



REPORT

Phase II Environmental Site Assessment
at Lot 1059 (adjacent to Area D), Dawson City, YT

Submitted to:

Department of Community Services, Land Development

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19131856-011-R-Rev0



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The results of an assessment of this nature should in no way be construed as a warranty that the Site is free from any and all contamination from past or current practices.

The Phase II Environmental Site Assessment is intended to provide an assessment of near surface soil conditions with respect to potential contamination on the property at Lot 1059 (adjacent to Area D), Dawson City, Yukon Territory, at the time of the site assessment. Any use of this document by any party other than the Government of Yukon is at the sole discretion of such user.

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The Site conditions have been inferred based on conditions observed at a limited number of sampling locations in accessible areas; however, it should be noted that conditions between and beyond sampling locations may vary. In addition, the assessment is dependent upon the accuracy of the analytical data generated through sample analysis and is limited to determining the presence of contaminants for which analysis have been conducted. Findings derived from this assessment are limited, and Golder cannot know or state as absolute fact that areas of the Site, or neighbouring properties, or portion thereof, are unaffected by the contaminants of concern. Government of Yukon still bears risk that such contaminants may be present on, or may migrate to or off the property after the time of this investigation.

Where references have been made to regulatory guidelines and documents, it should be noted that regulatory statutes and guidelines are subject to interpretation and these guidelines and documents and their interpretations may be subject to change over time.

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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Yukon Government, Department of Community Services, Land Development Unit (Community Services) to conduct a Phase II Environmental Site Assessment (ESA) of Lot 1059 (adjacent to Area D) (the Site). The location, surroundings, and layout of the Site are shown in Figure 1–Key Plan and Figure 2–Site Plan.

The Phase II ESA was undertaken in accordance with Yukon Government Contract #C00054238 and with the scope of work outlined in Golder’s proposal titled “*Work Plan and Cost Estimate for Phase II Environmental Site Assessments in Dawson City, Yukon*” (reference No. 19131856-006-L-Rev1, dated 21 April 2020). Authorization to proceed with the work was received from Community Services via contract dated 23 April 2020. This report presents the results of the environmental site assessment work that was completed at the Site between 24 and 27 April 2020 and on 28 May 2020. The results of this program as presented in this report expand upon the data and findings from previous work at the Site completed by Golder and included in the report titled “*Phase I and Limited Phase II Environmental Site Assessment, Lot 1059 (adjacent to Area D), Dawson City, Yukon*” (Golder, 2020a).

2.0 BACKGROUND

Golder was previously retained by Community Services to conduct a Phase I and limited Phase II ESA of the Site (Golder, 2020a). The conclusion of the Phase I ESA identified the following two Areas of Potential Environmental Concern (APECs):

- APEC 1: Former Placer mine
- APEC 2: Neighbouring placer mine activities

Based on the information obtained as part of the Phase I and limited Phase II ESA, the following areas of environmental concern (AEC) and APECs were identified, as summarized in Table 1 along with corresponding potential contaminants of concern (PCOCs) and contaminants of concern (COCs).

Table 1: Summary of APECs and AECs

APEC Label	Description	PCOC ^{1,2}
On-Site APECs		
AEC 1: Former placer mining	A review of the aerial photographs for the Site indicated historical placer mining activities. A shallow soil sample collected at the Site contained chromium above the Yukon CSR RL and CL standards. The presence of elevated chromium concentrations possibly represents natural background conditions. A background soil assessment would be required to confirm this.	Soil (COC): Chromium Groundwater (PCOC): LEPH/HEPH, PAH, BTEX/VPH, VOCs, metals.
Off-Site APECs		
APEC 2: Neighbouring placer mine activities	A review of the GeoYukon Database and an interviewee identified additional on-going placer mining activities on neighbouring properties. Based on the known land use of the neighbouring property, if contamination has occurred, there is the potential for the migration of contamination onto the Site.	Soil/Groundwater (PCOC): LEPH/HEPH, PAH, BTEX/VPH, VOCs, metals

Table notes:

1. Based on limited nature of the Phase II ESA, additional contaminants of concern in soil may be identified based on the results of more intrusive sub-surface investigations.
2. Contaminants of Concern (COCs) are specific to soil, as groundwater quality was not assessed as part of the limited Phase II ESA.

The limited Phase II ESA included: One (1) soil sample that was submitted to ALS for analysis of PCOCs including light extractable petroleum hydrocarbons (LEPH), heavy extractable petroleum hydrocarbons (HEPH), extractable petroleum hydrocarbons (EPH), polycyclic aromatic hydrocarbons (PAHs), volatile petroleum hydrocarbons (VPH), benzene, toluene, ethylbenzene, and xylene (BTEX), and metals. The following parameters were measured at concentrations greater than the Yukon Contaminated Sites Regulation (“CSR”; Environment Act, 2002) standards for residential (RL) and/or industrial (IL) land use:

- Chromium was detected in the shallow soil samples at a depth of 0.05 m bgs. Sample 10161-04 had a concentration exceeding the applicable CSR RL and IL standards for freshwater aquatic life (AW-F).
- Analytical results for the remaining parameters met applicable CSR RL and CL standards.

Based on the information available collected as part of the report, Golder recommended the following additional work:

- Conduct a Site reconnaissance following the winter snow melt to identify areas of surficial staining or other evidence of spills that may not have been observed during the October 2019 Site visit.
- A Phase II Environmental Site Assessment was recommended to confirm the presence or absence of deeper soil and/or groundwater contamination on the Site based on the on- and off-Site APECs.
- Lateral and vertical delineation of the on-Site shallow soil contamination as identified in the limited Phase II ESA and/or complete an evaluation of a background metals as per *CSR Protocol 9: Determining background soil quality*.

3.0 OBJECTIVE AND SCOPE OF WORK

The overall objective of the project was to address recommendations from Phase I and Limited Phase II, specifically, confirm the presence or absence of chromium concentrations in deeper soil and/or groundwater contamination at the Site and delineate shallow chromium contamination in soil that was identified during the limited Phase II ESA. The following scope of work was carried out in order to meet this objective:

- Oversight during the drilling of three on-Site boreholes and installation of two monitoring wells on the Site.
- Collection of soil samples from the retrieved core during drilling.
- Collection of two groundwater samples from the installed monitoring wells.
- Analysis and interpretation of soil and groundwater results from the sampling program.
- Preparation of a summary report, documenting the findings of the work (this report).

4.0 REGULATORY FRAMEWORK

In the Yukon Territory, environmental matters pertaining to contaminated sites generally fall under the jurisdiction of Environment Yukon, pursuant to the *Environment Act* (Environment Act, 2002). A key regulation under the Environment Act relating to the assessment and remediation of contaminated sites is the Yukon Contaminated Sites Regulation (“CSR”, O.I.C. 2002/171, pursuant to the *Environment Act*).

The following Site conditions were considered in selecting the appropriate assessment criteria:

- The Site does not have a potable water source and there are no drinking water wells present on Site.
- The current land use of the Site area is Industrial (IL).
- The Klondike River is located adjacent to the Site, approximately 180 metres southwest of the Site.
- There are no known drinking water wells within 1 km or within a 100-year travel time from the Site (see below). The nearest water supply well is located approximately 1.1 km NW of the Site.

4.1 Estimated Linear Groundwater Travel Time

In order to determine whether drinking water standards are applicable to the Site, the groundwater travel time was calculated. Based on Yukon CSR Protocol 6, if the leading edge of a contaminated groundwater plume is located within a 1.5 km radius (travel time of less than or equal to 100 years) of the closest existing or probable future drinking water source, the Drinking Water use standards are applicable to the site due to the potential for the groundwater to pollute the receiving waters. The hydraulic conductivity of the shallow silty sand and gravel aquifer underlying the Site is estimated to be approximately 1×10^{-5} m/s (sand/gravelly sand; Freeze and CherryDuffield 2019, 1972). The horizontal hydraulic gradient across the Site was assessed, using the monitoring well network and groundwater level elevations in May 2020, to be approximately 0.002 m/m (see section 6.4) to the southwest toward the Klondike River. A reasonable estimate for linear groundwater velocity is calculated using the following equation:

$$V = (Ki)/n$$

Where: V: is the groundwater velocity in metres per second (m/s).

K: is the hydraulic conductivity in m/s

i: is the horizontal hydraulic gradient (m/m)

n: is the porosity which is estimated to be approximately 0.3 (Fetter, 1994) in coarse sand and gravel aquifers.

The resulting groundwater velocity is estimated to be approximately 6.7×10^{-8} m/s; or 2.1 metres per year or 210 m in 100 years. Groundwater at the Site may travel faster or slower than this estimate due to inaccuracies or seasonal variations. Given that the groundwater flow direction is southwest toward the Klondike River and the location of the water supply well is 1.1 km cross-gradient, there is not expected to be a hydraulic connection between the Site and the nearest drinking water well. Therefore, drinking water standards have been considered not applicable to the Site. The Klondike River is located 160 m from the Site which, even though greater than the 105 m in 50 years, Aquatic Life standards have conservatively been considered applicable to Site, due to its the River’s location down-gradient of the Site, and the potential for the Site to be hydraulically connected.

4.2 Soil Quality Standards

The CSR provides Generic Numerical Soil Standards (Schedule 1) and Matrix Numerical Soil Standards (Schedule 2) for use in the assessment of soil quality at sites subject to investigation. The soil standards are divided into five categories based on land use and include standards for agricultural land use (AL), park land use (PL), residential land use (RL), commercial land use (CL) and industrial land use (IL). Given that the previous land use at the Site was industrial and that the future land use of the Site has not been confirmed, the CSR RL and IL soil standards were conservatively applied for screening analytical results from the Phase II ESA.

Schedule 2 standards are further divided into site-specific pathways for the protection of human health and the environment. The following pathways were considered applicable for soil screening purposes at the Site:

- Human Health Protection:
 - Intake of Contaminated Soil (I).
- Environmental Health Protection:
 - Groundwater Flow to Surface Water Used by Aquatic Life – Freshwater (AW - F).
 - Toxicity to Soil Invertebrates and Plants (T)
- The following background study was conducted by Golder in parallel with the Phase II ESA at the Site in order to support a request for approval from Environment Yukon, Standards and Approvals for determination of local background concentrations for arsenic and chromium on the Site: Determination of Local Background metal concentrations in soil, Dome road/old slinky mine area, Dawson City, Yukon, Golder Associates Ltd., dated 28 July 2020.

In the report noted above, Golder proposed a 95th percentile-based local background soil concentration applicable to Area A as follows:

- Arsenic: 15 mg/kg
- Chromium: 420 mg/kg

The background concentrations calculated were applied to the Site, based on proximity, similar soil type, and similar land use. The lack of undisturbed area on the Site did not allow for any samples to be collected that would represent background Site conditions. Area A, where the background samples were collected is located approximately 100 m east from the Site, as shown on Figure 4.

4.3 Groundwater Quality Standards

Based on these Site characteristics, the Yukon CSR “Schedule 3 Generic Numerical Water Standards” for protection of freshwater aquatic life (AW-F) were considered applicable for assessing groundwater quality at the Site.

5.0 FIELD METHODS

5.1 Sampling Rationale

During the Phase II ESA, three boreholes were drilled on Site with two of the boreholes completed as a monitoring well. The rationale for each borehole is described in Table 2 below and the locations are shown on Figure 3.

Table 2: Sampling rationale for Lot 1059.

Site	Borehole/Monitoring Well	Rationale
Lot 1059	MW20-02	Characterize potential groundwater contamination from on-and off-Site APECs and AECs identified during the Phase I and limited Phase II ESA.
	BH20-04	Characterize potential deeper soil contamination from on-Site AECs identified in the Phase I and limited Phase II ESA.
	MW20-03	Characterize potential groundwater contamination from off-Site APECs.

5.2 Borehole Drilling and Monitoring Well Installation

The drilling and monitoring well installation was completed by Metro Drilling of Whitehorse, YT (contracted directly by Yukon Government) from 24 to 27 April 2020 using a track-mounted sonic drill rig. The program was monitored by Golder field staff. The purpose of the drilling and monitoring well installation program was to characterize any potential soil and/or groundwater contamination at the Site. Additional drilling was conducted at neighbouring properties, Area A and Area D, which are shown on Figure 4 to characterize the area. Results from the drilling investigation at Area A and Area D are discussed under separate Phase II ESA reports for each of those properties. The groundwater flow direction for the Site was determined using the groundwater elevation data from monitoring wells on the Site and on Area D.

Samples from the soil core were taken at regular intervals to log the lithology encountered in each borehole and conduct field screening using the PID.

The field screening method for organic vapour concentration involved the following steps:

- A polyethylene bag was filled approximately one-half to one-third full (no less than 250 mL or eight ounces).
- Prior to the PID reading, the bag was agitated for approximately 15 seconds.
- Bag was placed in a warm location (approximately 10 minutes but no longer than an hour).
- Bag was then agitated again for approximately 15 seconds.
- The PID was inserted into the bag for three seconds and the highest reading was recorded in the field forms.

Field staff also used physical screening methods, such as visual and olfactory screening, to obtain basic information related to the presence or absence of petroleum hydrocarbons.

Six (6) soil samples were collected from the three boreholes advanced across the Site and selected for laboratory analysis. One (1) field duplicate sample was collected and selected for analysis, for quality control and quality assurance (QA/QC) purposes. Upon completion of the borehole, the drill cuttings were placed back into the borehole if not completed as a monitoring well. Borehole locations are displayed on Figure 3, and depths at which soil samples were collected are shown presented on the Borehole Logs provided in Appendix A.

Soils were assessed for potential contamination using visual and olfactory evidence in addition to the collection of laboratory samples. Nitrile gloves were worn and changed between sampling locations and sampling equipment was cleaned with environmental-grade detergent and water and rinsed with de-ionized water prior to use and between sampling locations.

Each sample was labelled, registered on a chain-of-custody form, placed in a cooler with ice for transport to ALS Laboratory in Whitehorse, YT, and submitted for laboratory analysis of one or more of the following potential contaminants of concern (PCOCs):

- LEPH, HEPH, and VPH
- BTEX
- PAHs
- Metals

Upon completion of the analysis, several samples were analysed further for speciated chromium in order to gain an understanding of the chromium species present.

Soil samples analyzed for BTEX were collected using a method that involved field preservation of the sample with methanol, in accordance with the procedures provided by the laboratory. For this method, approximately 5 grams (+/- 1 gram) of soil was transferred to vials provided by the laboratory that contained a pre-determined weight of methanol using disposable Terra Core® soil samplers. Soil samples for the remaining parameters were collected in pre-cleaned 125 millilitre (mL) glass jars with Teflon®-lined lids supplied by the laboratory. The soil was packed and sealed in the jars to minimize the loss of volatile substances within the sample jar.

The monitoring wells were constructed in accordance with Yukon CSR Protocol No. 7: Groundwater Monitoring Well Installation and Sampling (Environment Yukon, 2019). The monitoring wells were installed using pre-packed 1.5 m (5 foot) long, No. 10 slot, PVC well screens and schedule 40 polyvinyl chloride (PVC) riser pipes with threaded joints and end capped with a sand point. The pre-packed screens were placed to intersect and straddle the water table. A filter pack of clean silica sand was placed to surround the well screen and to at least 0.3 m above the top of screen. The monitoring wells were sealed above the filter pack with hydrated bentonite chips and completed above ground surface with a protective lockable steel casing. The monitoring well locations are shown on Figure 4. Photographs showing Site conditions at the time of drilling are provided in Appendix B.

5.3 Monitoring Well Development and Groundwater Sampling

Following installation, the monitoring wells were developed to remove water or sediments that may have been introduced during drilling and to remove fines from around the well screen. The monitoring well was developed on 26 April 2020 by removing a minimum of six well volumes of water using dedicated Waterra™ tubing. Field parameters measured during development included temperature, pH, specific conductivity, dissolved oxygen, and oxidation reduction potential (ORP). Field development and sampling sheets are provided in Appendix C.

Prior to the purging and sampling of each well, organic vapour well headspace readings were taken using a MiniRae 3000 Photoionization Detector (PID) upon first opening the well cap, followed by measuring the depth-to-water with an electronic water level tape. The following procedures were followed when purging the monitoring well:

- remove at least three well casing volumes
- monitor water quality parameters until a minimum of four of the parameters listed were stable

During purging, physiochemical parameters (pH, temperature, conductivity, dissolved oxygen and ORP) were monitored at regular intervals using an YSI multi-meter. Purging continued until a minimum of three well volumes were removed. Water quality parameters were considered stable when three successive readings, collected three to five minutes apart, were within:

- ± 3 percent for temperature (minimum of $\pm 0.2^{\circ}\text{C}$)
- ± 0.1 for pH
- ± 3 percent for conductivity
- ± 10 mv for ORP
- ± 10 percent for dissolved oxygen

Groundwater purging was conducted using dedicated HDPE Waterra™ tubing and foot valve by manual purging and sampling was conducted using a GeoPump™ peristaltic pump and dedicated high density polyethylene and silicone tubing. Sample containers and appropriate preservatives were obtained from ALS Laboratories (ALS) of Whitehorse, YT.

The groundwater samples were collected from the monitoring wells on 28 May 2020. Groundwater sampling followed the procedures outlined in the CSR (Environment Act, 2002) Protocol No. 7 (Environment Yukon, 2019). The groundwater sample was collected directly from the dedicated tubing installed in each well.

The samples were submitted for chemical analyses of the following: BTEX, VPHw, LEPH/HEPH, PAHs, dissolved metals, and dissolved speciated chromium. For Quality Assurance/Quality Control (QA/QC) purposes, one duplicate groundwater sample, field blank and travel blank were collected and submitted to ALS for the same chemical parameters listed above. Samples were kept in coolers with ice packs prior to their delivery to ALS in Whitehorse, YT, within appropriate holding times. ALS is certified by the Canadian Association for Laboratory Accreditation and is accredited as conforming to ISO/IEC 17025 for analysis.

The laboratory analytical results and chain of custody forms are provided in Appendix D.

5.4 Quality Assurance and Quality Control

To document that the sampling and analytical data are interpretable, meaningful and reproducible, conformance to a Golder Quality Assurance and Quality Control (QA/QC) program was followed. Standard Golder field and industry procedures were used throughout the Phase II ESA to document the reproducibility of the results. This involved using QA/QC measures in both the collection (field program) and analysis (laboratory) of samples.

Chain-of-Custody procedures were used for the shipment of samples to the laboratories; samples included in a shipment were identified on a Chain-of-Custody form, with one copy retained by Golder personnel, after sign-off. The quality of the duplicate samples was assessed based on relative percent difference (RPD) between the primary and the duplicate samples. The RPD is calculated as follows:

$$RPD (\%) = \frac{\text{absolute}(\text{concentration of primary sample} - \text{concentration of duplicate sample})}{\text{average}(\text{concentration of primary sample, concentration of duplicate sample})} \times 100$$

An RPD target value of less than 20% for groundwater and 35% for soil is considered by Golder an indication of acceptable sample variability and represents a good correlation between the sample and its duplicate. As the measured concentrations of the primary and duplicate samples approach the laboratory reporting limit, the uncertainty associated with the RPD increases; as such, the acceptance limits only apply to samples where the concentration is greater than five times the laboratory method detection limit (“MDL”). For parameters with concentrations less than five times the MDL, the Difference Factor (DF) is calculated. The DF is defined as the absolute value between two values, divided by the method detection limit, and an acceptable target value for a DF by Golder is considered to be less than 2.0.

6.0 RESULTS

6.1 Drilling Investigation

Three boreholes (MW20-02, MW20-03 and BH20-03) were advanced on the Site to a depth of 7.62 m bgs, two of which were completed as monitoring wells. The upper stratigraphy was similar in two of boreholes (BH20-03 and MW20-02) and consisted of a combination of gravel and cobbles to a depth of between 3.05 and 4.27 m bgs. This was underlain by alternating sands, silty sands and gravels to a depth of 7.32 m bgs in MW20-02. The stratigraphy noted in MW20-03 consisted of an upper layer of clay with the presence of organics to a depth of 0.3 m bgs underlain by alternating sands, silty sands and gravels to a depth of 4.27 m bgs, underlain by bedrock (green schist) at a depth of 4.27 m bgs. These observations are consistent with the stratigraphy encountered on adjacent sites. Groundwater was encountered in the two monitoring wells at a depth ranging from 1.90 to 4.18 m bgs. A record of the borehole logs is included in Appendix A.

The field headspace readings for the samples ranged from 0.0 to 0.3 ppm, indicating the presence of low or no concentrations of volatile petroleum hydrocarbons. Hydrocarbon-like staining was not observed during the borehole drilling.

6.2 Soil Analytical Results

Analytical results for soil samples collected from the boreholes were less than applicable standards, with the following exceptions:

- The concentration of total chromium at BH20-10C (459 mg/kg) was greater than the proposed background standard of 420 mg/kg (Golder, 2020b) and the CSR RL and IL standard of 300 mg/kg and 700 mg/kg, respectively. Samples collected at BH20-03A (242 mg/kg), BH20-10B (125 mg/kg) were not submitted for speciation analysis. As a conservative approach, these samples would be greater than the CSR RL and IL standard of 60 mg/kg for hexavalent chromium. The samples were collected at depths ranging from 1.35 to 6.1 m bgs.

- The concentrations of trivalent chromium in samples BH20-03A (242 mg/kg) collected at 1.35 to 1.5 m bgs and BH20-10C (459 mg/kg) collected at 5.95 to 6.1 m bgs exceeded the applicable CSR RL and IL standard of 65 mg/kg. The samples selected for chromium speciation indicated that the total chromium concentration consists of 100% trivalent chromium and hexavalent chromium was not present.
- The concentration of total cobalt at BH20-03A (163 mg/kg) exceeded the CSR RL standard of 100 mg/kg but less than the IL standard of 300 mg/kg. The sample was collected at a depth of between 1.35 and 1.5 m bgs.

Based on the soil results from the drilling investigation and the limited Phase II ESA (Golder, 2020a), chromium has been measured to a depth of 6.1 m bgs at several locations across the Site. It is thought based on the background soil assessment that the elevated chromium concentrations on the Site and on neighboring properties is reflective of the native soil quality in the area.

Cobalt was not identified as a PCOC during the Phase I ESA at the Site (Golder, 2020a) and was not reported at concentrations above the applicable CSR standard during the limited Phase II ESA. Elevated cobalt concentrations (35.7 mg/kg and 39.1 mg/kg) were reported on the adjacent property, Area A (Golder 2020c) in both shallow and deeper soil (up to 3.05 m bgs). It is possible that elevated cobalt may also be indicative of native background soil quality in the area.

The results of the soil investigation are shown on Figure 3 alongside the results from the limited Phase II ESA (Golder, 2020a). Detailed analytical results for soil samples are shown on Table A at the end of this report.

6.3 Groundwater Analytical Results

Groundwater samples were collected from on-Site monitoring wells MW20-02 and MW20-03 on 28 May 2020. Samples were submitted to the laboratory for analysis of BTEX, VPHw, LEPH/HEPH, PAHs and dissolved metals, including speciated chromium. Laboratory results for parameters that were analyzed were less than the applicable CSR AW-F for groundwater samples collected from monitoring wells MW20-02 and MW20-03.

Detailed analytical results for groundwater samples are provided in Table B, at the end of this report. The Chain of Custody records and laboratory reports for groundwater samples are included in Appendix D.

6.4 Hydrogeological Conditions

Groundwater levels in the three monitoring wells across the Site and Area D were measured prior to purging and sampling on 28 May 2020. The depth to groundwater ranged from 2.44 to 8.05 metres below top of casing (m btoc); with groundwater located within the silty sand and gravel aquifer.

The relative groundwater elevations were calculated using ground elevations obtained from topographic information (Government of Yukon, 2018), measured stick-up height, and depth to groundwater. The groundwater elevations and contours are shown on Figure 4. The elevations are provided in Table 3 below.

Table 3: May 2020 Groundwater Elevations

Monitoring Well Location	Ground Surface Elevation (m asl)	Stick-up height	Depth to Groundwater 28 May 2020 (m btoc)	Groundwater Elevation (m asl)
MW20-01 (Area D)	325.41	0.73	8.05	318.09
MW20-02	320.77	0.62	3.29	318.10
MW20-03	320.29	0.66	2.44	318.51

m asl = meters above sea level

Based on the groundwater elevations, the groundwater flow direction in the area is to the southwest, as shown in Figure 4. Using the groundwater elevations from 28 May 2020, the horizontal hydraulic gradient across the Site is approximately 0.002 m/m. The groundwater flow direction corresponds to the regional topography and anticipated flow direction towards the Klondike River which is located adjacent to the Site.

6.5 QA/QC Results

As part of the field activities, Golder collected the following QA/QC samples:

- One soil duplicate sample
- One groundwater duplicate sample
- One travel blank
- One field blank

The results of the field duplicate analyses are provided in Table C (soil) and, Table D (groundwater). The results for the blank samples are provided in Table E. A summary of the QA/QC results is as follows:

- The majority of the RPD values for soil parameters met Golder's applicable Data Quality Objective (DQO) of 35%. Select metal parameters reported elevated RPDs in soil above Golder's DQOs and likely reflect the heterogeneous distribution of metals concentrations in soil across the Site. The corresponding analytical results were reported below the applicable standards and were not considered PCOCs as part of this Phase II ESA. The following parameters exceeded DQOs outlined for the Phase II ESA:
 - Barium (RPD of 41%)
 - Cobalt (RPD of 44%)
 - Lead (RPD of 40%)
 - Tungsten (RPD of 50%)
- RPD values for groundwater parameters met Golder's applicable Data Quality Objective (DQO) of 20%.

Analytical results for the travel blank were less than laboratory detection limits, which indicates that there is a low potential for contamination of the samples from external sources during transport to the laboratory. The majority of the analytical results for the field blank were less than the laboratory method detection limits. Concentrations of barium and molybdenum were detected in the field blank, greater than five times the laboratory method detection limit. Corresponding analytical results for the samples for these parameters may be biased high but concentrations are less than the applicable CSR standards. Based on a review of the QA/QC program, the data collected during the field investigation are considered reproducible and suitable for the purposes of the Phase II ESA at the Site.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Golder was retained by Yukon Government to conduct a Phase II ESA at Lot 1059, Dawson City, Yukon. This report presents the results of the Phase II ESA that was completed at the Site between 24 and 27 April 2020 with groundwater sampling conducted on 28 May 2020. The results of this program expand upon the data and findings presented in the Phase I and Limited Phase II ESA completed by Golder in April 2020 (Golder, 2020a). The primary objective of the project was to address recommendations from the Phase I and Limited Phase II, specifically to confirm the presence or absence of elevated chromium concentrations in deeper soil and/or groundwater contamination at the Site.

The objectives of the work are considered to be met, based on the drilling investigation that was completed at the Site. The key findings of the program are as follows:

- The soil samples collected as part of the Phase II ESA were less than applicable standards, with the following exception:
 - The concentration of total chromium at BH20-10C (459 mg/kg), exceeded the applicable CSR RL standard of 300 mg/kg. The sample was collected at depths ranging from 5.95 to 6.1 m bgs.
 - The concentration of total chromium at BH20-10C (459 mg/kg) was greater than the proposed background standard of 420 mg/kg.
 - The concentrations of trivalent chromium in samples BH20-03A (242 mg/kg) collected from 1.35 to 1.5 m bgs and BH20-10C (459 mg/kg) collected from 5.95 to 6.1 m bgs exceeded the applicable CSR RL and IL of 65 mg/kg. The samples selected for chromium speciation indicated that the total chromium concentration consists of 100% trivalent chromium.
 - The concentrations of total cobalt at BH20-03A (163 mg/kg) was greater than the CSR RL standard of 100 mg/kg but was less than the IL standard of 300 mg/kg. The sample was collected at a depth from 1.35 to 1.5 m bgs.
- Based on the soil results from this drilling investigation, the limited Phase II ESA (Golder, 2020a), and background metals evaluation (Golder, 2020b), chromium has been measured in soil to the maximum depth investigated (6.1 m bgs) and at several locations across the Site and neighboring properties. It is thought that the elevated chromium concentrations on the Site and on neighboring properties are representative of the native soil quality of the area.

- Cobalt was not identified as a PCOC during the Phase I ESA at the Site (Golder, 2020a) and cobalt was not found in shallow soils at concentrations above the applicable CSR standard during the limited Phase II ESA. Elevated cobalt concentrations (35.7 mg/kg and 39.1 mg/kg) were measured at adjacent property, Area A (Golder, 2020c) in both shallow and deeper soil (up to 3.05 m bgs). It is likely that elevated cobalt may also be indicative a native background soil conditions of the area.
- Based on the groundwater elevations, the groundwater flow direction across the Site is to the southwest with the horizontal hydraulic gradient across the Site is approximately 0.002 m/m. The groundwater flow direction corresponds to the regional topography and anticipated flow direction towards the Klondike River which is located adjacent to the Site.

Based on the information available to date, Golder recommends the following additional work:

- Submit the background metals memo prepared by Golder (Golder, 2020b) to obtain approval from the Yukon Government, Standards and Approvals Branch for the use of the proposed background standards on the Site with consideration to expand the scope to assess the background concentrations of cobalt. Standards and Approvals Branch may require additional metals sampling or the completion of Screening-level Risk Assessment (SLRA) of the Site to evaluate whether elevated metal concentrations at the Site pose acceptable risks to human health and the environment.

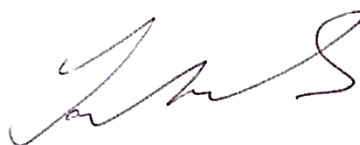
8.0 CLOSURE

We trust this information is sufficient for your needs at this this time. Should you have any questions or concerns, please do not hesitate to contact the undersigned.

Golder Associates Ltd.



Karlee Bendera, BSc, AIT
Environmental Scientist



Tamra Reynolds, MSc, PGeo (BC, NT/NU)
Associate, Senior Hydrogeologist

KB/TR/syd

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9.0 REFERENCES

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Table D: Groundwater QAQC Results
Department of Community Services, Land Development
Dawson City, Yukon

Table with columns: Parameter, CSR-RL, MCS, CSR-IL, MCS, Location, Sample Name, Sample Date, Sample Depth, Laboratory ID, Sample Type, Unit. Rows include Field + Physical (PID, Moisture, pH), Hydrocarbons, Metals, and VOCs + BTEX.

Notes

Yukon CSR, Soil, Schedule 2, Matrix Numerical Soil Standards - Industrial Land

< Indicates parameter was below laboratory equipment detection limit.

- Chemical not analyzed or criteria not defined.

Results expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

MCS = most conservative standard based on applicable site-specific standards

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants;

AW-F = Groundwater Flow to Surface Water used by Freshwater Aquatic Life; AW-M = Groundwater Flow to Surface Water used by Marine Aquatic Life; G = Schedule 1 Standards

Sample type: N = Normal sample; FDA/FD = field duplicate available/field duplicate

EPH(C10-19) / EPH(C19-32) = extractable petroleum hydrocarbons, carbon range C10-19/C19-32;

LEPH/HEPH = light/heavy extractable petroleum hydrocarbons; VPH = volatile petroleum hydrocarbons

Analyte concentration equal to or exceeding Yukon CSR standard for Industrial land use

Analyte concentration equal to or exceeding Yukon CSR standard for Residential land use

Analyte concentration equal to or exceeding Yukon CSR standard and proposed background standard

Proposed background standard for arsenic is 15 mg/kg and chromium is 420 mg/kg

applicable standard is pH dependent; the standard range shown is based on the pH range observed in the dataset (8.07-9.02).

Small table with 3 rows and 1 column, containing values 60, 60, and 420.

Table D: Groundwater QAQC Results
 Department of Community Services, Land Development
 Dawson City, Yukon

Parameter	YT-CSR-GW-SCH3-AWF	MDL	Unit	Location	MW20-02	MW20-03
				Sample Name	10171-01	10172-01
				Sample Date	May 28, 2020	May 28, 2020
				Laboratory ID	WR2000250-001	WR2000251-001
				Sample Type	N	N
Field + Physical						
Dissolved Oxygen, field measured		-	mg/L		0.32	10.95
Conductivity, field measured		-	uS/cm		690.8	454.1
Oxidation Reduction Potential, field measured		-	mV		94.2	90.1
pH, field measured		-	pH units		7.21	7.69
Temperature, field measured		-	deg c		1.7	1.8
Hardness, Calcium Carbonate		0.6	mg/L		321	230
Hydrocarbons						
Acenaphthene		0.01	ug/L		< 0.010	< 0.010
Acenaphthylene		0.01	ug/L		< 0.010	< 0.010
Acridine	0.5	0.01	ug/L		< 0.010	< 0.010
Anthracene	1	0.01	ug/L		< 0.010	< 0.010
Benz(a)anthracene	1	0.01	ug/L		< 0.010	< 0.010
Benzo(a)pyrene	0.1	0.005	ug/L		< 0.0050	< 0.0050
Benzo(g,h,i)perylene		0.01	ug/L		< 0.010	< 0.010
Benzo(k)fluoranthene		0.01	ug/L		< 0.010	< 0.010
Benzo(b,j,k)fluoranthene		0.015	ug/L		< 0.015	< 0.015
Benzo(b,j) fluoranthene		0.01	ug/L		< 0.010	< 0.010
Chrysene		0.01	ug/L		< 0.010	< 0.010
Dibenz(a,h)anthracene		0.005	ug/L		< 0.0050	< 0.0050
Fluoranthene	2	0.01	ug/L		< 0.010	< 0.010
Fluorene	120	0.01	ug/L		< 0.010	< 0.010
Indeno(1,2,3-c,d)pyrene		0.01	ug/L		< 0.010	< 0.010
Naphthalene	10	0.05	ug/L		< 0.050	< 0.050
Phenanthrene	3	0.02	ug/L		< 0.020	< 0.020
Pyrene	0.2	0.01	ug/L		< 0.010	< 0.010
Quinoline	34	0.05	ug/L		< 0.050	< 0.050
1-Methylnaphthalene		0.01	ug/L		0.033	< 0.010
2-methylnaphthalene		0.01	ug/L		0.059	< 0.010
Extractable Petroleum Hydrocarbons (C10-C19)	5000	250	ug/L		< 250	< 250
Light Extractable Petroleum Hydrocarbons (C10-C19) Less PAHs	500	250	ug/L		< 250	< 250
Extractable Petroleum Hydrocarbons (C19-C32)		250	ug/L		< 250	< 250
Heavy Extractable Petroleum Hydrocarbons (C19-C32) Less PAHs		250	ug/L		< 250	< 250
Volatile Hydrocarbons (C6-C10)	15000	100	ug/L		< 100	< 100
Volatile Petroleum Hydrocarbons (C6-C10)	1500	100	ug/L		< 100	< 100
Metals, Dissolved						
Aluminum		1	ug/L		1.9	1.0
Antimony	200	0.1	ug/L		0.14	< 0.10
Arsenic	50	0.1	ug/L		0.24	1.04
Barium	10000	0.1	ug/L		69.2	26.9
Beryllium	53	0.1	ug/L		< 0.100	< 0.100
Bismuth		0.05	ug/L		< 0.050	< 0.050
Boron		10	ug/L		< 10	< 10
Cadmium	0.1 - 0.6	0.005	ug/L		0.0335	< 0.0050
Calcium		50	ug/L		76100	44300
Cesium		0.01	ug/L		< 0.010	0.684
Chromium		0.1	ug/L		< 0.10	2.85
Hexavalent Chromium (Cr(VI))	10	0.5	ug/L		< 0.50	2.70
Cobalt	9	0.1	ug/L		0.68	< 0.10
Copper	20 - 90	0.2	ug/L		0.50	0.47
Iron		10	ug/L		37	< 10
Lead	40 - 160	0.05	ug/L		< 0.050	< 0.050
Lithium		1	ug/L		3.2	2.2
Magnesium		5	ug/L		31800	29000
Manganese		0.1	ug/L		229	2.76
Mercury	1	0.005	ug/L		< 0.0050	< 0.0050
Molybdenum	10000	0.05	ug/L		1.81	1.39
Nickel	250 - 1500	0.5	ug/L		1.51	< 0.50
Phosphorus		50	ug/L		< 50	< 50
Potassium		50	ug/L		1090	580
Rubidium		0.2	ug/L		0.68	1.17
Selenium	10	0.05	ug/L		1.12	1.88
Silicon		50	ug/L		4520	7080
Silver	0.5 - 15	0.01	ug/L		< 0.010	< 0.010
Sodium		50	ug/L		7400	5330
Strontium		0.2	ug/L		380	122
Sulphur		500	ug/L		28000	12100
Tellurium		0.2	ug/L		< 0.20	< 0.20
Thallium	3	0.01	ug/L		< 0.010	< 0.010
Thorium-232		0.1	ug/L		< 0.10	< 0.10
Tin		0.1	ug/L		< 0.10	< 0.10
Titanium	1000	0.3	ug/L		< 0.30	< 0.30
Tungsten		0.1	ug/L		< 0.10	< 0.10
Uranium	3000	0.01	ug/L		1.42	0.975
Vanadium		0.5	ug/L		< 0.50	2.19
Zinc	75 - 2400	1	ug/L		1.9	< 1.0
Zirconium		0.2	ug/L		< 0.20	< 0.20
VOCs + BTEX						
Benzene	4000	0.5	ug/L		< 0.50	< 0.50
Ethylbenzene	2000	0.5	ug/L		< 0.50	< 0.50
Styrene	720	0.5	ug/L		< 0.50	< 0.50
Toluene	390	0.5	ug/L		< 0.50	< 0.50
Xylenes, Total		0.75	ug/L		< 0.75	< 0.75
o-Xylene		0.5	ug/L		< 0.50	< 0.50
m,p-Xylenes		0.5	ug/L		< 0.50	< 0.50
Methyl tert-Butyl Ether		0.5	ug/L		< 0.50	< 0.50
Bromodichloromethane (BDCM)		0.5	ug/L		< 0.50	< 0.50
Bromoform (Tribromomethane)		0.5	ug/L		< 0.50	< 0.50
Carbon Tetrachloride	130	0.5	ug/L		< 0.50	< 0.50
Chlorobenzene	13	0.5	ug/L		< 0.50	< 0.50
Chloroethane		0.5	ug/L		< 0.50	< 0.50
Chloroform	20	0.5	ug/L		< 0.50	< 0.50
Chloromethane		0.5	ug/L		< 0.50	< 0.50
Dichloromethane (DCM) (Methylene Chloride)	980	0.5	ug/L		< 0.50	< 0.50
Dibromochloromethane (DBCM)		0.5	ug/L		< 0.50	< 0.50
1,2-dichlorobenzene		0.5	ug/L		< 0.50	< 0.50
1,3-dichlorobenzene	1500	0.5	ug/L		< 0.50	< 0.50
1,4-dichlorobenzene	260	0.5	ug/L		< 0.50	< 0.50
1,1-dichloroethane		0.5	ug/L		< 0.50	< 0.50
1,2-dichloroethane	1000	0.5	ug/L		< 0.50	< 0.50
1,1-dichloroethene		0.5	ug/L		< 0.50	< 0.50
1,2-dichloroethylene (cis) (1,2-dichloroethene) (cis)		0.5	ug/L		< 0.50	< 0.50
1,2-dichloroethylene (trans) (1,2-dichloroethene) (trans)		0.5	ug/L		< 0.50	< 0.50
1,2-dichloropropane (Propylene Dichloride)		0.5	ug/L		< 0.50	< 0.50
1,3-dichloropropene (cis)		0.5	ug/L		< 0.50	< 0.50
1,3-dichloropropene (trans)		0.5	ug/L		< 0.50	< 0.50
1,3-dichloropropene, total		0.75	ug/L		< 0.75	< 0.75
1,1,1,2-tetrachloroethane		0.5	ug/L		< 0.50	< 0.50
1,1,2,2-tetrachloroethane		0.2	ug/L		< 0.20	< 0.20
Tetrachloroethylene (PCE/PERC)	1100	0.5	ug/L		< 0.50	< 0.50
1,1,1-trichloroethane		0.5	ug/L		< 0.50	< 0.50
1,1,2-trichloroethane		0.5	ug/L		< 0.50	< 0.50
Trichloroethylene (TCE)	200	0.5	ug/L		< 0.50	< 0.50
Trichlorofluoromethane (Freon 11)		0.5	ug/L		< 0.50	< 0.50
Vinyl Chloride (Chloroethene)		0.4	ug/L		< 0.40	< 0.40

Notes
Yukon CSR, Soil, Schedule 3, Generic Numerical Water Standards - Aquatic Life, Freshwater
 < Indicates parameter was below laboratory equipment detection limit.
 - Chemical not analyzed or criteria not defined.
 Sample type: N = Normal sample; FDA/FD = field duplicate available/field duplicate

Table D: Groundwater QAQC Results
Department of Community Services, Land Development
Dawson City, Yukon

Parameter	Location Sample Name Sample Date Sample Depth Laboratory ID Unit	Minimum Detection Limit	BH20-04 BH20-04A April 25, 2019 4.3-4.6 WR2000176-003	BH20-04 BH20-04B April 25, 2019 4.3-4.6 WR2000176-004	Mean	Relative Percent Difference	Difference Factor
Field + Physical							
PID	ppm	-	0	0	-	-	-
Moisture, Percent	%	-	-	-	-	-	-
pH	pH units	-	8.12	8.21	-	-	-
Metals							
Aluminum	mg/kg	50	14200	15300	14750	7%	NA
Antimony	mg/kg	0.10	0.90	1.03	0.965	13%	NA
Arsenic	mg/kg	0.10	10.5	11.8	11.15	12%	NA
Barium	mg/kg	0.5	227	150	188.5	41%	NA
Beryllium	mg/kg	0.1	0.21	0.24	0.225	NA	0.30
Bismuth	mg/kg	0.2	< 0.20	< 0.20	-	-	-
Boron	mg/kg	5	< 5.0	< 5.0	-	-	-
Cadmium	mg/kg	0.02	0.228	0.227	0.2275	0%	NA
Calcium	mg/kg	50	2600	3370	2985	26%	NA
Chromium	mg/kg	0.5	41.1	41.5	41.3	1%	NA
Chromium Trivalent (Cr(III))	mg/kg	0.03	-	-	-	-	-
Chromium Hexavalent (Cr(VI))	mg/kg	0.1	-	-	-	-	-
Cobalt	mg/kg	0.1	12.3	19.2	15.75	44%	NA
Copper	mg/kg	0.5	46.0	46.2	46.1	0%	NA
Iron	mg/kg	50	25300	26600	25950	5%	NA
Lead	mg/kg	0.5	4.57	6.87	5.72	40%	NA
Lithium	mg/kg	2	14.0	16.1	15.05	14%	NA
Magnesium	mg/kg	20	12000	12200	12100	2%	NA
Manganese	mg/kg	1	503	512	507.5	2%	NA
Mercury	mg/kg	0.05	< 0.0500	< 0.0500	-	-	-
Molybdenum	mg/kg	0.1	2.27	2.26	2.265	0%	NA
Nickel	mg/kg	0.5	27.4	26.9	27.15	2%	NA
Phosphorus	mg/kg	50	562	770	666	31%	NA
Potassium	mg/kg	100	420	460	440	NA	0.40
Selenium	mg/kg	0.2	0.41	0.39	0.4	NA	0.10
Silver	mg/kg	0.1	< 0.10	< 0.10	-	-	-
Sodium	mg/kg	50	86	120	103	NA	0.68
Strontium	mg/kg	0.5	21.4	25.0	23.2	16%	NA
Sulphur (S8)	mg/kg	1000	< 1000	< 1000	-	-	-
Thallium	mg/kg	0.05	< 0.050	< 0.050	-	-	-
Tin	mg/kg	2	< 2.0	< 2.0	-	-	-
Titanium	mg/kg	1	342	364	353	6%	NA
Tungsten	mg/kg	0.5	4.18	6.95	5.565	50%	NA
Uranium	mg/kg	0.05	0.606	0.650	0.628	7%	NA
Vanadium	mg/kg	0.2	52.0	54.4	53.2	5%	NA
Zinc	mg/kg	2	72.1	70.5	71.3	2%	NA
Zirconium	mg/kg	1	1.9	2.0	1.95	NA	0.10
pH	pH units		8.12	8.21	8.165	1%	NA

Notes:

Yukon CSR, Soil, Schedule 3, Generic Numerical Water Standards - Aquatic Life, Freshwater

< Indicates parameter was below laboratory equipment detection limit.

- Chemical not analyzed or criteria not defined.

QA/QC = quality assurance/ quality control; FDA/FD = field duplicate available/field duplicate

Method Detection Limit (MDL) = minimum concentration that could be measured by the laboratory.

Mean = average value calculated of a field duplicate pair (the FDA and the FD).

Relative Percent Difference is calculated when the mean is greater than five times the method detection limit; Golder's internal QA/QC target for soil is less than 35%.

Difference Factor is calculated when the mean value is less than five times the method detection limit; Golder's internal QA/QC target for groundwater is less than 2.

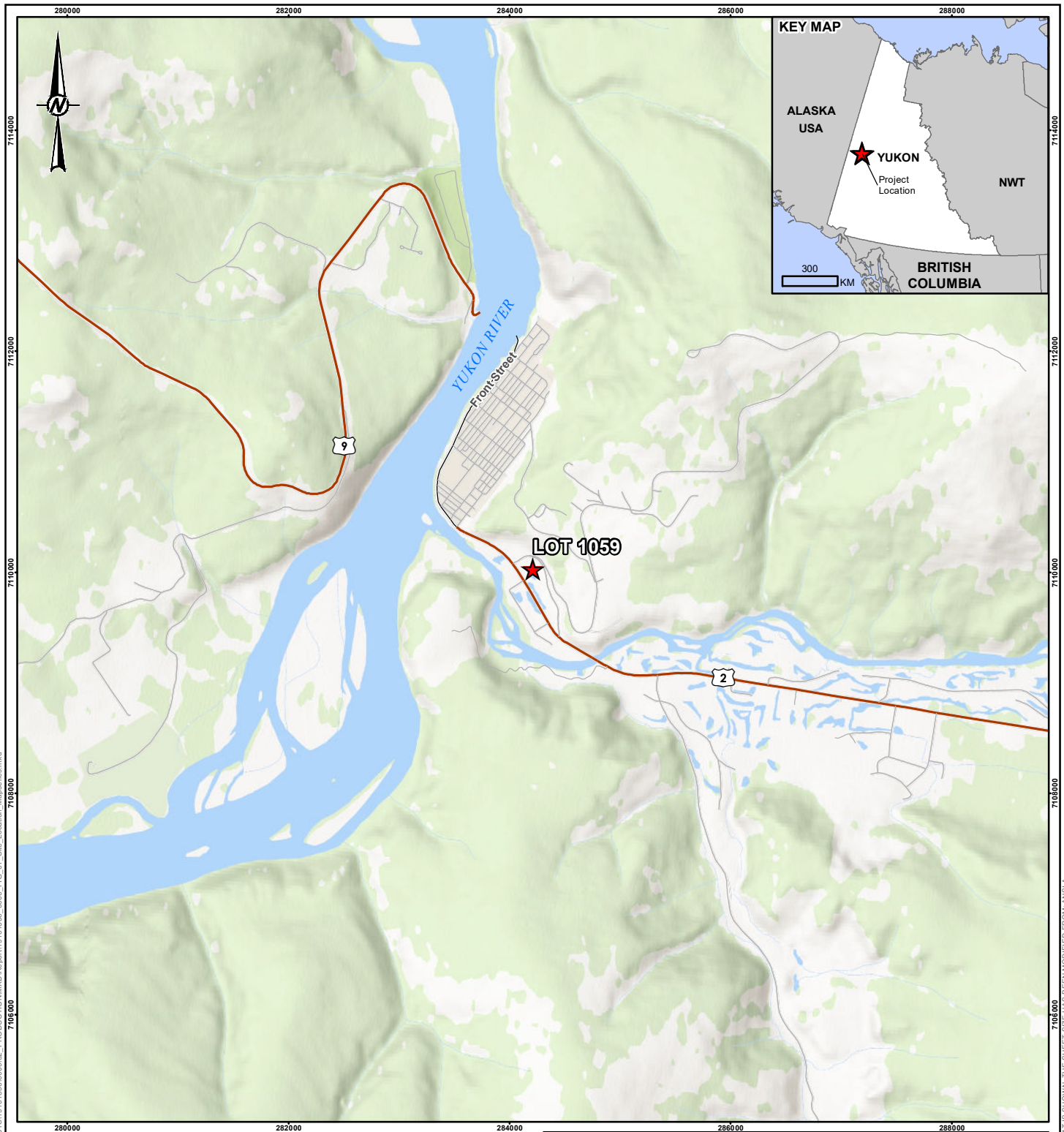
BOLD indicates parameter analysed exceeds Golder's internal QA/QC targets.

NC = not calculated; NA = not applicable






Table D: Groundwater QAQC Results
 Department of Community Services, Land Development
 Dawson City, Yukon

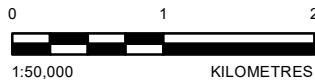
Parameter	YT-CSR-GW-SCH3-AWF	MDL	Unit	Location	FIELD BLANK	TRAVEL BLANK
				Sample Name	10172-02	11714-02
				Sample Date	May 28, 2020	May 28, 2020
				Laboratory ID	WR2000251-002	WR2000252-002
Field + Physical						
Dissolved Oxygen, field measured		-	mg/L	-	-	-
Conductivity, field measured		-	uS/cm	-	-	-
Oxidation Reduction Potential, field measured		-	mV	-	-	-
pH, field measured		-	pH units	-	-	-
Temperature, field measured		-	deg c	-	-	-
Hardness, Calcium Carbonate		0.6	mg/L	< 0.60	-	-
Hydrocarbons						
Acenaphthene		0.01	ug/L	< 0.010	-	-
Acenaphthylene		0.01	ug/L	< 0.010	-	-
Acridine	0.5	0.01	ug/L	< 0.010	-	-
Anthracene	1	0.01	ug/L	< 0.010	-	-
Benzo(a)anthracene	1	0.01	ug/L	< 0.010	-	-
Benzo(a)pyrene	0.1	0.005	ug/L	< 0.0050	-	-
Benzo(g,h,i)perylene		0.01	ug/L	< 0.010	-	-
Benzo(k)fluoranthene		0.01	ug/L	< 0.010	-	-
Benzo(b,j,k)fluoranthene		0.015	ug/L	< 0.015	-	-
Benzo(b,j) fluoranthene		0.01	ug/L	< 0.010	-	-
Chrysene		0.01	ug/L	< 0.010	-	-
Dibenz(a,h)anthracene		0.005	ug/L	< 0.0050	-	-
Fluoranthene	2	0.01	ug/L	< 0.010	-	-
Fluorene	120	0.01	ug/L	< 0.010	-	-
Indeno(1,2,3-c,d)pyrene		0.01	ug/L	< 0.010	-	-
Naphthalene	10	0.05	ug/L	< 0.050	-	-
Phenanthrene	3	0.02	ug/L	< 0.020	-	-
Pyrene	0.2	0.01	ug/L	< 0.010	-	-
Quinoline	34	0.05	ug/L	< 0.050	-	-
1-Methylnaphthalene		0.01	ug/L	< 0.010	-	-
2-methylnaphthalene		0.01	ug/L	< 0.010	-	-
Extractable Petroleum Hydrocarbons (C10-C19)	5000	250	ug/L	< 250	-	-
Light Extractable Petroleum Hydrocarbons (C10-C19) Less PAHs	500	250	ug/L	< 250	-	-
Extractable Petroleum Hydrocarbons (C19-C32)		250	ug/L	< 250	-	-
Heavy Extractable Petroleum Hydrocarbons (C19-C32) Less PAHs		250	ug/L	< 250	-	-
Volatile Hydrocarbons (C6-C10)	15000	100	ug/L	< 100	< 100	< 100
Volatile Petroleum Hydrocarbons (C6-C10)	1500	100	ug/L	< 100	< 100	< 100
Metals, Dissolved						
Aluminum		1	ug/L	1.5	-	-
Antimony	200	0.1	ug/L	< 0.10	-	-
Arsenic	50	0.1	ug/L	< 0.10	-	-
Barium	10000	0.1	ug/L	1.35	-	-
Beryllium	53	0.1	ug/L	< 0.100	-	-
Bismuth		0.05	ug/L	< 0.050	-	-
Boron		10	ug/L	< 10	-	-
Cadmium	0.1 - 0.6	0.005	ug/L	< 0.0050	-	-
Calcium		50	ug/L	< 50	-	-
Cesium		0.01	ug/L	< 0.010	-	-
Chromium		0.1	ug/L	< 0.10	-	-
Hexavalent Chromium (Cr(VI))	10	0.5	ug/L	< 0.50	-	-
Cobalt	9	0.1	ug/L	< 0.10	-	-
Copper	20 - 90	0.2	ug/L	0.95	-	-
Iron		10	ug/L	< 10	-	-
Lead	40 - 160	0.05	ug/L	< 0.050	-	-
Lithium		1	ug/L	< 1.0	-	-
Magnesium		5	ug/L	< 5.0	-	-
Manganese		0.1	ug/L	< 0.10	-	-
Mercury	1	0.005	ug/L	< 0.0050	-	-
Molybdenum	10000	0.05	ug/L	0.509	-	-
Nickel	250 - 1500	0.5	ug/L	< 0.50	-	-
Phosphorus		50	ug/L	< 50	-	-
Potassium		50	ug/L	< 50	-	-
Rubidium		0.2	ug/L	< 0.20	-	-
Selenium	10	0.05	ug/L	< 0.050	-	-
Silicon		50	ug/L	< 50	-	-
Silver	0.5 - 15	0.01	ug/L	< 0.010	-	-
Sodium		50	ug/L	< 50	-	-
Strontium		0.2	ug/L	< 0.20	-	-
Sulphur		500	ug/L	< 500	-	-
Tellurium		0.2	ug/L	< 0.20	-	-
Thallium	3	0.01	ug/L	< 0.010	-	-
Thorium-232		0.1	ug/L	< 0.10	-	-
Tin		0.1	ug/L	< 0.10	-	-
Titanium	1000	0.3	ug/L	< 0.30	-	-
Tungsten		0.1	ug/L	< 0.10	-	-
Uranium	3000	0.01	ug/L	< 0.010	-	-
Vanadium		0.5	ug/L	< 0.50	-	-
Zinc	75 - 2400	1	ug/L	< 1.0	-	-
Zirconium		0.2	ug/L	< 0.20	-	-
VOCs + BTEX						
Benzene	4000	0.5	ug/L	< 0.50	< 0.50	< 0.50
Ethylbenzene	2000	0.5	ug/L	< 0.50	< 0.50	< 0.50
Styrene	720	0.5	ug/L	< 0.50	< 0.50	< 0.50
Toluene	390	0.5	ug/L	< 0.50	< 0.50	< 0.50
Xylenes, Total		0.75	ug/L	< 0.75	< 0.75	< 0.75
o-Xylene		0.5	ug/L	< 0.50	< 0.50	< 0.50
m,p-Xylenes		0.5	ug/L	< 0.50	< 0.50	< 0.50
Methyl tert-Butyl Ether		0.5	ug/L	< 0.50	< 0.50	< 0.50
Bromodichloromethane (BDCM)		0.5	ug/L	< 0.50	< 0.50	< 0.50
Bromoform (Tribromomethane)		0.5	ug/L	< 0.50	< 0.50	< 0.50
Carbon Tetrachloride	130	0.5	ug/L	< 0.50	< 0.50	< 0.50
Chlorobenzene	13	0.5	ug/L	< 0.50	< 0.50	< 0.50
Chloroethane		0.5	ug/L	< 0.50	< 0.50	< 0.50
Chloroform	20	0.5	ug/L	< 0.50	< 0.50	< 0.50
Chloromethane		0.5	ug/L	< 0.50	< 0.50	< 0.50
Dichloromethane (DCM) (Methylene Chloride)	980	0.5	ug/L	< 0.50	< 0.50	< 0.50
Dibromochloromethane (DBCM)		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,2-dichlorobenzene		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,3-dichlorobenzene	1500	0.5	ug/L	< 0.50	< 0.50	< 0.50
1,4-dichlorobenzene	260	0.5	ug/L	< 0.50	< 0.50	< 0.50
1,1-dichloroethane		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,2-dichloroethane	1000	0.5	ug/L	< 0.50	< 0.50	< 0.50
1,1-dichloroethene		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,2-dichloroethylene (cis) (1,2-dichloroethene) (cis)		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,2-dichloroethylene (trans) (1,2-dichloroethene) (trans)		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,2-dichloropropane (Propylene Dichloride)		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,3-dichloropropene (cis)		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,3-dichloropropene (trans)		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,3-dichloropropene, total		0.75	ug/L	< 0.75	< 0.75	< 0.75
1,1,1,2-tetrachloroethane		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,1,1,2-tetrachloroethane		0.2	ug/L	< 0.20	< 0.20	< 0.20
Tetrachloroethylene (PCE/PERC)	1100	0.5	ug/L	< 0.50	< 0.50	< 0.50
1,1,1-trichloroethane		0.5	ug/L	< 0.50	< 0.50	< 0.50
1,1,2-trichloroethane		0.5	ug/L	< 0.50	< 0.50	< 0.50
Trichloroethylene (TCE)	200	0.5	ug/L	< 0.50	< 0.50	< 0.50
Trichlorofluoromethane (Freon 11)		0.5	ug/L	< 0.50	< 0.50	< 0.50
Vinyl Chloride (Chloroethene)		0.4	ug/L	< 0.40	< 0.40	< 0.40

Notes:
Yukon CSR, Soil, Schedule 3, Generic Numerical Water Standards - Aquatic Life, Freshwater
 < Indicates parameter was below laboratory equipment detection limit.
 - Chemical not analyzed or criteria not defined.
 Results expressed in micrograms per litre (µg/L), unless otherwise indicated.
 QA/QC = quality assurance/ quality control; FB/TB = field blank/travel blank
 Method Detection Limit (MDL) = minimum concentration that could be measured by the laboratory.
BOLD indicates parameter analysed exceeds Golder's internal QA/QC targets.
Italics indicates parameter analysed contains a detectable concentration but meets Golder's internal QA/QC targets.



LEGEND

-  PROJECT LOCATION
-  HIGHWAY
-  MAJOR ROAD
-  LOCAL ROAD
-  WATERBODY




REFERENCES

1. TRANSPORTATION FEATURES OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
 2. BASE MAP SOURCES: ESRI, HERE, DELORME, INCREMENT P CORP., NPS, NRCAN, ORDNANCE SURVEY, © OPENSTREETMAP CONTRIBUTORS, USGS, NGA, NASA, CGIAR, N ROBINSON, NCEAS, NLS, OS, NMA, GEODATASTYRELSEN, RIJKSWATERSTAAT, GSA, GEOLAND, FEMA, INTERMAP AND THE GIS USER COMMUNITY.
 3. INSET MAP DATA OBTAINED FROM ESRI.
- COORDINATE SYSTEM: NAD 1983 UTM ZONE 8N

CLIENT
YUKON GOVERNMENT – COMMUNITY SERVICES AND LAND DEVELOPMENT BRANCH

PROJECT
**PHASE II ENVIRONMENTAL SITE ASSESSMENT,
 LOT 1059, DAWSON CITY**

TITLE
SITE LOCATION

CONSULTANT	YYYY-MM-DD	2020-07-24
 GOLDER	DESIGNED	KB
	PREPARED	CDB/MH
	REVIEWED	EA
	APPROVED	

PROJECT NO.	PHASE	REV.	FIGURE
19131856	6000/6003	A	1

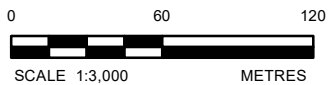
PATH: \\golder\gis\gib\turnbyCAD-GIS\Client\Yukon_Government\Dawson_City\99_PROJECTS\19131856\6000\02_PROD\FIG_01_Site_Location_Map.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSIA 25mm



LEGEND

- PROJECT LOCATION
- PROPERTY BOUNDARY
- HIGHWAY
- LOCAL ROAD



REFERENCES

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- COORDINATE SYSTEM: NAD 1983 UTM ZONE 8N

CLIENT
YUKON GOVERNMENT – COMMUNITY SERVICES AND LAND DEVELOPMENT BRANCH

PROJECT
**PHASE II ENVIRONMENTAL SITE ASSESSMENT,
 LOT 1059, DAWSON CITY**

TITLE
SITE PLAN - LOT 1059

CONSULTANT



YYYY-MM-DD 2020-07-24

DESIGNED KB

PREPARED CDB/MH

REVIEWED EA

APPROVED

PROJECT NO.
19131856

PHASE
6000/6003

REV.
A

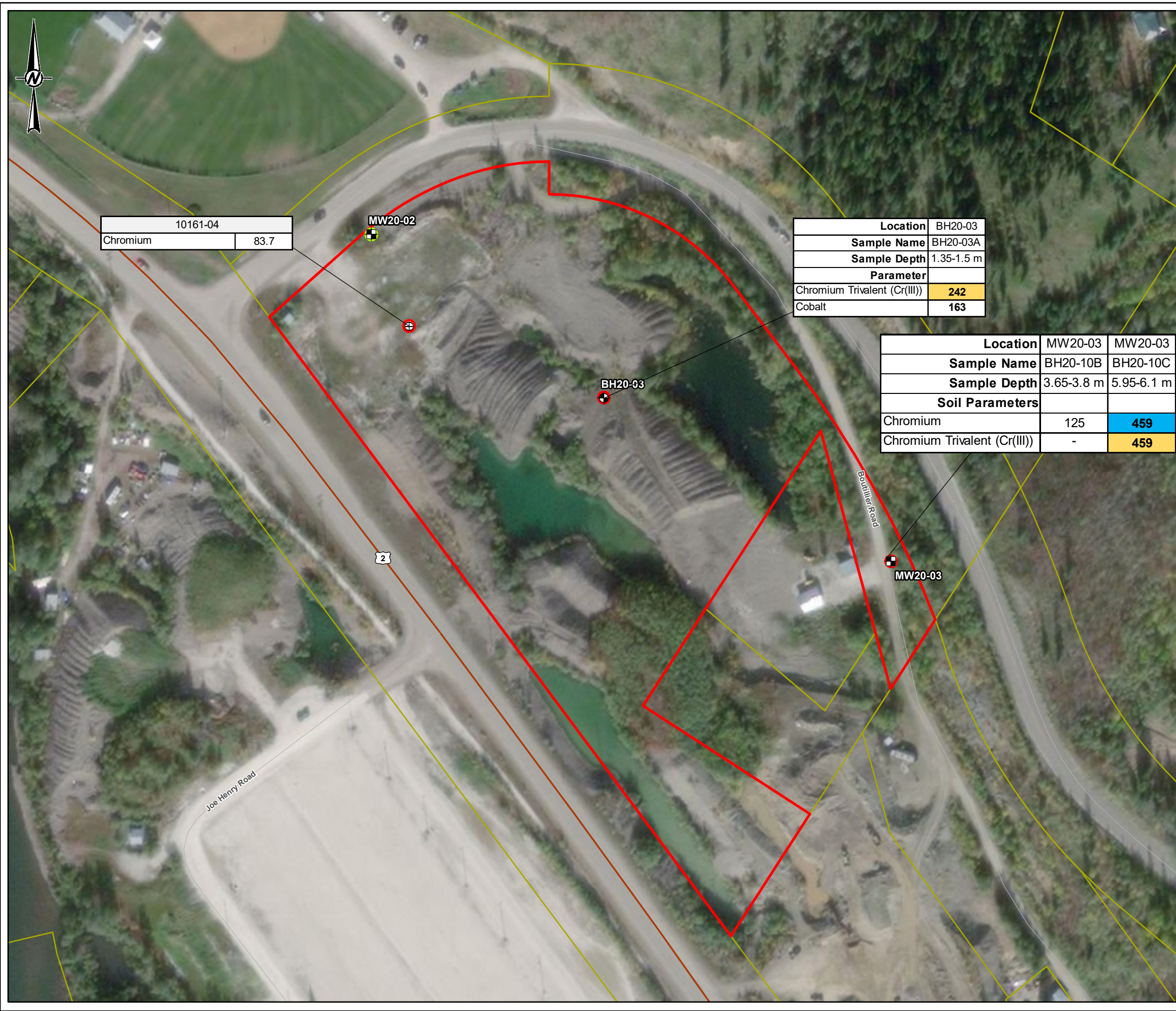
FIGURE
2

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI/A

25mm

PATH: Y:\a\m\h\y\CAD-GIS\Client\Yukon_Government\Dawson_City\09_PROD\PROJECTS\19131856_6000_FIG_03_Lot_1059_Results.mxd PRINTED ON: 2025-09-03 AT 6:09:47 PM



10161-04	Chromium	83.7
----------	----------	------

Location	BH20-03
Sample Name	BH20-03A
Sample Depth	1.35-1.5 m
Parameter	
Chromium Trivalent (Cr(III))	242
Cobalt	163

Location	MW20-03	MW20-03
Sample Name	BH20-10B	BH20-10C
Sample Depth	3.65-3.8 m	5.95-6.1 m
Soil Parameters		
Chromium	125	459
Chromium Trivalent (Cr(III))	-	459

LEGEND

PROJECT DATA

- PROJECT LOCATION
- BOREHOLE LOCATION
- MONITORING WELL LOCATION
- SOIL SAMPLE LOCATION

SAMPLE RESULTS

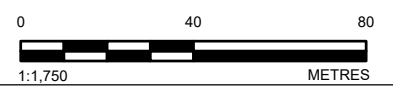
- ONE OR MORE PARAMETER CONCENTRATIONS IS GREATER THAN YT CSR STANDARDS
- PARAMETER CONCENTRATIONS ARE LESS THAN YT CSR STANDARDS

BASE DATA

- HIGHWAY
- MAJOR ROAD
- LOCAL ROAD
- WATERCOURSE
- PROPERTY BOUNDARY

Parameter	CSR - RL	CSR - IL	Proposed Background
Chromium	300	700	420
Chromium Trivalent (Cr(III))	65	65	-
Cobalt	50	300	-

NOT FOR CONSTRUCTION



- NOTE(S)**
1. LOCATIONS ARE APPROXIMATE.
 2. mg/kg: MILLIGRAMS PER KILOGRAM
 3. FDA/FD: FIELD DUPLICATE AVAILABLE/ FIELD DUPLICATE
 4. EPH C19-C32: EXTRACTABLE PERTROLEUM HYDROCARBONS. CARBON RANGE C19-C32
 5. HEPH C19-C32 LESS PAHS: HEAVY EXTRACTABLE PERTROLEUM HYDROCARBONS. CARBON RANGE C19-C32
 6. PAHS: POLYCYCLIC AROMATIC HYDROCARBONS
 7. YT CSR: YUKON CONTAMINATED SITES REGULATION
 8. RL: YUKON CONTAMINATED SITES REGULATION FOR RESIDENTIAL LAND USE
 9. IL: YUKON CONTAMINATED SITES REGULATION FOR INDUSTRIAL LAND USE

- REFERENCE(S)**
1. PARCELS AND WATER FEATURES OBTAINED FROM THE YUKON GOVERNMENT.
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 4. CONTAMINATED SITES REGULATION (CSR; YT REG. O.I.C. 2002/171, UPDATED TO 30 SEPTEMBER 2014).
 5. BASE MAP: TOPOGRAPHIC MAP © ESRI AND ITS LICENSORS. USED UNDER LICENSE, ALL RIGHTS RESERVED.

COORDINATE SYSTEM: NAD 1983 UTM ZONE 7N

CLIENT
YUKON GOVERNMENT - COMMUNITY SERVICES AND LAND DEVELOPMENT BRANCH










PROJECT
PHASE II ENVIRONMENTAL SITE ASSESSMENT, LOT 1059, DAWSON CITY

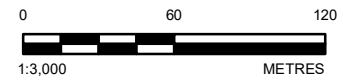
TITLE
SOIL AND BOREHOLE LOCATIONS AND RESULTS

CONSULTANT	YYYY-MM-DD	2020-09-03
	DESIGNED	CC
	PREPARED	CDAB
	REVIEWED	EA
	APPROVED	

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



- LEGEND**
-  MONITORING WELL LOCATION
 -  PROJECT LOCATION
 -  HIGHWAY
 -  MAJOR ROAD
 -  LOCAL ROAD
 -  WATERCOURSE
 -  PROPERTY BOUNDARY
 -  GROUNDWATER CONTOUR, MAY 2020
 -  GROUNDWATER FLOW DIRECTION



REFERENCE(S)

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COORDINATE SYSTEM: NAD 1983 UTM ZONE 8N

CLIENT
 YUKON GOVERNMENT – COMMUNITY SERVICES AND LAND DEVELOPMENT BRANCH

PROJECT
 PHASE II ENVIRONMENTAL SITE ASSESSMENT,
 LOT 1059, DAWSON CITY

TITLE
 GROUNDWATER CONTOURS, MAY 2020

CONSULTANT	YYYY-MM-DD	2020-07-14
DESIGNED		KLM
PREPARED		JP/MH
REVIEWED		EA
APPROVED		

PROJECT NO.	CONTROL	REV.	FIGURE
19131856	6000	A	4

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

APPENDIX A

Borehole Logs

PROJECT No.: 19131856

RECORD OF BOREHOLE: BH20-03

SHEET 1 OF 1

CLIENT: Yukon Government, Community Services
 PROJECT: 4GCS
 LOCATION: Dawson, YK

DRILLING DATE: April, 25, 2020
 DRILLING CONTRACTOR: Metro Drilling

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG DRILLING METHOD	SOIL PROFILE		GEOTECH SAMPLES				CHEMISTRY SAMPLES		PID ppm		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION			
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	NUMBER	SCN	ANALYSED	PID ppm		WATER CONTENT %					
													2	4	6			8	Wp	W
0	Track Mounted Sonic Drill Sonic (Casing: 5 in. Casing.)	Ground Surface		0.00																
1		(GW) GRAVEL and COBBLE, some silty, some sand; light brown; moist							20											
2		(GW) GRAVEL and COBBLE, trace silt, trace sand; brown; dry		1.52	1	CC				1	BH20-03A									
3					2	CC		15	2	BH20-03B										
3.05		End of Borehole.																		
4																				
5																				
6																				
7																				
8																				
9																				
10																				

National IM Server: SINT_GAL_NATIONAL IM Unique Project ID: Output Form: BC_BOREHOLE (GEOENV/RO) 2018 njames_11/09/20

DEPTH SCALE

1 : 50



SOIL CLASSIFICATION SYSTEM: GACS

LOGGED: KB/ER

CHECKED: EA

DEPTH SCALE METRES	DRILLING RIG	DRILLING METHOD	SOIL PROFILE		GEOTECH SAMPLES				CHEMISTRY SAMPLES		PID ppm		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
			DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	NUMBER	SCN	ANALYSED	PID ppm	WATER CONTENT %			
												2 4 6 8	20 40 60 80	Wp	W	WI		
												2 4 6 8	10 20 30 40					
0			Ground Surface		0.00													
			(GW) GRAVEL, some cobble, trace silt, trace sand; brown; wet															Bentonite
1																		
2																		
3																		Bentonite/Slough
4																		
5			(SW) SAND, medium, trace silt; brown; wet		4.27	1	CC			1	BH20-04A&B							Bentonite
6			(GW) GRAVEL, trace silt, trace sand; brown; wet		4.88													
7			(SM) SILTY SAND; reddish brown; moist		5.49													
8			(GW) GRAVEL and SAND, medium gravel, medium sand		6.10	2	CC			2	BH20-04C							Filter Sand
9			(ML) CLAYEY SILT, presence of organics; dark grey;		7.32	3	CC			3	BH20-04D							Slough
10			End of Monitoring Well.		7.62													

National IM Server\GINT_GAL_NATIONAL\IM Unique Project ID: Output Form\BC_BOREHOLE (GEOENV\RD) 2018 njames_11/09/20

DEPTH SCALE METRES	DRILLING RIG DRILLING METHOD	SOIL PROFILE		GEOTECH SAMPLES				CHEMISTRY SAMPLES		PID ppm		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	NUMBER	SCN	ANALYSED	PID ppm		WATER CONTENT %			
													2	4	6			8
0	Track Mounted Sonic Drill Sonic (Casing: 5 in. Casing;)	Ground Surface		0.00														
		(OH) CLAY, presence of black organics; grey; frozen																
		(SM) SILTY SAND, gravels; rusty brown; frozen							100									
1		(SP) SAND, medium, gravel; brown; loose, moist			1.22	1	CC			1	BH20-10A							Bentonite/Sand Slurry
		(GP) GRAVEL, silt, sand; green; - Green Schist Chlorite			1.52													
2									25									Slough
3		(SM) SILTY SAND, gravel; greyish black; moist			3.20													
4		(GW) GRAVEL, silt, sand, wet			3.66	2	CC			2	BH20-10B							Filter Sand Slotted Screen
		(BEDROCK) Green Schist, dry, soft			4.27													
5									100									Slough
6					3	CC			3	BH20-10C								
6.10		End of Monitoring Well.																

National IM Server\GINT_GAL_NATIONAL\IM Unique Project ID: Output Form\BC_BOREHOLE (GEOENV\RD) 2018 njames_11/9/20

APPENDIX B

Photographic Log



Photo 1: Drilling and installation of MW20-02, 25 April 2020



Photo 2: Location of BH20-03, 25 April 2020



Photo 3: Bedrock located in MW20-03, green schist, 27 April 2020



Photo 4: Completed MW20-03, 27 April 2020



Photo 5: Completed MW20-02, 26 April 2020

APPENDIX C

**Groundwater Development and
Sampling Sheets**



Groundwater Development, Purging and Sampling Sheet

Development
 Purge/Sample

WELL ID: MW20-02

PROJECT NO.: 19131856

SITE: Lot 1059

FIELD PERSONNEL: KB

WEATHER: Clear to

DATE: 126 Apr 2020

TEMPERATURE: -10

TIME: 9:00

Depth to Bottom of Well Below Top of Casing (A): <u>7.625</u> (meters)	Easting: <u>576919</u>	Northing: <u>7103563</u>
Depth to Water Below Top of Casing (B): <u>4.187</u> (meters)	Well headspace: _____ ppm	
Water Column: <u>3.438</u> (meters)	Completion: <input type="checkbox"/> Flushmount <input checked="" type="checkbox"/> Stickup monument	
Stick-up: <u>0.64</u> (meters)	Well locked: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

FIELD EQUIPMENT

Field Meters Calibrated:

Pump:	<input checked="" type="checkbox"/> none	<input checked="" type="checkbox"/> Waterra	<input type="checkbox"/> Submersible	<input type="checkbox"/> Peristaltic	<input type="checkbox"/> Bladder
Bailer:	<input checked="" type="checkbox"/> none	<input type="checkbox"/> Stainless Steel	<input type="checkbox"/> Teflon	<input type="checkbox"/> PVC	
Filter:	<input checked="" type="checkbox"/> none	<input type="checkbox"/> In-line	<input type="checkbox"/> Vacuum	<input type="checkbox"/> Syringe	
Equipment left in well:	<input type="checkbox"/> none	<input type="checkbox"/> Bailer	<input checked="" type="checkbox"/> Tubing	<input type="checkbox"/> Datalogger	

WELL DEVELOPMENT / PURGING

Purge Volumes

Casing In. Diam.	1/2"	1"	1 1/4"	1 1/2"	2"	4"	6"
Vol (L/m of casing)* (C)	0.1	0.5	0.8	1.1	2.0	8.1	18.2

*double for filter pack

One well volume ((A - B) * C): 6.9 x 6 = 41.4 litres

Purge start time: 9:40

Purge end time: 10:05 10:24

Pump inlet depth: _____ m bTOC

TIME	VOL REMOVED	Water Level (m bTOC)	TEMP (°C)	pH (UNITS)	SP.COND. (uS/cm)	REDOX (mV)	DIS.O ₂ (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria (ASTM D4448-01)			+/- 0.2	+/- 0.1	+/- 3%	+/- 10	+/- 10%	Colour, turbidity, odour etc should be stable
9:41	6	4.187	0.6	7.88	502.1	146.2	4.04	Turbid, Brown, no odor, no sheen
9:45	12	-	0.6	7.52	502.6	125.5	3.96	" "
9:47	18	4.187	0.6	7.31	499.0	108.9	4.44	" "
9:49	24	-	0.6	7.27	502.1	102.3	4.16	" "
9:51	30	4.19	0.6	7.23	501.4	95.4	3.90	" "
9:53	36	-	0.6	7.22	499.5	91.3	4.29	" "
9:55	42	4.19	0.6	7.20	502.2	87.5	3.98	" "
9:57	48	-	0.6	7.20	498.6	85.0	4.03	" "
9:59	54	4.19	0.6	7.18	503.2	80.9	3.72	" "
10:01	60	-	0.6	7.17	502.6	79.9	3.66	" "
10:03	66	4.19	0.6	7.18	499.3	77.3	3.94	" "
10:05	72	-	0.6	7.19	500.4	74.6	4.01	" "

SAMPLING Water Odour: No Yes (describe): _____ Sheen No Yes (describe): _____

Turbidity: _____ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

QA/QC Samples: Yes No QA/QC Type and ID: _____

NOTES (consumables, well condition, pictures, etc)

10:18	78	-	0.6	7.21	502.1	61.3	4.02	Turbid/Brown/no odor
10:20	84	-	0.6	7.22	502.5	60.2	3.93	
10:22	90	4.19	0.6	7.19	503.8	58.9	3.63	
10:24	96	-	0.5	7.19	502.2	58.7	3.71	

SCN: - @ Bottle count: 0

Photo # : 1277/10 1279/1280

Reviewed by: _____



Groundwater Development, Purging and Sampling Sheet

Development
 Purge/Sample

WELL ID: MW20-03
SITE: Lot 1059
WEATHER: Clear
TEMPERATURE: 5

PROJECT NO.: 19131856
FIELD PERSONNEL: KB/ER
DATE: 27 April
TIME: 19:26

Depth to Bottom of Well Below Top of Casing (A): 5.755 (meters)
Depth to Water Below Top of Casing (B): 3.012 (meters)
Water Column: 2.743 (meters)
Stick-up: _____ (meters)
Easting: 577158 Northing: 7103413
Well headspace: _____ ppm
Completion: Flushmount Stickup monument
Well locked: Yes No

FIELD EQUIPMENT

Field Meters Calibrated:

Pump: none Waterra Submersible Peristaltic Bladder
Bailer: none Stainless Steel Teflon PVC
Filter: none In-line Vacuum Syringe
Equipment left in well: none Bailer Tubing Datalogger

WELL DEVELOPMENT / PURGING

Purge Volumes

Casing In. Diam.	1/2"	1"	1 1/4"	1 1/2"	2"	4"	6"
Vol (L/m of casing)* (C)	0.1	0.5	0.8	1.1	<u>2.0</u>	8.1	18.2

*double for filter pack

One well volume ((A - B) * C): 5.4 x 6 = 33 litres
Purge start time: 19:27
Purge end time: _____
Pump inlet depth: _____ m bTOC

TIME	VOL REMOVED	Water Level (m bTOC)	TEMP (°C)	pH (UNITS)	SP.COND. (uS/cm)	REDOX (mV)	DIS.O ₂ (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria (ASTM D4448-01)			+/- 0.2	+/- 0.1	+/- 3%	+/- 10	+/- 10%	Colour, turbidity, odour etc should be stable
19:29	5	—	8.3	8.18	458.8	146.8	4.43	Turbid, brown, no odor
19:30	10	—	7.9	7.88	431.1	128.0	5.91	" "
19:32	15	3.03	7.7	7.77	450.2	106.9	5.98	" "
19:33	20	—	6.6	7.76	440.9	86.9	5.82	" "
19:34	25	—	6.7	7.81	443.6	82.7	6.40	" "
19:36	30	3.02	6.1	7.83	441.8	75.5	6.37	" "
19:37	35	—	6.2	7.82	451.0	68.7	7.01	" "
19:38	40	—	5.7	7.84	442.3	66.7	7.03	" "
19:39	45	—	5.8	7.82	445.4	64.9	7.11	" "

SAMPLING Water Odour: No Yes (describe): _____ Sheen No Yes (describe): _____
Turbidity: _____ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

QA/QC Samples: Yes No QA/QC Type and ID: _____

NOTES (consumables, well condition, pictures, etc)

Photo #1287

SCN: - @

Bottle count:

Reviewed by:



Groundwater Development, Purging and Sampling Sheet

Development
 Purge/Sample

WELL ID: MW20-02

PROJECT NO.: 19131856

SITE: Lot 1059

FIELD PERSONNEL: KB MM

WEATHER: Sunny

DATE: 28 May 20

TEMPERATURE: 10

TIME: 815

Depth to Bottom of Well Below Top of Casing (A): <u>7.61</u> (meters)	Easting: <u>576917</u>	Northing: <u>7103562</u>
Depth to Water Below Top of Casing (B): <u>3.290</u> (meters)	Well headspace: <u>1.5</u> ppm	
Water Column: <u>4.320</u> (meters)	Completion: <input checked="" type="checkbox"/> Flushmount <input type="checkbox"/> Stickup monument	
Stick-up: <u>0.62</u> (meters)	Well locked: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

FIELD EQUIPMENT

Field Meters Calibrated: _____

Pump:	<input type="checkbox"/> none	<input type="checkbox"/> Waterra	<input type="checkbox"/> Submersible	<input checked="" type="checkbox"/> Peristaltic	<input type="checkbox"/> Bladder
Bailer:	<input checked="" type="checkbox"/> none	<input type="checkbox"/> Stainless Steel	<input type="checkbox"/> Teflon	<input type="checkbox"/> PVC	
Filter:	<input type="checkbox"/> none	<input checked="" type="checkbox"/> In-line	<input type="checkbox"/> Vacuum	<input type="checkbox"/> Syringe	
Equipment left in well:	<input type="checkbox"/> none	<input type="checkbox"/> Bailer	<input checked="" type="checkbox"/> Tubing	<input type="checkbox"/> Datalogger	

WELL DEVELOPMENT / PURGING

Purge Volumes

Casing In. Diam.	1/2"	1"	1 1/4"	1 1/2"	2"	4"	6"	*double for filter pack
Vol (L/m of casing)* (C)	0.1	0.5	0.8	1.1	2.0	8.1	18.2	

One well volume ((A - B) * C): 9 x 3 = 27 litres

Purge start time: 9:02

Purge end time: _____

Pump inlet depth: _____ m bTOC

TIME	VOL REMOVED	Water Level (m bTOC)	TEMP (°C)	pH (UNITS)	SP.COND. (uS/cm)	REDOX (mV)	DIS.O ₂ (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria (ASTM D4448-01)								
			± 0.2	✓	± 0.1	✓	± 3%	✓
			± 10	✓	± 10%	✓		Colour, turbidity, odour etc should be stable
9:07	2	3.292	1.8	7.22	700.0	138.7	0.50	cloudy, Greyish brown
9:12	4		1.8	7.23	698.0	113.0	0.39	" "
9:17	6	3.288	1.6	7.23	694.6	102.8	0.34	" "
9:22	8	3.288	1.6	7.22	695.4	98.5	0.33	" "
9:26	10	3.288	1.7	7.21	690.8	94.2	0.32	" "
Stabilized								

SAMPLING Water Odour: No Yes (describe): _____ Sheen: No Yes (describe): _____

Turbidity: _____ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

QA/QC Sample/s: Yes No QA/QC Type and ID: 10171-02 duplicate

NOTES (consumables, well condition, pictures, etc)

- Photo # 1801

SCN: 10171-01 @ 9:30

Bottle count: 7

Reviewed by: _____



Groundwater Development, Purging and Sampling Sheet

Development
 Purge/Sample

WELL ID: MW20-03

PROJECT NO.: 19131856

SITE: Lot 1059

FIELD PERSONNEL: KB/MM

WEATHER: clear / Sunny

DATE: 28 May 20

TEMPERATURE: 10

TIME: 9:50

Depth to Bottom of Well Below Top of Casing (A): <u>5.679</u> (meters)	Easting: <u>577159</u>	Northing: <u>7103407</u>
Depth to Water Below Top of Casing (B): <u>2.436</u> (meters)	Well headspace: <u>0.0</u> ppm	
Water Column: <u>3.243</u> (meters)	Completion: <input type="checkbox"/> Flushmount <input checked="" type="checkbox"/> Stickup monument	
Stick-up: <u>0.66</u> (meters)	Well locked: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

FIELD EQUIPMENT

Field Meters Calibrated: _____

Pump: <input type="checkbox"/> none <input checked="" type="checkbox"/> Waterra <input type="checkbox"/> Submersible <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder
Bailer: <input checked="" type="checkbox"/> none <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Teflon <input type="checkbox"/> PVC
Filter: <input type="checkbox"/> none <input checked="" type="checkbox"/> In-line <input type="checkbox"/> Vacuum <input type="checkbox"/> Syringe
Equipment left in well: <input type="checkbox"/> none <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Tubing <input type="checkbox"/> Datalogger

WELL DEVELOPMENT / PURGING

Purge Volumes

Casing In. Diam.	1/2"	1"	1 1/4"	1 1/2"	2"	4"	6"
Vol (L/m of casing)* (C)	0.1	0.5	0.8	1.1	2.0	8.1	18.2

*double for filter pack

One well volume ((A - B) * C): 34 * 10 = 340 litres

Purge start time: 10:00

Purge end time: _____

Pump inlet depth: ~5 m bTOC

TIME	VOL REMOVED	Water Level (m bTOC)	TEMP (°C)	pH (UNITS)	SP.COND. (uS/cm)	REDOX (mV)	DIS.O ₂ (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria (ASTM D4448-01)			±0.2	±0.1	±3%	±10	±10%	Colour, turbidity, odour etc should be stable
10:04	1	2.44	1.7	7.72	455.5	89.9	12.35	clear no odour
10:07	2	2.44	1.7	7.64	454.3	92.0	11.68	" "
10:10	3	2.44	1.8	7.63	453.9	93.0	11.29	" "
10:12	4	2.44	1.8	7.67	454.6	90.8	11.18	" "
10:15	5	2.44	1.8	7.69	454.1	90.1	10.95	" "
<u>Stabilized</u>								

SAMPLING Water Odour: No Yes (describe): _____ Sheen No Yes (describe): _____

Turbidity: _____ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

QA/QC Samples: Yes No QA/QC Type and ID: 10172-02 Field Blank

NOTES (consumables, well condition, pictures, etc)

photo # 1802

SCN: 10172-01@ 10:15 Bottle count: _____

FB = 10172-00

Reviewed by: _____

APPENDIX D

**Laboratory Certificate of Analysis
and Chain of Custody Forms**



CERTIFICATE OF ANALYSIS

<p>Work Order : WR2000176</p> <p>Amendment : 1</p> <p>Client : Golder Associates Ltd.</p> <p>Contact : Karlee Bendera</p> <p>Address : # 203, 170 Titanium Way Whitehorse YT Canada Y1A 0G1</p> <p>Telephone : 867 633 6076</p> <p>Project : 19131856/3000</p> <p>PO : ----</p> <p>C-O-C number : 17-662268</p> <p>Sampler : KB/ER</p> <p>Site : ----</p> <p>Quote number : Payment Terms for Finance</p> <p>No. of samples received : 9</p> <p>No. of samples analysed : 6</p>	<p>Page : 1 of 8</p> <p>Laboratory : Whitehorse - Environmental</p> <p>Account Manager : Amber Springer</p> <p>Address : #12 151 Industrial Road Whitehorse YT Canada Y1A 2V3</p> <p>Telephone : +1 867 668 6689</p> <p>Date Samples Received : 30-Apr-2020 13:00</p> <p>Date Analysis Commenced : 05-May-2020</p> <p>Issue Date : 25-May-2020 11:32</p>
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Alex Drake	Lab Analyst	Inorganics, Edmonton, Alberta
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Brieanna Allen	Department Manager - Organics	Organics, Burnaby, British Columbia
Evan Ben-Oliel	Metal Analyst	Metals, Burnaby, British Columbia
Lisa Watt	Lab Supervisor - Environmental	Metals, Edmonton, Alberta
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
%	percent
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in reports identified as "**Preliminary Report**" are considered authorized for use.

Workorder Comments

Hexavalent Chromium data is included for WR2000176 - 1 & 9.



Analytical Results

Sub-Matrix: Soil					Client sample ID				
(Matrix: Soil/Solid)					BH20-03A SOIL	BH20-04A SOIL	BH20-04B SOIL	BH20-04C SOIL	BH20-10B SOIL
Client sampling date / time					25-Apr-2020 09:50	25-Apr-2020 13:20	25-Apr-2020 13:20	25-Apr-2020 14:00	27-Apr-2020 17:50
Analyte	CAS Number	Method	LOR	Unit	WR2000176-001	WR2000176-003	WR2000176-004	WR2000176-005	WR2000176-008
					Result	Result	Result	Result	Result
Physical Tests									
moisture	----	E144	0.25	%	14.3	----	----	10.1	10.0
pH (1:2 soil:water)	----	E108	0.10	pH units	8.07	8.12	8.21	8.11	8.78
Metals									
aluminum	7429-90-5	E440	50	mg/kg	26300	14200	15300	10100	31200
antimony	7440-36-0	E440	0.10	mg/kg	11.7	0.90	1.03	0.75	0.59
arsenic	7440-38-2	E440	0.10	mg/kg	4.18	10.5	11.8	9.36	3.52
barium	7440-39-3	E440	0.50	mg/kg	98.2	227	150	192	140
beryllium	7440-41-7	E440	0.10	mg/kg	0.17	0.21	0.24	0.33	0.12
bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20
boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
cadmium	7440-43-9	E440	0.020	mg/kg	0.129	0.228	0.227	0.246	0.188
calcium	7440-70-2	E440	50	mg/kg	4020	2600	3370	2810	3370
chromium	7440-47-3	E440	0.50	mg/kg	242	41.1	41.5	35.0	125
cobalt	7440-48-4	E440	0.10	mg/kg	163	12.3	19.2	8.90	22.4
copper	7440-50-8	E440	0.50	mg/kg	49.0	46.0	46.2	34.4	122
iron	7439-89-6	E440	50	mg/kg	36300	25300	26600	19800	32900
lead	7439-92-1	E440	0.50	mg/kg	492	4.57	6.87	4.91	1.93
lithium	7439-93-2	E440	2.0	mg/kg	25.7	14.0	16.1	13.0	21.6
magnesium	7439-95-4	E440	20	mg/kg	26800	12000	12200	7230	35600
manganese	7439-96-5	E440	1.0	mg/kg	600	503	512	348	1090
mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
molybdenum	7439-98-7	E440	0.10	mg/kg	3.58	2.27	2.26	2.50	0.89
nickel	7440-02-0	E440	0.50	mg/kg	77.2	27.4	26.9	25.5	62.0
phosphorus	7723-14-0	E440	50	mg/kg	281	562	770	666	192
potassium	7440-09-7	E440	100	mg/kg	160	420	460	530	120
selenium	7782-49-2	E440	0.20	mg/kg	<0.20	0.41	0.39	0.41	<0.20
silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
sodium	7440-23-5	E440	50	mg/kg	117	86	120	109	52
strontium	7440-24-6	E440	0.50	mg/kg	16.4	21.4	25.0	23.4	11.5
sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	<1000	<1000	<1000



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BH20-03A SOIL	BH20-04A SOIL	BH20-04B SOIL	BH20-04C SOIL	BH20-10B SOIL
Client sampling date / time					25-Apr-2020 09:50	25-Apr-2020 13:20	25-Apr-2020 13:20	25-Apr-2020 14:00	27-Apr-2020 17:50	
Analyte	CAS Number	Method	LOR	Unit	WR2000176-001	WR2000176-003	WR2000176-004	WR2000176-005	WR2000176-008	
					Result	Result	Result	Result	Result	
Metals										
thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	
tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	
titanium	7440-32-6	E440	1.0	mg/kg	1220	342	364	248	513	
tungsten	7440-33-7	E440	0.50	mg/kg	107	4.18	6.95	4.52	<0.50	
uranium	7440-61-1	E440	0.050	mg/kg	0.364	0.606	0.650	0.602	0.076	
vanadium	7440-62-2	E440	0.20	mg/kg	95.7	52.0	54.4	39.2	104	
zinc	7440-66-6	E440	2.0	mg/kg	71.8	72.1	70.5	60.0	42.4	
zirconium	7440-67-7	E440	1.0	mg/kg	1.3	1.9	2.0	2.0	<1.0	
Speciated Metals										
chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	----	----	----	----	
chromium, trivalent [Cr III]	16065-83-1	EC535C	0.030	mg/kg	242	----	----	----	----	
Volatile Organic Compounds										
benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	----	----	<0.0050	<0.0050	
ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----	----	<0.015	<0.015	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.200	mg/kg	<0.200	----	----	<0.200	<0.200	
styrene	100-42-5	E611A	0.050	mg/kg	<0.050	----	----	<0.050	<0.050	
toluene	108-88-3	E611A	0.050	mg/kg	<0.050	----	----	<0.050	<0.050	
xylene, m+p-	179601-23-1	E611A	0.050	mg/kg	<0.050	----	----	<0.050	<0.050	
xylene, o-	95-47-6	E611A	0.050	mg/kg	<0.050	----	----	<0.050	<0.050	
xylenes, total	1330-20-7	E611A	0.075	mg/kg	<0.075	----	----	<0.075	<0.075	
BTEX, total	----	E611A	0.10	mg/kg	<0.10	----	----	<0.10	<0.10	
BTEX+Styrene, total	N/A	E611A	0.15	mg/kg	<0.15	----	----	<0.15	<0.15	
Volatile Organic Compounds Surrogates										
bromofluorobenzene, 4-	460-00-4	E611A	0.050	%	81.4	----	----	94.4	95.6	
difluorobenzene, 1,4-	540-36-3	E611A	0.050	%	88.4	----	----	105	103	
Hydrocarbons										
EPH (C10-C19)	----	E601A	200	mg/kg	<200	----	----	<200	<200	
EPH (C19-C32)	----	E601A	200	mg/kg	<200	----	----	<200	<200	
VHs (C6-C10)	----	E581.VH+F1	10	mg/kg	<10	----	----	<10	<10	
HEPHs	----	EC600A	200	mg/kg	<200	----	----	<200	<200	
LEPHs	----	EC600A	200	mg/kg	<200	----	----	<200	<200	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BH20-03A SOIL	BH20-04A SOIL	BH20-04B SOIL	BH20-04C SOIL	BH20-10B SOIL
Client sampling date / time					25-Apr-2020 09:50	25-Apr-2020 13:20	25-Apr-2020 13:20	25-Apr-2020 14:00	27-Apr-2020 17:50	
Analyte	CAS Number	Method	LOR	Unit	WR2000176-001	WR2000176-003	WR2000176-004	WR2000176-005	WR2000176-008	
					Result	Result	Result	Result	Result	
Hydrocarbons										
VPHs	----	EC580A	10	mg/kg	<10	----	----	<10	<10	
Hydrocarbons Surrogates										
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	5.0	%	80.7	----	----	82.0	83.1	
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	78.4	----	----	110	120	
Polycyclic Aromatic Hydrocarbons										
acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	<0.0050	----	----	<0.0050	<0.0050	
acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	<0.0050	----	----	<0.0050	<0.0050	
acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
anthracene	120-12-7	E641A-L	0.0040	mg/kg	<0.0040	----	----	<0.0040	<0.0040	
benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
benzo(b+j)fluoranthene	----	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
benzo(b+j+k)fluoranthene	----	E641A-L	0.015	mg/kg	<0.015	----	----	<0.015	<0.015	
benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
chrysene	218-01-9	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	<0.0050	----	----	<0.0050	<0.0050	
fluoranthene	206-44-0	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
phenanthrene	85-01-8	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
pyrene	129-00-0	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
quinoline	6027-02-7	E641A-L	0.010	mg/kg	<0.010	----	----	<0.010	<0.010	
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L	0.020	mg/kg	<0.010	----	----	<0.010	<0.010	
IACR (CCME)	----	E641A-L	0.15	mg/kg	<0.11	----	----	<0.11	<0.11	
Polycyclic Aromatic Hydrocarbons Surrogates										
acridine-d9	34749-75-2	E641A-L	0.010	%	88.1	----	----	77.5	87.3	
chrysene-d12	1719-03-5	E641A-L	0.010	%	91.6	----	----	85.2	89.9	



Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)					Client sample ID	BH20-03A SOIL	BH20-04A SOIL	BH20-04B SOIL	BH20-04C SOIL	BH20-10B SOIL
Client sampling date / time					25-Apr-2020 09:50	25-Apr-2020 13:20	25-Apr-2020 13:20	25-Apr-2020 14:00	27-Apr-2020 17:50	
Analyte	CAS Number	Method	LOR	Unit	WR2000176-001	WR2000176-003	WR2000176-004	WR2000176-005	WR2000176-008	
					Result	Result	Result	Result	Result	
Polycyclic Aromatic Hydrocarbons Surrogates										
naphthalene-d8	1146-65-2	E641A-L	0.010	%	94.2	----	----	90.8	94.3	
phenanthrene-d10	1517-22-2	E641A-L	0.010	%	93.4	----	----	88.4	94.2	

Please refer to the General Comments section for an explanation of any qualifiers detected.



Analytical Results

Sub-Matrix: Soil					Client sample ID	BH20-10C	----	----	----	----
(Matrix: Soil/Solid)						SOIL				
Client sampling date / time					27-Apr-2020	----	---	---	---	---
Analyte	CAS Number	Method	LOR	Unit	WR2000176-009	-----	-----	-----	-----	-----
					Result	---	---	---	---	---
Physical Tests										
moisture	----	E144	0.25	%	13.4	----	----	----	----	----
pH (1:2 soil:water)	----	E108	0.10	pH units	9.02	----	----	----	----	----
Metals										
aluminum	7429-90-5	E440	50	mg/kg	42800	---	---	---	---	---
antimony	7440-36-0	E440	0.10	mg/kg	<0.10	---	---	---	---	---
arsenic	7440-38-2	E440	0.10	mg/kg	0.81	---	---	---	---	---
barium	7440-39-3	E440	0.50	mg/kg	33.7	---	---	---	---	---
beryllium	7440-41-7	E440	0.10	mg/kg	<0.10	---	---	---	---	---
bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	---	---	---	---	---
boron	7440-42-8	E440	5.0	mg/kg	<5.0	---	---	---	---	---
cadmium	7440-43-9	E440	0.020	mg/kg	<0.020	---	---	---	---	---
calcium	7440-70-2	E440	50	mg/kg	2030	---	---	---	---	---
chromium	7440-47-3	E440	0.50	mg/kg	459	---	---	---	---	---
cobalt	7440-48-4	E440	0.10	mg/kg	30.2	---	---	---	---	---
copper	7440-50-8	E440	0.50	mg/kg	15.8	---	---	---	---	---
iron	7439-89-6	E440	50	mg/kg	41100	---	---	---	---	---
lead	7439-92-1	E440	0.50	mg/kg	0.52	---	---	---	---	---
lithium	7439-93-2	E440	2.0	mg/kg	28.2	---	---	---	---	---
magnesium	7439-95-4	E440	20	mg/kg	59300	---	---	---	---	---
manganese	7439-96-5	E440	1.0	mg/kg	688	---	---	---	---	---
mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	---	---	---	---	---
molybdenum	7439-98-7	E440	0.10	mg/kg	0.10	---	---	---	---	---
nickel	7440-02-0	E440	0.50	mg/kg	112	---	---	---	---	---
phosphorus	7723-14-0	E440	50	mg/kg	114	---	---	---	---	---
potassium	7440-09-7	E440	100	mg/kg	180	---	---	---	---	---
selenium	7782-49-2	E440	0.20	mg/kg	<0.20	---	---	---	---	---
silver	7440-22-4	E440	0.10	mg/kg	<0.10	---	---	---	---	---
sodium	7440-23-5	E440	50	mg/kg	<50	---	---	---	---	---
strontium	7440-24-6	E440	0.50	mg/kg	2.00	---	---	---	---	---
sulfur	7704-34-9	E440	1000	mg/kg	<1000	---	---	---	---	---
thallium	7440-28-0	E440	0.050	mg/kg	<0.050	---	---	---	---	---



Analytical Results

Sub-Matrix: Soil					Client sample ID	BH20-10C	----	----	----	----
(Matrix: Soil/Solid)						SOIL				
					Client sampling date / time	27-Apr-2020 18:10	----	----	----	----
Analyte	CAS Number	Method	LOR	Unit	WR2000176-009	-----	-----	-----	-----	-----
					Result	---	---	---	---	---
Metals										
tin	7440-31-5	E440	2.0	mg/kg	<2.0	----	----	----	----	----
titanium	7440-32-6	E440	1.0	mg/kg	892	----	----	----	----	----
tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	----	----	----	----	----
uranium	7440-61-1	E440	0.050	mg/kg	<0.050	----	----	----	----	----
vanadium	7440-62-2	E440	0.20	mg/kg	116	----	----	----	----	----
zinc	7440-66-6	E440	2.0	mg/kg	33.2	----	----	----	----	----
zirconium	7440-67-7	E440	1.0	mg/kg	<1.0	----	----	----	----	----
Speciated Metals										
chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	----	----	----	----	----
chromium, trivalent [Cr III]	16065-83-1	EC535C	0.030	mg/kg	459	----	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.



CERTIFICATE OF ANALYSIS

Work Order : **WR2000250**
Client : **Golder Associates Ltd.**
Contact : Karlee Bendera
Address : # 203, 170 Titanium Way
 Whitehorse YT Canada Y1A 0G1
Telephone : 867 633 6076
Project : 19131856/6000/6003
PO : ----
C-O-C number : 10171
Sampler : ----
Site : ----
Quote number : Payment Terms for Finance
No. of samples received : 2
No. of samples analysed : 2

Page : 1 of 7
Laboratory : Whitehorse - Environmental
Account Manager : Amber Springer
Address : #12 151 Industrial Road
 Whitehorse YT Canada Y1A 2V3
Telephone : +1 867 668 6689
Date Samples Received : 29-May-2020 10:25
Date Analysis Commenced : 03-Jun-2020
Issue Date : 08-Jun-2020 14:59

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Aaron Yu	Laboratory Analyst	Metals, Burnaby, British Columbia
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Brieanna Allen	Department Manager - Organics	Organics, Burnaby, British Columbia
Clarie Tejano		Metals, Burnaby, British Columbia
Jon Fisher	Department Manager - Inorganics	Metals, Waterloo, Ontario
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
-	No Unit
µg/L	micrograms per litre
mg/L	milligrams per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in reports identified as "**Preliminary Report**" are considered authorized for use.



Analytical Results

Sub-Matrix: Groundwater

Client sample ID

(Matrix: Water)

					10171-01	10171-02	----	----	----
Client sampling date / time					28-May-2020 09:30	28-May-2020 09:30	----	----	----
Analyte	CAS Number	Method	LOR	Unit	WR2000250-001	WR2000250-002	-----	-----	-----
					Result	Result	----	----	----
Physical Tests									
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L	321	326	----	----	----
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0019	0.0025	----	----	----
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00014	0.00013	----	----	----
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00024	0.00024	----	----	----
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0692	0.0704	----	----	----
beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	----	----	----
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	----	----	----
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	----	----	----
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000335	0.0000324	----	----	----
calcium, dissolved	7440-70-2	E421	0.050	mg/L	76.1	77.1	----	----	----
cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	----	----	----
chromium, dissolved	7440-47-3	E421.Cr-L	0.00010	mg/L	<0.00010	<0.00010	----	----	----
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00068	0.00067	----	----	----
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00050	0.00052	----	----	----
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.037	0.038	----	----	----
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	----	----	----
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0032	0.0033	----	----	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	31.8	32.5	----	----	----
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.229	0.235	----	----	----
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00181	0.00178	----	----	----
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00151	0.00156	----	----	----
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	----	----	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.09	1.13	----	----	----
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00068	0.00070	----	----	----
selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00112	0.000950	----	----	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.52	4.56	----	----	----
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	----	----	----
sodium, dissolved	7440-23-5	E421	0.050	mg/L	7.40	7.65	----	----	----



Analytical Results

Sub-Matrix: Groundwater

Client sample ID

(Matrix: Water)

					10171-01	10171-02	----	----	----
Client sampling date / time					28-May-2020 09:30	28-May-2020 09:30	---	---	---
Analyte	CAS Number	Method	LOR	Unit	WR2000250-001	WR2000250-002	-----	-----	-----
					Result	Result	---	---	---
Dissolved Metals									
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.380	0.384	----	----	----
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	28.0	27.6	----	----	----
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	----	----	----
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	----	----	----
thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	----	----	----
tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	----	----	----
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	----	----	----
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	----	----	----
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00142	0.00151	----	----	----
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	----	----	----
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0019	0.0021	----	----	----
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	----	----	----
dissolved mercury filtration location	----	EP509	-	-	Field	Field	----	----	----
dissolved metals filtration location	----	EP421	-	-	Field	Field	----	----	----
Speciated Metals									
chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.00050	mg/L	<0.00050	<0.00050	----	----	----
Volatile Organic Compounds									
benzene	71-43-2	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
bromodichloromethane	75-27-4	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
bromoform	75-25-2	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
carbon tetrachloride	56-23-5	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
chlorobenzene	108-90-7	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
chloroethane	75-00-3	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
chloroform	67-66-3	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
chloromethane	74-87-3	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dibromochloromethane	124-48-1	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichlorobenzene, 1,2-	95-50-1	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichlorobenzene, 1,3-	541-73-1	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichlorobenzene, 1,4-	106-46-7	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichloroethane, 1,1-	75-34-3	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichloroethane, 1,2-	107-06-2	E611C	0.50	µg/L	<0.50	<0.50	----	----	----



Analytical Results

Sub-Matrix: Groundwater

Client sample ID

(Matrix: Water)

					10171-01	10171-02	----	----	----
Client sampling date / time					28-May-2020 09:30	28-May-2020 09:30	---	---	---
Analyte	CAS Number	Method	LOR	Unit	WR2000250-001	WR2000250-002	-----	-----	-----
					Result	Result	---	---	---
Volatile Organic Compounds									
dichloroethylene, 1,1-	75-35-4	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichloroethylene, cis-1,2-	156-59-4	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichloromethane	75-09-2	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichloropropane, 1,2-	78-87-5	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichloropropylene, cis+trans-1,3-	542-75-6	E611C	0.75	µg/L	<0.75	<0.75	----	----	----
dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
ethylbenzene	100-41-4	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
styrene	100-42-5	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	µg/L	<0.20	<0.20	----	----	----
tetrachloroethylene	127-18-4	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
toluene	108-88-3	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
trichloroethane, 1,1,1-	71-55-6	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
trichloroethane, 1,1,2-	79-00-5	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
trichloroethylene	79-01-6	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
trichlorofluoromethane	75-69-4	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
vinyl chloride	75-01-4	E611C	0.40	µg/L	<0.40	<0.40	----	----	----
xylene, m+p-	179601-23-1	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
xylene, o-	95-47-6	E611C	0.50	µg/L	<0.50	<0.50	----	----	----
xylenes, total	1330-20-7	E611C	0.75	µg/L	<0.75	<0.75	----	----	----
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611C	0.50	%	92.7	95.3	----	----	----
difluorobenzene, 1,4-	540-36-3	E611C	0.50	%	102	99.9	----	----	----
Hydrocarbons									
EPH (C10-C19)	----	E601A	250	µg/L	<250	<250	----	----	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	<250	----	----	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	----	----	----
HEPHw	----	EC600A	250	µg/L	<250	<250	----	----	----



Analytical Results

Sub-Matrix: Groundwater					Client sample ID	10171-01	10171-02	----	----	----
(Matrix: Water)										
Client sampling date / time					28-May-2020 09:30	28-May-2020 09:30	---	---	---	---
Analyte	CAS Number	Method	LOR	Unit	WR2000250-001	WR2000250-002	-----	-----	-----	-----
					Result	Result	---	---	---	---
Hydrocarbons										
LEPHw	----	EC600A	250	µg/L	<250	<250	----	----	----	----
VPHw	----	EC580A	100	µg/L	<100	<100	----	----	----	----
Hydrocarbons Surrogates										
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	50	%	100	98.2	----	----	----	----
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	91.0	116	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
acridine	260-94-6	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	<0.0050	----	----	----	----
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	<0.015	----	----	----	----
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	<0.0050	----	----	----	----
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	0.033	0.037	----	----	----	----
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	0.059	0.063	----	----	----	----
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	<0.050	----	----	----	----
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	<0.020	----	----	----	----
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	<0.010	----	----	----	----
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	<0.050	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
acridine-d9	34749-75-2	E641A	0.010	%	96.5	103	----	----	----	----
chrysene-d12	1719-03-5	E641A	0.010	%	98.2	100.0	----	----	----	----
naphthalene-d8	1146-65-2	E641A	0.010	%	91.2	95.7	----	----	----	----



Analytical Results

Sub-Matrix: Groundwater

(Matrix: Water)

					Client sample ID	10171-01	10171-02	----	----	----
					Client sampling date / time	28-May-2020 09:30	28-May-2020 09:30	---	---	---
Analyte	CAS Number	Method	LOR	Unit	WR2000250-001	WR2000250-002	-----	-----	-----	
					Result	Result	---	---	---	
Polycyclic Aromatic Hydrocarbons Surrogates										
phenanthrene-d10	1517-22-2	E641A	0.010	%	104	110	----	----	----	

Please refer to the General Comments section for an explanation of any qualifiers detected.



CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST


No. 10171 page 1 of 1

200 - 2920 Virtual Way
 Vancouver, British Columbia, Canada V5M 0C4
 Telephone (604) 296-4200 Fax (604) 298-5253

Project Number: 19131856/6000/6003		Laboratory Name: ALS	
Short Title: 4G CS Lot 1059		Golder Contact: Karlee	Address: 12-151 Industrial
Golder E-mail Address 1: khendera@golder.com	Golder E-mail Address 2: Abruemmer@golder.com	Telephone/Fax:	Contact: Jesse

Office Name: Whitehorse					EQuIS Facility Code: 212928698 EQuIS upload: <input checked="" type="checkbox"/>					Analyses Required									
Turnaround Time: <input type="checkbox"/> 24 hr <input type="checkbox"/> 48 hr <input type="checkbox"/> 72 hr <input checked="" type="checkbox"/> Regular (5 Days)					Criteria: <input type="checkbox"/> CSR <input type="checkbox"/> CCME <input type="checkbox"/> BC Water Quality <input type="checkbox"/> Other														
Note: Final Reports to be issued by e-mail					Quote No.:														
Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	LEPH/HEPH/PAH	BTEX/VPH/VOC	Dissolved Metals	Dissolved Hg	Dissolved Speciate	Chloride	RUSH (Select TAT above)	Remarks (over)	
10171-01	MW20-N			WG	28/05/20	9:30		FD	10171-02	7	X	X	X	X	X				
10171-02				WG	28/05/20	9:30		FDA	10171-01	7	X	X	X	X	X				
-03																			
-04																			
-05																			
-06																			
-07																			
-08																			
-09																			
-10																			
-11																			
-12																			

Whitehorse
 Work Order Reference
WR2000250



Telephone: +1 867 668 6689

Sampler's Signature: <i>[Signature]</i>	Relinquished by: Signature: <i>[Signature]</i>	Company: Golder	Date: 29/05/20	Time: 10:20	Received by: Signature: <i>[Signature]</i>	Company:
Comments:	Method of Shipment:	Waybill No.:	Received for Lab by:		Date: 29/05/20	Time: 10:15
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C): 10	Cooler opened by: JG	Date: 1 June	Time: 9:30 PM

WHITE: Golder Copy YELLOW: Lab Copy

4, 5, 5°C
 Ice pack USED



golder.com