	<0.50	mg/L		
8778309	Dissolved Chloride (Cl)	2017/09/29			97	80 - 120	0.52, RDL=0.50	mg/L	NC	20
8778310	Dissolved Sulphate (SO4)	2017/09/29			94	80 - 120	<0.50	mg/L	NC	20
8779098	Dissolved Chloride (Cl)	2017/10/02			102	80 - 120	<0.50	mg/L	11	20
8779102	Dissolved Sulphate (SO4)	2017/10/02			100	80 - 120	<0.50	mg/L		
8780181	Dissolved Aluminum (Al)	2017/10/03			107	80 - 120	<0.00050	mg/L		
8780181	Dissolved Antimony (Sb)	2017/10/03			99	80 - 120	<0.000020	mg/L		
8780181	Dissolved Arsenic (As)	2017/10/03			99	80 - 120	<0.000020	mg/L		
8780181	Dissolved Barium (Ba)	2017/10/03			97	80 - 120	<0.000020	mg/L		
8780181	Dissolved Beryllium (Be)	2017/10/03			102	80 - 120	<0.000010	mg/L		

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

QUALITY ASSURANCE REPORT(CONT'D)

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8780181	Dissolved Bismuth (Bi)	2017/10/03			99	80 - 120	<0.0000050	mg/L		
8780181	Dissolved Boron (B)	2017/10/03			103	80 - 120	<0.010	mg/L		
8780181	Dissolved Cadmium (Cd)	2017/10/03			101	80 - 120	<0.0000050	mg/L		
8780181	Dissolved Chromium (Cr)	2017/10/03			101	80 - 120	<0.00010	mg/L		
8780181	Dissolved Cobalt (Co)	2017/10/03			98	80 - 120	<0.0000050	mg/L		
8780181	Dissolved Copper (Cu)	2017/10/03			100	80 - 120	<0.000050	mg/L		
8780181	Dissolved Iron (Fe)	2017/10/03			103	80 - 120	<0.0010	mg/L		
8780181	Dissolved Lead (Pb)	2017/10/03			97	80 - 120	<0.0000050	mg/L		
8780181	Dissolved Lithium (Li)	2017/10/03			100	80 - 120	<0.00050	mg/L		
8780181	Dissolved Manganese (Mn)	2017/10/03			92	80 - 120	<0.000050	mg/L		
8780181	Dissolved Molybdenum (Mo)	2017/10/03			99	80 - 120	<0.000050	mg/L		
8780181	Dissolved Nickel (Ni)	2017/10/03			99	80 - 120	<0.000020	mg/L		
8780181	Dissolved Phosphorus (P)	2017/10/03					<0.0020	mg/L		
8780181	Dissolved Selenium (Se)	2017/10/03			102	80 - 120	<0.000040	mg/L		
8780181	Dissolved Silicon (Si)	2017/10/03					<0.050	mg/L		
8780181	Dissolved Silver (Ag)	2017/10/03			106	80 - 120	<0.0000050	mg/L		
8780181	Dissolved Strontium (Sr)	2017/10/03			92	80 - 120	<0.000050	mg/L		
8780181	Dissolved Thallium (Tl)	2017/10/03			98	80 - 120	<0.0000020	mg/L		
8780181	Dissolved Tin (Sn)	2017/10/03			103	80 - 120	<0.00020	mg/L		
8780181	Dissolved Titanium (Ti)	2017/10/03			97	80 - 120	<0.00050	mg/L		
8780181	Dissolved Uranium (U)	2017/10/03			95	80 - 120	<0.0000020	mg/L		
8780181	Dissolved Vanadium (V)	2017/10/03			99	80 - 120	<0.00020	mg/L		
8780181	Dissolved Zinc (Zn)	2017/10/03			104	80 - 120	<0.00010	mg/L		

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

QUALITY ASSURANCE REPORT(CONT'D)

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8780181	Dissolved Zirconium (Zr)	2017/10/03			95	80 - 120	<0.00010	mg/L		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B784595
Report Date: 2017/10/04

Alexco Environmental Group Inc.
Client Project #: SURFACE WATER
Site Location: BREWERY CREEK

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam
A Bureau Veritas Group Company

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

CHAIN OF CUSTODY REC

COC #: 08445318

BBY FCD-00077/05

Page 1 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required
Company Name:	Alexco Environmental Group	Company Name:	ALEXCO ENVIRONMENTAL GROUP	Quotation #:		[x] Regular TAT 5 days (Most analyses)
Contact Name:	Accounts payable	Contact Name:	Leia Fougere	P.O. #/ AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	Unit 3 Calcite Business Centre, 151 Industri	Address:	UNIT 3 151 INDUSTRIAL RD	Project #:	Surface Water	Rush TAT (Surcharges will be applied)
	Whitehorse, YT PC: Y1A 2V3		Whitehorse, YK PC: V1A 2V3	Site Location:	Brewery Creek	[ ] Same Day [ ] 2 Days [ ] 1 Day [ ] 3 Days
Phone:	(604) 569-3634	Phone:	(867) 668-6463	Site #:		
Email:	ap@accessconsulting.ca	Email:	lfougere@accessconsulting.ca, mducharme@accessconsulting.ca	Sampled By:		Date Required:

Regulatory Criteria	Special Instructions
[ ] BC CSR Soil [ ] BC CSR Water	[ ] Return Cooler
[ ] CCME (Specify) [ ] Other (Specify)	[ ] Ship Sample Bottles (Please Specify)
[ ] Drinking Water [ ] BC Water Quality	USE SCENARIO # 14379

B784595_COC

Rush Confirmation #:

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	TSS	Ammonia - N	General (ph, Conductivity Alkalinity)	Anions (Cl, Sulfate, Nitrate)	TDS	Cyanide (Total and WAD)	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	BC-1		17-Sep-25	12:50	SW	x	x	x	x	x	x	x	x		
2															
3	BC-3		25-Sep-17	14:30	SW	x	x	x	x	x	x	x			
4	BC-4		26-Sep-17	10:40	SW	x	x	x	x	x	x	x			
5	BC-5		25-Sep-17	15:30	SW	x	x	x	x	x	x	x			
6	BC-6		25-Sep-17	9:30	SW	x	x	x	x	x	x	x	x		
7	BC-10		17-Sep-26	12:45	SW	x	x	x	x	x	x	x			
8	BC-12		17-Sep-26	~~11:00~~ 15:10	SW	x	x	x	x	x	x	x			
9	BC-15		17-Sep-26	~~15:20~~ 13:20	SW	x	x	x	x	x	x	x			
10															
11	BC-17		17-Sep-26	11:30	SW	x	x	x	x	x	x	x			
12															
13															

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
Y	Y	8,8,5
Y/Y	Y/Y	6,7,3/23,23,23
Y/Y	Y/Y	5,8,6/4,6,7

COOLING MEDIA PRESENT (Y) / N

COMMENTS

RECEIVED IN WHITEHORSE BY: [signature] at 13:30

2017-09-27

TEMP: 7 7 7 / 6 1 6 / 8 6 7 / 5 7 5

DUP samples are submited but not on the CoC

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
[signature]	2017/09/27		EVA SYKORA	2017/09/28	13:30	B784595

Maxxam
A Bureau Veritas Group Company

CHAIN OF CUSTODY RECORD

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #: 08445320

BBY FCD-00077/05

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Alexco Environmental Group	Company Name: ALEXCO ENVIRONMENTAL GROUP	Quotation #:	[x] Regular TAT 5 days (Most analyses)
Contact Name: Accounts payable	Contact Name: Leia Fougere	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: Unit 3 Calcite Business Centre, 151 Industria	Address: UNIT 3 151 INDUSTRIAL RD	Project #: Surface Water	Rush TAT (Surcharges will be applied)
Whitehorse, YT PC: Y1A 2V3	Whitehorse, YK PC: V1A 2V3	Site Location: Brewery Creek	[ ] Same Day [ ] 2 Days [ ] 1 Day [ ] 3 Days
Phone: (604) 569-3634	Phone: (867) 668-6463	Site #:	
Email: ap@accessconsulting.ca	Email: lfougere@accessconsulting.ca, mducharme@accessconsulting.ca	Sampled By:	Date Required:

Regulatory Criteria	Special Instructions
[ ] BC CSR Soil [ ] BC CSR Water	[ ] Return Cooler
[ ] CCME (Specify) [ ] Other (Specify)	[ ] Ship Sample Bottles (Please Specify)
[ ] Drinking Water [ ] BC Water Quality	USE SCENARIO # 14379

B784595_COC

Rush Confirmation #:

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	TSS	Ammonia - N	General (ph, Conductivity Alkalinity)	Anions (Cl, Sulfate, Nitrate)	TDS	Cyanide (Total and WAD)	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	LABORATORY USE ONLY: CUSTODY SEAL Y / N Present	CUSTODY SEAL Y / N Intact	COOLER TEMPERATURES	COMMENTS
1				16:45															
2	BC-28a		17-Sep-26	~~16:30~~	SW	x	x	x	x	x			x						
3	BC-28b		17-Sep-26	16:~~00~~30	SW	x	x	x	x	x			x						
4	BC-31		17-Sep-25	13:30	SW	x	x	x	x	x	x	x							
5	BC-34		17-Sep-26	9:30	SW	x	x	x	x	x	x	x							
6																			
7	BC-51W		17-Sep-26	15:27	SW	x	x	x	x	x	x	x							
8	BC-53		17-Sep-25	11:00	SW	x	x	x	x	x	x	x							
9	Field Blank		17-Sep-26	17:30	SW	x	x	x	x	x	x	x	x						
10	Trip Blank				SW	x	x	x	x	x	x	x	x						
11																			
12																			

RECEIVED IN WHITEHORSE
BY: [illegible] at 15:50
2017-09-27

TEMP: 7 7 7 / 6 6 6 / 8 6 7 / 5 7 5

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
[signature]	2017/09/27		Eva Sykora EVA SYKORA	2017/09/28	13:30	B784595

Your Project #: GPBC-13-01
Site Location: BREWERY CREEK
Your C.O.C. #: 08445781

Attention:Kai Woloshyn

Alexco Environmental Group Inc.
Unit 3 Calcite Business Centre
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 2V3

Report Date: 2017/10/23
Report #: R2465017
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B790768
Received: 2017/10/13, 16:20

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Low Level	9	2017/10/17	2017/10/17	BBY6SOP-00026	SM 22 2320 B m
Chloride - Low Level	9	N/A	2017/10/17	BBY6SOP-00011	SM 22 4500-Cl- E m
Cyanide SAD (strong acid dissociable)	8	N/A	2017/10/17	BBY6SOP-00004	SM 22 4500-CN O m
Cyanide WAD (weak acid dissociable)	8	N/A	2017/10/17	BBY6SOP-00004	SM 22 4500-CN O m
Conductance - Low Level	9	2017/10/17	2017/10/17	BBY6SOP-00026	SM 22 2510 B m
Hardness (calculated as CaCO3)	9	N/A	2017/10/18	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	9	N/A	2017/10/17	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance (as Cations/Anions Ratio)	6	N/A	2017/10/20	BBY WI-00033	Auto Calc
Ion Balance (as Cations/Anions Ratio)	3	N/A	2017/10/23	BBY WI-00033	Auto Calc
Ion Balance	6	N/A	2017/10/20	BBY WI-00033	SM 22 1030E
Ion Balance	3	N/A	2017/10/23	BBY WI-00033	SM 22 1030E
Sum of cations, anions	9	N/A	2017/10/20	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	9	N/A	2017/10/18	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	2	N/A	2017/10/17	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	7	N/A	2017/10/18	BBY7SOP-00002	EPA 6020B R2 m
Ammonia-N Low Level (Preserved)	9	N/A	2017/10/18	BBY6SOP-00009	EPA 350.1 m
Nitrate+Nitrite (N) (low level)	9	N/A	2017/10/17	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	9	N/A	2017/10/17	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N) Low Level Calc	9	N/A	2017/10/18	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	8	N/A	2017/10/18	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	9	2017/10/17	2017/10/17	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate - Low Level	6	N/A	2017/10/17	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate - Low Level	3	N/A	2017/10/18	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	9	2017/10/16	2017/10/18	BBY6SOP-00033	SM 22 2540 C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using

Your Project #: GPBC-13-01
Site Location: BREWERY CREEK
Your C.O.C. #: 08445781

Attention:Kai Woloshyn

Alexco Environmental Group Inc.
Unit 3 Calcite Business Centre
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 2V3

Report Date: 2017/10/23
Report #: R2465017
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B790768
Received: 2017/10/13, 16:20

accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Megan Smith, Project Manager
Email: msmith@maxxam.ca
Phone# (604) 734 7276

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SF5447		SF5448		SF5449		
Sampling Date		2017/10/12 14:20		2017/10/12 10:40		2017/10/12 09:35		
COC Number		08445781		08445781		08445781		
	UNITS	BC-19 LP	QC Batch	BC-21 LP	QC Batch	BC-27 LP	RDL	QC Batch
Calculated Parameters								
Anion Sum	meq/L	16	8794575	17	8794575	8.7	N/A	8794575
Cation Sum	meq/L	18	8794575	16	8794575	11	N/A	8794575
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD	ONSITE	FIELD		ONSITE
Ion Balance	N/A	1.1	8794573	0.94	8794573	1.2	0.010	8794573
Ion Balance (% Difference)	%	4.4	8794574	3.0	8794574	9.8	N/A	8794574
Nitrate (N)	mg/L	0.828	8795099	0.0138	8795099	<0.0020	0.0020	8795099
Misc. Inorganics								
Strong Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	8796285	<0.00050	8796285	<0.00050	0.00050	8796285
Weak Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	8796291	<0.00050	8796291	<0.00050	0.00050	8796291
Alkalinity (Total as CaCO3)	mg/L	289	8796685	279	8796685	151	0.50	8796685
Alkalinity (PP as CaCO3)	mg/L	<0.50	8796685	<0.50	8796685	<0.50	0.50	8796685
Bicarbonate (HCO3)	mg/L	353	8796685	340	8796685	184	0.50	8796685
Carbonate (CO3)	mg/L	<0.50	8796685	<0.50	8796685	<0.50	0.50	8796685
Hydroxide (OH)	mg/L	<0.50	8796685	<0.50	8796685	<0.50	0.50	8796685
Anions								
Dissolved Sulphate (SO4)	mg/L	491 (1)	8796803	526 (1)	8796803	274 (1)	5.0	8796803
Dissolved Chloride (Cl)	mg/L	0.76	8796802	1.2	8796802	0.63	0.50	8796802
Nutrients								
Total Ammonia (N)	mg/L	0.014	8797867	0.24	8797867	0.051	0.0050	8797867
Nitrate plus Nitrite (N)	mg/L	0.830	8797496	0.0138	8797490	<0.0020	0.0020	8797496
Nitrite (N)	mg/L	0.0021	8797498	<0.0020	8797491	<0.0020	0.0020	8797498
Physical Properties								
Conductivity	uS/cm	1370	8796683	1360	8796683	776	1.0	8796683
pH	pH	7.24	8796677	7.47	8796677	7.94		8796677
Physical Properties								
Total Dissolved Solids	mg/L	1050	8795288	1070	8795288	628	1.0	8795288

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SF5450		SF5451		SF5452		
Sampling Date		2017/10/12 15:44		2017/10/12 12:10		2017/10/12 09:45		
COC Number		08445781		08445781		08445781		
	UNITS	BC-66 LP	RDL	BC-67 LP	QC Batch	FIELD BLANK	RDL	QC Batch
Calculated Parameters								
Anion Sum	meq/L	7.9	N/A	5.7	8794575	0.0000	N/A	8794575
Cation Sum	meq/L	8.9	N/A	6.0	8794575	0.0032	N/A	8794575
Filter and HNO3 Preservation	N/A	FIELD		FIELD	ONSITE	FIELD		ONSITE
Ion Balance	N/A	1.1	0.010	1.1	8794573	NC	0.010	8794573
Ion Balance (% Difference)	%	21	N/A	2.7	8794574	NC	N/A	8794574
Nitrate (N)	mg/L	29.6	0.040	0.0040	8795099	<0.0020	0.0020	8795099
Misc. Inorganics								
Strong Acid Dissoc. Cyanide (CN)	mg/L	0.00488	0.00050	<0.00050	8796285	<0.00050	0.00050	8796285
Weak Acid Dissoc. Cyanide (CN)	mg/L	0.00225	0.00050	<0.00050	8796291	<0.00050	0.00050	8796291
Alkalinity (Total as CaCO3)	mg/L	252	0.50	227	8796685	<0.50	0.50	8796685
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	8796685	<0.50	0.50	8796685
Bicarbonate (HCO3)	mg/L	307	0.50	277	8796685	<0.50	0.50	8796685
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	8796685	<0.50	0.50	8796685
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	8796685	<0.50	0.50	8796685
Anions								
Dissolved Sulphate (SO4)	mg/L	30.6	0.50	52.6	8798458	<0.50	0.50	8796803
Dissolved Chloride (Cl)	mg/L	4.9	0.50	1.4	8796802	<0.50	0.50	8796802
Nutrients								
Total Ammonia (N)	mg/L	<0.0050	0.0050	0.033	8797867	<0.0050	0.0050	8797867
Nitrate plus Nitrite (N)	mg/L	29.6 (1)	0.040	0.0040	8797496	<0.0020	0.0020	8797490
Nitrite (N)	mg/L	<0.0020	0.0020	<0.0020	8797498	<0.0020	0.0020	8797491
Physical Properties								
Conductivity	uS/cm	746	1.0	515	8796683	1.1	1.0	8796683
pH	pH	8.12		7.71	8796677	5.50		8796677
Physical Properties								
Total Dissolved Solids	mg/L	432	1.0	286	8795288	1.2	1.0	8795288

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SF5453			SF5454		SF5455		
Sampling Date		2017/10/12 12:59			2017/10/12 10:00		2017/10/13 16:20		
COC Number		08445781			08445781		08445781		
	UNITS	BC-69D LP	RDL	QC Batch	DUP	RDL	TRIP BLANK	RDL	QC Batch
Calculated Parameters									
Anion Sum	meq/L	10	N/A	8794575	17	N/A	0.012	N/A	8794575
Cation Sum	meq/L	11	N/A	8794575	18	N/A	0.0030	N/A	8794575
Filter and HNO3 Preservation	N/A	FIELD		ONSITE	FIELD				ONSITE
Ion Balance	N/A	1.0	0.010	8794573	1.1	0.010	0.26 (1)	0.010	8794573
Ion Balance (% Difference)	%	2.3	N/A	8794574	2.9	N/A	59 (1)	N/A	8794574
Nitrate (N)	mg/L	0.0049	0.0020	8795099	0.0118	0.0020	<0.0020	0.0020	8795099
Misc. Inorganics									
Strong Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	0.00050	8796285	<0.00050	0.00050		0.00050	8796285
Weak Acid Dissoc. Cyanide (CN)	mg/L	<0.00050	0.00050	8796291	<0.00050	0.00050		0.00050	8796291
Alkalinity (Total as CaCO3)	mg/L	377	0.50	8796685	284	0.50	0.58	0.50	8796685
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8796685	<0.50	0.50	<0.50	0.50	8796685
Bicarbonate (HCO3)	mg/L	460	0.50	8796685	346	0.50	0.71	0.50	8796685
Carbonate (CO3)	mg/L	<0.50	0.50	8796685	<0.50	0.50	<0.50	0.50	8796685
Hydroxide (OH)	mg/L	<0.50	0.50	8796685	<0.50	0.50	<0.50	0.50	8796685
Anions									
Dissolved Sulphate (SO4)	mg/L	135	0.50	8798458	545 (2)	5.0	<0.50	0.50	8796803
Dissolved Chloride (Cl)	mg/L	2.3	0.50	8796802	1.5	0.50	<0.50	0.50	8796802
Nutrients									
Total Ammonia (N)	mg/L	0.020	0.0050	8797867	0.26	0.0050	<0.0050	0.0050	8797867
Nitrate plus Nitrite (N)	mg/L	0.0098	0.0020	8797496	0.0118	0.0020	<0.0020	0.0020	8797496
Nitrite (N)	mg/L	0.0049	0.0020	8797498	<0.0020	0.0020	<0.0020	0.0020	8797498
Physical Properties									
Conductivity	uS/cm	872	1.0	8796683	1420	1.0	1.1	1.0	8796683
pH	pH	7.73		8796677	7.53		5.53		8796677
Physical Properties									
Total Dissolved Solids	mg/L	528	1.0	8795288	1110	1.0	<1.0	1.0	8795288

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).

(2) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SF5447	SF5448	SF5449	SF5450	SF5451		
Sampling Date		2017/10/12 14:20	2017/10/12 10:40	2017/10/12 09:35	2017/10/12 15:44	2017/10/12 12:10		
COC Number		08445781	08445781	08445781	08445781	08445781		
	UNITS	**BC-19 LP**	**BC-21 LP**	**BC-27 LP**	**BC-66 LP**	**BC-67 LP**	**RDL**	**QC Batch**
Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	843	752	522	417	292	0.50	8794237
Elements								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8795706
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	0.00327	0.00202	0.00092	0.00104	0.00088	0.00050	8795782
Dissolved Antimony (Sb)	mg/L	0.000178	0.000166	0.00205	0.000132	0.0938	0.000020	8795782
Dissolved Arsenic (As)	mg/L	0.000519	0.0205	0.112	0.000481	0.00573	0.000020	8795782
Dissolved Barium (Ba)	mg/L	0.00520	0.0141	0.00970	0.0477	0.0586	0.000020	8795782
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8795782
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8795782
Dissolved Boron (B)	mg/L	0.027	0.030	<0.010	<0.010	0.011	0.010	8795782
Dissolved Cadmium (Cd)	mg/L	0.00136	0.0000711	0.0000666	0.0000241	0.000161	0.0000050	8795782
Dissolved Chromium (Cr)	mg/L	0.00022	0.00026	0.00015	0.00018	0.00064	0.00010	8795782
Dissolved Cobalt (Co)	mg/L	0.00154	0.00395	0.000177	0.0702	0.00311	0.0000050	8795782
Dissolved Copper (Cu)	mg/L	0.000267	0.000642	0.000214	0.000198	0.000880	0.000050	8795782
Dissolved Iron (Fe)	mg/L	0.0051	0.659	1.58	0.0027	0.109	0.0010	8795782
Dissolved Lead (Pb)	mg/L	0.0000254	0.0000646	0.0000106	0.0000096	0.0000314	0.0000050	8795782
Dissolved Lithium (Li)	mg/L	0.0413	0.0410	0.0112	0.0217	0.00690	0.00050	8795782
Dissolved Manganese (Mn)	mg/L	0.568	2.23	0.234	0.000490	0.550	0.000050	8795782
Dissolved Molybdenum (Mo)	mg/L	<0.000050	0.000414	0.0113	0.000168	0.00210	0.000050	8795782
Dissolved Nickel (Ni)	mg/L	0.00526	0.00622	0.00239	0.000438	0.0279	0.000020	8795782
Dissolved Phosphorus (P)	mg/L	0.0241	0.0042	0.0640	0.0058	0.0161	0.0020	8795782
Dissolved Selenium (Se)	mg/L	0.00615	0.000545	<0.000040	0.0181	<0.000040	0.000040	8795782
Dissolved Silicon (Si)	mg/L	7.69	5.00	3.82	4.82	4.28	0.050	8795782
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8795782
Dissolved Strontium (Sr)	mg/L	0.571	0.524	0.770	0.388	0.309	0.000050	8795782
Dissolved Thallium (Tl)	mg/L	0.0000548	0.0000172	0.0000098	0.0000136	0.000142	0.0000020	8795782
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8795782
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8795782
Dissolved Uranium (U)	mg/L	0.00108	0.00266	0.0123	0.00115	0.00861	0.0000020	8795782
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8795782
RDL = Reportable Detection Limit								

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SF5447	SF5448	SF5449	SF5450	SF5451		
Sampling Date		2017/10/12 14:20	2017/10/12 10:40	2017/10/12 09:35	2017/10/12 15:44	2017/10/12 12:10		
COC Number		08445781	08445781	08445781	08445781	08445781		
	UNITS	BC-19 LP	BC-21 LP	BC-27 LP	BC-66 LP	BC-67 LP	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.0404	0.110	0.0268	0.00101	0.0694	0.00010	8795782
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8795782
Dissolved Calcium (Ca)	mg/L	188	160	125	78.4	69.8	0.050	8794349
Dissolved Magnesium (Mg)	mg/L	90.5	85.9	51.2	53.7	28.5	0.050	8794349
Dissolved Potassium (K)	mg/L	2.80	3.25	1.45	2.58	1.94	0.050	8794349
Dissolved Sodium (Na)	mg/L	12.9	8.28	1.94	12.4	2.00	0.050	8794349
Dissolved Sulphur (S)	mg/L	173	157	104	10.6	17.3	3.0	8794349

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SF5452	SF5453	SF5454	SF5455		
Sampling Date		2017/10/12 09:45	2017/10/12 12:59	2017/10/12 10:00	2017/10/13 16:20		
COC Number		08445781	08445781	08445781	08445781		
	UNITS	FIELD BLANK	BC-69D LP	DUP	TRIP BLANK	RDL	QC Batch
Misc. Inorganics							
Dissolved Hardness (CaCO3)	mg/L	<0.50	530	870	<0.50	0.50	8794237
Elements							
Dissolved Mercury (Hg)	mg/L	0.0000021	<0.0000020	<0.0000020	<0.0000020	0.0000020	8795706
Dissolved Metals by ICPMS							
Dissolved Aluminum (Al)	mg/L	<0.00050	0.00075	0.00336	<0.00050	0.00050	8795782
Dissolved Antimony (Sb)	mg/L	<0.000020	0.00560	0.000243	<0.000020	0.000020	8795782
Dissolved Arsenic (As)	mg/L	<0.000020	0.0397	0.0235	<0.000020	0.000020	8795782
Dissolved Barium (Ba)	mg/L	<0.000020	0.0244	0.0180	<0.000020	0.000020	8795782
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000014	<0.000010	0.000010	8795782
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8795782
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.035	<0.010	0.010	8795782
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.000368	0.0000955	<0.0000050	0.0000050	8795782
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00069	0.00039	<0.00010	0.00010	8795782
Dissolved Cobalt (Co)	mg/L	<0.0000050	0.000642	0.00416	<0.0000050	0.0000050	8795782
Dissolved Copper (Cu)	mg/L	<0.000050	<0.000050	0.000856	<0.000050	0.000050	8795782
Dissolved Iron (Fe)	mg/L	<0.0010	0.0381	0.898	<0.0010	0.0010	8795782
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000093	0.0000866	<0.0000050	0.0000050	8795782
Dissolved Lithium (Li)	mg/L	<0.00050	0.00873	0.0472	<0.00050	0.00050	8795782
Dissolved Manganese (Mn)	mg/L	<0.000050	0.317	2.54	<0.000050	0.000050	8795782
Dissolved Molybdenum (Mo)	mg/L	<0.000050	0.00110	0.000613	<0.000050	0.000050	8795782
Dissolved Nickel (Ni)	mg/L	<0.000020	0.00810	0.00730	<0.000020	0.000020	8795782
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0102	0.0060	<0.0020	0.0020	8795782
Dissolved Selenium (Se)	mg/L	<0.000040	0.000777	0.000799	<0.000040	0.000040	8795782
Dissolved Silicon (Si)	mg/L	<0.050	3.06	6.33	<0.050	0.050	8795782
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8795782
Dissolved Strontium (Sr)	mg/L	<0.000050	0.482	0.615	<0.000050	0.000050	8795782
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000837	0.0000202	<0.0000020	0.0000020	8795782
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8795782
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8795782
Dissolved Uranium (U)	mg/L	<0.0000020	0.00412	0.00317	<0.0000020	0.0000020	8795782
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8795782
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID		SF5452	SF5453	SF5454	SF5455		
Sampling Date		2017/10/12 09:45	2017/10/12 12:59	2017/10/12 10:00	2017/10/13 16:20		
COC Number		08445781	08445781	08445781	08445781		
	UNITS	FIELD BLANK	BC-69D LP	DUP	TRIP BLANK	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	<0.00010	0.0938	0.113	<0.00010	0.00010	8795782
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8795782
Dissolved Calcium (Ca)	mg/L	<0.050	94.7	184	<0.050	0.050	8794349
Dissolved Magnesium (Mg)	mg/L	<0.050	71.3	100	<0.050	0.050	8794349
Dissolved Potassium (K)	mg/L	<0.050	6.39	3.91	<0.050	0.050	8794349
Dissolved Sodium (Na)	mg/L	<0.050	2.70	10.1	<0.050	0.050	8794349
Dissolved Sulphur (S)	mg/L	<3.0	41.7	190	<3.0	3.0	8794349

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

TEST SUMMARY

Maxxam ID: SF5447
Sample ID: BC-19 LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8796285	N/A	2017/10/17	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8796291	N/A	2017/10/17	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/20	David Huang
Ion Balance	CALC	8794574	N/A	2017/10/20	David Huang
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/18	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797496	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797498	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/10/16	Terry Shore
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo
Sulphate - Low Level	KONE/COL	8796803	N/A	2017/10/17	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam ID: SF5447 Dup
Sample ID: BC-19 LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/18	Andrew An

Maxxam ID: SF5448
Sample ID: BC-21 LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8796285	N/A	2017/10/17	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8796291	N/A	2017/10/17	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/20	David Huang
Ion Balance	CALC	8794574	N/A	2017/10/20	David Huang
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

TEST SUMMARY

Maxxam ID: SF5448
Sample ID: BC-21 LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/18	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797490	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797491	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/10/16	Terry Shore
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo
Sulphate - Low Level	KONE/COL	8796803	N/A	2017/10/17	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam ID: SF5449
Sample ID: BC-27 LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8796285	N/A	2017/10/17	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8796291	N/A	2017/10/17	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/20	David Huang
Ion Balance	CALC	8794574	N/A	2017/10/20	David Huang
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/18	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797496	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797498	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/10/16	Terry Shore
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo
Sulphate - Low Level	KONE/COL	8796803	N/A	2017/10/17	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam ID: SF5450
Sample ID: BC-66 LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8796285	N/A	2017/10/17	Tatyana Serzhanova

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

TEST SUMMARY

Maxxam ID: SF5450
Sample ID: BC-66 LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Cyanide WAD (weak acid dissociable)	TECH/COL	8796291	N/A	2017/10/17	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/23	Automated Statchk
Ion Balance	CALC	8794574	N/A	2017/10/23	Automated Statchk
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/18	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797496	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797498	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/10/16	Terry Shore
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo
Sulphate - Low Level	KONE/COL	8798458	N/A	2017/10/18	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam ID: SF5451
Sample ID: BC-67 LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8796285	N/A	2017/10/17	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8796291	N/A	2017/10/17	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/23	Automated Statchk
Ion Balance	CALC	8794574	N/A	2017/10/23	Automated Statchk
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/18	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797496	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797498	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/10/16	Terry Shore
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo
Sulphate - Low Level	KONE/COL	8798458	N/A	2017/10/18	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

TEST SUMMARY

Maxxam ID: SF5452
Sample ID: FIELD BLANK
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8796285	N/A	2017/10/17	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8796291	N/A	2017/10/17	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/20	David Huang
Ion Balance	CALC	8794574	N/A	2017/10/20	David Huang
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/17	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797490	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797491	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/10/16	Terry Shore
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo
Sulphate - Low Level	KONE/COL	8796803	N/A	2017/10/17	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam ID: SF5453
Sample ID: BC-69D LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8796285	N/A	2017/10/17	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8796291	N/A	2017/10/17	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/23	Automated Statchk
Ion Balance	CALC	8794574	N/A	2017/10/23	Automated Statchk
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/18	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797496	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797498	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/10/16	Terry Shore
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

TEST SUMMARY

Maxxam ID: SF5453
Sample ID: BC-69D LP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sulphate - Low Level	KONE/COL	8798458	N/A	2017/10/18	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam ID: SF5454
Sample ID: DUP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Cyanide SAD (strong acid dissociable)	TECH/COL	8796285	N/A	2017/10/17	Tatyana Serzhanova
Cyanide WAD (weak acid dissociable)	TECH/COL	8796291	N/A	2017/10/17	Tatyana Serzhanova
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/20	David Huang
Ion Balance	CALC	8794574	N/A	2017/10/20	David Huang
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/18	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797496	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797498	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2017/10/16	Terry Shore
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo
Sulphate - Low Level	KONE/COL	8796803	N/A	2017/10/17	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam ID: SF5454 Dup
Sample ID: DUP
Matrix: Water

Collected: 2017/10/12
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/18	2017/10/18	Casey Larson

Maxxam ID: SF5455
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2017/10/13
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Chloride - Low Level	KONE/COL	8796802	N/A	2017/10/17	Balwinder Bassi
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

TEST SUMMARY

Maxxam ID: SF5455
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2017/10/13
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness (calculated as CaCO3)	CALC	8794237	N/A	2017/10/18	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8795706	N/A	2017/10/17	Edwin Lamigo
Ion Balance (as Cations/Anions Ratio)	CALC	8794573	N/A	2017/10/20	David Huang
Ion Balance	CALC	8794574	N/A	2017/10/20	David Huang
Sum of cations, anions	CALC	8794575	N/A	2017/10/20	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8794349	N/A	2017/10/18	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8795782	N/A	2017/10/17	Andrew An
Ammonia-N Low Level (Preserved)	KONE/COL	8797867	N/A	2017/10/18	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8797496	N/A	2017/10/17	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8797498	N/A	2017/10/17	Isaac Wang
Nitrogen - Nitrate (as N) Low Level Calc	CALC	8795099	N/A	2017/10/18	Automated Statchk
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo
Sulphate - Low Level	KONE/COL	8796803	N/A	2017/10/17	Balwinder Bassi
Total Dissolved Solids - Low Level	BAL/BAL	8795288	2017/10/16	2017/10/18	Casey Larson

Maxxam ID: SF5455 Dup
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2017/10/13
Shipped:
Received: 2017/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Low Level	AT/ALK	8796685	2017/10/17	2017/10/17	Coco Guo
Conductance - Low Level	AT/ALK	8796683	2017/10/17	2017/10/17	Coco Guo
pH Water	AT/ALK	8796677	2017/10/17	2017/10/17	Coco Guo

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

GENERAL COMMENTS

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

Package 1	0.7°C

Sample SF5447 [BC-19 LP] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SF5448 [BC-21 LP] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SF5449 [BC-27 LP] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SF5450 [BC-66 LP] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SF5451 [BC-67 LP] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SF5452 [FIELD BLANK] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level). Ion Balance: NC = Not Calculable due to low ion sum [< 0.4 meq/L].

Sample SF5453 [BC-69D LP] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SF5454 [DUP] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Sample SF5455 [TRIP BLANK] : Sample was analyzed past method specified hold time for Nitrate+Nitrite (N) (low level). {Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.} Sample was analyzed past method specified hold time for Nitrite (N) (low level).

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

QUALITY ASSURANCE REPORT

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8795288	Total Dissolved Solids	2017/10/18	101	80 - 120	103	80 - 120	<1.0	mg/L	0.36	20
8795706	Dissolved Mercury (Hg)	2017/10/17	104	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8795782	Dissolved Aluminum (Al)	2017/10/18	112	80 - 120	111	80 - 120	<0.00050	mg/L	11	20
8795782	Dissolved Antimony (Sb)	2017/10/18	102	80 - 120	100	80 - 120	<0.000020	mg/L	2.2	20
8795782	Dissolved Arsenic (As)	2017/10/18	103	80 - 120	98	80 - 120	<0.000020	mg/L	1.6	20
8795782	Dissolved Barium (Ba)	2017/10/18	98	80 - 120	98	80 - 120	<0.000020	mg/L	1.3	20
8795782	Dissolved Beryllium (Be)	2017/10/18	97	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8795782	Dissolved Bismuth (Bi)	2017/10/18	96	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8795782	Dissolved Boron (B)	2017/10/18	97	80 - 120	97	80 - 120	<0.010	mg/L	1.3	20
8795782	Dissolved Cadmium (Cd)	2017/10/18	98	80 - 120	101	80 - 120	<0.0000050	mg/L	1.0	20
8795782	Dissolved Chromium (Cr)	2017/10/18	96	80 - 120	97	80 - 120	<0.00010	mg/L	3.4	20
8795782	Dissolved Cobalt (Co)	2017/10/18	92	80 - 120	97	80 - 120	<0.0000050	mg/L	0.0065	20
8795782	Dissolved Copper (Cu)	2017/10/18	86	80 - 120	96	80 - 120	<0.000050	mg/L	5.4	20
8795782	Dissolved Iron (Fe)	2017/10/18	97	80 - 120	105	80 - 120	<0.0010	mg/L	1.7	20
8795782	Dissolved Lead (Pb)	2017/10/18	97	80 - 120	98	80 - 120	<0.0000050	mg/L	1.2	20
8795782	Dissolved Lithium (Li)	2017/10/18	NC	80 - 120	103	80 - 120	<0.00050	mg/L	0.73	20
8795782	Dissolved Manganese (Mn)	2017/10/18	NC	80 - 120	96	80 - 120	<0.000050	mg/L	2.7	20
8795782	Dissolved Molybdenum (Mo)	2017/10/18	106	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8795782	Dissolved Nickel (Ni)	2017/10/18	89	80 - 120	98	80 - 120	<0.000020	mg/L	0.33	20
8795782	Dissolved Phosphorus (P)	2017/10/18					<0.0020	mg/L	1.6	20
8795782	Dissolved Selenium (Se)	2017/10/18	104	80 - 120	107	80 - 120	<0.000040	mg/L	3.3	20
8795782	Dissolved Silicon (Si)	2017/10/18					<0.050	mg/L	2.8	20
8795782	Dissolved Silver (Ag)	2017/10/18	103	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8795782	Dissolved Strontium (Sr)	2017/10/18	NC	80 - 120	95	80 - 120	<0.000050	mg/L	1.7	20
8795782	Dissolved Thallium (Tl)	2017/10/18	99	80 - 120	100	80 - 120	<0.0000020	mg/L	4.5	20
8795782	Dissolved Tin (Sn)	2017/10/18	97	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8795782	Dissolved Titanium (Ti)	2017/10/18	99	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8795782	Dissolved Uranium (U)	2017/10/18	101	80 - 120	95	80 - 120	<0.0000020	mg/L	0.16	20
8795782	Dissolved Vanadium (V)	2017/10/18	100	80 - 120	95	80 - 120	<0.00020	mg/L	NC	20
8795782	Dissolved Zinc (Zn)	2017/10/18	NC	80 - 120	102	80 - 120	<0.00010	mg/L	1.2	20
8795782	Dissolved Zirconium (Zr)	2017/10/18	100	80 - 120	94	80 - 120	<0.00010	mg/L	NC	20

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

QUALITY ASSURANCE REPORT(CONT'D)

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8796285	Strong Acid Dissoc. Cyanide (CN)	2017/10/17	103	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8796291	Weak Acid Dissoc. Cyanide (CN)	2017/10/17			103	80 - 120	<0.00050	mg/L		
8796677	pH	2017/10/17			101	97 - 103			0.36	20
8796683	Conductivity	2017/10/17			100	80 - 120	<1.0	uS/cm	1.8	20
8796685	Alkalinity (PP as CaCO3)	2017/10/17					<0.50	mg/L	NC	20
8796685	Alkalinity (Total as CaCO3)	2017/10/17	102	80 - 120	101	80 - 120	<0.50	mg/L	7.1	20
8796685	Bicarbonate (HCO3)	2017/10/17					<0.50	mg/L	7.1	20
8796685	Carbonate (CO3)	2017/10/17					<0.50	mg/L	NC	20
8796685	Hydroxide (OH)	2017/10/17					<0.50	mg/L	NC	20
8796802	Dissolved Chloride (Cl)	2017/10/17			98	80 - 120	<0.50	mg/L		
8796803	Dissolved Sulphate (SO4)	2017/10/17			99	80 - 120	0.67, RDL=0.50	mg/L		
8797490	Nitrate plus Nitrite (N)	2017/10/17	NC	80 - 120	104	80 - 120	<0.0020	mg/L	0.12	25
8797491	Nitrite (N)	2017/10/17	98	80 - 120	97	80 - 120	<0.0020	mg/L	9.5	25
8797496	Nitrate plus Nitrite (N)	2017/10/17	104	80 - 120	103	80 - 120	<0.0020	mg/L	NC	25
8797498	Nitrite (N)	2017/10/17	97	80 - 120	97	80 - 120	<0.0020	mg/L	NC	25
8797867	Total Ammonia (N)	2017/10/18	90	80 - 120	103	80 - 120	<0.0050	mg/L	20	20
8798458	Dissolved Sulphate (SO4)	2017/10/18			98	80 - 120	<0.50	mg/L		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

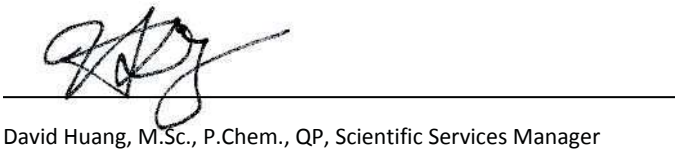
Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B790768
Report Date: 2017/10/23

Alexco Environmental Group Inc.
Client Project #: GPBC-13-01
Site Location: BREWERY CREEK
Sampler Initials: CH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam
A Bureau Veritas Group Company

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

CHAIN OF CUSTO[DY]

CO[C] 08445781

BBY FCD-00077/05

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required
Company Name:	ALEXCO ENVIRONMENTAL	Company Name:	ALEXCO ENVIRONMENTAL	Quotation #:		[x] Regular TAT 5 days (Most analyses)
Contact Name:	Kai Woloshyn	Contact Name:	KAI WOLOSHYN	P.O. #/ AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	UNIT 3 151 INDUSTRIAL RD	Address:	UNIT 3 151 INDUSTRIAL RD	Project #:	GPBC-13-01	Rush TAT (Surcharges will be applied)
	Whitehorse, YK PC: V1A 2V3		Whitehorse, YK PC: V1A 2V3	Site Location:	Brewery Creek	[ ] Same Day [ ] 2 Days [ ] 1 Day [ ] 3 Days
Phone:	(867) 668-6463	Phone:	(867) 668-6463	Site #:		
Email:	ap@accessconsulting.ca	Email:	kwoloshyn@alexcoresource.com	Sampled By:	C.Henry, M.Heynen	Date Required:

Regulatory Criteria	Special Instructions
[ ] BC CSR Soil [ ] BC CSR Water	[ ] Return Cooler
[ ] CCME (Specify) [ ] Other (Specify)	[ ] Ship Sample Bottles (Please Specify)
[ ] Drinking Water [ ] BC Water Quality	USE SCENARIO # 12485

Rush Confirmation #:

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TDS	ANIONS (Cl, SO4, NO2, NO3)	AMMONIA	CYANIDE (SAD & WAD)	ROUTINE (Cond., pH, Alkalinity)	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	BC-19 LP		2017/10/12	14:20	Water	x	x	x	x	x	x	7	
2	BC-21 LP		2017/10/12	10:40	Water	x	x	x	x	x	x	7	
3													
4	BC-27 LP		2017/10/12	9:35	Water	x	x	x	x	x	x	7	
5													
6	BC-66 LP		2017/10/12	15:44	Water	x	x	x	x	x	x	7	
7	BC-67 LP		2017/10/12	12:10	Water	x	x	x	x	x	x	7	
8	Field Blank		2017/10/12	9:45	Water	x	x	x	x	x	x	7	
9	BC-69D LP		2017/10/12	12:59	Water	x	x	x	x	x	x	7	
10	Dup		2017/10/12	10:00	Water	x	x	x	x	x	x	7	
11	Trip Blank		n/a	n/a	Water	x	x	x	x	x	x	7	

LABORATORY USE ONLY

CUSTODY SEAL (Y) / N		COOLER TEMPERATURES
Present	Intact	
Y	Y	4,2,5

COOLING MEDIA PRESENT (Y) / N

COMMENTS

RECEIVED IN WHITEHORSE
BY: [signature] 16:20
2017 -10- 13
TEMP: 1 Ø 1

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Catherine Henry	13/10/2017	16:30	GLORA CHAN	2017/10/16	09:22
Catherine Henry					

B790768_COC

APPENDIX C

FIELD REPORTS

3 Calcite Business Centre, 151 Industrial Road
Whitehorse, Yukon Y1A 2V3
Phone (867) 668-6463 Fax (867) 633-4882
www.accessconsulting.ca

Memorandum

To:	Yukon Water Board
From:	Andrew MacPhail, Alexco Environmental Group
CC:	Janet Lee Sheriff, Golden Predator
	Leia Fougere, Alexco Environmental Group
Date:	July 18, 2017
Re:	Brewery Creek QZ96-007 2017 WUL Semi- Annual Compliance Environmental Data Collection

1 INTRODUCTION

This letter report describes the field work conducted for Golden Predator Canada Corp. (GPCC) at the Brewery Creek Property by Alexco Environmental Group (AEG) on June 20th, 2017, as required under Schedule B-3 of Water Licence QZ96-007, Amendment 8.

AEG personnel Andrew MacPhail and Alex Zheng deployed from Whitehorse to Brewery Creek on June 20th by truck. The objective of this trip was to complete water quality and discharge, or level monitoring, as required under WUL QZ96-007, Amendment 8 Shedule B-3 for sites scheduled as semi-annual including BC-28, BC-28A, BC-28B, BC-65 and BC-66.

Water quality samples, in-situ observations, discharge measurements and level observations were completed over one day, June 20th, 2017 and AEG personnel returned to Whitehorse on June 22th, 2017. Results for water licence compliance site are reported below and in a separate spreadsheets titled “GPBC Field Data June 2017” and “Brewery Creek June 2017 Lab Results”

2 COMPLIANCE MINE WATER MONITORING

BC-28 was not flowing as there is no discharge from pond 3: the water level was low and appears to be quite stagnant. Ducks were spotted at BC-28 upon the arrival of the field staff. No sample for BC-28 was taken but In-situ field measurements were collected. BC-28A is the discharge from the heap into the first pond which is by way of a valve. The valve was opened at 1330h and sampled at 1424h to purge the line as much as possible. BC-28B was sampled on the southeast side of the pond as the overflow channel to pond 3 was not flowing.

All water samples were preserved and filtered in the field, except for dissolved metals which are done in the lab, and kept cool with ice packs prior to shipping to Maxxam Analytics Inc. All sites were analyzed for the following parameters:

- Total suspended and dissolved solids;
- Ammonia;
- Cyanide;
- Total and dissolved metals (suite of 33 metals, at low level detection limits).

QA/QC samples were collected or prepared as follows:

- A trip blank was carried throughout the trip and analysed at Maxxam for quality assurance;
- A field blank was collected and BC-66 on June 20th for quality control and assurance;
- A duplicate sample was collected at BC-28A and labelled "Field Duplicate".

Lab results from Maxxam Analytics are contained in a separate spreadsheet titled "Brewery Creek June 2017 Lab Results" submitted to the Yukon Water Board via Waterline.

2.1 IN-SITU WATER QUALITY DATA

In-situ field measurements were collected using a YSI multimeter that was calibrated prior to the trip with dissolved oxygen being calibrated daily. Table 1 presents those results.

Table 1 Baseline Surface In Situ Data

Station	Date	Time	Temp (ºC)	DO (%)	DO (mg/L)	SPC (µS/cm)	pH	ORP (mV)	Comments
BC-28	**20-Jun-17**	**13:45**	**17.0**	**95**	**8.2**	**1244**	**7.61**	**342.7**	**Pond not discharging. Water levels appear to be quite stagnant, no water being discharged into pond. Ducks on pond at time of arrival**
BC-28A	20-Jun-17	14:24	4.1	100	11.8	3541	8.05	294.4	Purged from 1330h to 1444h, valve reclosed
BC-28B	20-Jun-17	14:00	18.5	117	9.9	3226	8.14	340.4	Sampled from Pond 2 south east side

3 COMPLIANCE GROUNDWATER MONITORING

BC-65 and BC-66 "land application piezometers" were visited on June 20th and a sample was obtained from BC-66 while the water in BC-65 was too deep for the pump to be effective. Well conditions are contained in

Table 2.

Table 2 Baseline Groundwater Well Conditions June 2017

Station	Date	Time	Depth to Water (m)	Total Depth (m)	Samples Collected (Y/N)	Volume Purged (L)	Method	Comments
BC-65	20-Jul-17	14:56	59.067	66.805	N	-	Pump	Attempted purging but unable to get water from well - too deep for pump.
BC-66	20-Jul-17	15:45	45.948	66.713	Y	130	Pump	Parameters stable prior to sampling

All water samples were preserved and filtered in the field, and kept cool with ice packs prior to shipping to Maxxam Analytics Inc. All sites were analyzed for the following parameters:

- Routine parameters (conductivity, pH, alkalinity, hardness);
- Total suspended solids;
- Ammonia;
- Anions (nitrite, nitrate, chloride, sulphate);
- Cyanide (Weak Acid Dissociable and Total); and
- Dissolved metals (suite of 33 metals, at low level detection limits).

QA/QC samples were collected or prepared as follows:

- A trip blank was carried throughout the trip and analysed at Maxxam for quality assurance;
- A field blank was collected and BC-66 on June 20th for quality control and assurance;

Lab results from Maxxam Analytics are contained in a separate spreadsheet titled “Brewery Creek June 2017 Lab Results” submitted to the Yukon Water Board via Waterline.

3.1 IN SITU DATA

In-situ field measurements were collected using a YSI multimeter that was calibrated prior to the trip with dissolved oxygen being calibratded daily (Table 3). Data were obtained from a bucket while water was being pumped in after the desired purge volume was reached.

Table 3 Groundwater In Situ Data

Station	Date	Time	Temp (ºC)	DO (%)	DO (mg/L)	SPC (µS/cm)	pH	ORP (mV)
BC-66	20-Jun-17	16:31	4.8	4	0.5	742.9	7.41	324.6

4 PHOTOGRAPHS

Photographs were taken throughout the trip and are stored digitally on a cloud based server. Below is a selection of highlights. More photos are available upon request.

Photo 1: Discharge Channel into BC-28, dry

Photo 2: BC-28A, flowing

Photo 3: Dry overflow channel into Pond 3, BC-28B

Photo 4: Pond 3 near sample site BC-28

Photo 5: BC-65 groundwater well

Photo 6: Pumping BC-66

5 CLOSURE

We trust that this letter report satisfactorily describes those activities carried out to ensure compliance of Golden Predator with the terms of Water Licence QZ96-007, Amendment 8 and those sites specified to be sampled semi-annually. The annual sampling will be carried out later in the year. Please do not hesitate to contact AEG with any question you may have.

3 Calcite Business Centre, 151 Industrial Road
Whitehorse, Yukon Y1A 2V3
Phone (867) 668-6463 Fax (867) 633-4882
www.accessconsulting.ca

Memorandum

To: Yukon Water Board

From: Catherine Henry, Alexco Environmental Group Inc.

CC: Janet Lee Sheriff and Mike Burke, Golden Predator Mining Corp.

Date: October 31, 2017

Re: Brewery Creek QZ96-007 WUL Compliance Environmental Data Collection, September-October 2017

1 INTRODUCTION

This letter report describes the field work conducted at the Brewery Creek Property in September and October 2017, as required under Schedule B-3 of Water Licence QZ96-007, Amendment 8. The first trip to site was carried out on September 25th and 26th by Jillian Chown, during which the surface water and mine water sites were sampled. A second trip was carried out by Alexco Environmental Group Inc. (AEG) employees Mitchell Heynen and Catherine Henry on October 12th, during which the groundwater wells were sampled.

The objectives of the trips were to complete water quality and discharge, or level monitoring, as required under WUL QZ96-007, Amendment 8 Shedule B-3.

2 SURFACE WATER QUALITY AND HYDROLOGY

During the 2017 annual sampling event, the following surface water sites listed in Schedule B-3 of WUL QZ96-007 Amendment 8 were visited and sampled accordingly: BC-1, BC-3, BC-4, BC-5, BC-6, BC-31, BC-34, BC-39, and BC-53.

Samples were analyzed for the following parameters:

- Routine parameters (conductivity, pH, alkalinity, hardness, hydroxide, carbonate);
- Total suspended and dissolved solids (TSS/TDS);
- Ammonia;

- Anions (nitrite, nitrate, fluoride, sulphate, chloride, bromide, ortho-phosphate);
- Cyanide (Weak Acid Dissociable and Total) where applicable; and
- Total and dissolved metals (suite of 33 metals, including all parameters found in the CCME and MMER guidelines).

Lab results from Maxxam Analytics are contained in a separate spreadsheet provided to the Yukon Water Board via Waterline titled "Brewery Creek Sept/Oct 2017 Lab Results".

2.1 IN-SITU SURFACE WATER QUALITY DATA

In-situ field measurements were collected using a Hanna HI 9828 multimeter. Table 1 presents those results.

Table 1 Baseline Surface In Situ Data, September 2017

Station	Date	Time	Temp (ºC)	DO (%)	DO (mg/L)	SPC (µS/cm)	pH	ORP (mV)
BC-1	25-Sep-2017	12:20	3.3	99.0	12.6	438	9.01	-12.8
BC-3	26-Sep-2017	14:34	3.2	86.7	10.82	440	8.90	-13.8
BC-4	26-Sep-2017	10:40	1.5	92.4	11.82	331	8.13	-22.0
BC-5	26-Sep-2017	15:30	n/a	n/a	n/a	n/a	n/a	n/a
BC-6	25-Sep-2017	9:30	4.9	92.3	11.33	405	8.60	-20.9
BC-31	25-Sep-2017	13:30	3.4	99	12.34	426	8.94	-11.6
BC-34	26-Sep-2017	9:30	3.1	94.5	11.95	274	8.46	-11.0
BC-39	25-Sep-2017	10:40	Dry (channel moved)					
BC-53	25-Sep-2017	11:00	3.5	103.1	12.92	377	9.93	-18.9

2.2 HYDROMETRIC DATA

The traditional velocity-area method (VA) was used for discharge measurements at all stations, utilizing a Hach FH950 electromagnetic velocity meter. Staff gauge observations (where applicable) are the median number between the start and end of the discharge measurement.

Discharge measurements conducted at surface water sites during the trip are presented in Table 2

Table 2 Discharge Measurements, September 2017

Station	Date	Time	Staff Gauge (m)	Discharge (m^3/sec)	Method
BC-1	25-Sep-2017	12:31	0.392	0.1472	VA
BC-3	25-Sep-2017	14:44	n/a	0.1269	VA
BC-4	26-Sep-2017	10:50	n/a	0.0260	VA
BC-5	26-Sep-2017	15:40	n/a	1.8859	VA
BC-31	25-Sep-2017	13:45	0.689	1.0987	VA
BC-34	26-Sep-2017	10:15	n/a	2.2957	VA
BC-53	25-Sep-2017	11:44	n/a	0.1385	VA

3 GROUNDWATER MONITORING

There are six single groundwater wells plus three nested installations for a total of 12 groundwater monitoring wells, which require annual sampling under QZ96-007. Six wells were sampled successfully, as the remainder were dry or obstructed. A Grundfos submersible pump was used to obtain samples from the wells. Table 3 below outlines the conditions at each well, the sampling method and the purge volume.

Table 3 Baseline Groundwater well conditions, October 2017

Station	Date	Time	Depth to Water (m)	Total Depth (m)	Volume Purged (L)	Samples Collected (Y/N)	Method	Comments
BC-19	12-Oct-2017	14:20	37.356	58.011	130	Y	Pump	-
BC-21	12-Oct-2017	10:40	53.325	81.060	170	Y	Pump	Levelogger downloaded
BC-22	12-Oct-2017	16:45	41.806	120.750*	100	N	Pump	Pump failed – unable to purge sufficient volume. Dead animal (weasel?) in well. Hair on pump head and strong sewage odor.
BC-27	12-Oct-2017	9:35	8.666	17.670	60	Y	Pump	-
BC-65	12-Oct-2017	15:07	DRY	66.63	-	N	-	-
BC-66S	12-Oct-2017	14:38	DRY	17.160	-	N	-	-
BC-66D	12-Oct-2017	15:44	47.368	127.362*	470	Y	Pump	-
BC-67	12-Oct-2017	12:10	38.027	51.860	85	Y	Pump	-
BC-68D	12-Oct-2017	13:45	59.938	76.560	-	N	-	Obstructed
BC-68S	12-Oct-2017	13:40	DRY	32.000	-	N	-	-
BC-69D	12-Oct-2017	12:59	36.162	41.748	35	Y	Pump	-
BC-69S	12-Oct-2017	12:38	DRY	16.051	-	N	-	-

**Estimated (from September 2016)*

All samples were filtered and preserved at the time of collection where needed. Samples were kept cool prior to and during transport back to Maxxam Analytics' expediting office in Whitehorse. Samples were analyzed for the following parameters:

- Routine parameters (conductivity, pH, alkalinity, hardness, hydroxide, carbonate);
- Total suspended and dissolved solids;
- Ammonia;
- Anions (nitrite, nitrate, fluoride, sulphate, chloride, bromide, ortho-phosphate);
- Cyanide (Weak Acid Dissociable and Total); and
- Dissolved metals (suite of 33 metals, at low level detection limits).

QA/QC samples were collected or prepared as follows:

- Field duplicates – A set of duplicate samples (full suite of parameters) was collected at station BC-21 and labeled "Dup". Duplicate samples were collected at the same time as the regular samples.
- Field blanks – A set of field blanks were processed at station BC-21 and labelled "Field Blank". The DI water batch number was #100517-1005.
- Trip blank – Trip blanks provided by Maxxam were carried throughout the trip and were not opened. The batch number was #B785752_17.10.2 for general chemistry and NH_4, #B787521_17.10.5 for metals and B787531_17.10.5 for mercury.

Lab results from Maxxam Analytics are contained in a separate spreadsheet provided to the Yukon Water Board via Waterline titled "Brewery Creek Sept/Oct 2017 Lab Results".

3.1 IN SITU GROUNDWATER QUALITY DATA

In-situ field measurements were collected using a YSI multimeter that was calibrated prior to the trip with dissolved oxygen (DO) calibrated on site. Results are provided in Table 4.

Table 4 Baseline Groundwater In Situ Data, October 2017

Station	Date	Time	Temp (ºC)	DO (%)	DO (mg/L)	SPC (µS/cm)	pH	ORP (mV)
BC-19	12-Oct-2017	14:20	1.5	10.2	1.30	1333	7.08	148.7
BC-21	12-Oct-2017	10:40	1.5	8.0	1.02	1393	7.04	35.2
BC-27	12-Oct-2017	9:35	3.1	11.0	1.29	863	8.12	-50.7
BC-66D	12-Oct-2017	15:44	2.7	4.6	0.56	774.4	7.29	49.3
BC-67	12-Oct-2017	12:10	4.4	8.9	1.05	491.4	7.30	49.2
BC-69D	12-Oct-2017	12:59	3.4	7.5	0.88	828.7	7.02	75.9

4 COMPLIANCE MINE WATER MONITORING

There are twelve mine water related sites that require monitoring under QZ96-007 including pit water/discharge and effluent from the heap. Seven of those twelve sites had water present. Several are reclaimed areas that no longer have runoff or standing water. Those sites with "discharge" in their description tend to only have standing pit water. Finally, one additional site, BC-70 which is a shallow subsurface water lysimeter does not fit the surface or ground water definition. BC-70 was dry. It is not known why BC-70 fails to accumulate water, the above ground installation has been checked for obvious damage.

Some observations from sites visited:

- Lucky pit and dump sites, BC-18N and BC-18S, do not have water present. These sites have been reclaimed; BC-18N is a dry flat area and BC-18S is a grassy reclaimed hillslope with trees starting to fill in.

- Pacific gulch, BC-16, is the overflow draining from Pacific pit. This channel is dry and appears to have been for some time. Previous evidence of spring runoff eroding the road and flowing down this gulch has been repaired, but this water would not be associated with Pacific Pit.

- BC-11, Blue Waste Dump, is a reclaimed waste rock storage area with a 0.5 meter soil cover with no signs of surface water running at any time of year, it is being rapidly reclaimed by trees.

- BC-28 was observed at the waypoint for this site which is a culvert on the access road below Pond #3 (overflow pond). Pond 3 does have water but this water infiltrates rather than flowing from the pond.

Samples were kept cool prior to and during transport back to Maxxam Analytics' expediting office in Whitehorse. All sites were analyzed for the following parameters with the exception of effluent sites (BC-28, BC-28A and BC-28B) for which anions, alklainity, routine, dissolved metals and TDS are not measured:

- Routine parameters (conductivity, pH, alkalinity, hardness, hydroxide, carbonate);

- Total suspended and dissolved solids;

- Ammonia;

- Anions (nitrite, nitrate, fluoride, sulphate, chloride, bromide, ortho-phosphate); and

- Total and dissolved metals (suite of 33 metals, at low level detection limits).

QA/QC samples were collected or prepared as follows:

- Field duplicates – A set of duplicate samples (full suite of parameters) was collected at station BC-17.

Lab results from Maxxam Analytics are contained in a separate spreadsheet provided to the Yukon Water Board via Waterline titled "Brewery Creek Sept/Oct 2017 Lab Results".

4.1 IN SITU DATA

In-situ field measurements were collected using a Hanna HI 9828 multimeter. Table 4 presents these results.

Table 5 Compliance Surface and Mine-Realted Sites In Situ Data, September 2017

Station	Date	Time	Temp (ºC)	DO (%)	DO (mg/L)	SPC (µS/cm)	pH	ORP (mV)
BC-10	26-Sep-2017	12:45	8.7	62.2	6.4	374	8.76	-20.3
BC-12	26-Sep-2017	15:10	9.8	73.1	7.48	961	7.10	-7.5
BC-15	26-Sep-2017	13:20	8.2	63.3	6.57	847	8.55	-11.2
BC-17	26-Sep-2017	11:30	7.9	52.1	5.32	506	8.73	-17.4
BC-28	26-Sep-2017	16:10	-	-	-	-	-	-
BC-28A	26-Sep-2017	16:45	10.5	94.1	9.47	1546	9.55	-10.8
BC-28B	26-Sep-2017	16:30	10.2	69.2	7.01	1926	8.68	-4.2
BC-51W	26-Sep-2017	15:27	8.9	66	6.98	567	3.24	n/a

5 PHOTOGRAPHS

Photographs taken to document site conditions are presented below.

Photo 1: BC-31

Photo 2: BC-4

Photo 3: BC-12

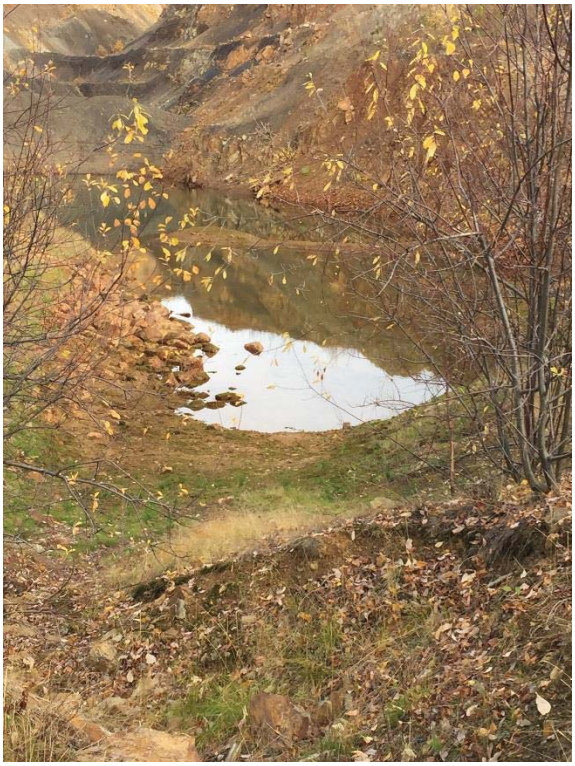


Photo 4: BC-17

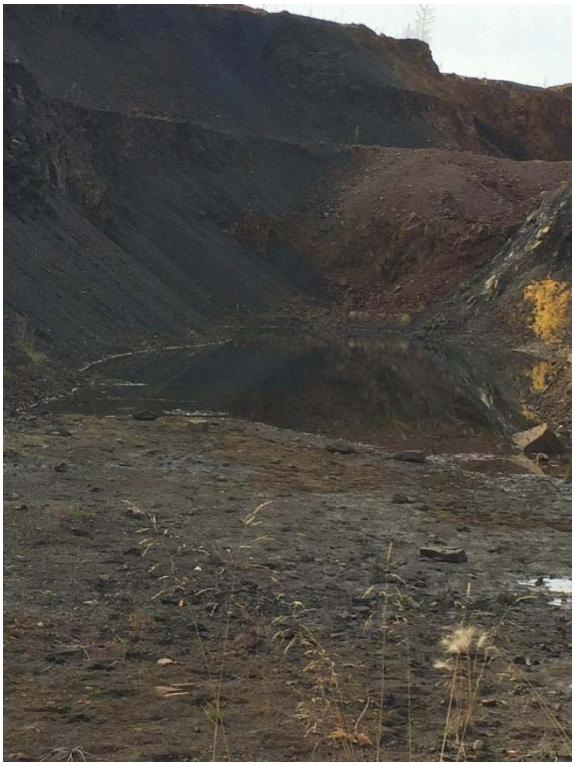


Photo 5: BC-51W

Photo 6: BC-15

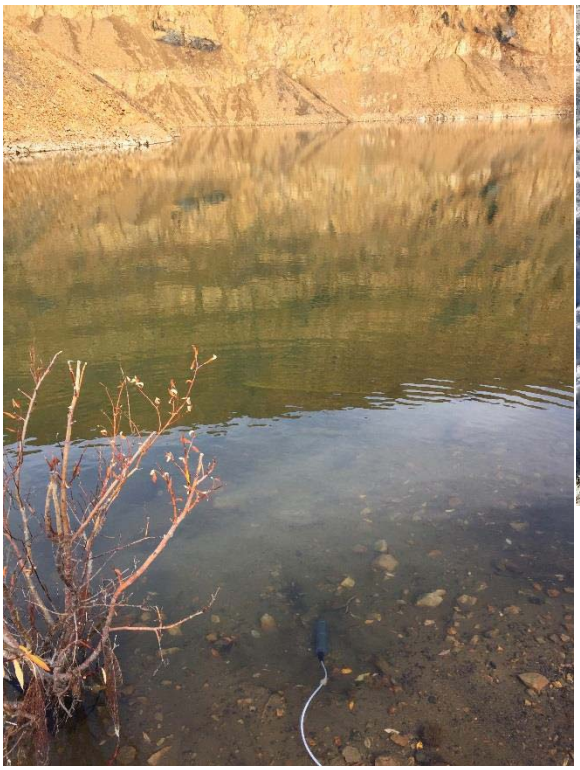


Photo 7: BC-10

Photo 8: BC-70