GOLDEN PREDATOR EXPLORATION LTD.

BREWERY CREEK MINE

2018 ANNUAL WATER LICENCE REPORT

SUBMITTED TO THE YUKON WATER BOARD

WATER USE LICENCE QZ96-007

2018 ANNUAL QUARTZ MINING LICENSE REPORT

SUBMITTED TO YUKON GOVERNMENT, ENERGY MINES AND RESOURCES

YUKON QUARTZ MINING LICENSE A99-001

February 2019

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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 temporary closure began in 2002. The mine has been temporary closed and reclaimed. Certain Mine infrastructure was left in place in anticipation of future mine operations including certain plumbing facilities located beneath the heap leach pad, certain access roads, and concrete foundations for the ADR plant, the power plant, the former assay lab, and other support buildings previously used in operations of the Mine. The mine temporary 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 2018 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 2018, 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 2018:

June/July 2018

- Site inspection;
- Collection of level logger data; and
- Annual compliance surface water and groundwater monitoring.

September 2018

- Site inspection;
- Geotechnical Inspection; and
- Semi-Annual compliance surface water/groundwater.

The annual sampling event, usually occurring in September of each year, occurred in July because the camp was open and able to accommodate sampling personnel. The semi-annual event therefore took place in September.

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 2018.

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.*

Figure 3-1: Brewery Creek Water Quality Sampling Station Locations

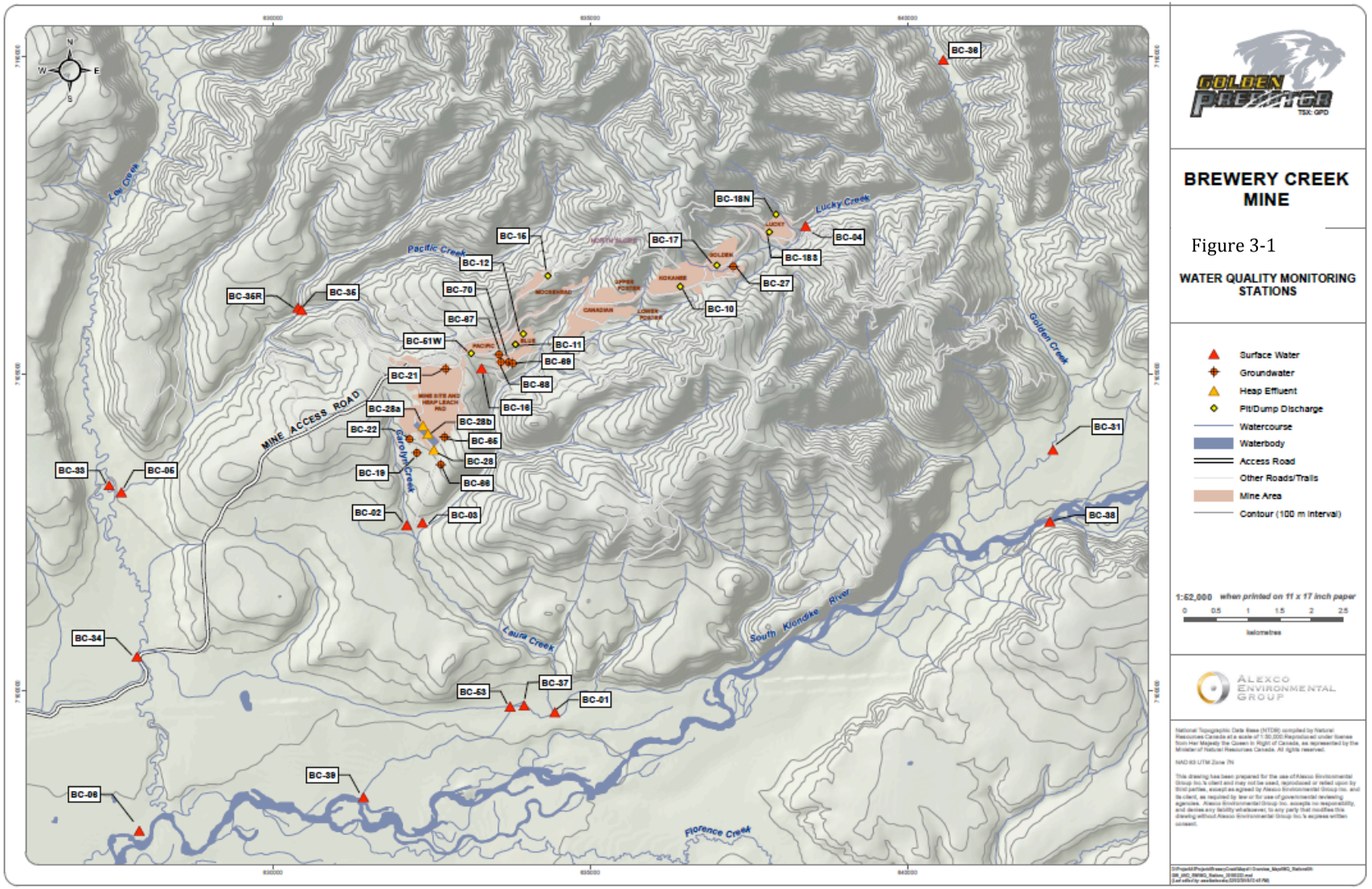

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Figure 3-1

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)

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0 0.5 1 1.5 2 2.5

kilometres

ALEXCO ENVIRONMENTAL GROUP

NAD 83 UTM Zone 7N

3.3.3 *Surface Water Quality Results*

Please see Appendix A Brewery Creek Mine 2018 Monitoring Water Quality Assessment. Appendix D contains photos from 2018 sampling event.

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*

Like surface water monitoring, groundwater monitoring at Brewery Creek has transitioned to the temporary 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. This year, they were conducted in the summer. The amount of environmental monitoring at BC-19, BC-21, BC-22, BC-65 and BC-66 has reduced in frequency since temporary closure of the heap has been accomplished and the drain down solutions treated. Similarly, since temporary closure of the Blue Waste Rock Storage area (WRSA) 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 therefore do not require monitoring. Data are presented graphically in Appendix A. Note that where results were below the MDL, half of the MDL was used in the graphs. Further, a summary of the semi-annual sampling is located in Appendix B (conducted by TetraTech EBA 2018).

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 2018, 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 and it was sampled in the 2018 compliance event.

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 2018 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 2018; 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. [September 2018]

3.6 BIOASSAY MONITORING

Bioassays were not collected during 2018 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 2018 during the annual monitoring event in June/July 2018. 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 3-2.

Table 3-2 Summary of 2018 Stream Flow Measurements

Station	Discharge (L/s) June/July 2018
BC-1	Bear in area
BC-3	111
BC-4	27
BC-5	2147
BC-31	690
BC-34	2623
BC-39	Dry
BC-53	133

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 2018, 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 temporary 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 2018. 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, water fowl, as well as a wolf sighting and 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. The next study is required in 2019.

5 REAGENT AND WASTE MANAGEMENT

5.1 SPILL OCCURRENCE AND RESPONSE

There were no reportable spills that occurred in 2018.

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 2018. 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 2018, 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 2018, and samples were collected from BC-28a and BC-28b.

The 2018 geotechnical inspection, Appendix C, 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, an inspection was completed in 2018 by Tetra Tech EBA in 2018 (Appendix C).

8 CONCLUSION

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

- There was no direct release of solution in 2018. 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 2018 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 2018 sampling event.
- The wells BC-65 and BC-66 (1/2), are compliance points for the site. BC-65 was dry in 2018. BC-66(2) is the deeper well and water levels and samples were collected in July and September 2018. 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.
- No contaminants of potential 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 generally been lower since 2009.
- The 2004 fire event increased the nitrate concentrations in Laura and Carolyn Creeks, as well as in Lee and Pacific Creeks, and 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 – 2018.

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

2018 WATER QUALITY MONITORING ASSESSMENT REPORT

Brewery Creek Mine

2018 Monitoring Water Quality Assessment

February 24, 2019

Prepared for:

GOLDEN PREDATOR EXPLORATION LTD.

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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. 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. 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 transferred, from Viceroy to Alexco Resource Corp. In 2012 Golden Predator Corp. (now Golden Predator Exploration Ltd.) 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 2018 water quality monitoring program carried out by Golden Predator at the Brewery Creek Mine pursuant to the conditions of the licence 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 2018 data relative to historical conditions. The 2018 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 (Figure 1-1).

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 in winter. Carolyn Creek joins Laura Creek roughly two kilometres from its headwaters, with both eventually flowing to the South Klondike River via a wetland area in lower Laura Creek. Laura and Carolyn Creeks were the historical receivers of mine effluents discharged 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.

1.1 SCOPE

Water quality data was collected by Jillian Chown of Golden Predator on June 26 – 28, 2018 and July 14 – 15, 2018 from multiple surface and groundwater monitoring sites, as per the water license (Table 1-1). A second data collection event occurred on September 18, 2018 and was conducted by Darren Thomas and Cole Fischer from Tetra Tech Canada Inc. Three surface water sites and two groundwater wells were sampled during this second event (Table 1-1).

BC-1 could not be sampled due to the presence of a bear at the sampling site, while the groundwater wells BC-66s and BC-67 were too dry to be sampled during the June/July monitoring events. The BC-65 well was dry when Tetra Tech attempted to sample in September, therefore no sample was obtained. Monitoring at BC-68 and BC-70 could not be carried out, and has not been performed since 2015 BC-2 and BC-39 was not sampled because one was dry (BC-02) and the other (BC-39) because of the lack of a safe landing spot nearby for the helicopter.

Table 1-1: Sample Collection Dates and Sites for 2018 Monitoring Season

Sampled by	Date	Sites Sampled
Jillian Chown, Permitting and Environment, Golden Predator Mining Corp.	June 26 – 28, 2018	BC-10, BC-12, BC-15, BC-17, BC-3, BC-31, BC-34, BC-4, BC-5, BC-51W, BC-53, BC-6, BC-28, BC-28a, BC-28b, BC-27, BC-66, BC-66s, BC-67
Jillian Chown, Permitting and Environment, Golden Predator Mining Corp.	July 14, 15, 2018	BC-21, BC-19, BC-22
Darren Thomas and Cole Fischer, Tetra Tech Canada Inc.	September 18, 2018	BC-28, BC-28a, BC-28b, BC-65, BC-66

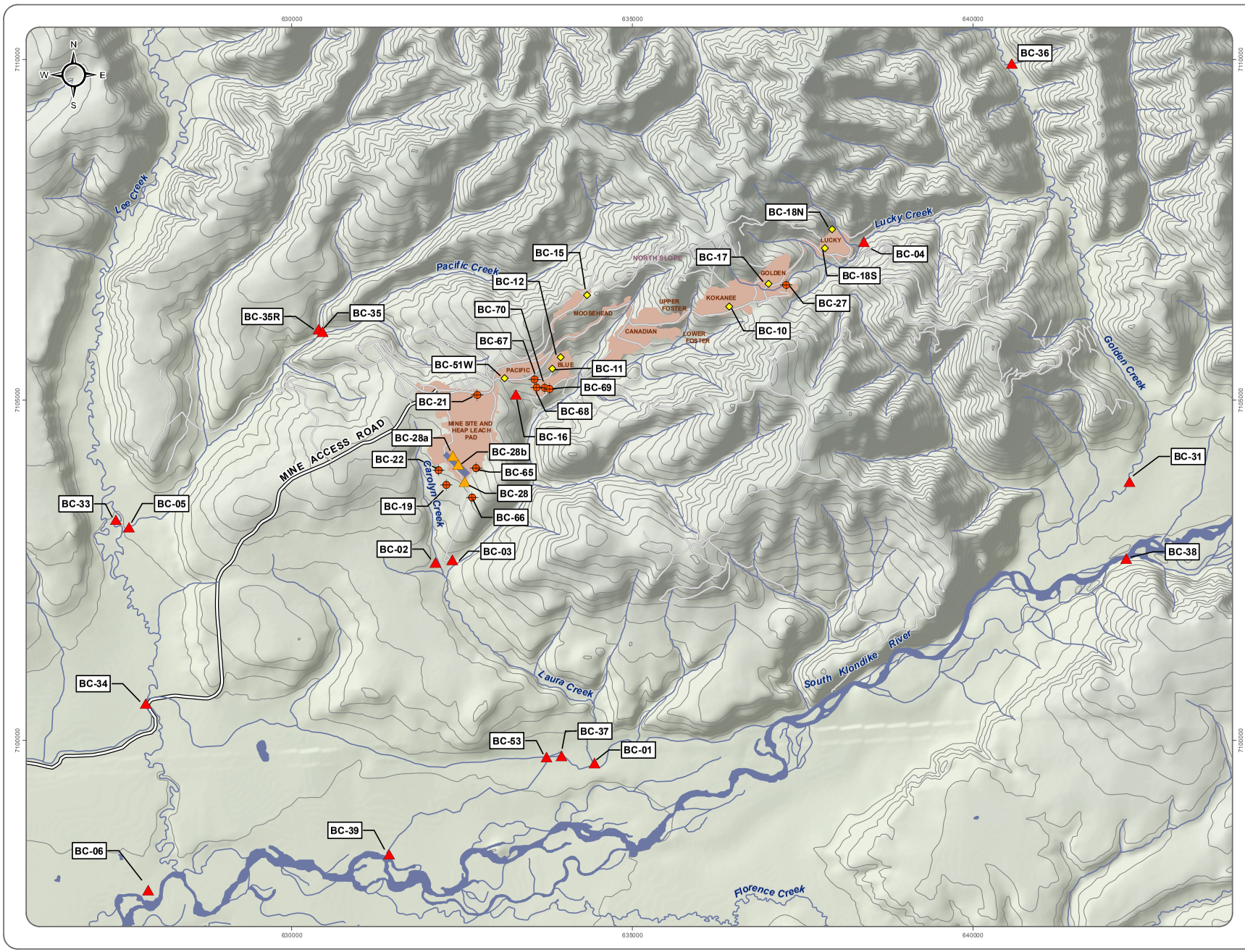

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FIGURE 1-1

WATER QUALITY MONITORING STATIONS

- Surface Water
- Groundwater
- Heap Effluent
- Pit/Dump Discharge
- Watercourse
- Waterbody
- Access Road
- Other Roads/Trails
- Mine Area
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2. SURFACE WATER QUALITY MONITORING PROGRAM

Environmental monitoring at Brewery Creek has transitioned to the post-closure phase, which in 2018 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. Water quality sampling was performed as required by Schedule B of Water Licence QZ96-007, and the tabulated results from sampling conducted in 2018 are provided in Appendix A.

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., 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 *	mg/L	CWQG	varies
Lead *	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 (Table 2-2). 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 2018 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, and the 2018 surface water and groundwater data are plotted with the historic data collected in Appendix B and C, respectively.

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 (Table 3-1). 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 2018. 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).

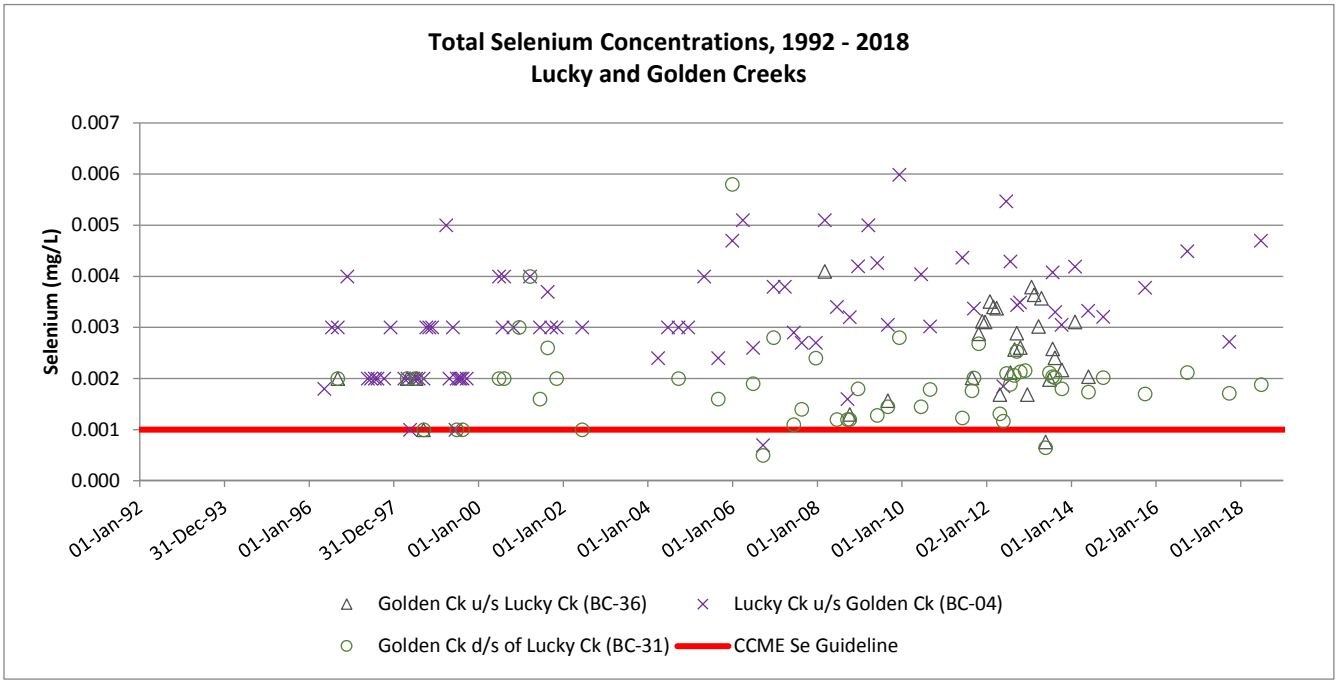

Figure 3-1 Selenium Concentrations on Lucky and Golden Creeks (1992-2018)

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 Figure 3-2. 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 (0.0002 to 0.0025 mg/L) have remained well below the Ontario preliminary water quality objective (PWQO) for antimony (0.020 mg/L).

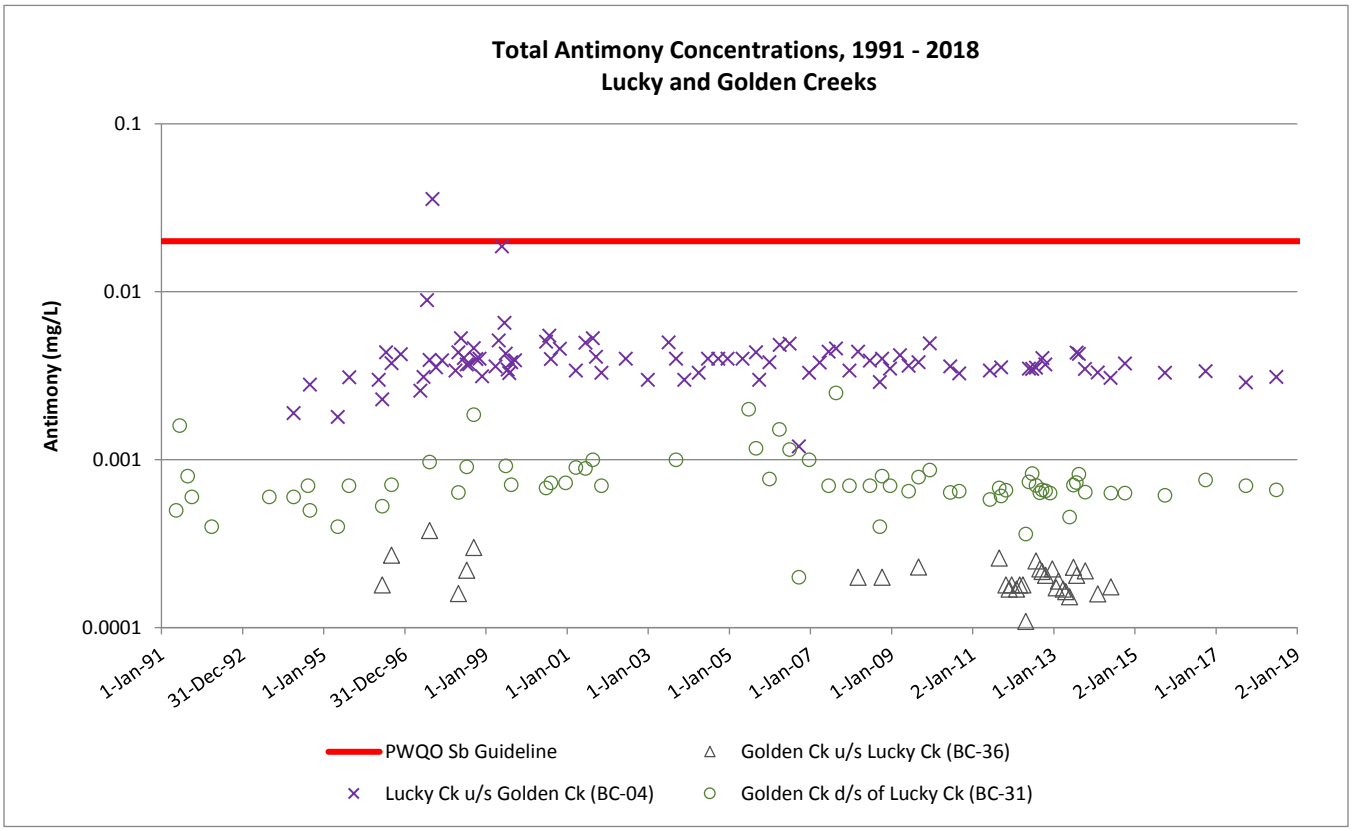

Figure 3-2 Antimony Concentrations on Lucky and Golden Creeks (1991-2018). Note Log Scale.

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 Figure 3-3. Arsenic concentrations were consistent through all three mine phases. Results at BC-04 ranged from 0.0010 to 0.1680 mg/L were at or near the CCME guideline (0.005 mg/L), exceeding the guideline in approximately 40% of all samples collected. Arsenic concentrations in the Golden Creek receiving environment (BC-31) remained below the CCME guideline at all times, ranging from 0.00010 to 0.00345 mg/L.

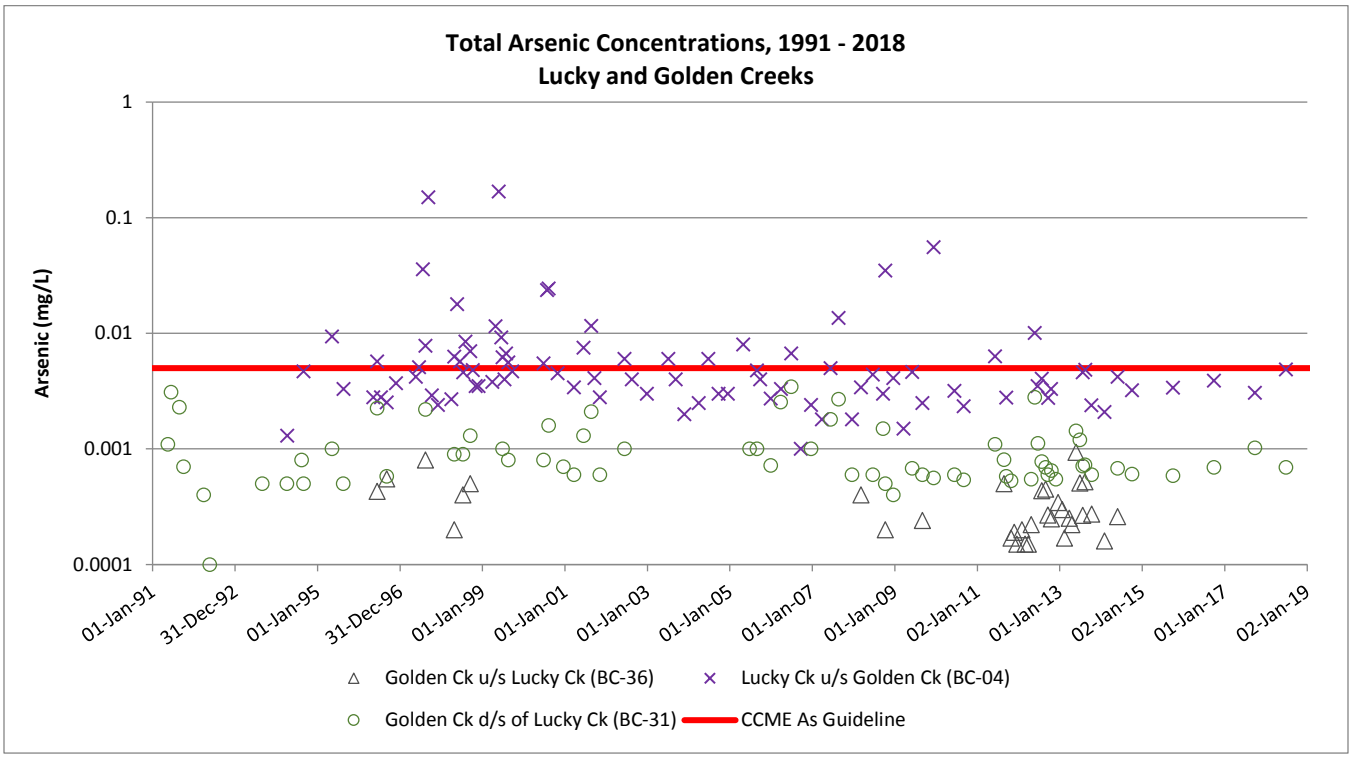

Figure 3-3 Arsenic Concentrations on Lucky and Golden Creeks (1991-2018). Note Log Scale.

3.1.4 LUCKY AND GOLDEN CREEKS SUMMARY

Water quality data collected in the Lucky and Golden Creek watershed was relatively stable 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. Nitrate concentrations in 2018 at BC-31 (7.4 mg/L) were in exceedance of the CCME guideline (3.0 mg/L). Variance analysis conducted on the data collected at BC-31 in July 2018 indicates that the nitrate and nitrite values are anomalously high, 73% and 62% higher than historic values (1991-2017), respectively. Further, this is the only exceedance of the guideline since data collection began in 1991, which had previously ranged from 0.010 to 0.426 mg/L, and suggests either a temporary condition within the creek or a sampling error.

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 reported in Table 3-2. 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 2018.

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.

3.2.1 SELENIUM

The interpretation of selenium results obtained from 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 0.001 mg/L). Although it is known that these values are below the CCME guideline of 0.001 mg/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 – 2015 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 Figure 3-4, 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 2018 exceeded the background condition in the downstream receiver on Lee Creek (BC-34), although the results were in excess of the CCME guideline.

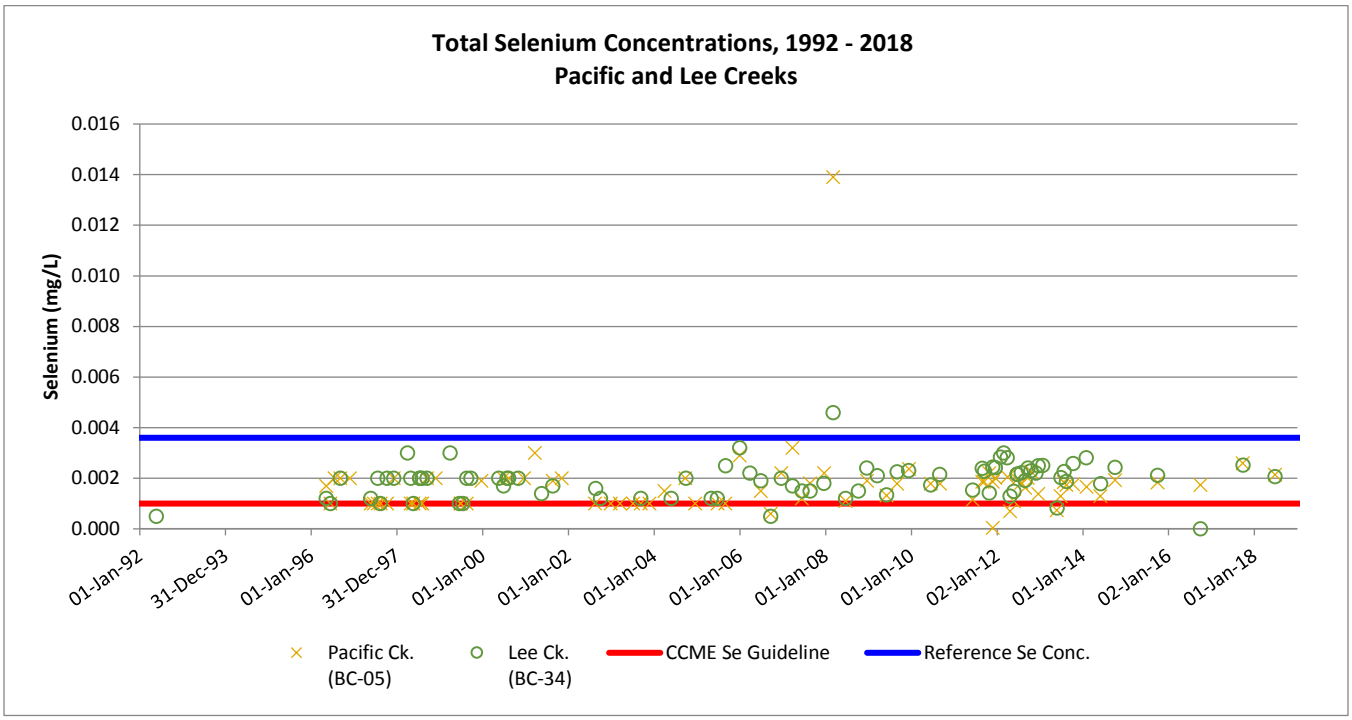

Figure 3-4 Selenium Concentrations on Lee and Pacific (1992-2018)

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 Figure 3-5. 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 2018 exceeded the Ontario PWQO for antimony in the downstream receiver on Lee Creek.

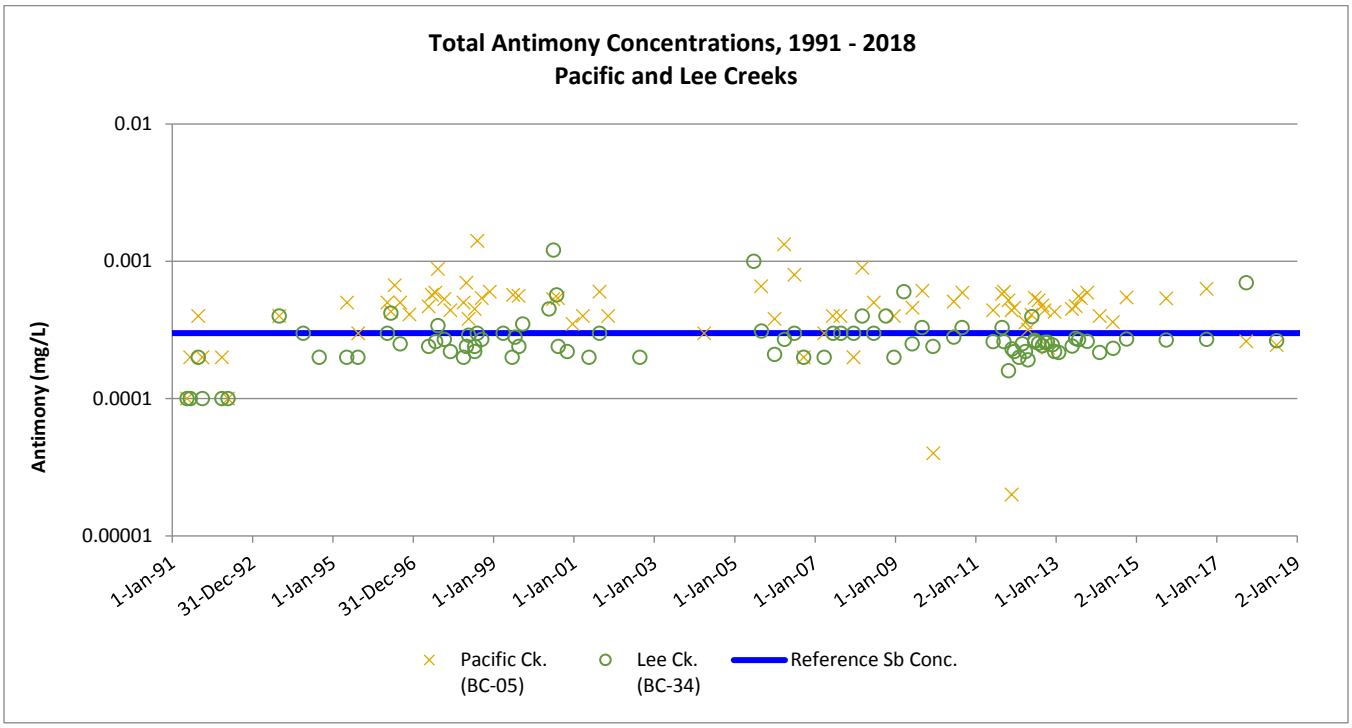

Figure 3-5 Antimony Concentrations on Lee and Pacific Creeks (1991-2018) Note Log Scale

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 the reference in Pacific Creek on any occasions prior to mining, as shown on Figure 3-6.. None of the results obtained in 2018 exceeded the CCME guideline for arsenic in the downstream receiver on Lee or Pacific Creeks.

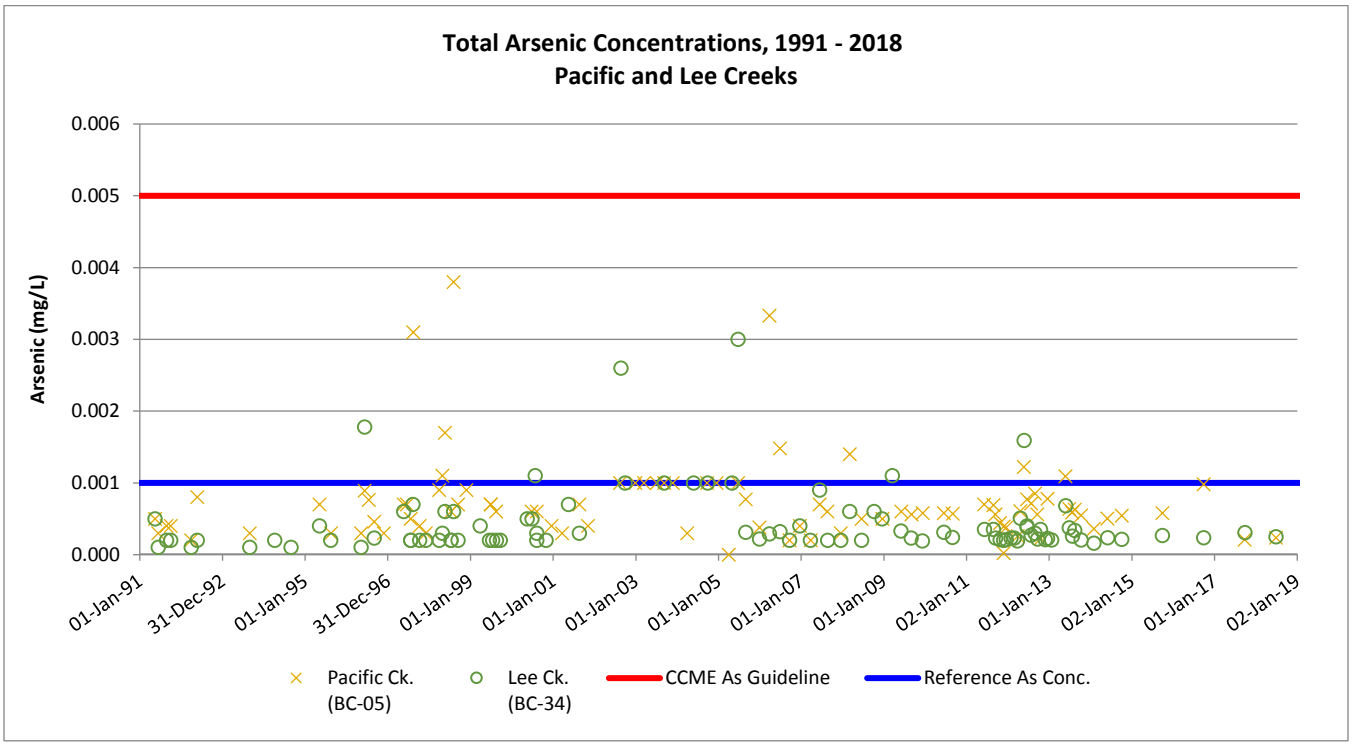

Figure 3-6 Arsenic Concentrations on Lee and Pacific Creeks (1991-2018)

3.2.4 ZINC, COPPER, AND LEAD

In Lee Creek, it was noted that zinc, copper, and lead occasionally exceeded reference condition concentrations (11, 13, and 19% of the time, respectively). Zinc and copper also occasionally exceeded (10 and 20% of the time, respectively) 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-mining 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 did not affect these watersheds as a result of mining. Moreover, the reference condition concentrations for both zinc and lead are below CCME guidelines.

In 2018 copper, lead, and zinc concentrations were all below their respective CCME guidelines; plots detailing trend data, as well as 2018 data are provided in Appendix B and Appendix A respectively.

3.2.5 NITRATE

Nitrate-N concentrations in Lee and Pacific Creeks (0.005 to 2.100 mg/L and 0.005 to 1.400 mg/L, respectively) were well below the CCME guideline (3 mg/L), 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 accessibility 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 2018 exceeded the CCME guideline for nitrate in the downstream receiver on Lee Creek or on Pacific Creek.

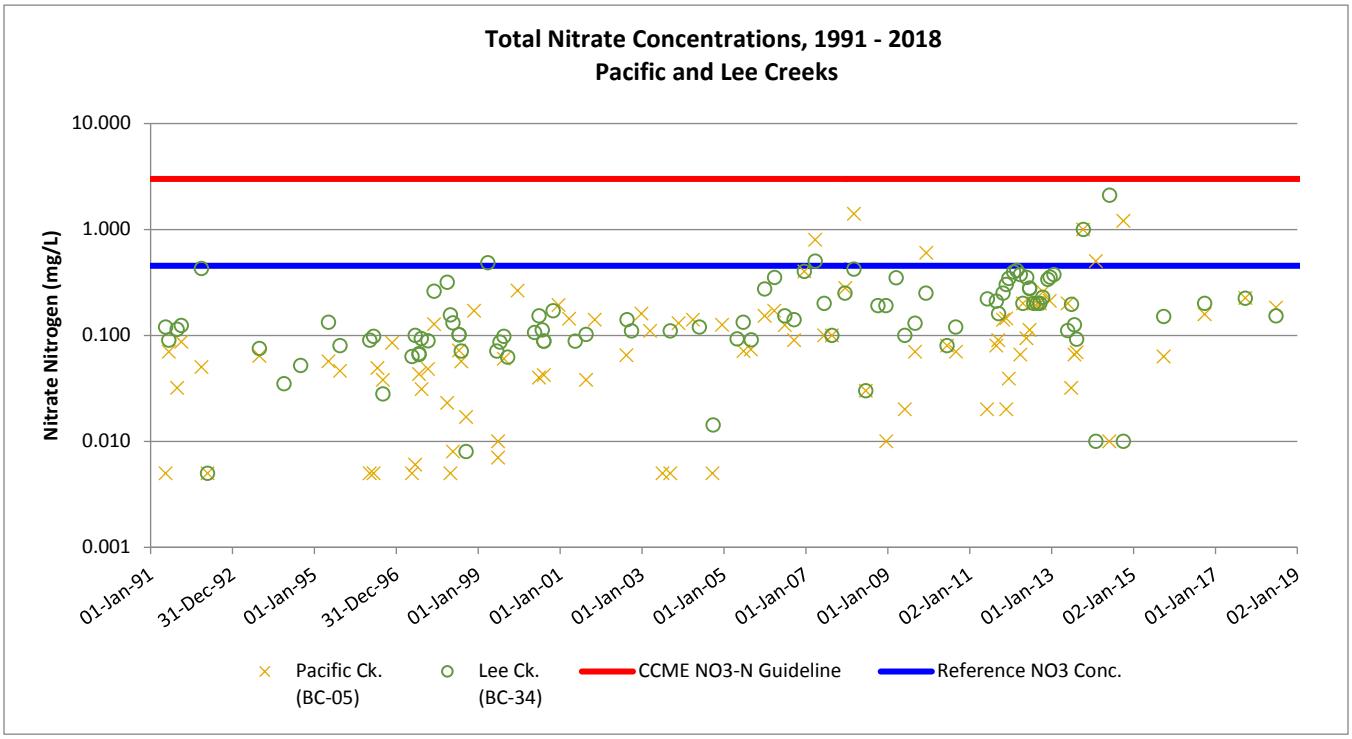

Figure 3-7 Nitrate Nitrogen Concentrations on Lee and Pacific Creeks (1991-2018). Note Log Scale

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, 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 below the CCME guideline. Pacific Creek saw high levels of antimony (81% 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 the 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 exceedance was 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 mining, decommissioning, or reclamation relative to reference concentrations, with the exception of arsenic on Pacific Creek; thus, 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 2018. 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 were presented in the Impact Study on Lower Laura Creek (AEG, 2017). While monitoring of stations BC-01 and BC-02 is performed annually, dangerous wildlife at BC-01, and no helicopter landing pad at BC-02, prevented safe access and sampling in 2018.

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 the 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 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 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 2018 results were below the site-specific objective. BC-03 was above CCME, but were within the trend that had been observed throughout mine life.

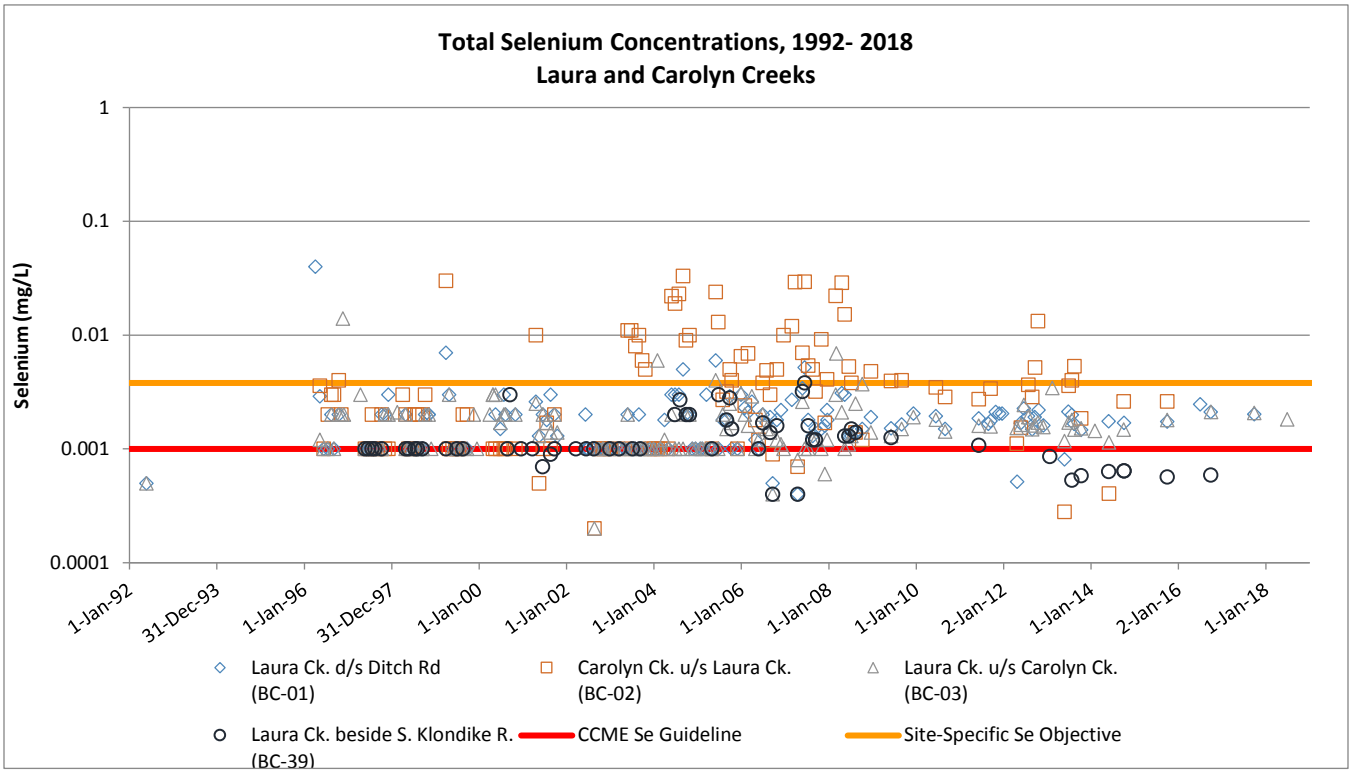

Figure 3-8 Selenium Concentrations on Laura and Carolyn Creeks (1992-2018). Note Log Scale.

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 57% 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; however, in 2018 the concentration measured at BC-03 (0.00527 mg/L) which considering the method error was at the CCME guideline (0.00500 mg/L). 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.

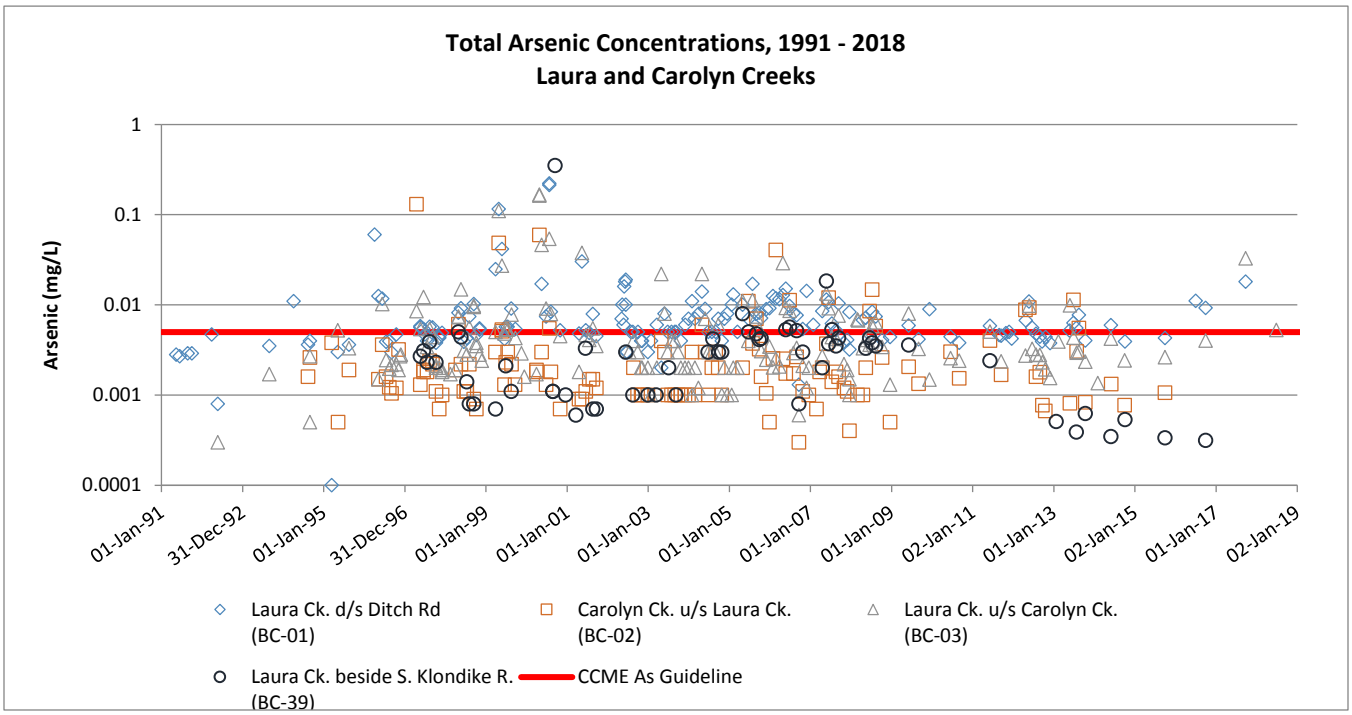

Figure 3-9 Arsenic Concentrations on Laura and Carolyn Creeks (1991 – 2018). Note Log Scale.

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 exposure 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 the 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, however BC-03 is below the CCME guideline in 2018 and TSS concentrations had reduced to below the reference TSS value of 33 mg/L. The TSS for 2017 sampling event was above average, which may explain why parameters, such as zinc, were elevated during the 2017 sampling event.

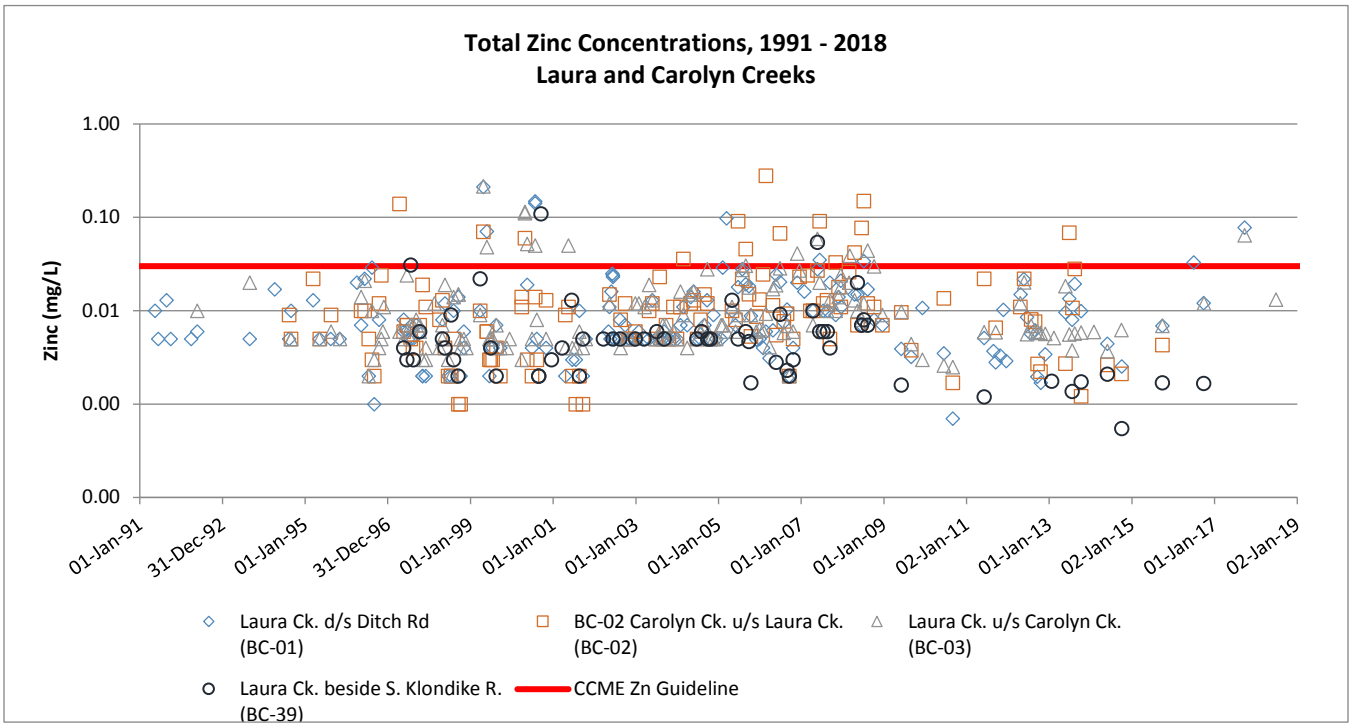

Figure 3-10 Zinc Concentrations on Laura and Carolyn Creeks (1991 – 2018). Note Log Scale.

3.3.4 COPPER

Copper results exhibited variation relative to the CCME guideline, but did not indicate any specific trend, as shown on Figure 3-11. The CCME copper guideline shown on Figure 3-11 is 0.004 mg/L, which is based on a mean hardness of 255 mg/L of $CaCO_3$ within the catchment. This guideline value is shown on the figure for reference only as the actual guideline is variable for each sample based on measured hardness. All upstream stations (BC-01, BC-02, and BC-03) show copper results exceeding the CCME guideline 40%, 50%, and 30% of the time, respectively, during all phases (pre-mining, 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. The CCME copper guideline was not exceeded at BC-03 in 2018 and TSS concentrations reduced below the reference TSS value of 33 mg/L.

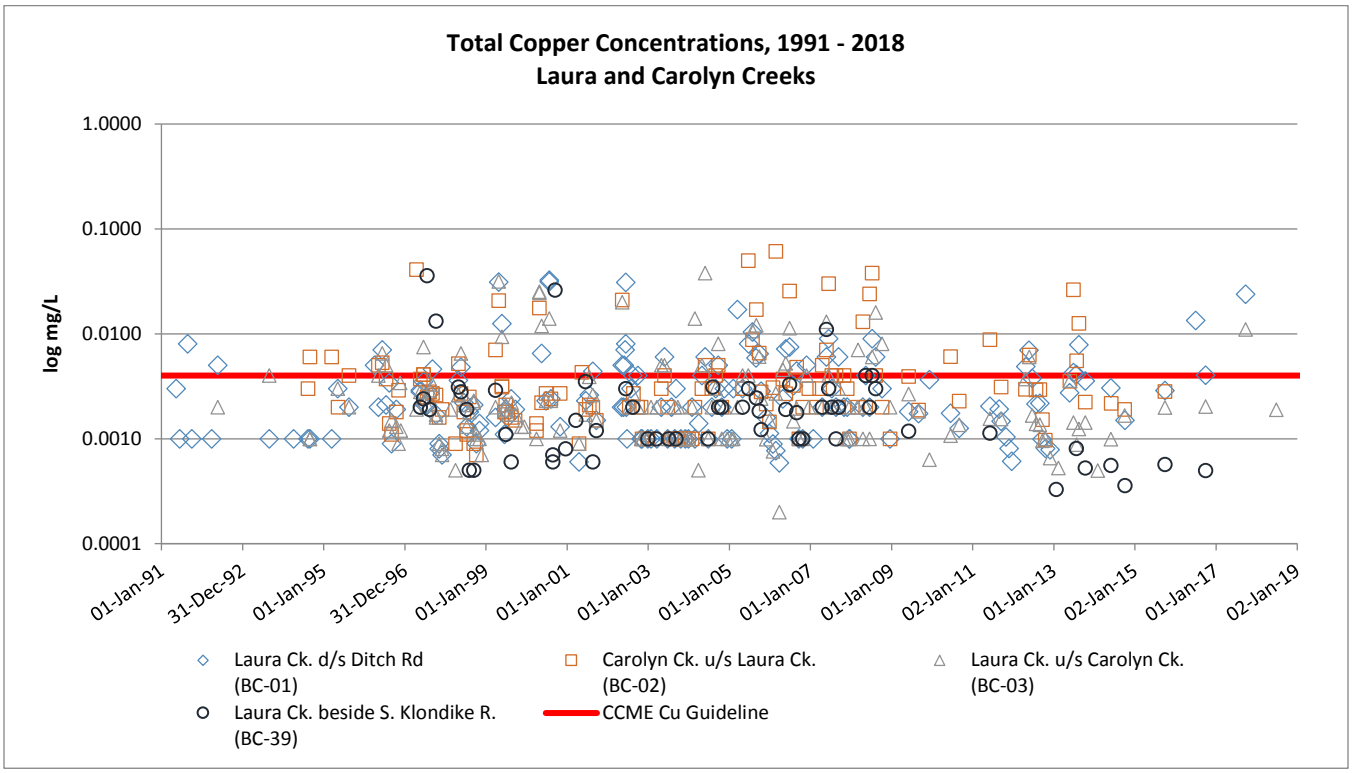

Figure 3-11 Copper Concentrations on Laura and Carolyn Creeks (1991 – 2018). Note Log Scale.

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, as a result of the spring freshet. The TSS concentrations at BC-03 on June 27, 2018 were below reference TSS value of 33 mg/L.

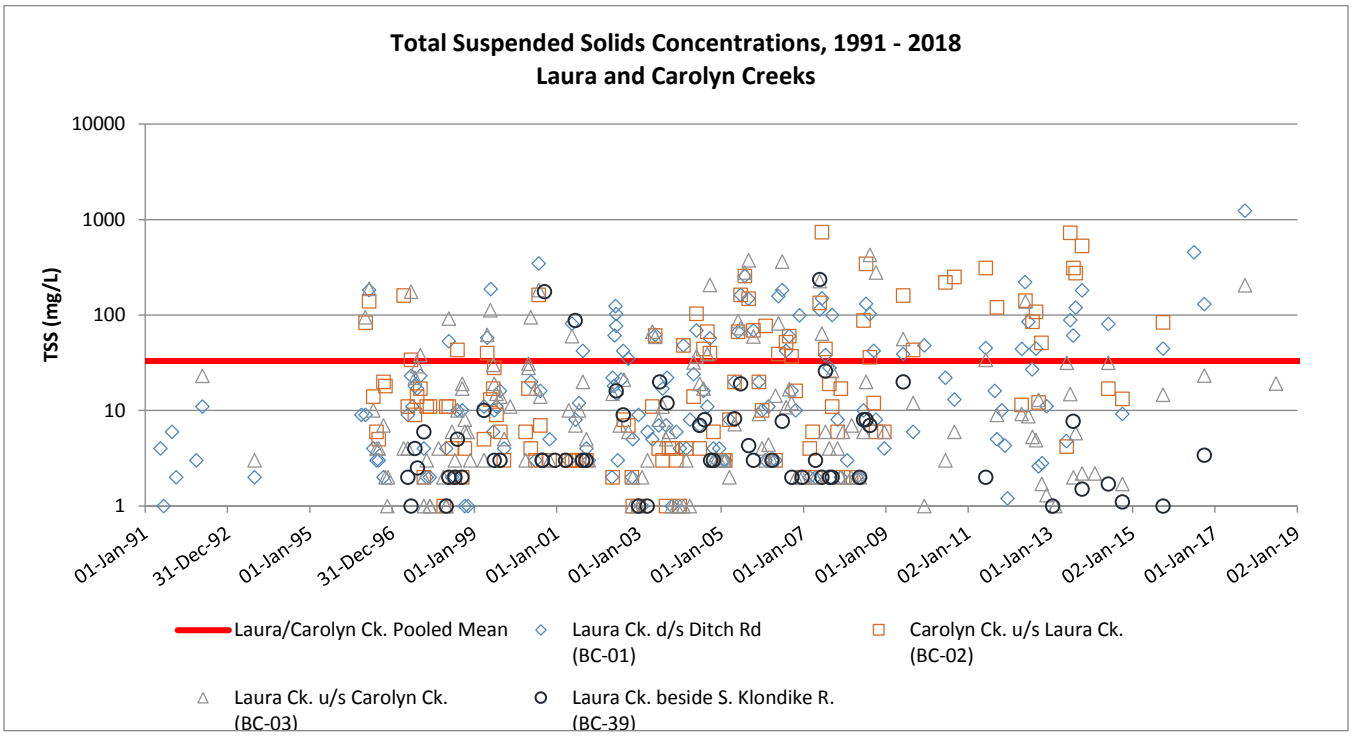

Figure 3-12 Total Suspended Solids Concentrations on Laura and Carolyn Creeks (1991-2018). Note Log Scale.

3.3.6 NITRATE

As mentioned previously, 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 pad 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 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, construction 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 to below the CCME guideline.

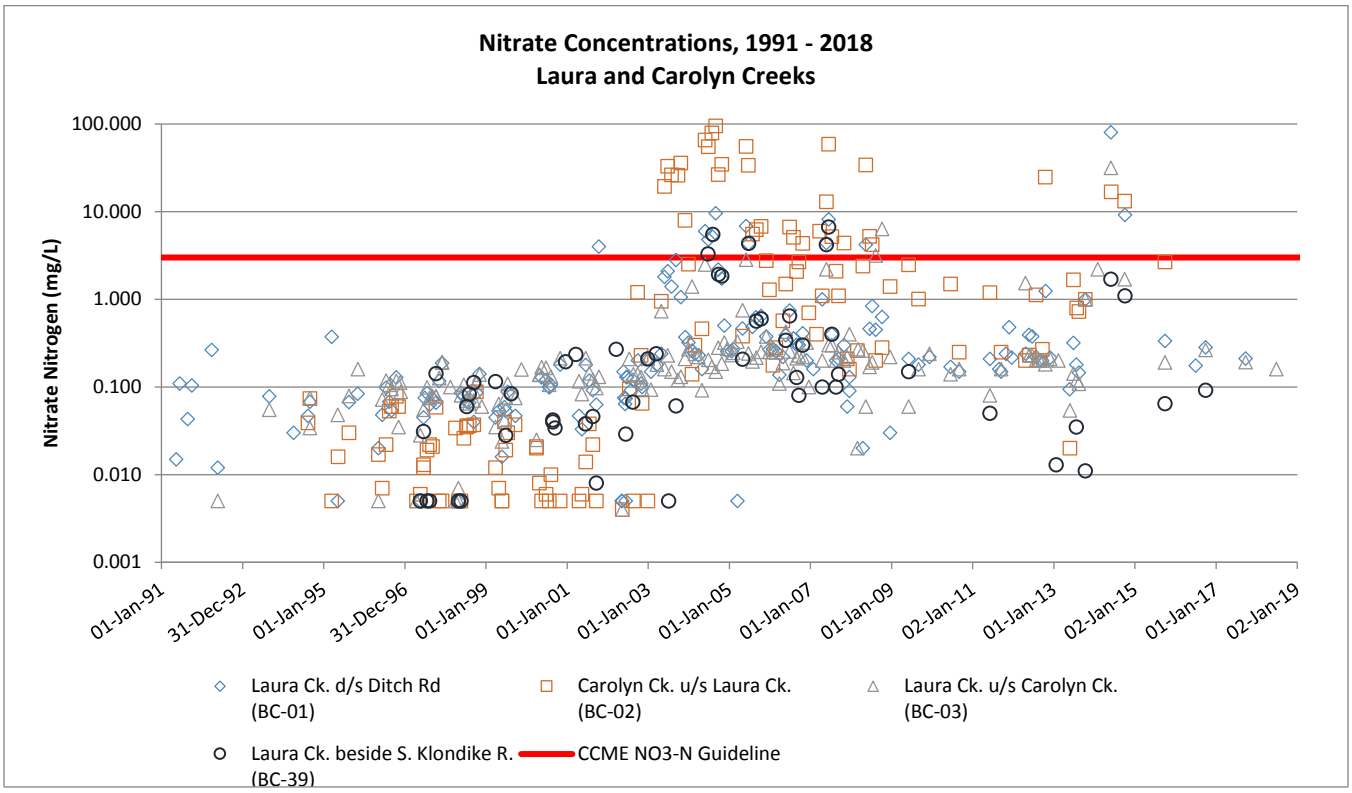

Figure 3-13 Nitrate Nitrogen Concentrations on Laura and Carolyn Creeks (1991-2018). Note Log Scale.

3.3.7 LAURA AND CAROLYN CREEKS SUMMARY

The mechanisms causing the elevated concentrations of the parameters discussed above 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, construction 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 such as antimony and lead are presented graphically in Appendix B for Laura and Carolyn Creeks and were all below guidelines in 2018.

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 (WRSA) 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 do no require monitoring.

Data are presented graphically in Appendix C. Note that where results were below the MDL, half of the MDL was used in the graphs.

3.5.1 HEAP PAD GROUNDWATER MONITORING

Monitoring up to 2018 showed no sign of increasing or decreasing trends for selenium, arsenic, total and WAD cyanide, or ammonia. WAD cyanide data was not analysed in 2018 and could not be compared to historic data. Free cyanide data was requested and reported instead; however, the two are not directly comparable, as free cyanide represents cyanide which is bioavailable and is present as HCN or CN^- while WAD cyanide is a group of cyanide species which undergo dissolution and form free cyanide.

Antimony levels at BC-19 and BC-21 appear to fairly consistent from 2012 to 2018. At BC-21, arsenic levels appear to be slightly higher in 2012 to 2017 than the average for the decommissioning and reclamation period, but are not as high as during production (average of 0.014 mg/L from 2012 – 2017 compared to an average of 0.22 mg/L from 1996 – 2000). In 2018 the arsenic value (0.0019 mg/L) analysed was lower than the 2012-2017 period, and more in line with the decommissioning phase. 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 selenium, arsenic, antimony, total cyanide, or ammonia. As with the Heap Pad monitoring wells, the Land Application Wells groundwater was not analysed for WAD cyanide in 2018.

All results were in compliance with respect to Clause 43 of Water Licence QZ96-007. No data was obtained from BC-65, which has been dry during all sampling events from 2016 to 2018.

3.5.3 BLUE WRSA GROUNDWATER MONITORING

Monitoring at stations BC-67 and BC-69 showed no sign of increasing or decreasing trends for arsenic, antimony, total and WAD cyanide, or ammonia. The exception was dissolved selenium at BC-69 which has shown a decreasing trend

over time. In 2018, no data was obtained from station BC-67. Data collected from BC-69 was inconsistent with results from 2017. Variance analysis conducted on the BC-69 data suggest that a sampling error may have occurred during the 2018 event, as more than half of parameters analysed are not consistent with historic data. Monitoring could not be carried out at Blue WRSA stations BC-68 and BC-70 from 2016 to 2018. Attempts to sample these locations will continue in future years.

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 were 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 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 (pH 4.85 in June), pH values obtained during the 2018 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 acidic rock drainage concerns. pH levels (4.15 in June 2018) 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 2009-2018 continued to be below 0.05 mg/L, with a result of 0.017 mg/L in 2018.

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

3.7 HEAP EFFLUENT WATER QUALITY

In 2018, 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 sampling sites (BC-28, 28a, and 28b) were sampled in June and September 2018 but were not compared to the effluent quality standards provided in Water License QZ96-007 Clauses 42 and 44 as there was no discharge.

4. SUMMARY

- No contaminants of potential 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 generally been lower since 2009.

- The 2004 fire event increased the nitrate concentrations in Laura and Carolyn Creeks, as well as in Lee and Pacific Creeks, and 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 – 2018.

5. REFERENCES

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APPENDIX A.
2018 SW and GW Data

Golden Predator Exploration Ltd.
Brewery Creek Mine

Water Quality Assessment
2018 Surface Water Data

Station			BC-10	BC-12	BC-15	BC-17	BC-3	BC-31	BC-34	BC-4	BC-5	BC-51W	BC-53
Station Description		CCME Guideline for Aquatic life	Kokanee Pit and Dump	Blue Pit	Moosehead Pit discharge	Golden Pit and Dump	Laura Creek, above confluence w/ Carolyn Creek	Golden Creek above confluence w/ South Klondike R.	Lee Creek at Ditch Road	Lucky Creek d/s of Lucky Pit	Pacific Creek u/s from confluence w/ Lee Creek	Pacific Pit - west side	Lower Laura Creek 50m d/s of Ditch Road
Sample Date			2018/06/26	2018/06/26	2018/06/26	2018/06/26	2018/06/27	2018/06/27	2018/06/27	2018/06/26	2018/06/27	2018/06/26	2018/06/27
Discharge (Flow)	L/s												
StaffGauge Reading/Water Level	m												
pH (field)	pH units	6.5 - 9	8.15	6.33	8.06	8.05	9	8.8	8.41	7.01	8.5	4.15	8.8
pH (lab)	pH units	6.5 - 9	8.03	7.64	7.97	8.18	8.05	8.19	8.03	8.06	8.13	4.54	8.1
Conductivity (field)	µS/cm												
Specific Conductivity (field)	µS/cm		257	824	426	506	335	303	271	540	230	230	303
Conductivity (lab)	µS/cm		299	929	594	564	509	556	480	593	475	258	442
Temperature (field)	C		16.26	18.01	15.66	15.03	1.99	3.96	6.2	2.54	5.31	18.23	3.96
Oxygen, Dissolved (field)	mg/L	6.5	6.17	5.59	5.74	5.83	10.86	10.72	10.4	10.2	10.63	6.63	10.72
Oxygen, Dissolved (field)	%		70.1	67	64.1	64.6	9.07	87.6	90.8	80.2	87.49	79.4	87.6
Oxidation-Reduction Potential	mV		28.2	34.1	25	36.5	14.8	21.1	9.1	57.3	15.6	75.3	21.1
Total Suspended Solids	mg/L		2.4	13.9	6.5	<1.0	19.2	5.6	5.9	6.4	4	10.1	72.8
Total Dissolved Solids	mg/L												
Total Dissolved Solids - Field	mg/L												
Hardness (from total)	mg/L		144	517	315	290	269	300	255	310	251	96.2	234
Hardness (from dissolved)	mg/L		145	479	304	285	257	292	246	299	244	96.6	219
Alkalinity, Total	mg/L		86.8	85	83.2	143	126	155	124	136	124	<0.50	113
Alkalinity, Bicarbonate HCO3	mg/L		106	104	101	174	154	189	151	166	151	<0.50	137
Alkalinity, Hydroxide OH	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Alkaklinity, Carbonate CO3	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Alkalinity, PP Carbonate CO3	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloride	mg/L	120	<0.50	0.96	<0.50	0.77	<0.50	0.78	<0.50	<0.50	<0.50	<0.50	0.69
Fluoride	mg/L	0.12											
Sulphate, Dissolved	mg/L		70.5	412	180	169	143	147	131	193	130	112	122
Bromide	mg/L												
Ion Balance	N/A												
Ammonia Total	mg/L	0.197	0.024	0.011	0.02	0.032	0.018	0.012	0.019	0.04	0.035	0.013	0.041
Nitrite, as N	mg/L	0.06	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate, as N	mg/L	3.0	<0.020	0.047	<0.020	<0.020	0.16	7.4	0.153	0.202	0.183	<0.020	0.207
Nitrite & Nitrate, as N	mg/L		<0.020	0.047	<0.020	<0.020	0.16	7.4	0.153	0.202	0.183	<0.020	0.207
Total Phosphate as P	mg/L												
Organic Carbon (C), Dissolved	mg/L												
Organic Carbon (C), Total	mg/L												
Cyanide, Total	mg/L												
Cyanide, Weak Acid Dissociable	mg/L	0.005											
Cyanide, Free	mg/L												
Aluminum (Al), Total	mg/L	*	0.0605	0.19	0.0406	0.011	0.279	0.0807	0.0338	0.164	0.05	1.42	1.76
Antimony (Sb), Total	mg/L	0.02	0.0647	0.0932	0.00349	0.043	0.00513	0.000661	0.000264	0.00311	0.000245	0.007	0.00287
Arsenic (As), Total	mg/L	0.005	0.014	0.0344	0.0483	0.0215	0.00527	0.000694	0.000251	0.00487	0.000236	0.0134	0.00593
Barium (Ba), Total	mg/L		0.156	0.086	0.065	0.0398	0.0645	0.0651	0.0479	0.0713	0.0485	0.0822	0.128
Beryllium (Be), Total	mg/L		<0.000010	0.000592	<0.000010	<0.000010	0.000067	<0.000010	<0.000010	0.000011	<0.000010	0.00334	0.00009
Bismuth (Bi), Total	mg/L		<0.000010	<0.000010	<0.000010	<0.0000050	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000025
Boron (B), Total	mg/L	1.5	<0.01	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium (Cd), Total	mg/L	*	0.0000522	0.00126	0.0000184	0.0000139	0.000118	0.0000505	0.0000781	0.00016	0.0000946	0.00124	0.0000901
Calcium (Ca), Total	mg/L		34.8	132	68.7	69.7	63.7	70.9	62.4	73.9	61.6	21.4	56.6
Chromium (Cr), Total	mg/L	0.001	0.00019	0.00032	0.00016	<0.00010	0.00057	0.00021	0.00014	0.00033	0.00018	0.00058	0.00287
Cobalt (Co), Total	mg/L		0.000087	0.0226	0.000033	0.0000483	0.00193	0.000145	0.000061	0.000562	0.000083	0.012	0.0018
Copper (Cu), Total	mg/L	*	0.00076	0.00981	0.00045	0.000321	0.00189	0.00142	0.00129	0.00083	0.00132	0.0709	0.00562
Iron (Fe), Total	mg/L	0.3	0.125	0.483	0.0398	0.0214	0.862	0.204	0.0758	0.539	0.115	0.699	2.68
Lead (Pb), Total	mg/L	*	0.000188	0.000456	0.000106	0.0000633	0.000332	0.000106	0.000034	0.000205	0.000061	0.00022	0.00139
Lithium (Li), Total	mg/L		0.00219	0.00798	0.00123	0.00697	0.0141	0.00578	0.00273	0.0107	0.00253	0.00405	0.0115

Results or detection limits above the CCME guideline are flagged in red. Ontario preliminary water quality objective (PWQO) used for Sb.
* indicates the guideline is calculated based on pH (Al) or hardness (Cd, Cu, Pb, Ni)

Station			BC-10	BC-12	BC-15	BC-17	BC-3	BC-31	BC-34	BC-4	BC-5	BC-51W	BC-53
Station Description		CCME Guideline for Aquatic life	Kokanee Pit and Dump	Blue Pit	Moosehead Pit discharge	Golden Pit and Dump	Laura Creek, above confluence w/ Carolyn Creek	Golden Creek above confluence w/ South Klondike R.	Lee Creek at Ditch Road	Lucky Creek d/s of Lucky Pit	Pacific Creek u/s from confluence w/ Lee Creek	Pacific Pit - west side	Lower Laura Creek 50m d/s of Ditch Road
Sample Date			2018/06/26	2018/06/26	2018/06/26	2018/06/26	2018/06/27	2018/06/27	2018/06/27	2018/06/26	2018/06/27	2018/06/26	2018/06/27
Magnesium (Mg), Total	mg/L		13.9	45.7	34.8	28.2	26.6	29.9	24.2	30.6	23.6	10.4	22.4
Manganese (Mn), Total	mg/L		0.013	1.49	0.00369	0.00889	0.168	0.0248	0.0108	0.0915	0.0124	0.579	0.107
Mercury (Hg), Total	mg/L	0.000026	0.000004	0.0000535	0.0000052	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000109	<0.0000020
Molybdenum (Mo), Total	mg/L	0.073	0.00323	0.00404	0.000984	0.00523	0.00272	0.00172	0.00164	0.00285	0.00152	0.000129	0.00272
Nickel (Ni), Total	mg/L	*	0.00092	0.07	0.00046	0.00045	0.00835	0.00237	0.00239	0.00413	0.00246	0.0422	0.00646
Phosphorous (p), Total	mg/L		0.0376	0.0198	0.0238	0.007	0.0288	0.0134	0.0095	0.019	0.013	0.0234	0.0634
Potassium (K), Total	mg/L		1.6	2.77	0.81	1.29	1.53	0.97	0.76	1.28	0.73	2.33	1.27
Selenium (Se), Total	mg/L	0.001	0.00375	0.00231	0.0167	0.0035	0.00182	0.00188	0.00206	0.0047	0.00214	0.00358	0.00157
Silicon (Si), Total	mg/L		1.75	5.64	1.53	2.57	4.25	3.53	3.07	3.44	3.06	4.78	6.32
Silver (Ag), Total	mg/L	0.00025	<0.000010	0.000026	<0.000010	<0.0000050	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	0.000032	0.000034
Sodium (Na), Total	mg/L		0.52	1.05	0.32	1.28	3.13	2.13	1.48	2.33	1.45	0.56	3.53
Strontium (Sr), Total	mg/L		0.298	0.887	0.688	0.499	0.338	0.375	0.278	0.5	0.276	0.144	0.293
Sulphur (S), Total	mg/L		20.4	150	77.4	51.1	47.9	47.6	43.9	58.2	42.4	35.5	38.8
Tellurium, total	mg/L												
Thallium (Tl), Total	mg/L	0.0008	0.0000552	0.0000892	0.0000401	0.0000583	0.0000084	0.0000042	0.0000046	0.0000161	0.0000053	0.0000703	0.0000153
Thorium, total	mg/L												
Tin (Sn), Total	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti), Total	mg/L		0.003	0.0026	<0.0020	<0.00050	0.0095	0.0022	<0.0020	0.0052	0.0025	0.0049	0.0533
Uranium (U), Total	mg/L	0.015	0.00485	0.00276	0.00164	0.00689	0.00281	0.00334	0.00182	0.00359	0.00173	0.00093	0.00261
Vanadium (V), Total	mg/L		0.00051	0.00127	0.00021	<0.00020	0.00144	0.001	0.00099	0.00149	0.00105	0.00064	0.00579
Zinc (Zn), Total	mg/L	0.03	0.0021	0.118	0.0015	0.00117	0.0132	0.0041	0.0074	0.0087	0.009	0.103	0.011
Zirconium (Zr), Total	mg/L		<0.00010	0.00014	0.00012	<0.00010	0.00017	<0.00010	0.0001	0.00012	<0.00010	0.00029	0.00033

Results or detection limits above the CCME guideline are flagged in red. Ontario preliminary water quality objective (PWQO) used for Sb.
* indicates the guideline is calculated based on pH (Al) or hardness (Cd, Cu, Pb, Ni)

Station			BC-6	BC-28	BC-28	BC-28a	BC-28a	BC-28b	BC-28b
Station Description		CCME Guideline for Aquatic life	South Klondike R. d/s from confluence w/ Lee Creek	Overflow Pond decant	Overflow Pond decant	Discharge from heap	Discharge from heap	Far (South) End of Biological Treatment Cell	Far (South) End of Biological Treatment Cell
Sample Date			2018/06/27	2018/06/28	2018/09/18	2018/06/28	2018/09/18	2018/06/28	2018/09/18
Discharge (Flow)	L/s								
StaffGauge Reading/Water Level	m								
pH (field)	pH units	6.5 - 9	8.46	8.09	7.09	7.51	7.18	8.8	6.60
pH (lab)	pH units	6.5 - 9	7.97	7.72		8.05	7.86	7.63	7.59
Conductivity (field)	µS/cm								
Specific Conductivity (field)	µS/cm		209	1240	1619	3219	346.4	2581	23.3
Conductivity (lab)	µS/cm		274	1320		3490	4000	3150	3260
Temperature (field)	C		8.55	18	6.4	6.05	4.0	17.23	3.7
Oxygen, Dissolved (field)	mg/L	6.5	8.46	6.19	1.52	9.33	12.62	6.97	16.941
Oxygen, Dissolved (field)	%		92.1	72.5		84.4		81.8	
Oxidation-Reduction Potential	mV		41.4	4.6	154.3	31.8	201.6	29.3	220.1
Total Suspended Solids	mg/L		2.5	5.2		7.2		17.3	
Total Dissolved Solids	mg/L						3370		2620
Total Dissolved Solids - Field	mg/L								
Hardness (from total)	mg/L		133	347		1150	1310	928	938
Hardness (from dissolved)	mg/L		128	321		1040	1330	804	936
Alkalinity, Total	mg/L		76.1	47.9		126	141	43.3	56.5
Alkalinity, Bicarbonate HCO3	mg/L		92.8	58.5		154	172	52.8	69
Alkalinity, Hydroxide OH	mg/L		<0.50	<0.50		<0.50	<0.50	<0.50	<0.50
Alkaklinity, Carbonate CO3	mg/L		<0.50	<0.50		<0.50	<0.50	<0.50	<0.50
Alkalinity, PP Carbonate CO3	mg/L		<0.50	<0.50		<0.50	<0.50	<0.50	<0.50
Chloride	mg/L	120	<0.50	9		18	21	20	20
Fluoride	mg/L	0.12							
Sulphate, Dissolved	mg/L		62.3	261		1030	1140	727	777
Bromide	mg/L								
Ion Balance	N/A								
Ammonia Total	mg/L	0.197	0.016	0.08		0.023	<0.0050	0.12	0.047
Nitrite, as N	mg/L	0.06	<0.0050	0.219		<0.0050	<0.0050	0.504	0.248
Nitrate, as N	mg/L	3.0	0.083	92.6		254	283	267	250
Nitrite & Nitrate, as N	mg/L		0.083	92.8		254	283	268	250
Total Phosphate as P	mg/L								
Organic Carbon (C), Dissolved	mg/L								
Organic Carbon (C), Total	mg/L								
Cyanide, Total	mg/L						0.43		0.051
Cyanide, Weak Acid Dissociable	mg/L	0.005							
Cyanide, Free	mg/L						0.051		0.024
Aluminum (Al), Total	mg/L	*	0.0394	0.0541		0.137	0.0068	0.105	0.028
Antimony (Sb), Total	mg/L	0.02	0.00024	0.494		1.81	1.78	1.58	1.54
Arsenic (As), Total	mg/L	0.005	0.000818	0.0204		0.316	0.273	0.169	0.155
Barium (Ba), Total	mg/L		0.0554	0.0717		0.0417	0.0304	0.0323	0.0311
Beryllium (Be), Total	mg/L		<0.000010	<0.000010		0.000048	<0.000050	<0.000010	<0.000050
Bismuth (Bi), Total	mg/L		<0.000010	<0.000010		<0.000010	<0.000025	<0.000010	<0.000050
Boron (B), Total	mg/L	1.5	<0.01	<0.01		0.023	<0.05	0.015	<0.05
Cadmium (Cd), Total	mg/L	*	0.0000334	0.0000061		0.000264	0.000267	0.0000142	<0.000025
Calcium (Ca), Total	mg/L		35.7	92.2		319	365	255	256
Chromium (Cr), Total	mg/L	0.001	0.00023	0.00015		0.00063	<0.00050	0.00042	<0.00050
Cobalt (Co), Total	mg/L		0.000055	0.102		0.421	0.458	0.429	0.407
Copper (Cu), Total	mg/L	*	0.00089	0.00116		0.0021	0.00119	0.00202	0.00121
Iron (Fe), Total	mg/L	0.3	0.0729	0.0548		0.36	0.134	0.0374	0.028
Lead (Pb), Total	mg/L	*	0.000086	0.000063		0.000334	<0.000025	0.000074	<0.00010
Lithium (Li), Total	mg/L		0.00245	0.00153		0.00497	0.0057	0.00422	0.0033

Results or detection limits above the CCME guideline are flagged in red. Ontario preliminary water quality objective (PWQO) used for Sb.
* indicates the guideline is calculated based on pH (Al) or hardness (Cd, Cu, Pb, Ni)

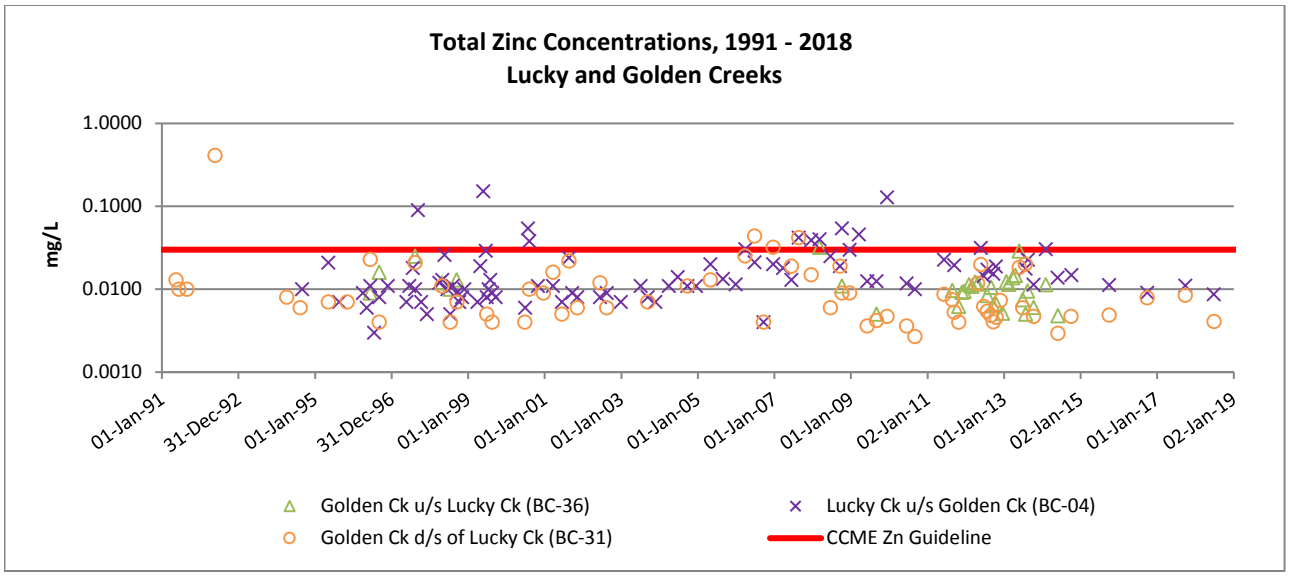
Station			BC-6	BC-28	BC-28	BC-28a	BC-28a	BC-28b	BC-28b
Station Description		CCME Guideline for Aquatic life	South Klondike R. d/s from confluence w/ Lee Creek	Overflow Pond decant	Overflow Pond decant	Discharge from heap	Discharge from heap	Far (South) End of Biological Treatment Cell	Far (South) End of Biological Treatment Cell
Sample Date			2018/06/27	2018/06/28	2018/09/18	2018/06/28	2018/09/18	2018/06/28	2018/09/18
Magnesium (Mg), Total	mg/L		10.8	28.4		86.2	97	70.5	72.6
Manganese (Mn), Total	mg/L		0.00796	0.0057		0.0276	0.0218	0.0141	0.0192
Mercury (Hg), Total	mg/L	0.000026	<0.0000020	<0.0000020		0.0000607	0.0000279	0.0000054	0.0000039
Molybdenum (Mo), Total	mg/L	0.073	0.000554	0.00699		0.0188	0.0149	0.0195	0.0175
Nickel (Ni), Total	mg/L	*	0.00088	0.00075		0.00723	0.00815	0.00443	0.0042
Phosphorous (p), Total	mg/L		0.0059	0.013		0.0616	0.041	0.0223	<0.025
Potassium (K), Total	mg/L		0.51	3.33		4.85	5.17	4.77	4.7
Selenium (Se), Total	mg/L	0.001	0.000602	0.0461		0.131	0.145	0.123	0.124
Silicon (Si), Total	mg/L		2.5	0.353		4.29	4.71	1.08	0.578
Silver (Ag), Total	mg/L	0.00025	<0.000010	<0.000010		0.000013	<0.000025	<0.000010	<0.000050
Sodium (Na), Total	mg/L		2.07	145		341	377	344	332
Strontium (Sr), Total	mg/L		0.23	0.533		1.74	1.87	1.44	1.41
Sulphur (S), Total	mg/L		20.3	100		325	366	256	262
Tellurium, total	mg/L								
Thallium (Tl), Total	mg/L	0.0008	0.000002	0.0000328		0.000307	0.000306	0.000205	0.000153
Thorium, total	mg/L								
Tin (Sn), Total	mg/L		<0.00020	<0.00020		<0.00020	<0.0010	<0.00020	<0.0010
Titanium (Ti), Total	mg/L		<0.0020	<0.0020		<0.0020	<0.0025	0.0038	<0.01
Uranium (U), Total	mg/L	0.015	0.000698	0.00575		0.0255	0.0301	0.0187	0.0178
Vanadium (V), Total	mg/L		0.00031	0.00034		0.00036	<0.0010	0.00032	<0.0010
Zinc (Zn), Total	mg/L	0.03	0.0028	<0.0010		0.0103	0.0099	<0.0010	<0.0050
Zirconium (Zr), Total	mg/L		<0.00010	<0.00010		<0.00010	<0.00050	<0.00010	<0.00050

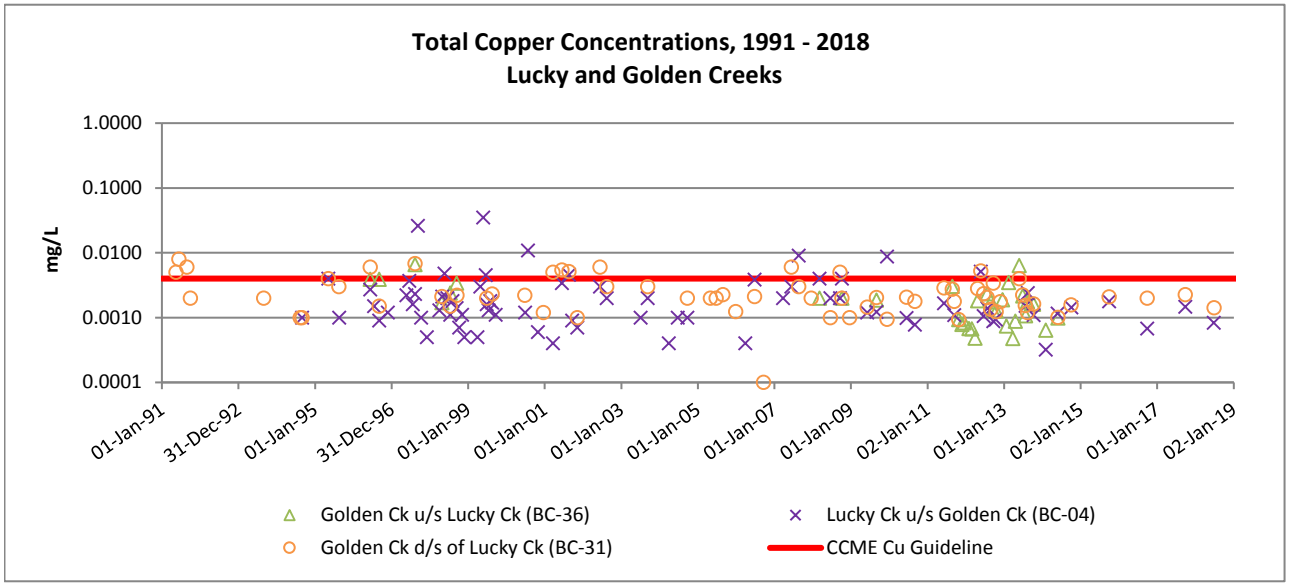
Results or detection limits above the CCME guideline are flagged in red. Ontario preliminary water quality objective (PWQO) used for Sb.
* indicates the guideline is calculated based on pH (Al) or hardness (Cd, Cu, Pb, Ni)

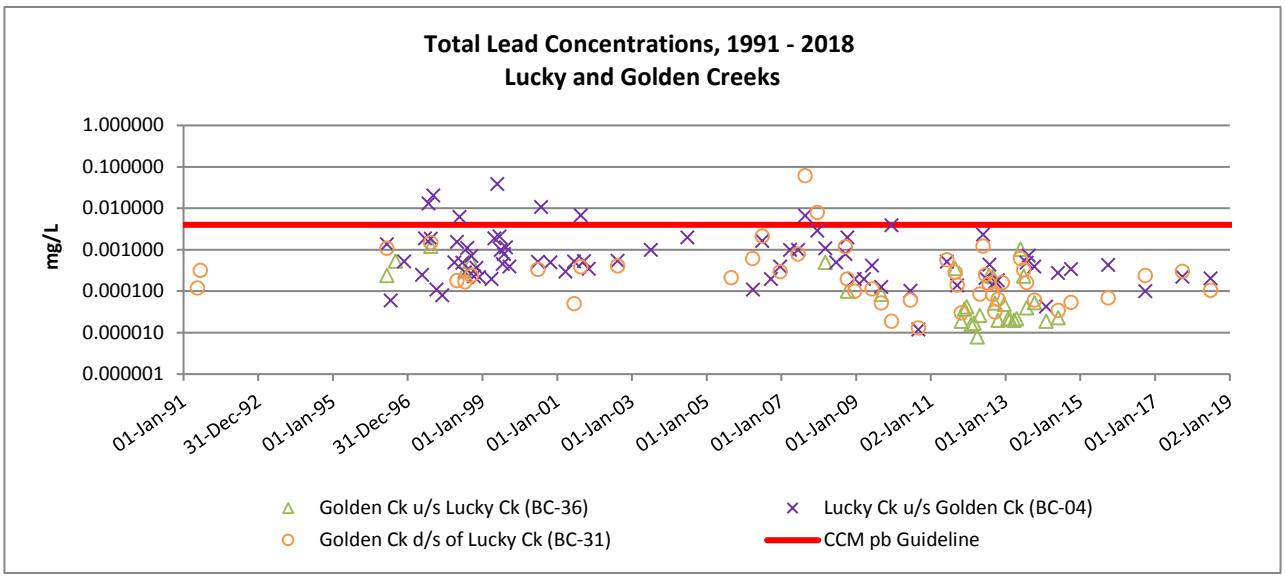
Station		BC-27	BC-19	BC-21	BC-22	BC-65	BC-66D	BC-66D	BC-66D	BC-66s	BC-67	BC-69
Station Description		Piezometer RC97-2026	Piezometer RC94-843	Piezometer RC95-1354	Piezometer RC95-1357	Land Application Piezometer	Land Application Piezometer (Deep Well)	Land Application Piezometer (Deep Well)	Land Application Piezometer (Deep Well)	Land Application Piezometer	Blue WRSA Piezometer	Blue WRSA Piezometer (Deep Well)
Sample Date		2018/06/26	2018/07/15	2018/07/14	2018/07/15	2018/09/18	2018/06/26	2018/07/15	2018/09/18	2018/06/26	2018/06/26	2018/06/26
Depth to Water (TOC)	m	8.431	39.18		42.6	64.46	47.88		48.53	37.64	37.64	36.343
Purge Volume	L					1.1			120			
Total Well Depth	m	17.9	58.49			65.20	127		66.15	51.52	51.82	42.07
pH (field)	pH units	7.82	6.2	6.89	6.06	7.85	7		7.65			7.83
pH (lab)	pH units	8.14	7.99	8.05	6.36		7.99	8.33	7.99			8.17
Conductivity (field)	µS/cm											
Specific Conductivity (field)	µS/cm	730	1153	410	1266	135.6	660		804.4			626
Conductivity (lab)	µS/cm	871	1380	457	1500		552	776	798			753
Temperature (field)	C	4.8	3.5	4.95	4.6	3.7	4		2.0			4.9
Oxygen, Dissolved (field)	mg/L			4.2		4.98			3.65			
Oxygen, Dissolved (field)	%			10.1								
Oxidation-Reduction Potential	mV			-140.7		141.3			117.4			
Total Suspended Solids	mg/L											
Total Dissolved Solids	mg/L		1070	236	1280			430	480			
Total Dissolved Solids - Field	mg/L											
Hardness (from total)	mg/L	463	816	240	925		299	398	395			433
Hardness (from dissolved)	mg/L	456	833	218	821		295	379	401			411
Alkalinity, Total	mg/L	170	279	202	59.5		240	274	276			341
Alkalinity, Bicarbonate HCO3	mg/L	207	341	246	72.6		292	327	337			417
Alkalinity, Hydroxide OH	mg/L	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50			<0.50
Alkaklinity, Carbonate CO3	mg/L	<0.50	<0.50	<0.50	<0.50		<0.50	3.65	<0.50			<0.50
Alkalinity, PP Carbonate CO3	mg/L	<0.50	<0.50	<0.50	<0.50		<0.50	3.04	<0.50			<0.50
Chloride	mg/L	<0.50	0.84	2.6	1.1		2.3	4.8	4.8			1.6
Fluoride	mg/L											
Sulphate, Dissolved	mg/L	285	539	44.4	852		59.6	35.9	35.9			101
Bromide	mg/L											
Ion Balance	N/A											
Ammonia Total	mg/L	0.073	0.026	0.058	0.14		0.023	0.015	<0.0050			0.035
Nitrite, as N	mg/L	<0.0050	<0.0050	<0.0050	0.0326		<0.0050	<0.0050	0.0058			<0.0050
Nitrate, as N	mg/L	<0.020	1.09	0.052	1.6		0.259	32.2	28.6			<0.020
Nitrite & Nitrate, as N	mg/L	<0.020	1.09	0.052	1.64		0.259	32.2	28.6			<0.020
Total Phosphate as P	mg/L											
Organic Carbon (C), Dissolved	mg/L											
Organic Carbon (C), Total	mg/L											
Cyanide, Total	mg/L		<0.0050	<0.0050	<0.0050			0.0054	0.0082			
Cyanide, Weak Acid Dissociable	mg/L											
Cyanide, Free	mg/L		<0.0010	<0.0010	<0.0010			0.0031	0.0037			
Aluminum (Al), Dissolved	mg/L	0.0024	0.00258	0.00448	0.769		0.00315	0.00266	0.00125			0.00384
Antimony (Sb), Dissolved	mg/L	0.00198	0.000181	0.000303	0.000077		0.0242	0.000269	0.000142			0.00527
Arsenic (As), Dissolved	mg/L	0.119	0.000399	0.00192	0.000118		0.00204	0.000164	0.000134			0.0501
Barium (Ba), Dissolved	mg/L	0.00953	0.00557	0.0304	0.0103		0.3	0.0486	0.0461			0.0238
Beryllium (Be), Dissolved	mg/L	<0.000010	<0.00001	<0.00001	0.000365		<0.000010	<0.00001	<0.000010			<0.000010
Bismuth (Bi), Dissolved	mg/L	<0.0000050	<0.000005	<0.000005	<0.000005		<0.0000050	<0.000005	<0.0000050			<0.0000050
Boron (B), Dissolved	mg/L	<0.01	0.028	0.029	0.039		<0.01	<0.01	<0.01			<0.01
Cadmium (Cd), Dissolved	mg/L	0.0000168	0.0014	0.0000668	0.0184		0.0000689	0.0000249	0.0000226			0.000775
Calcium (Ca), Dissolved	mg/L	110	194	36.5	215		70.5	75.3	78.7			75.8
Chromium (Cr), Dissolved	mg/L	<0.00010	<0.0001	0.00138	<0.0001		0.00018	<0.0001	<0.00010			0.00022
Cobalt, Dissolved	mg/L	0.000168	0.00215	0.000358	0.015		0.00223	0.0621	0.0648			0.000516
Copper (Cu), Dissolved	mg/L	0.000084	<0.00005	0.00165	0.00158		0.000727	0.000218	0.000081			0.000275
Iron (Fe), Dissolved	mg/L	1.58	0.0046	0.03	0.103		0.0477	0.0016	0.0014			0.0098
Lead (Pb), Dissolved	mg/L	0.0000092	0.0000075	0.0000451	0.0000534		<0.0000050	0.0000163	0.0000074			0.0000095

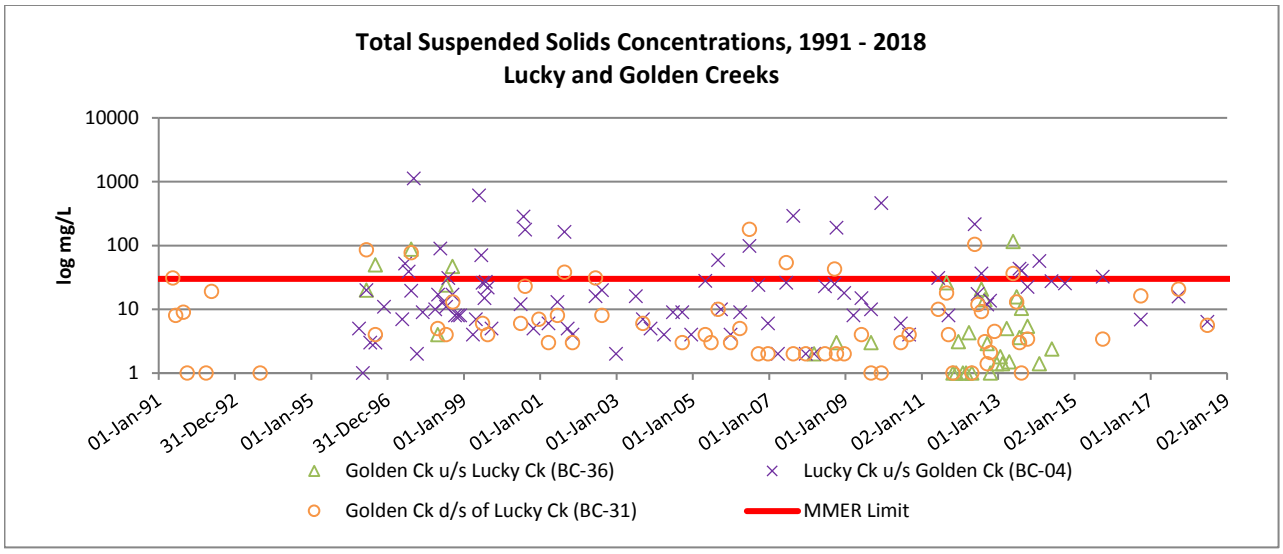
Station		BC-27	BC-19	BC-21	BC-22	BC-65	BC-66D	BC-66D	BC-66D	BC-66s	BC-67	BC-69
Station Description		Piezometer RC97-2026	Piezometer RC94-843	Piezometer RC95-1354	Piezometer RC95-1357	Land Application Piezometer	Land Application Piezometer (Deep Well)	Land Application Piezometer (Deep Well)	Land Application Piezometer (Deep Well)	Land Application Piezometer	Blue WRSA Piezometer	Blue WRSA Piezometer (Deep Well)
Sample Date		2018/06/26	2018/07/15	2018/07/14	2018/07/15	2018/09/18	2018/06/26	2018/07/15	2018/09/18	2018/06/26	2018/06/26	2018/06/26
Lithium (Li), Dissolved	mg/L	0.0104	0.0417	0.0174	0.0761		0.00664	0.0189	0.0204			0.008
Magnesium (Mg), Dissolved	mg/L	43.8	85	30.9	68.7		28.9	46.5	49.7			53.9
Manganese (Mn), Dissolved	mg/L	0.242	0.499	0.109	1.21		0.234	0.000619	0.000532			0.315
Mercury (Hg), Dissolved	mg/L	<0.0000020	<0.000002	<0.000002	<0.000002		<0.0000020	<0.000002	<0.0000020			<0.0000020
Molybdenum (Mo), Dissolved	mg/L	0.0121	<0.00005	0.000158	0.000057		0.00739	0.00014	0.00013			0.000289
Nickel (Ni), Dissolved	mg/L	0.00213	0.00558	0.00159	0.165		0.05	0.000193	0.000135			0.00257
Phosphorous (P), Dissolved	mg/L	0.0579	0.0176	0.0229	0.0244		0.0069	0.0113	0.0083			0.0072
Potassium (K), Dissolved	mg/L	1.43	2.94	2.77	4.52		1.61	2.61	2.6			5.64
Selenium (Se), Dissolved	mg/L	<0.000040	0.00552	0.00531	0.037		<0.000040	0.0141	0.014			0.000602
Silicon (Si), Dissolved	mg/L	3.54	7.7	4.29	15.7		3.64	4.42	4.71			2.82
Silver (Ag), Dissolved	mg/L	<0.0000050	<0.000005	<0.000005	<0.000005		<0.0000050	<0.000005	<0.0000050			<0.0000050
Sodium (Na), Dissolved	mg/L	1.68	12.1	7.59	12.7		2.77	11.1	11.5			1.77
Strontium (Sr), Dissolved	mg/L	0.837	0.678	0.207	0.385		0.394	0.427	0.432			0.492
Sulphur (S), Dissolved	mg/L	95.7	187	12.7	268		17	10.5	11.4			27.5
Tellurium, dissolved	mg/L											
Thallium (Tl), Dissolved	mg/L	0.0000035	0.0000375	0.0000096	0.0000724		0.0000378	0.0000094	0.0000108			0.000243
Thorium, dissolved	mg/L											
Tin (Sn), Dissolved	mg/L	<0.00020	<0.0002	<0.0002	<0.0002		<0.00020	<0.0002	<0.00020			<0.00020
Titanium (Ti), Dissolved	mg/L	<0.00050	<0.0005	<0.0005	<0.0005		<0.00050	0.00056	<0.00050			<0.00050
Uranium (U), Dissolved	mg/L	0.0127	0.00116	0.000229	0.000315		0.00348	0.00129	0.00127			0.0031
Vanadium (V), Dissolved	mg/L	<0.00020	<0.0002	<0.0002	<0.0002		<0.00020	<0.0002	<0.00020			<0.00020
Zinc (Zn), Dissolved	mg/L	0.027	0.0406	0.00622	0.43		0.0162	0.00099	0.00088			0.0904
Zirconium (Zr), Dissolved	mg/L	<0.00010	<0.0001	<0.0001	<0.0001		<0.00010	<0.0001	<0.00010			<0.00010

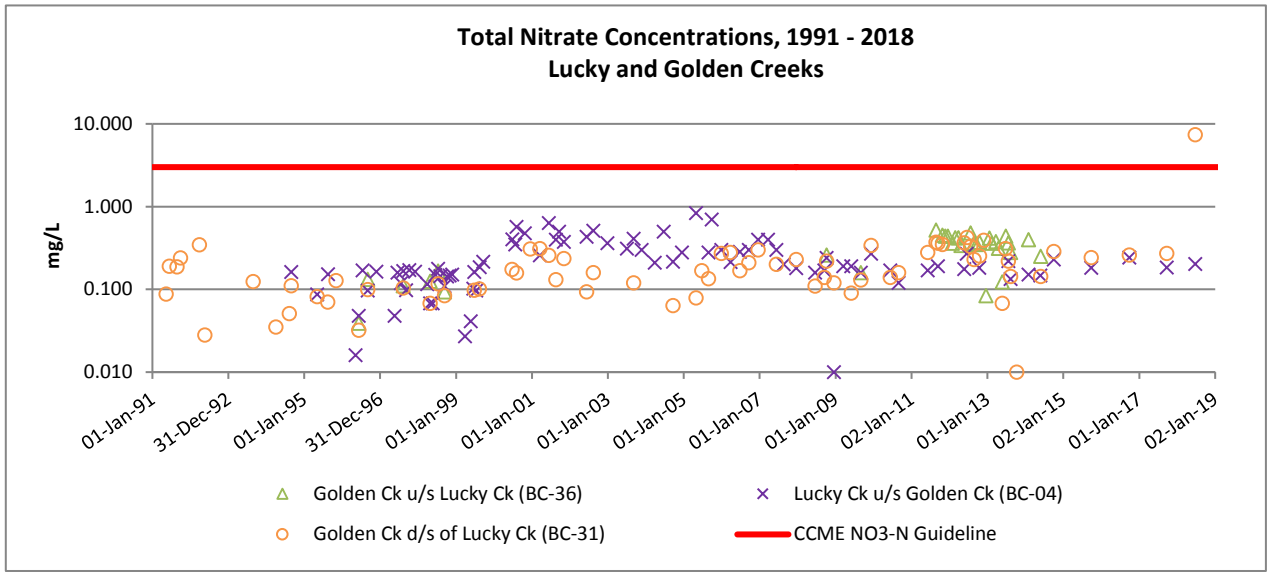
APPENDIX B.
Surface Water Data Plots

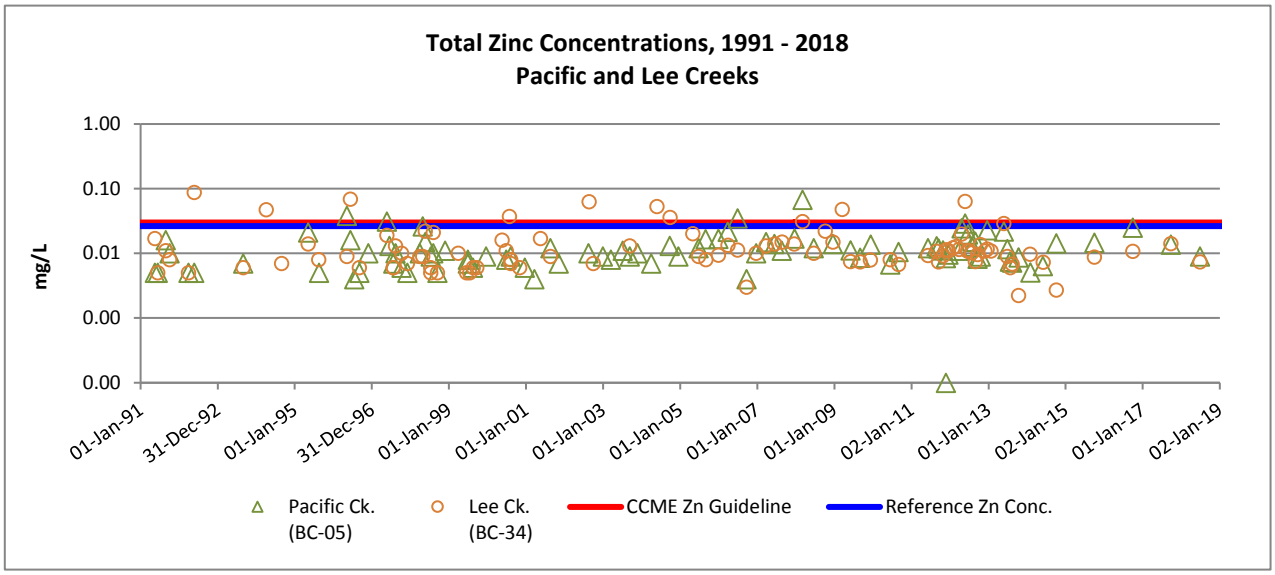

Total Zinc Concentrations, 1991 - 2018
Lucky and Golden Creeks
mg/L
1.0000
0.1000
0.0100
0.0010
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
CCME Zn Guideline

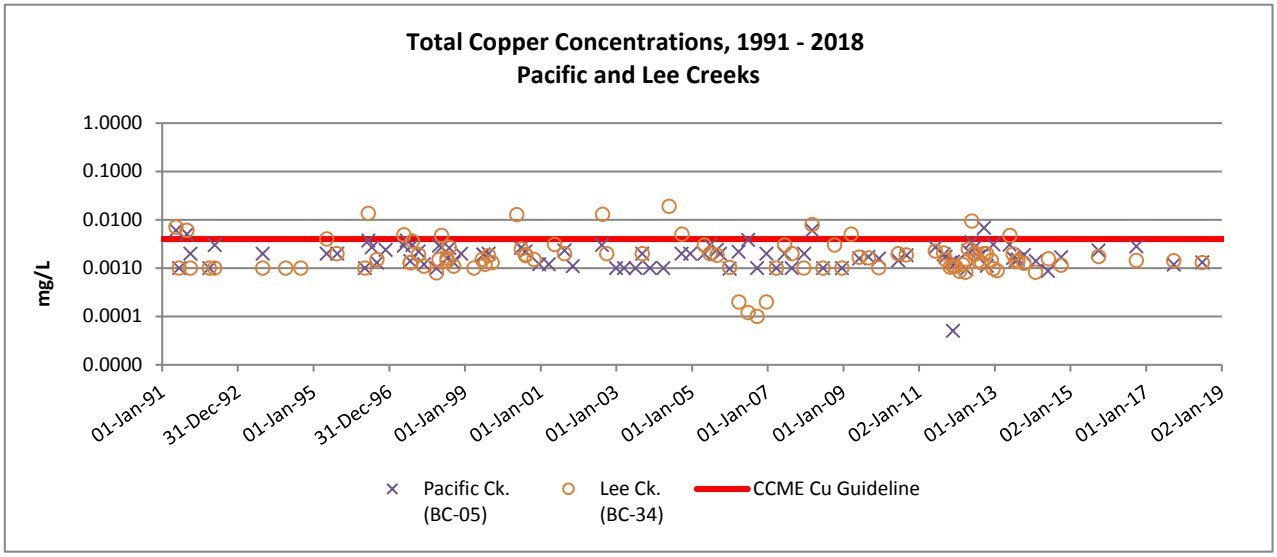

Total Copper Concentrations, 1991 - 2018
Lucky and Golden Creeks
mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
CCME Cu Guideline

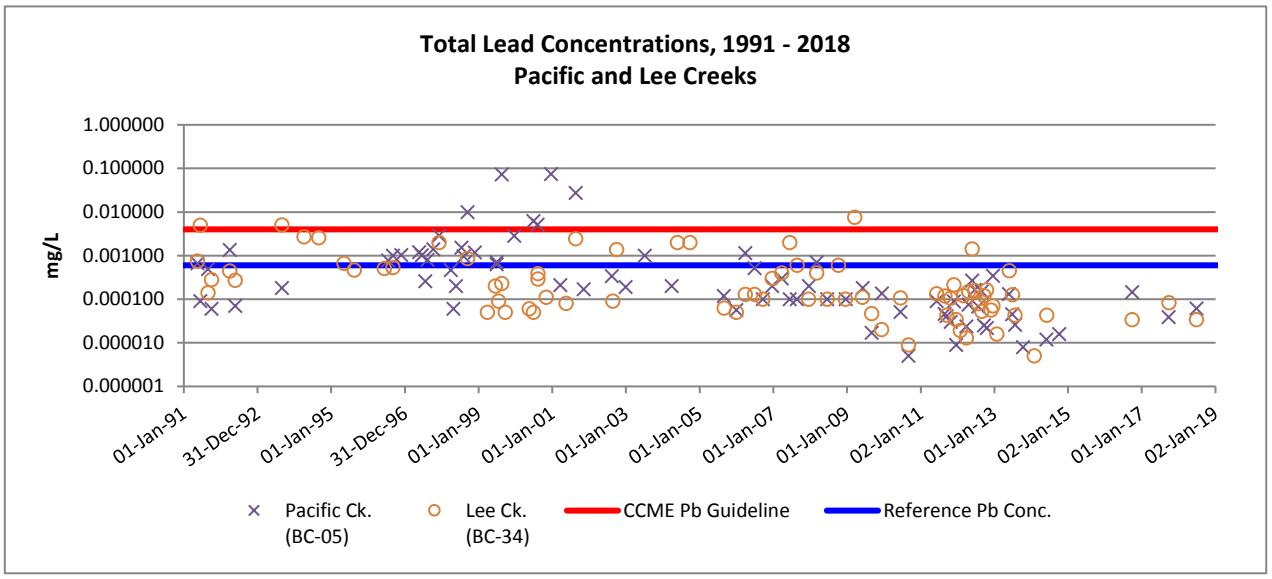

Total Lead Concentrations, 1991 - 2018
Lucky and Golden Creeks
mg/L
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
0.000001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
CCM pb Guideline

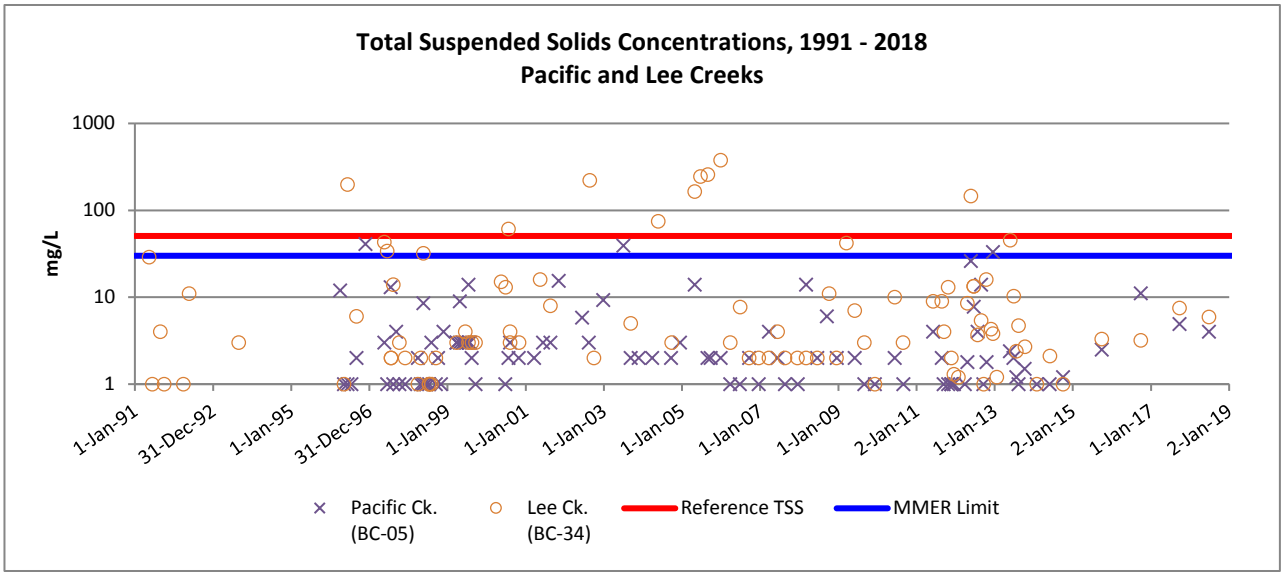

Total Suspended Solids Concentrations, 1991 - 2018
Lucky and Golden Creeks
log mg/L
10000
1000
100
10
1
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
MMER Limit

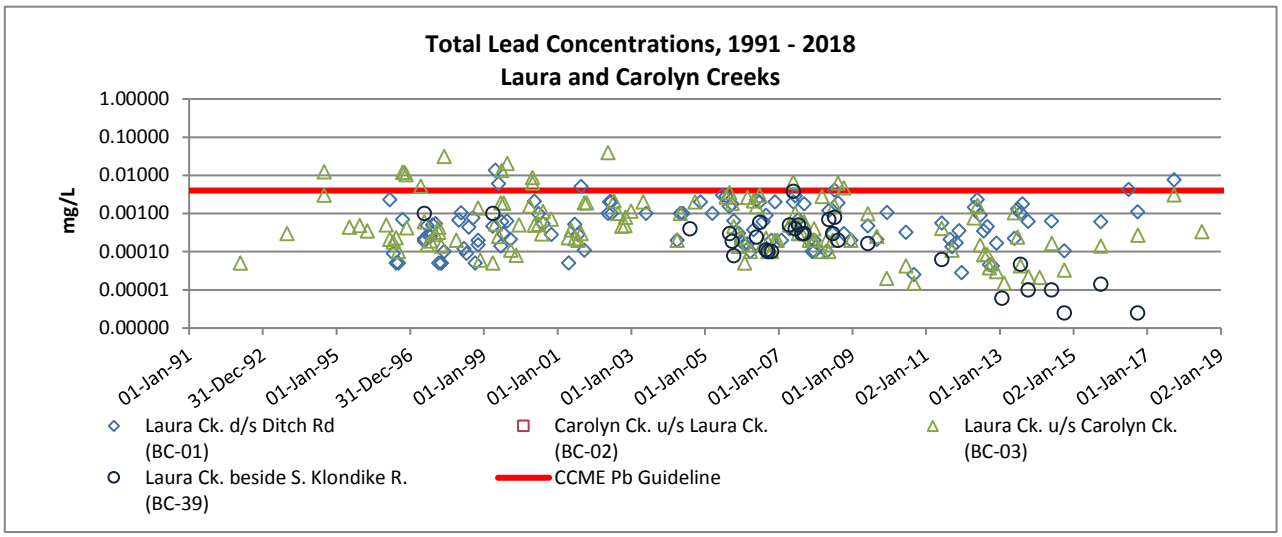

Total Nitrate Concentrations, 1991 - 2018
Lucky and Golden Creeks
mg/L
10.000
1.000
0.100
0.010
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Golden Ck u/s Lucky Ck (BC-36)
Lucky Ck u/s Golden Ck (BC-04)
Golden Ck d/s of Lucky Ck (BC-31)
CCME NO3-N Guideline

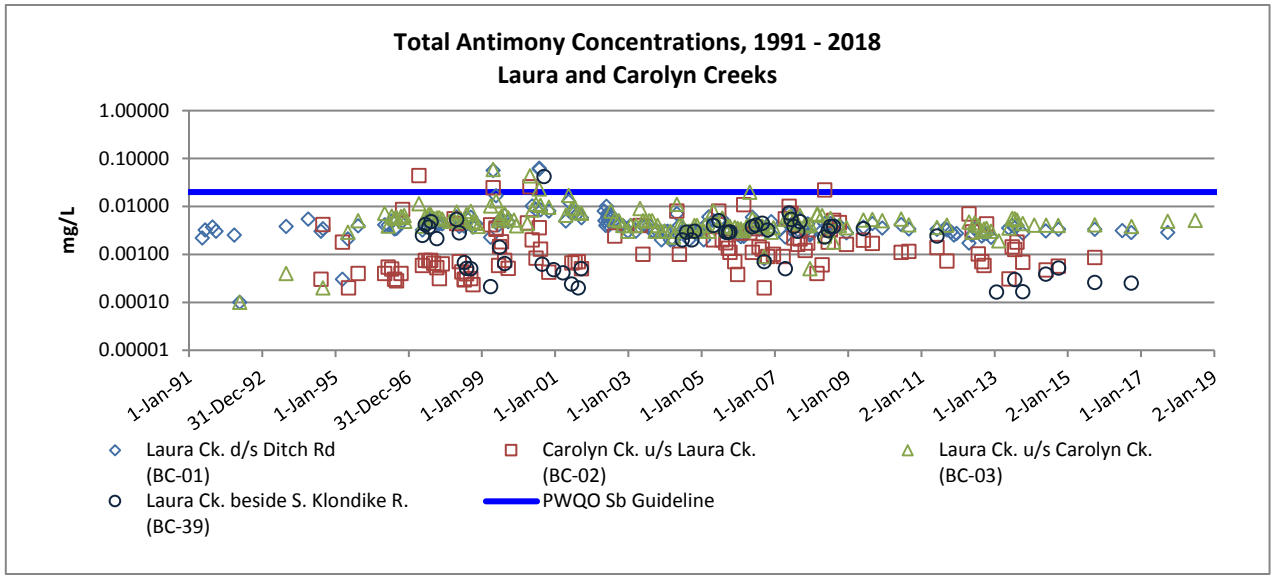

Total Zinc Concentrations, 1991 - 2018
Pacific and Lee Creeks
mg/L
1.00
0.10
0.01
0.00
0.00
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Pacific Ck. (BC-05)
Lee Ck. (BC-34)
CCME Zn Guideline
Reference Zn Conc.

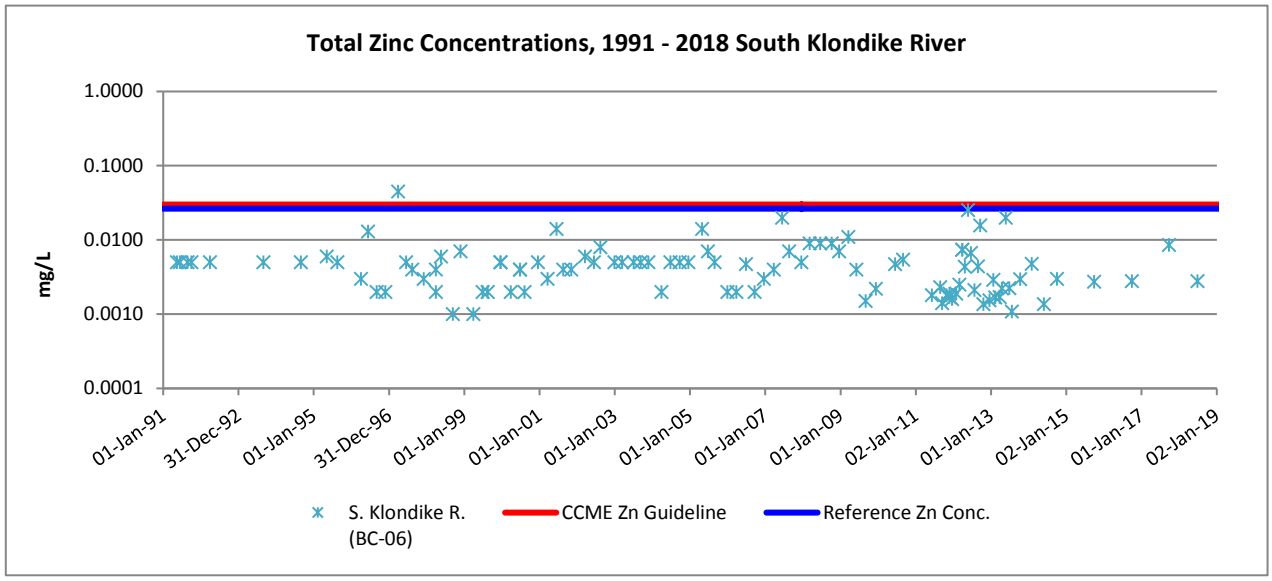

Total Copper Concentrations, 1991 - 2018
Pacific and Lee Creeks
mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
0.0000
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Pacific Ck. (BC-05)
Lee Ck. (BC-34)
CCME Cu Guideline

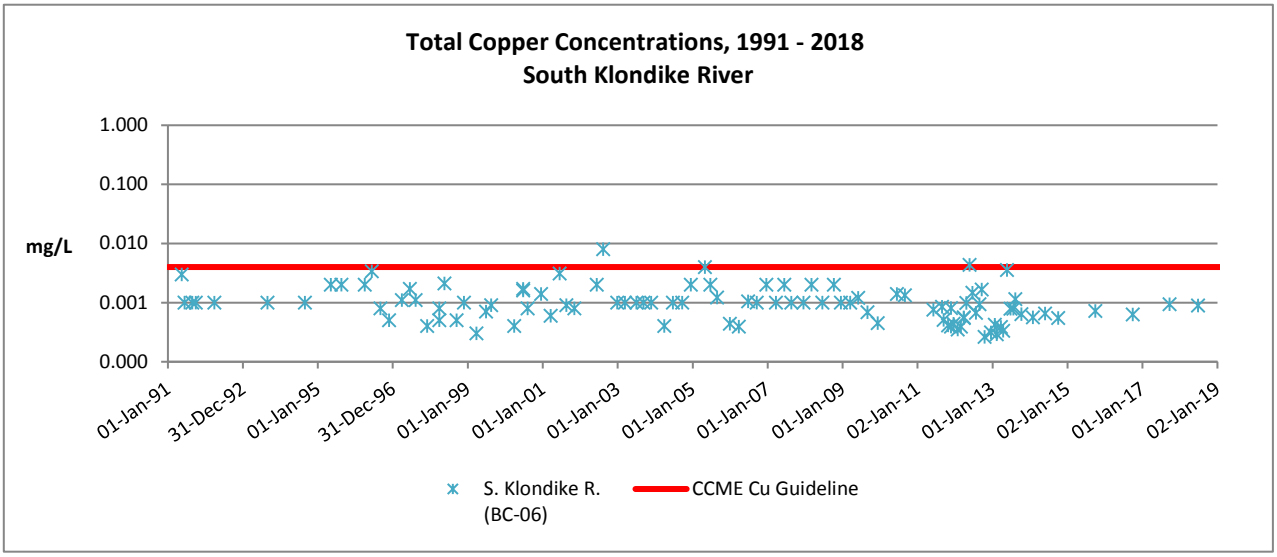

Total Lead Concentrations, 1991 - 2018
Pacific and Lee Creeks
mg/L
1.000000
0.100000
0.010000
0.001000
0.000100
0.000010
0.000001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Pacific Ck. (BC-05)
Lee Ck. (BC-34)
CCME Pb Guideline
Reference Pb Conc.

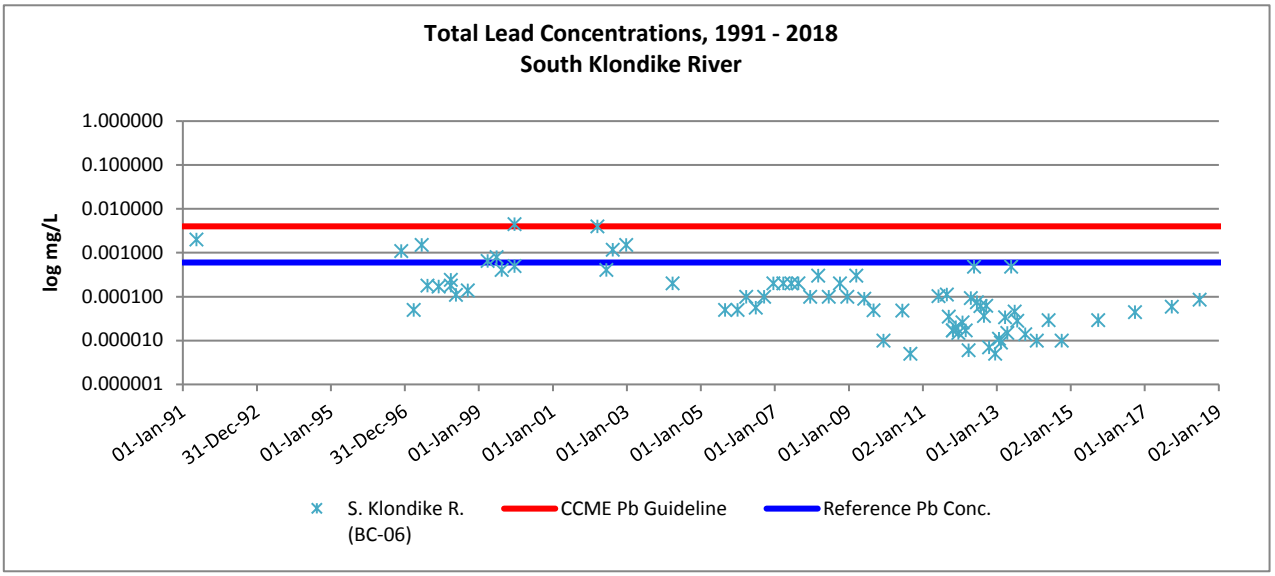

Total Suspended Solids Concentrations, 1991 - 2018
Pacific and Lee Creeks
mg/L
1000
100
10
1
1-Jan-91
31-Dec-92
1-Jan-95
31-Dec-96
1-Jan-99
1-Jan-01
1-Jan-03
1-Jan-05
1-Jan-07
1-Jan-09
2-Jan-11
1-Jan-13
2-Jan-15
1-Jan-17
2-Jan-19
Pacific Ck. (BC-05)
Lee Ck. (BC-34)
Reference TSS
MMER Limit

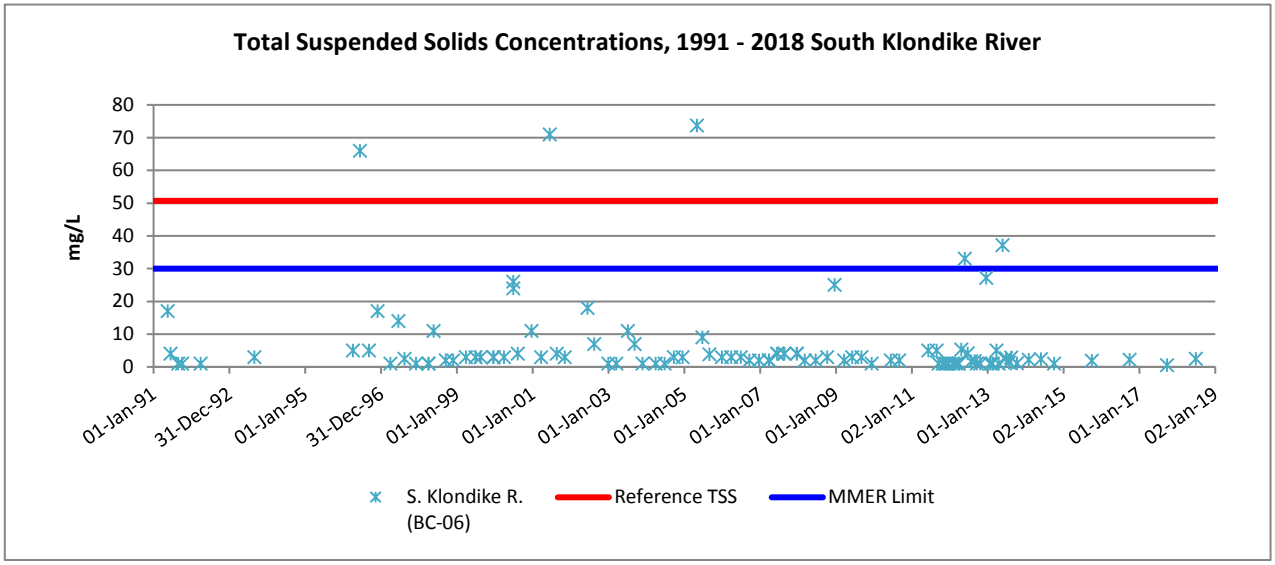

Total Lead Concentrations, 1991 - 2018
Laura and Carolyn Creeks
mg/L
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
0.00000
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
Laura Ck. d/s Ditch Rd (BC-01)
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

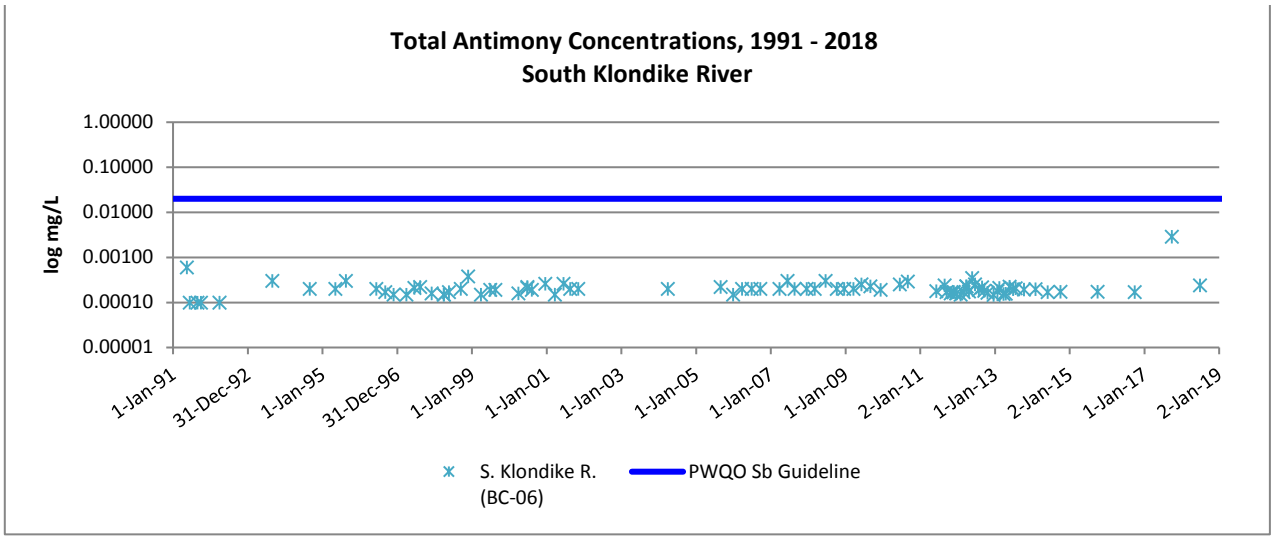

Total Antimony Concentrations, 1991 - 2018
Laura and Carolyn Creeks
mg/L
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
1-Jan-91
31-Dec-92
1-Jan-95
31-Dec-96
1-Jan-99
1-Jan-01
1-Jan-03
1-Jan-05
1-Jan-07
1-Jan-09
2-Jan-11
1-Jan-13
2-Jan-15
1-Jan-17
2-Jan-19
Laura Ck. d/s Ditch Rd (BC-01)
Carolyn Ck. 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

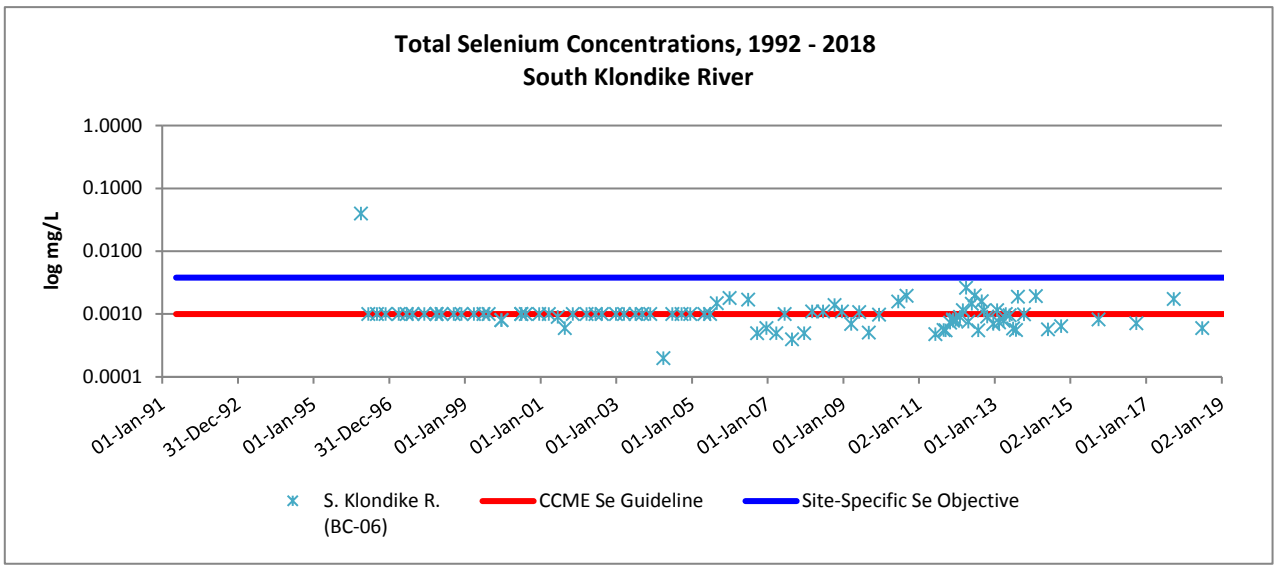

Total Zinc Concentrations, 1991 - 2018 South Klondike River
mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
S. Klondike R. (BC-06)
CCME Zn Guideline
Reference Zn Conc.

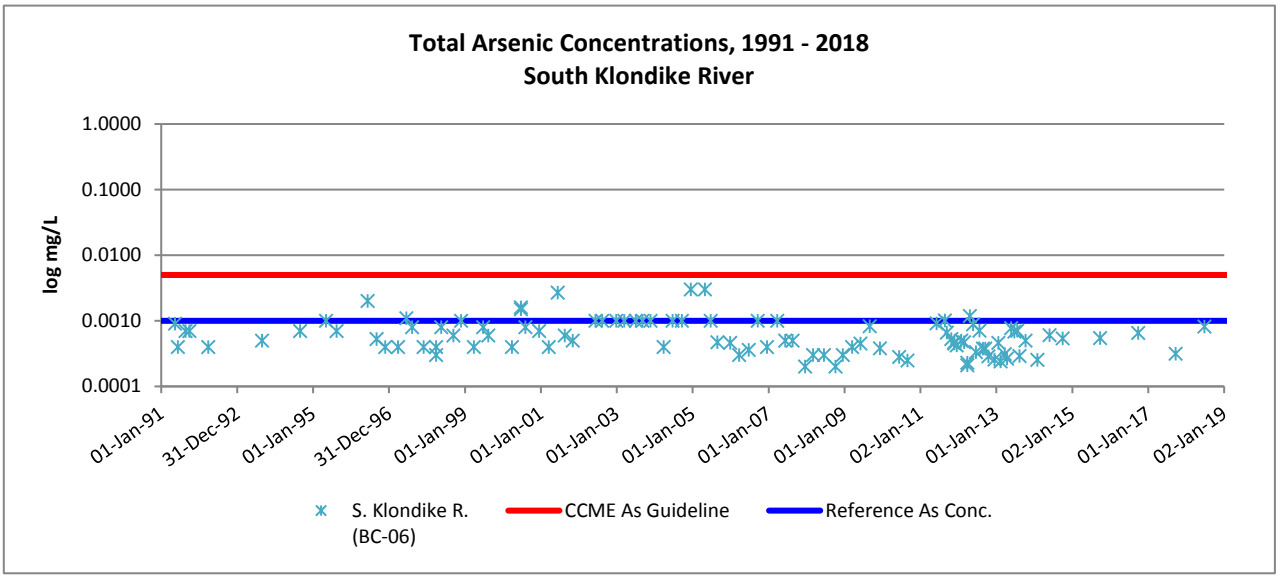

Total Copper Concentrations, 1991 - 2018
South Klondike River
mg/L
1.000
0.100
0.010
0.001
0.000
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
S. Klondike R. (BC-06)
CCME Cu Guideline


Total Lead Concentrations, 1991 - 2018
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
02-Jan-19
S. Klondike R. (BC-06)
CCME Pb Guideline
Reference Pb Conc.

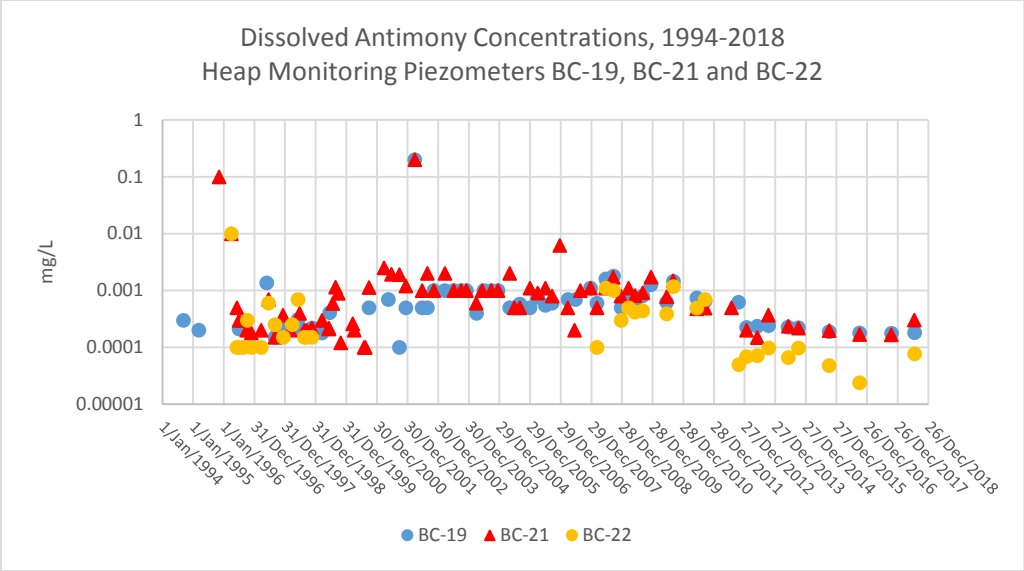

Total Suspended Solids Concentrations, 1991 - 2018 South Klondike River
mg/L
80
70
60
50
40
30
20
10
0
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
S. Klondike R. (BC-06)
Reference TSS
MMER Limit

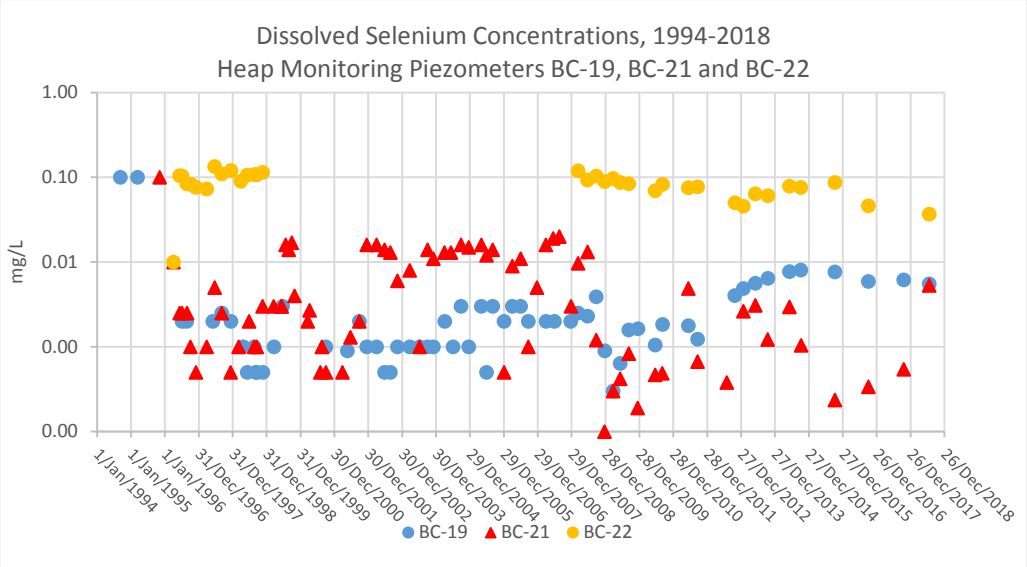

Total Antimony Concentrations, 1991 - 2018
South Klondike River
log mg/L
1.00000
0.10000
0.01000
0.00100
0.00010
0.00001
1-Jan-91
31-Dec-92
1-Jan-95
31-Dec-96
1-Jan-99
1-Jan-01
1-Jan-03
1-Jan-05
1-Jan-07
1-Jan-09
2-Jan-11
1-Jan-13
2-Jan-15
1-Jan-17
2-Jan-19
S. Klondike R. (BC-06)
PWQO Sb Guideline

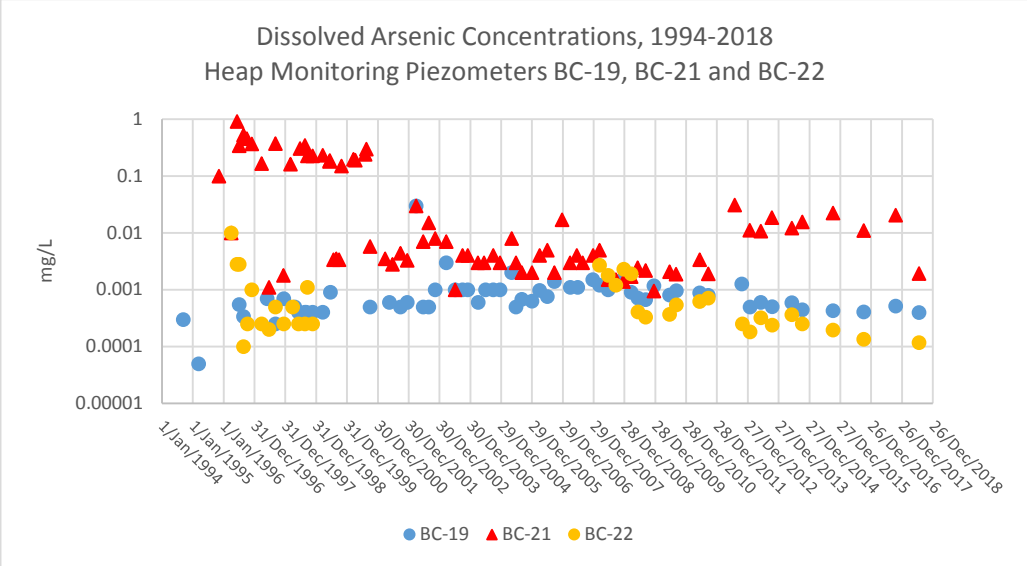

Total Selenium Concentrations, 1992 - 2018
South Klondike River
log mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
S. Klondike R. (BC-06)
CCME Se Guideline
Site-Specific Se Objective

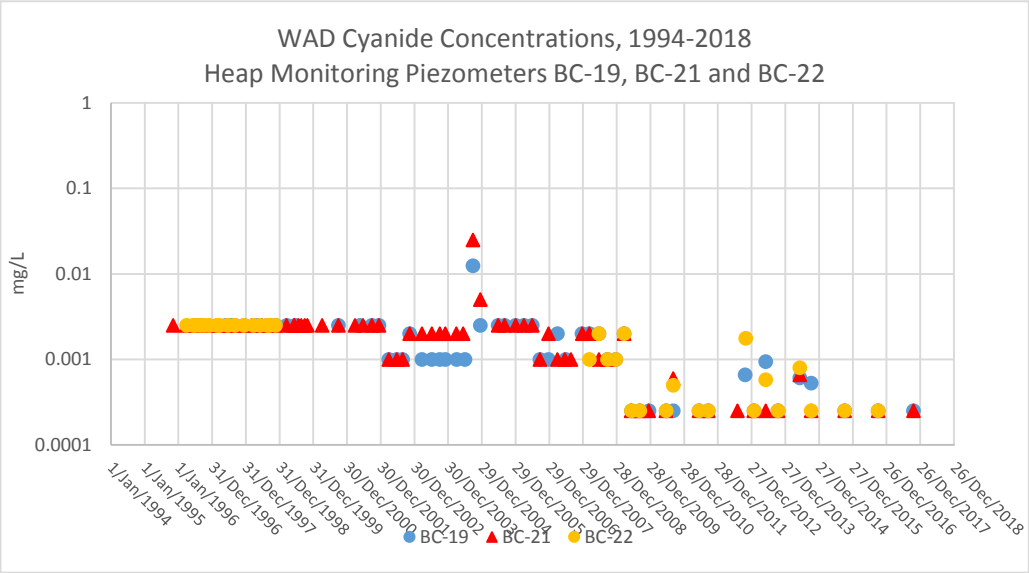

Total Arsenic Concentrations, 1991 - 2018
South Klondike River
log mg/L
1.0000
0.1000
0.0100
0.0010
0.0001
01-Jan-91
31-Dec-92
01-Jan-95
31-Dec-96
01-Jan-99
01-Jan-01
01-Jan-03
01-Jan-05
01-Jan-07
01-Jan-09
02-Jan-11
01-Jan-13
02-Jan-15
01-Jan-17
02-Jan-19
S. Klondike R. (BC-06)
CCME As Guideline
Reference As Conc.

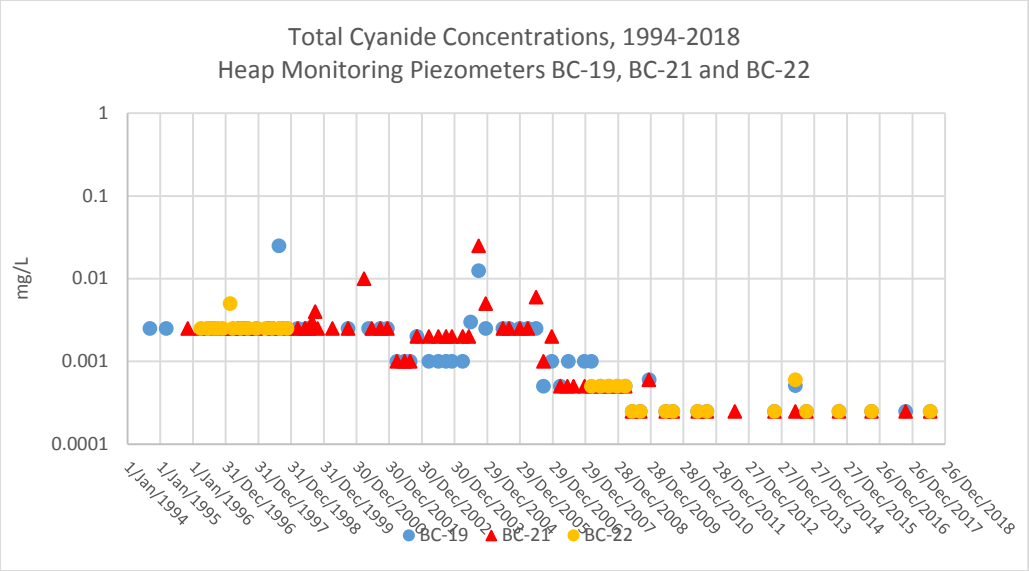
APPENDIX C.
Groundwater Data Plots

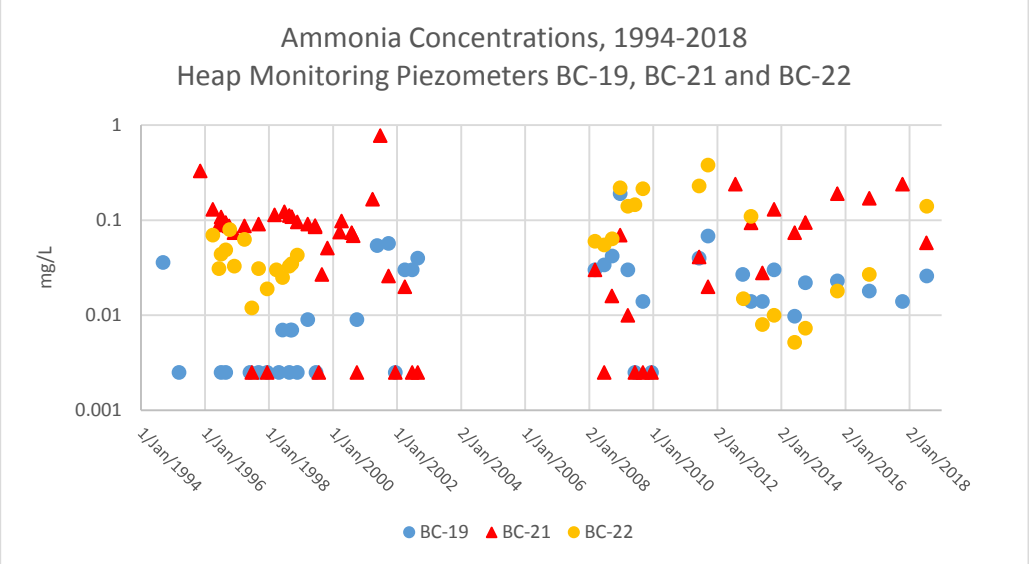

Dissolved Antimony Concentrations, 1994-2018
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
1/Jan/1994
1/Jan/1995
1/Jan/1996
31/Dec/1996
31/Dec/1997
31/Dec/1998
31/Dec/1999
30/Dec/2000
30/Dec/2001
30/Dec/2002
29/Dec/2003
29/Dec/2004
29/Dec/2005
29/Dec/2006
28/Dec/2007
28/Dec/2008
28/Dec/2009
28/Dec/2010
27/Dec/2011
27/Dec/2012
27/Dec/2013
27/Dec/2014
26/Dec/2015
26/Dec/2016
26/Dec/2017
26/Dec/2018
BC-19
BC-21
BC-22

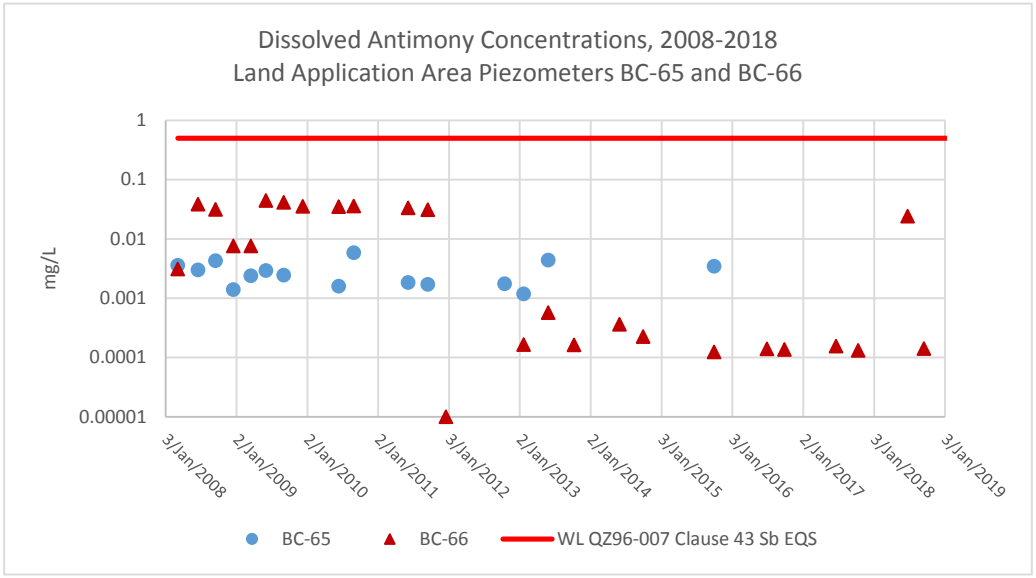

Dissolved Selenium Concentrations, 1994-2018
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1.00
0.10
0.01
0.00
0.00
1/Jan/1994
1/Jan/1995
1/Jan/1996
31/Dec/1996
31/Dec/1997
31/Dec/1998
31/Dec/1999
30/Dec/2000
30/Dec/2001
30/Dec/2002
29/Dec/2003
29/Dec/2004
29/Dec/2005
29/Dec/2006
28/Dec/2007
28/Dec/2008
28/Dec/2009
28/Dec/2010
27/Dec/2011
27/Dec/2012
27/Dec/2013
27/Dec/2014
26/Dec/2015
26/Dec/2016
26/Dec/2017
26/Dec/2018
BC-19
BC-21
BC-22

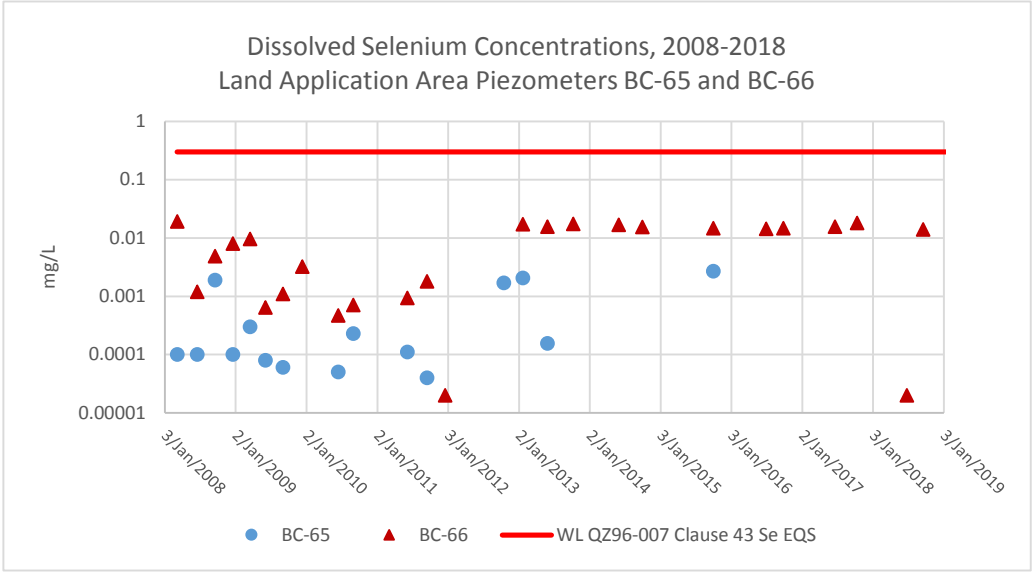

Dissolved Arsenic Concentrations, 1994-2018
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
1/Jan/1994
1/Jan/1995
1/Jan/1996
31/Dec/1996
31/Dec/1997
31/Dec/1998
31/Dec/1999
30/Dec/2000
30/Dec/2001
30/Dec/2002
29/Dec/2003
29/Dec/2004
29/Dec/2005
29/Dec/2006
28/Dec/2007
28/Dec/2008
28/Dec/2009
28/Dec/2010
27/Dec/2011
27/Dec/2012
27/Dec/2013
27/Dec/2014
26/Dec/2015
26/Dec/2016
26/Dec/2017
26/Dec/2018
BC-19
BC-21
BC-22

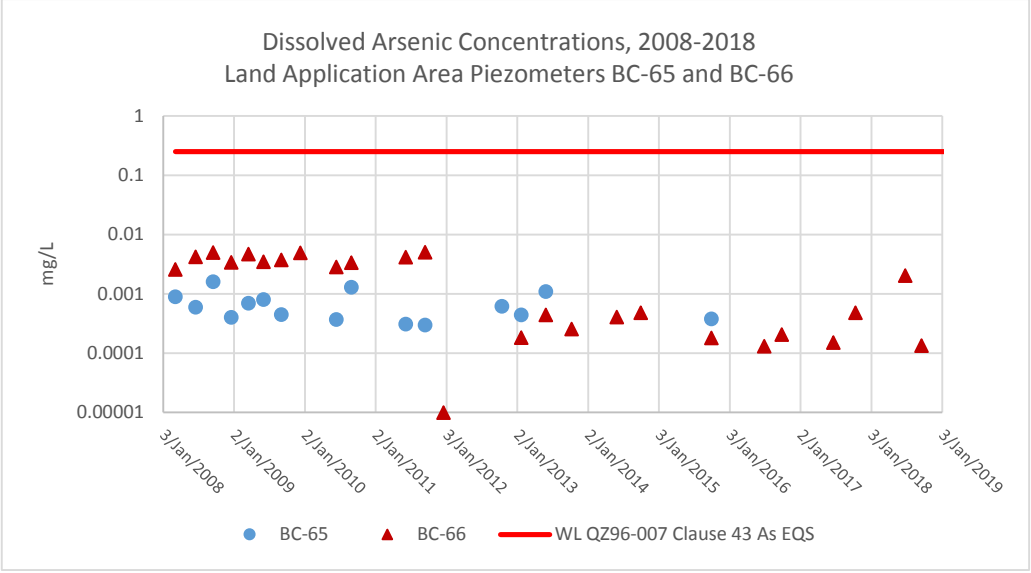

WAD Cyanide Concentrations, 1994-2018
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
0.0001
1/Jan/1994
1/Jan/1995
1/Jan/1996
31/Dec/1996
31/Dec/1997
31/Dec/1998
31/Dec/1999
30/Dec/2000
30/Dec/2001
30/Dec/2002
29/Dec/2003
29/Dec/2004
29/Dec/2005
29/Dec/2006
28/Dec/2007
28/Dec/2008
28/Dec/2009
28/Dec/2010
27/Dec/2011
27/Dec/2012
27/Dec/2013
27/Dec/2014
26/Dec/2015
26/Dec/2016
26/Dec/2017
26/Dec/2018
BC-19
BC-21
BC-22

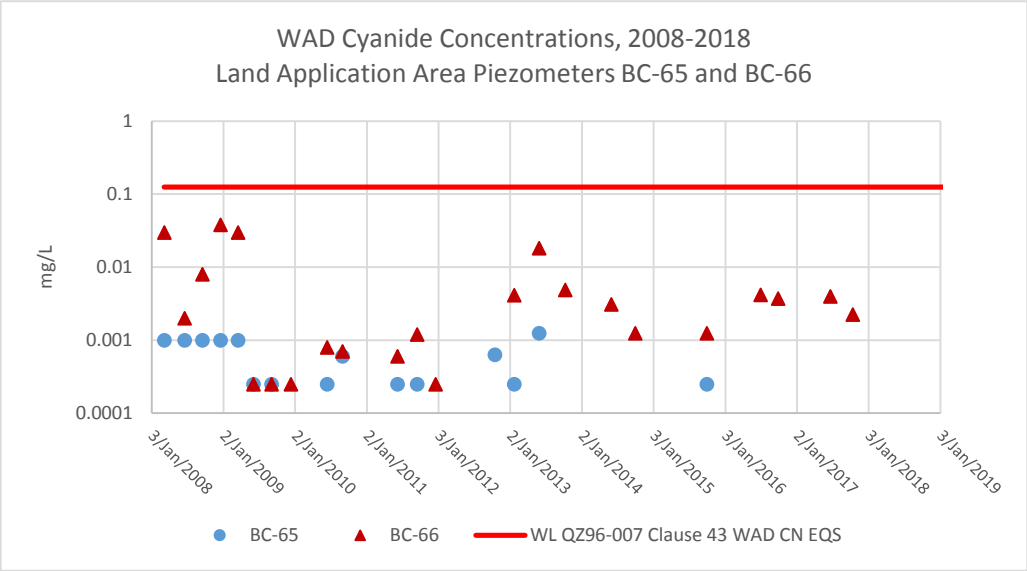

Total Cyanide Concentrations, 1994-2018
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
0.0001
1/Jan/1994
1/Jan/1995
1/Jan/1996
31/Dec/1996
31/Dec/1997
31/Dec/1998
31/Dec/1999
30/Dec/2000
30/Dec/2001
30/Dec/2002
29/Dec/2003
29/Dec/2004
29/Dec/2005
29/Dec/2006
28/Dec/2007
28/Dec/2008
28/Dec/2009
28/Dec/2010
27/Dec/2011
27/Dec/2012
27/Dec/2013
27/Dec/2014
26/Dec/2015
26/Dec/2016
26/Dec/2017
26/Dec/2018
BC-19
BC-21
BC-22

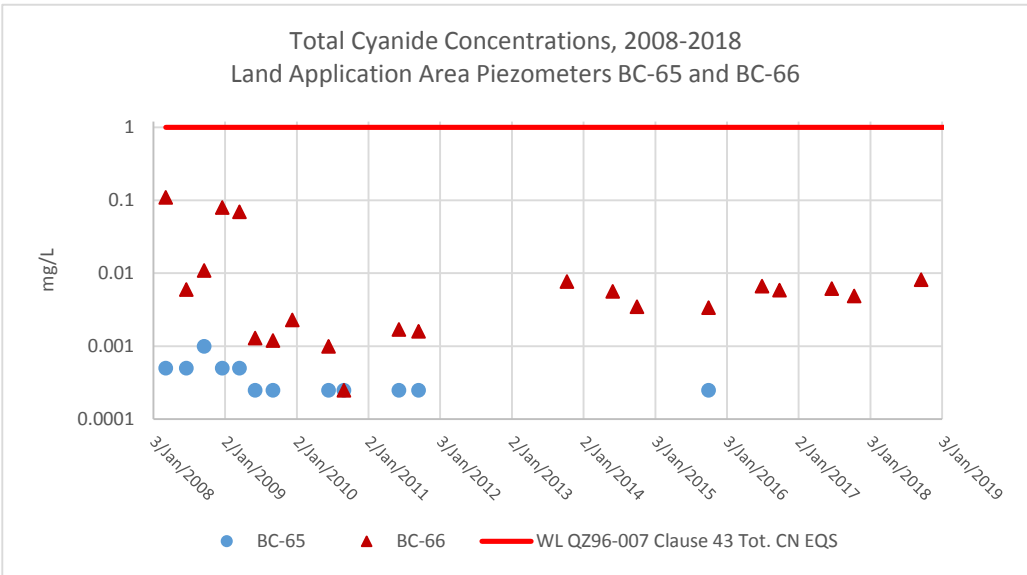

Ammonia Concentrations, 1994-2018
Heap Monitoring Piezometers BC-19, BC-21 and BC-22
mg/L
1
0.1
0.01
0.001
1/Jan/1994
1/Jan/1996
1/Jan/1998
1/Jan/2000
1/Jan/2002
2/Jan/2004
1/Jan/2006
2/Jan/2008
1/Jan/2010
2/Jan/2012
2/Jan/2014
2/Jan/2016
2/Jan/2018
BC-19
BC-21
BC-22

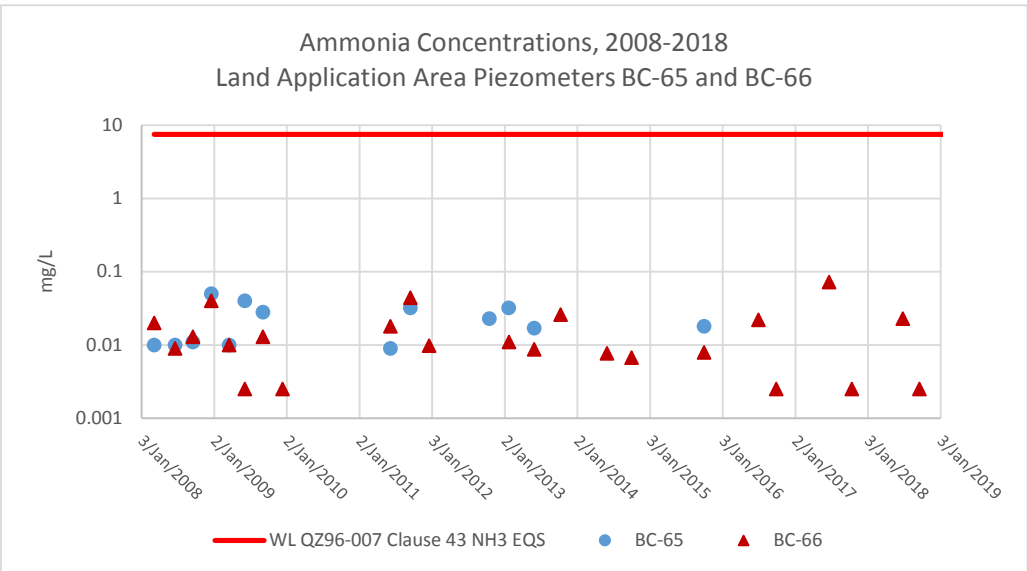

Dissolved Antimony Concentrations, 2008-2018
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
3/Jan/2008
2/Jan/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
BC-65
BC-66
WL QZ96-007 Clause 43 Sb EQS

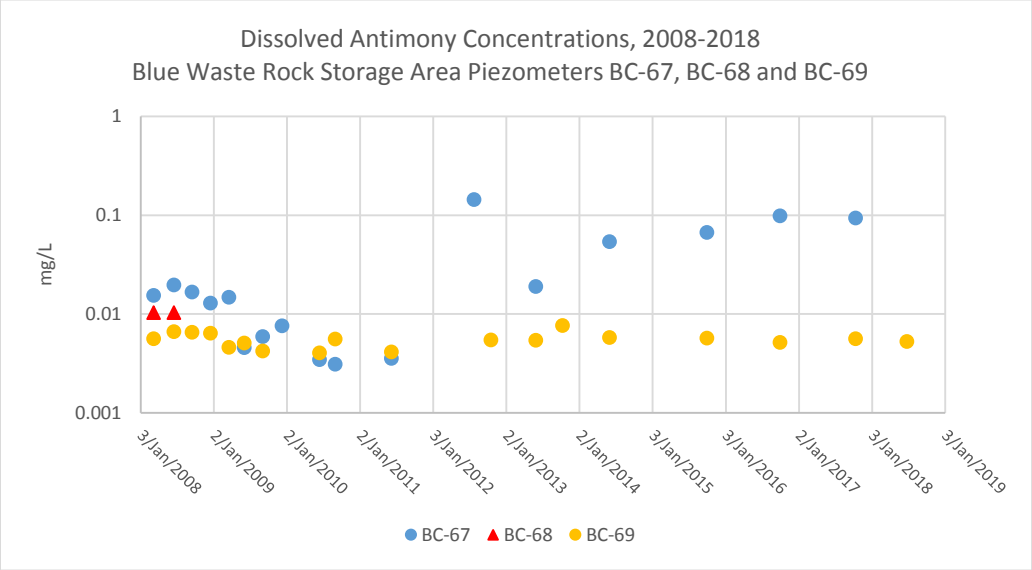

Dissolved Selenium Concentrations, 2008-2018
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
3/Jan/2008
2/Jan/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
BC-65
BC-66
WL QZ96-007 Clause 43 Se EQS

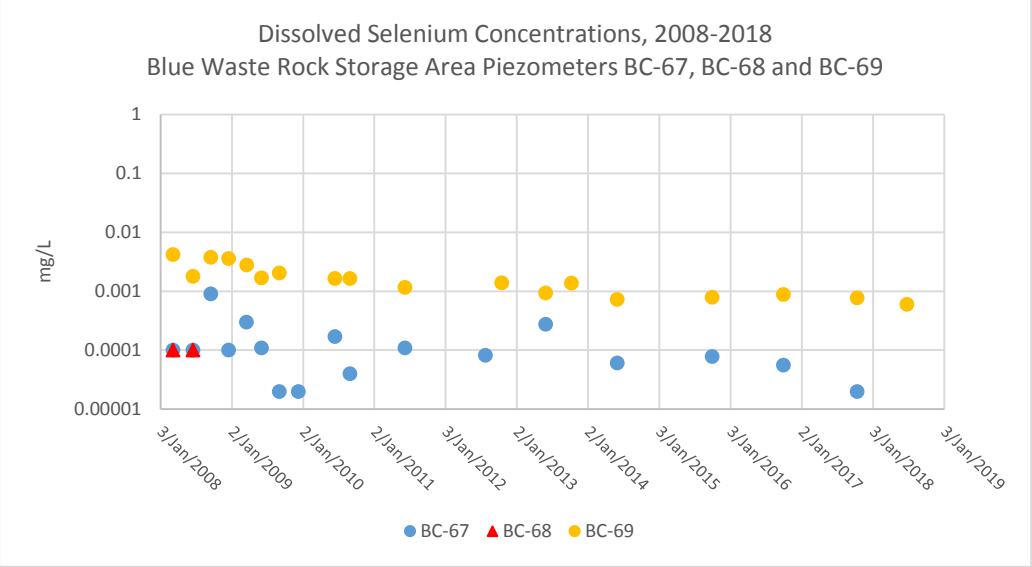

Dissolved Arsenic Concentrations, 2008-2018
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
3/Jan/2008
2/Jan/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
BC-65
BC-66
WL QZ96-007 Clause 43 As EQS

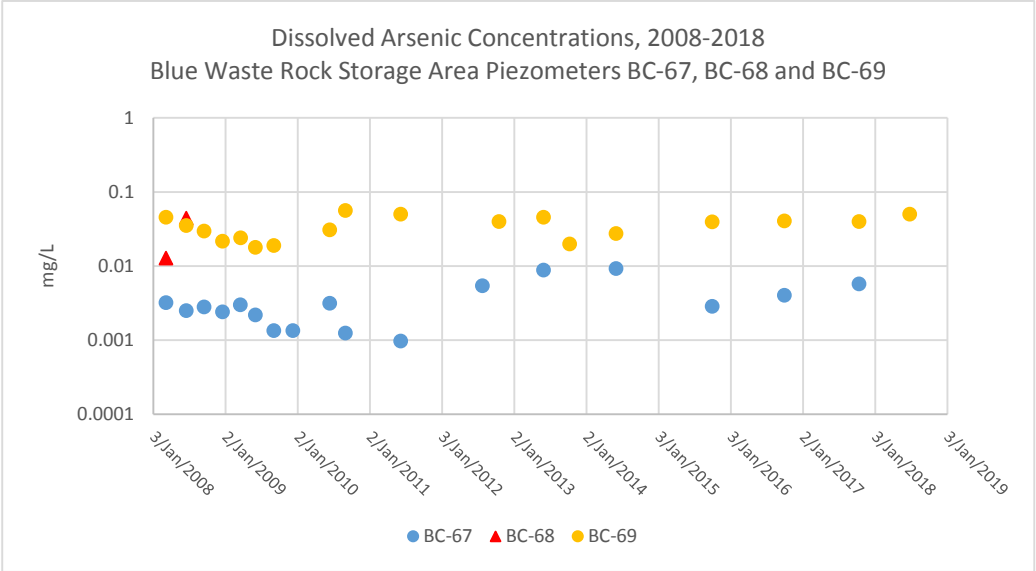

WAD Cyanide Concentrations, 2008-2018
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
3/Jan/2008
2/Jan/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
BC-65
BC-66
WL QZ96-007 Clause 43 WAD CN EQS

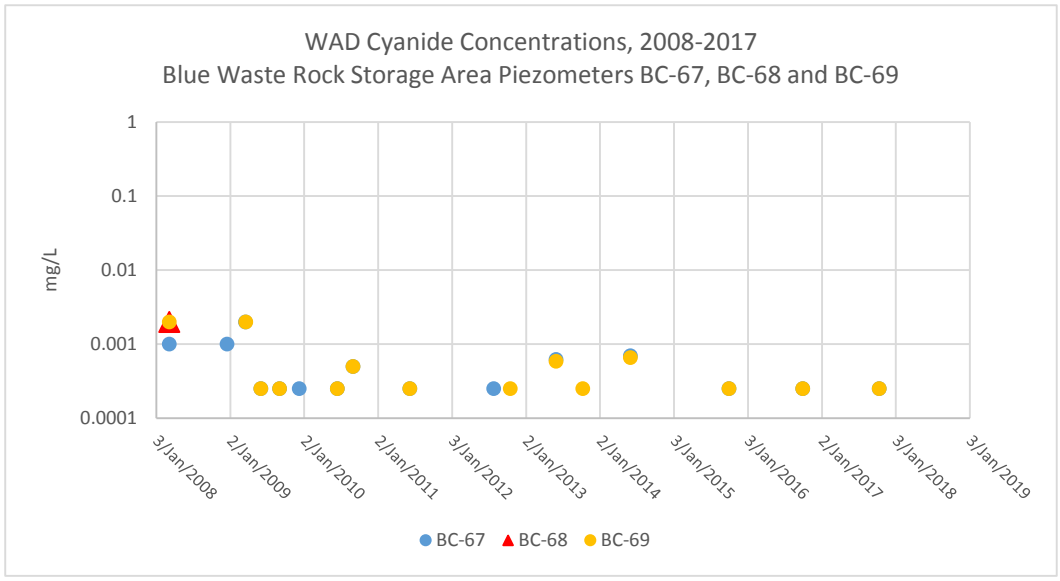

Total Cyanide Concentrations, 2008-2018
Land Application Area Piezometers BC-65 and BC-66
mg/L
1
0.1
0.01
0.001
0.0001
3/Jan/2008
2/Jan/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
BC-65
BC-66
WL QZ96-007 Clause 43 Tot. CN EQS

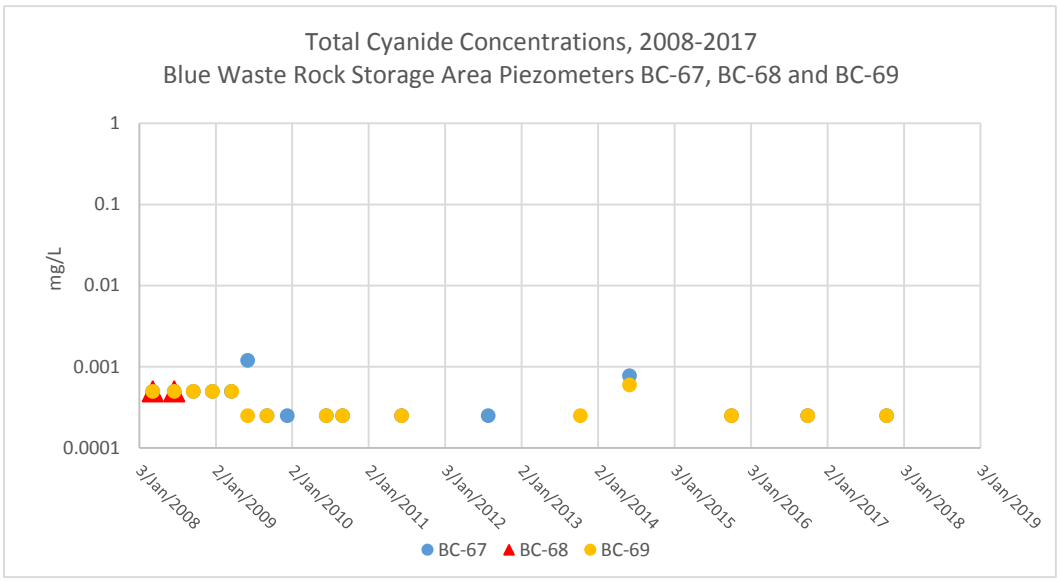

Ammonia Concentrations, 2008-2018
Land Application Area Piezometers BC-65 and BC-66
mg/L
10
1
0.1
0.01
0.001
3/Jan/2008
2/Jan/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
WL QZ96-007 Clause 43 NH3 EQS
BC-65
BC-66

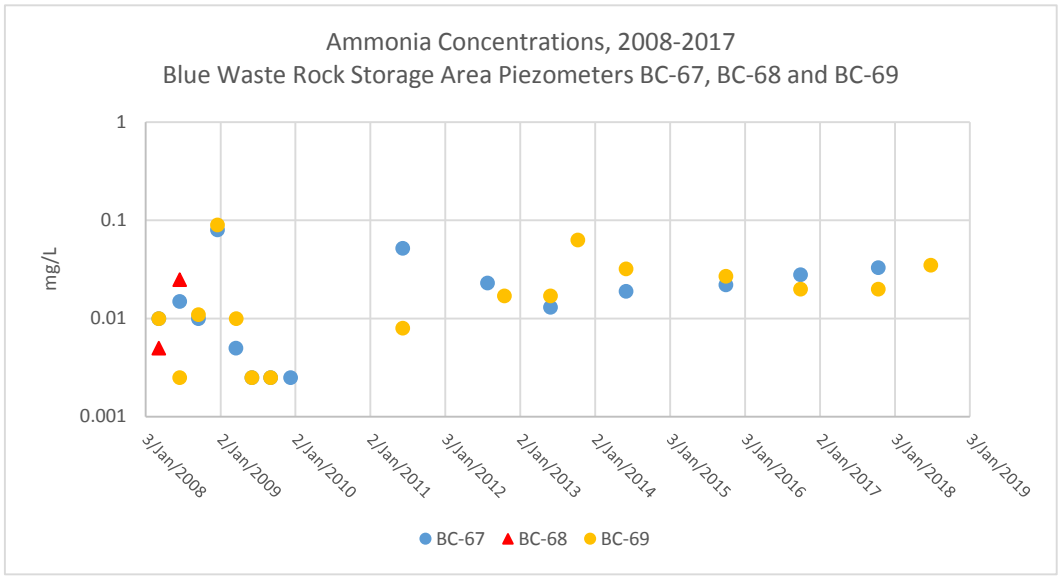

Dissolved Antimony Concentrations, 2008-2018
Blue Waste Rock Storage Area Piezometers BC-67, BC-68 and BC-69
mg/L
1
0.1
0.01
0.001
3/Jan/2008
2/Jan/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
BC-67
BC-68
BC-69


Dissolved Selenium Concentrations, 2008-2018
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/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
BC-67
BC-68
BC-69


Dissolved Arsenic Concentrations, 2008-2018
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/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
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/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
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/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
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/2009
2/Jan/2010
2/Jan/2011
3/Jan/2012
2/Jan/2013
2/Jan/2014
3/Jan/2015
3/Jan/2016
2/Jan/2017
3/Jan/2018
3/Jan/2019
BC-67
BC-68
BC-69

APPENDIX B

SEMI-ANNUAL SAMPLING REPORT TETRATECH EBA

TETRA TECH

November 15, 2018

ISSUED FOR USE
FILE: ENW.WENW03130-01
Via Email: jchown@goldenpredator.com

Golden Predator Mining Corp.
Suite 250 – 200 Burrard Street
Vancouver, BC V6C 3L6

Attention: Jillian Chown, Permitting and Environment

Subject: Groundwater and Surface Water Sampling, Brewery Creek Mine Site, September 2018

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Golden Predator Mining Corp. (Golden Predator) to conduct groundwater and surface water monitoring at the Brewery Creek Mine located 55 km east of Dawson City, Yukon. All work was conducted in general accordance with Schedule B-3 of Water Licence Qz96-007, Amendment 8 (the Permit).

Our scope of services for the 2018 water monitoring was as follows:

- Collect water samples from monitoring wells BC 65 and BC 66 (if sufficient water for sample collection).
- Collect three surface water samples in the area downgradient of the heap leach area; and
- Prepare this factual letter report describing methods, field observations and analytical results.

2.0 WORK COMPLETED

Mr. Darren Thomas and Mr. Cole Fischer of Tetra Tech's Whitehorse office conducted the water monitoring on September 18, 2018, and completed the following field activities:

- Documented well condition, depth to groundwater, and total well depth at the two monitoring well locations (BC 65 and BC 66).
- Prior to sampling, purged the wells (removed a minimum of three well volumes where possible). Physicochemical field parameters (water temperature, pH, dissolved oxygen, specific conductance, and redox potential) were recorded periodically throughout purging and at the time of sample collection. Groundwater purging continued until at least three consecutive measurements of pH, temperature, and electrical conductivity were within 10% of each other. Field parameters were measured using a YSI Pro Plus instrument, calibrated September 18, 2018 for pH, Conductivity and Dissolved Oxygen (DO) prior to work commencing. Groundwater drawn with a bailer was placed in a sample cup and the instrument probes submersed. The instrument probes were placed directly within the surface water sample locations.
  - Tetra Tech attempted to purge well BC 66 with Waterra brand tubing and hydrolift pump, however the depth to water was greater than what the pump could lift. Therefore, this well was purged using a dedicated bailer.
  - Tetra Tech purged well BC 65 dry using a dedicated bailer. After three hours the well did not recover and no sample could be collected.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

- Groundwater samples were collected from well BC 66. Groundwater samples were collected directly from the bailer into clean, labelled, new laboratory-supplied containers. Samples for dissolved metals were field-filtered using a new disposable 0.45 µm filter, and preserved with nitric acid supplied by the lab.
- Surface water samples were collected from locations BC 28, BC 28A, and BC 28B. There was no water in the outflow channel at BC 28, so a surface water sample was collected from Pond 3 near the outflow. The valve at BC 28A was opened and allowed to run for 75 minutes prior to sampling. Surface water samples were collected directly into clean, labelled, new laboratory-supplied containers.
- Tetra Tech implemented a Quality Assurance/Quality Control (QA/QC) program to ensure the integrity of the sampling methods and analytical testing which included:
  - A field blank.
  - A duplicate sample was collected at BC 28A and labelled “DUP-1.” Tetra Tech formed the duplicate samples by alternately placing approximately 10% of the sample volume into the original sample container and then placing the same amount into the duplicate sample container. Tetra Tech continued placing additional aliquots of approximately 10% of the sample volume into each container until both containers were filled.
- Collected groundwater and surface water samples were stored in laboratory-supplied sample bottles in coolers containing ice packs and delivered to Maxxam Analytics Inc. (Maxxam) of Burnaby, BC under Chain of Custody. Maxxam is an accredited laboratory conforming to ISO/IEC 17025 and ISO/IEC 17011.
- Collected groundwater and surface water samples were submitted for analyses of the following:
  - Routine parameters (conductivity, pH, alkalinity, hardness);
  - Total dissolved solids (low level);
  - Ammonia;
  - Anions (nitrite, nitrate, chloride, sulphate);
  - Cyanide (Weak Acid Dissociable and Total); and
  - Dissolved metals and Total Metals with Hg (low level detection limits)

3.0 FIELD OBSERVATIONS

Table 3-1: Groundwater Well Conditions

Station	Date	Time	Depth to Water (m)	Total Depth (m)	Samples Collected (Y/N)	Volume Purged (L)	Method	Comments
BC 65	18-Sep-18	13:38	64.46	65.20	N	1.1	Bailer	Well purged dry, did not recharge after 3 hours, no sample collected
BC 66	18-Sep-18	11:06	48.53	66.15	Y	120	Bailer	Unable to draw water with hydrolift pump, purged by bailer. Parameters stable prior to sampling.

Table 3-2: Field Parameter Data

Station	Date	Time	Temp (°C)	DO (mg/L)	SPC (µS/cm)	pH	ORP (mV)	Comments
BC 65	18-Sep-18	13:38	3.7	4.98	135.6	7.85	141.3	Brown, turbid water. Parameters collected from purge water at 1 L.
BC 66	18-Sep-18	15:42	2.0	3.65	804.4	7.65	117.4	Clear water
BC 28	18-Sep-18	10:45	6.4	1.52	1,619	7.09	154.3	No flow in discharge channel, sample collected from Pond 3 at discharge.
BC 28A	18-Sep-18	11:00	4.0	12.62	346.4	7.18	201.6	Valve opened for flushing from 09:45 to 11:00; valve reclosed.
BC 28B[1]	18-Sep-18	10:00	3.7	16.94[1]	23.3	6.60	220.1	Sampled from Pond 2 southeast side

[1] This value is well above the maximum saturation DO value for fresh water at 3.7ºC (~13.2 mg/L). We suspect the field meter malfunctioned during this reading.

4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the Golden Predator Mining Corp. and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Golden Predator Mining Corp. or for any Project other than the water monitoring at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech's Services Agreement. Tetra Tech's Limitations are provided in Appendix B of this report.

5.0 CLOSURE

We trust this memo report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

Prepared by:
Darren Thomas, P.Eng.
Environmental Engineer
Environment & Water Practice
Direct Line: 867.668.9233
Darren.Thomas@tetratech.com

Reviewed by:
H. Scott Schillereff, Ph.D., P.Geo.(BC)
Principal Specialist and Senior Hydrogeologist
Environment & Water Practice
Direct Line: 867.668.3068
Scott.Schillereff@tetratech.com

/sy

Attachments: Appendix A – Laboratory Certificate of Analysis
Appendix B – Limitations on the use of this Document

APPENDIX A

LABORATORY CERTIFICATE OF ANALYSIS

Your Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Your C.O.C. #: 565808-02-01

Attention: Jillian Chown

Golden Predator Exploration
Suite 250-200 Burrard St
Vancouver, BC
CANADA V6C 3L6

Report Date: 2018/09/27
Report #: R2626583
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B881572
Received: 2018/09/19, 12:45

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Low Level	4	N/A	2018/09/21	BBY6SOP-00026	SM 22 2320 B m
Chloride - Low Level	4	N/A	2018/09/21	BBY6SOP-00011	SM 22 4500-Cl- E m
Conductance - Low Level	4	N/A	2018/09/21	BBY6SOP-00026	SM 22 2510 B m
Hardness Total (calculated as CaCO3) (2)	4	N/A	2018/09/24	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	4	N/A	2018/09/24	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAF	4	N/A	2018/09/24	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total) by CVAF	4	2018/09/24	2018/09/24	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	4	N/A	2018/09/24	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (dissolved)	3	N/A	2018/09/22	BBY7SOP-00002	EPA 6020b R2 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2018/09/24	BBY7SOP-00002	EPA 6020b R2 m
Elements by ICPMS Digested LL (total)	2	2018/09/21	2018/09/24	BBY7SOP-00003,	EPA 6020b R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	N/A	2018/09/24	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (total)	2	N/A	2018/09/24	BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N Low Level (Preserved)	4	N/A	2018/09/21	BBY6SOP-00009	EPA 350.1 m
Nitrate + Nitrite (N)	4	N/A	2018/09/21	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) by CFA	4	N/A	2018/09/21	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	4	N/A	2018/09/21	BBY WI-00033	Auto Calc
Filter and HNO3 Preserve for Metals	4	N/A	2018/09/20	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (3)	4	N/A	2018/09/21	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate - Low Level	3	N/A	2018/09/21	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate - Low Level	1	N/A	2018/09/24	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	4	2018/09/24	2018/09/27	BBY6SOP-00033	SM 22 2540 C m
Free (WAD) Cyanide (1)	4	N/A	2018/09/25	CAM SOP-00457	OMOE E3015 5 m
Total (SAD) Cyanide (1)	4	2018/09/25	2018/09/25	CAM SOP-00457	OMOE E3015 5 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 accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All

Your Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Your C.O.C. #: 565808-02-01

Attention: Jillian Chown

Golden Predator Exploration
Suite 250-200 Burrard St
Vancouver, BC
CANADA V6C 3L6

Report Date: 2018/09/27
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CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B881572
Received: 2018/09/19, 12:45

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. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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. When sampling is not conducted by Maxxam, results relate to the supplied 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) This test was performed by Maxxam Ontario (From Burnaby)
(2) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(3) 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.
Diana Cruz, Project Manager
Email: DCruz@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 #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID				UJ2614		UJ2615			UJ2616		
Sampling Date				2018/09/18 11:00		2018/09/18 10:00			2018/09/18		
COC Number				565808-02-01		565808-02-01			565808-02-01		
	UNITS	FW	MAR	BC28A	RDL	BC28B	RDL	QC Batch	BC66	RDL	QC Batch
ANIONS											
Nitrite (N)	mg/L	0.06	-	<0.0050	0.0050	**0.248**	0.0050	9153865	0.0058	0.0050	9153865
Calculated Parameters											
Filter and HNO3 Preservation	N/A	-	-	FIELD		FIELD		ONSITE	FIELD		ONSITE
Nitrate (N)	mg/L	-	-	283	4.0	250	4.0	9151176	28.6	0.40	9151176
Misc. Inorganics											
Free Cyanide	mg/L	-	-	0.051	0.0050	0.024	0.0010	9160304	0.0037	0.0010	9160304
Total Cyanide (CN)	mg/L	-	-	0.43	0.025	0.036	0.0050	9160303	0.0082	0.0050	9160303
Alkalinity (Total as CaCO3)	mg/L	-	-	141	0.50	56.5	0.50	9156559	276	0.50	9156559
Alkalinity (PP as CaCO3)	mg/L	-	-	<0.50	0.50	<0.50	0.50	9156559	<0.50	0.50	9156559
Bicarbonate (HCO3)	mg/L	-	-	172	0.50	69.0	0.50	9156559	337	0.50	9156559
Carbonate (CO3)	mg/L	-	-	<0.50	0.50	<0.50	0.50	9156559	<0.50	0.50	9156559
Hydroxide (OH)	mg/L	-	-	<0.50	0.50	<0.50	0.50	9156559	<0.50	0.50	9156559
Anions											
Dissolved Sulphate (SO4)	mg/L	-	-	1140 (1)	5.0	777 (1)	5.0	9154897	35.9	0.50	9156814
Dissolved Chloride (Cl)	mg/L	120	-	21	0.50	20	0.50	9154896	4.8	0.50	9154896
Nutrients											
Total Ammonia (N)	mg/L	-	-	<0.0050	0.0050	0.047	0.0050	9153774	<0.0050	0.0050	9153774
Nitrate plus Nitrite (N)	mg/L	-	-	283 (1)	4.0	250 (1)	4.0	9153861	28.6 (1)	0.40	9153861
Physical Properties											
Conductivity	uS/cm	-	-	4000	1.0	3260	1.0	9156560	798	1.0	9156560
pH	pH	6.5:9.0	7.0:8.7	7.86		7.59		9156551	7.99		9156551
Physical Properties											
Total Dissolved Solids	mg/L	-	-	3370	1.0	2620	1.0	9156571	480	1.0	9156571

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
(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 #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID				UJ2617		
Sampling Date				2018/09/18 12:00		
COC Number				565808-02-01		
	UNITS	FW	MAR	DUP-1	RDL	QC Batch
ANIONS						
Nitrite (N)	mg/L	0.06	-	0.0050	0.0050	9153865
Calculated Parameters						
Filter and HNO3 Preservation	N/A	-	-	FIELD		ONSITE
Nitrate (N)	mg/L	-	-	281	4.0	9151176
Misc. Inorganics						
Free Cyanide	mg/L	-	-	0.077	0.0050	9160304
Total Cyanide (CN)	mg/L	-	-	0.46	0.025	9160303
Alkalinity (Total as CaCO3)	mg/L	-	-	144	0.50	9156559
Alkalinity (PP as CaCO3)	mg/L	-	-	<0.50	0.50	9156559
Bicarbonate (HCO3)	mg/L	-	-	175	0.50	9156559
Carbonate (CO3)	mg/L	-	-	<0.50	0.50	9156559
Hydroxide (OH)	mg/L	-	-	<0.50	0.50	9156559
Anions						
Dissolved Sulphate (SO4)	mg/L	-	-	1130 (1)	5.0	9154897
Dissolved Chloride (Cl)	mg/L	120	-	21	0.50	9154896
Nutrients						
Total Ammonia (N)	mg/L	-	-	<0.0050	0.0050	9153774
Nitrate plus Nitrite (N)	mg/L	-	-	281 (1)	4.0	9153861
Physical Properties						
Conductivity	uS/cm	-	-	4030	1.0	9156560
pH	pH	6.5:9.0	7.0:8.7	7.84		9156551
Physical Properties						
Total Dissolved Solids	mg/L	-	-	3450	1.0	9156571

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
(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 #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID				UJ2614	UJ2615		UJ2616		UJ2617		
Sampling Date				2018/09/18 11:00	2018/09/18 10:00		2018/09/18		2018/09/18 12:00		
COC Number				565808-02-01	565808-02-01		565808-02-01		565808-02-01		
	UNITS	FW	MAR	BC28A	BC28B	RDL	BC66	RDL	DUP-1	RDL	QC Batch
Calculated Parameters											
Dissolved Hardness (CaCO3)	mg/L	-	-	1330	936	0.50	401	0.50	1320	0.50	9152458
Elements											
Dissolved Mercury (Hg)	ug/L	0.026	0.016	**0.0276**	0.0067	0.0020	<0.0020	0.0020	**0.0277**	0.0020	9154529
Dissolved Metals by ICPMS											
Dissolved Aluminum (Al)	ug/L	-	-	4.8	14.6	2.5	1.25	0.50	4.5	2.5	9153775
Dissolved Antimony (Sb)	ug/L	-	-	1810	1610	0.10	0.142	0.020	1830	0.10	9153775
Dissolved Arsenic (As)	ug/L	5	12.5	**285**	**154**	0.10	0.134	0.020	**286**	0.10	9153775
Dissolved Barium (Ba)	ug/L	-	-	33.6	33.4	0.10	46.1	0.020	33.6	0.10	9153775
Dissolved Beryllium (Be)	ug/L	-	-	<0.050	<0.050	0.050	<0.010	0.010	<0.050	0.050	9153775
Dissolved Bismuth (Bi)	ug/L	-	-	<0.025	<0.025	0.025	<0.0050	0.0050	<0.025	0.025	9153775
Dissolved Boron (B)	ug/L	1500	-	<50	<50	50	<10	10	<50	50	9153775
Dissolved Cadmium (Cd)	ug/L	-	0.12	**0.278**	<0.025	0.025	0.0226	0.0050	**0.288**	0.025	9153775
Dissolved Chromium (Cr)	ug/L	-	-	<0.50	<0.50	0.50	<0.10	0.10	<0.50	0.50	9153775
Dissolved Cobalt (Co)	ug/L	-	-	470	411	0.025	64.8	0.0050	478	0.025	9153775
Dissolved Copper (Cu)	ug/L	-	-	1.15	1.06	0.25	0.081	0.050	1.18	0.25	9153775
Dissolved Iron (Fe)	ug/L	300	-	125	8.4	5.0	1.4	1.0	129	5.0	9153775
Dissolved Lead (Pb)	ug/L	-	-	<0.025	<0.025	0.025	0.0074	0.0050	<0.025	0.025	9153775
Dissolved Lithium (Li)	ug/L	-	-	5.7	3.5	2.5	20.4	0.50	5.0	2.5	9153775
Dissolved Manganese (Mn)	ug/L	-	-	22.6	11.1	0.25	0.532	0.050	21.6	0.25	9153775
Dissolved Molybdenum (Mo)	ug/L	73	-	16.0	17.5	0.25	0.130	0.050	15.3	0.25	9153775
Dissolved Nickel (Ni)	ug/L	-	-	8.36	3.92	0.10	0.135	0.020	8.18	0.10	9153775
Dissolved Phosphorus (P)	ug/L	-	-	39	<10	10	8.3	2.0	44	10	9153775
Dissolved Selenium (Se)	ug/L	1	-	**147**	**121**	0.20	**14.0**	0.040	**146**	0.20	9153775
Dissolved Silicon (Si)	ug/L	-	-	4640	587	250	4710	50	4680	250	9153775
Dissolved Silver (Ag)	ug/L	0.25	7.5	<0.025	<0.025	0.025	<0.0050	0.0050	<0.025	0.025	9153775
Dissolved Strontium (Sr)	ug/L	-	-	2030	1470	0.25	432	0.050	2040	0.25	9153775
Dissolved Thallium (Tl)	ug/L	0.8	-	0.280	0.158	0.010	0.0108	0.0020	0.310	0.010	9153775
Dissolved Tin (Sn)	ug/L	-	-	<1.0	<1.0	1.0	<0.20	0.20	<1.0	1.0	9153775
Dissolved Titanium (Ti)	ug/L	-	-	<2.5	<2.5	2.5	<0.50	0.50	<2.5	2.5	9153775
Dissolved Uranium (U)	ug/L	15	-	**29.5**	**16.9**	0.010	1.27	0.0020	**29.5**	0.010	9153775
Dissolved Vanadium (V)	ug/L	-	-	<1.0	<1.0	1.0	<0.20	0.20	<1.0	1.0	9153775

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

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 #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)

Maxxam ID				UJ2614	UJ2615		UJ2616		UJ2617		
Sampling Date				2018/09/18 11:00	2018/09/18 10:00		2018/09/18		2018/09/18 12:00		
COC Number				565808-02-01	565808-02-01		565808-02-01		565808-02-01		
	UNITS	FW	MAR	BC28A	BC28B	RDL	BC66	RDL	DUP-1	RDL	QC Batch
Dissolved Zinc (Zn)	ug/L	30	-	9.11	0.68	0.50	0.88	0.10	8.77	0.50	9153775
Dissolved Zirconium (Zr)	ug/L	-	-	<0.50	<0.50	0.50	<0.10	0.10	<0.50	0.50	9153775
Dissolved Calcium (Ca)	mg/L	-	-	374	262	0.25	78.7	0.050	372	0.25	9151046
Dissolved Magnesium (Mg)	mg/L	-	-	95.3	68.4	0.25	49.7	0.050	95.3	0.25	9151046
Dissolved Potassium (K)	mg/L	-	-	5.02	4.49	0.25	2.60	0.050	4.96	0.25	9151046
Dissolved Sodium (Na)	mg/L	-	-	367	314	0.25	11.5	0.050	369	0.25	9151046
Dissolved Sulphur (S)	mg/L	-	-	372	271	15	11.4	3.0	371	15	9151046

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

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Maxxam Job #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID				UJ2614	UJ2617		
Sampling Date				2018/09/18 11:00	2018/09/18 12:00		
COC Number				565808-02-01	565808-02-01		
	UNITS	FW	MAR	BC28A	DUP-1	RDL	QC Batch
Calculated Parameters							
Total Hardness (CaCO3)	mg/L	-	-	1310	1310	0.50	9151761
Elements							
Total Mercury (Hg)	ug/L	0.026	0.016	**0.0279**	**0.0289**	0.0020	9156515
Total Metals by ICPMS							
Total Aluminum (Al)	ug/L	-	-	6.8	6.6	2.5	9155684
Total Antimony (Sb)	ug/L	-	-	1780	1810	0.10	9155684
Total Arsenic (As)	ug/L	5	12.5	**273**	**276**	0.10	9155684
Total Barium (Ba)	ug/L	-	-	30.4	30.6	0.10	9155684
Total Beryllium (Be)	ug/L	-	-	<0.050	<0.050	0.050	9155684
Total Bismuth (Bi)	ug/L	-	-	<0.025	<0.025	0.025	9155684
Total Boron (B)	ug/L	1500	-	<50	<50	50	9155684
Total Cadmium (Cd)	ug/L	-	0.12	**0.267**	**0.277**	0.025	9155684
Total Chromium (Cr)	ug/L	-	-	<0.50	<0.50	0.50	9155684
Total Cobalt (Co)	ug/L	-	-	458	468	0.025	9155684
Total Copper (Cu)	ug/L	-	-	1.19	1.21	0.25	9155684
Total Iron (Fe)	ug/L	300	-	134	137	5.0	9155684
Total Lead (Pb)	ug/L	-	-	<0.025	<0.025	0.025	9155684
Total Lithium (Li)	ug/L	-	-	5.7	5.7	2.5	9155684
Total Manganese (Mn)	ug/L	-	-	21.8	22.0	0.25	9155684
Total Molybdenum (Mo)	ug/L	73	-	14.9	15.0	0.25	9155684
Total Nickel (Ni)	ug/L	-	-	8.15	8.26	0.10	9155684
Total Phosphorus (P)	ug/L	-	-	41	38	10	9155684
Total Selenium (Se)	ug/L	1	-	**145**	**147**	0.20	9155684
Total Silicon (Si)	ug/L	-	-	4710	4700	250	9155684
Total Silver (Ag)	ug/L	0.25	7.5	<0.025	<0.025	0.025	9155684
Total Strontium (Sr)	ug/L	-	-	1870	1880	0.25	9155684
Total Thallium (Tl)	ug/L	0.8	-	0.306	0.315	0.010	9155684
Total Tin (Sn)	ug/L	-	-	<1.0	<1.0	1.0	9155684
Total Titanium (Ti)	ug/L	-	-	<2.5	<2.5	2.5	9155684
Total Uranium (U)	ug/L	15	-	**30.1**	**29.9**	0.010	9155684
Total Vanadium (V)	ug/L	-	-	<1.0	<1.0	1.0	9155684

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

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Maxxam Job #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

LOW LEVEL TOTAL METALS WITH CV HG (WATER)

Maxxam ID				UJ2614	UJ2617		
Sampling Date				2018/09/18 11:00	2018/09/18 12:00		
COC Number				565808-02-01	565808-02-01		
	UNITS	FW	MAR	BC28A	DUP-1	RDL	QC Batch
Total Zinc (Zn)	ug/L	30	-	9.90	10.1	0.50	9155684
Total Zirconium (Zr)	ug/L	-	-	<0.50	<0.50	0.50	9155684
Total Calcium (Ca)	mg/L	-	-	365	359	0.25	9151052
Total Magnesium (Mg)	mg/L	-	-	97.0	101	0.25	9151052
Total Potassium (K)	mg/L	-	-	5.17	5.31	0.25	9151052
Total Sodium (Na)	mg/L	-	-	377	387	0.25	9151052
Total Sulphur (S)	mg/L	-	-	366	378	15	9151052

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

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Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

LL TOTAL METALS (DIGESTED) WITH CV HG

Maxxam ID				UJ2615		UJ2616		
Sampling Date				2018/09/18 10:00		2018/09/18		
COC Number				565808-02-01		565808-02-01		
	UNITS	FW	MAR	BC28B	RDL	BC66	RDL	QC Batch
Calculated Parameters								
Total Hardness (CaCO3)	mg/L	-	-	938	0.50	395	0.50	9151761
Elements								
Total Mercury (Hg)	ug/L	0.026	0.016	0.0039	0.0020	<0.0020	0.0020	9156515
Total Metals by ICPMS								
Total Aluminum (Al)	ug/L	-	-	28	15	225	3.0	9153810
Total Antimony (Sb)	ug/L	-	-	1540	0.10	0.786	0.020	9153810
Total Arsenic (As)	ug/L	5	12.5	**155**	0.10	0.945	0.020	9153810
Total Barium (Ba)	ug/L	-	-	31.1	0.25	69.2	0.050	9153810
Total Beryllium (Be)	ug/L	-	-	<0.050	0.050	0.032	0.010	9153810
Total Bismuth (Bi)	ug/L	-	-	<0.050	0.050	0.013	0.010	9153810
Total Boron (B)	ug/L	1500	-	<50	50	<10	10	9153810
Total Cadmium (Cd)	ug/L	-	0.12	<0.025	0.025	0.118	0.0050	9153810
Total Chromium (Cr)	ug/L	-	-	<0.50	0.50	1.00	0.10	9153810
Total Cobalt (Co)	ug/L	-	-	407	0.050	62.0	0.010	9153810
Total Copper (Cu)	ug/L	-	-	1.21	0.50	2.33	0.10	9153810
Total Iron (Fe)	ug/L	300	-	28	25	**559**	5.0	9153810
Total Lead (Pb)	ug/L	-	-	<0.10	0.10	1.65	0.020	9153810
Total Lithium (Li)	ug/L	-	-	3.3	2.5	18.1	0.50	9153810
Total Manganese (Mn)	ug/L	-	-	19.2	0.50	13.5	0.10	9153810
Total Molybdenum (Mo)	ug/L	73	-	17.5	0.25	0.261	0.050	9153810
Total Nickel (Ni)	ug/L	-	-	4.20	0.50	1.42	0.10	9153810
Total Phosphorus (P)	ug/L	-	-	<25	25	38.8	5.0	9153810
Total Selenium (Se)	ug/L	1	-	**124**	0.20	**15.0**	0.040	9153810
Total Silicon (Si)	ug/L	-	-	578	250	4740	50	9153810
Total Silver (Ag)	ug/L	0.25	7.5	<0.050	0.050	0.043	0.010	9153810
Total Strontium (Sr)	ug/L	-	-	1410	0.25	455	0.050	9153810
Total Thallium (Tl)	ug/L	0.8	-	0.153	0.010	0.0190	0.0020	9153810
Total Tin (Sn)	ug/L	-	-	<1.0	1.0	0.80	0.20	9153810
Total Titanium (Ti)	ug/L	-	-	<10	10	5.9	2.0	9153810
Total Uranium (U)	ug/L	15	-	**17.8**	0.025	1.35	0.0050	9153810
Total Vanadium (V)	ug/L	-	-	<1.0	1.0	0.62	0.20	9153810

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

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Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
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LL TOTAL METALS (DIGESTED) WITH CV HG

Maxxam ID				UJ2615		UJ2616		
Sampling Date				2018/09/18 10:00		2018/09/18		
COC Number				565808-02-01		565808-02-01		
	UNITS	FW	MAR	BC28B	RDL	BC66	RDL	QC Batch
Total Zinc (Zn)	ug/L	30	-	<5.0	5.0	6.6	1.0	9153810
Total Zirconium (Zr)	ug/L	-	-	<0.50	0.50	0.24	0.10	9153810
Total Calcium (Ca)	mg/L	-	-	256	1.3	77.6	0.25	9151052
Total Magnesium (Mg)	mg/L	-	-	72.6	1.3	48.8	0.25	9151052
Total Potassium (K)	mg/L	-	-	4.7	1.3	2.74	0.25	9151052
Total Sodium (Na)	mg/L	-	-	332	1.3	11.5	0.25	9151052
Total Sulphur (S)	mg/L	-	-	262	15	11.5	3.0	9151052

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

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GENERAL COMMENTS

FW,MAR: Canadian Environmental Quality Guidelines for the Protection of Aquatic Life (CCME)
Cadmium Guideline (Freshwater): A) 0.04 ug/L when hardness is 0-17 mg/L, B) 0.37 ug/L if hardness > 280 mg/L C) = 10 to the power of {0.86[log(hardness)]-2.46} when hardness is 17-280 mg/L.
Measurement of Uncertainty has not been accounted for when stating conformity to the selected criteria, where applicable.

LOW LEVEL DISSOLVED METALS WITH CV HG (WATER) Comments

Sample UJ2614 [BC28A] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.
Sample UJ2615 [BC28B] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.
Sample UJ2617 [DUP-1] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.

LOW LEVEL TOTAL METALS WITH CV HG (WATER) Comments

Sample UJ2614 [BC28A] Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.
Sample UJ2617 [DUP-1] Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.

LL TOTAL METALS (DIGESTED) WITH CV HG Comments

Sample UJ2615 [BC28B] Elements by ICPMS Digested LL (total): RDL raised due to concentration over linear range, sample dilution required.

Results relate only to the items tested.

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Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9153774	KAB	Spiked Blank	Total Ammonia (N)	2018/09/21		90	%	80 - 120
9153774	KAB	Method Blank	Total Ammonia (N)	2018/09/21	<0.0050		mg/L	
9153775	AA1	Matrix Spike	Dissolved Aluminum (Al)	2018/09/22		98	%	80 - 120
			Dissolved Antimony (Sb)	2018/09/22		NC	%	80 - 120
			Dissolved Arsenic (As)	2018/09/22		101	%	80 - 120
			Dissolved Barium (Ba)	2018/09/22		103	%	80 - 120
			Dissolved Beryllium (Be)	2018/09/22		87	%	80 - 120
			Dissolved Bismuth (Bi)	2018/09/22		93	%	80 - 120
			Dissolved Boron (B)	2018/09/22		85	%	80 - 120
			Dissolved Cadmium (Cd)	2018/09/22		98	%	80 - 120
			Dissolved Chromium (Cr)	2018/09/22		97	%	80 - 120
			Dissolved Cobalt (Co)	2018/09/22		95	%	80 - 120
			Dissolved Copper (Cu)	2018/09/22		93	%	80 - 120
			Dissolved Iron (Fe)	2018/09/22		115	%	80 - 120
			Dissolved Lead (Pb)	2018/09/22		96	%	80 - 120
			Dissolved Lithium (Li)	2018/09/22		85	%	80 - 120
			Dissolved Manganese (Mn)	2018/09/22		107	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/09/22		103	%	80 - 120
			Dissolved Nickel (Ni)	2018/09/22		97	%	80 - 120
			Dissolved Phosphorus (P)	2018/09/22		99	%	80 - 120
			Dissolved Selenium (Se)	2018/09/22		99	%	80 - 120
			Dissolved Silicon (Si)	2018/09/22		95	%	80 - 120
			Dissolved Silver (Ag)	2018/09/22		88	%	80 - 120
			Dissolved Strontium (Sr)	2018/09/22		NC	%	80 - 120
			Dissolved Thallium (Tl)	2018/09/22		99	%	80 - 120
			Dissolved Tin (Sn)	2018/09/22		100	%	80 - 120
			Dissolved Titanium (Ti)	2018/09/22		103	%	80 - 120
			Dissolved Uranium (U)	2018/09/22		99	%	80 - 120
			Dissolved Vanadium (V)	2018/09/22		98	%	80 - 120
			Dissolved Zinc (Zn)	2018/09/22		95	%	80 - 120
			Dissolved Zirconium (Zr)	2018/09/22		101	%	80 - 120
9153775	AA1	Spiked Blank	Dissolved Aluminum (Al)	2018/09/22		100	%	80 - 120
			Dissolved Antimony (Sb)	2018/09/22		101	%	80 - 120
			Dissolved Arsenic (As)	2018/09/22		103	%	80 - 120
			Dissolved Barium (Ba)	2018/09/22		105	%	80 - 120
			Dissolved Beryllium (Be)	2018/09/22		92	%	80 - 120
			Dissolved Bismuth (Bi)	2018/09/22		102	%	80 - 120
			Dissolved Boron (B)	2018/09/22		89	%	80 - 120
			Dissolved Cadmium (Cd)	2018/09/22		101	%	80 - 120
			Dissolved Chromium (Cr)	2018/09/22		100	%	80 - 120
			Dissolved Cobalt (Co)	2018/09/22		100	%	80 - 120
			Dissolved Copper (Cu)	2018/09/22		100	%	80 - 120
			Dissolved Iron (Fe)	2018/09/22		103	%	80 - 120
			Dissolved Lead (Pb)	2018/09/22		101	%	80 - 120
			Dissolved Lithium (Li)	2018/09/22		92	%	80 - 120
			Dissolved Manganese (Mn)	2018/09/22		103	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/09/22		107	%	80 - 120
			Dissolved Nickel (Ni)	2018/09/22		101	%	80 - 120
			Dissolved Phosphorus (P)	2018/09/22		98	%	80 - 120
			Dissolved Selenium (Se)	2018/09/22		99	%	80 - 120
			Dissolved Silicon (Si)	2018/09/22		100	%	80 - 120
			Dissolved Silver (Ag)	2018/09/22		100	%	80 - 120

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Golden Predator Exploration
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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Strontium (Sr)	2018/09/22		107	%	80 - 120
			Dissolved Thallium (Tl)	2018/09/22		101	%	80 - 120
			Dissolved Tin (Sn)	2018/09/22		100	%	80 - 120
			Dissolved Titanium (Ti)	2018/09/22		107	%	80 - 120
			Dissolved Uranium (U)	2018/09/22		101	%	80 - 120
			Dissolved Vanadium (V)	2018/09/22		102	%	80 - 120
			Dissolved Zinc (Zn)	2018/09/22		103	%	80 - 120
			Dissolved Zirconium (Zr)	2018/09/22		103	%	80 - 120
9153775	AA1	Method Blank	Dissolved Aluminum (Al)	2018/09/22	<0.50		ug/L	
			Dissolved Antimony (Sb)	2018/09/22	<0.020		ug/L	
			Dissolved Arsenic (As)	2018/09/22	<0.020		ug/L	
			Dissolved Barium (Ba)	2018/09/22	<0.020		ug/L	
			Dissolved Beryllium (Be)	2018/09/22	<0.010		ug/L	
			Dissolved Bismuth (Bi)	2018/09/22	<0.0050		ug/L	
			Dissolved Boron (B)	2018/09/22	<10		ug/L	
			Dissolved Cadmium (Cd)	2018/09/22	<0.0050		ug/L	
			Dissolved Chromium (Cr)	2018/09/22	<0.10		ug/L	
			Dissolved Cobalt (Co)	2018/09/22	<0.0050		ug/L	
			Dissolved Copper (Cu)	2018/09/22	<0.050		ug/L	
			Dissolved Iron (Fe)	2018/09/22	<1.0		ug/L	
			Dissolved Lead (Pb)	2018/09/22	<0.0050		ug/L	
			Dissolved Lithium (Li)	2018/09/22	<0.50		ug/L	
			Dissolved Manganese (Mn)	2018/09/22	<0.050		ug/L	
			Dissolved Molybdenum (Mo)	2018/09/22	<0.050		ug/L	
			Dissolved Nickel (Ni)	2018/09/22	<0.020		ug/L	
			Dissolved Phosphorus (P)	2018/09/22	<2.0		ug/L	
			Dissolved Selenium (Se)	2018/09/22	<0.040		ug/L	
			Dissolved Silicon (Si)	2018/09/22	<50		ug/L	
			Dissolved Silver (Ag)	2018/09/22	<0.0050		ug/L	
			Dissolved Strontium (Sr)	2018/09/22	<0.050		ug/L	
			Dissolved Thallium (Tl)	2018/09/22	<0.0020		ug/L	
			Dissolved Tin (Sn)	2018/09/22	<0.20		ug/L	
			Dissolved Titanium (Ti)	2018/09/22	<0.50		ug/L	
			Dissolved Uranium (U)	2018/09/22	<0.0020		ug/L	
			Dissolved Vanadium (V)	2018/09/22	<0.20		ug/L	
			Dissolved Zinc (Zn)	2018/09/22	<0.10		ug/L	
			Dissolved Zirconium (Zr)	2018/09/22	<0.10		ug/L	
9153775	AA1	RPD	Dissolved Aluminum (Al)	2018/09/22	0.41		%	20
			Dissolved Antimony (Sb)	2018/09/22	2.3		%	20
			Dissolved Arsenic (As)	2018/09/22	1.8		%	20
			Dissolved Barium (Ba)	2018/09/22	1.7		%	20
			Dissolved Beryllium (Be)	2018/09/22	NC		%	20
			Dissolved Bismuth (Bi)	2018/09/22	NC		%	20
			Dissolved Boron (B)	2018/09/22	0.026		%	20
			Dissolved Cadmium (Cd)	2018/09/22	NC		%	20
			Dissolved Chromium (Cr)	2018/09/22	1.0		%	20
			Dissolved Cobalt (Co)	2018/09/22	3.4		%	20
			Dissolved Copper (Cu)	2018/09/22	8.2		%	20
			Dissolved Iron (Fe)	2018/09/22	6.2		%	20
			Dissolved Lead (Pb)	2018/09/22	NC		%	20
			Dissolved Lithium (Li)	2018/09/22	NC		%	20
			Dissolved Manganese (Mn)	2018/09/22	0.049		%	20

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Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Molybdenum (Mo)	2018/09/22	2.7		%	20
			Dissolved Nickel (Ni)	2018/09/22	10		%	20
			Dissolved Phosphorus (P)	2018/09/22	NC		%	20
			Dissolved Selenium (Se)	2018/09/22	13		%	20
			Dissolved Silicon (Si)	2018/09/22	1.9		%	20
			Dissolved Silver (Ag)	2018/09/22	NC		%	20
			Dissolved Strontium (Sr)	2018/09/22	3.9		%	20
			Dissolved Thallium (Tl)	2018/09/22	4.9		%	20
			Dissolved Tin (Sn)	2018/09/22	NC		%	20
			Dissolved Titanium (Ti)	2018/09/22	NC		%	20
			Dissolved Uranium (U)	2018/09/22	0.32		%	20
			Dissolved Vanadium (V)	2018/09/22	0.92		%	20
			Dissolved Zinc (Zn)	2018/09/22	1.6		%	20
			Dissolved Zirconium (Zr)	2018/09/22	NC		%	20
			Dissolved Aluminum (Al)	2018/09/22	NC		%	20
			Dissolved Antimony (Sb)	2018/09/22	NC		%	20
			Dissolved Arsenic (As)	2018/09/22	NC		%	20
			Dissolved Barium (Ba)	2018/09/22	NC		%	20
			Dissolved Beryllium (Be)	2018/09/22	NC		%	20
			Dissolved Bismuth (Bi)	2018/09/22	NC		%	20
			Dissolved Boron (B)	2018/09/22	NC		%	20
			Dissolved Cadmium (Cd)	2018/09/22	NC		%	20
			Dissolved Chromium (Cr)	2018/09/22	NC		%	20
			Dissolved Cobalt (Co)	2018/09/22	NC		%	20
			Dissolved Copper (Cu)	2018/09/22	NC		%	20
			Dissolved Iron (Fe)	2018/09/22	NC		%	20
			Dissolved Lead (Pb)	2018/09/22	NC		%	20
			Dissolved Lithium (Li)	2018/09/22	NC		%	20
			Dissolved Manganese (Mn)	2018/09/22	NC		%	20
			Dissolved Molybdenum (Mo)	2018/09/22	NC		%	20
			Dissolved Nickel (Ni)	2018/09/22	6.3		%	20
			Dissolved Phosphorus (P)	2018/09/22	NC		%	20
			Dissolved Selenium (Se)	2018/09/22	NC		%	20
			Dissolved Silicon (Si)	2018/09/22	NC		%	20
			Dissolved Silver (Ag)	2018/09/22	NC		%	20
			Dissolved Strontium (Sr)	2018/09/22	NC		%	20
			Dissolved Thallium (Tl)	2018/09/22	NC		%	20
			Dissolved Tin (Sn)	2018/09/22	NC		%	20
			Dissolved Titanium (Ti)	2018/09/22	NC		%	20
			Dissolved Uranium (U)	2018/09/22	NC		%	20
			Dissolved Vanadium (V)	2018/09/22	NC		%	20
			Dissolved Zinc (Zn)	2018/09/22	3.9		%	20
			Dissolved Zirconium (Zr)	2018/09/22	NC		%	20
9153810	AD5	Matrix Spike	Total Aluminum (Al)	2018/09/24		98	%	80 - 120
			Total Antimony (Sb)	2018/09/24		103	%	80 - 120
			Total Arsenic (As)	2018/09/24		105	%	80 - 120
			Total Barium (Ba)	2018/09/24		103	%	80 - 120
			Total Beryllium (Be)	2018/09/24		87	%	80 - 120
			Total Bismuth (Bi)	2018/09/24		102	%	80 - 120
			Total Boron (B)	2018/09/24		84	%	80 - 120
			Total Cadmium (Cd)	2018/09/24		102	%	80 - 120
			Total Chromium (Cr)	2018/09/24		99	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Cobalt (Co)	2018/09/24		99	%	80 - 120
			Total Copper (Cu)	2018/09/24		97	%	80 - 120
			Total Iron (Fe)	2018/09/24		103	%	80 - 120
			Total Lead (Pb)	2018/09/24		104	%	80 - 120
			Total Lithium (Li)	2018/09/24		84	%	80 - 120
			Total Manganese (Mn)	2018/09/24		100	%	80 - 120
			Total Molybdenum (Mo)	2018/09/24		106	%	80 - 120
			Total Nickel (Ni)	2018/09/24		100	%	80 - 120
			Total Phosphorus (P)	2018/09/24		98	%	80 - 120
			Total Selenium (Se)	2018/09/24		106	%	80 - 120
			Total Silicon (Si)	2018/09/24		93	%	80 - 120
			Total Silver (Ag)	2018/09/24		102	%	80 - 120
			Total Strontium (Sr)	2018/09/24		100	%	80 - 120
			Total Thallium (Tl)	2018/09/24		102	%	80 - 120
			Total Tin (Sn)	2018/09/24		103	%	80 - 120
			Total Titanium (Ti)	2018/09/24		101	%	80 - 120
			Total Uranium (U)	2018/09/24		98	%	80 - 120
			Total Vanadium (V)	2018/09/24		100	%	80 - 120
			Total Zinc (Zn)	2018/09/24		99	%	80 - 120
			Total Zirconium (Zr)	2018/09/24		100	%	80 - 120
9153810	AD5	Spiked Blank	Total Aluminum (Al)	2018/09/24		97	%	80 - 120
			Total Antimony (Sb)	2018/09/24		100	%	80 - 120
			Total Arsenic (As)	2018/09/24		106	%	80 - 120
			Total Barium (Ba)	2018/09/24		100	%	80 - 120
			Total Beryllium (Be)	2018/09/24		85	%	80 - 120
			Total Bismuth (Bi)	2018/09/24		99	%	80 - 120
			Total Boron (B)	2018/09/24		80	%	80 - 120
			Total Cadmium (Cd)	2018/09/24		100	%	80 - 120
			Total Chromium (Cr)	2018/09/24		100	%	80 - 120
			Total Cobalt (Co)	2018/09/24		98	%	80 - 120
			Total Copper (Cu)	2018/09/24		97	%	80 - 120
			Total Iron (Fe)	2018/09/24		104	%	80 - 120
			Total Lead (Pb)	2018/09/24		100	%	80 - 120
			Total Lithium (Li)	2018/09/24		82	%	80 - 120
			Total Manganese (Mn)	2018/09/24		99	%	80 - 120
			Total Molybdenum (Mo)	2018/09/24		104	%	80 - 120
			Total Nickel (Ni)	2018/09/24		98	%	80 - 120
			Total Phosphorus (P)	2018/09/24		98	%	80 - 120
			Total Selenium (Se)	2018/09/24		106	%	80 - 120
			Total Silicon (Si)	2018/09/24		88	%	80 - 120
			Total Silver (Ag)	2018/09/24		100	%	80 - 120
			Total Strontium (Sr)	2018/09/24		104	%	80 - 120
			Total Thallium (Tl)	2018/09/24		100	%	80 - 120
			Total Tin (Sn)	2018/09/24		99	%	80 - 120
			Total Titanium (Ti)	2018/09/24		100	%	80 - 120
			Total Uranium (U)	2018/09/24		98	%	80 - 120
			Total Vanadium (V)	2018/09/24		99	%	80 - 120
			Total Zinc (Zn)	2018/09/24		101	%	80 - 120
			Total Zirconium (Zr)	2018/09/24		104	%	80 - 120
9153810	AD5	Method Blank	Total Aluminum (Al)	2018/09/24	<3.0		ug/L	
			Total Antimony (Sb)	2018/09/24	<0.020		ug/L	
			Total Arsenic (As)	2018/09/24	<0.020		ug/L	

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			Total Barium (Ba)	2018/09/24	<0.050		ug/L	
			Total Beryllium (Be)	2018/09/24	<0.010		ug/L	
			Total Bismuth (Bi)	2018/09/24	<0.010		ug/L	
			Total Boron (B)	2018/09/24	<10		ug/L	
			Total Cadmium (Cd)	2018/09/24	<0.0050		ug/L	
			Total Chromium (Cr)	2018/09/24	<0.10		ug/L	
			Total Cobalt (Co)	2018/09/24	<0.010		ug/L	
			Total Copper (Cu)	2018/09/24	<0.10		ug/L	
			Total Iron (Fe)	2018/09/24	<5.0		ug/L	
			Total Lead (Pb)	2018/09/24	<0.020		ug/L	
			Total Lithium (Li)	2018/09/24	<0.50		ug/L	
			Total Manganese (Mn)	2018/09/24	<0.10		ug/L	
			Total Molybdenum (Mo)	2018/09/24	<0.050		ug/L	
			Total Nickel (Ni)	2018/09/24	<0.10		ug/L	
			Total Phosphorus (P)	2018/09/24	<5.0		ug/L	
			Total Selenium (Se)	2018/09/24	<0.040		ug/L	
			Total Silicon (Si)	2018/09/24	<50		ug/L	
			Total Silver (Ag)	2018/09/24	<0.010		ug/L	
			Total Strontium (Sr)	2018/09/24	0.070, RDL=0.050 (1)		ug/L	
			Total Thallium (Tl)	2018/09/24	<0.0020		ug/L	
			Total Tin (Sn)	2018/09/24	<0.20		ug/L	
			Total Titanium (Ti)	2018/09/24	<2.0		ug/L	
			Total Uranium (U)	2018/09/24	<0.0050		ug/L	
			Total Vanadium (V)	2018/09/24	<0.20		ug/L	
			Total Zinc (Zn)	2018/09/24	<1.0		ug/L	
			Total Zirconium (Zr)	2018/09/24	<0.10		ug/L	
9153861	VT1	Matrix Spike	Nitrate plus Nitrite (N)	2018/09/21		105	%	80 - 120
9153861	VT1	Spiked Blank	Nitrate plus Nitrite (N)	2018/09/21		105	%	80 - 120
9153861	VT1	Method Blank	Nitrate plus Nitrite (N)	2018/09/21	<0.020		mg/L	
9153861	VT1	RPD	Nitrate plus Nitrite (N)	2018/09/21	3.0		%	25
9153865	VT1	Matrix Spike	Nitrite (N)	2018/09/21		99	%	80 - 120
9153865	VT1	Spiked Blank	Nitrite (N)	2018/09/21		104	%	80 - 120
9153865	VT1	Method Blank	Nitrite (N)	2018/09/21	<0.0050		mg/L	
9153865	VT1	RPD	Nitrite (N)	2018/09/21	NC		%	20
9154529	EL2	Matrix Spike [UJ2615-07]	Dissolved Mercury (Hg)	2018/09/24		84	%	80 - 120
9154529	EL2	Spiked Blank	Dissolved Mercury (Hg)	2018/09/24		97	%	80 - 120
9154529	EL2	Method Blank	Dissolved Mercury (Hg)	2018/09/24	<0.0020		ug/L	
9154529	EL2	RPD	Dissolved Mercury (Hg)	2018/09/24	NC		%	20
9154896	MO5	Matrix Spike	Dissolved Chloride (Cl)	2018/09/21		96	%	80 - 120
9154896	MO5	Spiked Blank	Dissolved Chloride (Cl)	2018/09/21		100	%	80 - 120
9154896	MO5	Method Blank	Dissolved Chloride (Cl)	2018/09/21	0.73, RDL=0.50		mg/L	
9154896	MO5	RPD	Dissolved Chloride (Cl)	2018/09/21	20		%	20
9154897	MO5	Matrix Spike	Dissolved Sulphate (SO4)	2018/09/21		NC	%	80 - 120
9154897	MO5	Spiked Blank	Dissolved Sulphate (SO4)	2018/09/21		93	%	80 - 120
9154897	MO5	Method Blank	Dissolved Sulphate (SO4)	2018/09/21	<0.50		mg/L	
9154897	MO5	RPD	Dissolved Sulphate (SO4)	2018/09/21	0.22		%	20
9155684	AA1	Matrix Spike	Total Aluminum (Al)	2018/09/24		98	%	80 - 120
			Total Antimony (Sb)	2018/09/24		99	%	80 - 120
			Total Arsenic (As)	2018/09/24		99	%	80 - 120
			Total Barium (Ba)	2018/09/24		95	%	80 - 120

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			Total Beryllium (Be)	2018/09/24		94	%	80 - 120
			Total Bismuth (Bi)	2018/09/24		99	%	80 - 120
			Total Boron (B)	2018/09/24		100	%	80 - 120
			Total Cadmium (Cd)	2018/09/24		102	%	80 - 120
			Total Chromium (Cr)	2018/09/24		98	%	80 - 120
			Total Cobalt (Co)	2018/09/24		103	%	80 - 120
			Total Copper (Cu)	2018/09/24		99	%	80 - 120
			Total Iron (Fe)	2018/09/24		102	%	80 - 120
			Total Lead (Pb)	2018/09/24		101	%	80 - 120
			Total Lithium (Li)	2018/09/24		99	%	80 - 120
			Total Manganese (Mn)	2018/09/24		101	%	80 - 120
			Total Molybdenum (Mo)	2018/09/24		104	%	80 - 120
			Total Nickel (Ni)	2018/09/24		99	%	80 - 120
			Total Phosphorus (P)	2018/09/24		99	%	80 - 120
			Total Selenium (Se)	2018/09/24		97	%	80 - 120
			Total Silicon (Si)	2018/09/24		97	%	80 - 120
			Total Silver (Ag)	2018/09/24		101	%	80 - 120
			Total Strontium (Sr)	2018/09/24		100	%	80 - 120
			Total Thallium (Tl)	2018/09/24		100	%	80 - 120
			Total Tin (Sn)	2018/09/24		99	%	80 - 120
			Total Titanium (Ti)	2018/09/24		103	%	80 - 120
			Total Uranium (U)	2018/09/24		101	%	80 - 120
			Total Vanadium (V)	2018/09/24		99	%	80 - 120
			Total Zinc (Zn)	2018/09/24		100	%	80 - 120
			Total Zirconium (Zr)	2018/09/24		101	%	80 - 120
9155684	AA1	Spiked Blank	Total Aluminum (Al)	2018/09/24		101	%	80 - 120
			Total Antimony (Sb)	2018/09/24		101	%	80 - 120
			Total Arsenic (As)	2018/09/24		102	%	80 - 120
			Total Barium (Ba)	2018/09/24		98	%	80 - 120
			Total Beryllium (Be)	2018/09/24		99	%	80 - 120
			Total Bismuth (Bi)	2018/09/24		102	%	80 - 120
			Total Boron (B)	2018/09/24		100	%	80 - 120
			Total Cadmium (Cd)	2018/09/24		103	%	80 - 120
			Total Chromium (Cr)	2018/09/24		100	%	80 - 120
			Total Cobalt (Co)	2018/09/24		105	%	80 - 120
			Total Copper (Cu)	2018/09/24		101	%	80 - 120
			Total Iron (Fe)	2018/09/24		103	%	80 - 120
			Total Lead (Pb)	2018/09/24		103	%	80 - 120
			Total Lithium (Li)	2018/09/24		100	%	80 - 120
			Total Manganese (Mn)	2018/09/24		102	%	80 - 120
			Total Molybdenum (Mo)	2018/09/24		106	%	80 - 120
			Total Nickel (Ni)	2018/09/24		100	%	80 - 120
			Total Phosphorus (P)	2018/09/24		99	%	80 - 120
			Total Selenium (Se)	2018/09/24		100	%	80 - 120
			Total Silicon (Si)	2018/09/24		103	%	80 - 120
			Total Silver (Ag)	2018/09/24		103	%	80 - 120
			Total Strontium (Sr)	2018/09/24		101	%	80 - 120
			Total Thallium (Tl)	2018/09/24		103	%	80 - 120
			Total Tin (Sn)	2018/09/24		102	%	80 - 120
			Total Titanium (Ti)	2018/09/24		104	%	80 - 120
			Total Uranium (U)	2018/09/24		104	%	80 - 120
			Total Vanadium (V)	2018/09/24		101	%	80 - 120

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			Total Zinc (Zn)	2018/09/24		102	%	80 - 120
			Total Zirconium (Zr)	2018/09/24		103	%	80 - 120
9155684	AA1	Method Blank	Total Aluminum (Al)	2018/09/24	<0.50		ug/L	
			Total Antimony (Sb)	2018/09/24	<0.020		ug/L	
			Total Arsenic (As)	2018/09/24	<0.020		ug/L	
			Total Barium (Ba)	2018/09/24	<0.020		ug/L	
			Total Beryllium (Be)	2018/09/24	<0.010		ug/L	
			Total Bismuth (Bi)	2018/09/24	<0.0050		ug/L	
			Total Boron (B)	2018/09/24	<10		ug/L	
			Total Cadmium (Cd)	2018/09/24	<0.0050		ug/L	
			Total Chromium (Cr)	2018/09/24	<0.10		ug/L	
			Total Cobalt (Co)	2018/09/24	<0.0050		ug/L	
			Total Copper (Cu)	2018/09/24	<0.050		ug/L	
			Total Iron (Fe)	2018/09/24	<1.0		ug/L	
			Total Lead (Pb)	2018/09/24	<0.0050		ug/L	
			Total Lithium (Li)	2018/09/24	<0.50		ug/L	
			Total Manganese (Mn)	2018/09/24	<0.050		ug/L	
			Total Molybdenum (Mo)	2018/09/24	<0.050		ug/L	
			Total Nickel (Ni)	2018/09/24	<0.020		ug/L	
			Total Phosphorus (P)	2018/09/24	<2.0		ug/L	
			Total Selenium (Se)	2018/09/24	<0.040		ug/L	
			Total Silicon (Si)	2018/09/24	<50		ug/L	
			Total Silver (Ag)	2018/09/24	<0.0050		ug/L	
			Total Strontium (Sr)	2018/09/24	<0.050		ug/L	
			Total Thallium (Tl)	2018/09/24	<0.0020		ug/L	
			Total Tin (Sn)	2018/09/24	<0.20		ug/L	
			Total Titanium (Ti)	2018/09/24	<0.50		ug/L	
			Total Uranium (U)	2018/09/24	<0.0020		ug/L	
			Total Vanadium (V)	2018/09/24	<0.20		ug/L	
			Total Zinc (Zn)	2018/09/24	<0.10		ug/L	
			Total Zirconium (Zr)	2018/09/24	<0.10		ug/L	
9155684	AA1	RPD	Total Aluminum (Al)	2018/09/24	1.4		%	20
			Total Aluminum (Al)	2018/09/24	NC		%	20
			Total Antimony (Sb)	2018/09/24	NC		%	20
			Total Arsenic (As)	2018/09/24	NC		%	20
			Total Barium (Ba)	2018/09/24	NC		%	20
			Total Beryllium (Be)	2018/09/24	NC		%	20
			Total Bismuth (Bi)	2018/09/24	NC		%	20
			Total Boron (B)	2018/09/24	NC		%	20
			Total Cadmium (Cd)	2018/09/24	NC		%	20
			Total Chromium (Cr)	2018/09/24	NC		%	20
			Total Cobalt (Co)	2018/09/24	NC		%	20
			Total Copper (Cu)	2018/09/24	NC		%	20
			Total Iron (Fe)	2018/09/24	NC		%	20
			Total Lead (Pb)	2018/09/24	NC		%	20
			Total Lithium (Li)	2018/09/24	NC		%	20
			Total Manganese (Mn)	2018/09/24	NC		%	20
			Total Molybdenum (Mo)	2018/09/24	NC		%	20
			Total Nickel (Ni)	2018/09/24	2.1		%	20
			Total Selenium (Se)	2018/09/24	NC		%	20
			Total Silicon (Si)	2018/09/24	NC		%	20
			Total Silver (Ag)	2018/09/24	NC		%	20

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			Total Strontium (Sr)	2018/09/24	NC		%	20
			Total Thallium (Tl)	2018/09/24	NC		%	20
			Total Tin (Sn)	2018/09/24	NC		%	20
			Total Titanium (Ti)	2018/09/24	NC		%	20
			Total Uranium (U)	2018/09/24	NC		%	20
			Total Vanadium (V)	2018/09/24	NC		%	20
			Total Zinc (Zn)	2018/09/24	1.4		%	20
			Total Zirconium (Zr)	2018/09/24	NC		%	20
9156515	EL2	Matrix Spike	Total Mercury (Hg)	2018/09/24		103	%	80 - 120
9156515	EL2	Spiked Blank	Total Mercury (Hg)	2018/09/24		107	%	80 - 120
9156515	EL2	Method Blank	Total Mercury (Hg)	2018/09/24	<0.0020		ug/L	
9156515	EL2	RPD	Total Mercury (Hg)	2018/09/24	NC		%	20
9156551	BB3	Spiked Blank	pH	2018/09/21		101	%	97 - 103
9156551	BB3	RPD	pH	2018/09/21	0.13		%	20
9156559	BB3	Spiked Blank	Alkalinity (Total as CaCO3)	2018/09/21		93	%	80 - 120
9156559	BB3	Method Blank	Alkalinity (Total as CaCO3)	2018/09/21	<0.50		mg/L	
			Alkalinity (PP as CaCO3)	2018/09/21	<0.50		mg/L	
			Bicarbonate (HCO3)	2018/09/21	<0.50		mg/L	
			Carbonate (CO3)	2018/09/21	<0.50		mg/L	
			Hydroxide (OH)	2018/09/21	<0.50		mg/L	
9156559	BB3	RPD	Alkalinity (Total as CaCO3)	2018/09/21	0.79		%	20
			Alkalinity (PP as CaCO3)	2018/09/21	NC		%	20
			Bicarbonate (HCO3)	2018/09/21	0.79		%	20
			Carbonate (CO3)	2018/09/21	NC		%	20
			Hydroxide (OH)	2018/09/21	NC		%	20
9156560	BB3	Spiked Blank	Conductivity	2018/09/21		99	%	80 - 120
9156560	BB3	Method Blank	Conductivity	2018/09/21	<1.0		uS/cm	
9156571	FSU	Matrix Spike	Total Dissolved Solids	2018/09/27		104	%	80 - 120
9156571	FSU	Spiked Blank	Total Dissolved Solids	2018/09/27		103	%	80 - 120
9156571	FSU	Method Blank	Total Dissolved Solids	2018/09/27	<1.0		mg/L	
9156571	FSU	RPD [UJ2616-01]	Total Dissolved Solids	2018/09/27	1.3		%	20
9156814	MO5	Matrix Spike	Dissolved Sulphate (SO4)	2018/09/24		93	%	80 - 120
9156814	MO5	Spiked Blank	Dissolved Sulphate (SO4)	2018/09/24		98	%	80 - 120
9156814	MO5	Method Blank	Dissolved Sulphate (SO4)	2018/09/24	<0.50		mg/L	
9156814	MO5	RPD	Dissolved Sulphate (SO4)	2018/09/24	NC		%	20
9160303	XQI	Matrix Spike	Total Cyanide (CN)	2018/09/25		NC	%	80 - 120
			Total Cyanide (CN)	2018/09/25		NC	%	80 - 120
9160303	XQI	Spiked Blank	Total Cyanide (CN)	2018/09/25		97	%	80 - 120
			Total Cyanide (CN)	2018/09/25		97	%	80 - 120
9160303	XQI	Method Blank	Total Cyanide (CN)	2018/09/25	<0.0050		mg/L	
			Total Cyanide (CN)	2018/09/25	<0.0050		mg/L	
9160303	XQI	RPD	Total Cyanide (CN)	2018/09/25	0.67		%	20
9160304	XQI	Matrix Spike	Free Cyanide	2018/09/25		98	%	80 - 120
			Free Cyanide	2018/09/25		98	%	80 - 120
9160304	XQI	Spiked Blank	Free Cyanide	2018/09/25		98	%	80 - 120
			Free Cyanide	2018/09/25		98	%	80 - 120
9160304	XQI	Method Blank	Free Cyanide	2018/09/25	<0.0010		mg/L	
			Free Cyanide	2018/09/25	<0.0010		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 #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9160304	XQI	RPD	Free Cyanide	2018/09/25	1.4		%	20

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).

(1) Method Blank exceeds acceptance limits for (Strontium) - 2X RDL acceptable for low level metals determination.

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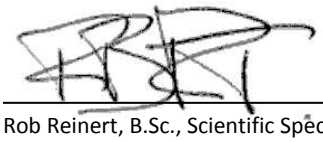
Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

VALIDATION SIGNATURE PAGE

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

Brad Newman, Scientific Specialist



Rob Reinert, B.Sc., Scientific Specialist

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.

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4606 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel (604) 734 7276 Toll-free 800-563-6266 Fax (604) 731 2386 www.maxxam.ca

Chain Of Custody Record

Page 1 of 1

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#10630 GOLDEN PREDATOR MINING CORP.	Company Name	TRTFN	Quotation #	B71198	Maxxam Job #	Bottle Order #:
Contact Name	Jillian Chown	Contact Name	STEPHEN KLUAN	P.O. #			565808
Address	1 LINDEMAN ROAD	Address	61 Main St Whitehorse, YT	Project #	Brewery Creek - Ground Water	Chain Of Custody Record	Project Manager
	WHITEHORSE YT Y1A 5Z7		Y1A 0H7	Project Name		C#565808-02-01	Diana Cruz
Phone	(604) 633-4653 Fax	Phone	Fax	Site #			
Email	jchown@goldenpredator.com	Email	Stephen.Kluan@tetratech.com	Sampled By	DT + CF		

Regulatory Criteria: Yukon CSR

Special Instructions:

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

Samples must be kept cool (< 10°C) from time of sampling until delivery to maxxam

Analysis Requested

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Ammonia-N Low Level (Preserved)	General (Alk, pH, EC)	Anions (Cl, NO2, NO3, NO2+NO3, SO4)	Cyanide (WAD, SAD)	Total Dissolved Solids - Low Level	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg			Hold	# of Bottles	Comments
1		BC28	Sept 18/18	10:45	water														Dry
2		BC29A		11:00		N	Y	X	X	X	X	X	X	X				11	
3		BC29B		10:00		N	Y	X	X	X	X	X	X	X				11	
4		BC65		13:38															Dry
5		BC66				N	Y	X	X	X	X	X	X	X				11	
6		DUP-1		12:00		N	Y	X	X	X	X	X	X	X				11	
7		Field Blank		15:42		N	Y	X									X	11	Hold
8																			
9																			
10																			

Turnaround Time (TAT) Required

Please provide advance notice for rush projects

Regular (Standard) TAT X

(will be applied if Rush TAT is not specified)

Standard TAT = 5-7 Working days for most tests.

Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)

Date Required: _____ Time Required: _____

Rush Confirmation Number: _____ *(call lab for #)*

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Darren Thwaites	18/09/19	12:43		2018/09/20	12:45		☑	3, 5, 3	☑ Yes ☐ No

RECEIVED IN WHITEHORSE BY [illegible] 2018-09-19 12:45 TEMP 5 / 4 / 5

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

1435

Maxxam Analytics International Corporation o/a Maxxam Analytics

B881572_COC

Your Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Your C.O.C. #: 565808-02-01

Attention: Jillian Chown

Golden Predator Exploration
Suite 250-200 Burrard St
Vancouver, BC
CANADA V6C 3L6

Report Date: 2018/09/27
Report #: R2626583
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B881572
Received: 2018/09/19, 12:45

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Low Level	4	N/A	2018/09/21	BBY6SOP-00026	SM 22 2320 B m
Chloride - Low Level	4	N/A	2018/09/21	BBY6SOP-00011	SM 22 4500-Cl- E m
Conductance - Low Level	4	N/A	2018/09/21	BBY6SOP-00026	SM 22 2510 B m
Hardness Total (calculated as CaCO3) (2)	4	N/A	2018/09/24	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	4	N/A	2018/09/24	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAF	4	N/A	2018/09/24	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total) by CVAF	4	2018/09/24	2018/09/24	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	4	N/A	2018/09/24	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (dissolved)	3	N/A	2018/09/22	BBY7SOP-00002	EPA 6020b R2 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2018/09/24	BBY7SOP-00002	EPA 6020b R2 m
Elements by ICPMS Digested LL (total)	2	2018/09/21	2018/09/24	BBY7SOP-00003,	EPA 6020b R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	N/A	2018/09/24	BBY WI-00033	Auto Calc
Elements by ICPMS Low Level (total)	2	N/A	2018/09/24	BBY7SOP-00002	EPA 6020b R2 m
Ammonia-N Low Level (Preserved)	4	N/A	2018/09/21	BBY6SOP-00009	EPA 350.1 m
Nitrate + Nitrite (N)	4	N/A	2018/09/21	BBY6SOP-00010	SM 23 4500-NO3- I m
Nitrite (N) by CFA	4	N/A	2018/09/21	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	4	N/A	2018/09/21	BBY WI-00033	Auto Calc
Filter and HNO3 Preserve for Metals	4	N/A	2018/09/20	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (3)	4	N/A	2018/09/21	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate - Low Level	3	N/A	2018/09/21	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate - Low Level	1	N/A	2018/09/24	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	4	2018/09/24	2018/09/27	BBY6SOP-00033	SM 22 2540 C m
Free (WAD) Cyanide (1)	4	N/A	2018/09/25	CAM SOP-00457	OMOE E3015 5 m
Total (SAD) Cyanide (1)	4	2018/09/25	2018/09/25	CAM SOP-00457	OMOE E3015 5 m

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

(1) This test was performed by Maxxam Ontario (From Burnaby)
(2) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(3) 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 #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Your C.O.C. #: 565808-02-01

Attention: Jillian Chown

Golden Predator Exploration
Suite 250-200 Burrard St
Vancouver, BC
CANADA V6C 3L6

Report Date: 2018/09/27
Report #: R2626583
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B881572
Received: 2018/09/19, 12:45

Encryption Key

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

==========

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Maxxam Job #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2614 BC28A								
Sampling Date 2018/09/18 11:00								
Matrix WATER								
Sample # BC28A								
RESULTS OF CHEMICAL ANALYSES OF WATER								
ANIONS								
Nitrite (N)	<0.0050	0.0050	mg/L	N/A	N/A	2018/09/21	VT1	9153865
Calculated Parameters								
Filter and HNO3 Preservation	FIELD		N/A	N/A	N/A	2018/09/20		ONSITE
Dissolved Hardness (CaCO3)	1330	0.50	mg/L	N/A	N/A	2018/09/24		9152458
Total Hardness (CaCO3)	1310	0.50	mg/L	N/A	N/A	2018/09/24		9151761
Nitrate (N)	283	4.0	mg/L	N/A	N/A	2018/09/21		9151176
Misc. Inorganics								
Alkalinity (Total as CaCO3)	141	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Alkalinity (PP as CaCO3)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Bicarbonate (HCO3)	172	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Carbonate (CO3)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Hydroxide (OH)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Free Cyanide	0.051	0.0050	mg/L	+/- <RDL	N/A	2018/09/25	XQI	9160304
Total Cyanide (CN)	0.43	0.025	mg/L	+/- 0.033	2018/09/25	2018/09/25	XQI	9160303
Anions								
Dissolved Chloride (Cl)	21	0.50	mg/L	+/- 2.1	N/A	2018/09/21	MO5	9154896
Dissolved Sulphate (SO4)	1140(1)	5.0	mg/L	+/- 57.6	N/A	2018/09/21	MO5	9154897
Nutrients								
Total Ammonia (N)	<0.0050	0.0050	mg/L	N/A	N/A	2018/09/21	KAB	9153774
Nitrate plus Nitrite (N)	283(1)	4.0	mg/L	+/- 32.1	N/A	2018/09/21	VT1	9153861
Physical Properties								
pH	7.86		pH	N/A	N/A	2018/09/21	BB3	9156551
Conductivity	4000	1.0	uS/cm	N/A	N/A	2018/09/21	BB3	9156560
Physical Properties								
Total Dissolved Solids	3370	1.0	mg/L	N/A	2018/09/24	2018/09/27	FSU	9156571
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	4.8	2.5	ug/L	+/- 10.7	N/A	2018/09/22	AA1	9153775
Dissolved Antimony (Sb)	1810	0.10	ug/L	+/- 167	N/A	2018/09/22	AA1	9153775
Dissolved Arsenic (As)	285	0.10	ug/L	+/- 29.2	N/A	2018/09/22	AA1	9153775
Dissolved Barium (Ba)	33.6	0.10	ug/L	+/- 2.94	N/A	2018/09/22	AA1	9153775
Dissolved Beryllium (Be)	<0.050	0.050	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Bismuth (Bi)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Boron (B)	<50	50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Cadmium (Cd)	0.278	0.025	ug/L	+/- 0.037	N/A	2018/09/22	AA1	9153775
Dissolved Chromium (Cr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Cobalt (Co)	470	0.025	ug/L	+/- 51.5	N/A	2018/09/22	AA1	9153775
Dissolved Copper (Cu)	1.15	0.25	ug/L	+/- <RDL	N/A	2018/09/22	AA1	9153775
Dissolved Iron (Fe)	125	5.0	ug/L	+/- 12.6	N/A	2018/09/22	AA1	9153775

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

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Maxxam Job #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2614 BC28A								
Sampling Date 2018/09/18 11:00								
Matrix WATER								
Sample # BC28A								
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Dissolved Metals by ICPMS								
Dissolved Lead (Pb)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Lithium (Li)	5.7	2.5	ug/L	+/- <RDL	N/A	2018/09/22	AA1	9153775
Dissolved Manganese (Mn)	22.6	0.25	ug/L	+/- 2.22	N/A	2018/09/22	AA1	9153775
Dissolved Molybdenum (Mo)	16.0	0.25	ug/L	+/- 1.99	N/A	2018/09/22	AA1	9153775
Dissolved Nickel (Ni)	8.36	0.10	ug/L	+/- 2.06	N/A	2018/09/22	AA1	9153775
Dissolved Phosphorus (P)	39	10	ug/L	+/- 11	N/A	2018/09/22	AA1	9153775
Dissolved Selenium (Se)	147	0.20	ug/L	+/- 23.1	N/A	2018/09/22	AA1	9153775
Dissolved Silicon (Si)	4640	250	ug/L	+/- 687	N/A	2018/09/22	AA1	9153775
Dissolved Silver (Ag)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Strontium (Sr)	2030	0.25	ug/L	+/- 151	N/A	2018/09/22	AA1	9153775
Dissolved Thallium (Tl)	0.280	0.010	ug/L	+/- 0.030	N/A	2018/09/22	AA1	9153775
Dissolved Tin (Sn)	<1.0	1.0	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Titanium (Ti)	<2.5	2.5	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Uranium (U)	29.5	0.010	ug/L	+/- 3.75	N/A	2018/09/22	AA1	9153775
Dissolved Vanadium (V)	<1.0	1.0	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Zinc (Zn)	9.11	0.50	ug/L	+/- 2.62	N/A	2018/09/22	AA1	9153775
Dissolved Zirconium (Zr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Calcium (Ca)	374	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Magnesium (Mg)	95.3	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Potassium (K)	5.02	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Sodium (Na)	367	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Sulphur (S)	372	15	mg/L	N/A	N/A	2018/09/24		9151046
Total Metals by ICPMS								
Total Aluminum (Al)	6.8	2.5	ug/L	+/- <RDL	N/A	2018/09/24	AA1	9155684
Total Antimony (Sb)	1780	0.10	ug/L	+/- 165	N/A	2018/09/24	AA1	9155684
Total Arsenic (As)	273	0.10	ug/L	+/- 28.0	N/A	2018/09/24	AA1	9155684
Total Barium (Ba)	30.4	0.10	ug/L	+/- 2.66	N/A	2018/09/24	AA1	9155684
Total Beryllium (Be)	<0.050	0.050	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Bismuth (Bi)	<0.025	0.025	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Boron (B)	<50	50	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Cadmium (Cd)	0.267	0.025	ug/L	+/- 0.036	N/A	2018/09/24	AA1	9155684
Total Chromium (Cr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Cobalt (Co)	458	0.025	ug/L	+/- 50.2	N/A	2018/09/24	AA1	9155684
Total Copper (Cu)	1.19	0.25	ug/L	+/- <RDL	N/A	2018/09/24	AA1	9155684
Total Iron (Fe)	134	5.0	ug/L	+/- 14.3	N/A	2018/09/24	AA1	9155684
Total Lead (Pb)	<0.025	0.025	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Lithium (Li)	5.7	2.5	ug/L	+/- <RDL	N/A	2018/09/24	AA1	9155684
Total Manganese (Mn)	21.8	0.25	ug/L	+/- 2.15	N/A	2018/09/24	AA1	9155684

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Maxxam Job #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2614 BC28A								
Sampling Date 2018/09/18 11:00								
Matrix WATER								
Sample # BC28A								
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Total Metals by ICPMS								
Total Molybdenum (Mo)	14.9	0.25	ug/L	+/- 1.76	N/A	2018/09/24	AA1	9155684
Total Nickel (Ni)	8.15	0.10	ug/L	+/- 0.73	N/A	2018/09/24	AA1	9155684
Total Phosphorus (P)	41	10	ug/L	+/- 12	N/A	2018/09/24	AA1	9155684
Total Selenium (Se)	145	0.20	ug/L	+/- 19.4	N/A	2018/09/24	AA1	9155684
Total Silicon (Si)	4710	250	ug/L	+/- 697	N/A	2018/09/24	AA1	9155684
Total Silver (Ag)	<0.025	0.025	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Strontium (Sr)	1870	0.25	ug/L	+/- 139	N/A	2018/09/24	AA1	9155684
Total Thallium (Tl)	0.306	0.010	ug/L	+/- 0.033	N/A	2018/09/24	AA1	9155684
Total Tin (Sn)	<1.0	1.0	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Titanium (Ti)	<2.5	2.5	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Uranium (U)	30.1	0.010	ug/L	+/- 3.83	N/A	2018/09/24	AA1	9155684
Total Vanadium (V)	<1.0	1.0	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Zinc (Zn)	9.90	0.50	ug/L	+/- 2.10	N/A	2018/09/24	AA1	9155684
Total Zirconium (Zr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Calcium (Ca)	365	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Magnesium (Mg)	97.0	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Potassium (K)	5.17	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Sodium (Na)	377	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Sulphur (S)	366	15	mg/L	N/A	N/A	2018/09/24		9151052
MERCURY BY COLD VAPOR (WATER)								
Elements								
Dissolved Mercury (Hg)	0.0276	0.0020	ug/L	N/A	N/A	2018/09/24	EL2	9154529
Total Mercury (Hg)	0.0279	0.0020	ug/L	N/A	2018/09/24	2018/09/24	EL2	9156515
UJ2615 BC28B								
Sampling Date 2018/09/18 10:00								
Matrix WATER								
Sample # BC28B								
RESULTS OF CHEMICAL ANALYSES OF WATER								
ANIONS								
Nitrite (N)	0.248	0.0050	mg/L	+/- 0.0112	N/A	2018/09/21	VT1	9153865
Calculated Parameters								
Filter and HNO3 Preservation	FIELD		N/A	N/A	N/A	2018/09/20		ONSITE
Dissolved Hardness (CaCO3)	936	0.50	mg/L	N/A	N/A	2018/09/24		9152458
Total Hardness (CaCO3)	938	0.50	mg/L	N/A	N/A	2018/09/24		9151761
Nitrate (N)	250	4.0	mg/L	N/A	N/A	2018/09/21		9151176
Misc. Inorganics								
Alkalinity (Total as CaCO3)	56.5	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Alkalinity (PP as CaCO3)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Bicarbonate (HCO3)	69.0	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559

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Maxxam Job #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2615 BC28B								
Sampling Date 2018/09/18 10:00								
Matrix WATER								
Sample # BC28B								
RESULTS OF CHEMICAL ANALYSES OF WATER								
Misc. Inorganics								
Carbonate (CO3)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Hydroxide (OH)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Free Cyanide	0.024	0.0010	mg/L	+/- 0.0018	N/A	2018/09/25	XQI	9160304
Total Cyanide (CN)	0.036	0.0050	mg/L	+/- <RDL	2018/09/25	2018/09/25	XQI	9160303
Anions								
Dissolved Chloride (Cl)	20	0.50	mg/L	+/- 2.1	N/A	2018/09/21	MO5	9154896
Dissolved Sulphate (SO4)	777(1)	5.0	mg/L	+/- 39.3	N/A	2018/09/21	MO5	9154897
Nutrients								
Total Ammonia (N)	0.047	0.0050	mg/L	N/A	N/A	2018/09/21	KAB	9153774
Nitrate plus Nitrite (N)	250(1)	4.0	mg/L	+/- 28.3	N/A	2018/09/21	VT1	9153861
Physical Properties								
pH	7.59		pH	N/A	N/A	2018/09/21	BB3	9156551
Conductivity	3260	1.0	uS/cm	N/A	N/A	2018/09/21	BB3	9156560
Physical Properties								
Total Dissolved Solids	2620	1.0	mg/L	N/A	2018/09/24	2018/09/27	FSU	9156571
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	14.6	2.5	ug/L	+/- 29.8	N/A	2018/09/22	AA1	9153775
Dissolved Antimony (Sb)	1610	0.10	ug/L	+/- 149	N/A	2018/09/22	AA1	9153775
Dissolved Arsenic (As)	154	0.10	ug/L	+/- 15.8	N/A	2018/09/22	AA1	9153775
Dissolved Barium (Ba)	33.4	0.10	ug/L	+/- 2.92	N/A	2018/09/22	AA1	9153775
Dissolved Beryllium (Be)	<0.050	0.050	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Bismuth (Bi)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Boron (B)	<50	50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Cadmium (Cd)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Chromium (Cr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Cobalt (Co)	411	0.025	ug/L	+/- 45.0	N/A	2018/09/22	AA1	9153775
Dissolved Copper (Cu)	1.06	0.25	ug/L	+/- <RDL	N/A	2018/09/22	AA1	9153775
Dissolved Iron (Fe)	8.4	5.0	ug/L	+/- <RDL	N/A	2018/09/22	AA1	9153775
Dissolved Lead (Pb)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Lithium (Li)	3.5	2.5	ug/L	+/- <RDL	N/A	2018/09/22	AA1	9153775
Dissolved Manganese (Mn)	11.1	0.25	ug/L	+/- 1.10	N/A	2018/09/22	AA1	9153775
Dissolved Molybdenum (Mo)	17.5	0.25	ug/L	+/- 2.17	N/A	2018/09/22	AA1	9153775
Dissolved Nickel (Ni)	3.92	0.10	ug/L	+/- 0.98	N/A	2018/09/22	AA1	9153775
Dissolved Phosphorus (P)	<10	10	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Selenium (Se)	121	0.20	ug/L	+/- 19.1	N/A	2018/09/22	AA1	9153775
Dissolved Silicon (Si)	587	250	ug/L	+/- <RDL	N/A	2018/09/22	AA1	9153775
Dissolved Silver (Ag)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Strontium (Sr)	1470	0.25	ug/L	+/- 109	N/A	2018/09/22	AA1	9153775

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

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Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2615 BC28B								
Sampling Date 2018/09/18 10:00								
Matrix WATER								
Sample # BC28B								
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Dissolved Metals by ICPMS								
Dissolved Thallium (Tl)	0.158	0.010	ug/L	+/- 0.018	N/A	2018/09/22	AA1	9153775
Dissolved Tin (Sn)	<1.0	1.0	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Titanium (Ti)	<2.5	2.5	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Uranium (U)	16.9	0.010	ug/L	+/- 2.15	N/A	2018/09/22	AA1	9153775
Dissolved Vanadium (V)	<1.0	1.0	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Zinc (Zn)	0.68	0.50	ug/L	+/- 1.68	N/A	2018/09/22	AA1	9153775
Dissolved Zirconium (Zr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Calcium (Ca)	262	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Magnesium (Mg)	68.4	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Potassium (K)	4.49	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Sodium (Na)	314	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Sulphur (S)	271	15	mg/L	N/A	N/A	2018/09/24		9151046
Total Metals by ICPMS								
Total Aluminum (Al)	28	15	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Antimony (Sb)	1540	0.10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Arsenic (As)	155	0.10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Barium (Ba)	31.1	0.25	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Beryllium (Be)	<0.050	0.050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Bismuth (Bi)	<0.050	0.050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Boron (B)	<50	50	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Cadmium (Cd)	<0.025	0.025	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Chromium (Cr)	<0.50	0.50	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Cobalt (Co)	407	0.050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Copper (Cu)	1.21	0.50	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Iron (Fe)	28	25	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Lead (Pb)	<0.10	0.10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Lithium (Li)	3.3	2.5	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Manganese (Mn)	19.2	0.50	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Molybdenum (Mo)	17.5	0.25	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Nickel (Ni)	4.20	0.50	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Phosphorus (P)	<25	25	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Selenium (Se)	124	0.20	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Silicon (Si)	578	250	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Silver (Ag)	<0.050	0.050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Strontium (Sr)	1410	0.25	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Thallium (Tl)	0.153	0.010	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Tin (Sn)	<1.0	1.0	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Titanium (Ti)	<10	10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810

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Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2615 BC28B								
Sampling Date 2018/09/18 10:00								
Matrix WATER								
Sample # BC28B								
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Total Metals by ICPMS								
Total Uranium (U)	17.8	0.025	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Vanadium (V)	<1.0	1.0	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Zinc (Zn)	<5.0	5.0	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Zirconium (Zr)	<0.50	0.50	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Calcium (Ca)	256	1.3	mg/L	N/A	N/A	2018/09/24		9151052
Total Magnesium (Mg)	72.6	1.3	mg/L	N/A	N/A	2018/09/24		9151052
Total Potassium (K)	4.7	1.3	mg/L	N/A	N/A	2018/09/24		9151052
Total Sodium (Na)	332	1.3	mg/L	N/A	N/A	2018/09/24		9151052
Total Sulphur (S)	262	15	mg/L	N/A	N/A	2018/09/24		9151052
MERCURY BY COLD VAPOR (WATER)								
Elements								
Dissolved Mercury (Hg)	0.0067	0.0020	ug/L	N/A	N/A	2018/09/24	EL2	9154529
Total Mercury (Hg)	0.0039	0.0020	ug/L	N/A	2018/09/24	2018/09/24	EL2	9156515
UJ2616 BC66								
Sampling Date 2018/09/18								
Matrix WATER								
Sample # BC66								
RESULTS OF CHEMICAL ANALYSES OF WATER								
ANIONS								
Nitrite (N)	0.0058	0.0050	mg/L	+/- <RDL	N/A	2018/09/21	VT1	9153865
Calculated Parameters								
Filter and HNO3 Preservation	FIELD		N/A	N/A	N/A	2018/09/20		ONSITE
Dissolved Hardness (CaCO3)	401	0.50	mg/L	N/A	N/A	2018/09/24		9152458
Total Hardness (CaCO3)	395	0.50	mg/L	N/A	N/A	2018/09/24		9151761
Nitrate (N)	28.6	0.40	mg/L	N/A	N/A	2018/09/21		9151176
Misc. Inorganics								
Alkalinity (Total as CaCO3)	276	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Alkalinity (PP as CaCO3)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Bicarbonate (HCO3)	337	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Carbonate (CO3)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Hydroxide (OH)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Free Cyanide	0.0037	0.0010	mg/L	+/- <RDL	N/A	2018/09/25	XQI	9160304
Total Cyanide (CN)	0.0082	0.0050	mg/L	+/- <RDL	2018/09/25	2018/09/25	XQI	9160303
Anions								
Dissolved Chloride (Cl)	4.8	0.50	mg/L	+/- 0.93	N/A	2018/09/21	MO5	9154896
Dissolved Sulphate (SO4)	35.9	0.50	mg/L	+/- 2.14	N/A	2018/09/24	MO5	9156814
Nutrients								
Total Ammonia (N)	<0.0050	0.0050	mg/L	N/A	N/A	2018/09/21	KAB	9153774
Nitrate plus Nitrite (N)	28.6(1)	0.40	mg/L	+/- 3.24	N/A	2018/09/21	VT1	9153861

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

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Golden Predator Exploration
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Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2616 BC66								
Sampling Date 2018/09/18								
Matrix WATER								
Sample # BC66								
RESULTS OF CHEMICAL ANALYSES OF WATER								
Physical Properties								
pH	7.99		pH	N/A	N/A	2018/09/21	BB3	9156551
Conductivity	798	1.0	uS/cm	N/A	N/A	2018/09/21	BB3	9156560
Physical Properties								
Total Dissolved Solids	480	1.0	mg/L	N/A	2018/09/24	2018/09/27	FSU	9156571
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	1.25	0.50	ug/L	+/- 4.02	N/A	2018/09/24	AA1	9153775
Dissolved Antimony (Sb)	0.142	0.020	ug/L	+/- 0.025	N/A	2018/09/24	AA1	9153775
Dissolved Arsenic (As)	0.134	0.020	ug/L	+/- 0.049	N/A	2018/09/24	AA1	9153775
Dissolved Barium (Ba)	46.1	0.020	ug/L	+/- 4.02	N/A	2018/09/24	AA1	9153775
Dissolved Beryllium (Be)	<0.010	0.010	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Bismuth (Bi)	<0.0050	0.0050	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Boron (B)	<10	10	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Cadmium (Cd)	0.0226	0.0050	ug/L	+/- 0.0077	N/A	2018/09/24	AA1	9153775
Dissolved Chromium (Cr)	<0.10	0.10	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Cobalt (Co)	64.8	0.0050	ug/L	+/- 7.11	N/A	2018/09/24	AA1	9153775
Dissolved Copper (Cu)	0.081	0.050	ug/L	+/- 0.118	N/A	2018/09/24	AA1	9153775
Dissolved Iron (Fe)	1.4	1.0	ug/L	+/- 1.7	N/A	2018/09/24	AA1	9153775
Dissolved Lead (Pb)	0.0074	0.0050	ug/L	+/- 0.0150	N/A	2018/09/24	AA1	9153775
Dissolved Lithium (Li)	20.4	0.50	ug/L	+/- 1.68	N/A	2018/09/24	AA1	9153775
Dissolved Manganese (Mn)	0.532	0.050	ug/L	+/- 0.108	N/A	2018/09/24	AA1	9153775
Dissolved Molybdenum (Mo)	0.130	0.050	ug/L	+/- <RDL	N/A	2018/09/24	AA1	9153775
Dissolved Nickel (Ni)	0.135	0.020	ug/L	+/- 0.093	N/A	2018/09/24	AA1	9153775
Dissolved Phosphorus (P)	8.3	2.0	ug/L	+/- 5.9	N/A	2018/09/24	AA1	9153775
Dissolved Selenium (Se)	14.0	0.040	ug/L	+/- 2.21	N/A	2018/09/24	AA1	9153775
Dissolved Silicon (Si)	4710	50	ug/L	+/- 698	N/A	2018/09/24	AA1	9153775
Dissolved Silver (Ag)	<0.0050	0.0050	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Strontium (Sr)	432	0.050	ug/L	+/- 32.1	N/A	2018/09/24	AA1	9153775
Dissolved Thallium (Tl)	0.0108	0.0020	ug/L	+/- 0.0033	N/A	2018/09/24	AA1	9153775
Dissolved Tin (Sn)	<0.20	0.20	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Titanium (Ti)	<0.50	0.50	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Uranium (U)	1.27	0.0020	ug/L	+/- 0.163	N/A	2018/09/24	AA1	9153775
Dissolved Vanadium (V)	<0.20	0.20	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Zinc (Zn)	0.88	0.10	ug/L	+/- 1.68	N/A	2018/09/24	AA1	9153775
Dissolved Zirconium (Zr)	<0.10	0.10	ug/L	N/A	N/A	2018/09/24	AA1	9153775
Dissolved Calcium (Ca)	78.7	0.050	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Magnesium (Mg)	49.7	0.050	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Potassium (K)	2.60	0.050	mg/L	N/A	N/A	2018/09/24		9151046

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Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2616 BC66								
Sampling Date 2018/09/18								
Matrix WATER								
Sample # BC66								
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Dissolved Metals by ICPMS								
Dissolved Sodium (Na)	11.5	0.050	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Sulphur (S)	11.4	3.0	mg/L	N/A	N/A	2018/09/24		9151046
Total Metals by ICPMS								
Total Aluminum (Al)	225	3.0	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Antimony (Sb)	0.786	0.020	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Arsenic (As)	0.945	0.020	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Barium (Ba)	69.2	0.050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Beryllium (Be)	0.032	0.010	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Bismuth (Bi)	0.013	0.010	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Boron (B)	<10	10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Cadmium (Cd)	0.118	0.0050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Chromium (Cr)	1.00	0.10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Cobalt (Co)	62.0	0.010	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Copper (Cu)	2.33	0.10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Iron (Fe)	559	5.0	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Lead (Pb)	1.65	0.020	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Lithium (Li)	18.1	0.50	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Manganese (Mn)	13.5	0.10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Molybdenum (Mo)	0.261	0.050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Nickel (Ni)	1.42	0.10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Phosphorus (P)	38.8	5.0	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Selenium (Se)	15.0	0.040	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Silicon (Si)	4740	50	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Silver (Ag)	0.043	0.010	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Strontium (Sr)	455	0.050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Thallium (Tl)	0.0190	0.0020	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Tin (Sn)	0.80	0.20	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Titanium (Ti)	5.9	2.0	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Uranium (U)	1.35	0.0050	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Vanadium (V)	0.62	0.20	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Zinc (Zn)	6.6	1.0	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Zirconium (Zr)	0.24	0.10	ug/L	N/A	2018/09/21	2018/09/24	AD5	9153810
Total Calcium (Ca)	77.6	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Magnesium (Mg)	48.8	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Potassium (K)	2.74	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Sodium (Na)	11.5	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Sulphur (S)	11.5	3.0	mg/L	N/A	N/A	2018/09/24		9151052

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Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2616 BC66								
Sampling Date 2018/09/18								
Matrix WATER								
Sample # BC66								
MERCURY BY COLD VAPOR (WATER)								
Elements								
Dissolved Mercury (Hg)	<0.0020	0.0020	ug/L	N/A	N/A	2018/09/24	EL2	9154529
Total Mercury (Hg)	<0.0020	0.0020	ug/L	N/A	2018/09/24	2018/09/24	EL2	9156515
UJ2617 DUP-1								
Sampling Date 2018/09/18 12:00								
Matrix WATER								
Sample # DUP-1								
RESULTS OF CHEMICAL ANALYSES OF WATER								
ANIONS								
Nitrite (N)	0.0050	0.0050	mg/L	N/A	N/A	2018/09/21	VT1	9153865
Calculated Parameters								
Filter and HNO3 Preservation	FIELD		N/A	N/A	N/A	2018/09/20		ONSITE
Dissolved Hardness (CaCO3)	1320	0.50	mg/L	N/A	N/A	2018/09/24		9152458
Total Hardness (CaCO3)	1310	0.50	mg/L	N/A	N/A	2018/09/24		9151761
Nitrate (N)	281	4.0	mg/L	N/A	N/A	2018/09/21		9151176
Misc. Inorganics								
Alkalinity (Total as CaCO3)	144	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Alkalinity (PP as CaCO3)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Bicarbonate (HCO3)	175	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Carbonate (CO3)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Hydroxide (OH)	<0.50	0.50	mg/L	N/A	N/A	2018/09/21	BB3	9156559
Free Cyanide	0.077	0.0050	mg/L	+/- 0.0058	N/A	2018/09/25	XQI	9160304
Total Cyanide (CN)	0.46	0.025	mg/L	+/- 0.035	2018/09/25	2018/09/25	XQI	9160303
Anions								
Dissolved Chloride (Cl)	21	0.50	mg/L	+/- 2.2	N/A	2018/09/21	MO5	9154896
Dissolved Sulphate (SO4)	1130(1)	5.0	mg/L	+/- 57.3	N/A	2018/09/21	MO5	9154897
Nutrients								
Total Ammonia (N)	<0.0050	0.0050	mg/L	N/A	N/A	2018/09/21	KAB	9153774
Nitrate plus Nitrite (N)	281(1)	4.0	mg/L	+/- 31.8	N/A	2018/09/21	VT1	9153861
Physical Properties								
pH	7.84		pH	N/A	N/A	2018/09/21	BB3	9156551
Conductivity	4030	1.0	uS/cm	N/A	N/A	2018/09/21	BB3	9156560
Physical Properties								
Total Dissolved Solids	3450	1.0	mg/L	N/A	2018/09/24	2018/09/27	FSU	9156571
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	4.5	2.5	ug/L	+/- 10.1	N/A	2018/09/22	AA1	9153775
Dissolved Antimony (Sb)	1830	0.10	ug/L	+/- 169	N/A	2018/09/22	AA1	9153775
Dissolved Arsenic (As)	286	0.10	ug/L	+/- 29.4	N/A	2018/09/22	AA1	9153775
Dissolved Barium (Ba)	33.6	0.10	ug/L	+/- 2.94	N/A	2018/09/22	AA1	9153775

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

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Golden Predator Exploration
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Site Location: BREWERY CREEK
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Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2617 DUP-1								
Sampling Date 2018/09/18 12:00								
Matrix WATER								
Sample # DUP-1								
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Dissolved Metals by ICPMS								
Dissolved Beryllium (Be)	<0.050	0.050	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Bismuth (Bi)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Boron (B)	<50	50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Cadmium (Cd)	0.288	0.025	ug/L	+/- 0.038	N/A	2018/09/22	AA1	9153775
Dissolved Chromium (Cr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Cobalt (Co)	478	0.025	ug/L	+/- 52.5	N/A	2018/09/22	AA1	9153775
Dissolved Copper (Cu)	1.18	0.25	ug/L	+/- <RDL	N/A	2018/09/22	AA1	9153775
Dissolved Iron (Fe)	129	5.0	ug/L	+/- 12.9	N/A	2018/09/22	AA1	9153775
Dissolved Lead (Pb)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Lithium (Li)	5.0	2.5	ug/L	+/- <RDL	N/A	2018/09/22	AA1	9153775
Dissolved Manganese (Mn)	21.6	0.25	ug/L	+/- 2.12	N/A	2018/09/22	AA1	9153775
Dissolved Molybdenum (Mo)	15.3	0.25	ug/L	+/- 1.91	N/A	2018/09/22	AA1	9153775
Dissolved Nickel (Ni)	8.18	0.10	ug/L	+/- 2.02	N/A	2018/09/22	AA1	9153775
Dissolved Phosphorus (P)	44	10	ug/L	+/- 12	N/A	2018/09/22	AA1	9153775
Dissolved Selenium (Se)	146	0.20	ug/L	+/- 23.0	N/A	2018/09/22	AA1	9153775
Dissolved Silicon (Si)	4680	250	ug/L	+/- 692	N/A	2018/09/22	AA1	9153775
Dissolved Silver (Ag)	<0.025	0.025	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Strontium (Sr)	2040	0.25	ug/L	+/- 152	N/A	2018/09/22	AA1	9153775
Dissolved Thallium (Tl)	0.310	0.010	ug/L	+/- 0.034	N/A	2018/09/22	AA1	9153775
Dissolved Tin (Sn)	<1.0	1.0	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Titanium (Ti)	<2.5	2.5	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Uranium (U)	29.5	0.010	ug/L	+/- 3.75	N/A	2018/09/22	AA1	9153775
Dissolved Vanadium (V)	<1.0	1.0	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Zinc (Zn)	8.77	0.50	ug/L	+/- 2.56	N/A	2018/09/22	AA1	9153775
Dissolved Zirconium (Zr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/22	AA1	9153775
Dissolved Calcium (Ca)	372	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Magnesium (Mg)	95.3	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Potassium (K)	4.96	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Sodium (Na)	369	0.25	mg/L	N/A	N/A	2018/09/24		9151046
Dissolved Sulphur (S)	371	15	mg/L	N/A	N/A	2018/09/24		9151046
Total Metals by ICPMS								
Total Aluminum (Al)	6.6	2.5	ug/L	+/- <RDL	N/A	2018/09/24	AA1	9155684
Total Antimony (Sb)	1810	0.10	ug/L	+/- 167	N/A	2018/09/24	AA1	9155684
Total Arsenic (As)	276	0.10	ug/L	+/- 28.3	N/A	2018/09/24	AA1	9155684
Total Barium (Ba)	30.6	0.10	ug/L	+/- 2.68	N/A	2018/09/24	AA1	9155684
Total Beryllium (Be)	<0.050	0.050	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Bismuth (Bi)	<0.025	0.025	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Boron (B)	<50	50	ug/L	N/A	N/A	2018/09/24	AA1	9155684

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Golden Predator Exploration
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Sampler Initials: DT

Sample Details/Parameters	Result	RDL	UNITS	MU	Extracted	Analyzed	By	Batch
UJ2617 DUP-1								
Sampling Date 2018/09/18 12:00								
Matrix WATER								
Sample # DUP-1								
ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)								
Total Metals by ICPMS								
Total Cadmium (Cd)	0.277	0.025	ug/L	+/- 0.037	N/A	2018/09/24	AA1	9155684
Total Chromium (Cr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Cobalt (Co)	468	0.025	ug/L	+/- 51.3	N/A	2018/09/24	AA1	9155684
Total Copper (Cu)	1.21	0.25	ug/L	+/- <RDL	N/A	2018/09/24	AA1	9155684
Total Iron (Fe)	137	5.0	ug/L	+/- 14.6	N/A	2018/09/24	AA1	9155684
Total Lead (Pb)	<0.025	0.025	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Lithium (Li)	5.7	2.5	ug/L	+/- <RDL	N/A	2018/09/24	AA1	9155684
Total Manganese (Mn)	22.0	0.25	ug/L	+/- 2.16	N/A	2018/09/24	AA1	9155684
Total Molybdenum (Mo)	15.0	0.25	ug/L	+/- 1.78	N/A	2018/09/24	AA1	9155684
Total Nickel (Ni)	8.26	0.10	ug/L	+/- 0.74	N/A	2018/09/24	AA1	9155684
Total Phosphorus (P)	38	10	ug/L	+/- 11	N/A	2018/09/24	AA1	9155684
Total Selenium (Se)	147	0.20	ug/L	+/- 19.6	N/A	2018/09/24	AA1	9155684
Total Silicon (Si)	4700	250	ug/L	+/- 697	N/A	2018/09/24	AA1	9155684
Total Silver (Ag)	<0.025	0.025	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Strontium (Sr)	1880	0.25	ug/L	+/- 140	N/A	2018/09/24	AA1	9155684
Total Thallium (Tl)	0.315	0.010	ug/L	+/- 0.034	N/A	2018/09/24	AA1	9155684
Total Tin (Sn)	<1.0	1.0	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Titanium (Ti)	<2.5	2.5	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Uranium (U)	29.9	0.010	ug/L	+/- 3.80	N/A	2018/09/24	AA1	9155684
Total Vanadium (V)	<1.0	1.0	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Zinc (Zn)	10.1	0.50	ug/L	+/- 2.14	N/A	2018/09/24	AA1	9155684
Total Zirconium (Zr)	<0.50	0.50	ug/L	N/A	N/A	2018/09/24	AA1	9155684
Total Calcium (Ca)	359	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Magnesium (Mg)	101	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Potassium (K)	5.31	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Sodium (Na)	387	0.25	mg/L	N/A	N/A	2018/09/24		9151052
Total Sulphur (S)	378	15	mg/L	N/A	N/A	2018/09/24		9151052
MERCURY BY COLD VAPOR (WATER)								
Elements								
Dissolved Mercury (Hg)	0.0277	0.0020	ug/L	N/A	N/A	2018/09/24	EL2	9154529
Total Mercury (Hg)	0.0289	0.0020	ug/L	N/A	2018/09/24	2018/09/24	EL2	9156515

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GENERAL COMMENTS

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

Package 1	4.7°C

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments

Sample UJ2614 [BC28A] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.
Sample UJ2614 [BC28A] Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.
Sample UJ2615 [BC28B] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.
Sample UJ2615 [BC28B] Elements by ICPMS Digested LL (total): RDL raised due to concentration over linear range, sample dilution required.
Sample UJ2617 [DUP-1] Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.
Sample UJ2617 [DUP-1] Elements by ICPMS Low Level (total): RDL raised due to sample matrix interference.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9153774	KAB	Spiked Blank	Total Ammonia (N)	2018/09/21		90	%	80 - 120
9153774	KAB	Method Blank	Total Ammonia (N)	2018/09/21	<0.0050		mg/L	
9153775	AA1	Matrix Spike	Dissolved Aluminum (Al)	2018/09/22		98	%	80 - 120
			Dissolved Antimony (Sb)	2018/09/22		NC	%	80 - 120
			Dissolved Arsenic (As)	2018/09/22		101	%	80 - 120
			Dissolved Barium (Ba)	2018/09/22		103	%	80 - 120
			Dissolved Beryllium (Be)	2018/09/22		87	%	80 - 120
			Dissolved Bismuth (Bi)	2018/09/22		93	%	80 - 120
			Dissolved Boron (B)	2018/09/22		85	%	80 - 120
			Dissolved Cadmium (Cd)	2018/09/22		98	%	80 - 120
			Dissolved Chromium (Cr)	2018/09/22		97	%	80 - 120
			Dissolved Cobalt (Co)	2018/09/22		95	%	80 - 120
			Dissolved Copper (Cu)	2018/09/22		93	%	80 - 120
			Dissolved Iron (Fe)	2018/09/22		115	%	80 - 120
			Dissolved Lead (Pb)	2018/09/22		96	%	80 - 120
			Dissolved Lithium (Li)	2018/09/22		85	%	80 - 120
			Dissolved Manganese (Mn)	2018/09/22		107	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/09/22		103	%	80 - 120
			Dissolved Nickel (Ni)	2018/09/22		97	%	80 - 120
			Dissolved Phosphorus (P)	2018/09/22		99	%	80 - 120
			Dissolved Selenium (Se)	2018/09/22		99	%	80 - 120
			Dissolved Silicon (Si)	2018/09/22		95	%	80 - 120
			Dissolved Silver (Ag)	2018/09/22		88	%	80 - 120
			Dissolved Strontium (Sr)	2018/09/22		NC	%	80 - 120
			Dissolved Thallium (Tl)	2018/09/22		99	%	80 - 120
			Dissolved Tin (Sn)	2018/09/22		100	%	80 - 120
			Dissolved Titanium (Ti)	2018/09/22		103	%	80 - 120
			Dissolved Uranium (U)	2018/09/22		99	%	80 - 120
			Dissolved Vanadium (V)	2018/09/22		98	%	80 - 120
			Dissolved Zinc (Zn)	2018/09/22		95	%	80 - 120
			Dissolved Zirconium (Zr)	2018/09/22		101	%	80 - 120
9153775	AA1	Spiked Blank	Dissolved Aluminum (Al)	2018/09/22		100	%	80 - 120
			Dissolved Antimony (Sb)	2018/09/22		101	%	80 - 120
			Dissolved Arsenic (As)	2018/09/22		103	%	80 - 120
			Dissolved Barium (Ba)	2018/09/22		105	%	80 - 120
			Dissolved Beryllium (Be)	2018/09/22		92	%	80 - 120
			Dissolved Bismuth (Bi)	2018/09/22		102	%	80 - 120
			Dissolved Boron (B)	2018/09/22		89	%	80 - 120
			Dissolved Cadmium (Cd)	2018/09/22		101	%	80 - 120
			Dissolved Chromium (Cr)	2018/09/22		100	%	80 - 120
			Dissolved Cobalt (Co)	2018/09/22		100	%	80 - 120
			Dissolved Copper (Cu)	2018/09/22		100	%	80 - 120
			Dissolved Iron (Fe)	2018/09/22		103	%	80 - 120
			Dissolved Lead (Pb)	2018/09/22		101	%	80 - 120
			Dissolved Lithium (Li)	2018/09/22		92	%	80 - 120
			Dissolved Manganese (Mn)	2018/09/22		103	%	80 - 120
			Dissolved Molybdenum (Mo)	2018/09/22		107	%	80 - 120
			Dissolved Nickel (Ni)	2018/09/22		101	%	80 - 120
			Dissolved Phosphorus (P)	2018/09/22		98	%	80 - 120
			Dissolved Selenium (Se)	2018/09/22		99	%	80 - 120
			Dissolved Silicon (Si)	2018/09/22		100	%	80 - 120
			Dissolved Silver (Ag)	2018/09/22		100	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Strontium (Sr)	2018/09/22		107	%	80 - 120
			Dissolved Thallium (Tl)	2018/09/22		101	%	80 - 120
			Dissolved Tin (Sn)	2018/09/22		100	%	80 - 120
			Dissolved Titanium (Ti)	2018/09/22		107	%	80 - 120
			Dissolved Uranium (U)	2018/09/22		101	%	80 - 120
			Dissolved Vanadium (V)	2018/09/22		102	%	80 - 120
			Dissolved Zinc (Zn)	2018/09/22		103	%	80 - 120
			Dissolved Zirconium (Zr)	2018/09/22		103	%	80 - 120
9153775	AA1	Method Blank	Dissolved Aluminum (Al)	2018/09/22	<0.50		ug/L	
			Dissolved Antimony (Sb)	2018/09/22	<0.020		ug/L	
			Dissolved Arsenic (As)	2018/09/22	<0.020		ug/L	
			Dissolved Barium (Ba)	2018/09/22	<0.020		ug/L	
			Dissolved Beryllium (Be)	2018/09/22	<0.010		ug/L	
			Dissolved Bismuth (Bi)	2018/09/22	<0.0050		ug/L	
			Dissolved Boron (B)	2018/09/22	<10		ug/L	
			Dissolved Cadmium (Cd)	2018/09/22	<0.0050		ug/L	
			Dissolved Chromium (Cr)	2018/09/22	<0.10		ug/L	
			Dissolved Cobalt (Co)	2018/09/22	<0.0050		ug/L	
			Dissolved Copper (Cu)	2018/09/22	<0.050		ug/L	
			Dissolved Iron (Fe)	2018/09/22	<1.0		ug/L	
			Dissolved Lead (Pb)	2018/09/22	<0.0050		ug/L	
			Dissolved Lithium (Li)	2018/09/22	<0.50		ug/L	
			Dissolved Manganese (Mn)	2018/09/22	<0.050		ug/L	
			Dissolved Molybdenum (Mo)	2018/09/22	<0.050		ug/L	
			Dissolved Nickel (Ni)	2018/09/22	<0.020		ug/L	
			Dissolved Phosphorus (P)	2018/09/22	<2.0		ug/L	
			Dissolved Selenium (Se)	2018/09/22	<0.040		ug/L	
			Dissolved Silicon (Si)	2018/09/22	<50		ug/L	
			Dissolved Silver (Ag)	2018/09/22	<0.0050		ug/L	
			Dissolved Strontium (Sr)	2018/09/22	<0.050		ug/L	
			Dissolved Thallium (Tl)	2018/09/22	<0.0020		ug/L	
			Dissolved Tin (Sn)	2018/09/22	<0.20		ug/L	
			Dissolved Titanium (Ti)	2018/09/22	<0.50		ug/L	
			Dissolved Uranium (U)	2018/09/22	<0.0020		ug/L	
			Dissolved Vanadium (V)	2018/09/22	<0.20		ug/L	
			Dissolved Zinc (Zn)	2018/09/22	<0.10		ug/L	
			Dissolved Zirconium (Zr)	2018/09/22	<0.10		ug/L	
9153775	AA1	RPD	Dissolved Aluminum (Al)	2018/09/22	0.41		%	20
			Dissolved Antimony (Sb)	2018/09/22	2.3		%	20
			Dissolved Arsenic (As)	2018/09/22	1.8		%	20
			Dissolved Barium (Ba)	2018/09/22	1.7		%	20
			Dissolved Beryllium (Be)	2018/09/22	NC		%	20
			Dissolved Bismuth (Bi)	2018/09/22	NC		%	20
			Dissolved Boron (B)	2018/09/22	0.026		%	20
			Dissolved Cadmium (Cd)	2018/09/22	NC		%	20
			Dissolved Chromium (Cr)	2018/09/22	1.0		%	20
			Dissolved Cobalt (Co)	2018/09/22	3.4		%	20
			Dissolved Copper (Cu)	2018/09/22	8.2		%	20
			Dissolved Iron (Fe)	2018/09/22	6.2		%	20
			Dissolved Lead (Pb)	2018/09/22	NC		%	20
			Dissolved Lithium (Li)	2018/09/22	NC		%	20
			Dissolved Manganese (Mn)	2018/09/22	0.049		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Molybdenum (Mo)	2018/09/22	2.7		%	20
			Dissolved Nickel (Ni)	2018/09/22	10		%	20
			Dissolved Phosphorus (P)	2018/09/22	NC		%	20
			Dissolved Selenium (Se)	2018/09/22	13		%	20
			Dissolved Silicon (Si)	2018/09/22	1.9		%	20
			Dissolved Silver (Ag)	2018/09/22	NC		%	20
			Dissolved Strontium (Sr)	2018/09/22	3.9		%	20
			Dissolved Thallium (Tl)	2018/09/22	4.9		%	20
			Dissolved Tin (Sn)	2018/09/22	NC		%	20
			Dissolved Titanium (Ti)	2018/09/22	NC		%	20
			Dissolved Uranium (U)	2018/09/22	0.32		%	20
			Dissolved Vanadium (V)	2018/09/22	0.92		%	20
			Dissolved Zinc (Zn)	2018/09/22	1.6		%	20
			Dissolved Zirconium (Zr)	2018/09/22	NC		%	20
			Dissolved Aluminum (Al)	2018/09/22	NC		%	20
			Dissolved Antimony (Sb)	2018/09/22	NC		%	20
			Dissolved Arsenic (As)	2018/09/22	NC		%	20
			Dissolved Barium (Ba)	2018/09/22	NC		%	20
			Dissolved Beryllium (Be)	2018/09/22	NC		%	20
			Dissolved Bismuth (Bi)	2018/09/22	NC		%	20
			Dissolved Boron (B)	2018/09/22	NC		%	20
			Dissolved Cadmium (Cd)	2018/09/22	NC		%	20
			Dissolved Chromium (Cr)	2018/09/22	NC		%	20
			Dissolved Cobalt (Co)	2018/09/22	NC		%	20
			Dissolved Copper (Cu)	2018/09/22	NC		%	20
			Dissolved Iron (Fe)	2018/09/22	NC		%	20
			Dissolved Lead (Pb)	2018/09/22	NC		%	20
			Dissolved Lithium (Li)	2018/09/22	NC		%	20
			Dissolved Manganese (Mn)	2018/09/22	NC		%	20
			Dissolved Molybdenum (Mo)	2018/09/22	NC		%	20
			Dissolved Nickel (Ni)	2018/09/22	6.3		%	20
			Dissolved Phosphorus (P)	2018/09/22	NC		%	20
			Dissolved Selenium (Se)	2018/09/22	NC		%	20
			Dissolved Silicon (Si)	2018/09/22	NC		%	20
			Dissolved Silver (Ag)	2018/09/22	NC		%	20
			Dissolved Strontium (Sr)	2018/09/22	NC		%	20
			Dissolved Thallium (Tl)	2018/09/22	NC		%	20
			Dissolved Tin (Sn)	2018/09/22	NC		%	20
			Dissolved Titanium (Ti)	2018/09/22	NC		%	20
			Dissolved Uranium (U)	2018/09/22	NC		%	20
			Dissolved Vanadium (V)	2018/09/22	NC		%	20
			Dissolved Zinc (Zn)	2018/09/22	3.9		%	20
			Dissolved Zirconium (Zr)	2018/09/22	NC		%	20
9153810	AD5	Matrix Spike	Total Aluminum (Al)	2018/09/24		98	%	80 - 120
			Total Antimony (Sb)	2018/09/24		103	%	80 - 120
			Total Arsenic (As)	2018/09/24		105	%	80 - 120
			Total Barium (Ba)	2018/09/24		103	%	80 - 120
			Total Beryllium (Be)	2018/09/24		87	%	80 - 120
			Total Bismuth (Bi)	2018/09/24		102	%	80 - 120
			Total Boron (B)	2018/09/24		84	%	80 - 120
			Total Cadmium (Cd)	2018/09/24		102	%	80 - 120
			Total Chromium (Cr)	2018/09/24		99	%	80 - 120

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			Total Cobalt (Co)	2018/09/24		99	%	80 - 120
			Total Copper (Cu)	2018/09/24		97	%	80 - 120
			Total Iron (Fe)	2018/09/24		103	%	80 - 120
			Total Lead (Pb)	2018/09/24		104	%	80 - 120
			Total Lithium (Li)	2018/09/24		84	%	80 - 120
			Total Manganese (Mn)	2018/09/24		100	%	80 - 120
			Total Molybdenum (Mo)	2018/09/24		106	%	80 - 120
			Total Nickel (Ni)	2018/09/24		100	%	80 - 120
			Total Phosphorus (P)	2018/09/24		98	%	80 - 120
			Total Selenium (Se)	2018/09/24		106	%	80 - 120
			Total Silicon (Si)	2018/09/24		93	%	80 - 120
			Total Silver (Ag)	2018/09/24		102	%	80 - 120
			Total Strontium (Sr)	2018/09/24		100	%	80 - 120
			Total Thallium (Tl)	2018/09/24		102	%	80 - 120
			Total Tin (Sn)	2018/09/24		103	%	80 - 120
			Total Titanium (Ti)	2018/09/24		101	%	80 - 120
			Total Uranium (U)	2018/09/24		98	%	80 - 120
			Total Vanadium (V)	2018/09/24		100	%	80 - 120
			Total Zinc (Zn)	2018/09/24		99	%	80 - 120
			Total Zirconium (Zr)	2018/09/24		100	%	80 - 120
9153810	AD5	Spiked Blank	Total Aluminum (Al)	2018/09/24		97	%	80 - 120
			Total Antimony (Sb)	2018/09/24		100	%	80 - 120
			Total Arsenic (As)	2018/09/24		106	%	80 - 120
			Total Barium (Ba)	2018/09/24		100	%	80 - 120
			Total Beryllium (Be)	2018/09/24		85	%	80 - 120
			Total Bismuth (Bi)	2018/09/24		99	%	80 - 120
			Total Boron (B)	2018/09/24		80	%	80 - 120
			Total Cadmium (Cd)	2018/09/24		100	%	80 - 120
			Total Chromium (Cr)	2018/09/24		100	%	80 - 120
			Total Cobalt (Co)	2018/09/24		98	%	80 - 120
			Total Copper (Cu)	2018/09/24		97	%	80 - 120
			Total Iron (Fe)	2018/09/24		104	%	80 - 120
			Total Lead (Pb)	2018/09/24		100	%	80 - 120
			Total Lithium (Li)	2018/09/24		82	%	80 - 120
			Total Manganese (Mn)	2018/09/24		99	%	80 - 120
			Total Molybdenum (Mo)	2018/09/24		104	%	80 - 120
			Total Nickel (Ni)	2018/09/24		98	%	80 - 120
			Total Phosphorus (P)	2018/09/24		98	%	80 - 120
			Total Selenium (Se)	2018/09/24		106	%	80 - 120
			Total Silicon (Si)	2018/09/24		88	%	80 - 120
			Total Silver (Ag)	2018/09/24		100	%	80 - 120
			Total Strontium (Sr)	2018/09/24		104	%	80 - 120
			Total Thallium (Tl)	2018/09/24		100	%	80 - 120
			Total Tin (Sn)	2018/09/24		99	%	80 - 120
			Total Titanium (Ti)	2018/09/24		100	%	80 - 120
			Total Uranium (U)	2018/09/24		98	%	80 - 120
			Total Vanadium (V)	2018/09/24		99	%	80 - 120
			Total Zinc (Zn)	2018/09/24		101	%	80 - 120
			Total Zirconium (Zr)	2018/09/24		104	%	80 - 120
9153810	AD5	Method Blank	Total Aluminum (Al)	2018/09/24	<3.0		ug/L	
			Total Antimony (Sb)	2018/09/24	<0.020		ug/L	
			Total Arsenic (As)	2018/09/24	<0.020		ug/L	

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Barium (Ba)	2018/09/24	<0.050		ug/L	
			Total Beryllium (Be)	2018/09/24	<0.010		ug/L	
			Total Bismuth (Bi)	2018/09/24	<0.010		ug/L	
			Total Boron (B)	2018/09/24	<10		ug/L	
			Total Cadmium (Cd)	2018/09/24	<0.0050		ug/L	
			Total Chromium (Cr)	2018/09/24	<0.10		ug/L	
			Total Cobalt (Co)	2018/09/24	<0.010		ug/L	
			Total Copper (Cu)	2018/09/24	<0.10		ug/L	
			Total Iron (Fe)	2018/09/24	<5.0		ug/L	
			Total Lead (Pb)	2018/09/24	<0.020		ug/L	
			Total Lithium (Li)	2018/09/24	<0.50		ug/L	
			Total Manganese (Mn)	2018/09/24	<0.10		ug/L	
			Total Molybdenum (Mo)	2018/09/24	<0.050		ug/L	
			Total Nickel (Ni)	2018/09/24	<0.10		ug/L	
			Total Phosphorus (P)	2018/09/24	<5.0		ug/L	
			Total Selenium (Se)	2018/09/24	<0.040		ug/L	
			Total Silicon (Si)	2018/09/24	<50		ug/L	
			Total Silver (Ag)	2018/09/24	<0.010		ug/L	
			Total Strontium (Sr)	2018/09/24	0.070, RDL=0.050 (1)		ug/L	
			Total Thallium (Tl)	2018/09/24	<0.0020		ug/L	
			Total Tin (Sn)	2018/09/24	<0.20		ug/L	
			Total Titanium (Ti)	2018/09/24	<2.0		ug/L	
			Total Uranium (U)	2018/09/24	<0.0050		ug/L	
			Total Vanadium (V)	2018/09/24	<0.20		ug/L	
			Total Zinc (Zn)	2018/09/24	<1.0		ug/L	
			Total Zirconium (Zr)	2018/09/24	<0.10		ug/L	
9153861	VT1	Matrix Spike	Nitrate plus Nitrite (N)	2018/09/21		105	%	80 - 120
9153861	VT1	Spiked Blank	Nitrate plus Nitrite (N)	2018/09/21		105	%	80 - 120
9153861	VT1	Method Blank	Nitrate plus Nitrite (N)	2018/09/21	<0.020		mg/L	
9153861	VT1	RPD	Nitrate plus Nitrite (N)	2018/09/21	3.0		%	25
9153865	VT1	Matrix Spike	Nitrite (N)	2018/09/21		99	%	80 - 120
9153865	VT1	Spiked Blank	Nitrite (N)	2018/09/21		104	%	80 - 120
9153865	VT1	Method Blank	Nitrite (N)	2018/09/21	<0.0050		mg/L	
9153865	VT1	RPD	Nitrite (N)	2018/09/21	NC		%	20
9154529	EL2	Matrix Spike [UJ2615-07]	Dissolved Mercury (Hg)	2018/09/24		84	%	80 - 120
9154529	EL2	Spiked Blank	Dissolved Mercury (Hg)	2018/09/24		97	%	80 - 120
9154529	EL2	Method Blank	Dissolved Mercury (Hg)	2018/09/24	<0.0020		ug/L	
9154529	EL2	RPD	Dissolved Mercury (Hg)	2018/09/24	NC		%	20
9154896	MO5	Matrix Spike	Dissolved Chloride (Cl)	2018/09/21		96	%	80 - 120
9154896	MO5	Spiked Blank	Dissolved Chloride (Cl)	2018/09/21		100	%	80 - 120
9154896	MO5	Method Blank	Dissolved Chloride (Cl)	2018/09/21	0.73, RDL=0.50		mg/L	
9154896	MO5	RPD	Dissolved Chloride (Cl)	2018/09/21	20		%	20
9154897	MO5	Matrix Spike	Dissolved Sulphate (SO4)	2018/09/21		NC	%	80 - 120
9154897	MO5	Spiked Blank	Dissolved Sulphate (SO4)	2018/09/21		93	%	80 - 120
9154897	MO5	Method Blank	Dissolved Sulphate (SO4)	2018/09/21	<0.50		mg/L	
9154897	MO5	RPD	Dissolved Sulphate (SO4)	2018/09/21	0.22		%	20
9155684	AA1	Matrix Spike	Total Aluminum (Al)	2018/09/24		98	%	80 - 120
			Total Antimony (Sb)	2018/09/24		99	%	80 - 120
			Total Arsenic (As)	2018/09/24		99	%	80 - 120
			Total Barium (Ba)	2018/09/24		95	%	80 - 120

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			Total Beryllium (Be)	2018/09/24		94	%	80 - 120
			Total Bismuth (Bi)	2018/09/24		99	%	80 - 120
			Total Boron (B)	2018/09/24		100	%	80 - 120
			Total Cadmium (Cd)	2018/09/24		102	%	80 - 120
			Total Chromium (Cr)	2018/09/24		98	%	80 - 120
			Total Cobalt (Co)	2018/09/24		103	%	80 - 120
			Total Copper (Cu)	2018/09/24		99	%	80 - 120
			Total Iron (Fe)	2018/09/24		102	%	80 - 120
			Total Lead (Pb)	2018/09/24		101	%	80 - 120
			Total Lithium (Li)	2018/09/24		99	%	80 - 120
			Total Manganese (Mn)	2018/09/24		101	%	80 - 120
			Total Molybdenum (Mo)	2018/09/24		104	%	80 - 120
			Total Nickel (Ni)	2018/09/24		99	%	80 - 120
			Total Phosphorus (P)	2018/09/24		99	%	80 - 120
			Total Selenium (Se)	2018/09/24		97	%	80 - 120
			Total Silicon (Si)	2018/09/24		97	%	80 - 120
			Total Silver (Ag)	2018/09/24		101	%	80 - 120
			Total Strontium (Sr)	2018/09/24		100	%	80 - 120
			Total Thallium (Tl)	2018/09/24		100	%	80 - 120
			Total Tin (Sn)	2018/09/24		99	%	80 - 120
			Total Titanium (Ti)	2018/09/24		103	%	80 - 120
			Total Uranium (U)	2018/09/24		101	%	80 - 120
			Total Vanadium (V)	2018/09/24		99	%	80 - 120
			Total Zinc (Zn)	2018/09/24		100	%	80 - 120
			Total Zirconium (Zr)	2018/09/24		101	%	80 - 120
9155684	AA1	Spiked Blank	Total Aluminum (Al)	2018/09/24		101	%	80 - 120
			Total Antimony (Sb)	2018/09/24		101	%	80 - 120
			Total Arsenic (As)	2018/09/24		102	%	80 - 120
			Total Barium (Ba)	2018/09/24		98	%	80 - 120
			Total Beryllium (Be)	2018/09/24		99	%	80 - 120
			Total Bismuth (Bi)	2018/09/24		102	%	80 - 120
			Total Boron (B)	2018/09/24		100	%	80 - 120
			Total Cadmium (Cd)	2018/09/24		103	%	80 - 120
			Total Chromium (Cr)	2018/09/24		100	%	80 - 120
			Total Cobalt (Co)	2018/09/24		105	%	80 - 120
			Total Copper (Cu)	2018/09/24		101	%	80 - 120
			Total Iron (Fe)	2018/09/24		103	%	80 - 120
			Total Lead (Pb)	2018/09/24		103	%	80 - 120
			Total Lithium (Li)	2018/09/24		100	%	80 - 120
			Total Manganese (Mn)	2018/09/24		102	%	80 - 120
			Total Molybdenum (Mo)	2018/09/24		106	%	80 - 120
			Total Nickel (Ni)	2018/09/24		100	%	80 - 120
			Total Phosphorus (P)	2018/09/24		99	%	80 - 120
			Total Selenium (Se)	2018/09/24		100	%	80 - 120
			Total Silicon (Si)	2018/09/24		103	%	80 - 120
			Total Silver (Ag)	2018/09/24		103	%	80 - 120
			Total Strontium (Sr)	2018/09/24		101	%	80 - 120
			Total Thallium (Tl)	2018/09/24		103	%	80 - 120
			Total Tin (Sn)	2018/09/24		102	%	80 - 120
			Total Titanium (Ti)	2018/09/24		104	%	80 - 120
			Total Uranium (U)	2018/09/24		104	%	80 - 120
			Total Vanadium (V)	2018/09/24		101	%	80 - 120

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			Total Zinc (Zn)	2018/09/24		102	%	80 - 120
			Total Zirconium (Zr)	2018/09/24		103	%	80 - 120
9155684	AA1	Method Blank	Total Aluminum (Al)	2018/09/24	<0.50		ug/L	
			Total Antimony (Sb)	2018/09/24	<0.020		ug/L	
			Total Arsenic (As)	2018/09/24	<0.020		ug/L	
			Total Barium (Ba)	2018/09/24	<0.020		ug/L	
			Total Beryllium (Be)	2018/09/24	<0.010		ug/L	
			Total Bismuth (Bi)	2018/09/24	<0.0050		ug/L	
			Total Boron (B)	2018/09/24	<10		ug/L	
			Total Cadmium (Cd)	2018/09/24	<0.0050		ug/L	
			Total Chromium (Cr)	2018/09/24	<0.10		ug/L	
			Total Cobalt (Co)	2018/09/24	<0.0050		ug/L	
			Total Copper (Cu)	2018/09/24	<0.050		ug/L	
			Total Iron (Fe)	2018/09/24	<1.0		ug/L	
			Total Lead (Pb)	2018/09/24	<0.0050		ug/L	
			Total Lithium (Li)	2018/09/24	<0.50		ug/L	
			Total Manganese (Mn)	2018/09/24	<0.050		ug/L	
			Total Molybdenum (Mo)	2018/09/24	<0.050		ug/L	
			Total Nickel (Ni)	2018/09/24	<0.020		ug/L	
			Total Phosphorus (P)	2018/09/24	<2.0		ug/L	
			Total Selenium (Se)	2018/09/24	<0.040		ug/L	
			Total Silicon (Si)	2018/09/24	<50		ug/L	
			Total Silver (Ag)	2018/09/24	<0.0050		ug/L	
			Total Strontium (Sr)	2018/09/24	<0.050		ug/L	
			Total Thallium (Tl)	2018/09/24	<0.0020		ug/L	
			Total Tin (Sn)	2018/09/24	<0.20		ug/L	
			Total Titanium (Ti)	2018/09/24	<0.50		ug/L	
			Total Uranium (U)	2018/09/24	<0.0020		ug/L	
			Total Vanadium (V)	2018/09/24	<0.20		ug/L	
			Total Zinc (Zn)	2018/09/24	<0.10		ug/L	
			Total Zirconium (Zr)	2018/09/24	<0.10		ug/L	
9155684	AA1	RPD	Total Aluminum (Al)	2018/09/24	1.4		%	20
			Total Aluminum (Al)	2018/09/24	NC		%	20
			Total Antimony (Sb)	2018/09/24	NC		%	20
			Total Arsenic (As)	2018/09/24	NC		%	20
			Total Barium (Ba)	2018/09/24	NC		%	20
			Total Beryllium (Be)	2018/09/24	NC		%	20
			Total Bismuth (Bi)	2018/09/24	NC		%	20
			Total Boron (B)	2018/09/24	NC		%	20
			Total Cadmium (Cd)	2018/09/24	NC		%	20
			Total Chromium (Cr)	2018/09/24	NC		%	20
			Total Cobalt (Co)	2018/09/24	NC		%	20
			Total Copper (Cu)	2018/09/24	NC		%	20
			Total Iron (Fe)	2018/09/24	NC		%	20
			Total Lead (Pb)	2018/09/24	NC		%	20
			Total Lithium (Li)	2018/09/24	NC		%	20
			Total Manganese (Mn)	2018/09/24	NC		%	20
			Total Molybdenum (Mo)	2018/09/24	NC		%	20
			Total Nickel (Ni)	2018/09/24	2.1		%	20
			Total Selenium (Se)	2018/09/24	NC		%	20
			Total Silicon (Si)	2018/09/24	NC		%	20
			Total Silver (Ag)	2018/09/24	NC		%	20

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Maxxam Job #: B881572
Report Date: 2018/09/27

Golden Predator Exploration
Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Strontium (Sr)	2018/09/24	NC		%	20
			Total Thallium (Tl)	2018/09/24	NC		%	20
			Total Tin (Sn)	2018/09/24	NC		%	20
			Total Titanium (Ti)	2018/09/24	NC		%	20
			Total Uranium (U)	2018/09/24	NC		%	20
			Total Vanadium (V)	2018/09/24	NC		%	20
			Total Zinc (Zn)	2018/09/24	1.4		%	20
			Total Zirconium (Zr)	2018/09/24	NC		%	20
9156515	EL2	Matrix Spike	Total Mercury (Hg)	2018/09/24		103	%	80 - 120
9156515	EL2	Spiked Blank	Total Mercury (Hg)	2018/09/24		107	%	80 - 120
9156515	EL2	Method Blank	Total Mercury (Hg)	2018/09/24	<0.0020		ug/L	
9156515	EL2	RPD	Total Mercury (Hg)	2018/09/24	NC		%	20
9156551	BB3	Spiked Blank	pH	2018/09/21		101	%	97 - 103
9156551	BB3	RPD	pH	2018/09/21	0.13		%	20
9156559	BB3	Spiked Blank	Alkalinity (Total as CaCO3)	2018/09/21		93	%	80 - 120
9156559	BB3	Method Blank	Alkalinity (Total as CaCO3)	2018/09/21	<0.50		mg/L	
			Alkalinity (PP as CaCO3)	2018/09/21	<0.50		mg/L	
			Bicarbonate (HCO3)	2018/09/21	<0.50		mg/L	
			Carbonate (CO3)	2018/09/21	<0.50		mg/L	
			Hydroxide (OH)	2018/09/21	<0.50		mg/L	
9156559	BB3	RPD	Alkalinity (Total as CaCO3)	2018/09/21	0.79		%	20
			Alkalinity (PP as CaCO3)	2018/09/21	NC		%	20
			Bicarbonate (HCO3)	2018/09/21	0.79		%	20
			Carbonate (CO3)	2018/09/21	NC		%	20
			Hydroxide (OH)	2018/09/21	NC		%	20
9156560	BB3	Spiked Blank	Conductivity	2018/09/21		99	%	80 - 120
9156560	BB3	Method Blank	Conductivity	2018/09/21	<1.0		uS/cm	
9156571	FSU	Matrix Spike	Total Dissolved Solids	2018/09/27		104	%	80 - 120
9156571	FSU	Spiked Blank	Total Dissolved Solids	2018/09/27		103	%	80 - 120
9156571	FSU	Method Blank	Total Dissolved Solids	2018/09/27	<1.0		mg/L	
9156571	FSU	RPD [UJ2616-01]	Total Dissolved Solids	2018/09/27	1.3		%	20
9156814	MO5	Matrix Spike	Dissolved Sulphate (SO4)	2018/09/24		93	%	80 - 120
9156814	MO5	Spiked Blank	Dissolved Sulphate (SO4)	2018/09/24		98	%	80 - 120
9156814	MO5	Method Blank	Dissolved Sulphate (SO4)	2018/09/24	<0.50		mg/L	
9156814	MO5	RPD	Dissolved Sulphate (SO4)	2018/09/24	NC		%	20
9160303	XQI	Matrix Spike	Total Cyanide (CN)	2018/09/25		NC	%	80 - 120
			Total Cyanide (CN)	2018/09/25		NC	%	80 - 120
9160303	XQI	Spiked Blank	Total Cyanide (CN)	2018/09/25		97	%	80 - 120
			Total Cyanide (CN)	2018/09/25		97	%	80 - 120
9160303	XQI	Method Blank	Total Cyanide (CN)	2018/09/25	<0.0050		mg/L	
			Total Cyanide (CN)	2018/09/25	<0.0050		mg/L	
9160303	XQI	RPD	Total Cyanide (CN)	2018/09/25	0.67		%	20
9160304	XQI	Matrix Spike	Free Cyanide	2018/09/25		98	%	80 - 120
			Free Cyanide	2018/09/25		98	%	80 - 120
9160304	XQI	Spiked Blank	Free Cyanide	2018/09/25		98	%	80 - 120
			Free Cyanide	2018/09/25		98	%	80 - 120
9160304	XQI	Method Blank	Free Cyanide	2018/09/25	<0.0010		mg/L	
			Free Cyanide	2018/09/25	<0.0010		mg/L	

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Client Project #: Brewery Creek - Ground Water
Site Location: BREWERY CREEK
Sampler Initials: DT

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9160304	XQI	RPD	Free Cyanide	2018/09/25	1.4		%	20

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).

(1) Method Blank exceeds acceptance limits for (Strontium) - 2X RDL acceptable for low level metals determination.

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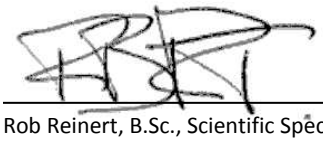
VALIDATION SIGNATURE PAGE

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

Brad Newman, Scientific Specialist



Rob Reinert, B.Sc., Scientific Specialist

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.

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APPENDIX B

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

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1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

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While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX C

GEOTECHNICAL REPORT TETRATECH EBA

TETRA TECH

November 16, 2018

ISSUED FOR USE
FILE: ENW.WENW03130-01
Via Email: jchown@goldenpredator.com

Golden Predator Mining Corp.
250 – 200 Burrard Street
Vancouver, BC V6C 3L6

Attention: Jillian Chown
Manager, Permitting and Environment

Subject: 2018 Geotechnical Inspection
Brewery Creek Mine, Yukon

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Golden Predator Mining Corp. (Golden Predator) to carry out a geotechnical inspection at the Brewery Closed Creek Mine, near Dawson City, Yukon.

2.0 GEOTECHNICAL SITE INSPECTION

A site visit and geotechnical inspection was completed on September 21, 2018, by Adam Wallace, P.Eng., of Tetra Tech's Whitehorse office, to assess the condition of site infrastructure and to provide recommendations for maintenance or repairs, if required.

The site features / infrastructure included in the scope of the inspection are as follows:

- Primary haul road (from site access gate to the end of the road at the Lucky Pit);
- Various secondary roads accessing open pits, waste rock dumps, etc.;
- Open pits (Pacific, Blue, Moosehead, Canadian, Fosters, Kokanee, Golden, and Lucky) and waste rock dumps; and
- Ore processing facilities (heap leach pad and containment dyke, and process ponds).

Observations and recommendations for the respective site features are presented in the following sections. A site plan showing the locations of the site features is shown on Figure 1. Selected site photographs are attached to this report. Digital copies of all site photographs taken during the site visit can be provided upon request.

2.1 Primary Haul Road

The primary haul road was traversed and inspected from the site access gate (km 0) up to the end of the road at the Lucky Pit.

The primary haul road was observed to be in generally good condition at the time of the site visit and was easily passable to a half-ton pickup truck.

Distress to the road surface was typically limited to minor rutting and erosion, which was easily passable and/or avoidable while traveling along the road. Rutting was mainly observed near the camp and was apparently caused by vehicle traffic in the area during a time of wet / muddy road conditions. Erosion was typically observed on sections

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of the road with steeper grades, and generally consisted of longitudinal erosion tracks running parallel to the road alignment.

The primary haul road traverses beneath several cut slopes (e.g., kms 2.6, 3.0, 3.2, 3.5, 3.8, 5.2, 7.6) and may be exposed to sporadic rock falls from the slope faces. These slopes lie at an a slope angle of about 1.5H:1V and consist of gravelly soil with frequent bedrock outcrops. It is possible that these slopes were originally cut as rock slopes, and that the gravelly soil has weathered from the rock face, and the slope angle represents a natural angle of repose for the material. Evidence of relatively recent rock fall activity was observed in outcrops on some slopes, with rocks up to about 1 m diameter observed near the base of the slope. The road setback from the base of these slopes is typically about 3 m or greater, which appears to be sufficient to limit the amount of rocks impacting the road; no rocks were observed on the road at the time of the inspection.

The six drainage crossings along the road were inspected. These consist of riprap armoured swales that cross the road at low points to allow drainage of surface water that collects and runs off within gully bottoms and similar topographic features. The drainage crossings were observed to be in generally good condition, with minor erosion noted on the downhill side of the road at some of the swales. Riprap armouring appears to be good conditions and is becoming re-vegetated with grass, willows and other shrubs. At the sixth swale, at about km 7.4, a small stream is flowing and ponding against the uphill side of the road embankment, with no culvert or other drainage feature visible to convey water across the road. The riprapped swale immediately downhill from the road is dry, and water is visible flowing out from the toe of the riprap about 100 m downslope.

At about km 2.2, a rotational slope failure / slump was observed on the downhill side of the road, roughly upslope from the Blue Pit. The slump is about 20 to 30 m wide and has a headscarp about 1 to 1.5 m high. The slope in the area is steep and heavily vegetated and it was not possible to descend and find the toe of the slump; from the top of the slope at about the road elevation, there was no visible sign of fallen / tilted trees that might indicate where (or if) the toe of the slump daylights on the slope face, or that might be an indication that movement is significant and/or progressive. This slump was not noted in previous inspection reports, and therefore it is assumed that it is less than two years old. The crest of the slump is a few metres away from the edge of the road and there were no tension cracks or other distress visible on the road surface.

Recommendations for the primary haul road are as follows:

- The road surface should be maintained by periodically repairing / re-grading areas of erosion and rutting, and removing any large rocks that may fall onto the road surface and impede access;
- Erosion occurring near drainage swales on either side of the road should be periodically re-filled / re-graded, as needed; and
- The slump at km 2.2 should continue to be monitored, with respect to potential impact to the access road and possibly to the Blue Pit.

2.2 Secondary Access Roads / Trails

Some secondary access trails were also traversed at the site, including the following:

- Access road from primary haul road to beginning of Bohemian Trail;
- Access to Lucky Pit;
- Access to North Golden Pit;
- Access to Canadian and Lower Fosters Pits;

- Access to Moosehead Pit;
- Access trail heading northwest near top of Pacific Pit; and
- Access road to process ponds.

In general, these secondary access roads and trails were in rougher condition than the primary access road and in some locations required careful maneuvering to avoid potholes, rocks, etc., but were passable to a light pickup with little difficulty. Secondary access roads / trails that were accessed during the site visit are marked on Figure 1.

Numerous other, similar trails exist on the site that were not accessed during the site visit. Many of these are likely in similar condition and may be accessible to pickup trucks. The only trail where access was considered but found to be impassable to a light pickup during the site visit is the trail from the Lower Fosters Pit to the Canadian Pit, which was found to be overgrown with vegetation.

Recommendations for these (or other) secondary access roads / trails is limited to repairs and re-grading as required to maintain the desired level of access on these routes. Use of heavy duty (three quarter ton or larger) pickups is recommended for travel on these routes.

2.3 Open Pits and Waste Rock Dumps

The following open pits and associated waste rock dumps were observed during the site inspection:

- Pacific;
- Blue;
- Moosehead;
- Canadian;
- Fosters (Upper and Lower);
- Kokanee;
- Golden (North and South); and
- Lucky.

Most of these pits and waste rock dumps were accessible by the primary haul road and/or secondary trails, however there were no obvious trails allowing vehicle access to the Blue Pit and a trail that appeared to access the Canadian Pit was overgrown and not trafficable; these areas were observed from a distance.

Pit walls appeared to be generally stable, with evidence of sporadic small rock falls in each of the pits and fallen debris building up on the pit benches. In some of the open pits, the pit benches appear to be weathering to a residual soil slope.

Overflow structures at the Pacific and Moosehead Pits appeared to be in good condition and were both dry at the time of the site visit. Dried mud on the road near the Pacific Pit overflow suggests that the overflow may have seen water over the summer season, however this could also have been caused by runoff flowing along the road and diverting downslope off the road at the overflow location.

The waste rock dumps appear to be in good condition and are in various stages of re-vegetation. Many of the waste rock areas are completely reclaimed and are practically indistinguishable from surrounding natural ground apart from a difference in vegetation (grass and sparse shrubs vs. natural treed forest).

Recommendations for the open pits and waste rock dumps are as follows:

- Access near the base of the pit slopes should be restricted to essential, specific, short-term tasks to reduce exposure to rock fall hazard. If long-term access to any of the open pits is desired, a detailed assessment of pit slope stability and rock fall hazard is recommended; and
- Future geotechnical inspections should be conducted in the company of a representative from Golden Predator who is familiar with the site, or at minimum should incorporate a brief, pre-trip planning meeting to review the site layout and access routes, so that all of the site components can be accessed, if possible.

2.4 Ore Processing Facilities

The ore processing facilities that were inspected include the following:

- Ore and heap leach pads;
- Heap leach containment dyke; and
- Process ponds.

The ore and heap leach pads have been reclaimed and re-vegetated, with no visible distress other than occasional very minor erosion near the toe of the covered heap leach pile immediately behind the containment dyke.

The containment dyke is also in good condition, with no sign of instability or settlement, and no visible distress other than very minor, superficial erosion (rills and runnels) on the dyke face. The riprap spillway from the heap leach pad to the process ponds is in good condition and was dry at the time of the site visit.

The process ponds have been decommissioned since 2012 and remain in good condition. The pond slopes are generally heavily vegetated, with no visible distress other than occasional minor erosion near the slope crests.

In the north pond (old pregnant pond), the water level was low at the time of the site visit. The overflow crossing the road to the north was dry and in good condition. The overflow to the south (connecting to the middle pond) was also dry and is overgrown with grass.

The middle pond (old barren pond) was practically full of water at the time of the site visit. The overflow to the south (connecting to overflow pond) was wet and flowing into the overflow pond and is overgrown with grass and marshy vegetation.

In the south pond (overflow pond), the water level was very low at the time of the site visit. The overflow to the south was in good condition and dry.

No remedial action is required at the ore processing facilities.

3.0 SUMMARY

In general, all of the site features appear to be in good, stable condition, and no remedial action is required at this time.

With respect to the findings of this site inspection, the only action required at the site is considered to fall under the scope of routine maintenance in order to maintain ready access to the site, in particular along the primary access road.

It is considered appropriate to continue with geotechnical inspections once every two years. If desired by Golden Predator, or if concerns related to stability or access in specific areas are noted by site staff (e.g., slump near km 2.2), more frequent inspections could be implemented as needed.

4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Golden Predator Mining Corp. and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Golden Predator Mining Corp., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech Canada Inc.'s Services Agreement. Tetra Tech's Limitations of the Use of this Document are provided in Appendix A of this report.

5.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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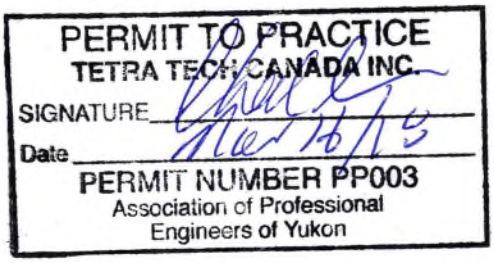
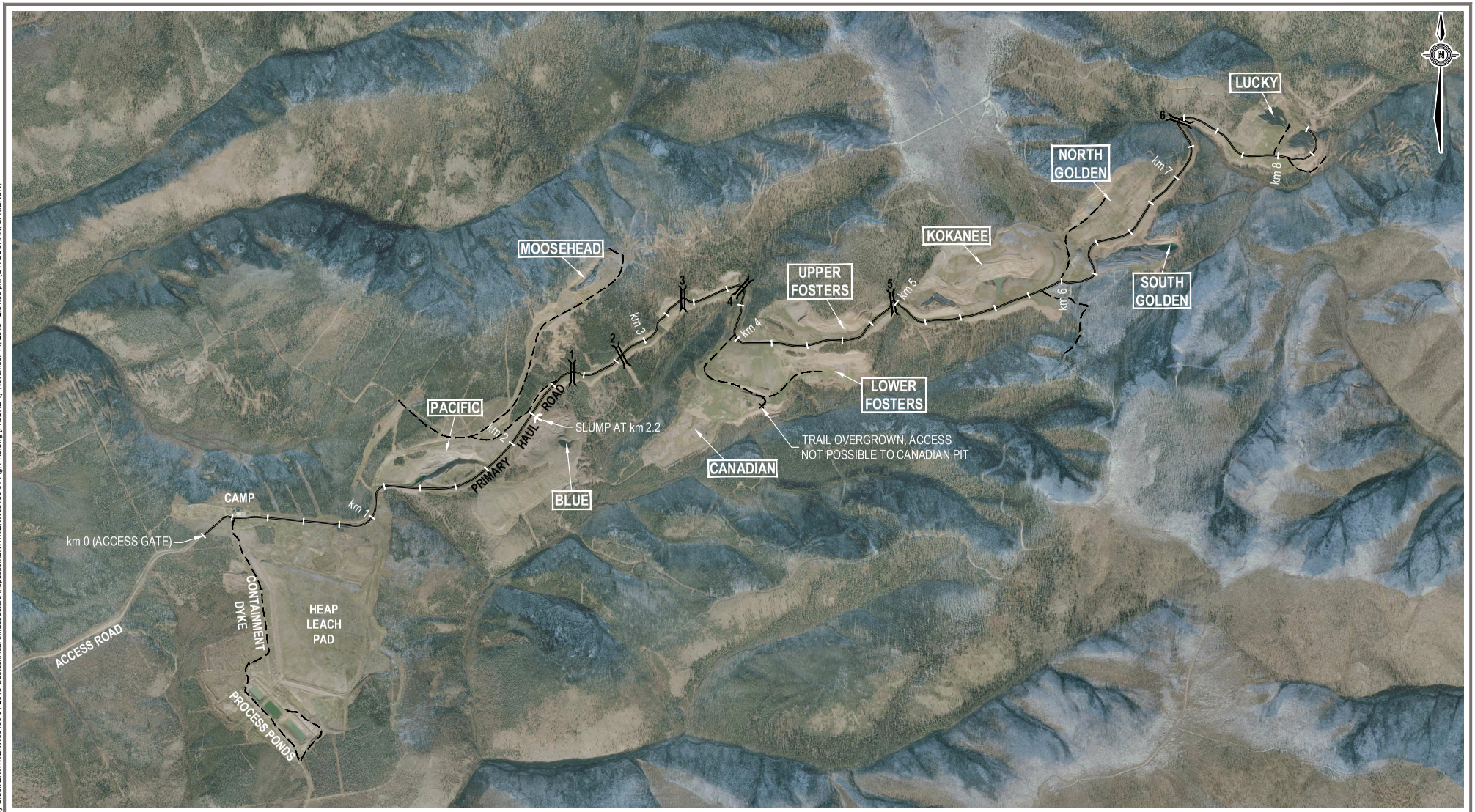


FIGURES



LEGEND

- DRAINAGE CROSSING LOCATION

- - - - ACCESS TRAILS PASSABLE BY LIGHT TRUCK

0 1,000m

Scale: 1:20,000 @ 11"x17"

CLIENT

GOLDEN PREDATOR TSX: GPD

TETRA TECH

2018 GEOTECHNICAL INFRASTRUCTURE INSPECTION
BREWERY CREEK, YUKON

SITE PLAN

PROJECT NO.	DWN	CKD	REV
ENW.WENW03130-01	CB	AW	0

OFFICE: EBA-WHSE

DATE: November 13, 2018

Figure 1

PHOTOGRAPHS

Photo 1: Rutting near camp at about km 0.3.

Photo 2: Minor erosion on road surface at about km 4.3.

Photo 3: Erosion gully on road surface at about km 6.1.

Photo 4: Cut slope at about km 2.6.

Photo 5: Cut slope at about km 3.0.

Photo 6: Recent rock fall debris on face of slope at about km 3.0. Note boulder near edge of road in bottom left of the frame (in shadow).

Photo 7: Riprap drainage swale No. 2 at about km 2.9 (recorded as km 3.1 in the field), looking downslope from edge of road. Note minor erosion in the foreground.

Photo 8: Riprap drainage swale No. 3 at about km 3.3. Note minor erosion gully developed by water flowing across and off the downslope side of the road.

Photo 9: Water ponding against uphill side of the road at drainage crossing No. 6 at about km 7.4. No culvert or other means of drainage across the road was visible.

Photo 10: Drainage swale No. 6 at about km 7.4, looking downslope from road surface. Water ponds on uphill side and discharges from toe of rip rap about 100 m downslope, in approximately the centre of the frame.

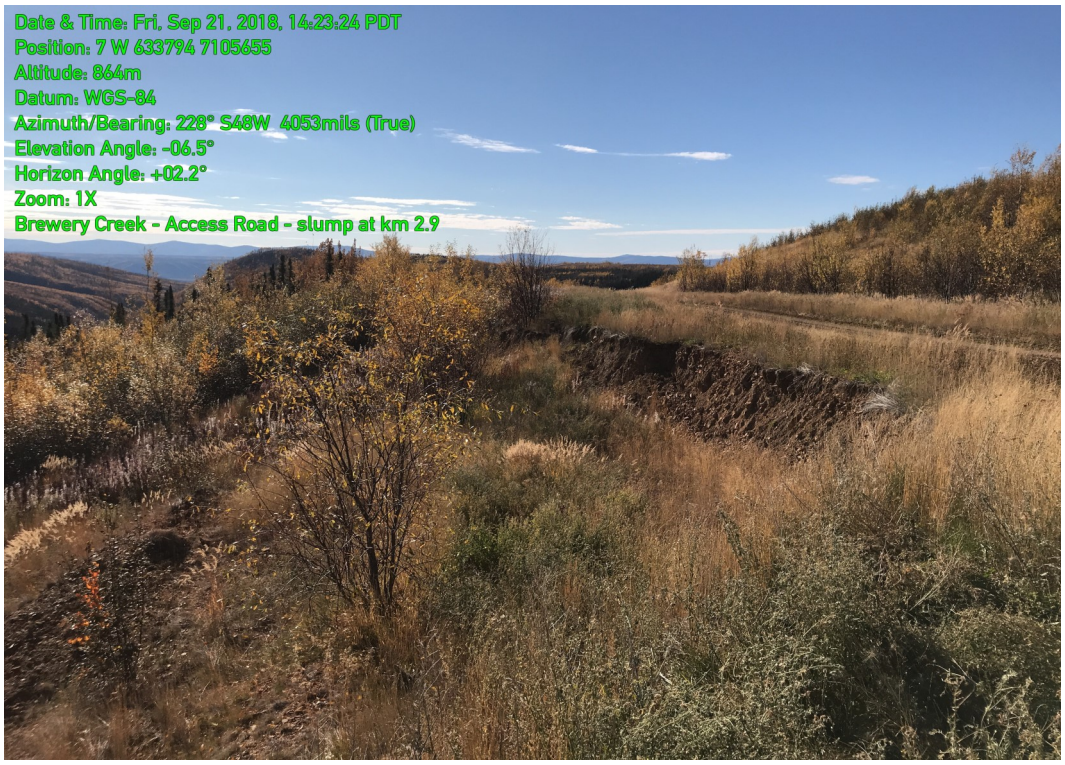


Photo 11: Slump on downhill side of road at about km 2.2 (recorded as km 2.9 in the field). Note soil exposed in approx. 1.5 m high headscarp below road, and setback of about 2 to 3 m from road

Photo 12: Secondary access road to Lower Fosters Pit, looking west from pit area. Revegetated waste rock dump between Canadian and Lower Fosters Pits is visible in background.

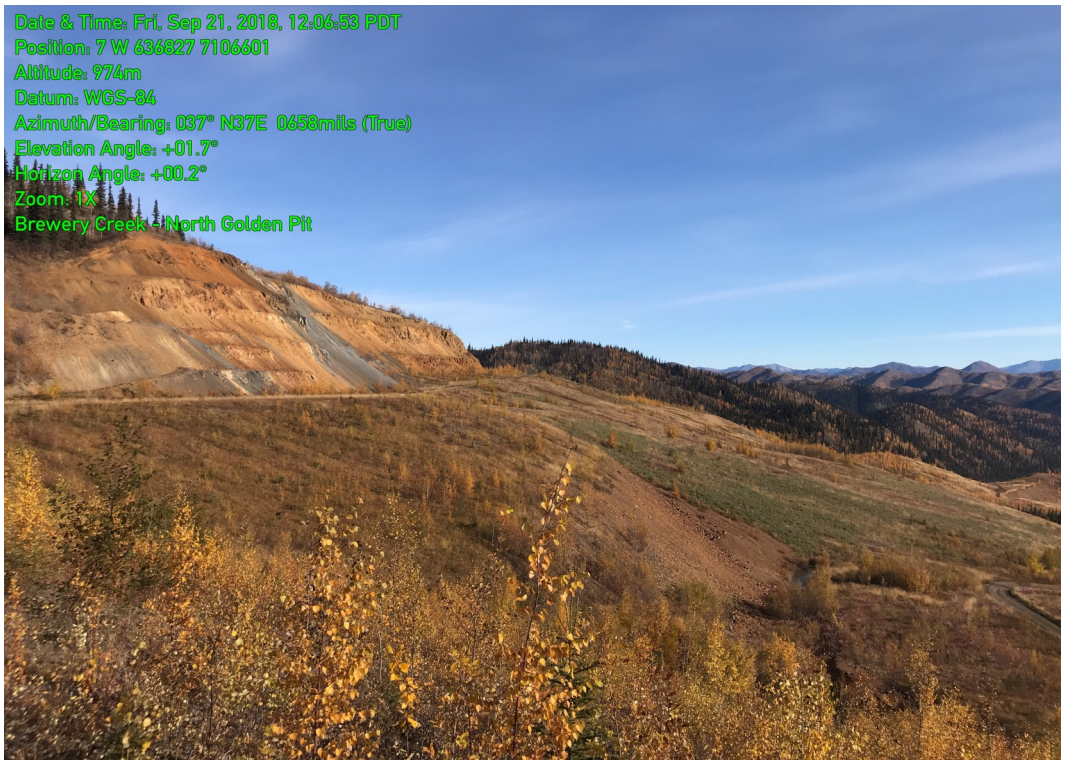


Photo 13: North Golden Pit and waste rock dump. Note pit benches nearly completely weathered to soil slope, and re-vegetated waste rock downslope from pit.

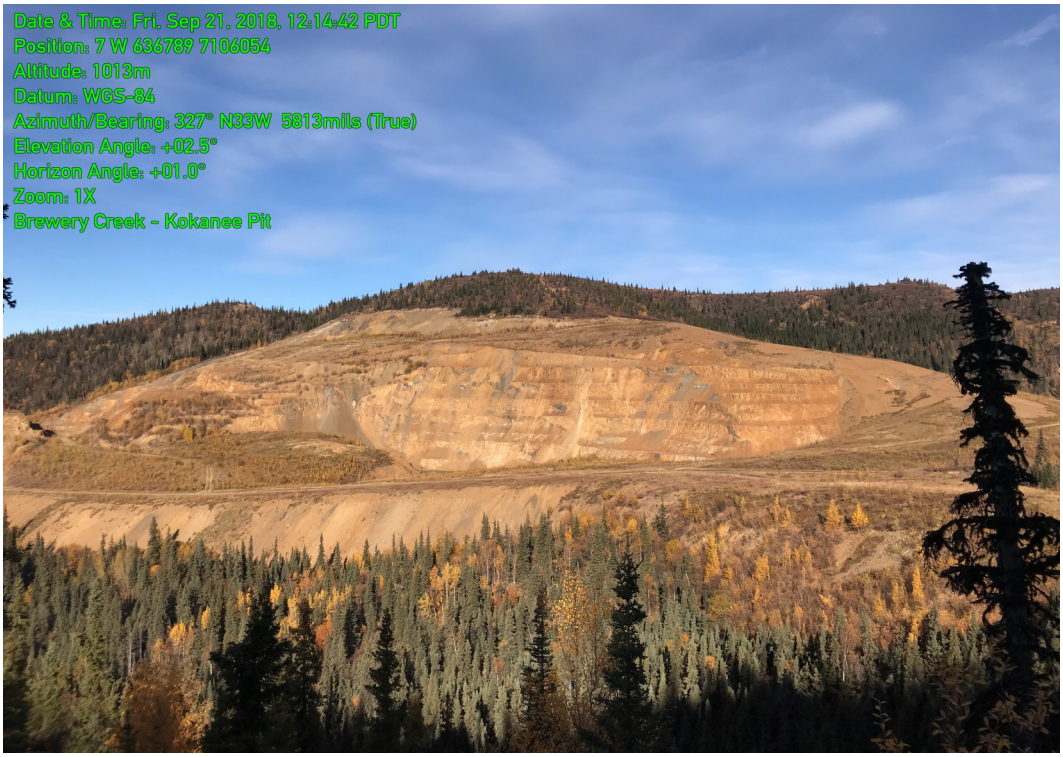


Photo 14: Kokanee Pit.

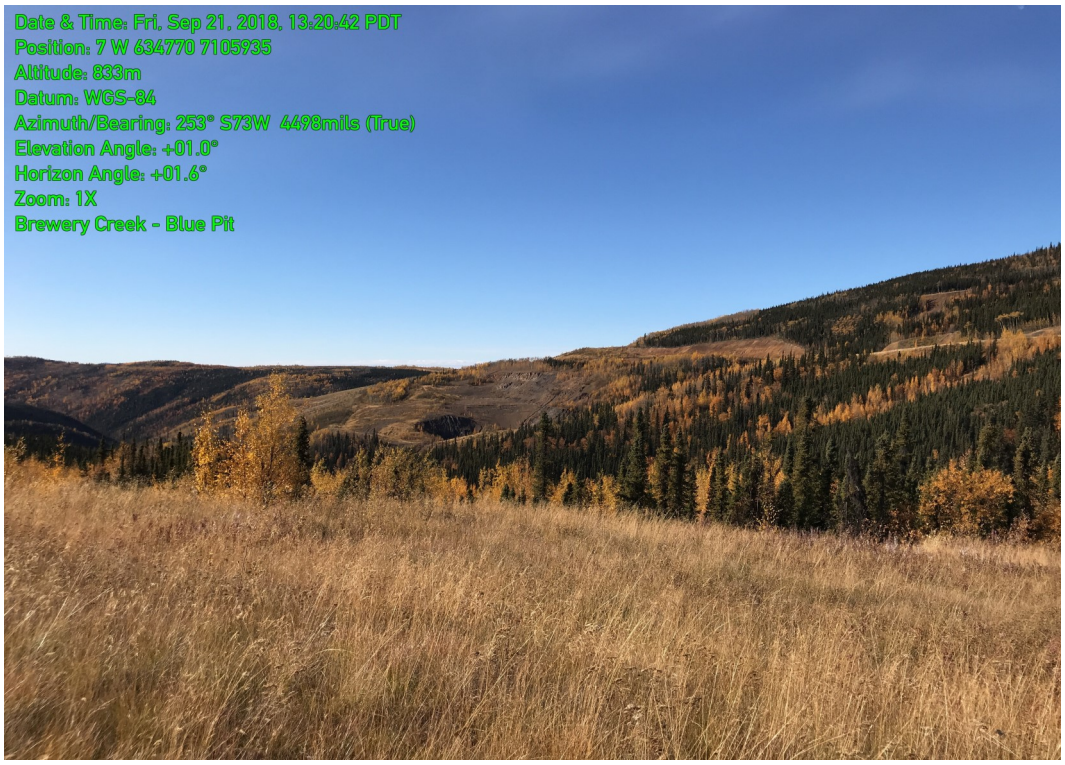


Photo 15: Blue Pit, observed from secondary access trail to Lower Fosters Pit.

Photo 16: Moosehead Pit.

Photo 17: Moosehead Pit overflow.

Photo 18: Pacific Pit.

Photo 19: Heap leach and containment dyke (from crest of dyke).

Photo 20: Heap leach spillway.

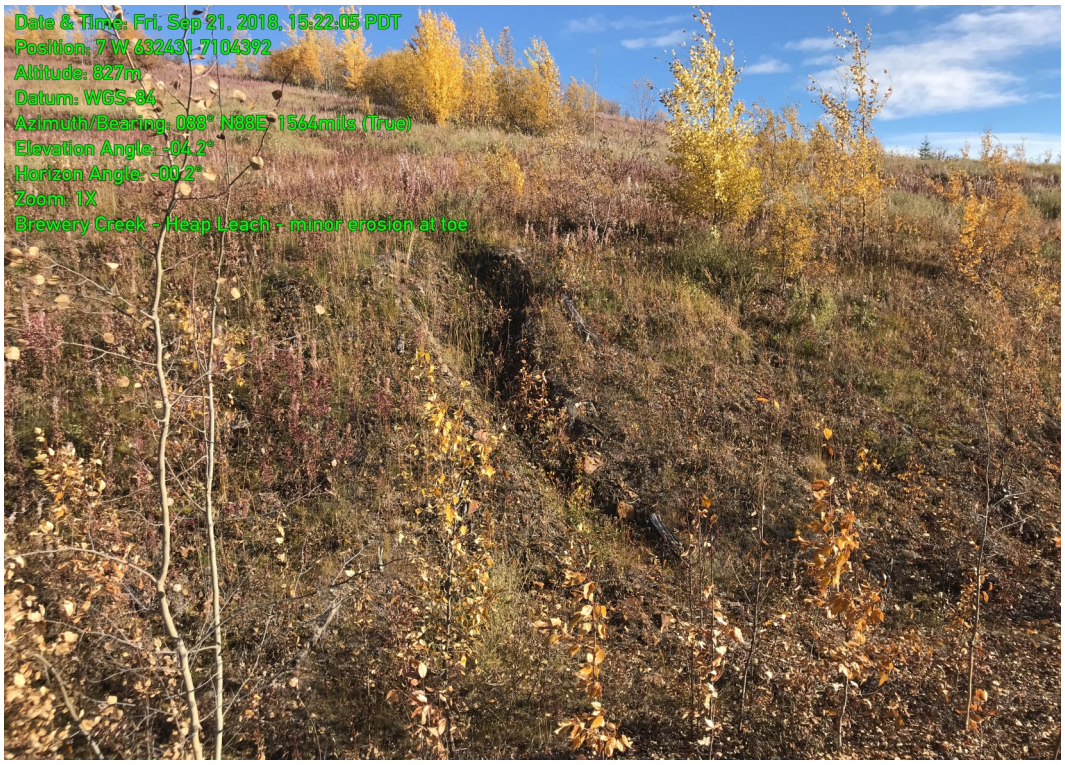


Photo 21: Minor erosion at toe of heap leach pile.

Photo 22: South Pond, looking north from overflow.

Photo 23: Middle Pond, looking north from overflow.

Photo 24: Middle Pond overflow, looking south towards South Pond. Note water flowing in overflow.

Photo 25: North Pond, looking north.

Photo 26: South and Middle Ponds viewed from crest of containment dyke. Note high water in middle pond and very low water in south pond.

APPENDIX D

PHOTOS

BC-28

BC-03

BC-31

BC-34

BC-28B

BC51-W

BC-15